



Fungi on wild seeds and fruits

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Abstract

This paper reviews and determines the fungi growing on seeds and fruits of wild plants in various habitats. Such fungi colonise a wide range of substrates with most reported from cones, cupules, and leguminous pods that are high in cellulose and lignin content. There are 1348 fungal species (belonging to 230 families and 609 genera) reported from wild seeds and fruits in 84 countries, listed in this paper. Of these, 300 fungi were described from wild seeds and fruit substrates. Members of the Fabaceae support the highest number of taxa, namely 19% of the novel wild fruit fungi. Twenty-eight genera, including 5 fossil fungal genera have been described from wild seeds and fruits: *Agarwalomyces*, *Amorocoelophoma*, *Anisogenispora*, *Archephoma*, *Centrolepidosporium*, *Cylindroaseptospora*, *Cylindromyces*, *Davidhawksworthia*, *Delonicicola*, *Discotubeufia*, *Glaxoa*, *Kionocephala*, *Leucaenicola*, *Naranus*, *Neolindgomyces*, *Pleohelicoon*, *Quercicola*, *Remotididymella*, *Repetoblastiella*, *Restilago*, *Soloacrosporiella*, *Strobiloscypha* and *Tainosphaeria*. *Archephoma*, *Meniscoideisporites*, *Palaeodiplodites*, *Palaeopericonia* and

Xylohyphites are the new fossil fungal genera. Fungal asexual morphs predominate on wild seeds and fruits rather than the sexual morphs. The dominant fungal genera on wild seeds and fruits include *Alternaria*, *Aspergillus*, *Candida*, *Chaetomium*, *Cladosporium*, *Colletotrichum*, *Curvularia*, *Diaporthe*, *Drechslera*, *Fusarium*, *Mucor*, *Penicillium*, *Pestalotiopsis*, *Restiosporium*, *Rhizopus*, *Talaromyces*, *Trichoderma* and *Xylaria*. Certain assemblages of fungi have specific and distinct relationships with their hosts, especially *Xylaria* species (e.g., *Xylaria magnoliae* on *Magnolia* fruits; *X. xanthinovelutina* (= *X. ianthino-velutina*) on Fabaceae pods; *X. carpophila* on *Fagus* cupules; *X. persicaria* on liquidambar fruits). Whether these species occur as endophytes and become saprobes following fruit fall requires further investigation. In this study, we also made several sexual morph collections of sordariomycetous taxa from different seed and fruit substrates mainly from Thailand, with a few from the UK. These include 15 new species, 13 new host records and 1 new geographical record. The new species are described and illustrated.

Keywords – 15 new taxa – forest floor – fructicolous – pathogens – saprobes – seminiculous

Ascomycota

Sordariomycetes O.E. Erikss. & Winka

Amphisphaeriales D. Hawksw. & O.E. Erikss.

Beltraniaceae Nann.

Beltraniella fertilis Heredia, R.M. Arias, M. Reyes & R.F. Castañeda, new host record

Chaetosphaeriales Huhndorf et al.

Chaetosphaeriaceae Locq.

Dictyochaeta coryli R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Dictyochaeta lithocarpi R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Menisporopsis theobromae S. Hughes, new host record

Diaporthales Nannf.

Cytosporaceae Fr.

Cytospora diopuiensis Q.J. Shang, K.D. Hyde & J.K. Liu, new host record

Diaporthaceae Höhn. ex Wehm.

Diaporthe delonicis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Hypocreales Lindau

Bionectriaceae Samuels & Rossman

Clonostachys rogersoniana Schroers, new host record

Clonostachys rosea (Link) Schroers, Samuels, Seifert & W. Gams, new host record

Clonostachys swieteniae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Myrotheciomycetaceae Crous

Trichothecium roseum (Pers.) Link, Mag. Gesell. naturf. Freunde, new host record

Nectriaceae Tul. & C. Tul.

Fusarium cassiae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fusarium magnoliae-champaca R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fusarium salinense Sand.-Den., Guarnaccia & Polizzi, new host and new geographical record

Fusarium sp.

Fusicolla cassiae-fistulae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fusicolla siamensis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Gliocladiopsis aquaticus Y.Z. Lu, R.H. Perera & K.D. Hyde, new host record

Gliocladiopsis tenuis (Bugnic.) Crous & M.J. Wingf., new host record
Gliocladiopsis swieteniae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.
Macronectria jungneri (Henn.) Salgado & P. Chaverri, new host record
Murinectria pseudotrichia (Schwein) M. Niranjana and V.V. Sarma, new host record
Neocosmospora magnoliae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.
Sarcopodium durantae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.
Sarcopodium flocculentum (Henn. & E. Nyman) Pennycook & P.M. Kirk, new host record
Volutella delonicis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Xylariales Nannf.

Diatrypaceae Nitschke

Allodiatrype thailandica (R.H. Perera, Jian K. Liu & K.D. Hyde) Kanta & K.D. Hyde, new host record

Hypoxylaceae DC.

Hypoxylon delonicis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Xylariaceae Tul. & C. Tul.

Xylaria arbuscula Sacc.

Xylaria fabacearum R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Xylaria fabaceicola R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Leotiomycetes O.E. Erikss. & Winka

Helotiales Nannf. ex Korf & Lizoň

Helotiales sp.

Lachnaceae Raitv.

Lachnum sp.

Introduction

Seeds are produced by spermatophytes of both angiosperms and gymnosperms. Angiosperm seeds originate from a hard or fleshy structure known as a fruit which also encloses the seeds. However, in gymnosperms, there is no specific biological structure developed to enclose the seeds (<http://pediaa.com/difference-between-fruit-and-seed/>). Plants have evolved various mechanisms for the dispersal of mature seeds, which have the potential to produce new individuals (Bewle & Black 1994).

There is a great diversity in the form and structure of seed and fruits, such as, grains, cones, acorns, berries, drupes, capsules, seed pods, nuts, nut cupules, caryopses, and nutlets (fruits of restiads or sedges). Fruit cases, such as nut cupules are considered as fruits in this paper. Cupules of beech (*Fagus* spp.) are a woody substrate, containing lignocellulose and similar to lignocellulose composition of coarse woody debris (Fukasawa et al. 2012). Leguminous pods also are rich in cellulose, hemicelluloses and lignin (Paula et al. 2011). Cones, which protect the seeds during development, are the reproductive organs of coniferous plants (Kilic et al. 2010). They consist of an axis with surrounding scales, which are rich in cellulose, hemicellulose (mannose, galactose, xylose) and lignin (Fogel & Cromack 1977, Kilic et al. 2010). Nuts, kernels of chestnut, hazelnut, walnut and oak are diverse in their protein, carbohydrate and fat content, while some are rich in phosphorus (eg. hazelnut, hickory nut, and black walnut) (Wainio & Forbes 1941). Nut shells are rich in lignin, cellulose and hemicelluloses (Vellingiri et al. 2014, Zhai et al. 2015). Fruits (achenes, pomes, berries and drupes) comprise mostly carbohydrates, some are high in lignin and cellulose, and others are rich in protein and fat, mainly because of their seeds (Wainio & Forbes 1941). Acorns such as red oak, rock chestnut oak, and scrub oak and, some edible wild fruits (eg.

chokeberries, sumac berries, blackhaw and mountain ash berries) are high in tannin content (Wainio & Forbes 1941). Moreover, seeds such as those of legumes and cereals are major food sources and contain storage reserves of protein, starch and oil (Bewle & Black 1994, Shimada 2001, Ragaee et al. 2006).

History of studies of wild seed/fruit fungi

Around the world the forest floor is seasonally covered by a carpet of native seeds and fruits, which are colonised by a wide range of endophytic, saprobic and pathogenic fungi (Rogerson & Samuels 1992, Morais et al. 1995, Rogers et al. 2002, Somrithipol et al. 2002a, b, Udayanga et al. 2013, Perera et al. 2018a).



Figure 1 – Fabaceae fruits on the forest floor in Thailand (a–g) and Taiwan (h). a *Cassia fistula*. b Fabaceae sp. c *Delonix regia*. d *Samanea saman*. e *Adenocalymma pterocarpus*. f *Cassia grandis*. g *Entada* sp. h *Mucuna macrocarpa*.

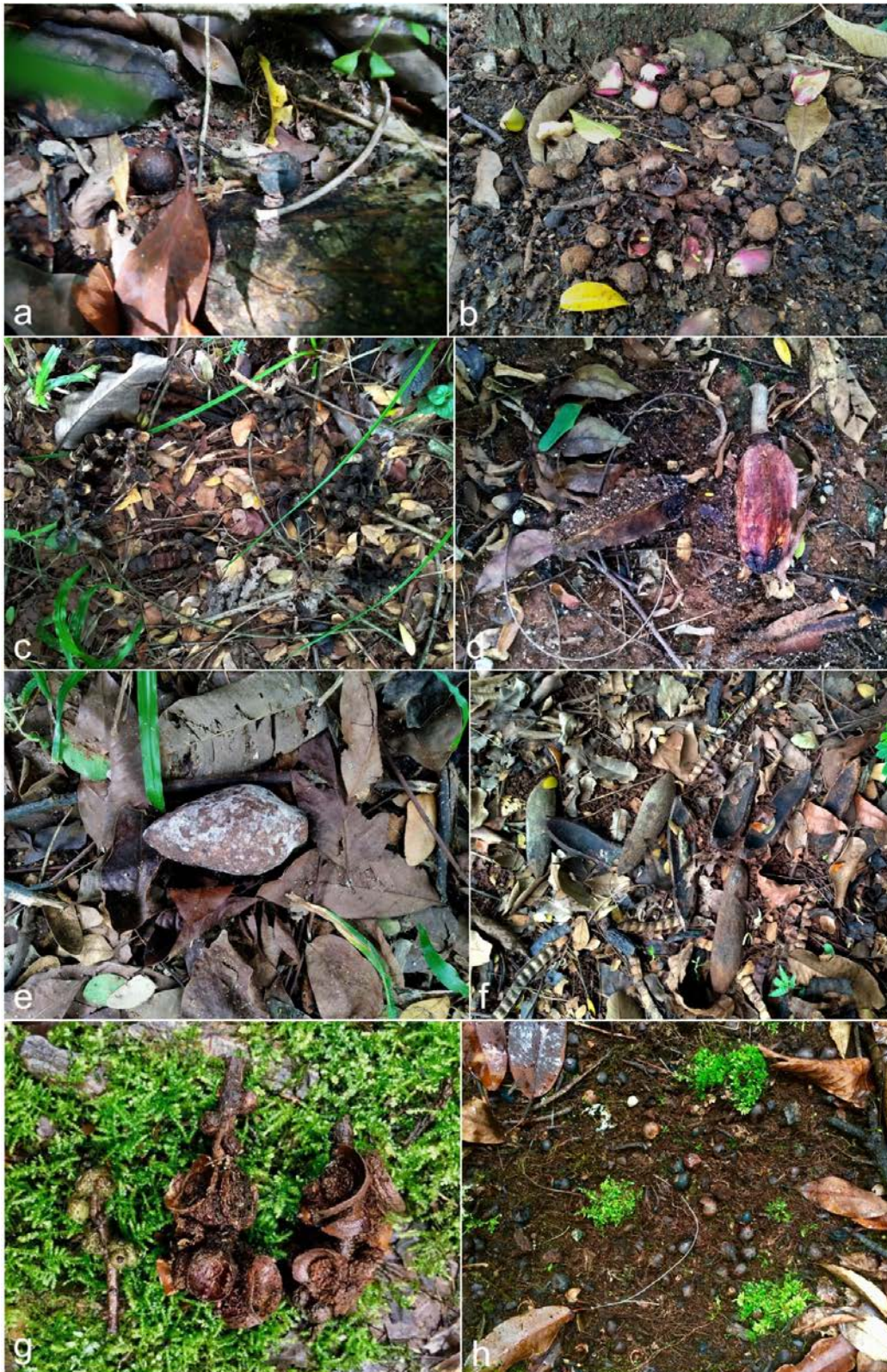


Figure 2 – Seeds and fruits on the forest floor in Thailand (a–f) and China (g, h). a Seed of *Lithocarpus* sp. b Immature fruits of *Couroupita guianensis* (cannonball tree). c Fruits of *Magnolia champaca*. d–f *Swietenia mahagoni* (d placenta with seeds, e fruit, f fruit outer carpels). g Unidentified fruits. h Unidentified seeds.

Few studies have been undertaken to document fungal groups from wild seeds and fruits, when compared to other plant substrates, e.g. wood, culms, leaves and commercial seeds and fruits (Kasai et al. 1995, Nirenberg & Aoki 1997, Vujanovic et al. 2000, Yli-Mattila et al. 2009, Weir et

al. 2012, Udayanga et al. 2013, Rashmi et al. 2019). Hyde et al. (2015) acknowledged that the taxonomy, ecology, and distribution of fruit and seed inhabiting fungi are poorly studied in both temperate and tropical areas. Previous research has mainly targeted postharvest fungi, those responsible for economic losses of cereals and edible fruits (Tang et al. 2003a, Neergaard 2017). However, seed and fruit inhabiting fungi of conifers and eucalyptus species has been investigated broadly as they have been widely introduced as exotic timber trees in plantations (Kasai et al. 1995, Vujanovic et al. 2000, Lupo et al. 2001, Palm 2001, Wingfield et al. 2001, Desprez-Loustau 2009). Most of the early research focused on endophytic isolations and identification of seed-borne pathogens (Anderson 1986, Mittal et al. 1990). Hence, wild seed and fruit fungi are not a well-studied group.

An extensive study of dothideomycetous fungi associated with wild seeds and fruits in selected areas of Thailand, UK and China was carried out by Jayasiri et al. (2019), who introduced 58 new taxa. Fukasawa et al. (2012) and Carré (1964) surveyed fungi on beech cupule litter in Japan and the UK. Tang et al. (2003a) examined fruit samples from 18 native plant species yielding 101 fungal taxa in Hong Kong. Another survey in Thailand by Somrithipol et al. (2002b) investigated fungi on tropical forest fruit of *Delonix regia* and identified 70 fungi. Ten fungal species belonging to Ascomycota were isolated from cone scales and seeds of 28 *Pinus* hosts in East Asia, Europe and North America, and Canada (Vujanovic et al. 2000). In their study, *Sphaeropsis sapinea*, *Herpotrichia juniperi*, '*Phomopsis*' *conorum*, *Truncatella hartigii*, *Tubercularia* sp. and *Valsa* spp. were recognised as dominant pathogens of *Pinus* (Vujanovic et al. 2000). A fungal succession study on *Pinus densiflora* cones on a forest floor investigated the early decomposition process in Japan, and identified 31 taxa (Kasai et al. 1995). Pandey & Nimmi (1990) isolated 48 fungal species from *Pinus roxburghii* seeds collected from a forest in India and observed that the predominant species in ungerminated seeds are *Alternaria* and *Fusarium* spp. Anita et al. (1999) and Anita & Sridhar (1999) reported a number of endophytic fungi from seeds and pods of mangrove wild legumes (*Canavalia cathartica* and *Sesbania bispinosa*) in Southwest coast of India. Lupo et al. (2001) studied endophytic fungi in capsules and seeds of *Eucalyptus globulus* in Uruguay and found 18 taxa from unopened capsules (cut off from the tree) and ten from seeds. Seed-borne fungi associated with *Podocarpus falcatus* and *Prunus africana* in Afromontane rain forests of Ethiopia were investigated by Gure (2004), and identified four Botryosphaeriaceae taxa with one new species, *Diplodia rosulata*. Yeasts (*Candida* spp., *Debaryomyces* spp., *Kloeckera* spp., *Pichia* spp.) colonizing the fallen ripe fruits of Amapa (*Parahancornia amapa*) and *Clusia grandiflora* in tropical forests were examined by Morais et al. (1995). They found 44 yeasts including one new species. Rogers (1979a) described a new saprobic *Xylaria* species, *X. magnolia* on decaying fruits of *Magnolia* sp. and discussed several other fruit inhabiting *Xylaria* species. Ju et al. (2018) studied 25 *Xylaria* species inhabiting fallen seeds and fruits and introduced three new species namely: *Xylaria reevesiae*, *X. rossmanae* and *X. vivantii*. Jankowiak (2008) investigated fungi occurring on acorns of *Quercus robur*, which were infested by insects in Poland. He identified 45 fungi with *Alternaria alternata* and yeasts as the most frequently isolated fungi (Jankowiak 2008). Although there is great diversity in fruit and seed-bearing plants, few studies been carried out especially in temperate regions (Table 2). Accordingly, the present work on fungal diversity found on seeds and fruits was undertaken.

Anderson (1986) and Mittal et al. (1990) provided checklists of micro-organisms associated with tree seeds and primarily focused on forestry trees. Seed-borne diseases of 12 host tree species namely: *Acer* spp., *Alnus* spp. *Araucaria excelsa*, *Betula* spp., *Chamaecyparis* sp., *Fraxinus* spp., *Larix* spp., *Picea sitchensis*, *Pinus* spp., *Quercus* spp., *Thuja* spp., *Ulmus americana* and *U. pumila* were listed by Noble et al. (1958). Watanabe (2010) listed a number of culturable seed fungi with illustrations and provided a key to species in wild and crop plants in Japan. Previous studies and check lists revealed that the fungi colonising seeds and fruits are dominated by asexual morphic fungi (Carré 1964, Anderson 1986, Mittal et al. 1990, Kasai et al. 1995, Amusa et al. 2002, Somrithipol et al. 2002b, Tang et al. 2003a, Fukasawa et al. 2012). However, a comprehensive literature review or a checklist on fungi that occur on wild seeds and fruits is lacking.

Our approach is to provide a checklist of fungi described from seeds and fruits of non-commercial trees, shrubs and weedy plants or grasses. However, there are no details of substrates such as wood, leaves, seeds, fruits provided in most of the previous fungal lists. In Petrak's lists, fungi were listed under host names but did not mention the substrates. We also looked in the USDA host database for search by substrates, but it lists only host details. It supports for fungal host-search but not for other substrate details. Since 1981, Index of Fungi series and the website provided substrate details, such as wood, leaves, seeds and fruits. Our list of new fungi therefore was mainly based on Index of Fungi. Here we also list fungi reported from wild seeds and fruits based on available literature. The aim of the present study is to give an idea of the different groups of fungi occurring on wild seeds and fruits, document, discuss their role and importance, and illustrate some Sordariomycetes taxa. We also provide a brief account on fossil fungi described from seed fruit substrates.

Importance of studying wild seed/fruit fungi

Diverse fungal groups can be found generally on every part of a single plant host (Hyde 1995). Domesticated, genetically modified commercial seeds (cereals) and fruits are different from wild fruits/seeds in size, nutrient content and chemical defenses (Tang et al. 2003a, Hernández-Terán et al. 2017). Disease development of those post-harvest fruits and cereals occur during transportation and storage, which is different to that in nature (Tang et al. 2003a). The few studies that have been conducted on fungi on non-commercial seeds and fruits indicate the occurrence of fungi belonging to diverse taxonomic groups such as, Ascomycota, Basidiomycota, Chytridiomycota, Mucoromycota and Blastocladiomycota (Desjardin 2000, Vujanovic et al. 2000, Somrithipol et al. 2002a, b, Nelson & Abad 2010, Fukasawa et al. 2012, Jayasiri et al. 2019). The significance of studying wild seed/fruit fungi is further discussed below.

Where do these seed/fruit fungi come from?

There are three different ways fungi can infect or colonise wild seeds or fruits: 1) seeds become infected with endophytic fungi while in the canopy during fruit development, 2) within the soil after dispersal, and 3) by animal vectors such as fruit flies (Gallery 2007, Morais et al. 1995, Somrithipol et al. 2002b). Plant seeds carry spores of different fungi on the seed surface or inside tissues of the seed (Anderson 1986). Seed surfaces are mostly contaminated with fungal spores as they easily stick to the outer seed coat, while fungi mostly occur as mycelia inside the seed (Anderson 1986). Seeds/fruits inhabiting fungi may include endophytic, saprophytic, and pathogenic fungal species (Gallery et al. 2007). *Diaporthe*, *Fusarium*, *Penicillium*, *Trichoderma* and *Xylaria*-like fungi initially can occur as endophytes, but become pathogenic or saprobic under favorable conditions (Somrithipol et al. 2002b, Udayanga et al. 2013, Fukasawa et al. 2012). However, pathogenicity of most fungi associated with wild seeds/fruits has been much debated (Mittal et al. 1990). Somrithipol et al. (2002b) studied pods of *Delonix regia* and observed *Aspergillus*, *Chaetomium*, *Penicillium*, and *Rhizopus* species mainly occurring on the dry fruits when still attached to the tree. A different fungal community developed once seeds and fruits had been shed from the host plant (Somrithipol et al. 2002b). Lupo et al. (2001) observed *Eucalyptus globulus* capsules attached to the tree and shared the same endophytic fungal species with flowers, but in higher numbers. Clavicipitaceous fungi are parasitic on Poaceae hosts, and can also occur as endophytes (Rodriguez et al. 2009). During flowering of grasses, endophytic species such as *Acremonium* species grow into ovules and become incorporated into the seeds (Neill 1941, Clay 1990). Endophytes can be transmitted horizontally (among individuals of the same generation) or vertically (from maternal plants to offspring through seed infections) to other plants/ generations (Chung & Schardl 1997, Saikkonen et al. 2002). Animal vectors such as common flies and fruit flies are partially responsible for fungal contamination of fruits (Morais et al. 1995), for example, *Drosophila* spp. are known to be the major vectors of yeasts (Morais et al. 1995). Morais et al. (1995) and Miller & Phaff (1962) observed the coexistence of different *Drosophila* species in different stages of deterioration of *Parahancornia amapa* fruits and *Ficus* figs. Some studies reveal

seeds infected by endophytic fungi contain higher concentrations of alkaloids than the normal seeds, thus they may protect seeds from vertebrate and invertebrate predators (Cheplick & Clay 1988, Clay 1990).

Fossil fungi records of seeds and fruits

The origin of fungi is aged to the Paleoproterozoic–Mesoproterozoic eras (2500–1000 million years ago; Mya). The phylum Chytridiomycota is the earliest known group of fungi which diverged during the Mesoproterozoic (1600–1000 Mya) before the divergence of terrestrial plants (Lücking et al. 2009, Padovan et al. 2005, Torruella et al. 2012). The divergence of the phyla Ascomycota, Basidiomycota and Glomeromycota has been dated to the Neoproterozoic to Early Paleozoic (1000–485 Mya) with interaction with different groups of plants (Schüßler et al. 2001, Berney & Pawlowski 2006, Lücking et al. 2009, Taylor et al. 2009, Beimforde et al. 2014). Selosse et al. (2015) suggested that the highly diversified plant–fungal interactions are the backbone of land ecosystems and biogeochemical cycles from the Palaeozoic era (<541 Mya). Several remarkable studies revealed well-preserved fungal associations with plants mainly on leaves and different woody substrates (e.g. Cookson 1947, Dilcher 1965, Taylor et al. 1999, Mindell et al. 2007, Taylor et al. 2014, Vishnu et al. 2017). However, few fungal remains associated with fossil ovules, seeds and fruits have been described to date (Taylor 2009, Krings et al. 2012).

Renault & Bertrand (1895) described *Grilletia sphaerospermii* as a chytrid fossil inhabiting the nucleus of a Carboniferous gymnosperm *Sphaerospermum* and dated to the upper Pennsylvanian (307–298 Mya) in France. *Grilletia sphaerospermii*-like organisms have been described by Oliver (1903) from seeds of *Polylophospermum* and *Conostoma* from the lower Carboniferous (358.9–323.2 Mya) in France and Scotland. Pirozynski & Dalpé (1989) suggest that the *Grilletia* is close to extant *Glomus*, but this hypothesis needs further study. Batra et al. (1964) reported *Protoascon missouriensis* from a cluster of fossil fungi in a *Nucellangium glabrum* seed. It was preserved in Carboniferous permineralization (coal ball) collected from Tebo Coal of the Cabaniss Formation, Missouri, North America (middle Pennsylvanian, ~315–307 Mya). Taylor et al. (2005) re-examined the *Polylophospermum missouriensis* fossil and suggested it was comparable to modern members of the Mucorales (Mucoromycota).

There are several Ascomycota fossil fungi described from seeds, fruits and ovules. Two fossil fungal species were described from India (upper Cretaceous; Maastrichtian, 72–66 Mya) associated with permineralized fruits of *Viracarpon* (monocotyledons). *Diplodites sweetii*, which is morphologically similar to extant *Sphaeropsis* in Botryosphaeriaceae, was described by Kalgutkar et al. (1993). *Xylohyphites verrucosa*, which is characterized by having verrucose conidia in chains, hence shows morphological affinities to *Cladosporium* (Kalgutkar & Sigler 1995). Watanabe et al. (1999) described three fossil fungal genera: *Archephoma*, *Meniscoideisporites* and *Palaeodiplodites* in Japan (middle Turonian, 93.9–89.8 Mya), all associated with a bisexual cone of *Cycadeoidella japonica*. They suggested that the *Archephoma* and *Palaeodiplodites* are comparable to the modern phoma-like taxa and *Diplodia*, while *Meniscoideisporites* is not assignable to any extant taxon based on reliable taxonomic characters (Fig. 3). Two fossil fungal genera *Palaeopericonia* and *Xylohyphites* were described from permineralized fruit of *Viracarpon* sp. and fossilised cones of *Araucaria mirabilis* in Argentina and Canada (Kalgutkar & Sigler 1995, Ibáñez & Zamuner 1996).

In addition, LePage et al. (1994) described several asexual morphic fossil fungi associated with seeds and fruits from Princeton chert, British Columbia, Canada (middle Eocene, 50 Mya) and suggested that the fossils represent extant species from Dothideales, *Alternaria* and some coelomycetous asexual morphs. Stakhov et al. (2008) described the most recent fossil fungus associated with seeds of undetermined higher plants from Russia (Pleistocene 30,000 years ago).

These few fungal fossils described from seeds, fruits, pods, ovules or any other reproductive plant materials (Table 2) might be due to less attention given to microorganisms associated with reproductive structures of plants.

Materials & methods

Sample collection, specimen examination and isolation

Specimens were collected from seeds and fruits in Northern Thailand and United Kingdom (UK) during 2014 to 2018. Fungal fruiting structures were observed, photomicrographed and measurements were made in the laboratory as designated in Perera et al. (2016b). Fungal colonies were obtained from single spore isolation technique described in Chomnunti et al. (2014). Pure cultures were grown on potato dextrose agar (PDA) or malt extract agar (MEA) media and incubated at 25°C or 28°C.

Herbarium material was preserved in the Mae Fah Luang University (MFLU) herbarium, Chiang Rai, Thailand. Living cultures were stored in the Culture Collection at Mae Fah Luang University (MFLUCC). Facesoffungi and Index Fungorum numbers were registered as outlined in Jayasiri et al. (2015) and Index Fungorum (2020). Species are delineated based on recommendations outlined by Jeewon & Hyde (2016).

DNA isolation, amplification and analyses

Genomic DNA was extracted from fungal colonies growing on PDA or MEA or directly from the fruiting bodies as designated in Perera et al. (2016b). DNA amplifications were performed by polymerase chain reaction (PCR). Part of the large subunit nuclear rRNA gene (LSU) was amplified with primer pairs LROR (Rehner & Samuels 1994) and LR5 (Vilgalys & Hester 1990). The small subunit nuclear rRNA gene (SSU) was amplified with primer pairs NS1 and NS4 (White et al. 1990). Primer pairs ITS4 and ITS5 were used to amplify the 5.8S rDNA region and flanking internal transcribed spacers (ITS) (White et al. 1990). The translation elongation factor 1-alpha gene (TEF1) was amplified by using primers EF1-983F and EF1-2218R (Rehner 2001, Currie et al. 2003) or the primers EF1-728F and EF1-986R (Carbone & Kohn 1999) or EF2 (O'Donnell et al. 1998). The RNA polymerase II second largest subunit (RPB2) gene was amplified with primers fRPB2 and fRPB2-7cR (Liu et al. 1999). The beta-tubulin (TUB2) gene was amplified by using primers T1 (O'Donnell & Cigelnik 1997), Bt2b (Glass & Donaldson 1995), CYLTUB1R (Crous et al. 2004) or T22 (Cigelnik 1997). Histone H3 (HIS3) region was amplified with the primers CYLH3F and CYLH3R (Lombard et al. 2012). PCR was performed following the protocols in Perera et al. (2016b). Assemblage of consensus sequences were done in ContigExpress (Vector NTI Suite 6.0). Newly generated sequences were deposited in NCBI GenBank and accession numbers are given at the end of the protologue.

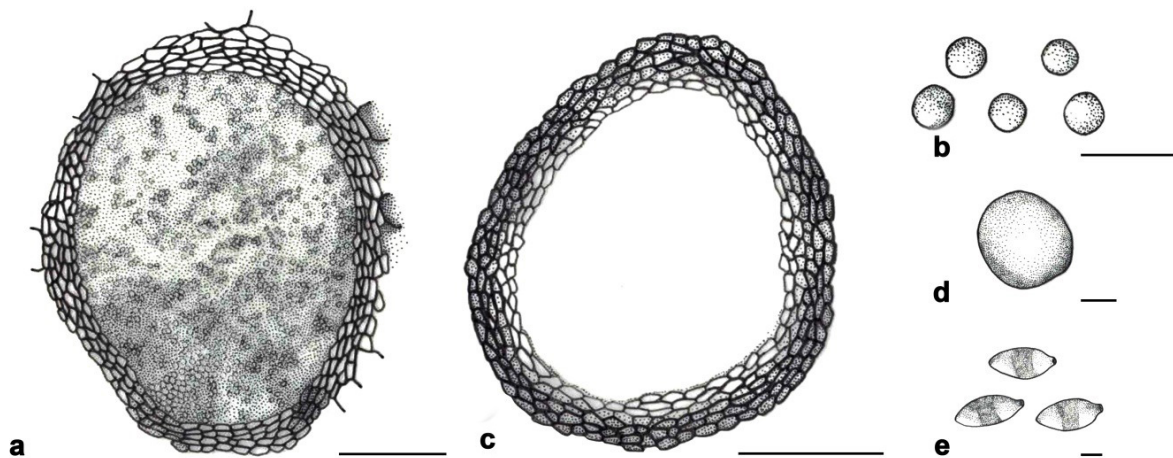


Figure 3 – *Archephoma cycadeoidellae*. a Mature pycnidium containing numerous globose conidia. b Conidia. *Meniscoideisporites cretacea*. c Pycnidium. d Conidium. *Palaeodiplodia yezoensis*. e Ellipsoidal conidia. Scale bars: a, c–e = 50 µm, b = 100 µm (re-drawn from Watanabe et al. 1999).



Figure 4 – a–i *Xylaria* species associated with forest fruits. a *Xylaria* sp. on an undetermined fruit. b, e *Xylaria xanthinovelutina* on a Fabaceae fruit. c *Xylaria* sp. on a *Swietenia mahagoni* fruit. d *Xylaria* sp. on a *Swietenia macrophylla* fruit. f, g *Xylaria arbuscula* on *Swietenia mahagoni* fruits. h, i *Xylaria* spp. on *Swietenia mahagoni* fruits.



Figure 5 – a–m Fungi associated with forest fruits. a, b *Thozotella lithocarpi* on seed of *Lithocarpus* sp. c, d *Parascedosporium*-like fungus on fruiting rachis of *Lithocarpus* sp. e, f *Thozetella fabacearum* on a Fabaceae seed pod. g, h *Diplodia* sp. on a Fabaceae pod. i Discomycete on a *Pseudotsuga menziesii* cone. j, k Basidiomycete on *Pseudotsuga menziesii* cones. l Basidiomycete on *Dipterocarpus* fruit. m Basidiomycete on a *Cassia grandis* pod.

Phylogenetic analyses

The sequences obtained in this study were supplemented with the additional sequences retrieved from GenBank. The sequences were aligned using MAFFT v. 7 online server (<http://mafft.cbrc.jp/alignment/server/>) and, rechecked visually and improved manually using BioEdit v. 7.0.5.2 (Hall 1999). Ambiguous regions were excluded from the analyses and gaps were treated as missing data. Phylogenetic analyses were carried out with maximum likelihood analysis

(ML), which was performed at the CIPRES web portal (Miller et al. 2010) using RAxML v. 8.2.12 as part of the “RAxML-HPC2 on TG” tool (Stamatakis 2006). Bayesian inference analysis (BI) was performed in MrBayes v. 3.2.0 (Ronquist & Huelsenbeck 2003). Phylogenetic trees were viewed in FigTree v1.4 and modified using Microsoft PowerPoint 2016.

Before combining, single gene phylogenetic analyses were conducted for each locus to compare the tree topology and clade stability. The names of the isolates obtained in this study are printed in blue font and names of ex-type and ex-epitype taxa are printed in **black bold** font in the trees. Maximum likelihood bootstrap support values $\geq 75\%$ (BT) and Bayesian posterior probabilities ≥ 0.99 (PP) are given at the nodes respectively.

Results

Taxonomy

The classification of Sordariomycetes has been detailed in Hyde et al. (2020) and provided in the *Outline of fungi and fungus-like taxa* by Wijayawardene et al. (2020) and is followed here.

Amphisphaeriales D. Hawksw. & O.E. Erikss.

Beltraniaceae Nann.

Beltraniella Subram.

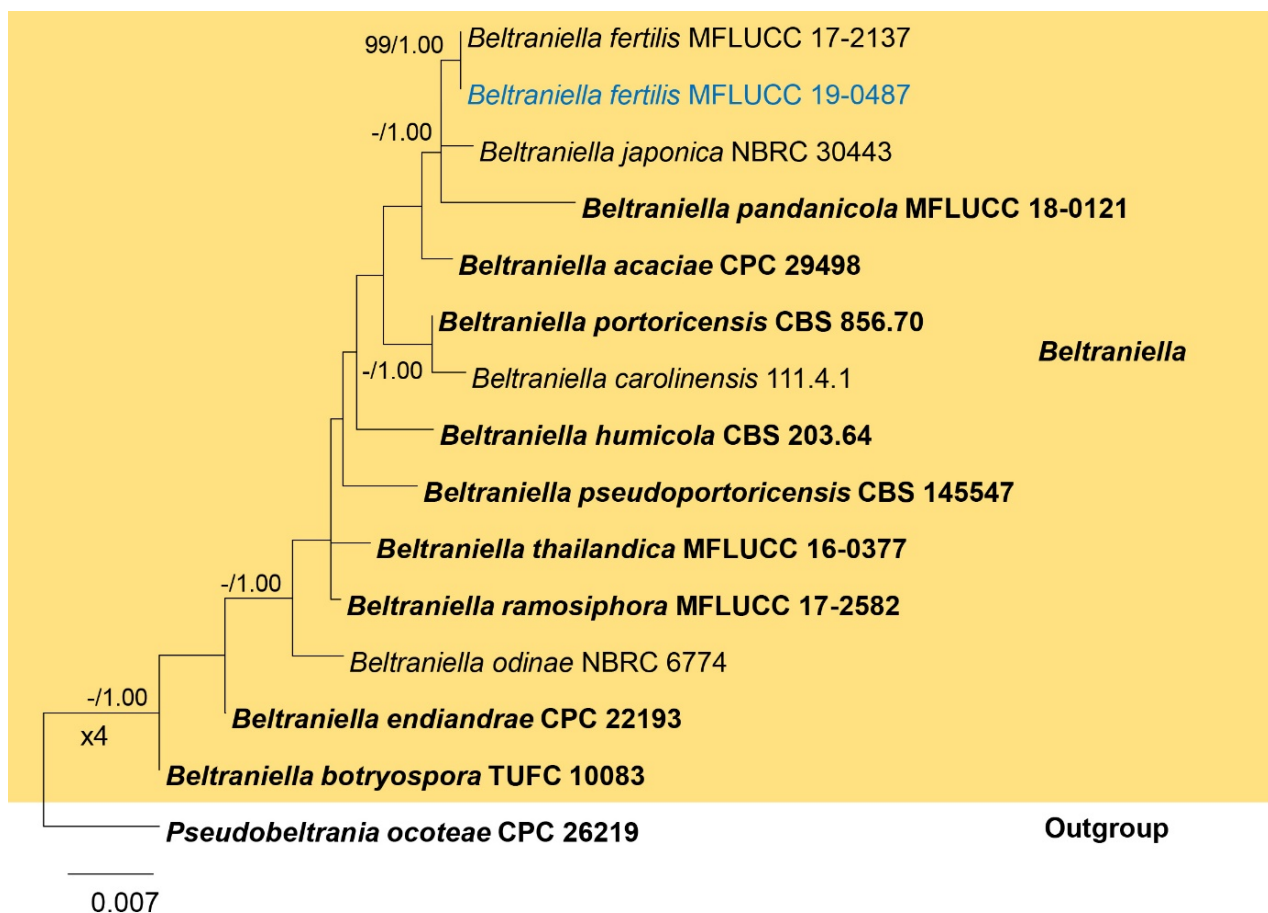


Figure 6 – Phylogram generated from RAxML analysis based on combined ITS and LSU sequence data of *Beltraniella* isolates. Sequences from fifteen taxa, which comprise 1311 characters including gaps, are included in the analyses. The tree was rooted to *Pseudobeltrania ocoteae* (CPC 26219). The scale bar indicates 0.007 nucleotide changes per site.

Beltraniella fertilis Heredia, R.M. Arias, M. Reyes & R.F. Castañeda, Fungal Diversity 11: 100 (2002) Fig. 7

Saprobic on dried fruit of *Lithocarpus* sp. Sexual morph: Undetermined. Asexual morph: Hyphomycetous. Colony on the host greenish. *Setae* 115–185 × 3.5–4.5 μm (n = 10), erect, dark brown, thick-walled, indistinctly septate, with prominent warts, straight or flexuous, unbranched, tapering to an acute apex, arising from radially lobed basal foot cell. *Long setiform conidiophores* not observed. *Short conidiophores* 33–50 × 3.5–5 μm (\bar{x} = 41.8 × 4.1 μm, n = 15), macronematous, mononematous, single or arranged in groups around the setae, erect, straight or slightly curved, simple or branched, septate, subhyaline to pale brown, thin-walled, smooth-walled. *Conidiogenous cells* 6–20 × 4–6 μm (\bar{x} = 10.4 × 3.5 μm, n = 15), terminal and intercalary, subcylindrical, polyblastic, apex with several flat-tipped denticles, pale brown, smooth-walled. *Separating cells* 7.5–10 × 3–4.1 μm (\bar{x} = 8.6 × 3.5 μm, n = 10), ovoid or obovoid, fusiform, hyaline to subhyaline, thin-walled, smooth-walled, with a single flat-tipped denticle. *Conidia* 20–22 × 4.3–5.5 μm (\bar{x} = 20.8 × 4.8 μm, n = 20), solitary, turbinate to pyriform, distal end truncate, subhyaline, smooth, aseptate, with median transverse band of lighter pigment, base tapering to an acutely rounded tip.

Culture characteristics – *Conidia* germinating on PDA within 12 hours. Colonies on PDA reaching 7.5 cm within 14 days at 28°C, medium dense, circular, flat, even margin, with sparse aerial mycelium, white from above, reverse dark brown.

Material examined – THAILAND, Chiang Mai Province, on dried fruit of *Lithocarpus* sp. (Fagaceae), 22 December 2017, R.H. Perera, Seed 06 (MFLU19-0982), living culture MFLUCC 19-0487.

GenBank numbers – ITS: MT215489, LSU: MT215539.

Notes – In the phylogenetic analysis our new isolate clustered with *Beltraniella fertilis* (MFLUCC 17-2137) with high statistical support (99% MLBT, 1.00 BIPP; Fig. 6). A comparison of nucleotides shows ITS and LSU loci of our isolate are identical to *B. fertilis* (MFLUCC 17-2137). Our collection is similar to *B. fertilis* by its setae, conidiophore and conidial morphology and dimensions (Heredia et al. 2002, Lin et al. 2017). Therefore, our collection is a new host record for *B. fertilis*.

Chaetosphaeriales Huhndorf, A.N. Mill. & F.A. Fernández **Chaetosphaeriaceae** Locq.

Dictyochaeta Speg. 1923

Dictyochaeta coryli R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov. Fig. 9

Index Fungorum number: IF556867; Facesoffungi number: FoF07752

Etymology – Named after the host genus *Corylus*.

Holotype – MFLU 19-1387

Saprobic on dried *Corylus avellana* fruits. Sexual morph: Undetermined. Asexual morph: Hyphomycetous. Colonies on natural substrate, effuse, hairy, pale brown, with glistening white conidial masses. *Setae* 115–135 × 3.5–4.8 μm, straight or flexuous, septate, unbranched, pale brown to brown, paler towards the apex, apex fertile with persistent collarettes, smooth-walled. *Conidiophores* 55–70 × 3.3–4 μm (\bar{x} = 62.3 × 3.8 μm, n = 15), macronematous, mononematous, solitary or in small groups often associated with setae, straight or flexuous, cylindrical, unbranched, septate, smooth, brown to pale brown, almost hyaline at apex, smooth-walled. *Conidiogenous cells* 10–22 × 2.7–3.8 μm (\bar{x} = 15.7 × 3.3 μm, n = 15), monophialidic, integrated, terminal, sympodially proliferating, determinate, sub-cylindrical, pale brown, with distinct, funnel-shaped collarettes, 1.2–1.6 μm high, 2.2–3 μm wide. *Conidia* 12–19.5 × 2.3–3.5 μm (\bar{x} = 17.4 × 3 μm, n = 30), solitary, aseptate, fusiform, curved, sometimes guttulate, hyaline, smooth-walled, in slimy mass, single setula at each end, 4.7–8.4 μm long, 0.5–0.8 μm wide, filiform, hyaline.

Culture characteristics – *Conidia* germinating on PDA within 12 hours. Colonies on PDA reaching up to 30 cm diameter after 21 days at 28°C, circular or irregularly circular, medium dense,

effuse, aerial mycelium forming concentric rings with cottony texture, edge entire, white from above, reverse brown.

Material examined – UK, Hampshire, Bishop Waltham, standing water, on dried fruits of *Corylus avellana* L. (Betulaceae), 8 December 2017, E.B.G. Jones, GJ 406 (MFLU 19-1387, holotype).

GenBank numbers – ITS: MT215494, LSU: MT215545.



Figure 7 – *Beltraniella fertilis* (MFLU 19-0982). a Herbarium material. b Colony on natural substrate. c, d Setae with conidiogenous apparatus. e Conidiophores, conidiogenous cells with conidia. f–j Conidia. k Germinating conidium. Scale bars: b = 500 μ m, c, d = 50 μ m, e = 20 μ m, f–j = 10 μ m, k = 20 μ m.

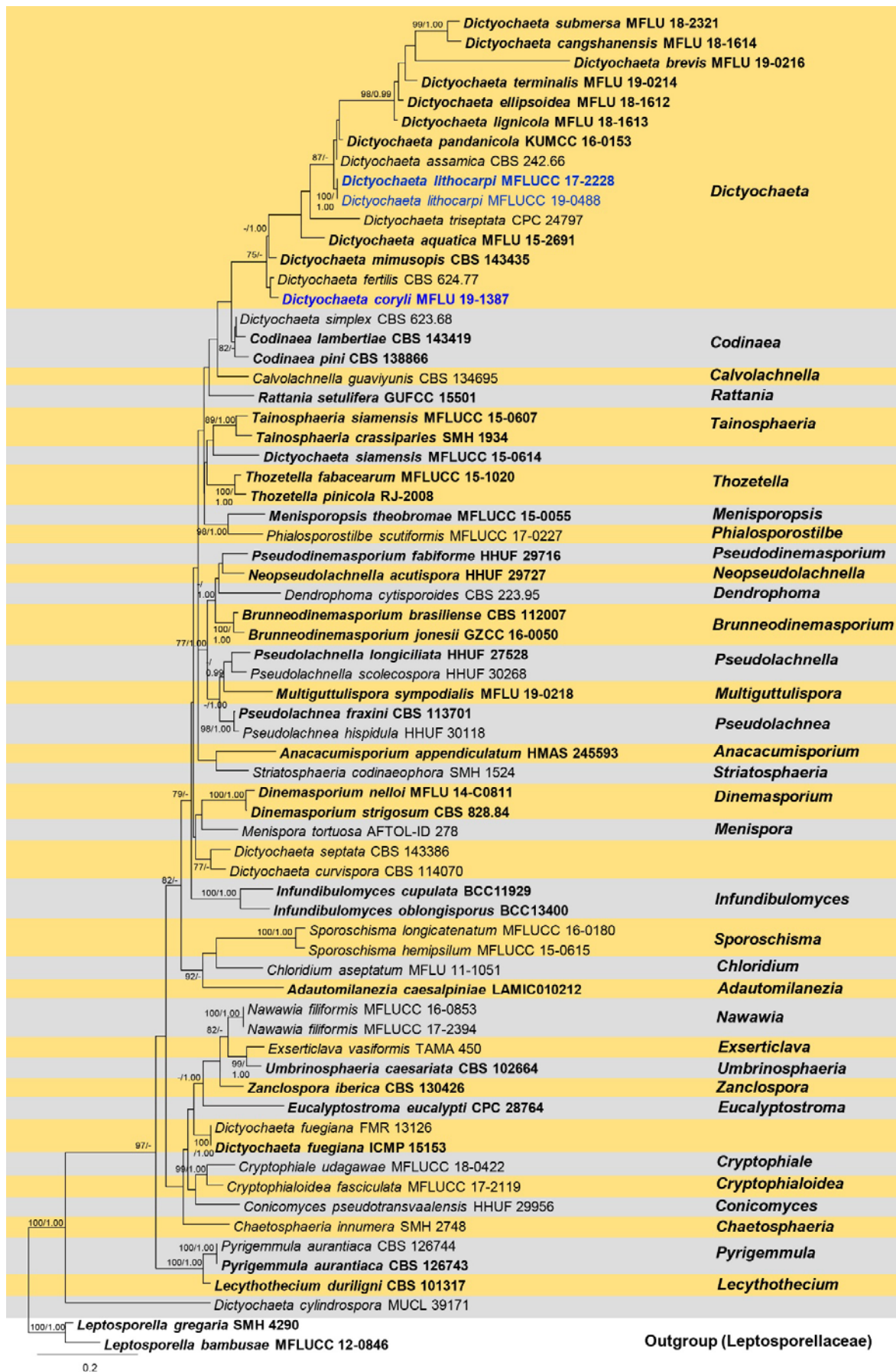


Figure 8 – Phylogram generated from RAxML analysis based on combined ITS and LSU sequence data of selected *Chaetosphaeriaceae* isolates. Sequences from sixty-eight taxa, which comprise

1438 characters including gaps, are included in the analyses. The tree was rooted to *Leptospora bambusae* (MFLUCC 12-846) and *L. gregaria* (SMH 4290). The scale bar indicates 0.2 nucleotide changes per site.



Figure 9 – *Dictyoachaeta coryli* (MFLU 19-1387, holotype). a Herbarium material. b Colony on fruit. c Seta. d, e Conidiophores and conidiogenous cells. f–k Conidia l Germinating conidium. m, n Colony on MEA. Scale bars: b = 200 μ m, c–e = 100 μ m, f–l = 10 μ m.

Notes – *Dictyoachaeta coryli* groups with *D. fertilis* (S. Hughes & W.B. Kendr.) Hol.-Jech. (CBS 624.77) in our phylogenetic analysis, with low statistical support (Fig. 8). *Dictyoachaeta coryli* differs from *D. fertilis* in having aseptate conidia, while those of *D. fertilis* are 6–11 septate (Whitton et al. 2000). *Dictyoachaeta coryli* can be distinguished from *D. mimusopsis* Crous & M.J. Wingf by having fertile setae, while *D. assamica* (Agnihotr.) Aramb., Cabello & Mengasc. does not have setae (Arambarri et al. 1987). *Dictyoachaeta coryli* resembles *D. intermedia* Gusmão & S.M. Leão, but differs in having shorter and wider conidia (12–19.5 \times 2.3–3.5 vs. 18–21 \times 1.5–2.5) and fertile setae, while *D. intermedia* forms non-fertile setae (Cruz et al. 2009). *Dictyoachaeta coryli*

also cannot be assigned to any known *Dictyochoaeta* species which lack sequence data (Kuthubutheen & Nawawi 1991, Whitton et al. 2000, Cruz et al. 2009). We therefore identify *D. coryli* as a new species of *Dictyochoaeta*.

Dictyochoaeta lithocarpi R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 10

Index Fungorum number: IF556868; Facesoffungi number: FoF07753

Etymology – Named after the host genus *Lithocarpus*.

Holotype – MFLU 19-1173

Saprobic on decaying *Lithocarpus* fruits. Sexual morph: Undetermined. Asexual morph: Hyphomycetous. Colonies on natural substrate, effuse, hairy, brown, with white conidial masses. *Setae* 170–275 × 4–5 µm (\bar{x} = 209 × 4.3 µm, n = 10), solitary or in groups of 2–3, straight or flexuous, septate, unbranched, apex fertile with persistent collarettes, dark brown and robust at the base, paler towards the apex, smooth-walled. *Conidiophores* 55–110 × 3.2–4 µm (\bar{x} = 86 × 3.7 µm, n = 20), macronematous, mononematous, aggregated, in small groups often associated with setae, rarely solitary, straight or flexuous, cylindrical, unbranched, septate, smooth, dark brown to pale brown, paler at apex, smooth-walled. *Conidiogenous cells* 12–22 × 3.5–5.3 µm (\bar{x} = 16.6 × 4.2 µm, n = 20), monophialidic, integrated, terminal, determinate, hyaline or pale brown, with distinct, sub-cylindrical, funnel-shaped collarettes, 1.8–2.1 µm high, 2.8–3.6 µm wide. *Conidia* 14–17 × 1.5–2.8 µm (\bar{x} = 15.2 × 2.3 µm, n = 30), solitary, aseptate, fusiform, curved, in slimy mass, hyaline, smooth-walled, single setula at each end, 6.8–10.5 µm long, 0.4–0.6 µm wide, filiform, hyaline.

Culture characteristics – Conidia germinated on PDA within 12 hours. Colonies on PDA reaching up to 35 cm diameter after 15 days at 28°C, circular or irregularly circular, medium dense, flat or effuse, edge entire, white from above, reverse yellow brown.

Material examined – THAILAND, Chiang Mai Province, on dried fruits of *Lithocarpus* sp. (Fagaceae), 20 July 2017, R.H. Perera, Doi 05 (MFLU 19-1173, holotype), ex-type living culture MFLUCC 17-2228; *ibid.*, 22 December 2017, Seed 08 (MFLU 18-2772), living culture MFLUCC 19-0488.

GenBank numbers – ITS: MT215492, LSU: MT215543 (MFLUCC 17-2228); ITS: MT215493, LSU: MT215544 (MFLUCC 19-0488).

Notes – *Dictyochoaeta lithocarpi* is well separated from other *Dictyochoaeta* species in the phylogenetic analysis (Fig. 8). Our isolate is related to *D. pandanicola* (KUMCC 16-0153) and *D. assamica* (CBS 242.66) (87% MLBT). *Dictyochoaeta lithocarpi* differs from *D. pandanicola* by having smaller conidia (14–17 × 1.5–2.8 vs. 16–26 × 4–6 µm) and presence of setae (Tibpromma et al. 2018). *Dictyochoaeta lithocarpi* can be distinguished from *D. assamica* by having monophialidic conidiogenous cells, while *D. assamica* has polyphialidic conidiogenous cells (Arambarri et al. 1987). *Dictyochoaeta lithocarpi* also cannot be assigned to any known *Dictyochoaeta* species, which lack sequence data (Kuthubutheen & Nawawi 1991, Whitton et al. 2000, Cruz et al. 2009). Therefore, we identify *D. lithocarpi* as a novel species of *Dictyochoaeta*.

Menisporopsis S. Hughes

Menisporopsis theobromae S. Hughes, Mycol. Pap. 48: 59 (1952)

Fig. 11

Colonies on decaying Fabaceae seed pod, scattered, superficial, effuse, white. Sexual morph: Undetermined. Asexual morph: *Setae* 230–280 × 5.1–6.2 µm, central, solitary, erect, septate, thick-walled, lower part encased tightly by compact conidiophores and obviously wider than each conidiophore, brown. *Conidiophores* up to 128 µm long, synnematous, macronematous, brown, cylindrical, septate, unbranched, lower part narrow, upper part wider, erect, straight or slightly flexuous, smooth, thin to thick-walled. *Conidiogenous cells* terminal, monophialidic, integrated, pale brown, with visible collarettes. *Conidia* (11–)15.7–21.6 × 2.1–3.8 µm (\bar{x} = 18.6 × 2.6 µm, n = 30), aggregated in slimy masses at the apex of the synnematata, acrogenous, lunate to falcate, gently

curved or straight, aseptate, hyaline, thin- and smooth-walled; with a single, unbranched, flexuous, tubular, hyaline setula at each end, 7.3–9.4 μm long.

Material examined – THAILAND, Chiang Mai Province, on decaying seed pods of Fabaceae plant, 5 July 2015, R.H. Perera, RHP 128 (MFLU 16-1055).



Figure 10 – *Dictyochaeta lithocarpi* (MFLU 19-1173, holotype). a Herbarium material. b Colony on natural substrate. c–e Setae, conidiophores and conidiogenous cells. f–k Conidia. l Germinating conidium. Scale bars: b = 200 μm , c, d = 100 μm , e = 50 μm , f–l = 20 μm .

Notes – We were unable to get a culture of this fungus. However, our collection resembles the genus *Menisporopsis* by its synnematos conidiophores, central, simple, dark brown setae, phialidic conidiogenous cells and lunate to falcate, 0–1-septate conidia, with setulae at ends (Cruz et al. 2014). The newly collected fungus is morphologically similar to *M. theobromae*, which was collected in Ghana and Thailand (Hughes 1952, Liu et al. 2016). Based on morphological features we regard our fungus as *M. theobromae* (Hughes 1952, Cruz et al. 2014, Liu et al. 2016).

Menisporopsis theobromae was previously reported from *Theobroma cacao* and submerged wood, and this is the first record of the fungus from seed pods of a Fabaceae plant (Hughes 1952, Liu et al. 2016).



Figure 11 – *Menisporopsis theobromae* (MFLU 16-1055). a Herbarium material. b, c Colony on natural substrate. d, e Conidiophores and seta. f Conidiogenous cells with conidia in Congo red. g Conidia. Scale bars: b = 1 mm, c = 500 µm, d, e = 100 µm, f = 50 µm, g = 30 µm.

Diaporthales Nannf.
Cytosporaceae Fr.

Cytospora Ehrenb.

Cytospora diopuiensis Q.J. Shang, K.D. Hyde & J.K. Liu, in Shang et al., Mycosphere 11: 203 (2020) Figs 15, 16

Associated with dried seed pods of *Cassia fistula*. Sexual morph: Undetermined. Asexual morph: *Stromata* 125–470 µm high, 130–465 µm wide (n = 10), with poorly developed interior, solitary to gregarious, immersed, becoming raised or erumpent through the host tissue, discoid, circular to irregular in shape, dark brown to black, glabrous. *Conidiomata* (excluding necks) 110–210 × 95–325 µm diam. (n = 15), immersed in host tissue, scattered, erumpent, circular, with 1–2

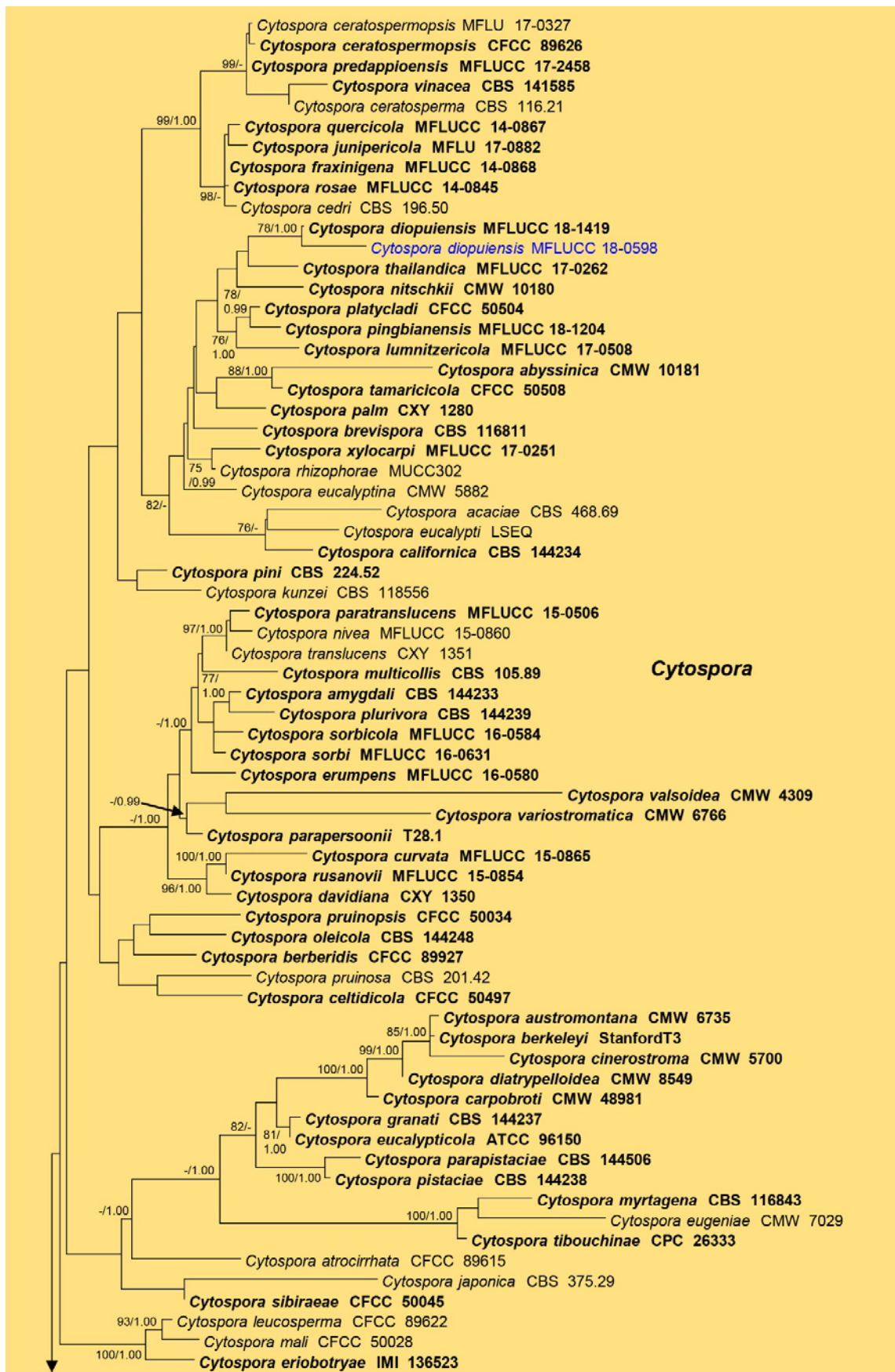


Figure 14 – Phylogram generated from RAxML analysis based on combined ITS, LSU, RPB2 and ACT sequence data of *Cytospora* isolates. Sequences from one hundred thirty taxa, which comprise 3352 characters including gaps, are included in the analyses. The tree was rooted to *Cytospora punicae* CBS 144244. The scale bar indicates 0.04 nucleotide changes per site.

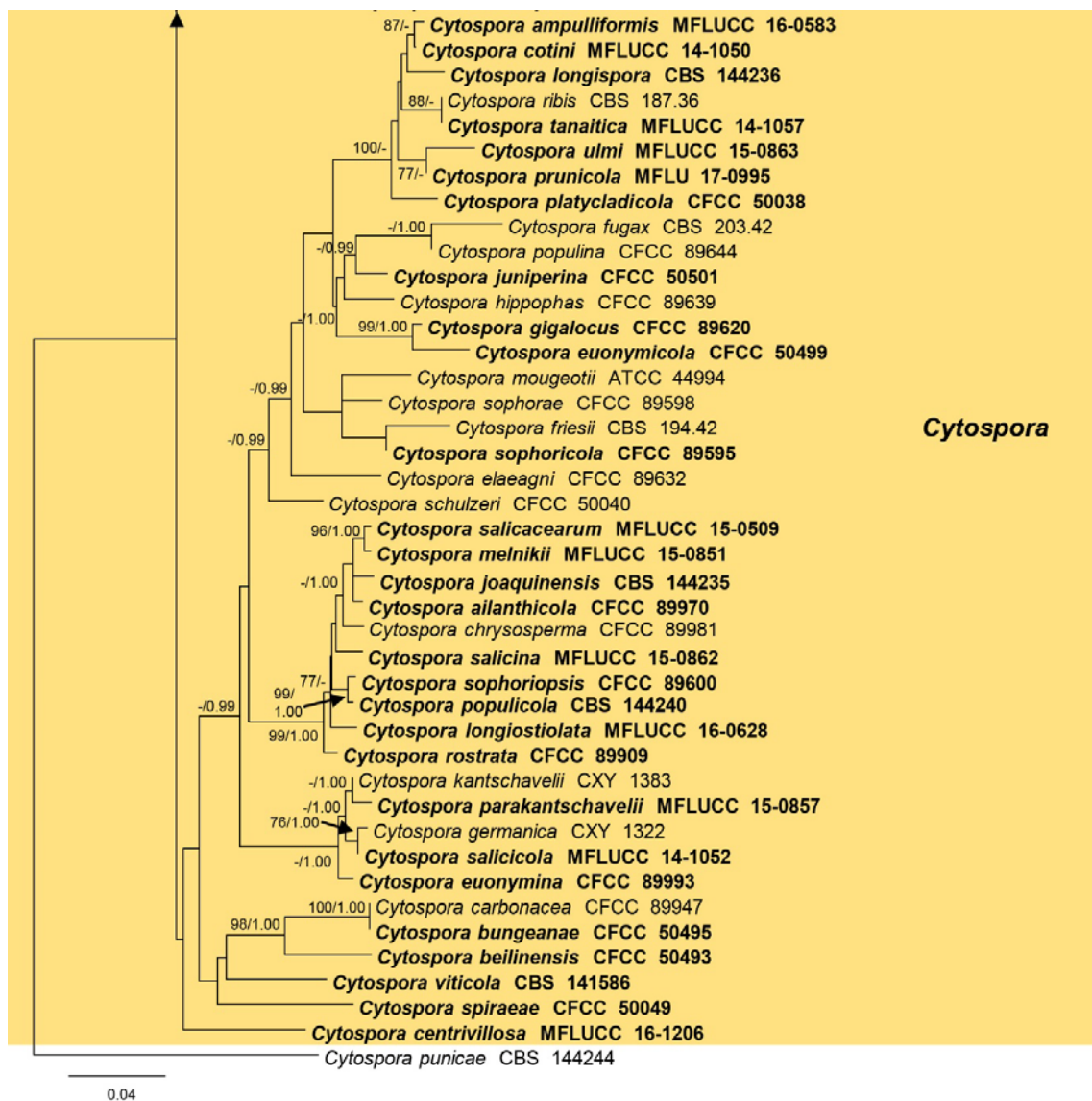


Figure 14 – Continued.

locules, ostiolate, occasionally with yellow conidial exudate. *Ostioles* 120–150 μm diam. *Peridium* comprising a few to several layers of cells of *textura angularis*, inner layer thick, brown, outer later dark brown. *Conidiophores* branched, reduced to conidiogenous cells. *Conidiogenous cells* 8.4–14 \times 1.5–2.4 μm (\bar{x} = 11 \times 1.9 μm , n = 20), enteroblastic, phialidic, formed from the inner most layer of pycnidial wall, hyaline, smooth-walled. *Conidia* 4.3–6.7 \times 1.4–2.3 μm (\bar{x} = 5.3 \times 1.9 μm , n = 50), unicellular, allantoid, sometimes obovoid, guttulate, hyaline, smooth-walled. *Chlamydospores* produced on PDA, hyaline, in chains.

Culture characteristics – Conidia germinated on PDA within 12 hours. Colonies on PDA reaching 40–45 mm diameter after 7 days at 28°C, colonies circular to irregular, medium dense, flat or effuse, with edge fimbriate, white from above and below, pale brown with time, sporulating on PDA within 60 days.

Material examined – Thailand, Phayao Province, dried seed pod of *Cassia fistula* L. (Fabaceae), 4 August 2017, R.H. Perera, PH-CAS 01 (MFLU 18-2749), dry culture MFLU 18-0620, living culture: MFLUCC 18-0598.

GenBank numbers – ITS: MT215491, LSU: MT215540, RPB2: MT212203.

Notes – A modern treatment of *Cytospora* was provided by Norphanphoun et al. (2017) and is followed here. Our new isolate MFLUCC 18-0598 groups with ex-type of *Cytospora diopuiensis* (MFLUCC 18-1419) in our phylogenetic analysis with low statistical support (Fig. 14). In the

combined gene analysis of ITS and LSU, our isolate grouped with *C. diopuiensis* (MFLUCC 18-1419) with high statistical support (99% MLBT) (data not shown). ITS and LSU data of two isolates are identical and, there is no RPB2 gene available for *C. diopuiensis* for comparison. However, only the sexual morph is reported for *C. diopuiensis* (Shang et al. 2020). By considering the similarities in the ITS and LSU loci, we identify our isolate as the first asexual morph record for *C. diopuiensis* and a new host record. *Cytospora diopuiensis* can be distinguished from *C. thailandica* in having larger allantoid conidia ($4.3\text{--}6.7 \times 1.4\text{--}2.3$ vs. $3.8\text{--}4 \times 1\text{--}1.3$ μm) and larger conidiogenous cells ($8.4\text{--}14 \times 1.5\text{--}2.4$ vs. $6\text{--}9.1 \times 1\text{--}1.3$ μm), while conidia of *C. thailandica* are subcylindrical (Shang et al. 2020).

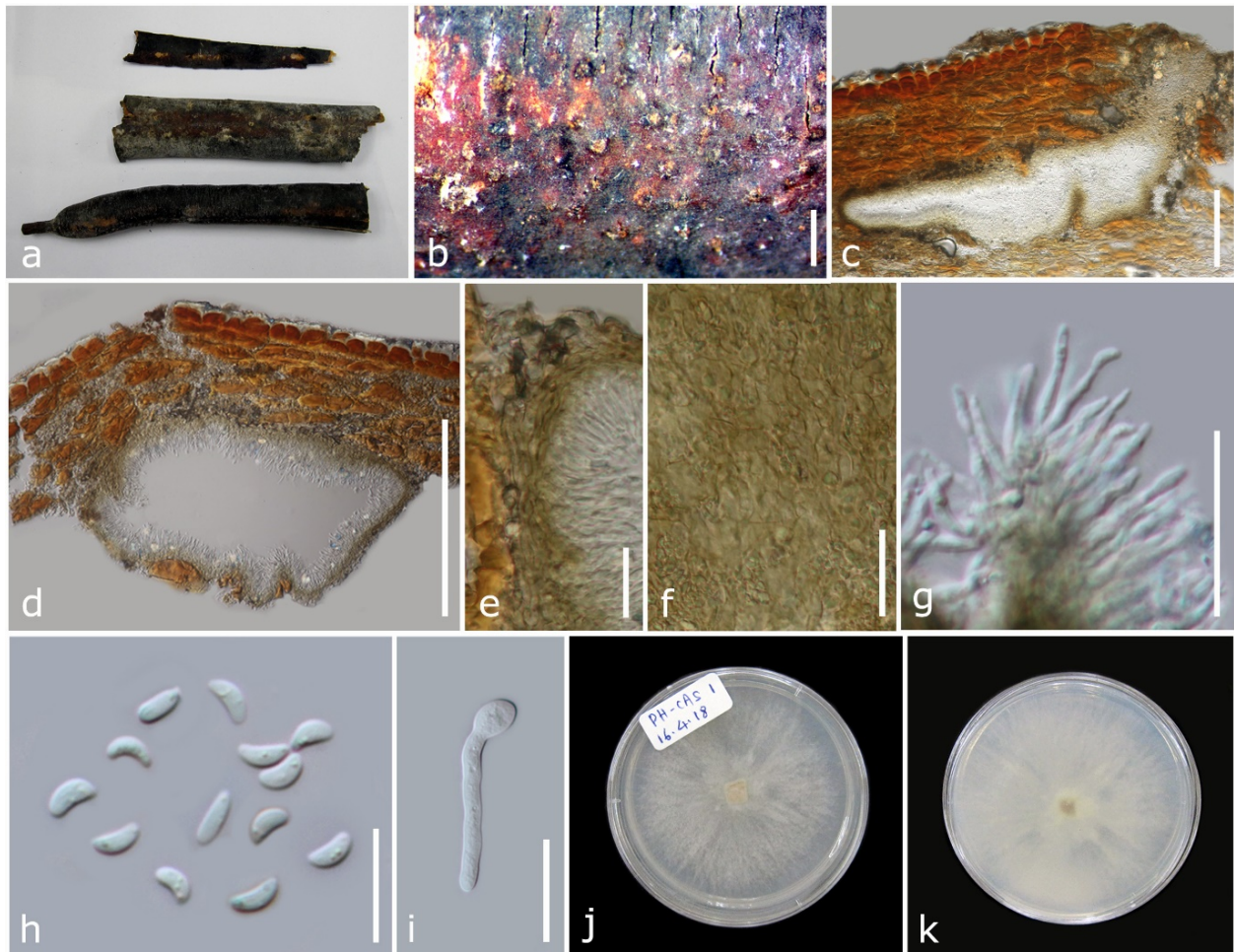


Figure 15 – *Cytospora diopuiensis* (MFLU 18-2749). a Herbarium material. b Conidiomata on host surface. c, d Cross section of the stroma showing conidiomata. e Peridium. f Peridium in face view. g Conidia attached to conidiogenous cells. h Conidia. i Germinating conidium. j, k Colony on PDA. Scale bars: b = 500 μm , c = 100 μm , d = 200 μm , e–g = 20 μm , h = 10 μm , i = 20 μm .

Diaporthaceae Höhn. ex Wehm.

Diaporthe Nitschke

Diaporthe delonicis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Index Fungorum number: IF556855; Facesoffungi number: FoF07754

Etymology – Named after the host genus *Delonix*.

Holotype – MFLU 16-1059

Fig. 13

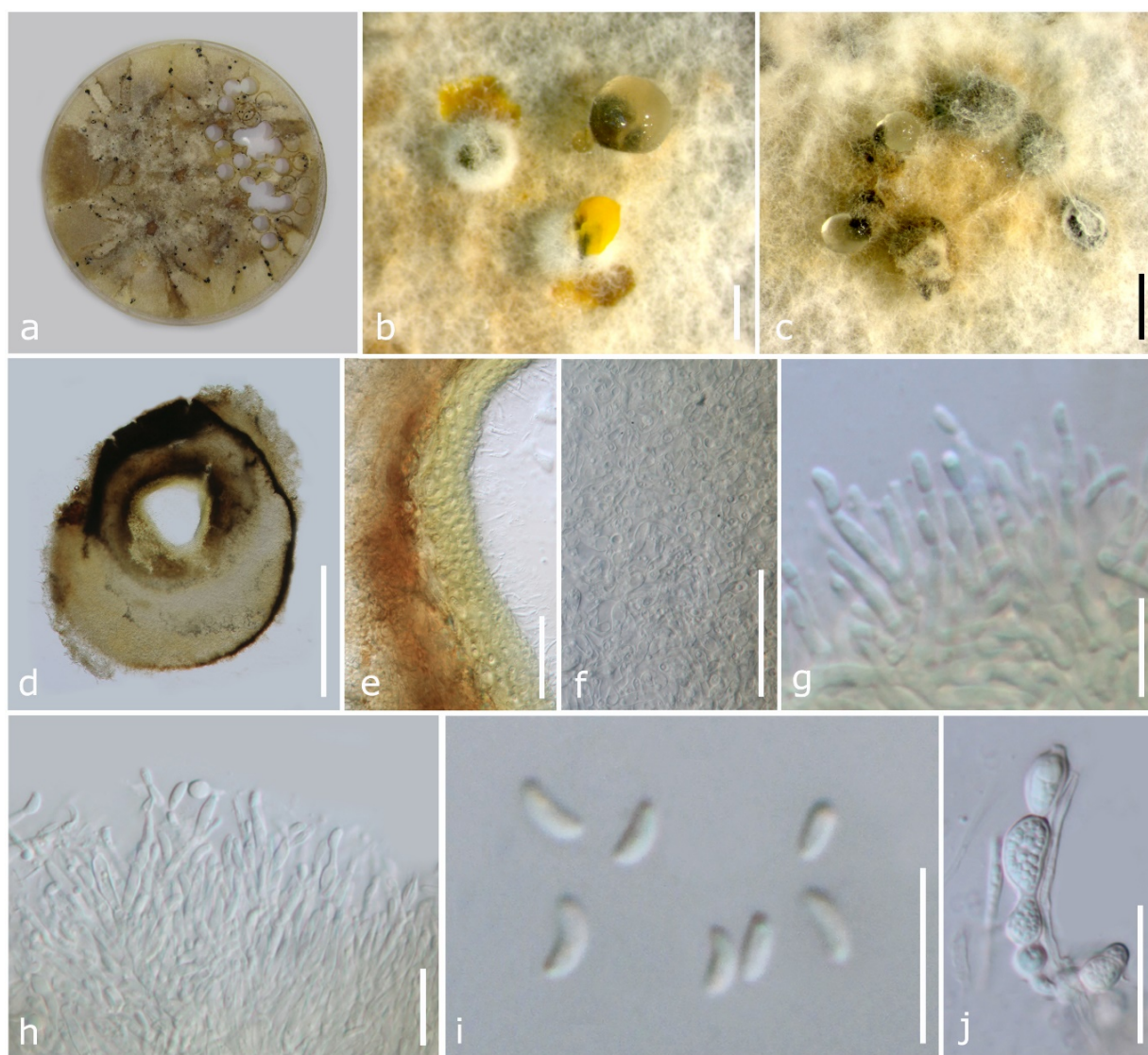


Figure 16 – *Cytospora diopuiensis* (MFLU 18-0620). a–c Conidiomata on PDA. d Conidioma. e Wall of the ostiolar canal. f Stromatal tissue. g, h Conidia attached to conidiogenous cells. i Conidia. j Chlamydospores. Scale bars: b, c = 1 mm, d = 500 μ m, e, f = 50 μ m, g–j = 10 μ m, j = 20 μ m.

Saprobic on seed pods of *Delonix regia*. Sexual morph: Undetermined. Asexual morph: *Conidiomata* 78–190 μ m (\bar{x} = 120 μ m) in diam., appearing as black raised spots on the host, scattered, globose or near-globose, brown to dark brown, conidia exuded from conidiomata in white creamy drops. *Peridium* 20 μ m thick, composed of 5–8 rows of hyaline to light brown cells of *textura angularis*. *Conidiophores* 6.4–15.2 \times 1.4–2.2 μ m (\bar{x} = 11.6 \times 1.9 μ m), sub-cylindrical, hyaline. *Conidiogenous cells* 5.3–10.5 \times 1.3–2.5 μ m (\bar{x} = 7.9 \times 1.9 μ m), phialidic, tapering to the apex, collarette prominent. *Alpha conidia* 4.4–9 \times 1.3–2.2 μ m (\bar{x} = 7.7 \times 1.8 μ m), aseptate, fusoid with obtuse ends, 4-guttulate, hyaline, smooth-walled. *Beta conidia* 16–23 \times 1–1.7 μ m (\bar{x} = 19.4 \times 1.2 μ m), aseptate, filiform, slightly curved at one end and both ends rounded, hyaline, smooth-walled.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University premises, on dried seed pods of *Delonix regia* (Boj. ex Hook.) Raf. (Fabaceae), 7 May 2015, R.H. Perera, RHP 99 (MFLU 16-1059, holotype).

GenBank numbers – ITS: MT215490, TUB2: MT212209.

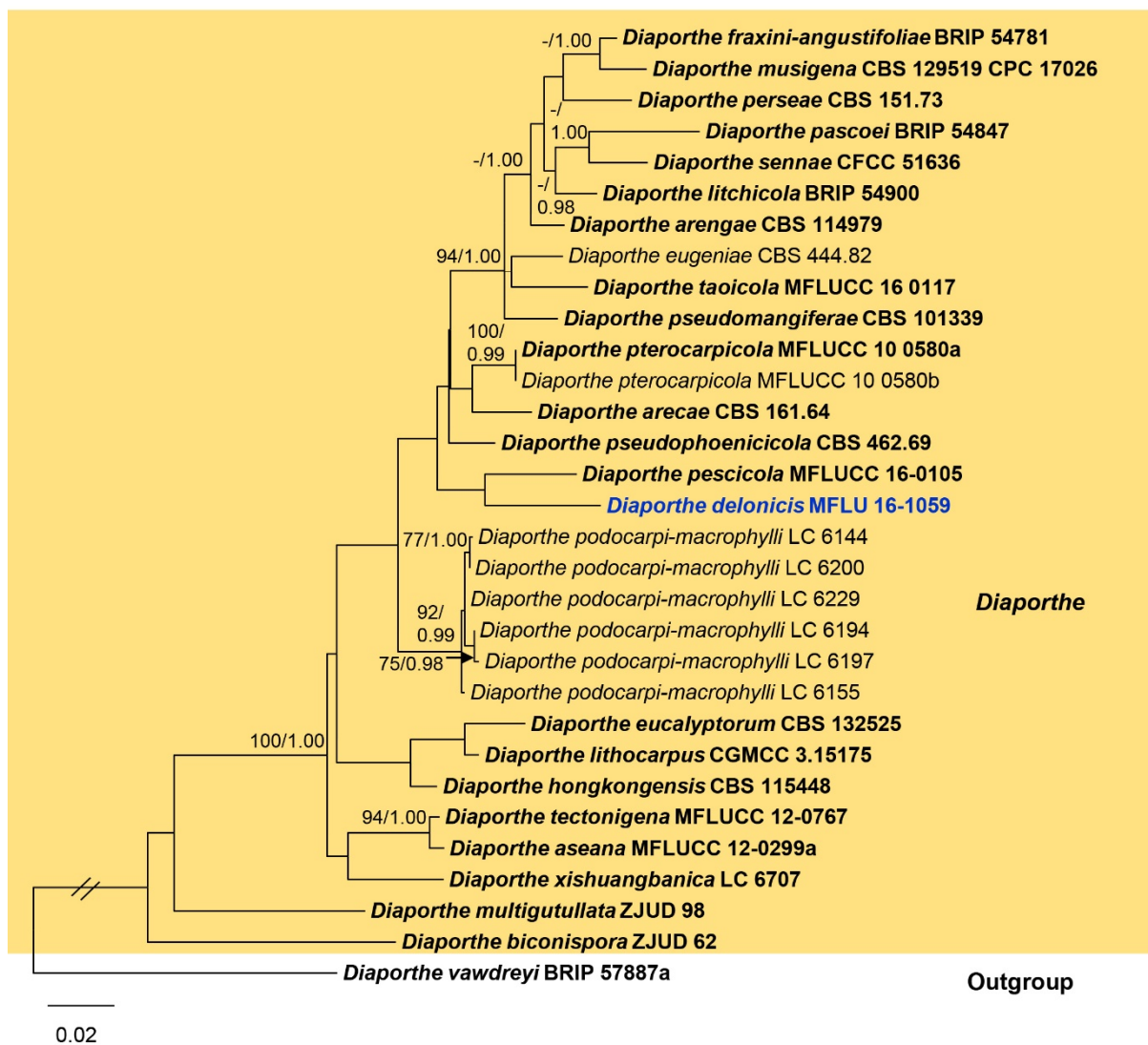


Figure 12 – Phylogram generated from RAxML analysis based on combined ITS, TEF1 and TUB2 sequence data of *Diaporthe* isolates. Sequences from thirty-one taxa, which comprise 1578 characters including gaps, are included in the analyses. The tree was rooted to *Diaporthe vawdreyi* (BRIP 57887a). The scale bar indicates 0.02 nucleotide changes per site.

Notes – The genus has been well-studied and requires ITS, TEF1 and TUB2 sequence data to resolve species (Udayanga et al. 2014, 2015, Dissanayake et al. 2017a). DNA was directly extracted from the fruiting bodies of this fungus. *Diaporthe delonicis* (MFLU 16-1059) groups with *D. pescicola* (MFLUCC 16-0105), but is unsupported within *Diaporthe* (Fig. 12). *Diaporthe pescicola* was identified as a pathogen on *Prunus persica* shoots in China by Dissanayake et al. (2017b). *Diaporthe delonicis* differs from *D. pescicola* by producing smaller conidiomata (78–190 vs. 300 μm) and conidiophores ($6.4\text{--}15.2 \times 1.4\text{--}2.2$ vs. $21\text{--}35 \times 1.5\text{--}2.5$ μm) (Dissanayake et al. 2017b). *Diaporthe delonicis* can also be distinguished from *D. pescicola* by smaller beta conidia ($16\text{--}23 \times 1\text{--}1.7$ vs. $18\text{--}37 \times 1\text{--}1.5$ μm) (Dissanayake et al. 2017b). Furthermore, *D. delonicis* produces alpha conidia with 4-guttules, while *D. pescicola* forms bi-guttulate alpha conidia (Dissanayake et al. 2017b). We also observed prominent collarettes in conidiophores of *D. delonicis*, and this character was not reported from *D. pescicola* (Dissanayake et al. 2017b). We therefore identified *D. delonicis* as a new species.

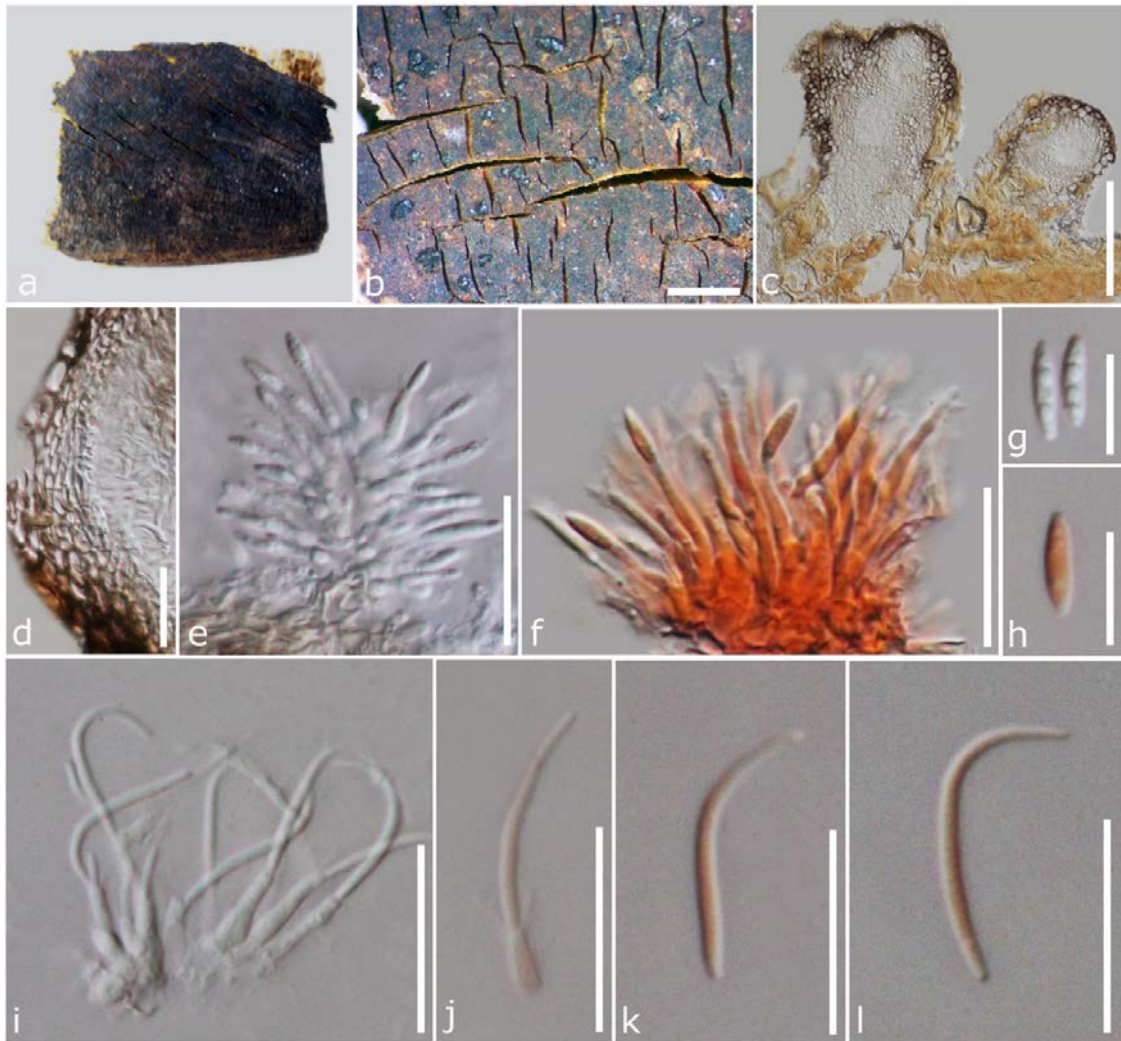


Figure 13 – *Diaporthe delonicis* (MFLU 16-1059, holotype). a Herbarium material. b Conidiomata on natural substrate. c Section through conidiomata. d Peridium. e, f Conidiogenous cells with alpha conidia (f in Lugol's solution). g, h Alpha conidia (h in Lugol's solution). i Conidiogenous cells giving rise to beta conidia. j–l Beta conidia in Lugol's solution. Scale bars: b = 1 mm, c = 100 μ m, d–f = 20 μ m, g, h = 10 μ m, i–l = 20 μ m.

Hypocreales Lindau

Bionectriaceae Samuels & Rossman

Clonostachys Corda

Clonostachys rogersoniana Schroers, Stud. Mycol. 46: 109 (2001)

Fig. 18

Facesoffungi number: FoF07755

Saprobic on decaying seed pods of *Delonix regia*. Sexual morph: Undetermined. Asexual morph: Hyphomycetous, colonies appearing as white patches on both inner and outer epidermis of the seed pod. *Conidiophores* arising from stroma, monomorphic, hyaline, smooth-walled, penicillate, stipes 70–100 μ m long, 4.2–6.8 μ m wide at base. *Penicilli* 58–80 μ m high, \times 50–100 μ m diam. at widest point; solitary to gregarious, not sporodochial, bi- to quaterverticillate; branches of the penicillus divergent, each branch terminating in metulae and adpressed phialides. *Phialides* 7–12.4 μ m (\bar{x} = 10 μ m) long, 1.8–2.9 μ m (\bar{x} = 2.4 μ m) wide at widest point, in whorls of up to 6, narrowly flask-shaped, slightly tapering toward the apex. *Intercalary phialides* not observed. *Conidial masses* white. *Conidia* 4.9–9.1 \times 1.6–2.3 μ m (\bar{x} = 7.2 \times 2 μ m, n = 30), broadly ellipsoidal to oval, rarely minutely curved, ends broadly rounded, bi-guttulate, hilum laterally displaced, almost median or invisible, hyaline, smooth-walled.

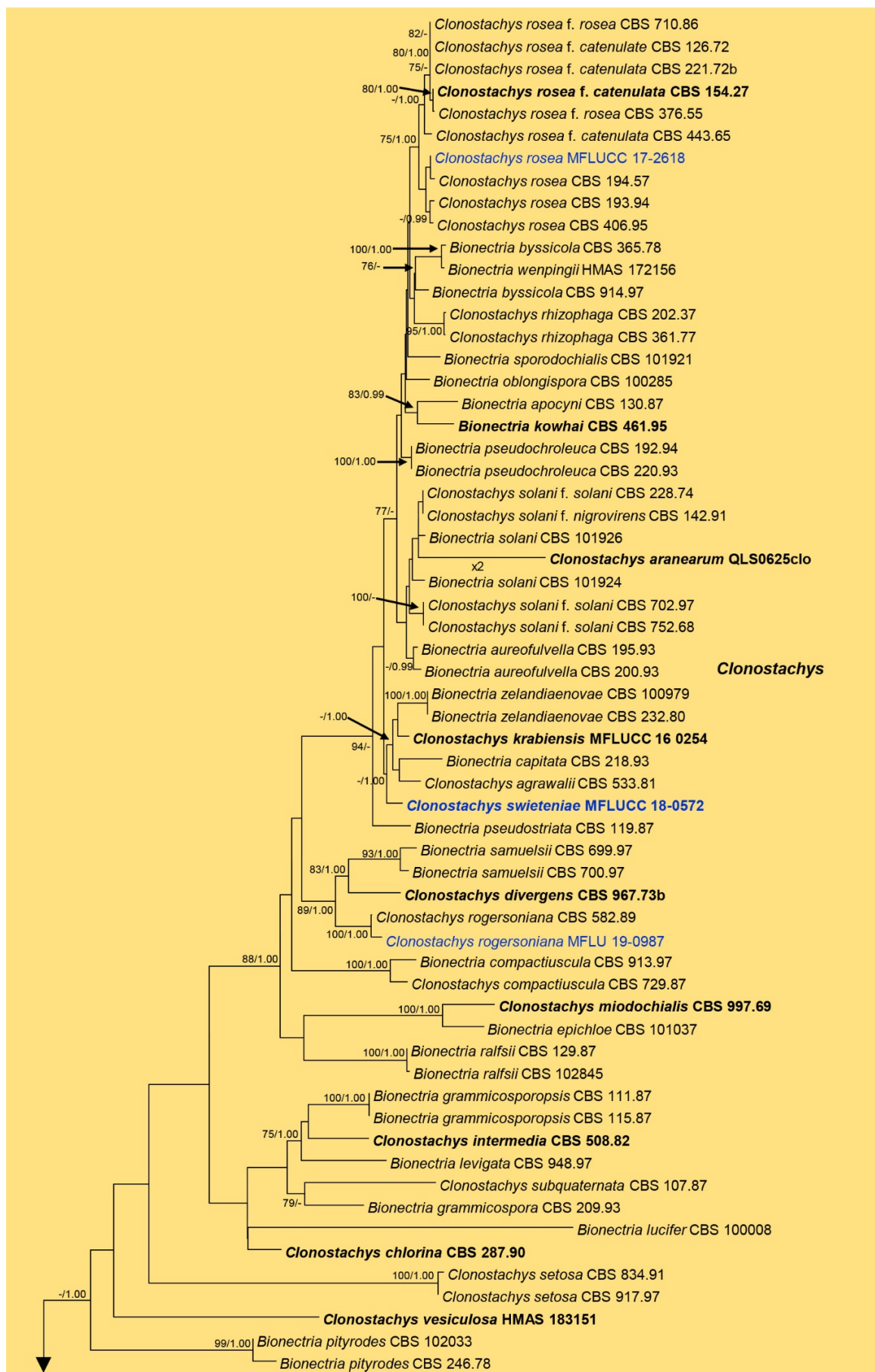


Figure 17 – Phylogram generated from RAxML analysis based on combined ITS and TUB2 sequence data of *Clonostachys* isolates. Sequences from seventy-two taxa, which comprise 1087

characters including gaps, are included in the analyses. The tree was rooted to *Nectria cinnabarina* NRRL 20484 and *Fusarium acutatum* CBS 402.97. The scale bar indicates 0.07 nucleotide changes per site.

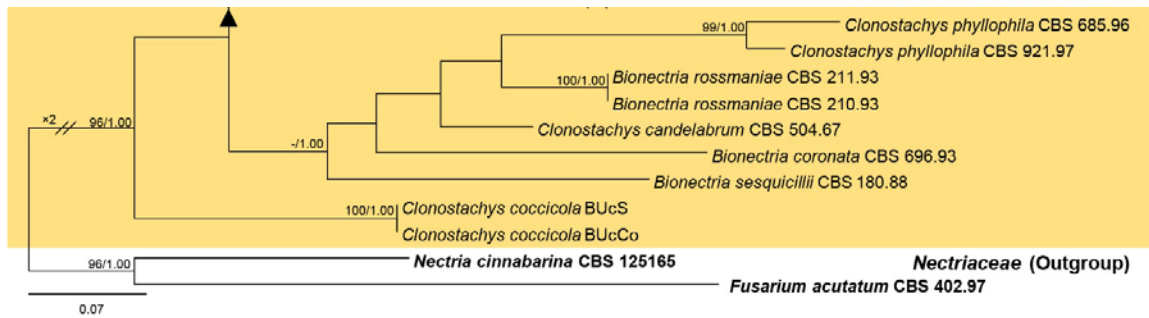


Figure 17 – Continued.

Material examined – Thailand, Chiang Mai Province, on decaying seed pods of *Delonix regia* (Fabaceae), 20 December 2016, R.H. Perera, Delo 01 (MFLU 19-0987).

GenBank numbers – ITS: MT215572, LSU: MT215538, TUB2: MT212208.

Notes – Our new strain clusters with *Clonostachys rogersoniana* (CBS 582.89) with high statistical support (100% MLBT, 1.0 BIPP; Fig. 17) in phylogenetic analysis of ITS sequence data, and they are morphologically similar in having the same conidiophore characters and conidial dimensions (Schroers 2001). However, verticillate conidiophores were not observed in our collection (Schroers 2001). With morphological and DNA molecular analysis support, we report a new host record of *Clonostachys rogersoniana* from *Delonix regia*.

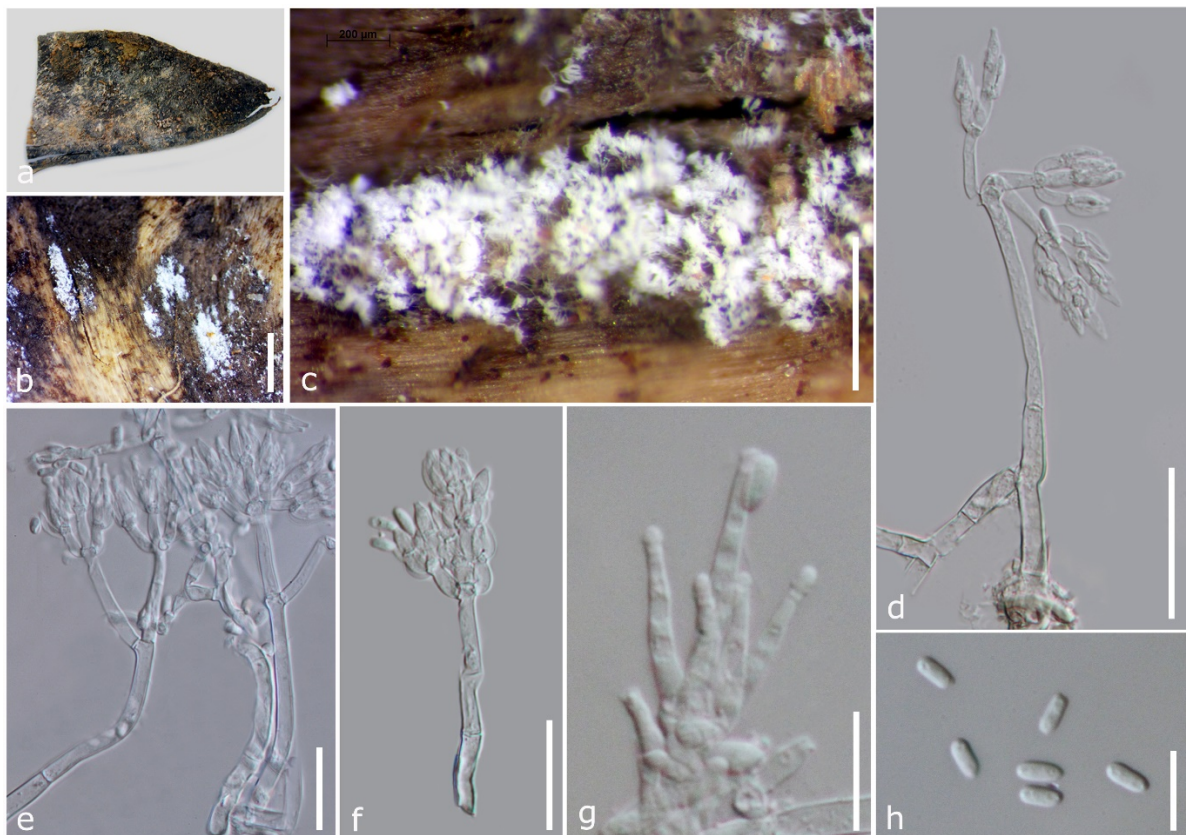


Figure 18 – *Clonostachys rogersoniana* (MFLU 19-0987). a Herbarium material. b, c Colonies on host. d–f Conidiophores with phialides. g Phialides with conidia. h Conidia. Scale bars: b = 2 mm, c = 1 mm, d–f = 20 µm, g, h = 10 µm.

Facesoffungi number: FoF06012

Saprobic on decaying fruits of *Swietenia mahagoni*. Sexual morph: *Stromata* well developed, erumpent. *Ascomata* 170–215 × 160–218 μm (\bar{x} = 185 × 186 μm, n = 7), perithecial, densely crowded in groups, globose to subglobose to oval, not collapsing or sometimes slightly laterally pinched when dry, light orange to yellowish orange, KOH-, not papillate, surface smooth to slightly roughened, but not distinctly warted. *Ostiole* periphysate. *Peridium* 21–46 μm wide, wider around the ostiole, two strata: outer layer 21–30 μm wide, comprising unevenly thickened brownish yellow cells of *textura angularis* to *textura globosa*, becoming larger towards the periphery, most cells containing a vacuole; inner layer 8–14 μm wide, consists of flat, hyaline cells of *textura angularis*. *Asci* 50.6–62.2 × 6–7.2 μm (\bar{x} = 55.4 × 6.6 μm, n = 18), 8-spored, unitunicate, narrowly clavate, apex flat with somewhat rounded edges, short stalked, apical ring J-. *Ascospores* 8.9–11.9 × 2.9–3.4 μm (\bar{x} = 10.7 × 3.1 μm, n = 25), bi-seriate above and uni-seriate below, 1-septate, equilateral, not constricted at the septum or slightly constricted in mature ascospores, ellipsoidal to oblong ellipsoidal, 4-guttulate, hyaline, spinulose. Asexual morph: See Schroers (2001).

Culture characteristics – Ascospores germinating on PDA within 12 hours. Colonies growing on PDA, reaching up to 4.5 cm in 7 days at 25°C, surface effused, smooth, margin entire to undulate, aerial mycelium rare, initially white, becoming yellowish, reverse yellowish.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University Garden, on decaying fruits of *Swietenia mahagoni* (L.) Jacq. (Meliaceae), 06 September 2017, R.H. Perera, Maho 04 (MFLU 18-2770), living culture MFLUCC 17-2618.

GenBank numbers – ITS: MT215574, LSU: MT396165, TEF: MT415234.

Notes – Our new isolate (MFLUCC 17-2618) groups with *Clonostachys rosea* isolates of CBS 194.57, CBS 193.94 and CBS 406.95. (Fig. 17). A comparison of nucleotides shows ITS loci of our isolate identical to *C. rosea* (CBS 194.57, CBS 193.94 and CBS 406.95). Our collection morphologically resembles *C. rosea* in ascomatal colour, size, asci and ascospore dimensions (Rossman et al. 1999, Schroers et al. 1999). This collection represents a new host record for *C. rosea*.

Clonostachys swieteniae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 20

Index Fungorum number: IF556856; Facesoffungi number: FoF07756

Etymology – Named after the host genus *Swietenia*.

Holotype – MFLU 18-2769

Saprobic on decaying fruits of *Swietenia mahagoni*. Sexual morph: Undetermined. Asexual morph: Hyphomycetous, colonies appearing as white patches on the host. *Conidiophores* arising from stroma, mononematous, monomorphic, hyaline, smooth-walled, penicillate, stipes 130–200 μm long, 5–8 μm wide at base. *Penicilli* 28–66 μm high, × 20–60 μm diam. at widest point; solitary to gregarious, not sporodochial, bi- or quater-verticillate; branches of the penicillus divergent, each branch terminating in metulae and adpressed phialides. *Phialides* 9–14.1(–17) × 2.1–3.2 μm (\bar{x} = 11.4 × 2.6 μm, n = 40), in whorls of 2–6, narrowly flask-shaped, slightly tapering toward the apex, with visible periclinal thickening, collarettes inconspicuous, hyaline, smooth-walled. *Intercalary phialides* not observed. *Conidial masses* white. *Conidia* (4.5–)5.1–6.7 × 1.9–2.6 μm (\bar{x} = 6 × 2.2 μm, n = 40), broadly ellipsoidal to oval, rarely minutely curved, ends broadly rounded, straight, bi-guttulate, hilum laterally displaced, almost median or invisible, hyaline, smooth-walled.

Culture characteristics – Conidia germinating on PDA within 12 hours. Colonies growing on PDA, reaching up to 3.8 cm within 7 days at 25°C, surface slightly raised, smooth, margin entire to undulate, aerial mycelium dense, initially white, becoming yellowish, reverse yellow.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University Garden, on decaying fruits of *Swietenia mahagoni* (Meliaceae), 6 September 2017, R.H. Perera, Maho 02 (MFLU 18-2769, holotype), ex-type living culture MFLUCC 18-0572.

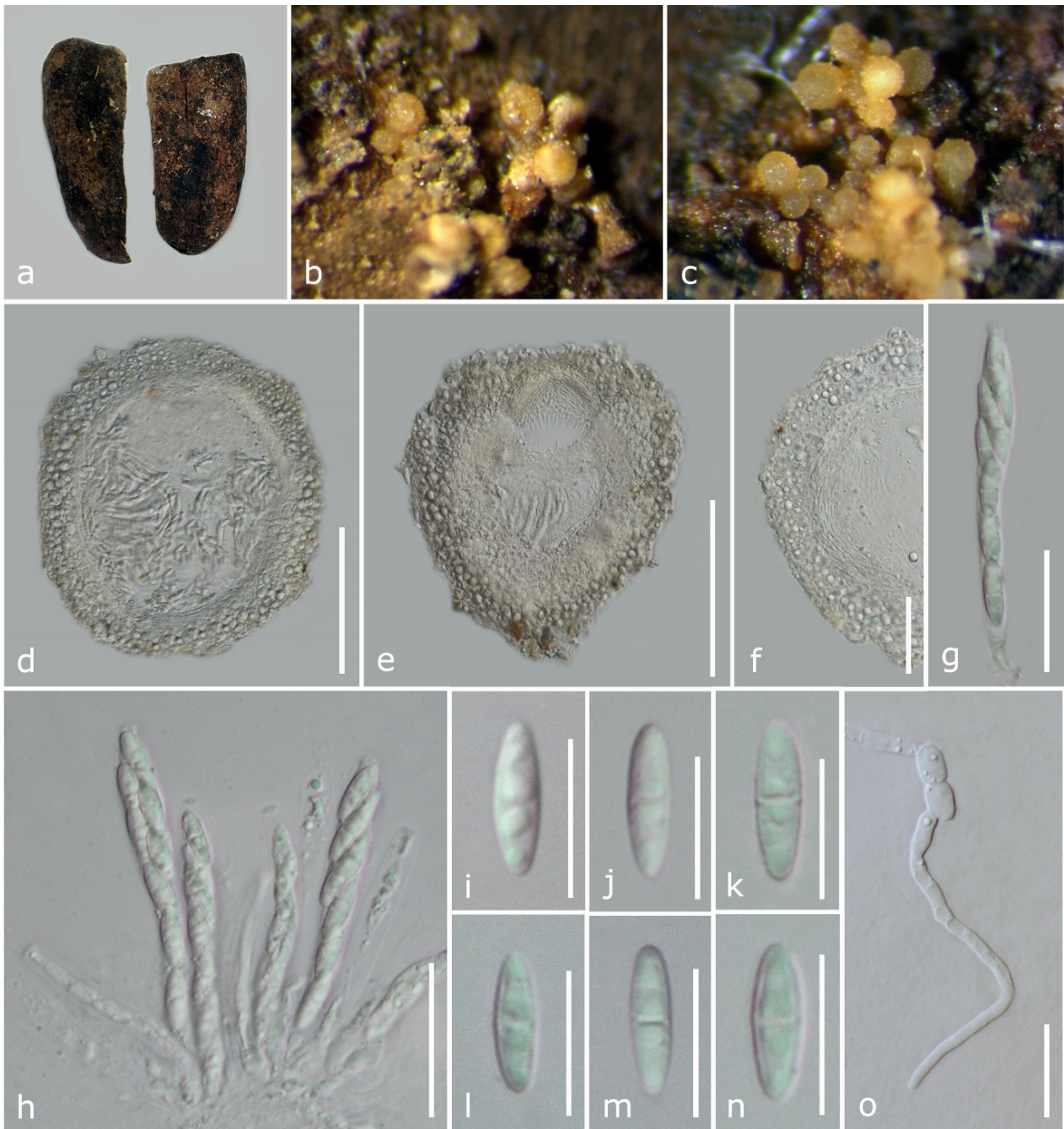


Figure 19 – *Clonostachys rosea* (MFLU 18-2770). a Herbarium material. b, c Ascomata on host. d, e Section of ascomata. f Section of peridium. g, h Asci. i–n Ascospores. o Germinating ascospore. Scale bars: d, e = 100 μ m, f = 50 μ m, g, h = 20 μ m, i–n = 10 μ m, o = 20 μ m.

GenBank numbers – ITS: MT215573, LSU: MT396164, TEF1: MT212204.

Notes – *Clonostachys swieteniae* constitutes a distinct lineage within *Clonostachys* (Fig. 17). A comparison of the ITS regions of *C. swieteniae* reveals 11 (2.1%), 10 (2.1%), 7 (1.5%) and 8 (1.7%) nucleotide differences with *C. capitata*, *C. zelandiaenovae*, *C. agrawalii* and *C. krabiensis*, respectively. *Clonostachys swieteniae* can be discriminated from *C. capitata* by its longer and wider conidiophore stipe (130–200 \times 5–8 vs. 100 \times 3.5 μ m) and straight, smaller conidia (5.1–6.7 \times 1.9–2.6 vs. 6–7.2 \times 2.8–3.4 μ m), which are curved in *C. capitata* (Schroers 2001). *Clonostachys swieteniae* is different from *C. krabiensis*, which was also collected from Thailand, by the absence of setae and not forming sporodochial conidiophores (Tibpromma et al. 2018). We therefore identified *Clonostachys swieteniae* as a new taxon.

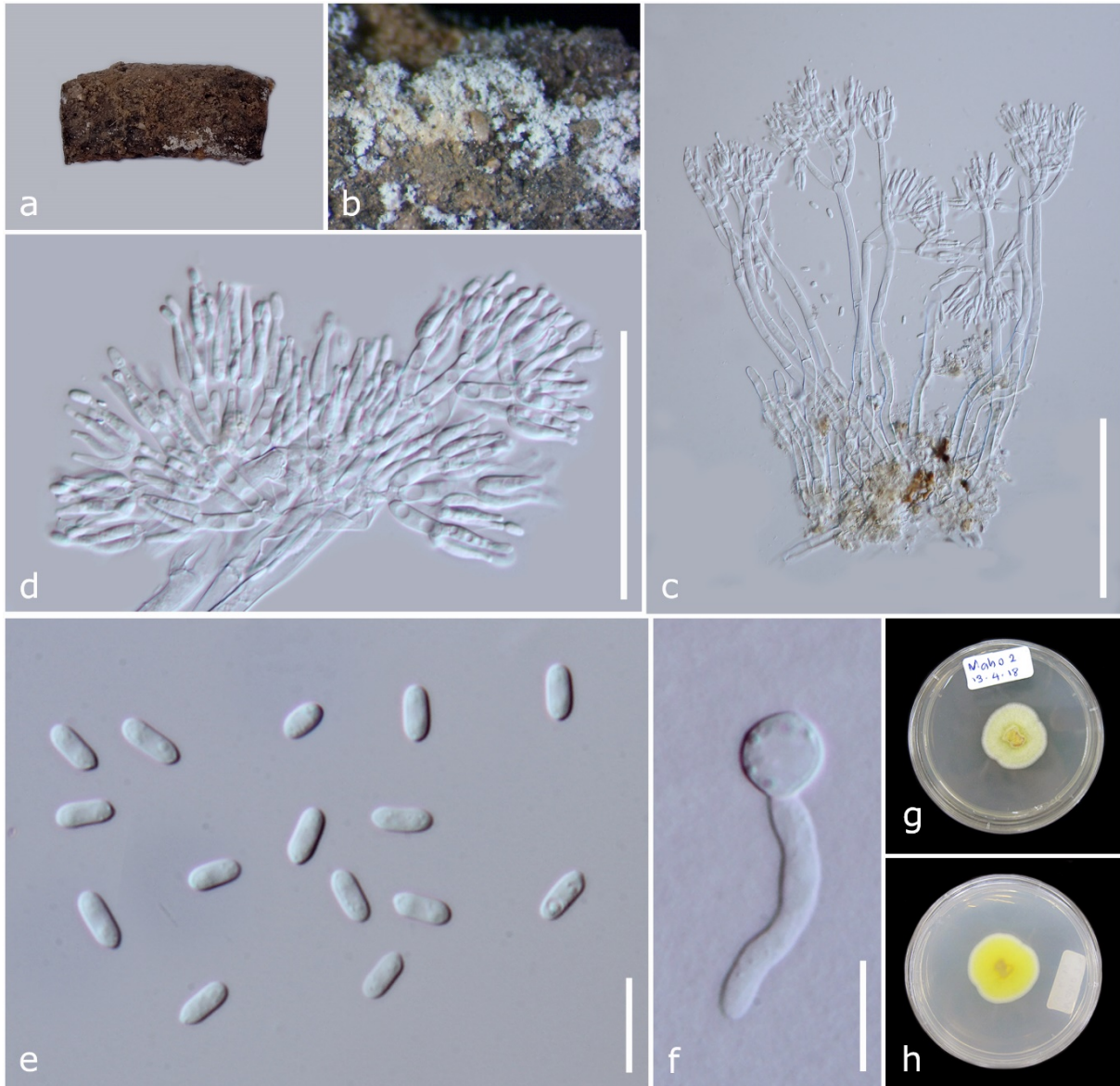


Figure 20 – *Clonostachys swieteniae* (MFLU 19-0987). a Herbarium material. b Colony on host. c Conidiophores. d Conidiogenous apparatus. e Conidia. f Germinating conidium. g, h Colony on PDA. Scale bars: c = 100 μm , d = 50 μm , e, f = 10 μm .

Myrotheciomycetaceae Crous

Trichothecium Link

Trichothecium roseum (Pers.) Link, Mag. Gesell. naturf. Freunde, Berlin 3(1-2): 18 (1809)

Figs 22, 23

Facesoffungi number: FoF07768

On dried pods of *Delonix regia*. Sexual morph: Undetermined. Asexual morph: Hyphomycetous. *Conidiophores* 215 \times 360 μm long, 3.3–5 μm wide (\bar{x} = 270 \times 4 μm , n = 20), simple, long, slender, rarely branched, septate, often slightly swollen at the tip, hyaline, smooth-walled. *Conidia* 11.5–25.5 \times 8–14.6 μm (\bar{x} = 20 \times 11 μm , n = 30), borne apically and singly, attached in groups or chains, pink in mass, 1-septate, ovate, hyaline, thick-walled, each with a decurved, abruptly narrowed basal hilum terminating in a distinct truncate end, often clustered. *Conidiophores* on MEA retrogressive, with each conidial base subsuming a portion of conidiophore apex. *Conidia* arise from the side of the conidiophore apex. *Chlamydospores* present, 7–8.8 μm wide (n = 10), in intercalary chains, hyaline, smooth-walled.

Culture characteristics – Conidia germinating on PDA within 12 hours. Colonies growing on PDA, reaching up to 4.5 cm within 7 days at 28°C, surface effused, smooth, margin entire, aerial mycelium rare, initially white, turning salmon pink, reverse salmon pink. Colony on MEA reaching up to 3.3 cm in 7 days at 28°C, sporulating within 30 days.

Materials examined – THAILAND, Chiang Rai Province, Mae Fah Luang University garden, on dried pods of *Delonix regia* (Fabaceae) on the ground, 1 December 2017, R.H. Perera, Delo 24 (MFLU 18-2773), living culture: MFLUCC 17-1036; *ibid.*, on dried pods of *Tamarindus indica* L. (Fabaceae) on the ground, 6 December 2016, R.H. Perera, Tam 4 (MFLU 18-2735), sporulated dry culture: MFLU 18-0624, living culture: MFLUCC 17-0141.

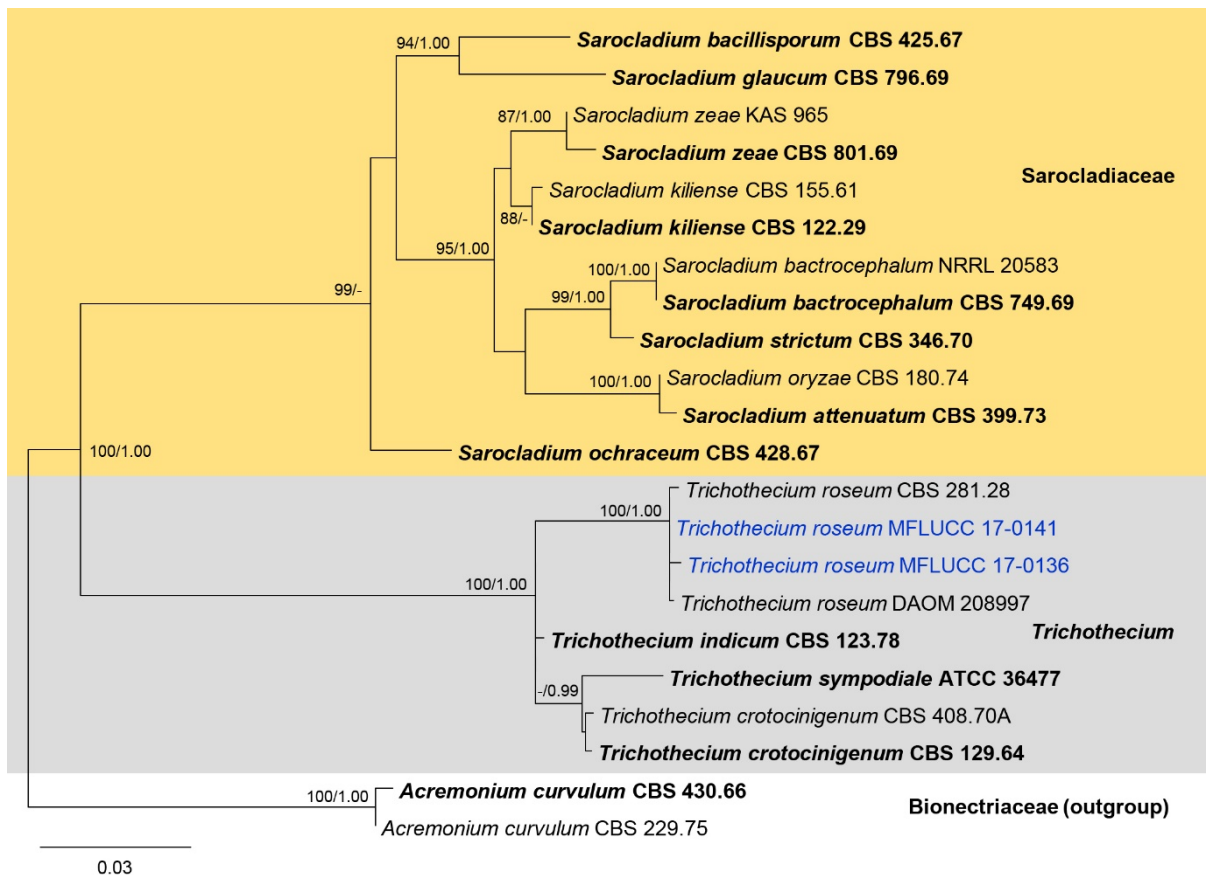


Figure 21 – Phylogram generated from RAxML analysis based on combined LSU and ITS, sequence data of *Trichothecium* isolates. Sequences from twenty-two taxa, which comprise 1390 characters including gaps, are included in the analyses. The tree was rooted to *Acremonium curvulum* CBS 430.66 and *Acremonium curvulum* CBS 229.75. The scale bar indicates 0.03 nucleotide changes per site.

GenBank numbers – ITS: MT215509, LSU: MT215558 (MFLUCC 17-1036); ITS: MT215510, LSU: MT215559 (MFLUCC 17-0141).

Notes – In the phylogenetic analysis our two isolates grouped within *Trichothecium roseum* isolates CBS 281.28 and DAOM 208997 (Fig. 21). Based on the phylogenetic analysis and morphological similarities the fungus was identified as *Trichothecium roseum* (Petraik 1953, Bello 2008), and is a new host record.

Nectriaceae Tul. & C. Tul.
Fusarium Link

Fusarium cassiae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 25

Index Fungorum number: IF556857; Facesoffungi number: FoF07757

Etymology – Name reflects the host genus *Cassia fistula*.

Holotype – MFLU 18-2751

Saprobic on decaying pods of *Cassia fistula*. Sexual morph: *Ascomata* 110–180 μm high \times 110–155 μm diam. (\bar{x} = 132 \times 128 μm), superficial, solitary to gregarious, blue-black to dark purple, subglobose to ampulliform, or obpyriform, collapsing laterally when dry, with a slightly papillate ostiole. *Peridium* 16–30 μm wide, comprising dark purple to hyaline, thick-walled cells of *textura angularis*. *Catenophyses* absent. *Asci* 59–83 \times 9–16 μm (\bar{x} = 70.2 \times 11.8 μm , n = 20), 4–8-spored, unitunicate, clavate, with a short pedicel, truncate at the apex, apical ring J-. *Ascospores* 10.3–21.2 \times 5.6–8.8 μm (\bar{x} = 15.9 \times 7 μm , n = 37), 1–2-seriate, varied in shape, ellipsoidal to oblong, or subglobose to obovoid, or fusiform, with both ends rounded, (0–)1-septate, not or slightly constricted at the septum, hyaline, pale brown when mature, guttulate, smooth-walled. Asexual morph: Undetermined.

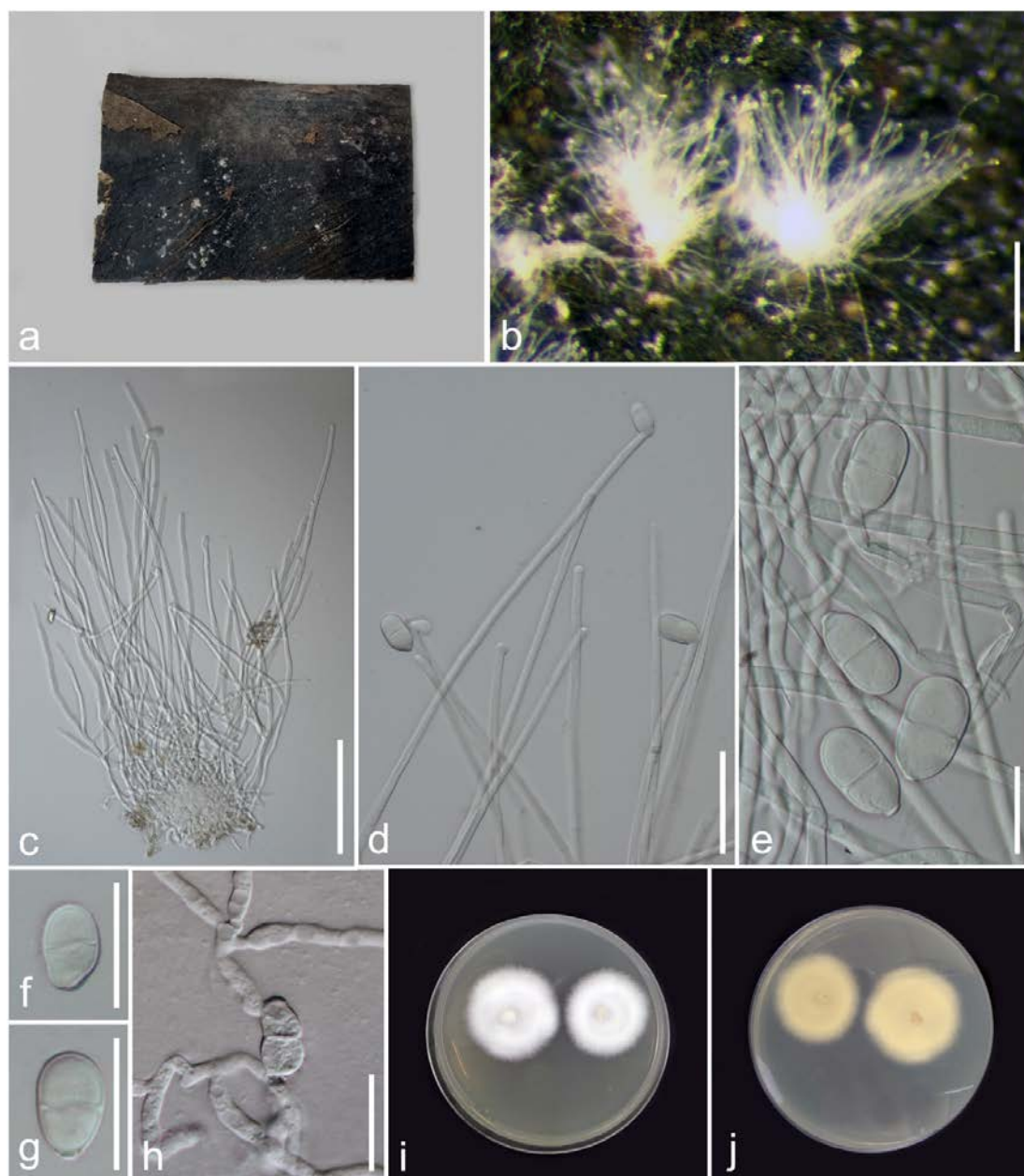


Figure 22 – *Trichothecium roseum* (MFLU 18-2773). a Herbarium material. b Conidiomata on host. c, d Conidiophores with conidia. e–g Conidia. h Germinating conidium. i, j Colony on PDA. Scale bars: b = 200 μm , c = 100 μm , d = 50 μm , e–h = 20 μm .

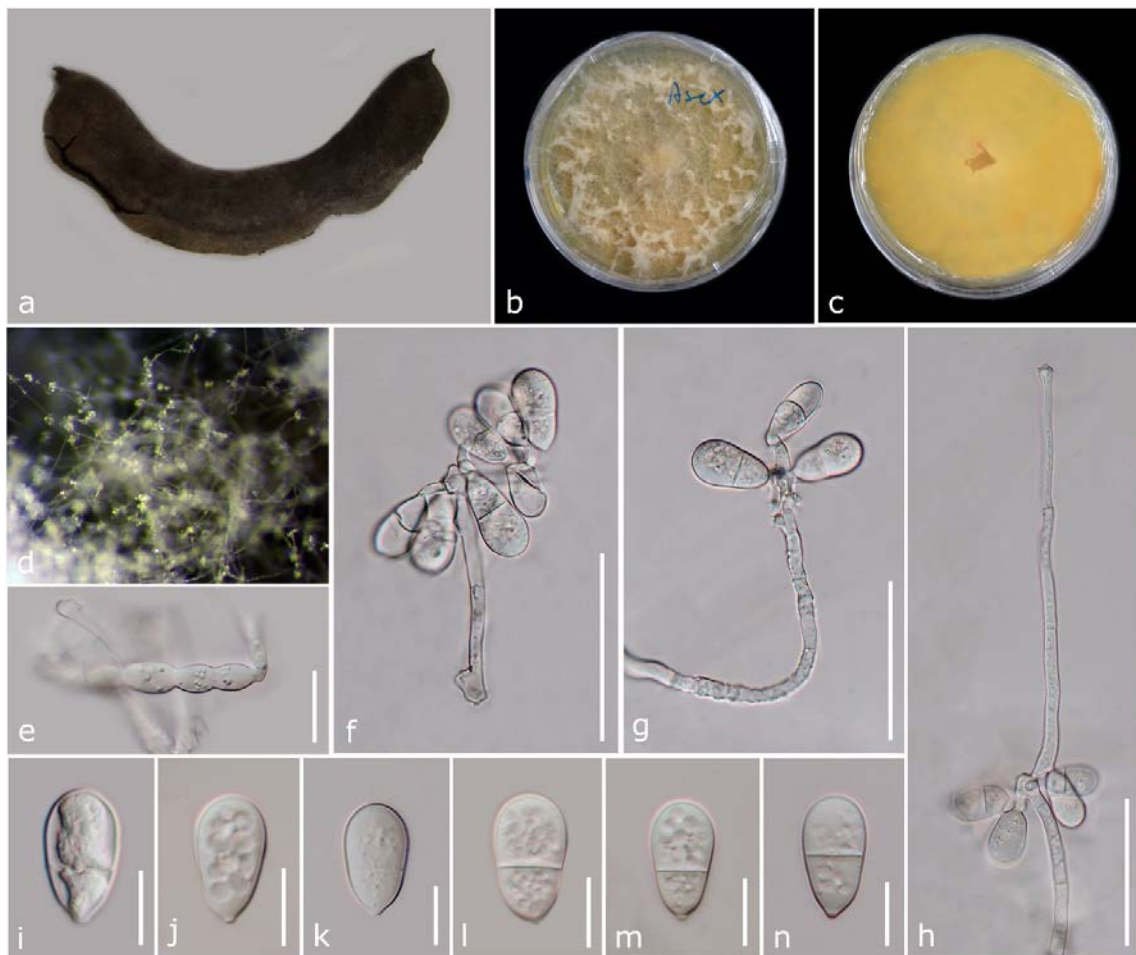


Figure 23 – *Trichothecium roseum* (MFLU 18-0624). a Herbarium material. b, c Sprorulating colony on MEA. d Conidiomata on MEA. e Chlamydospores. f–h Conidiophores with conidia. i–n Conidia. Scale bars: e–h = 20 µm, i–n = 10 µm.

Culture characteristics – Colonies on PDA reach 3–4.5 cm diameter within 7 days at 25°C, circular, flat, smooth, edges crenate, zonate, whitish above, reddish at the center, reverse white.

Material examined – THAILAND, Phayao Province, decaying pods of *Cassia fistula* (Fabaceae) on the ground, R.H. Perera, 4 August 2017, PH-CAS 05 (MFLU 18-2751, holotype), ex-type living culture MFLUCC 18-0573.

GenBank numbers – ITS: MT215495, LSU: MT215546, RPB2: MT212197, TEF1: MT212205.

Notes – In the phylogenetic tree, *Fusarium cassiae* is closely related to *F. stilboides* (NRRL 20429) with low support (70% ML, 0.99 BIPP; Fig. 24). A comparison of RPB2 gene region of new fungus and *F. stilboides* (NRRL 20429) indicates 53 (5.9%) different nucleotides. *F. cassiae* also can be discriminated from *F. stilboides* in having variously shaped, (0–)1-septate ascospores vs. elliptical, 1–3 septate ascospores in *F. stilboides* (Booth 1971). The NCBI megablast search of ITS and TEF1 sequences show 99% similarity (476/477) with *F. lateritium* (CF6), and 97% similarity (659/682) with *F. lateritium* (YT2-7), respectively. However, the highest similarity (93%, 801/858) obtained in the megablast search of RPB2 sequences is with *F. lateritium* strain (NRRL 13622). We therefore recognize *F. cassiae* as a novel species.

Fusarium magnoliae-champaca R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 26

Index Fungorum number: IF556920; Facesoffungi number: FoF07758

Etymology – Name reflects the host plant *Magnolia champaca*.

Holotype – MFLU 18-2736

Saprobia on dried fruits of *Magnolia champaca*. Sexual morph: *Ascomata* 75–215 μm high \times 70–210 μm diam. (\bar{x} = 147 \times 143 μm , n = 10), superficial, solitary to gregarious, blue-black to dark purple, subglobose to ampulliform, or obpyriform, collapsing laterally when dry. *Ostioles* periphysate. *Peridium* 30–40 μm wide, composed of two layers, inner 3–5 layers, comprising hyaline cells of *textura angularis*, outer 3–5 layers, comprising brown to dark purple, thick-walled cells of *textura angularis*. *Hamathecium* comprising hyaline, distinctly septate catenophyses, each cell 12.7–17.5 μm long \times 14.2–22.5 μm wide. *Asci* (70–)90–100(–109) \times (7–)9–13(–16) μm (\bar{x} = 96.5 \times 11 μm , n = 40), 8-spored, unitunicate, clavate, with short pedicel, slightly rounded to truncate at the apex. *Ascospores* (8–)16–20(–25) \times (4.5–)6–7.5(–9) μm (\bar{x} = 18 \times 6.6 μm , n = 165), 1–2-seriate, pale brown, varied in shape, ellipsoidal to oblong, or subglobose to obovoid, or fusiform, with both ends rounded, (0–)1-septate, not constricted at the septum, smooth-walled. Asexual morph: Undetermined.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University garden, on ground, dried fruits of *Magnolia champaca* (L.) Baill. ex Pierre, (Magnoliaceae), 7 August 2017, S. Boonmee, Fruit 1 (MFLU 18-2736, holotype), ex-type living culture MFLUCC 18-0580.

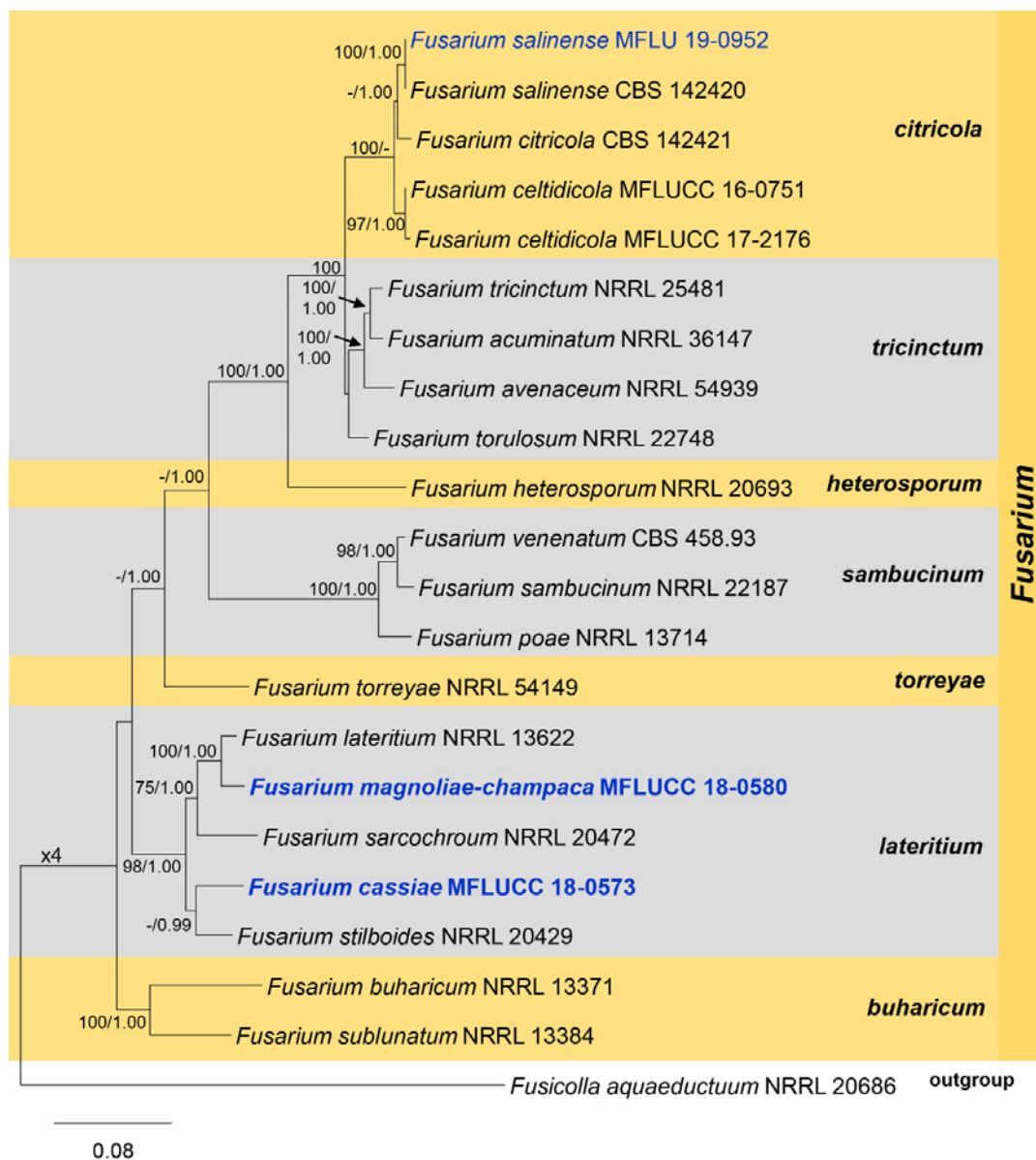


Figure 24 – Phylogram generated from RAxML analysis based on combined RPB2 and RPB1 sequence data of selected *Fusarium* isolates. Sequences from twenty-two taxa, which comprise

3349 characters including gaps, are included in the analyses. The tree was rooted to *Fusicolla aquaeductuum* (NRRL 20696). The scale bar indicates 0.08 nucleotide changes per site.

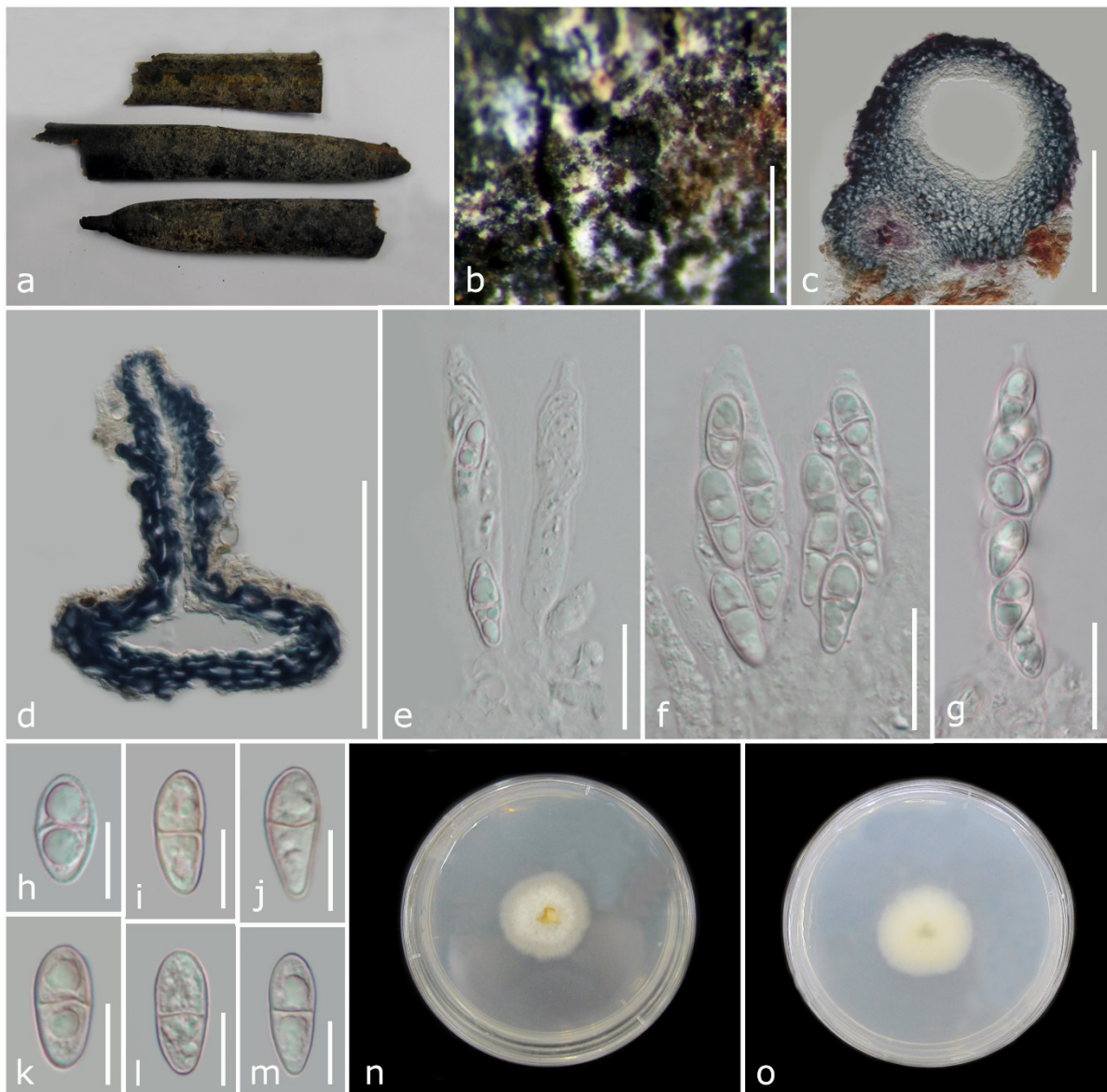


Figure 25 – *Fusarium cassiae* (MFLU 18-2751, holotype). a Herbarium material. b Ascomata on host. c, d Section of ascoma (d laterally collapsed). e–g Asci. h–m Ascospores. n, o Colony on PDA. Scale bars: b = 500 μ m, c = 100 μ m, e–g = 20 μ m, h–m = 10 μ m.

GenBank numbers – ITS: MT215496, LSU: MT215547, RPB2: MT212198.

Culture characteristics – Ascospores germinated on PDA within 12 hours. Colonies on PDA reaching 15–17 mm diameter after 7 days at 28°C, colonies circular, medium dense, flat or effuse, with entire margin, white, becoming yellowish with time, reverse pale yellow.

Notes – In the phylogenetic analysis *Fusarium magnoliae-champaca* (MFLUCC 18-0580) clusters with *F. lateritium* strain (NRRL 13622) with high statistical support (100% MLBT, 1.00 BIPP; Fig. 24). A comparison of RPB2 gene region of the new fungus and *F. lateritium* (NRRL 13622) indicates 27 (3.1%) different nucleotides. *Fusarium magnoliae-champaca* also can be delineated from *F. lateritium* in having (0–)1 septate ascospores vs. 1–3 septate ascospores and larger asci 90–100 \times 9–13 vs. 65–80 \times 8–11 μ m (Booth 1971).



Figure 26 – *Fusarium magnoliae-champaca* (MFLU 18-2736, holotype). a Herbarium material. b Ascomata on host. c, d Section of ascomata. e Periphyses. f–h Asci. i–o Ascospores. p Germinating ascospore. q, r Colony on PDA. Scale bars: b = 200 μm , c, d = 100 μm , e–h = 20 μm , i–o = 10 μm , p = 20 μm .

Fusarium salinense Sand.-Den., Guarnaccia & Polizzi, in Sandoval-Denis, Guarnaccia, Polizzi & Crous, *Persoonia* 40: 15 (2017) Fig. 27

Facesoffungi number: FoF07759

On dead samaras of *Fraxinus angustifolia*. Sexual morph: Undetermined. Asexual morph: Colonies on the host appearing as pale orange coloured masses. *Conidiomata* sporodochial, pale orange coloured. *Conidiophores* 33–48 \times 5–6.6 μm , densely and irregularly branched, bi- or triverticillately, bearing 1–2 terminal phialides, hyaline, smooth-walled. *Phialides* 7.3–12.1 \times 2.9–3.6 μm , subulate to subcylindrical, with a minute apical collarete, hyaline, smooth- and thin-walled. *Conidia* 21–42 \times 3.4–4.5 μm (\bar{x} = 40 \times 3.7 μm , n = 20), (1–)3–4-septate, falcate, slender, curved, curvature more prominent in the upper part of the conidium, slightly tapering towards the basal end, with a foot-like basal cell, hyaline, thin- and smooth-walled.

Material examined – ITALY, Forlì-Cesena Province, Collina – Forlì, dead aerial samaras of *Fraxinus angustifolia* Vahl (Oleaceae), Erio Camporesi, 22 January 2015, IT 2345 (MFLU 19-0952).

GenBank numbers – LSU: MT215548, RPB2: MT212199, TUB2: MT212211.

Notes – Since single spore isolation was unsuccessful, DNA was isolated directly from the fruiting bodies. In the phylogenetic analysis the new isolate (MFLU 19-0952) clusters with the ex-type strain of *Fusarium salinense* (CBS 142420) with high statistical support (100% MLBT, 1.00 BIPP; Fig. 24). The morphology of the new collection is similar to the holotype of *F. salinense* (Sandoval-Denis et al. 2017). However, microconidia, obtained in the culture in holotype of *F. salinense*, were not observed in our collection. The DNA sequences of new strain (MFLU 19-0952) and *F. salinense* are similar. Hence, we identify our collection as *Fusarium salinense* with a new geographical record and new host for the fungus.

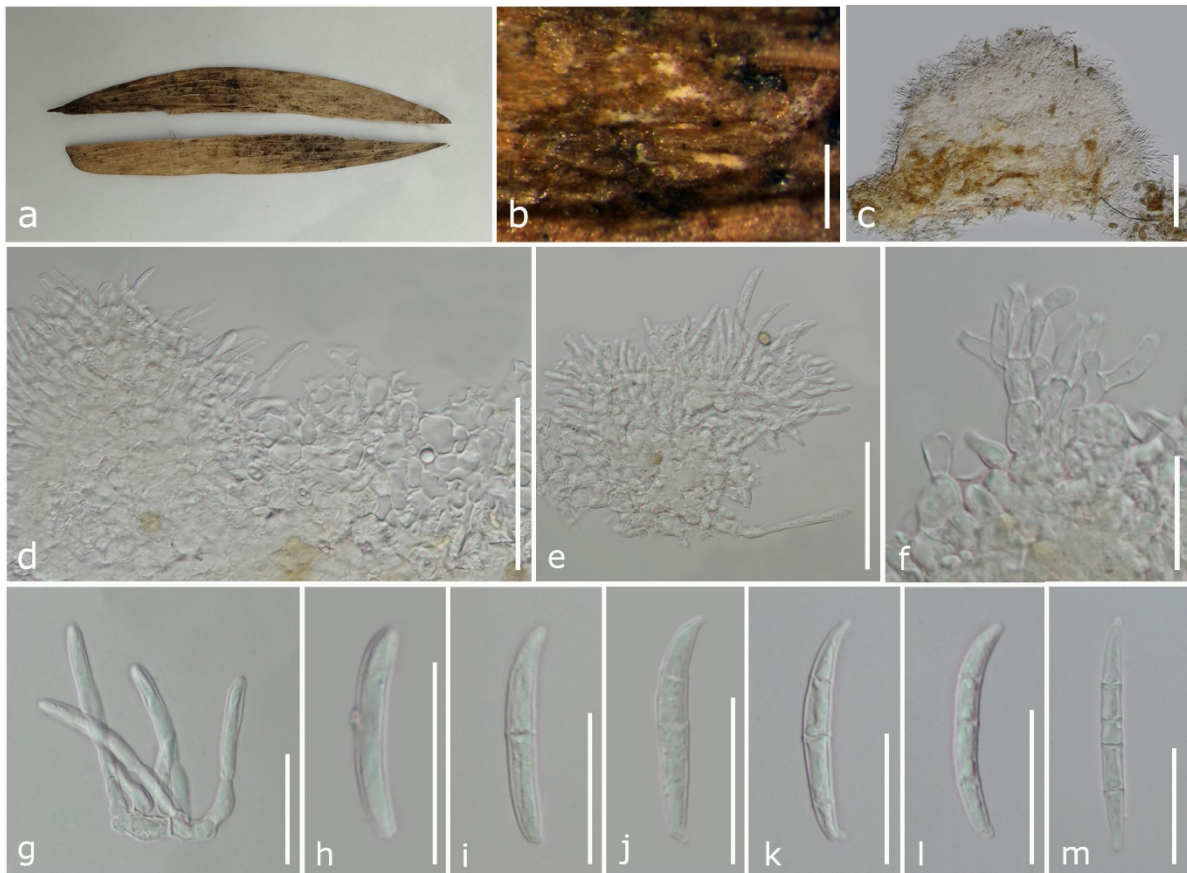


Figure 27 – *Fusarium salinense* (MFLU 19-0952). a Herbarium material. b Conidiomata on the host. c Conidioma mounted in water. d–g Conidiophores with conidia. h–m Conidia. Scale bars: b, c = 100 μ m, d, e = 50 μ m, f–m = 20 μ m.

***Fusarium* sp.**

Fig. 28

Saprobic on decaying seed pods of *Delonix regia*. Sexual morph: *Ascomata* 75–215 μ m high \times 70–210 μ m diam. (\bar{x} = 147 \times 143 μ m, n = 7), superficial, solitary to gregarious, blue-black to dark purple, subglobose to ampulliform, or obpyriform, collapsing laterally when dry. *Ostioles* slightly papillate, periphysate. *Peridium* 30–40 μ m wide, composed of two layers, inner 3–5 layers, comprising hyaline cells of *textura angularis*, outer 3–5 layers, comprising brown to dark purple, thick-walled cells of *textura angularis*. *Hamathecium* comprising hyaline, distinctly septate catenophyses, each cell 12.7–17.5 μ m long \times 14.2–22.5 μ m wide. *Asci* (70–)90–100(–109) \times (7–)9–13(–16) μ m (\bar{x} = 89 \times 11 μ m, n = 40), 6–8-spored, unitunicate, clavate, with a short pedicel, truncate at the apex, apical ring J-. *Ascospores* (8–)16–20(–25) \times (4.5–)6–7.5(–9) μ m (\bar{x} = 18 \times

6.6 μm , $n = 165$), overlapping 1–2-seriate, varied in shape, ellipsoidal to oblong, or subglobose to obovoid, or fusiform, with both ends rounded, 1-septate, slightly constricted at the septum, hyaline, smooth-walled. Asexual morph: Undetermined.

Material examined – THAILAND, Chiang Mai Province, on decaying seed pods of *Delonix regia* (Fabaceae), 6 January 2015, R.H. Perera, M-9 (MFLU 16-1075).

GenBank numbers – LSU: MT396166, SSU: MT396180, TUB2: MT415235.

Notes – We were unable to obtain cultures of this fungus using single spore isolation. DNA was extracted from the fruiting bodies. Fungal morphology of this fungus resembles *Fusarium*. Only ITS and LSU sequences are available.

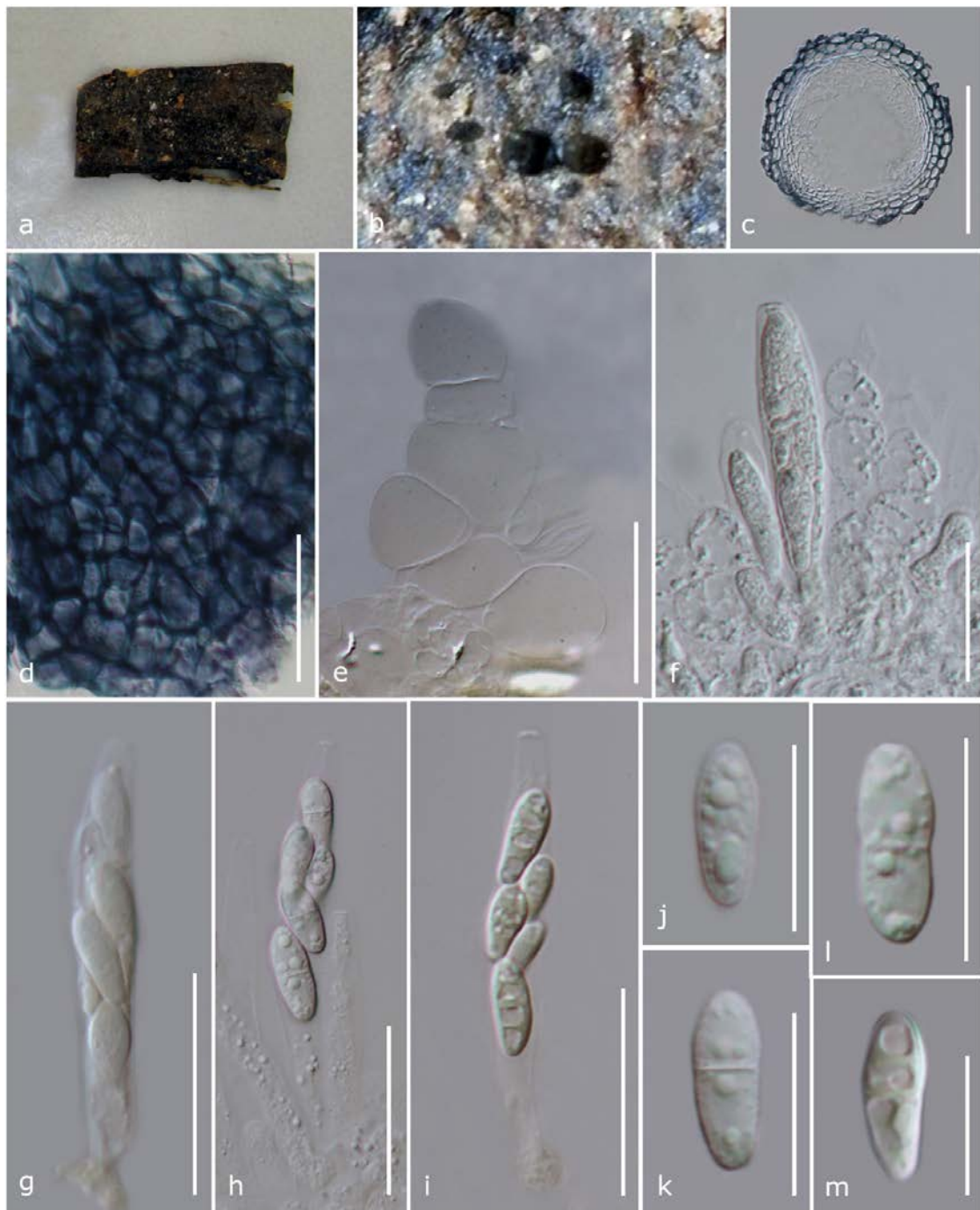


Figure 28 – *Fusarium* sp. (MFLU 16-1075). a Herbarium material. b Appearance of ascomata on host substrate. c Cross section through ascoma. d Peridium in face view. e, f Catenophyses. g–i Asci (i in Melzer’s reagent). j–m Ascospores. Scale bars: c = 100 μm , d–i = 20 μm , j–m = 10 μm .

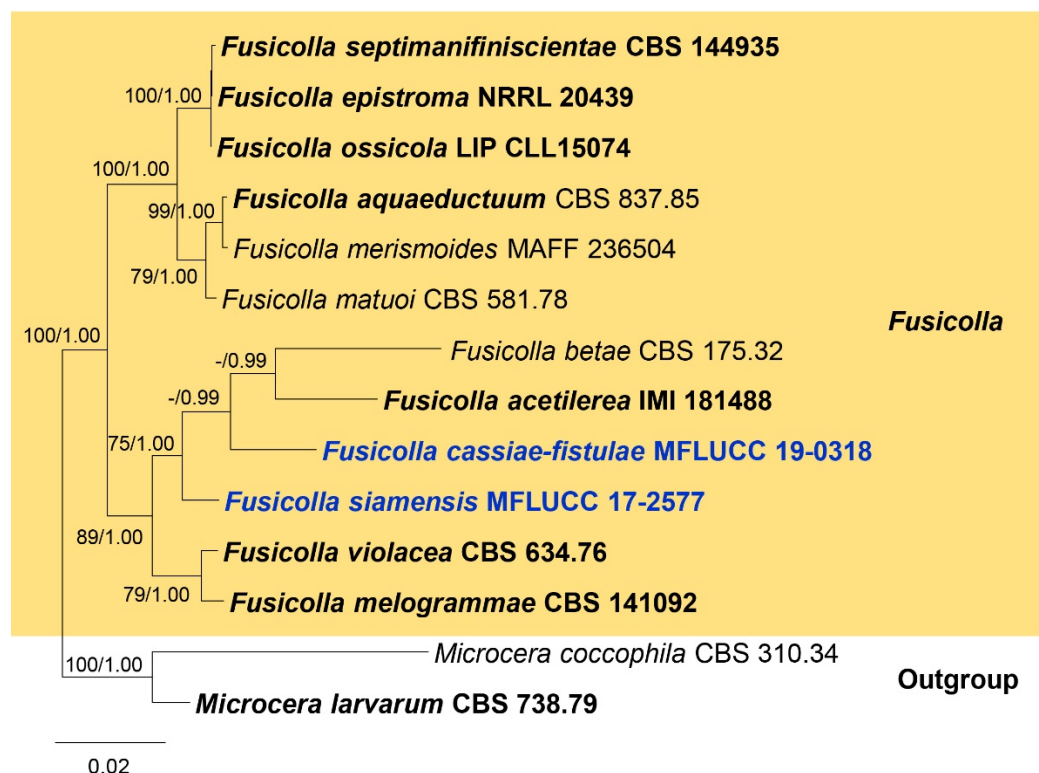


Figure 29 – Phylogram generated from RAxML analysis based on combined ITS and LSU sequence data of *Fusicolla* isolates. Sequences from fourteen taxa, which comprise 1337 characters including gaps, are included in the analyses. The tree was rooted to *Microcera larvarum* (CBS 738.79) and *M. coccophila* (CBS 310.34). The scale bar indicates 0.02 nucleotide changes per site.

Fusicolla cassiae-fistulae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov. Fig. 30

Index Fungorum number: IF556858; Facesoffungi number: FoF07760

Etymology – Name derived from the host plant *Cassia fistula*.

Holotype – MFLU 18-2753

Saprobic on decaying wood and seed pods of *Cassia fistula*. Sexual morph: *Ascomata* 150–180 μm high, 130–182 μm diam. (\bar{x} = 173 \times 157 μm , n = 10), perithecial, stroma erumpent, scattered or in small groups of 3–8, globose to pyriform sometimes collapsing when dry, yellow, pale yellow to pale orange, not changing colour in 5% KOH, smooth walled. *Ascomatal surface cells* forming a *textura angularis* in face view, with a broadly conical, rounded ostiolar neck 40–55 μm high, 70–85 μm diam. at base. *Ostiole* periphysate. *Peridium* 14–30 μm wide, two strata: outer region composed of 3–4 layers of hyaline to pale brown, thick-walled cells of *textura angularis* to *textura globosa*; inner region composed of 2–3 layers of hyaline cells of *textura angularis*. *Asci* 53–65 \times 5.8–8.2 μm (\bar{x} = 57 \times 6.7 μm , n = 20), 8-spored, unitunicate, cylindrical to narrowly clavate, short pedicellate, apex flat, apical ring J-, lying without paraphyses. *Ascospores* 6.9–10.2 \times 3.6–4 μm (\bar{x} = 8.8 \times 3.8 μm , n = 35), uniseriate, 1-septate, not constricted at the septum, ellipsoidal, rounded at ends, equilateral or inequilateral, hyaline to very pale brown, thick-walled, smooth and slightly verrucose when mature. Asexual morph: Undetermined.

Culture characteristics – Colonies on PDA at 25°C attaining 15–18 mm in 7 days. Aerial mycelium rare to absent, white to cream in centre, white at margin, margin entire, reverse pale luteous.

Material examined – THAILAND, Phayao Province, on decaying seed pods of *Cassia fistula* (Fabaceae), 4 August 2017, R.H. Perera, PH-CAS 08 (MFLU 18-2753, holotype), ex-type living culture MFLUCC 19-0318.

GenBank numbers – ITS: MT215497, LSU: MT215549.

Notes – Based on phylogenetic inference of the LSU and ITS sequences *Fusicolla cassiae-fistulae* forms an unsupported lineage within genus *Fusicolla* (Fig. 29). *Fusicolla cassiae-fistulae* resembles *F. melogrammae* and *F. ossicola* in having yellow, pale yellow to pale orange ascomata (Crous et al. 2016, Lechat & Rossman 2017). However, *F. cassiae-fistulae* can be easily distinguished from *F. melogrammae* and *F. ossicola* by having smaller ascomata, asci and ascospores (Table 1). *Fusicolla cassiae-fistulae* and ex-type of *F. melogrammae* (CBS 141092) showed 15 (2.9%, 2 gaps) different nucleotides in the ITS region and, 32 (3.8%, 0 gaps) in LSU sequences. Furthermore, ITS region of *F. cassiae-fistulae* and ex-type of *F. ossicola* (LIP CLL15074) showed 24 (4.7%, 1 gap) different nucleotides and 45 (5.3%, 3 gaps) in LSU sequences. Hence, we introduce *F. cassiae-fistulae* as a novel species.

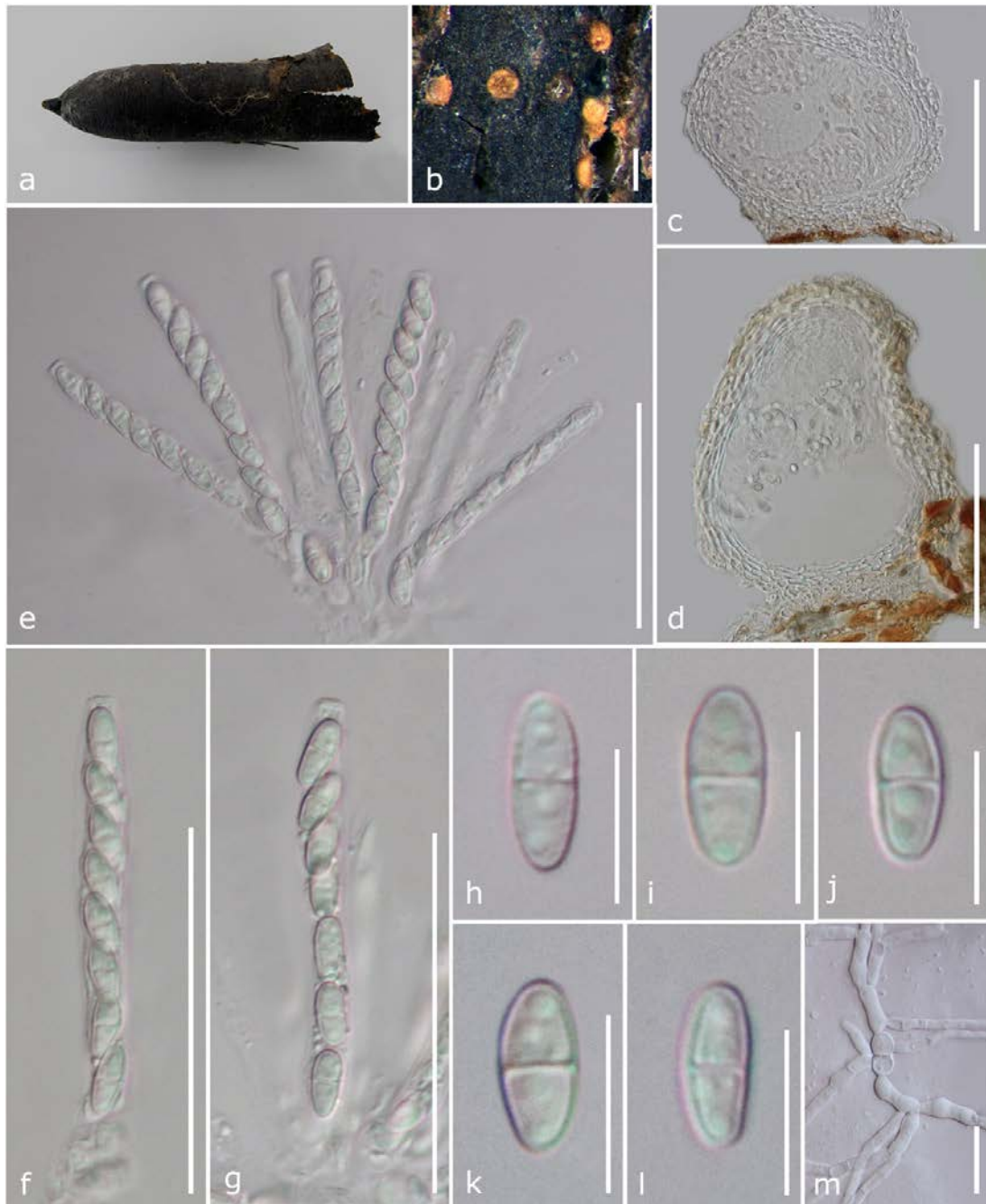


Figure 30 – *Fusicolla cassiae-fistulae* (MFLU 18-2753, holotype). a Herbarium material. b Ascomata on host. c, d Section of ascomata. e–g Asci. h–l Ascospores. m Germinating ascospore. Scale bars: b = 200 µm, c, d = 100 µm, e–g = 50 µm, h–l = 10 µm, m = 20 µm.

Fusicolla siamensis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 31

Index Fungorum number: IF556859; Facesoffungi number: FoF07761

Etymology – Name refers to the country Thailand, where the specimen was collected.

Holotype – MFLU 19-1385

Associated with dried seed pods of *Cassia fistula*. Sexual morph: Undetermined. Asexual morph: *Conidiomata* sporodochial, appearing as flat wart-like, orange masses on the host surface. *Conidiophores* 27–46 $\mu\text{m} \times 3.7$ –5.1 μm ($n = 10$), monochasial, verticillate or penicillate, each branch terminating in one or two phialides, hyaline. *Phialides* 11.5–22.5 \times 3.1–5.1 μm ($\bar{x} = 14.8 \times 4.1 \mu\text{m}$, $n = 10$), monopialidic, cylindrical to subulate, hyaline, with periclinal thickening at the unflared tip. *Microconidia* absent. *Macroconidia* 50.5–70.5 \times 5.1–8 μm ($\bar{x} = 58.2 \times 6.8 \mu\text{m}$, $n = 25$), 3–5(7)-septate, not constricted at the septa, sub-falcate, straight to curved, narrowing towards the ends, apical cell with a flat or sometimes rounded tip, basal cell slightly hooked with a more or less pointed end, hyaline, smooth-walled.



Figure 31 – *Fusicolla siamensis* (MFLU 19-1385, holotype). a Herbarium material. b Sporodochia on host. c–e Conidiogenous apparatus. f–k Conidia. Scale bars: b = 500 μm , c = 50 μm , d = 20 μm , e–k = 50 μm .

Culture characteristics – Colonies on PDA at 25°C attaining 20–25 mm in 7 days. Aerial mycelium rare to absent, white to cream in centre, white at margin, reverse pale luteous, margin entire.

Material examined – THAILAND, Phayao Province, on decaying seed pods of *Cassia fistula* (Fabaceae), 4 August 2017, R.H. Perera, PH-CAS 07 (MFLU 19-1385, holotype), ex-type living culture MFLUCC 17-2577.

GenBank numbers – ITS: MT215498, LSU: MT215550.

Notes – Based on phylogenetic inference of LSU and ITS sequence data *Fusicolla siamensis* is closely related to *F. acetilerea* (Tubaki, C. Booth & T. Harada) Gräfenhan & Seifert, *F. betae* Bonord. and *F. cassiae-fistulae* (Fig. 29). However, *F. siamensis* produced 3–5(7)-septate macroconidia, with basal cell slightly hooked ($50.3\text{--}70.4 \times 5.1\text{--}8 \mu\text{m}$), which are larger than the 3(-4) septate conidia of *F. acetilerea* ($35\text{--}40 \times 3\text{--}3.5 \mu\text{m}$; Tubaki et al. 1976). The conidia of *F. betae* are not falcate and 2–3-septate (Gräfenhan et al. 2011).

Table 1 Morphological comparison of related *Fusicolla* species.

Species	Ascomatal size (μm)	Asci size (μm)	Ascospore size (μm)	Reference
<i>Fusicolla cassiae-fistulae</i>	150–180 \times 130–182	53–65 \times 5.8–8.2	6.9–10.2 \times 3.6–4	This study
<i>F. melogrammae</i>	250–290 \times 220–250	70–80 \times 10–12	12–14 \times 4.5–5	Crous et al. (2016)
<i>F. ossicola</i>	250–300 \times 240–280	80–85 \times 8–11	10–12 \times 5–5.5	Lechat & Rossman (2017)

Gliocladiopsis S.B. Saksena

Gliocladiopsis aquaticus Y.Z. Lu, R.H. Perera & K.D. Hyde, in Hyde et al., Mycosphere 9(2): 387 (2018) Fig. 33

Saprobic on seed pods of *Cassia fistula*. Sexual morph: Undetermined. Asexual morph: appearing as white masses on the substrate, becoming yellowish with age. *Conidiophores* 90–120 \times 5.1–6.5 μm , penicillate, lacking stipe extensions and terminal vesicles, very pale brown. *Conidiogenous apparatus* with several series of hyaline to very pale brown branches; primary branches 22–27 \times 3.1–5.6 μm , aseptate or 1-septate; secondary branches 14.5–25 \times 3–4.1 μm , aseptate, hyaline; tertiary branches 9.1–15 \times 2.2–3.4 μm , aseptate, hyaline. *Phialides* 7.5–13.1 \times 1.6–2.6 μm ($\bar{x} = 11 \times 2.1 \mu\text{m}$, $n = 30$), doliform to cymbiform to cylindrical, arranged in terminal whorls of 2–5 per branch, with periclinal thickening and minute collarettes, central phialide frequently extending above the rest. *Subverticillate conidiophores* absent. *Conidia* 13.4–20.6 \times 1.7–2.6 μm ($\bar{x} = 17.3 \times 2.2 \mu\text{m}$, $n = 30 \mu\text{m}$), cylindrical, hyaline, smooth with rounded ends, straight, 0–1-septate, lacking a visible abscission scar.

Culture characteristics – Conidia germinating on PDA within 8 hours. Colonies growing on PDA reaching 35 mm within 2 weeks at 28°C, circular, with flat to effuse surface, edge entire, aerial mycelium dense, pale brown from above and below.

Material examined – THAILAND, Phayao Province, on decaying seed pods of *Cassia fistula* (Fabaceae), 4 August 2017, R.H. Perera, PH-CAS 04 (MFLU 18-2750), living culture MFLUCC 19-0317).

GenBank numbers – ITS: MT215502, LSU: MT215552, HIS3: MT212195.

Notes – The new isolate (MFLUCC 19-0317) grouped with *Gliocladiopsis aquaticus* isolates collected from Thailand with high statistical support (Fig. 32). Our collection also shares similar morphology with *G. aquaticus* in having similar sporodochial morphology, forming phialides in 2–5 terminal whorls per branch and, similar conidiophores and conidial sizes (Hyde et al. 2018). Our isolate (MFLUCC 19-0317) and two species of *G. aquaticus* (MFLUCC 17-1811, MFLUCC 17-2028) showed 6 nucleotide differences (1.2%, 1 gap) in the HIS3 region, and ITS region was identical. TUB2 gene region of *G. aquaticus* (MFLUCC 19-0317) was not available for comparison. Based on the morphological similarities and phylogenetic analysis we identify our collection as *Gliocladiopsis aquaticus* and a new host record from *Cassia fistula*.

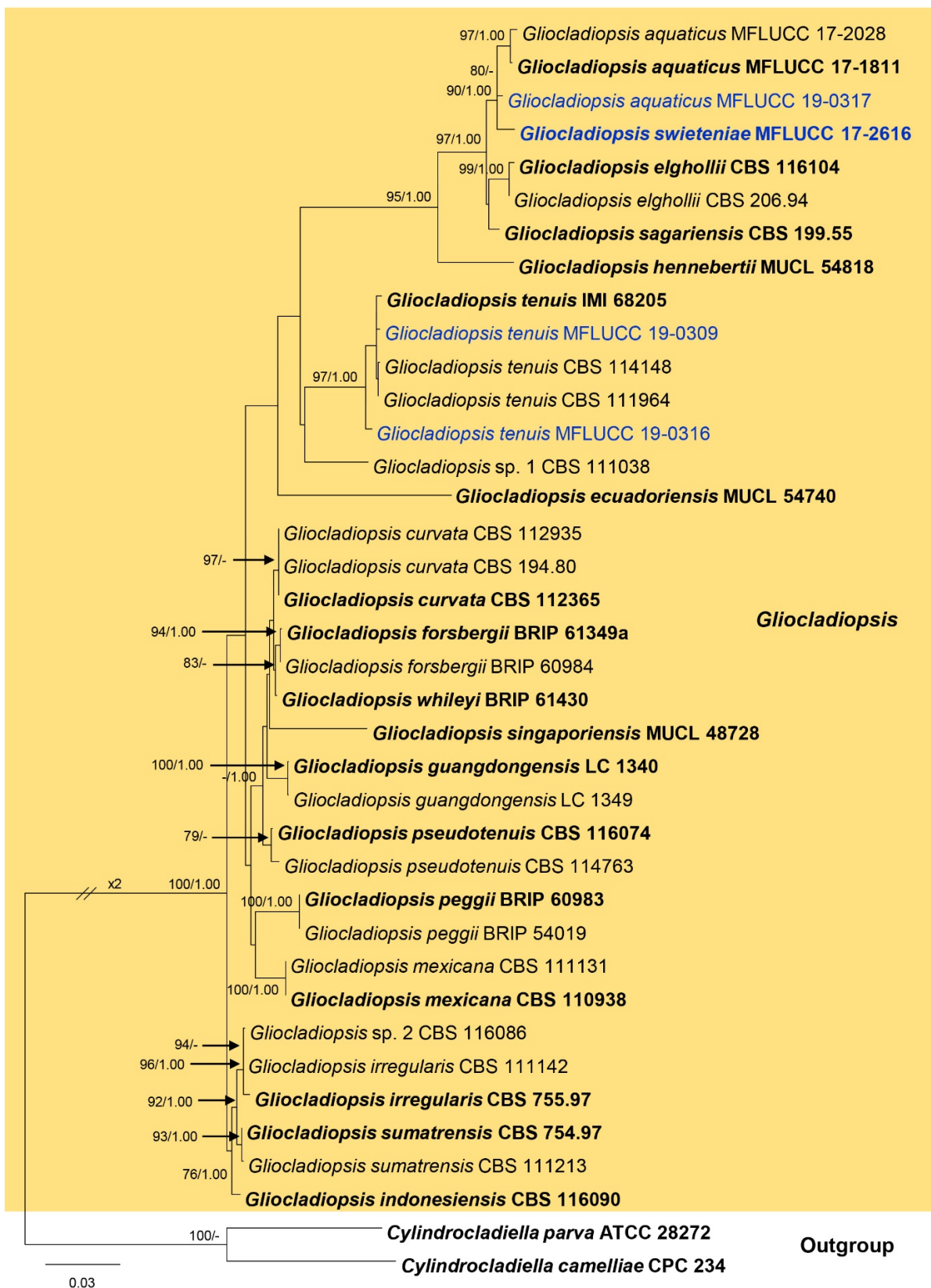


Figure 32 – Phylogram generated from RAxML analysis based on combined ITS, TUB2 and HIS3 sequence data of *Gliocladiopsis* isolates. Sequences from thirty-eight taxa, which comprise 1667 characters including gaps, are included in the analyses. The tree was rooted to *Cylindrocladiella parva* (ATCC 28272) and *C. camelliae* (CPS 234). The scale bar indicates 0.03 nucleotide changes per site.

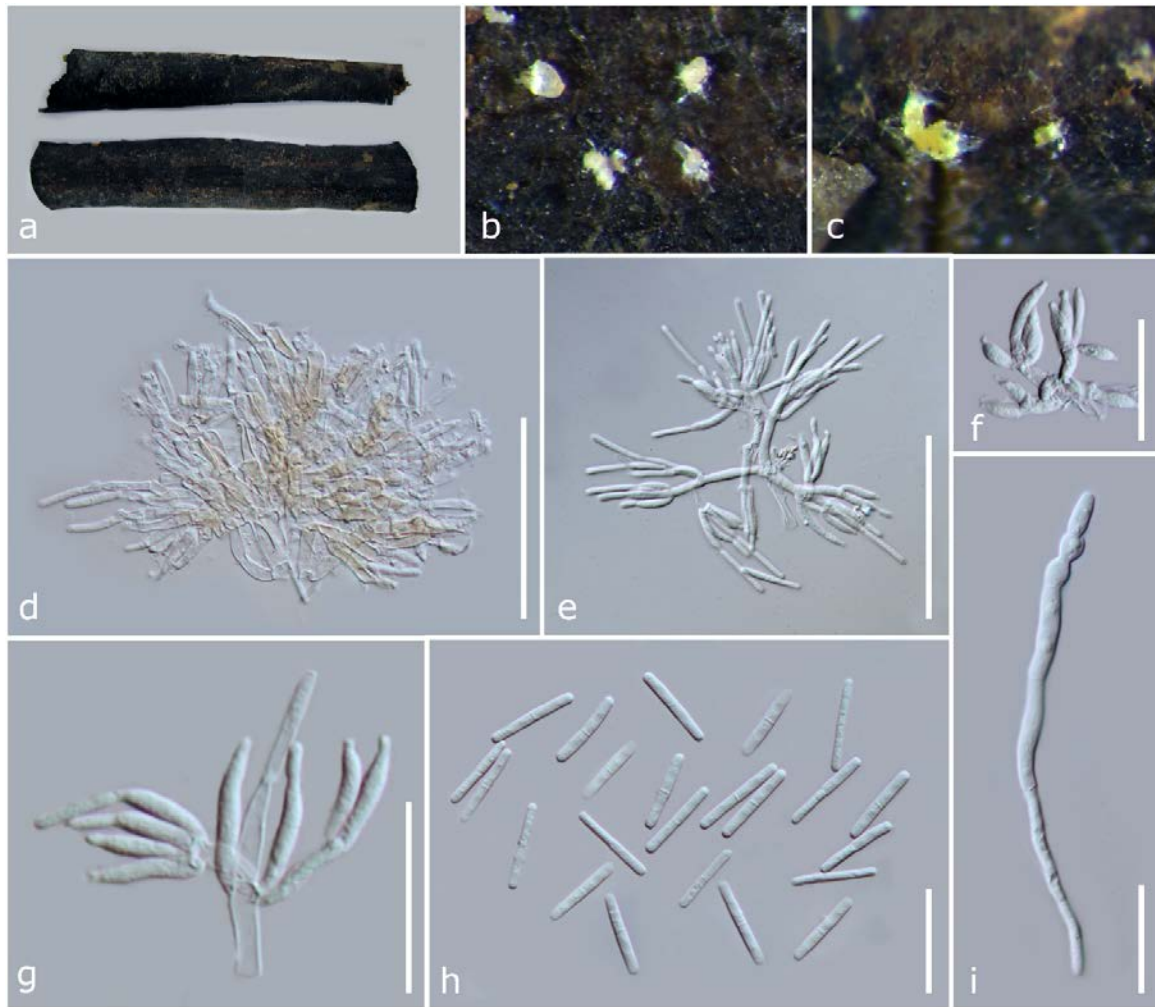


Figure 33 – *Gliocladiopsis aquaticus* (MFLU 18-2750). a Herbarium material. b, c Conidiomata on the host. c–g Conidiophores with conidia. h Conidia. i Germinating conidium. Scale bars: d, e = 50 μm , f–i = 20 μm .

Gliocladiopsis tenuis (Bugnic.) Crous & M.J. Wingf., Mycol. Res. 97(4): 446 (1993) Fig. 34

On decaying fruits of palms and *Swietenia mahagoni*. Sexual morph: Undetermined. Asexual morph: Appearing as white masses on the substrate. *Conidiophores* penicillate, 80–105 \times 4.4–8.5 μm , septate, branched, hyaline, without stipe extensions and terminal vesicles. *Conidiogenous apparatus* with several series of hyaline branches; primary branches 15–26 \times 3.8–6 μm , aseptate; secondary branches 8.7–24.5 \times 1.9–5.2 μm , aseptate; tertiary branches 12.1–16.2 \times 2.5–4.1 μm , aseptate; quaternary branches absent. *Conidiogenous cells* phialidic. *Phialides* 10–14.7 \times 2.2–3.7 (\bar{x} = 12.4 \times 2.8 μm , n = 25), doliiform to cymbiform to cylindrical, arranged in terminal whorls of 2–4 per branch, sometimes with a minute collarete, central phialide frequently extending above the rest. *Conidia* 11.4–18 \times 2.1–3.2 μm (\bar{x} = 15.6 \times 2.5 μm , n = 35), 1-septate, cylindrical, with rounded ends, straight, hyaline, smooth-walled, without appendages. *Chlamydoconidia* extensive, in clearly delimited chains. *Conidia* on MEA smaller, 9.4–14.2 \times 1.5–2.7 (\bar{x} = 12 \times 2.3 μm , n = 35).

Culture characteristics – Colonies growing on MEA, reaching 30 mm within 2 weeks at 28°C, sporulation after 8 weeks, circular, surface effused, edge entire, initially yellowish white, orange brown to golden brown with age, reverse brown, mycelium superficial and partially immersed, branched, septate, hyaline to orange-brown, smooth-walled.

Material examined – THAILAND, Chiang Rai Province, personal garden, on decaying fruits of palm tree, 18 August 2017, R.H. Perera, CR-F 12 (MFLU 18-2741), living culture MFLUCC 19-0309; *ibid.* Mae Fah Luang University Garden, on decaying fruits of *Swietenia mahagoni*

(Meliaceae), 6 September 2017, R.H. Perera, Maho 05 (MFLU 18-2771), living culture MFLUCC 19-0316.

GenBank numbers – ITS: MT215499, HIS3: MT212193, TEF1: MT212206, TUB2: MT212212 (MFLUCC 19-0309); ITS: MT215500, LSU: MT215551, TUB2: MT212213 (MFLUCC 19-0316)

Notes – Isolates MFLUCC 19-0309 and MFLUCC 19-0316 group with ex-type of *Gliocladiopsis tenuis* (IMI 68205) and other *G. tenuis* isolates. They were identified as *Gliocladiopsis tenuis* based on morphology and phylogenetic analysis (Fig. 32) (Crous & Wingfield 1993, Crous & Peeraly 1996). *Gliocladiopsis tenuis* MFLU 18-2771 is a new record on *Swietenia mahagoni*.

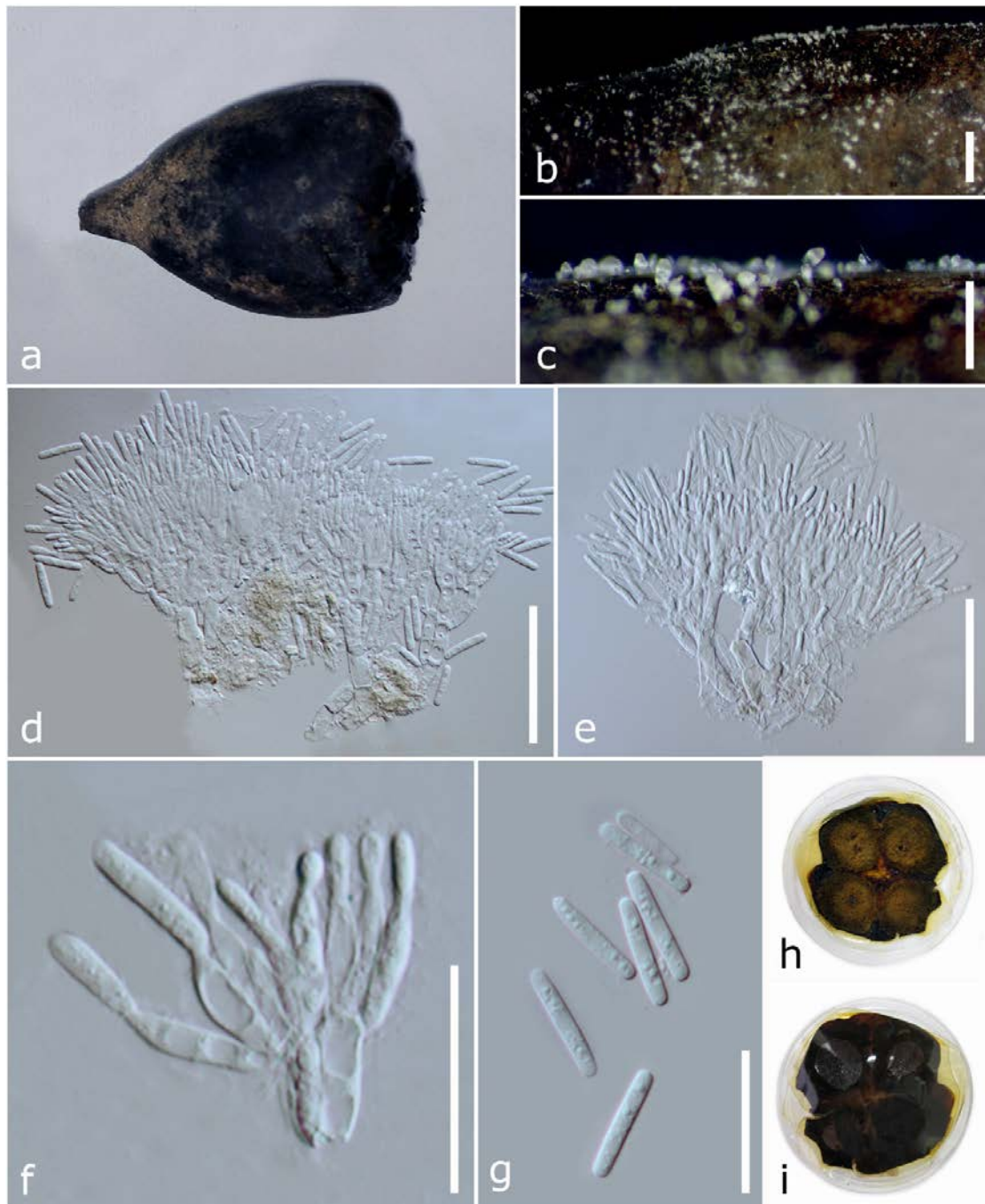


Figure 34 – *Gliocladiopsis tenuis* (MFLU 18-2741). a Herbarium material. b, c Conidiomata on the host. d–f Conidiophores with conidia. g Conidia. h, i Colony on MEA. Scale bars: b = 1 mm, c = 500 μ m, d, e = 50 μ m, f, g = 20 μ m.

Gliocladiopsis swieteniae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 35

Index Fungorum number: IF556860; Facesoffungi number: FoF07762

Etymology – Named after the host genus *Swietenia*.

Holotype – MFLU 18-2767

Saprobic on decaying *Swietenia mahagoni* fruits. Sexual morph: Undetermined. Asexual morph: appearing as yellowish masses on the substrate. *Conidiophores* 70–105 × 5.2–7.6 μm, penicillate without stipe extensions and terminal vesicles, very pale brown. *Conidiogenous apparatus* with several series of hyaline to very pale brown branches: primary branches 16.7–32 × 4.5–7 μm, aseptate or 1-septate; secondary branches 11.2–20 × 2.7–5 μm, aseptate, hyaline; tertiary

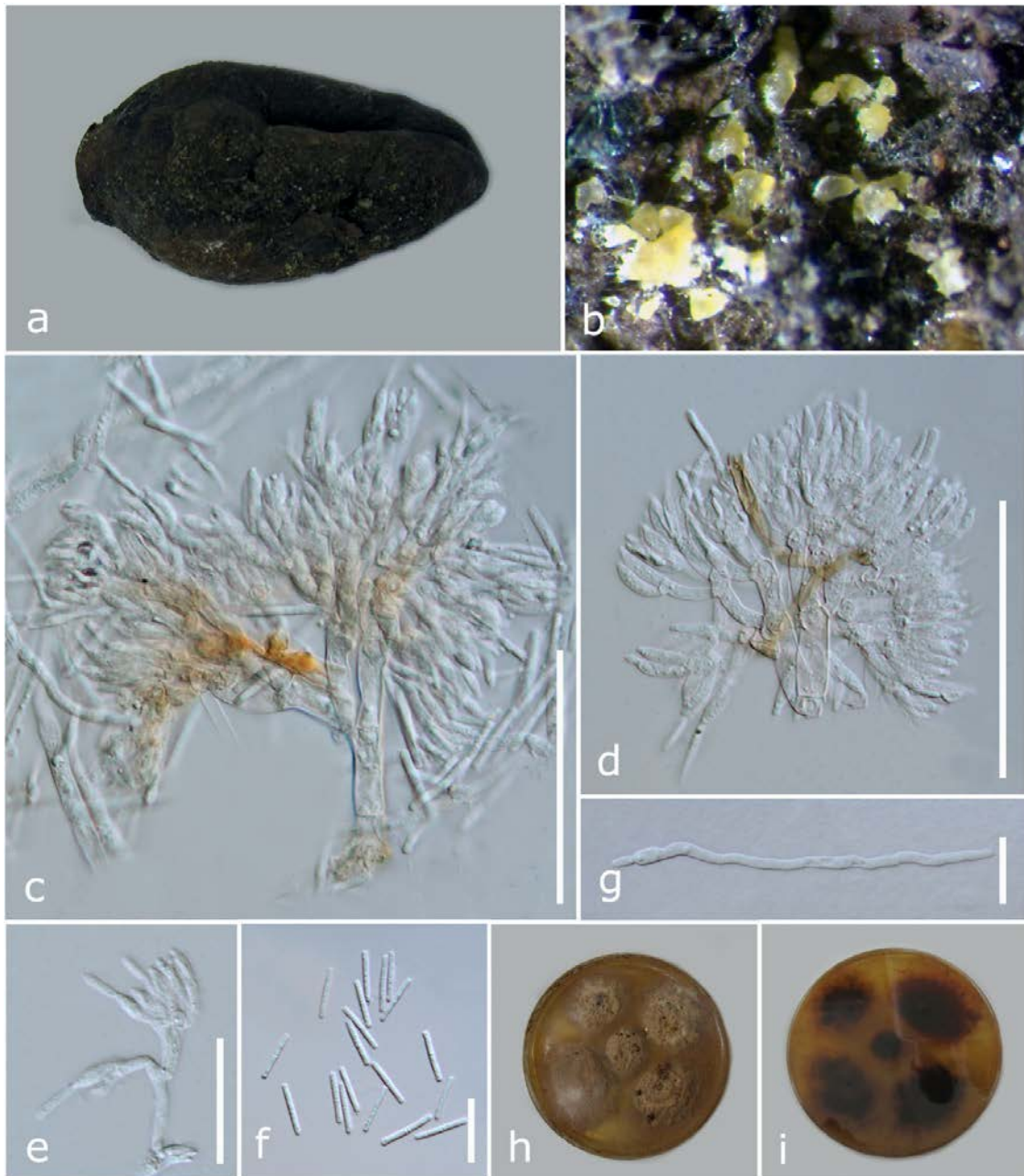


Figure 35 – *Gliocladiopsis swieteniae* (MFLU 18-2767, holotype). a Herbarium material. b Conidiomata on the host. c–e Conidiophores with conidia. f Conidia. g Germinating conidium. h, i Colony on MEA. Scale bars: c, d = 50 μm, e–g = 20 μm.

branches 10–14 × 2.3–3.8 μm, aseptate, hyaline; quaternary branches 8.5–13 × 1.7–2 μm, rare to absent, aseptate, hyaline. *Phialides* 10.6–17 × 1.9–3.8 μm, doliiform to cymbiform, arranged in terminal whorls of 2–6 per branch, with periclinal thickening and minute collarettes. *Subverticillate*

conidiophores absent. *Conidia* (12.7–)14.4–17.9(–18.3) × 1.4–2 μm (\bar{x} = 16.5 × 1.8, n = 40 μm), cylindrical, hyaline, smooth, with rounded ends, straight, 1-septate, lacking a visible abscission scar.

Culture characteristics – *Conidia* germinating on PDA within 8 hours. Colonies growing on PDA reaching 30 mm within 2 weeks at 28°C, circular, with effuse surface, edge entire, aerial mycelium dense, initially white, becoming sayal brown to sepia (reverse).

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University Garden, on decaying fruits of *Swietenia mahagoni* (Meliaceae), 20 September 17, R.H. Perera, Maho 08 (MFLU 18-2767, holotype), ex-type living culture MFLUCC 17-2616.

GenBank numbers – ITS: MT215501, HIS3: MT212194, TUB2: MT212214.

Notes – *Gliocladiopsis swieteniae* is sister to *Gliocladiopsis aquaticus* isolates (MFLUCC 17-1811, MFLUCC 17-2028 and MFLUCC 19-0317) with high support (90% MLBT, 1.0 BIPP; Fig. 32). *Gliocladiopsis swieteniae* and *G. aquaticus* also share similar morphology in having yellowish sporodochia and similar conidiophore size (Hyde et al. 2018). However, *G. swieteniae* differs from *G. aquaticus* in having smaller conidia (14.4–17.9 × 1.4–2 vs. 16.5–21 × 2–3 μm) (Hyde et al. 2018). A comparison of the ITS, TUB2 and HIS3 gene regions of *G. swieteniae* and ex-type of *G. aquaticus* (MFLUCC 17-1811) reveals 1 (0.6%, 1 gap), 8 (1.3%, 0 gaps) and 13 (2.8%, 1 gap) nucleotide differences, respectively. *G. swieteniae* and *G. aquaticus* (MFLUCC 17-2028) showed 3 nucleotides differences (0.6%, 2 gaps) in the ITS region, 10 different nucleotides (1.6%, 0 gaps) in the TUB2 region and, 13 different nucleotides (2.8%, 1 gap) in the HIS3 region. *Gliocladiopsis swieteniae* and *G. aquaticus* (MFLUCC 19-0317) showed 2 nucleotides differences (0.4%, 0 gaps) in the ITS region, and 10 different nucleotides in the HIS3 (2.2%, 1 gap) region. TUB2 gene region of *G. aquaticus* (MFLUCC 19-0317) was not available for comparison. Even though morphological differences are not strongly supported, we introduce *G. swieteniae* as a novel species considering nucleotide differences in ITS, TUB2 and HIS3 gene regions.

***Macronectria* Salgado & P. Chaverri**

Macronectria jungneri (Henn.) Salgado & P. Chaverri, in Salgado-Salazar et al., Fungal Diversity 80: 448 (2016) Fig. 37

Facesoffungi number: FoF07763

Saprobic on various plant substrates including fruits. Sexual morph: *Ascomata* 380–533 μm diam (n = 10), perithecial, gregarious in groups of many, superficial on an erumpent stroma, subglobose to pyriform, sometimes elongated and flask shaped, ostiole papillate, 128–280 μm wide, constricted below apex, not collapsing when dry, orange to sienna, with papilla same colour as perithecium, becoming dark black red when aged, red in 5% KOH, surface smooth. *Peridium* 20–40 μm, of two intergrading regions; outer region of intertwined hyphae with cells slightly elliptical, inner region of flattened fusoids cells. *Asci* 75–96 × 13–27 μm (\bar{x} = 83 × 21.5 μm, n = 15), 8-spored, unitunicate, clavate, thin-walled, short pedicellate, apex simple. *Ascospores* 26–31 × 8.7–11 μm (\bar{x} = 29.5 × 9.8 μm, n = 25), bi-seriate, fusiform, sometimes inequilateral, 1-septate, not constricted at septum, hyaline, striate. Asexual morph: See Salgado–Salazar et al. (2016).

Culture characteristics – Ascospores germinating on PDA within 12 hours. Colonies growing on PDA, reaching 2.6 cm in 7 days at 25°C, surface effused, smooth, margin entire to undulate, aerial mycelium rare, initially white, becoming yellowish orange, reverse yellowish, orange at centre.

Material examined – Thailand, Chiang Rai Province, Mae Fah Luang university garden, on decaying fruits of *Swietenia mahagoni* (Meliaceae), 4 August 2014, R.H. Perera, RHP 09 (MFLU 16-1050), living culture MFLUCC 14-0568.

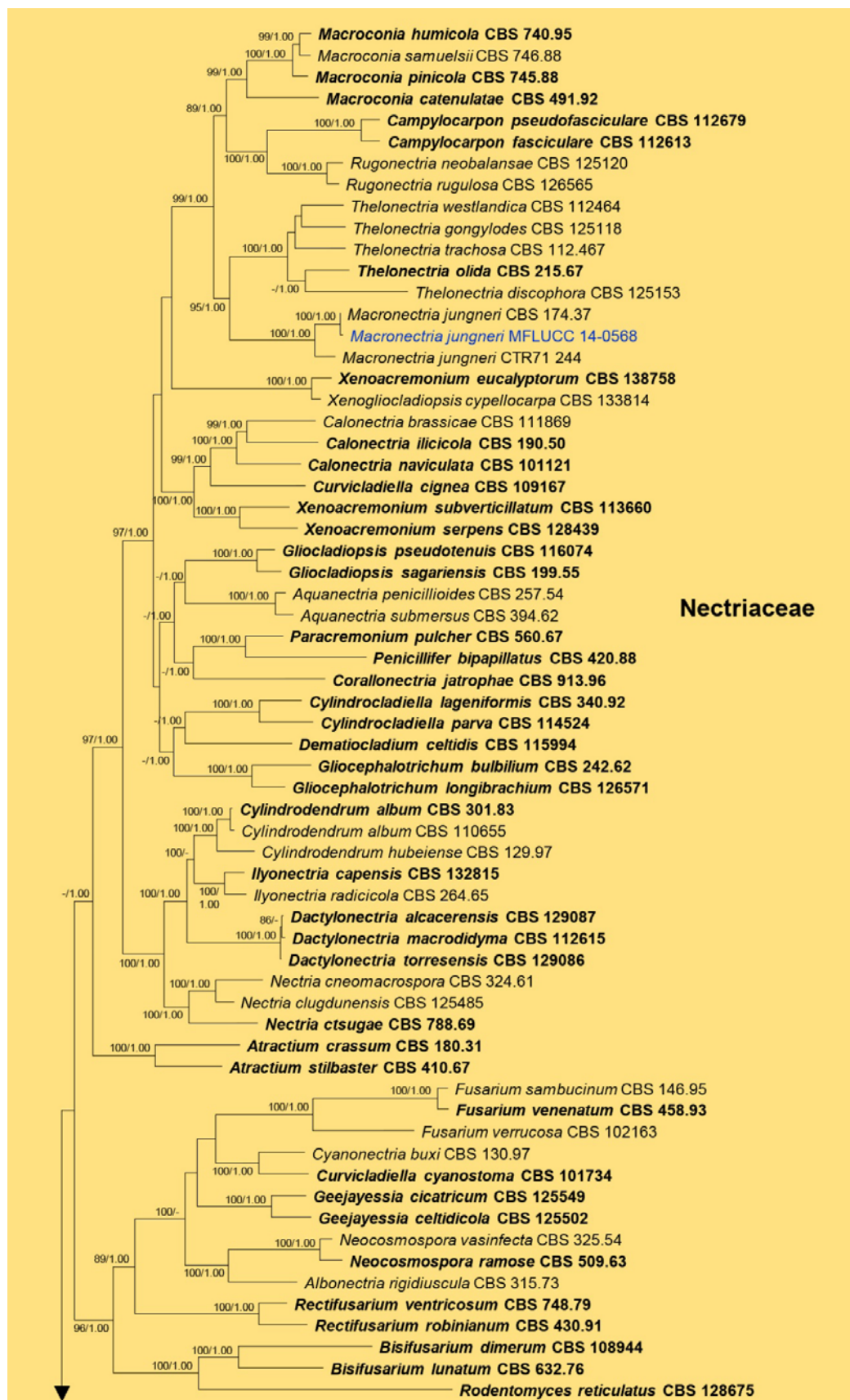


Figure 36 – Phylogram generated from RAxML analysis based on combined LSU, ITS, RPB1, RPB2, TEF1 and TUB2 sequence data of selected Nectriaceae isolates. Sequences from one hundred and twenty-nine taxa, which comprise 4456 characters including gaps, are included in the analyses. The tree was rooted to *Clonostachys buxi* CBS 696.93 and *Verrucostoma freycinetiae* MAFF 240100. The scale bar indicates 0.2 nucleotide changes per site.

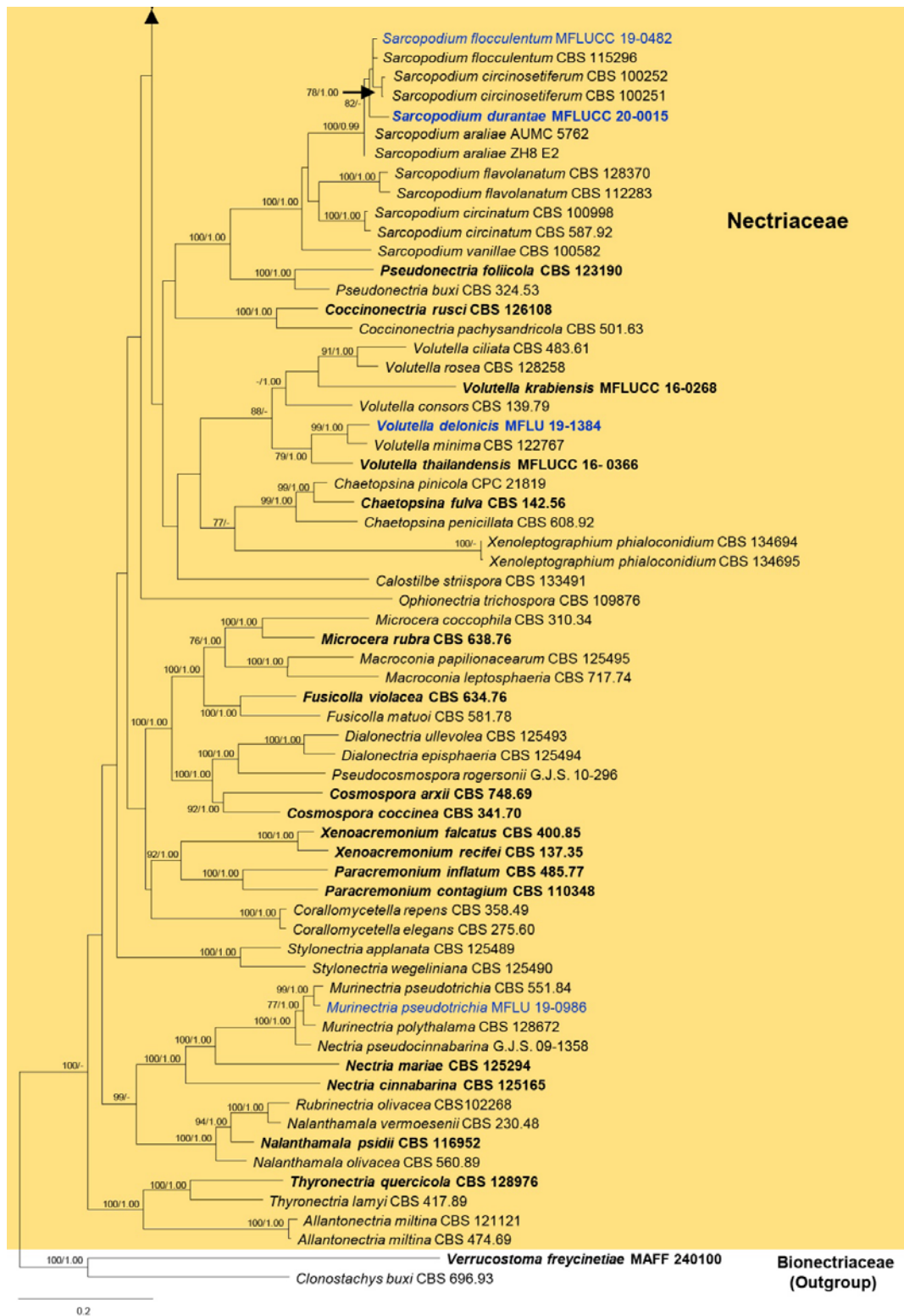


Figure 36 – Continued.

GenBank numbers – ITS: MT215505, LSU: MT215554, SSU: MT199562, TUB2: MT212217.

Notes – Our new isolate (MFLUCC 14-0568) clustered with *Macronectria jungneri* isolates (CBS 174.37, CTR71-244) with high bootstrap support (100% MLBT, 1.00 BIPP; Fig. 36) and, overlapping in morphology with *M. jungneri* (Salgado-Salazar et al. 2016). ITS and TUB2 sequences of MFLUCC 14-0568 are identical with the *Macronectria jungneri* strain CBS 174.37

with one nucleotide difference in LSU gene region. Therefore we identify our new isolate as *M. jungneri* and *Swietenia mahagoni* as a new host record for the fungus.

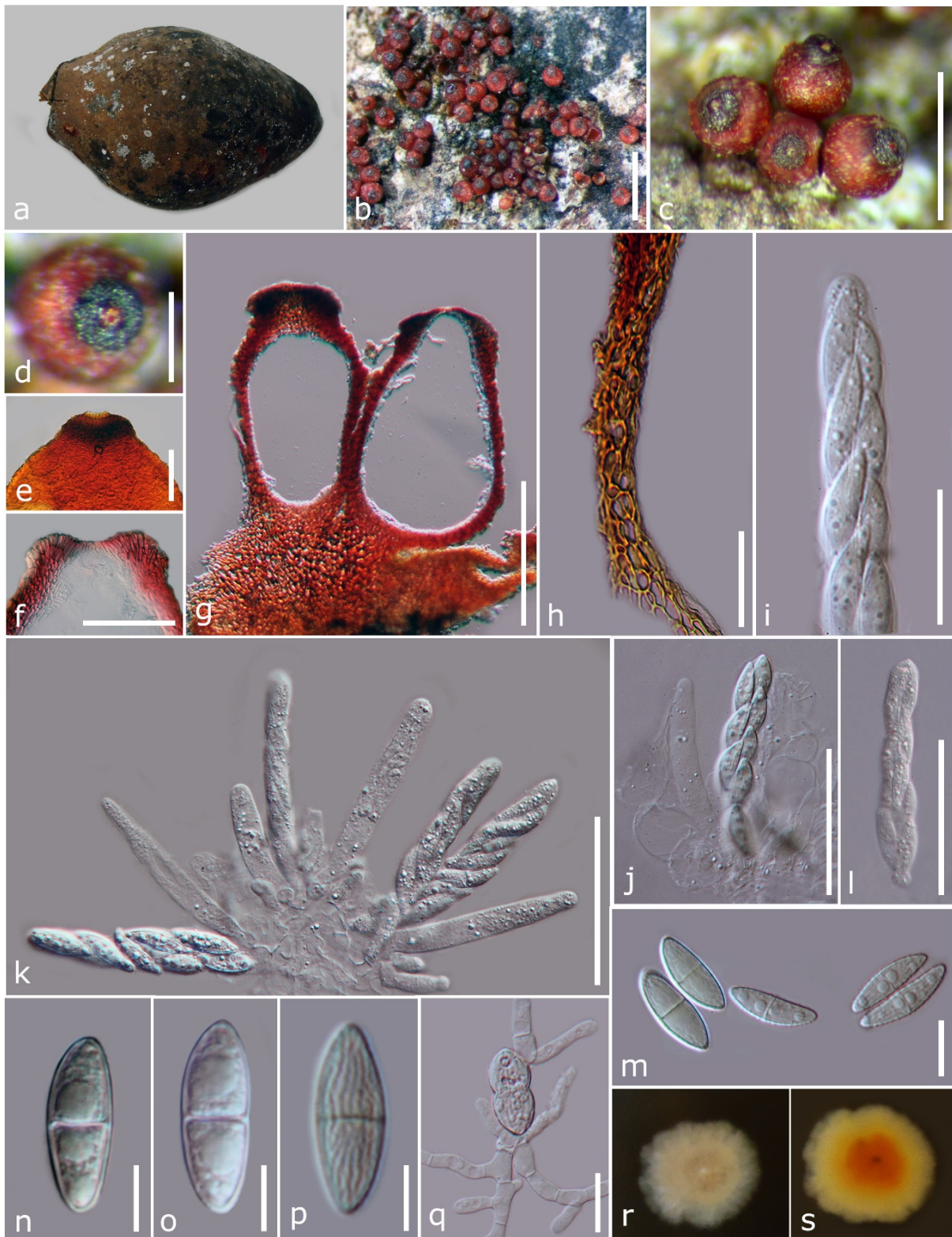


Figure 37 – *Macronectria jungneri* (MFLU 16-1050). a Herbarium material. b, c Ascomata on host. d Ostiole in face view. e Ostiole in side view. f Section of ostiole. g Section of ascomata. h Section of peridium. j Catenophyses. i, k, l Asci. m–p Ascospores. q Germinating ascospore. r, s Colony on PDA. Scale bars: b = 1 mm, c = 500 μ m, d, e = 200 μ m, f = 100 μ m, g, h = 200 μ m, i = 20 μ m, j–l = 50 μ m, n–p = 10 μ m, q = 20 μ m.

Murinectria M. Niranjana & V.V. Sarma

Murinectria pseudotrichia (Schwein) M. Niranjana and V.V. Sarma

Fig. 38

On decaying seed pods of *Delonix regia*. Sexual morph: See Hirooka et al. (2012). Asexual morph: Synnematos. Synnemata 1000–1800 µm high including stipe, 72–115 µm wide (n = 20), erumpent through epidermis, solitary or gregarious, caespitose, cylindrical-capitate, subulate-capitate, or claviform. Stipe erect or nodding, usually unbranched or rarely up to 3 branched at base, medium to slender, distinctly hispid at base to mid-level, red-brown at base, turning dark red in 5% KOH. Hyphae on stipe 3.4–4.5 µm wide, hyphae pigmented orange brown at base, becoming less pigmented towards apex, KOH+. Ornamental hyphae on stipe 6–17 µm long, 2.2–4.5 µm wide (n = 16), cylindrical, straight, curved, sinuous or twisted, arising laterally at more or less right angles, distributed evenly over surface of synnemata, usually unbranched but occasionally dichotomously branched, aseptate. Conidiophores with sterile hyphae monoverticillate or biverticillate. Conidiogenous cells 16–22 × 1.4–1.8 µm (n = 20), enteroblastic, monophialidic, cylindrical to subulate, straight or curved, with periclinal thickening, collarete not conspicuous. Sterile hyphae 68–88 × 1.5–1.9 µm (n = 16), mixed with phialides, acicular, usually curved or sometimes straight, unbranched or dichotomously branched, often in groups of 1–3. Conidial masses 140–285 µm wide, globose, hemispherical or more-or-less discoid, whitish yellow to sienna. Conidia 3.1–4.5 × 1.6–2.2 µm (\bar{x} = 3.9 × 2 µm, n = 55), ellipsoidal, obovate or oblong, aseptate, multi-guttulate, hyaline, smooth-walled.

Material examined – THAILAND, Chiang Mai Province, on decaying seed pods of *Delonix regia* (Fabaceae), 1 September 2016, R.H. Perera, S-16 (MFLU 19-0986).

GenBank numbers – ITS: MT215506, LSU: MT215555, TUB2: MT212218.

Notes – DNA was directly extracted from fruiting bodies of this fungus. New isolate (MFLU 19-0986) grouped with *Murinectria pseudotrichia* (CBS 551.84) with good bootstrap support (96%; Fig. 36) in our phylogenetic analysis. Our fungus was identified as *Murinectria pseudotrichia* based on the phylogenetic analysis and morphological similarities (Fig. 36) (Seaver 1909, Hirooka et al. 2012). This collection represents *Delonix regia* as a new host record for *M. pseudotrichia*.

Neocosmospora E.F. Sm.

Neocosmospora magnoliae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 40

Index Fungorum number: IF556861; Facesoffungi number: FoF07764

Etymology – Named after the host genus *Magnolia*.

Holotype – MFLU 18-2748

Associated with dried fruits of *Magnolia champaca*. Sexual morph: Ascomata 200–250 × 180–220 µm; perithecial, astromatic, solitary or gregarious, superficial, globose to pyriform, orange to orange brown, glabrous, coarsely warted, warts 23–45 µm diam, 10–50 µm tall, ostiolate. Ostiole non-papillate, canal periphysate. Peridium 15–38 µm diam., inner region 1–2 layers of hyaline, flattened cells of *textura angularis*; outer region composed of 3–5 layers of orange brown, thick-walled cells of *textura angularis*; in face view a *textura angularis* of thick-walled, medium to dark brown cells. Hamathecium of hyaline, distinctly septate catenophyses, 14–20 µm wide. Asci 55–76 × 9.8–13 µm (\bar{x} = 67 × 11 µm, n = 25), 8-spored, unitunicate, clavate, short-pedicellate, with a broad flattened apex, with a minute apical apparatus, J-. Ascospores (5–)8.3–11.7 × 4.5–5.8 µm (\bar{x} = 10 × 5 µm, n = 30), obliquely uniseriate or irregularly biseriata, broadly ellipsoid to obovoid or subfusiform, 1-septate, not constricted at the septum, 2 or 4 guttulate, hyaline to pale yellow-brown, thick-walled, finely striate when mature. Asexual morph: Undetermined.

Culture characteristics – Ascospores germinating on PDA within 12 hours. Colonies growing on PDA, reaching up to 2.6 cm within 7 days at 28°C, surface effused, smooth, margin entire, aerial mycelium rare, initially white, turning rosy pink, reverse rosy pink.

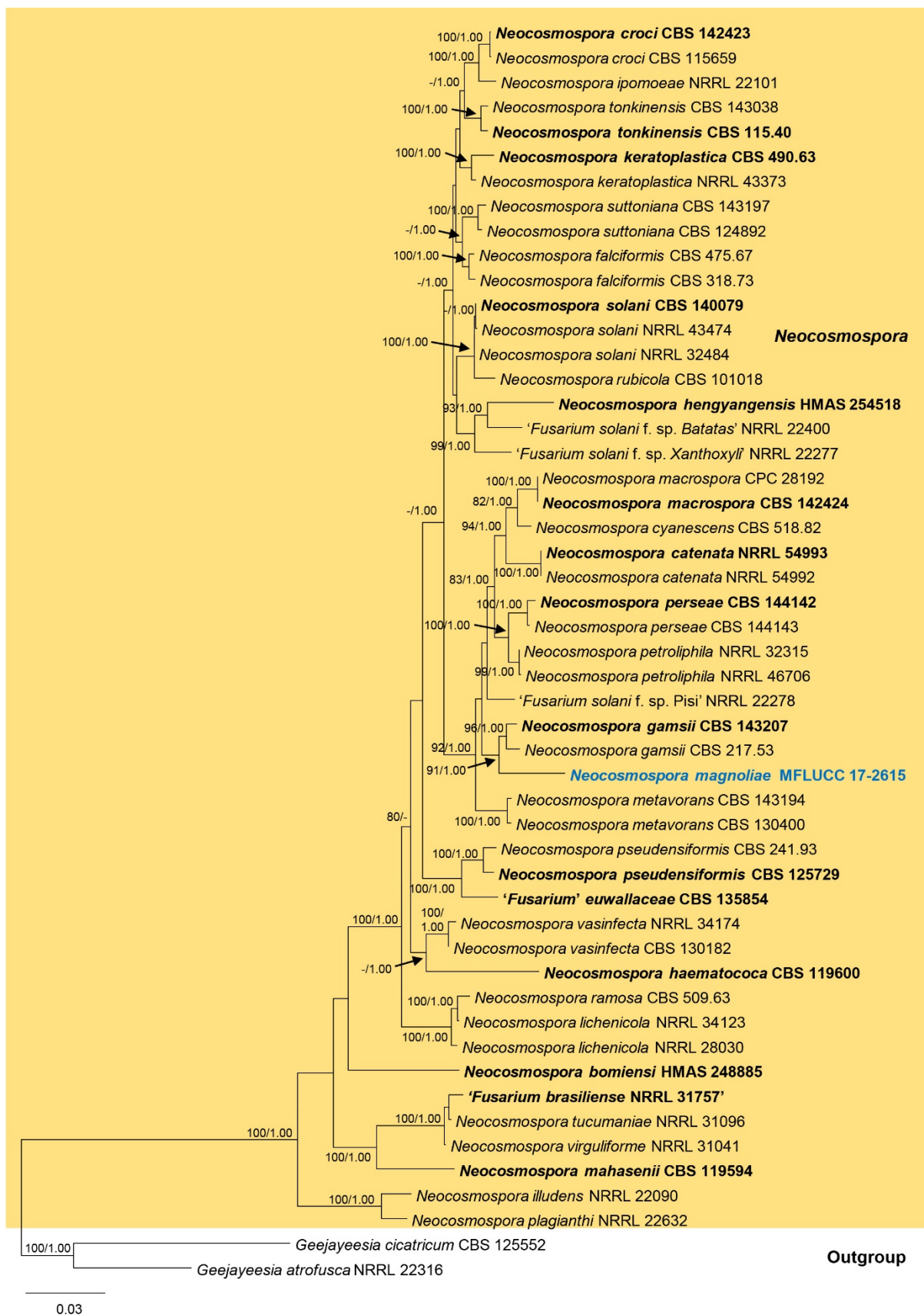


Figure 39 – Phylogram generated from RAxML analysis based on combined LSU, ITS, TEF1 and RPB2 sequence data of *Neocosmospora* isolates. Sequences from fifty-one taxa, which comprise 3425 characters including gaps, are included in the analyses. The tree was rooted to *Geejayeesia atrofusca* NRRL 22316 and *Geejayeesia cicatricum* CBS 125552. The scale bar indicates 0.03 nucleotide changes per site.

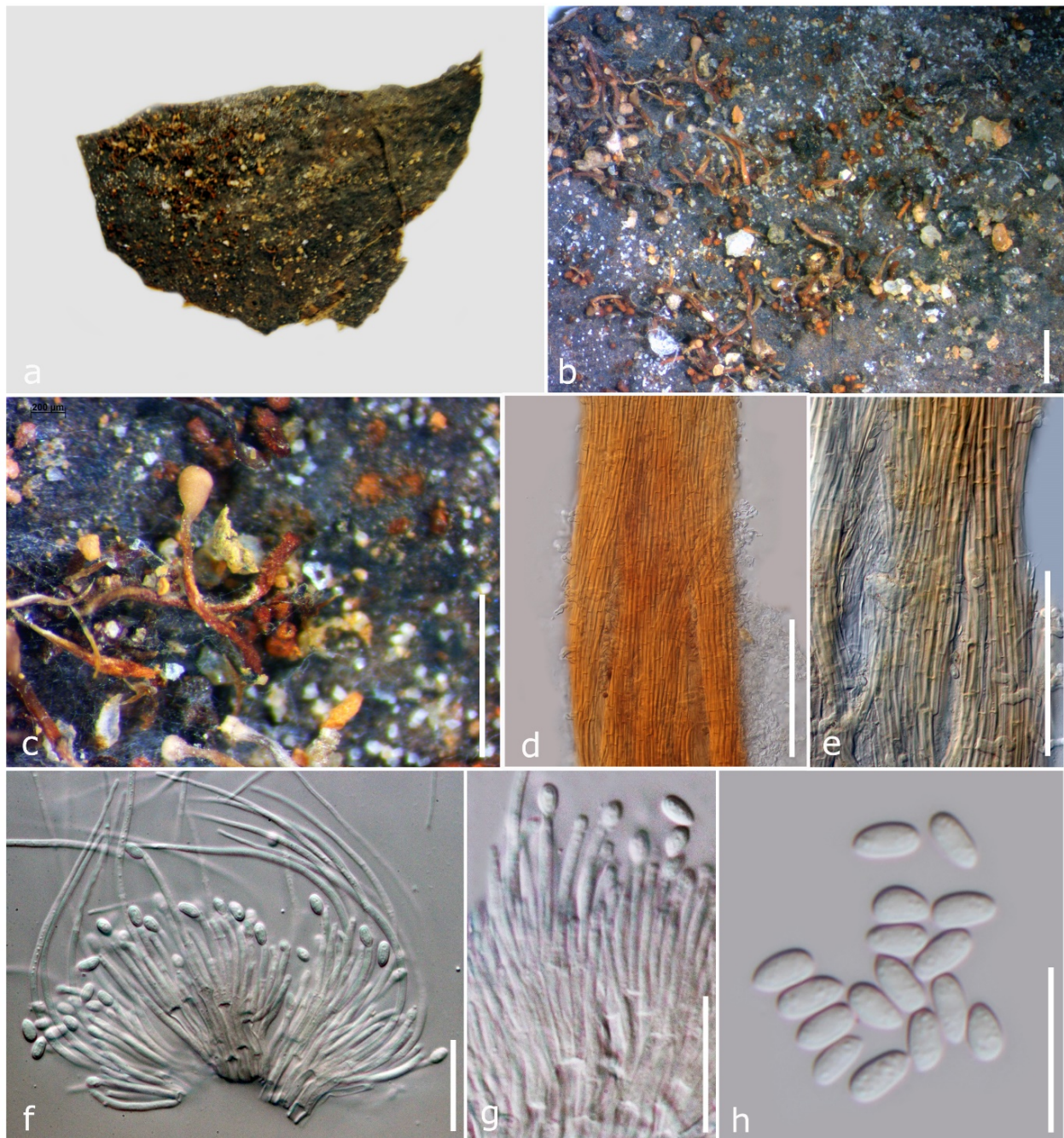


Figure 38 – *Murinectria pseudotrichia* (MFLU 19-0986). a Herbarium material. b, c Synnemata on host. d Stipe with ornamental hyphae on stipe. e Stipe hyphal strands. f Sterile hyphae and conidiophores. g Conidiophores with conidia. h Conidia. Scale bars: b, c = 1 mm, d, e = 100 μ m, f, g = 20 μ m, h = 10 μ m.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University garden, dried fruits of *Magnolia champaca* (Magnoliaceae) on the ground, 07 September 2017, R.H. Perera, MAG 01 (MFLU 18-2748, holotype), ex-type living culture MFLUCC 17-2615.

GenBank numbers – ITS: MT215508, LSU: MT215557, RPB2: MT212200, TEF1: MT212207.

Notes – Our new isolate (MFLUCC 17-2615) grouped sister to two isolates of *Neocosmospora gamsii*, CBS 143207 and CBS 217.53 with moderate bootstrap support (91%; Fig. 39). Our isolate and ex-type *N. gamsii* (CBS 143207) showed 4 nucleotide differences (0.7%, no gaps) in the ITS region, 12 nucleotide differences (1.8%, 2 gaps) in the TEF1 region, and 36 different nucleotides (7.3%, no gaps) in the RPB2 region, while their LSU sequences were

identical. Our isolate and *N. gamsii* strain (CBS 217.53) showed 18 nucleotide differences (3.4%, 4 gaps) in the ITS region, 8 nucleotide differences (1.2%, no gaps) in the TEF1 region, and 36 different nucleotides (7.3%, no gaps) in the RPB2 region, while their LSU sequences were identical. *Neocosmospora magnoliae* can be distinguished from *N. gamsii* by its orange to orange brown ascomata and smaller asci (55–76 vs. 70–97.5 μm), while *N. gamsii* has orange to dark brown-red ascomata (Sandoval-Denis & Crous 2018). Hence, based on the above-mentioned differences in morphology and molecular sequence data, a new species, *N. magnoliae* is introduced.



Figure 40 – *Neocosmospora magnoliae* (MFLU 18-2748, holotype). a Herbarium material. b Ascomata on host. c Section of ascoma. d Peridium in section. e Peridium in face view. f–h Asci. i–n Ascospores. o Germinating ascospore. p, q Colony on PDA. Scale bars: b, c = 100 μm , d = 50 μm , e = 20 μm , f–h = 50 μm , i–n = 10 μm , o = 20 μm .

Sarcopodium Ehrenb. ex Schlecht.

Sarcopodium durantae R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 41

Index Fungorum number: IF557322; Facesoffungi number: FoF07765
 Etymology – Named after the host genus *Duranta*.
 Holotype – MFLU 18-2719

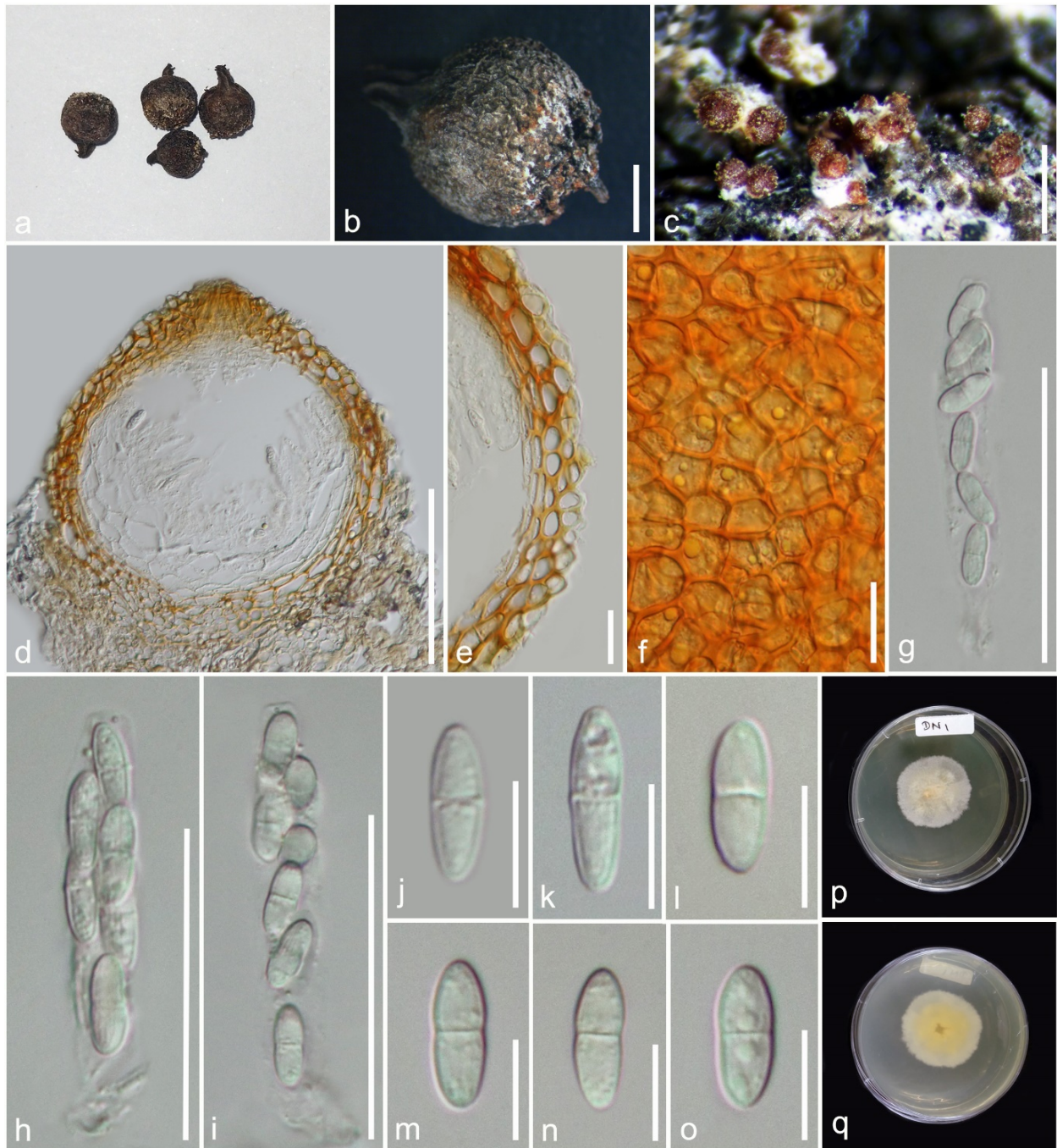


Figure 41 – *Sarcopodium durantae* (MFLU 18-2719, holotype). a Herbarium material. b, c Ascomata on host. d Section of ascoma. e Section of the peridium. f Peridium in face view. g–i Asci. j–o Ascospores, p, q Colony on PDA. Scale bars: b = 2 mm, c = 500 μ m, d = 100 μ m, e, f = 20 μ m, g–i = 50 μ m, j–o = 10 μ m.

Saprobic on dry fruits of *Duranta erecta*. Sexual morph: *Ascomata* 175–210 μ m high, 170–210 μ m wide, perithecial, solitary or in groups, superficial on a minute stroma surrounded by white mycelium, globose to broadly obpyriform, not collapsing when dry, red, turning dark red in 5% KOH, spinulose hyphal hairs arising from the surface of the ascomatal wall, ostiole slightly papillate. *Peridium* 17–26 μ m, composed of 3–5 layers of dark orange colour cells of *textura*

angularis. *Hamathecium* comprising hyaline, distinctly septate catenophyses, each cell 16–25 µm long × 9–15 µm wide. *Asci* 50–75 × 7.5–10 µm (\bar{x} = 61 × 8.8 µm), unitunicate, 8-spored, clavate to fusiform, short pedicellate, with an apical ring, J-. *Ascospores* 12–15 × 4–6 µm (\bar{x} = 13.4 × 5 µm), uni-seriate to multi-seriate, ellipsoid to fusiform, 1-septate, slightly constricted at the septum, guttulate, hyaline to pale yellow-brown, striate. Asexual morph: Undetermined.

Culture characteristics – Ascospores germinating on PDA within 12 hours. Colonies growing on PDA reaching 4 cm in 7 days at 28°C, surface effused, smooth, margin entire, aerial mycelium rare, initially white, becoming pale yellowish orange, reverse yellowish, orange at centre.

Material examined – Thailand, Chiang Rai Province, on dried fruits of *Duranta erecta* L. (Verbenaceae), 25 November 2018, D. Sandaruwan, DN1 (MFLU 18-2719, holotype), ex-type living culture MFLUCC 20-0015.

GenBank numbers – ITS: MT386004, LSU: MT386007, TEF1: MT383671, TUB2: MT383672.

Notes – *Sarcopodium durantae* (MFLUCC 20-0015) groups with *Sarcopodium* species, forming an unsupported clade (Fig. 36). Our isolate and ex-type *S. flocculentum* (CBS 115296) showed 7 different nucleotides (3%, 2 gaps) in the TEF1 region, 8 different nucleotides (1%, 1 gap) in the TUB2 region. A comparison of the TUB2 and TEF1 gene regions of *S. durantae* (MFLUCC 20-0015) and *S. circinosetiferum* (CBS 100251) reveals 20 (3%, 6 gaps) and 16 (6%, 2 gaps) nucleotide differences, respectively. Our new isolate and *S. flocculentum* (CBS 115296) showed 7 different nucleotides (3%, 2 gaps) in the TEF1 region, 8 different nucleotides (1%, 1 gap) in the TUB2 region. A comparison of the TUB2 and TEF1 gene regions of *S. durantae* and *S. flocculenta* (MAFF 241413) reveals 9 (2%, 1 gap) and 14 (7%, 4 gaps) nucleotide differences, respectively. *Sarcopodium mammiforme* and *S. raripilum* do not have DNA sequence data in the GenBank for the comparison. *Sarcopodium durantae* can be distinguished from *S. flocculentum* by smaller ascomata (175–210 × 170–210 vs. 224–314 × 215–293 µm) and larger ascospores (12–15 × 4–6 vs. 10–13 × 3–4.5 µm) (Rossman et al. 1999). *Sarcopodium durantae* differs from *S. mammiforme* by having smaller ascomata (175–210 × 170–210 vs. 300–700 µm) and smaller ascospores (12–15 × 4–6 vs. 24–30 × 7–9 µm) (Rossman et al. 1999). *Sarcopodium durantae* has smaller ascospores when compared to *S. raripilum* (12–15 × 4–6 vs. 27.5–32 × 6.5–8 µm) (Rossman et al. 1999). *Sarcopodium durantae* differs from *S. oblongisporum* in having larger asci (50–75 × 7.5–10 vs. 43–59 × 6–7.6 µm) and ascospores (12–15 × 4–6 vs. 9.5–12.2 × 2.2–3.9 µm) (Nong & Zhuang 2005). Based on these morphological differences, a new species, *S. durantae* is introduced in the genus *Sarcopodium*.

Sarcopodium flocculentum (Henn. & E. Nyman) Pennycook & P.M. Kirk, Index Fungorum 418: 1 (2019) Fig. 42

Facesoffungi number: FoF07766

Associated with Fabaceae hosts and *Eucalyptus grandis*. Sexual morph: *Ascomata* 150–180 µm high, 135–170 µm wide, perithecial, solitary or in groups, superficial on a minute stroma, subglobose to broadly obpyriform, sometimes collapsing apically to form cups when dry, red, turning dark red in 5% KOH, spinulose hyphal hairs arising from the surface of the ascomatal wall and forming around the ascomatal base, ostiole papillate. *Peridium* 16–34 µm, composed of 2–4 layers of dark orange colour cells of *textura angularis*, thinner around ostiole, 2–12 µm wide, composed of compactly arranged, flat cells. *Hamathecium* comprising hyaline, distinctly septate catenophyses, each cell 4.1–19.4 µm long × 6.3–12 µm wide. *Asci* 35–63 × 6.2–8.3 µm (\bar{x} = 50 × 7.4 µm), unitunicate, 8-spored, clavate to fusiform, short pedicellate, with apical ring, J-. *Ascospores* 7.2–12 × 3.5–4.6 µm (\bar{x} = 9.3 × 3.9 µm), uni-seriate to multi-seriate, ellipsoid to fusiform, 1-septate, slightly constricted at the septum, hyaline to pale yellow-brown, striate. Asexual morph: See Sutton (1981).

Culture characteristics – Ascospores germinating on PDA within 12 hours. Colonies growing on PDA reaching 3.8 cm in 7 days at 28°C, surface effused, smooth, margin entire, aerial mycelium rare, initially white, becoming yellowish orange, reverse brownish orange.

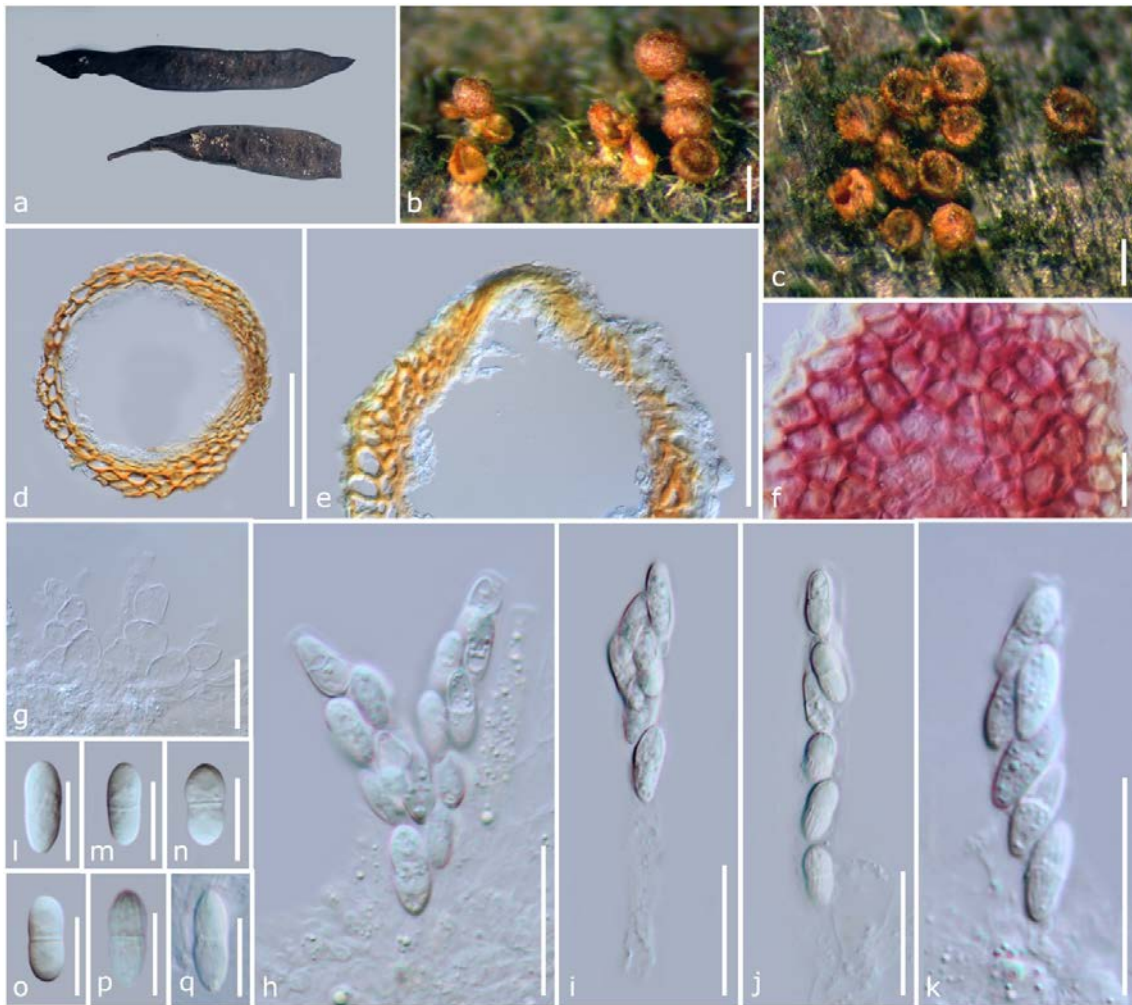


Figure 42 – *Sarcopodium flocculentum* (MFLU 19-0988). a Herbarium material. b, c Ascomata on host. d Section of ascoma. e Section of ostiole. f Peridium in face view (in 5% KOH). g Catenophyses. h–k Asci. l–q Ascospores. Scale bars: b, c = 200 μ m, d = 100 μ m, e = 50 μ m, f–k = 20 μ m, l–q = 10 μ m.

Material examined – Thailand, Chiang Rai Province, on dried seed pods of *Leucaena leucocephala* (Lam.) de Wit (Fabaceae), September 2017, I.D. Goonasekara, Ipil 01 (MFLU 19-0988), living culture MFLUCC 19-0482).

GenBank numbers – ITS: MT215507, LSU: MT215556.

Notes – Our collection resembles the genus *Sarcopodium* by having red ascomata and spinulose hyphal hairs arising from the surface of the ascomatal wall and forming around the ascomatal base (Rossman et al. 1999, Lombard et al. 2015). In our phylogenetic analysis, the new isolate (MFLUCC 19-0482) clusters with *S. flocculentum* (CBS 115296) (Fig. 36). *Sarcopodium flocculentum* previously reported from two Fabaceae hosts (*Pongamia pinnata* and *Albizia richardiana*) and *Eucalyptus grandis* in India (Sutton 1981). Our isolate and *S. flocculentum* strain (CBS 115296) showed 1 nucleotide difference (no gaps) in the ITS region while, their LSU sequences were identical, which indicates that they are same species (Jeewon & Hyde 2016). However, only the asexual morph was reported for *S. flocculentum* (Sutton 1981). We identified our collection as the sexual morph of *S. flocculentum* and *Leucaena leucocephala* as a new host record for the fungus.

Volutella Tode

Volutella delonicis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Figs 43, 44

Index Fungorum number: IF556863; Facesoffungi number: FoF07767

Etymology – Named after the host genus *Delonix*.

Holotype – MFLU 19-1384

Saprobic on seed pods of *Delonix regia*. Sexual morph: *Ascomata* associated with conidiomata, 285–345 μm high, 260–280 μm wide ($n = 6$), perithecial, solitary, basal stroma inconspicuous, superficial, obpyriform to pyriform, with an acute apex, orange to red, turning dark red in 5% KOH, surface finely roughened. *Peridium* 45–82 wide, two strata, outer stratum composed of 5–9 layers of orange to red, thick-walled cells of *textura globosa* to *textura angularis*; inner stratum composed of 2–4 layers of orange to red, flat, thick-walled cells of *textura angularis*; thinner around ostiole, composed of elongated cells. *Asci* not observed. *Ascospores* 10.7–13.1 \times 2.5–3.3 μm ($\bar{x} = 11.9 \times 2.9 \mu\text{m}$, $n = 20$), 1-septate, hyaline, fusiform to biconic, smooth-walled, without appendages, germinated inside the ascomata. Asexual morph: Hyphomycetous, sporodochial, stroma inconspicuous. *Sporodochia* sessile, yellow. *Setae* 197–318 \times 4.7–8 μm ($\bar{x} = 258 \times 6 \mu\text{m}$, $n = 10$), forming around the margin of conidiomata, hyaline, aseptate, stiff, cylindrical, tapering towards the apex, apex rounded. *Conidiophores* terverticillate, branched, septate, hyaline. *Conidiogenous apparatus* with subulate, conidiogenous cells, 8–9 \times 1.9–2.5 μm ($\bar{x} = 8.6 \times 2.3 \mu\text{m}$, $n = 20$), monophialidic, hyaline, with periclinal thickening, collarete prominent, up to 1.7 μm long, 1.9 μm wide. *Conidia* 5.2–7.4 \times 1.1–1.5 μm ($\bar{x} = 6.1 \times 1.3 \mu\text{m}$, $n = 30$), slimy, aseptate, hyaline, oblong, smooth-walled, without mucilaginous sheath, forming yellow masses.

Material examined – Thailand, Chiang Mai Province, on decaying seed pods of *Delonix regia* (Fabaceae), 20 December 2016, R.H. Perera, Delo 02 (MFLU 19-1384, holotype).

GenBank numbers – ITS: MT215504, LSU: MT215553, RPB1: MT212196, TUB2: MT212216.

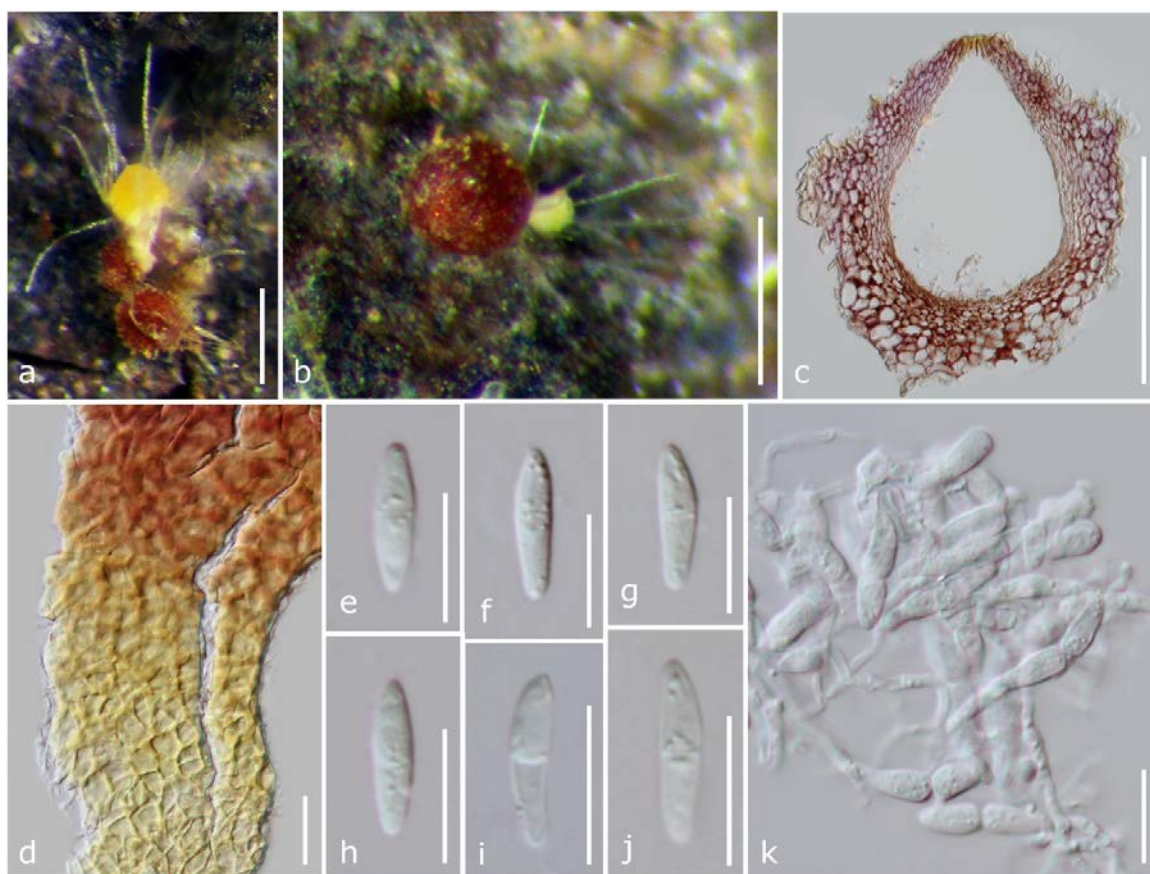


Figure 43 – *Volutella delonicis* (MFLU 19-1384, holotype) a, b Ascomata associated with conidiomata on host. c Section of ascoma. d Peridium in face view. e–j Ascospores. k Ascospores germinating inside the ascomata. Scale bars: a–c = 200 μm , d = 20 μm , e–k = 10 μm .

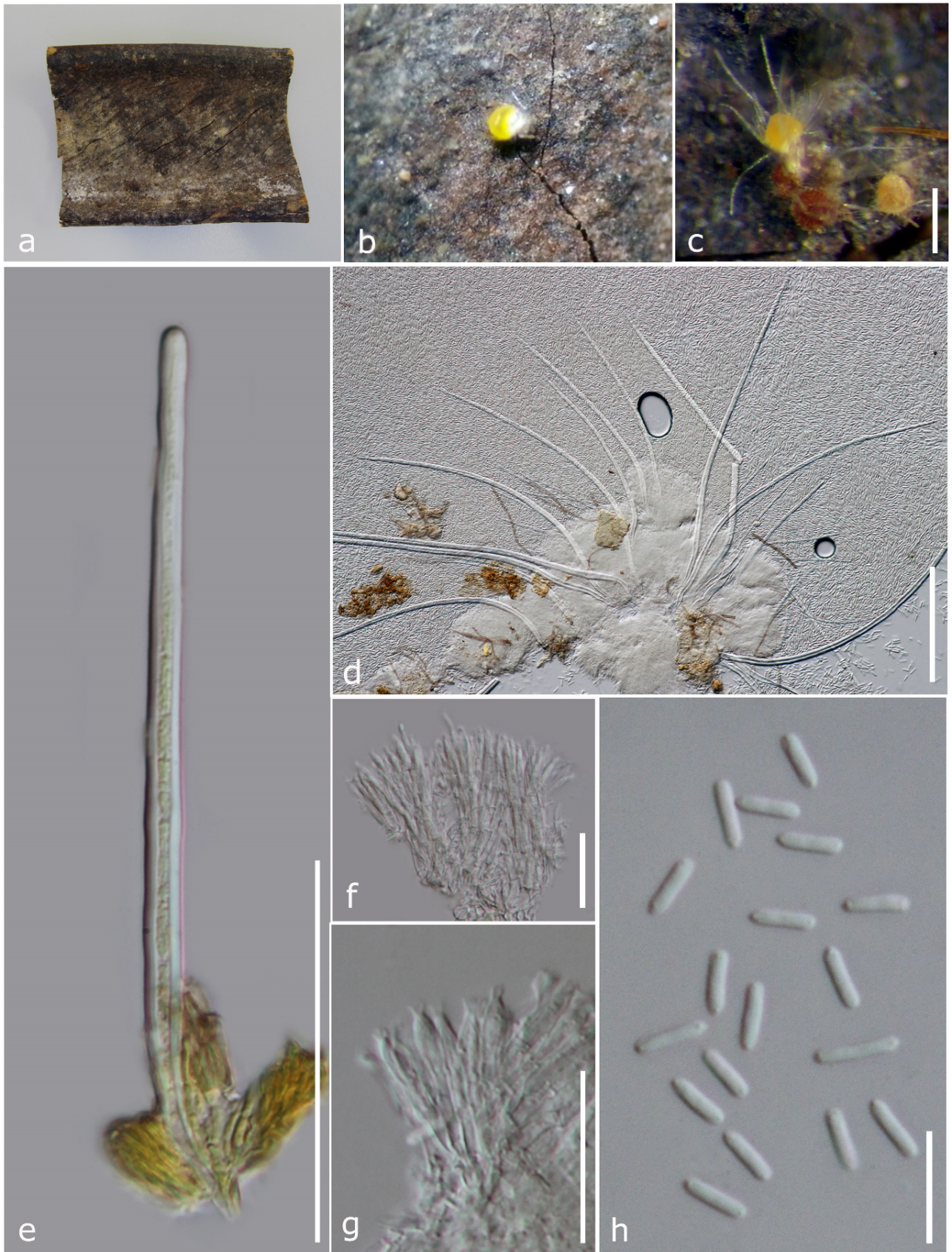


Figure 44 – *Volutella delonicis* (MFLU 19-1384, holotype). a Herbarium material. b, c Sporodochia (c associated with ascomata). d Sporodochium mounted in water. e Seta. f, g Conidiogenous apparatus. h Conidia. Scale bars: c = 200 μ m, d = 100 μ m, e = 50 μ m, f, g = 20 μ m, h = 10 μ m.

Notes – Holomorph of *Volutella delonicis* was associated with decaying seed pods of *Delonix regia*. *Volutella delonicis* has a close phylogenetic affinity to *V. minima* CBS 122767 in multi-locus phylogenetic analysis (Fig. 36). *Volutella delonicis* has yellow sporodochia and aseptate setae, while *V. minima* produces white sporodochia and septate setae (Höhnelt 1909). Furthermore, *V. delonicis* forms larger conidia than *V. minima* (5.2–7.4 µm vs. 3–5 µm) (Höhnelt 1909). A comparison of the LSU, ITS, RPB2 and TUB2 nucleotides of these two strains reveals 8 (0.9%), 10 (1.8%), 15 (1.6%), 44 (6.2%) and 40 (7.1%) nucleotide differences respectively in each gene region, which indicates that they are distinct taxa (Jeewon & Hyde 2016).

Xylariales Nannf.

Diatrypaceae Nitschke

Allodiatrype Konta & K.D. Hyde

Allodiatrype thailandica (R.H. Perera, Jian K. Liu & K.D. Hyde) Konta & K.D. Hyde 2020

Fig. 46

Saprobic on decaying wood or seed pods of *Delonix regia*. Sexual morph: *Stromata* 540–1050 µm wide, gregarious or scattered on host, erumpent, arising through the cracks in host tissue, with 1–5 ascomata immersed in white entostroma becoming greenish yellow near the periphery, stromata outer layer black. *Ascomata* 280–370 µm high, 150–300 µm wide (\bar{x} = 320 × 210 µm, n = 20), perithecial, immersed in stromatic tissues, aggregated, globose to subglobose, narrowing towards the apex and very narrow at the base of papilla, pale brown, ostiolate, papillate. *Papilla* 85–150 µm high, 80–110 µm wide, immersed in outer layer of stromata, conical, apex wider than base, periphysate, periphyses 17–28 µm long. *Peridium* 20–27 µm wide, comprising an outer, brown, thick-walled, stratum of 4–5 layers of cells of *textura angularis* and inner, hyaline, thick-walled, stratum of 7–10 layers of cells of *textura angularis*; peridium in face view a *textura angularis* of thin-walled, medium to dark brown cells. *Hamathecium* comprising long, 7.4–10.3 µm wide (\bar{x} = 8.9 µm, n=20), septate, paraphyses, slightly constricted at basal septa, and narrowing and tapering towards the apex. *Asci* 75–120 × 6.1–9.4 µm (\bar{x} = 101 × 8.2 µm, n = 20), 4–8-spored, unitunicate, clavate, with narrow, long, thin-walled pedicel, with thick-walled, swollen upper portion, apex flat, with J- apical apparatus. *Ascospores* 6.5–10.7 × 1.6–2.7 µm (\bar{x} = 7.8 × 2.2 µm, n = 50), biseriate, allantoid to cylindrical, unicellular, pale brown at maturity, thick-walled, with small, fat globules at ends, smooth-walled. Asexual morph: See Li et al. (2016).

Culture characteristics – Ascospores germinated on PDA within 12 hours. Reaching 3.5 cm within 14 days on PDA at 25°C, colonies medium dense, circular, flat, with diffuse margin, white, greenish yellow with time, below similar in colour, not zonate.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University premises, on dried seed pods of *Delonix regia* (Fabaceae), 6 January 2015, R.H. Perera, RHP 150 (MFLU 17-0735), *ibid.* Doi Mae Salong, on unidentified plant stem, 15 March 2014, R.H. Perera, M-1 (MFLU 16-1073), living culture MFLUCC 16-0459.

GenBank numbers – ITS: MT386002, LSU: MT215541, TUB2: MT212210 (MFLU 17-0735); ITS: MT386003, LSU: MT215542 (MFLUCC 16-0459).

Notes – In molecular phylogenetic analysis our new isolates clustered with putative strain of *Allodiatrype thailandica* (MFLUCC 15-3662) (Fig. 45). Our collection is similar to *A. thailandica* by greenish yellow entostroma, ascospore colour and size (Li et al. 2016, Konta et al. 2020). It is therefore reported here as a new host record of *A. thailandica* and in providing TUB2 gene region sequence for the first time.

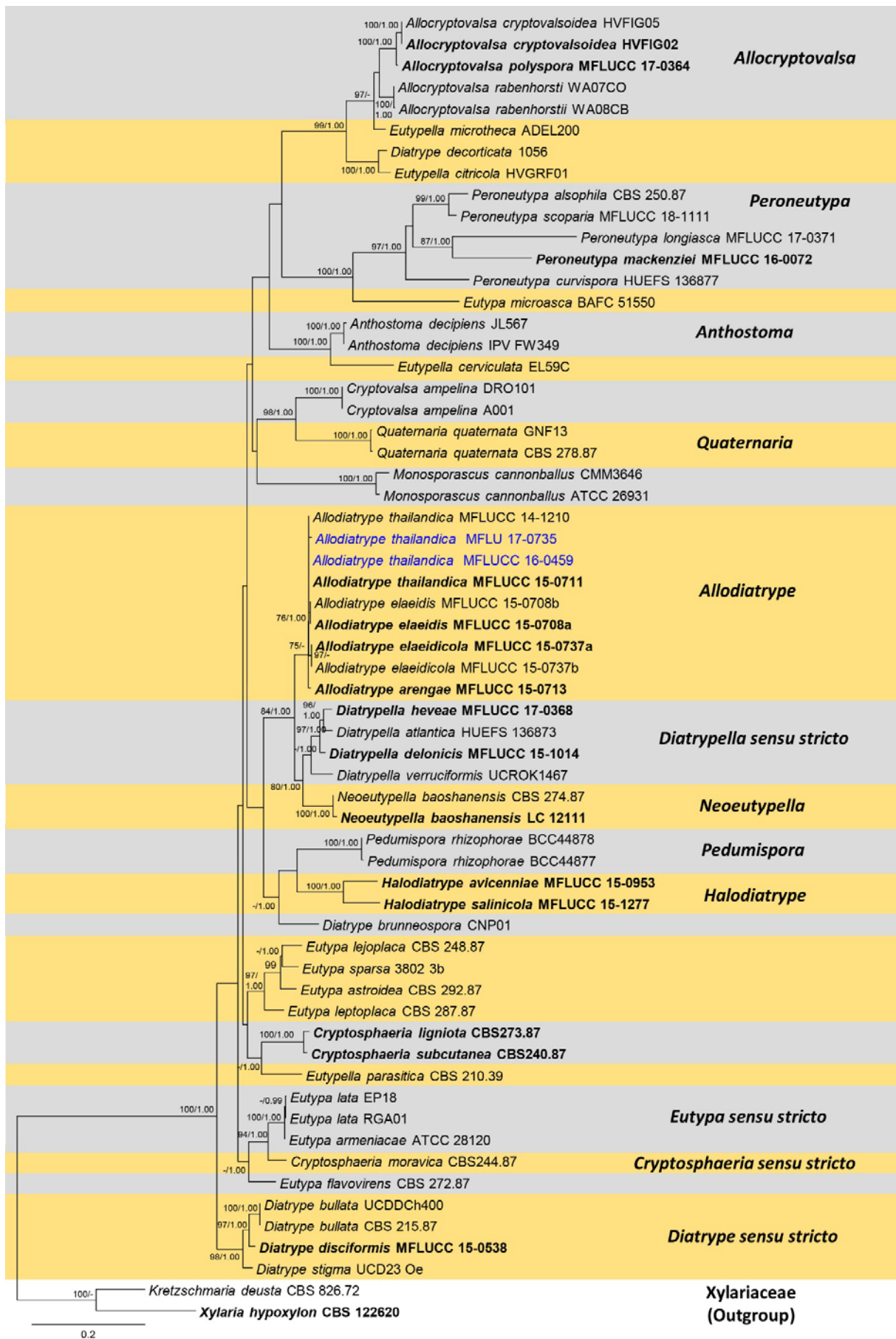


Figure 45 – Phylogram generated from RAxML analysis based on combined ITS and TUB2 sequence data of Diatrypaceae isolates. Sequences from sixty-one taxa, which comprise 993

characters including gaps, were included in the analyses. The tree was rooted to *Kretzschmaria deusta* (CBS 826.72) and *Xylaria hypoxylon* (CBS 122620). The scale bar indicates 0.2 nucleotide changes per site.



Figure 46 – *Allodiatrype thailandica* (MFLU 17-0735). a Herbarium material. b Appearance of ascomata on host substrate. c Cross section through stromata with ascomata. d, e Vertical section through stromata with ascomata. f Ostiole. g Peridium. h Peridium in face view. i Paraphyses. j–l Asci. m Ascospores. Scale bars: d, e = 200 μ m, f–h = 100 μ m, i = 20 μ m, j–l = 50 μ m, m = 10 μ m.

Hypoxylaceae DC. emend. M. Stadler & L. Wendt.
Hypoxylon Bull.

Hypoxylon delonicis R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov. Fig. 50
 Index Fungorum number: IF556864; Facesoffungi number: FoF07769
 Etymology – Named after the host genus *Delonix*.
 Holotype – MFLU 16-1031

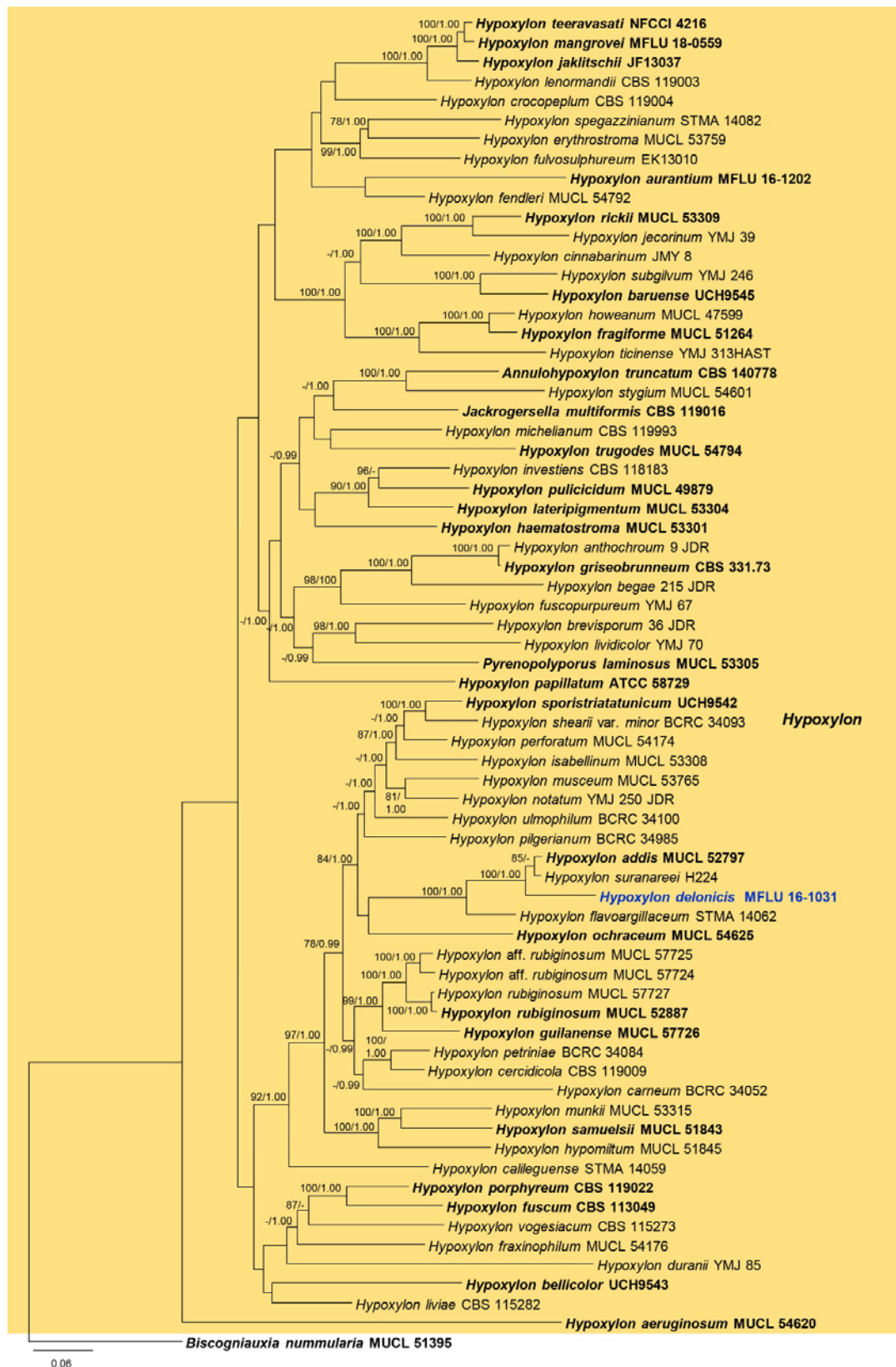


Figure 47 – Phylogram generated from RAxML analysis based on combined ITS and TUB2 sequence data of *Hypoxylon* isolates. Sequences from sixty-nine taxa, which comprise 2290 characters including gaps, are included in the analyses. The tree was rooted to *Biscogniauxia nummularia* (MUCL 51395). The scale bar indicates 0.06 nucleotide changes per site.

Notes – Colours were determined as in the previous literature of *Hypoxylon* species and the codes following Rayner (1970).

Saprobic on dried seed pods of *Delonix regia*. Sexual morph: *Ascostromata* 1.3–2.3 mm diam., glomerate, effuse-pulvinate, with conspicuous perithecial mounds, surface dark Brick (60), orange red granules immediately beneath surface and between perithecia, with KOH extractable pigments Citrine (13). *Ostioles* umbilicate, opening at the centre of a raised disc. *Ascomata* 300–635 × 200–485 µm (\bar{x} = 423 × 328 µm), perithecial, obovoid. *Peridium* 20–75 µm, multilayered, inner layers composed of flattened, hyaline cells of *textura angularis*, outer layers composed of brown cells of *textura globosa*. *Paraphyses* absent. *Asci* 110–140 × 8–12 µm (\bar{x} = 126 × 10 µm, n = 20), 8-spored, unitunicate, cylindrical, pedicellate, apex simple. *Ascospores* 12.4–15 × 6.3–7.4 µm (\bar{x} = 13.4 × 6.8 µm, n = 40), uniseriate, one-celled, ellipsoid-inequilateral, with narrowly rounded ends, brown to dark brown, with sigmoid germ slit spore-length, guttulate, guttules aggregated in ends when mature, perispore dehiscent in 10% KOH, smooth-walled, epispore smooth. Asexual morph: Undetermined.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University premises, on dried seed pods of *Delonix regia* (Fabaceae), 6 January 2015, R.H. Perera, RHP 26 (MFLU 16-1031, holotype).

GenBank numbers – ITS: MT215503, LSU: MT386008, TUB2: MT212215.

Notes – Phylogenetically *Hypoxyylon delonicis* is related to *H. addis* and *H. suranareei* with high statistical support (100% MLBT, 1.00 BIPP; Fig. 47). However, the holotype of *H. suranareei* was not available from the herbarium where it was reported to be deposited in the protologue, and the comparison with this species can only rely on the published data. *Hypoxyylon delonicis* can be distinguished from *H. suranareei* by having larger ascomata 300–635 × 200–485 vs. 200–400 µm, and broader asci (8–12 vs. 3.8–5 µm) and ascospores (6.3–7.4 vs. 5–6.3 µm) (fide Suwannasai et al. 2006). *Hypoxyylon delonicis* differs from *H. addis* in having shorter asci lacking an apical apparatus (110–140 vs. 170–190 µm) and by its ascospores having a smooth (vs. faintly striate) perispore (Fournier et al. 2010b). *Hypoxyylon addis* was collected from an Euphorbiaceae host in Ethiopia. *Hypoxyylon delonicis* resembles *H. shearii* by glomerate stromata, but differs in having conspicuous raised discs around the ostioles, which are absent in *H. shearii* (Fournier et al. 2010b). *Hypoxyylon shearii* has been collected from *Quercus* wood (Ju & Rogers 1996, Fournier et al. 2010b). *Hypoxyylon delonicis* is also similar to *H. gibriacense* by its glomerate stromata and lack of an apical apparatus in asci (Fournier et al. 2010b). However, *H. delonicis* differs from *H. gibriacense* in having larger ascospores (12.4–15 × 6.3–7.4 vs. 11.5–13 × 6–6.8 µm) and by its ascospores having a smooth (vs. fairly conspicuous striate) perispore (Fournier et al. 2010b). Hence, we introduce *H. delonicis* as a new species based on both morphological and molecular evidence.

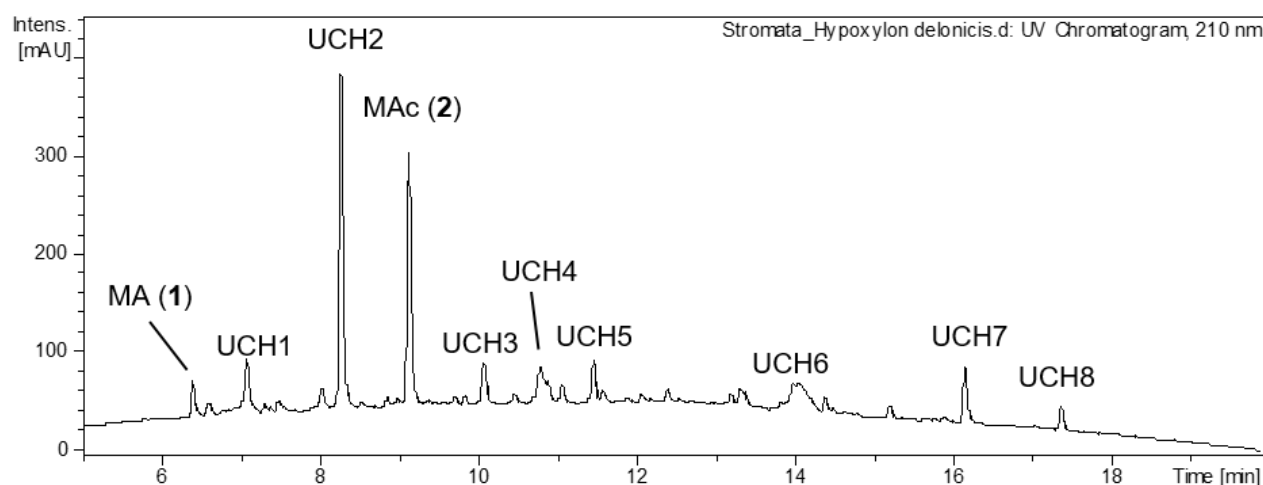
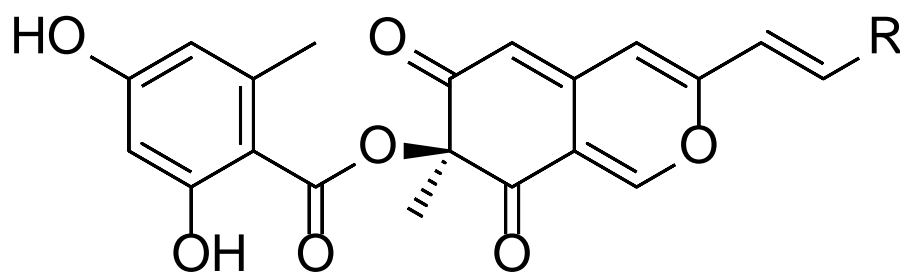


Figure 48 – HPLC-UV/VIS chromatogram of the stromatal extract of *Hypoxyylon delonicis* at 210 nm. MA = Mitorubrinic acid (1), MAc = Mitorubrinol acetate (2), UCH1–8 = unknown compounds from *H. delonicis*.



R:

1 -CH₂Ac

2 -COOH

Figure 49 – Known secondary metabolites found in stromatal extracts of *Hypoxylon delonicis*. 1 mitorubrinic acid. 2 mitorubrinol acetate.

Secondary metabolites: The stromatal extract was prepared and measured by HR-ESI-MS as described before (Kuhnert et al. 2017). The extract of *Hypoxylon delonicis* was found to contain the known azaphilone pigments mitorubrinol acetate (1) and mitorubrinic acid (2), which are widespread in *Hypoxylon* and form the core structures of more complicated metabolites (Surup et al. 2018) (Figs 48, 49). Besides, several peaks indicating probably representing yet unknown azaphilones were observed and labelled UCH1–8, with UCH2 even being the main peak within the extract and may account for the citrine color of the stromatal extract in KOH (notably, mitorubrins give an orange colour in KOH). It was of course not an option to attempt to isolate and identify these unknown components, to avoid destruction of valuable holotype specimen. However, it could be an option to watch out for the new fungus and collect more material for future mycochemical studies.

Xylariaceae Tul. & C. Tul.

Xylaria Hill ex Grev.

Xylaria arbuscula Sacc., *Michelia* 1(no. 2): 249 (1878)

Figs 52, 53

Facesoffungi number: FoF07770

On decaying fruits of *Swietenia mahagoni*. Sexual morph: *Stromata* gregarious to solitary, usually unbranched or rarely branched near base, stipitate, two types: longer stromata 9.5–18 mm high × 2–2.3 mm diam., abundant, with fertile head 4–8.5 mm long, cylindrical, conical to acute at the apex; stunted stromata, 1–3 mm high × 0.6–1.4 mm diam., rare, very short-stipitate, broadly conical or flattened, fertile head conical 0.7–1.1 mm long, with a conical sterile apex or apically obtuse; without visible perithecial contours, surface black, glabrous, obscurely cracked and roughened; internal tissue white, brownish grey in the stipe, solid, KOH. *Ostioles* obtusely papillate, black, often inconspicuous. *Peridium* 15–25 μm thick, composed of pale to brown cells of *textura angularis*. *Ascumata* 360–500 μm diam. (\bar{x} = 440 μm), completely immersed, perithecial, subglobose. *Paraphyses* 1.9–2.8 μm wide, hypha-like, septate, hyaline, thin-walled, embedded in gelatinous matrix. *Asci* 120–170 × 6.5–7.8 μm (\bar{x} = 142 × 7.2 μm), 8-spored, unitunicate, cylindrical, the spore-bearing parts 75–106 μm long (\bar{x} = 90 μm), apical apparatus cylindrical, with a J+ apical ring, 3.2–3.6 × 2–2.6 μm (\bar{x} = 3.4 × 2.3 μm). *Ascospores* 12.4–18 × 4.6–6.2 μm (\bar{x} = 14.6 × 5.4 μm), obliquely to transversely uniseriate, fusiform, inequilateral with narrowly rounded to subacute or slightly pinched ends, 1–2(–3) guttulate, brown, with a conspicuous, straight, germ slit slightly less than spore-length; epispore smooth, not dehiscent in 5% KOH.

Asexual morph: *Stromata* 7–16 mm high × 1.3–2 mm diam., smaller than ascostroma, gregarious, unbranched, stipitate; head 5–7 mm in length, cylindrical, with a conical to acute apex; dark brown. *Conidiophores* 30–100 × 2–4 μm, forming around the stromatal head, pale brown, dichotomously branched, septate. *Conidia* 2.5–4.7(–10) × 2–4.8 μm (\bar{x} = 4 × 3 μm), globose, subglobose, elliptical or sometimes angular or oblong, aseptate, with a flat basal abscission scar, hyaline, thick- and smooth-walled.



Figure 50 – *Hypoxylon delonicis* (MFLU 16-1031, holotype). a Herbarium material. b–d Appearance of ascomata on host substrate. e, f Vertical section through stromata with ascomata. g Ostiole. h Stromatal pigments in 10% KOH. i Close up of the peridium. j–l Immature and mature asci. m–o Immature and mature ascospores. p Ascospores with the germ slit. q Ascospore with released episporidia in 5% KOH. Scale bars: d, e = 500 μm, f = 200 μm, g = 100 μm, i–l = 50 μm, m–o = 10 μm, p = 20 μm, q = 10 μm.

Material examined – THAILAND, Chiang Rai Province, Mae Fah Luang University garden, on decaying fruits of *Swietenia mahagoni* (Meliaceae), 16 August 2015, R.H. Perera, RHP 21 (MFLU 16-1022); *ibid.*, 16 December 2015, RHP 21b (MFLU 18-2721).

GenBank numbers – ITS: MT215513, LSU: MT215562 (MFLU 16-1022); ITS: MT215514, LSU: MT215563 (MFLU 18-2721).

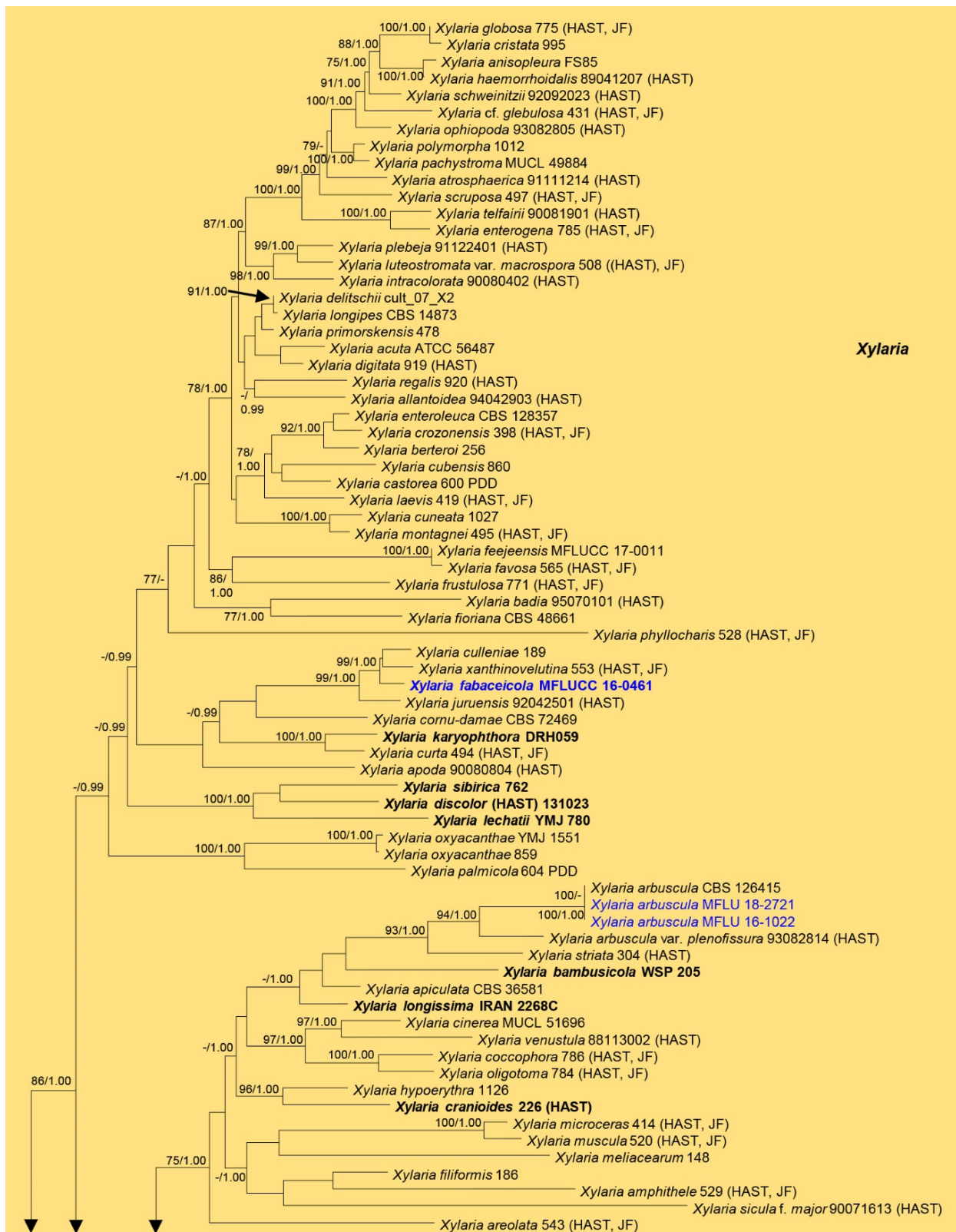


Figure 51 – Phylogram generated from RAxML analysis based on combined ITS, RPB2 and TUB2 sequence data of *Xylaria* isolates. Sequences from one hundred five taxa, which comprise 3476 characters including gaps, are included in the analyses. Tree was rooted to *Biscogniauxia nummularia* (MUCL 51395) and *Hypoxylon fragiforme* (MUCL 51264). The scale bar indicates 0.06 nucleotide changes per site.

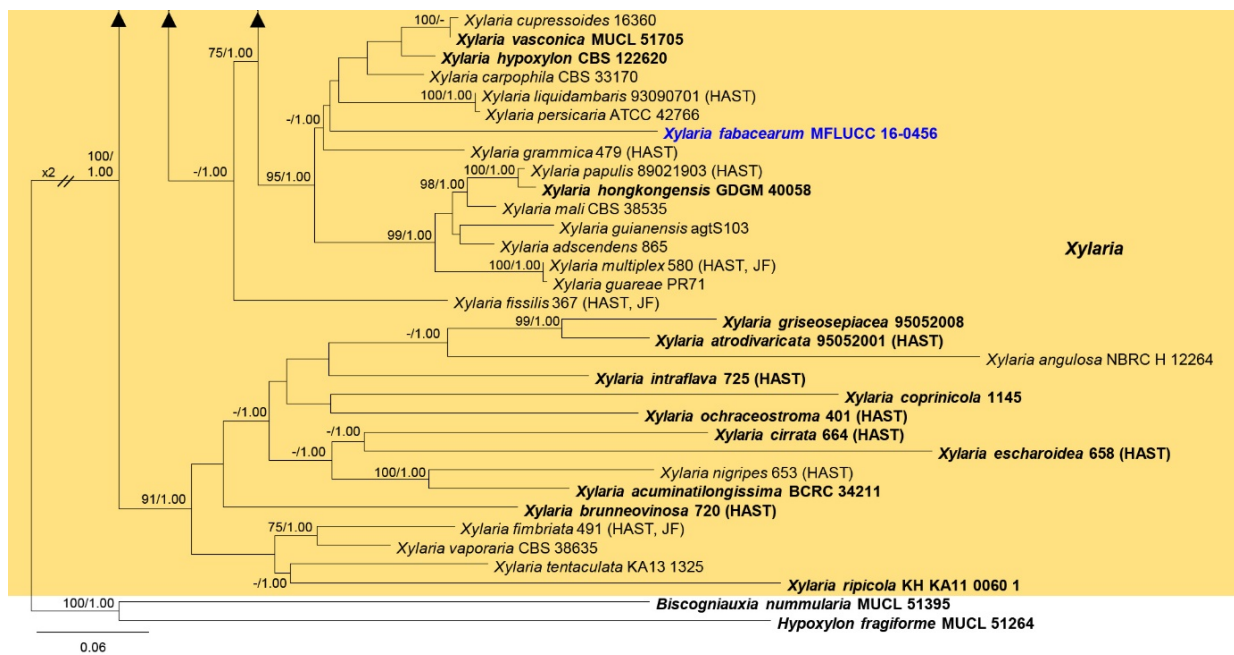


Figure 51 – Continued.

Notes – Wendt et al. (2017) and Daranagama et al. (2018) provided modern treatments of Xylariaceae which we follow here. Our new collections MFLU 16-1022 and MFLU 18-2721 grouped with *Xylaria arbuscula* (CBS 126415) with high statistical support in our phylogenetic analysis (Fig. 51). Specimens MFLU 16-1022 and MFLU 18-2721 belong to asexual morph and sexual morph stages, which were collected from *Swietenia mahagoni* fruits at the same location. The ITS and LSU gene regions of MFLU 16-1022 and MFLU 18-2721 are identical. Sexual morph of our collection was similar to *X. arbuscula* in morphology, asci and ascospore dimensions (Saccardo 1878, Fournier et al. 2010a). The holotype of *X. arbuscula* was collected from a greenhouse in Germany (Saccardo 1878). There was no asexual morph of the fungus reported so far (Saccardo 1878, Fournier et al. 2010a). By considering the morphological similarities, similarities in the ITS loci and phylogenetic analysis we identify our collection as *X. arbuscula* (Jeewon & Hyde 2016). This is the first record of *X. arbuscula* from *Swietenia mahagoni* and the first report of its asexual morph. Unfortunately, we were unable to amplify the RPB2 gene region of the fungus despite several attempts.

Xylaria fabacearum R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 54

Index Fungorum number: IF556865; Facesoffungi number: FoF07771

Etymology – Named after the host family Fabaceae.

Holotype – MFLU 16-1061

Saprobic on decaying seed pods of Fabaceae. Sexual morph: *Stromata* 4.5–16 mm long × 0.9–1.8 mm diam., fertile part up to 9 mm long × 1.8 mm diam., cylindrical, branched or unbranched, solitary or clustered, stipe, tomentose, black, with sterile apices. *External surface* black, non-tomentose, roughened with ascomatal contours. *Internal tissue* white, not becoming hollow. *Ascomata* 290–480 µm high × 270–450 µm diam. (\bar{x} = 390 × 376 µm), perithecial, globose to subglobose, mammiform, more less immersed, ostioles black, slightly papillate. *Peridium* 20–30 µm wide, composed of up to 12 layers of light brown-walled cells of *textura angularis* to *textura prismatica*, integrated with inner stroma cells. *Paraphyses* 1.4–2.4 µm wide, septate, hyaline. *Asci* 8-spored, 90–135 × 4–6 µm (\bar{x} = 109 × 5 µm; n = 25), cylindrical, long stipitate, the spore-bearing part 56–65 µm long, with an inverted hat-shaped, J+ apical ring 2–2.5 × 1.5–2 µm (\bar{x} = 2.3 × 1.7 µm, n = 10). *Ascospores* uniseriate to overlapping uniseriate, 9–11.2 × 3–4.3 µm (\bar{x} = 10 × 3.6 µm, n = 35), ellipsoid-inequilateral, brown to dark brown, aseptate, guttulate;

germ slit conspicuous, straight, running full-length of the ascospore, perispore indehiscent in 10% KOH; episporium smooth, lacking a hyaline sheath. Asexual morph: Undetermined.



Figure 52 – *Xylaria arbuscula* (MFLU 18-2721). a Herbarium material. b, c Appearance of ascostromata on host substrate. d Cross section through stromata with ascomata. e Vertical section through ascomata. f Close up of the peridium. g Paraphyses. h–j Asci. k, l Close up of apical ring (k in Melzer’s iodine reagent). m–s Ascospores (q, r in 10% KOH, s arrows showing the germ slit).

Scale bars: c, d = 2 mm, d = 500 μ m, e = 200 μ m, f–j = 50 μ m, k, l = 20 μ m, m–r = 10 μ m, s = 20 μ m.

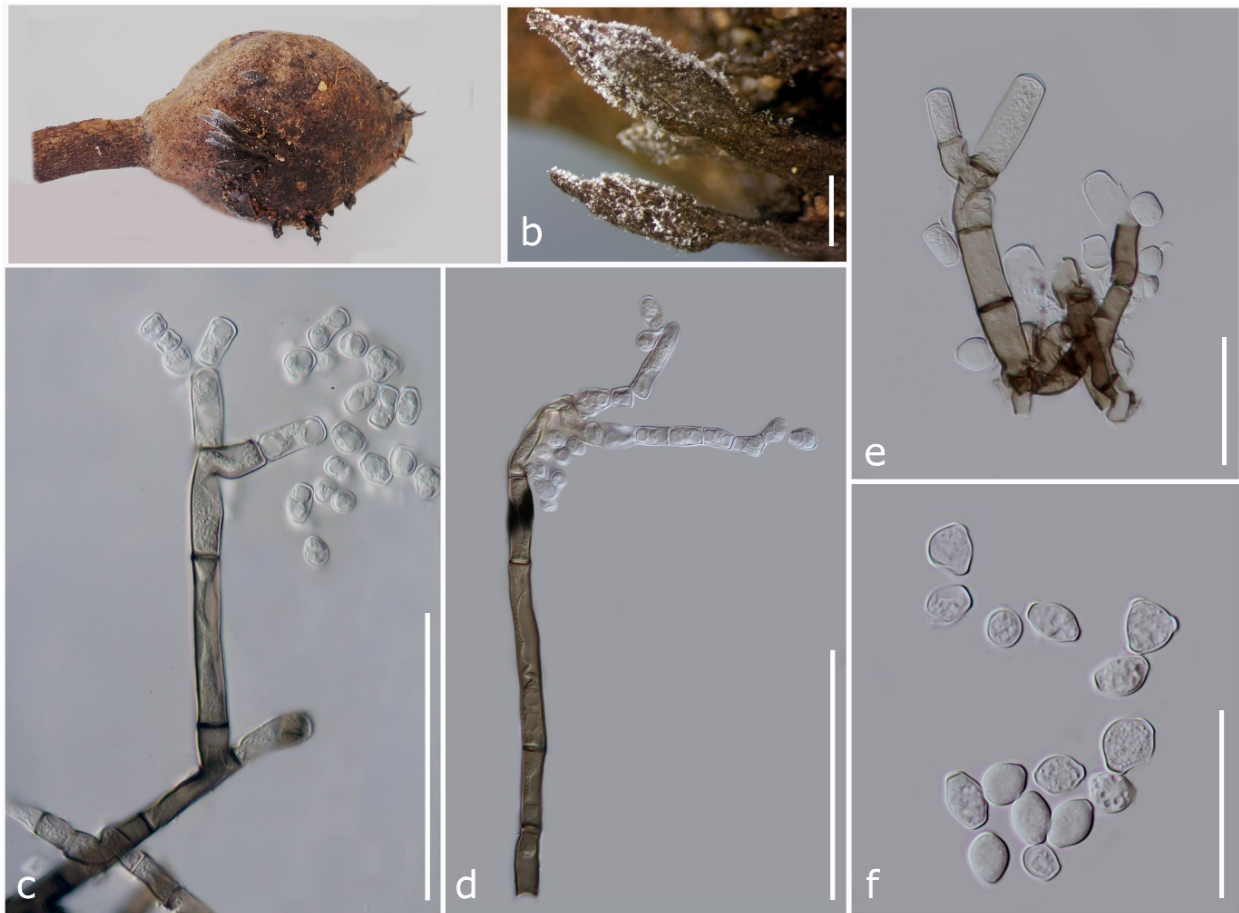


Figure 53 – *Xylaria arbuscula* (MFLU 16-1022). a Herbarium material. b Conidiophores on stromata. c–e Conidiophores with conidia. f Conidia. Scale bars: b = 200 μ m, c, d = 50 μ m, e, f = 20 μ m.

Culture characteristics – Ascospores germinating on PDA within 14 hours. Colonies growing on MEA, reaching 30 mm in 14 days at 28°C, flat, initially white, aerial mycelium forming concentric rings with cottony texture, margin undulate, white to ash or black above, reverse dark brown.

Material examined – THAILAND, Chiang Mai Province, on decaying seed pods of Fabaceae, 20 December 2015, R.H. Perera, DeloL4, (MFLU 16-1061, holotype); ex-type living culture MFLUCC 16-0456.

GenBank numbers – ITS: MT215512, LSU: MT215561, RPB2: MT212202, TUB2: MT212220.

Notes – *Xylaria fabacearum* (MFLUCC 16-0456) groups apart from other *Xylaria* species in an unsupported clade (Fig. 51). *Xylaria fabacearum* resembles *X. culleniae*, *X. fabaceicola* and *X. xanthinovelutina* (which were mostly isolated from leguminous fruits), but differs mainly by having ascospores that lack a hyaline sheath (Ju et al. 2018). *Xylaria fabacearum* can be distinguished from *X. luzonensis* (which is also isolated from leguminous pods) by its larger, brown to dark brown ascospores (9–11.2 \times 3–4.3 vs. 8.5–9.5 \times 3–3.5 μ m), while *X. luzonensis* has light brown ascospores (Ju et al. 2018). Hence, we identified our collection as a new species of *Xylaria*.

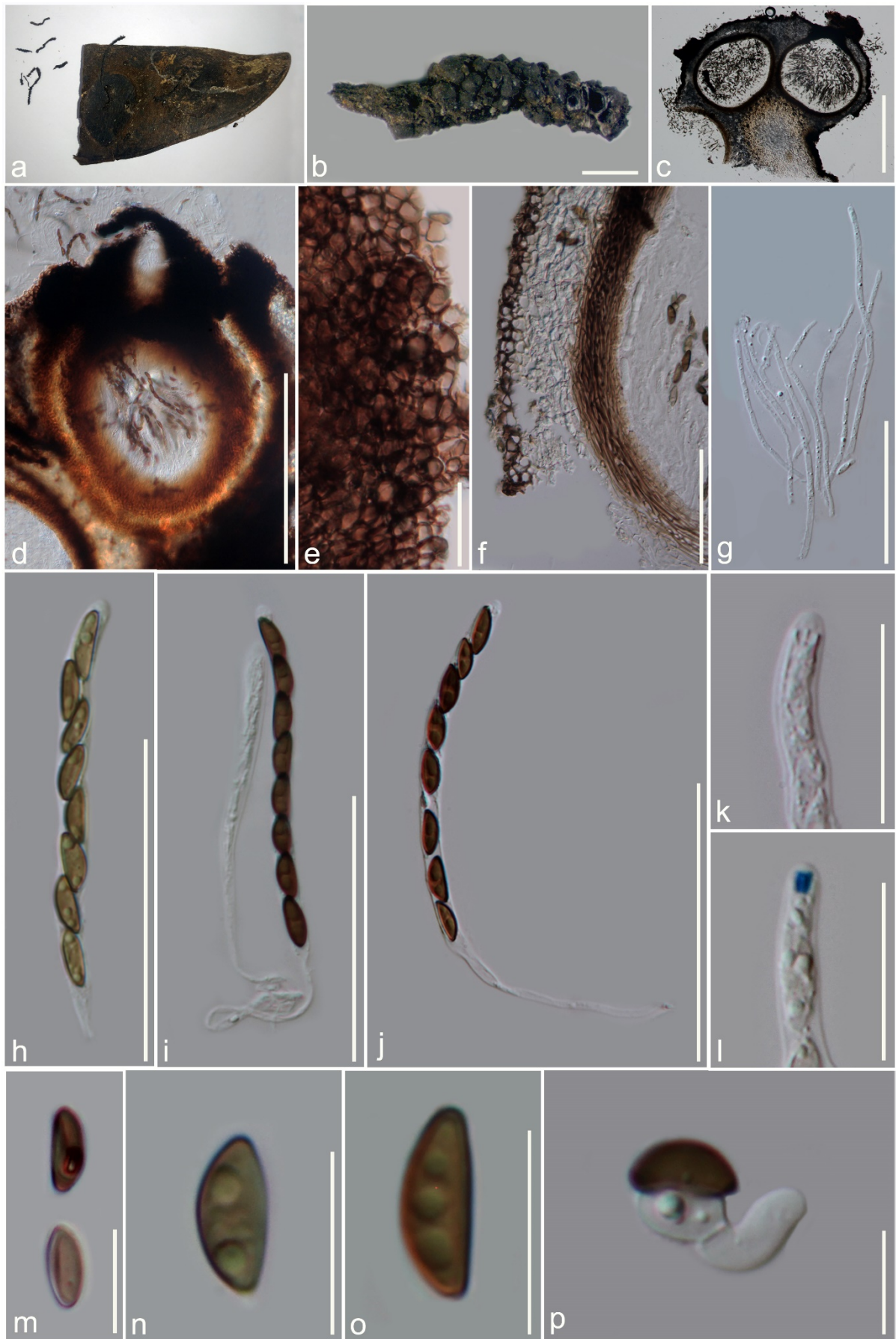


Figure 54 – *Xylaria fabacearum* (MFLU 16-1061, holotype). a Herbarium material. b Appearance of ascomata. c, d Vertical section through stroma with ascomata. e Face view of the peridium.

f Section through peridium. g Paraphyses. h–l Asci. (l in Melzer's reagent). m–o Ascospores. p Germinating ascospore. Scale bars: b = 1 mm, c, d = 200 μm , e = 20 μm , f–j = 50 μm , k–l = 20 μm , m–o = 10 μm , p = 5 μm .

Xylaria fabaceicola R.H. Perera, E.B.G. Jones & K.D. Hyde, sp. nov.

Fig. 55

Index Fungorum number: IF556866; Facesoffungi number: FoF07772

Etymology – Named after the host family Fabaceae.

Holotype – MFLU 16-1072

Saprobic on decaying seed pods of Fabaceae. Sexual morph: *Stromata* 13–25 mm long \times 0.6–1.5 mm diam., fertile part up to 12 mm long \times 1.2 mm diam., cylindrical, branched or unbranched, solitary or clustered, with sterile apices, stipe tomentose, black. *External surface* black, tomentose, roughened with ascomatal contours. *Internal tissue* white, not becoming hollow. *Ascomata* 360–550 μm high \times 300–440 μm diam. (\bar{x} = 480 \times 375 μm), perithecial, mammiform, more or less immersed, ostioles black, slightly papillate. *Peridium* 30–45 μm wide, two regions, outer region of 8–10 layers of hyaline to light brown, thick-walled cells of *textura prismatica*; inner region of 4–6 layers of hyaline cells of *textura angularis*. *Paraphyses* 3–4 μm wide, septate, hyaline, tapering towards the apex. *Asci* 100–130 \times 4.6–6.5 μm (\bar{x} = 117 \times 5.6 μm , n = 20) diam., unitunicate, 8-spored, cylindrical, long stipitate, the spore-bearing part 56–65 μm , with an inverted hat-shaped, J+ apical ring 1.7–2.3 μm \times 1.3–1.8 μm (\bar{x} = 2 \times 1.5 μm , n = 10) diam. *Ascospores* 7.5–10 \times 3.4–4.8 μm (\bar{x} = 8.5 \times 4.2 μm ; n = 25) diam., uniseriate to overlapping uniseriate, ellipsoid-inequilateral, pale brown to brown, aseptate, guttulate; germ slit conspicuous, straight, slightly less than the spore length; surrounded with a hyaline sheath swelling at both ends to form non-cellular appendages, perispore indehiscent in 10% KOH, episore smooth. Asexual morph: Undetermined.

Culture characteristics – Ascospores germinating on PDA within 12 hours. Colonies growing on MEA, reaching up to 55 mm in 14 days at 28°C, flat, initially white, aerial mycelium forming concentric rings with cottony texture, margin undulate, white to ash or black, reverse dark brown.

Material examined – THAILAND, Chiang Mai Province, Mushroom Research Center, on decaying seed pods of Fabaceae, 23 December 2015, R. H. Perera, M-8 (MFLU 16-1072, holotype); ex-type living culture MFLUCC 16-0461.

GenBank numbers – ITS: MT215511, LSU: MT215560, RPB2: MT212201, TUB2: MT212219.

Notes – *Xylaria fabaceicola* (MFLUCC 16-0461) shows close phylogenetic relationship to *X. xanthinovelutina*, *X. culleniae* (which were mostly isolated from leguminous fruits), and *X. juruensis* (Fig. 51). *Xylaria fabaceicola* can be distinguished by *X. xanthinovelutina* by smaller ascospores (7.5–10 \times 3.4–4.8 vs. 9–12 \times 3.5–5 μm), and shorter spore-bearing parts of its asci (56–65 vs. 65–85 μm) (Ju et al. 2018). A comparison of the ITS, RPB2 and TUB2 sequences of *X. fabaceicola* and *X. xanthinovelutina* (553 HAST, JF) revealed 13 (2.4%), 13 (1.4%) and 29 (4%) nucleotide differences, respectively, in each DNA locus. *Xylaria fabaceicola* resembles *X. culleniae*, from which it differs by having a smaller stroma (13–25 \times 0.6–1.5 mm vs. 55–70 \times 2–4 mm) (Ju et al. 2018). In considering morphological and, nucleotide differences in ITS, RPB2 and TUB2 regions, we identified our collection as a new *Xylaria* species.

There are several seed and fruit inhabiting *Xylaria* species, which lack DNA sequence data: *Xylaria duranii*, *X. euphorbiicola*, *X. guazumae*, *X. heloidea*, *X. himalayensis*, *X. jaliscoensis*, *X. patrisiae*, *X. psidii*, *X. rhizocola*, *X. rossmanae* and *X. warburgii* (Ju et al. 2018). We also compared our collections *X. fabacearum* and *X. fabaceicola* with these species based on morphological descriptions provided in Ju et al. (2018).

Helotiales Nannf. ex Korf & Lizoň

Helotiales sp.

Fig. 56

Saprobic on decaying cones of *Pseudotsuga menziesii*. Sexual morph: 275–420 \times 275–350 μm (\bar{x} = 360 \times 300 μm , n = 10). *Ascomata* apothecial, gregarious or in small groups, sessile,

slightly erumpent from the substrate. *Disc* yellow, slightly concave or flat and smooth. *Receptacle* subspherical, concolorous, clothed with hyaline hairs. *Hairs* 94–105 × 5.9–6.6 μm (\bar{x} = 98 × 6.2 μm, n = 20), tapered, 5-septate, walls usually thin. *Ectal excipulum* 13–18 μm (\bar{x} = 15.0 μm, n = 10), composed of thin-walled, hyaline cells of *textura globulosa*. *Medullary excipulum* 76–112 μm (\bar{x} = 89 μm, n = 10) composed of narrow, thin-walled, hyaline cells of *textura epidomoidea*. *Hymenium* hyaline. *Paraphyses* 0.9–1.2 μm wide (\bar{x} = 1.0 μm, n = 20), numerous, filiform, obtuse at the apex, non-septate. *Asci* 91–105 × 6.6–9.6 μm (\bar{x} = 96 × 8.7 μm, n = 30), 8-spored, cylindrical-clavate, unitunicate, tapered, with a stipitate base, croziers present at the base of asci, conical at the apex, with an amyloid ring at apex, partly blue in Meltzer's reagent. *Ascospores* 52–58.6 × 2.3–2.9 μm (\bar{x} = 56.5 × 2.6 μm, n = 40), lying parallel in a single long fascicle within the ascus, hyaline, filiform-cylindric, slightly tapered to the lower end, rounded at the poles, 7-septate. Asexual morph: Undetermined.



Figure 55 – *Xylaria fabaceicola* (MFLU 16-1072, holotype). a Herbarium material. b, c Appearance of ascomata on host substrate. d Hairs. e Vertical section through stromata with

ascoma. f, g Peridium. h Paraphyses. i–l Asci. (l in Melzer’s reagent) m Ascospores showing germ slit. n–p Ascospores. q Germinating ascospore. r, s Colonies on MEA. Scale bars: d = 50 μ m, e = 200 μ m, f = 100 μ m, g–m = 50 μ m, n–q = 10 μ m.

Material examined – UK, Hampshire, New Forest, on decaying cones of *Pseudotsuga menziesii* (Mirb.) Franco (Pinaceae), 24 November 2014, E.B.G. Jones, GJ076 (MFLU 16-0560).

Notes – We identified our collection as a member of Helotiales based on morphological resemblance to the order (Ekanayaka et al. 2017, 2019).

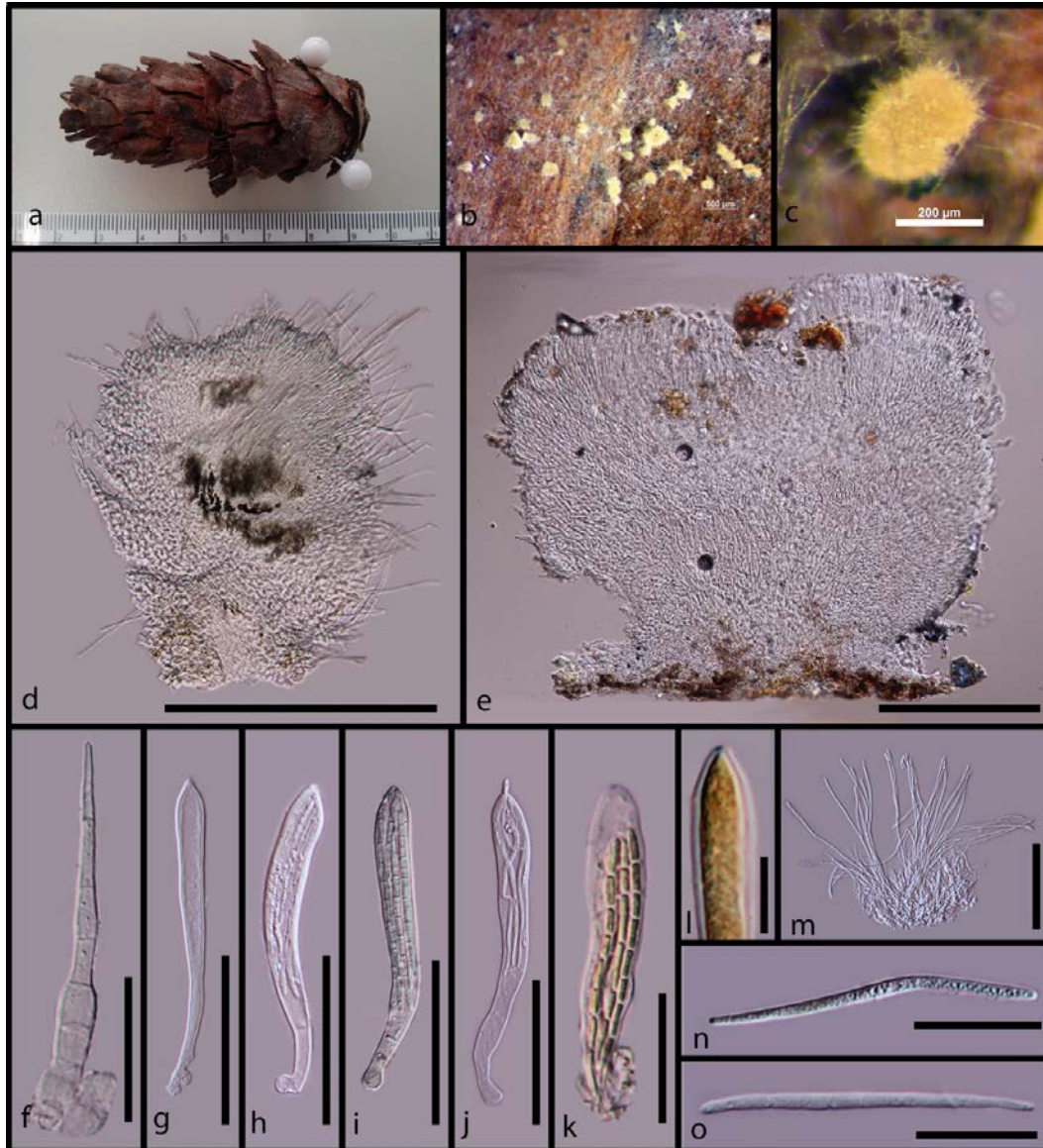


Figure 56 – *Helotiales* sp. (MFLU 16-0560). a Herbarium material. b, c Ascomata on host. d, e Vertical section of ascomata. f Septate hairs. g–k Asci. l Amyloid ring at the ascus apex. m Paraphyses. n, o Ascospores. Scale bars: b = 500 μ m, c = 200 μ m, d = 200 μ m, e = 100 μ m, f = 70 μ m, g–k = 50 μ m, l = 20 μ m, m = 50 μ m, n, o = 20 μ m.

Lachnaceae Raitv.

Lachnum Retz.

Lachnum sp.

Fig. 57

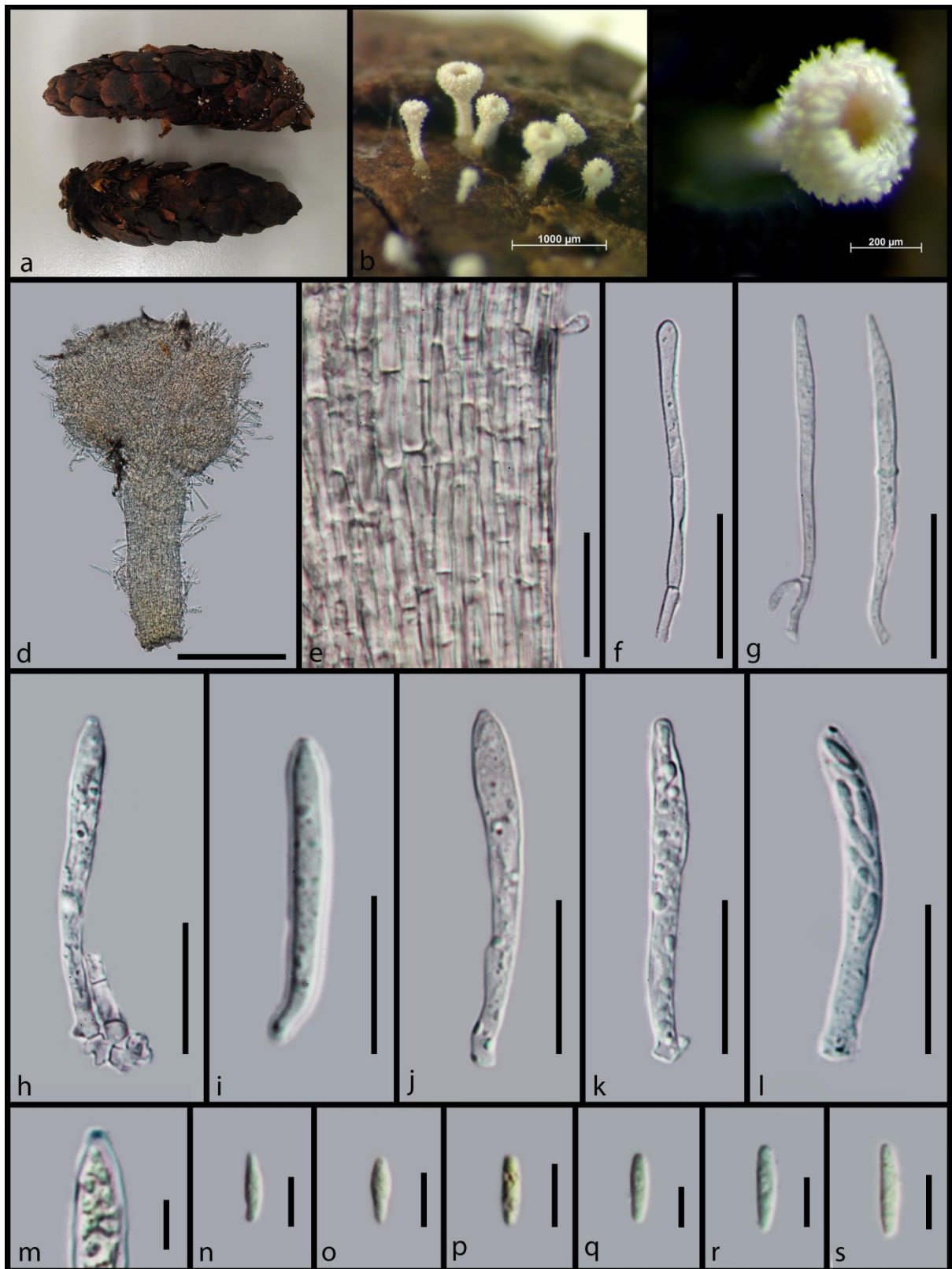


Figure 57 – *Lachnum* sp. (MFLU 16-1863). a Herbarium material. b, c Apothecia on host. d Vertical section of an apothecium. e Excipular cells. f Cylindric hairs. g Paraphyses. h Ascus arising from croziers. i–l Asci. m Amyloid apical ring. n–s Ascospores. Scale bars: b = 1 mm, c = 200 µm, d = 300 µm, e = 50 µm, f = 25 µm, g = 30 µm, h–l = 20 µm, m–s = 5 µm.

Saprobic on decaying cones of *Pseudotsuga menziesii*. Sexual morph: *Apothecia* 0.6–1 mm diam., arising singly or in small groups, stipitate, white when fresh, margins, flanks and stipe

covered with hairs. *Receptacle* cupulate, disc concave, disc and the margins are white when fresh. *Hairs* 40–65 × 2.8–3.6 μm (\bar{x} = 51.2 × 3.2 μm, n = 30) cylindrical, septate, hyaline, walls usually thin, surface finely granulate. *Ectal excipulum* 8–15 μm (\bar{x} = 11 μm, n = 10) in flanks, composed of thin-walled, long, hyaline cells of *textura prismatica*. *Medullary excipulum* in flanks, composed of thin-walled, hyaline cells of *textura porrecta*. *Hymenium* hyaline. *Paraphyses* 2–4 μm wide (\bar{x} = 2.8 μm, n = 20), numerous, lanceolate, septate, exceed asci in length. *Asci* 35–50 × 3.7–4.2 μm (\bar{x} = 46.3 × 4.1 μm, n = 30), 8-spored, unitunicate, cylindrical–clavate, conical at the apex, amyloid ring present at the ascus apex, partly blue in Meltzer’s reagent, stipitate base, arising from croziers. *Ascospores* 5.5–8.2 × 1.2–2.2 μm (\bar{x} = 6.5 × 1.8 μm, n = 40), 1–2-seriate, fusoid-clavate, aseptate, hyaline. Asexual morph: Undetermined.

Material examined – UK, Hampshire, New Forest, on decaying cones of *Pseudotsuga menziesii* (Pinaceae), 16 May 2015, E.B.G. Jones, GJ158 (MFLU 16-1863).

Notes – We identified our collection as a *Lachnum* species based on morphological resemblance to the genus (Ekanayaka et al. 2017).

Fungal check list

Table 2 Fungi associated with wild seeds and fruits

Fungi are listed in alphabetical order after the Phylum.

Taxonomy based on Index Fungorum (2020) and Wijayawardene et al. (2020)

New species, ** New genera

Substrate, host, country and references related to new species described from seed/fruits are in bold text.

Species	Taxonomy	Substrate	Host	Country	References
<i>Absidia</i> sp.	Cunninghamellaceae, Mucoromycetes, Mucoromycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Acremoniella atra</i> (Corda) Sacc.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	cones, seeds seeds seeds seeds seeds seeds seeds	<i>Pinus strobus</i> <i>Abies lasiocarpa</i> <i>Abies nordmanniana</i> <i>Abies procera</i> <i>Festuca rubra</i> <i>Lolium perenne</i> <i>Picea excelsa</i>	Canada Norway Austria, Georgia Norway Canada Canada USSR	Mittal & Wang 1987 Talgø et al. 2010 Talgø et al. 2010 Talgø et al. 2010 Connors 1967 Connors 1967 Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Acremoniella verrucosa</i> Tognini	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seed	<i>Bromus inermis</i>	Canada	Connors 1967
<i>Acremonium alternatum</i> Link	Bionectriaceae, Sordariomycetes, Ascomycota	seeds seeds	<i>Abies lasiocarpa</i> <i>Abies nordmanniana</i>	Canada Austria, Georgia, Russia	Talgø et al. 2010 Talgø et al. 2010
<i>Acremonium bacillisporum</i> (Onions & G.L. Barron) W. Gams	Bionectriaceae, Sordariomycetes, Ascomycota	seeds acorns	<i>Abies procera</i> <i>Quercus robur</i>	Norway Poland	Talgø et al. 2010 Jankowiak 2008
<i>Acremonium charticola</i> (Lindau) W. Gams	Bionectriaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Acremonium chilense</i> Morgan-Jones, J.F. White & Piont. [#]	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Dactylis glomerata</i>	Chile	Morgan-Jones et al. 1990
<i>Acremonium citrinum</i> A. Giraldo, Guarro, Cano & Gené [#]	Bionectriaceae, Sordariomycetes, Ascomycota	fruit	undetermined plant	Papua New Guinea	Giraldo-López et al. 2014
<i>Acremonium</i> spp.	Bionectriaceae, Sordariomycetes, Ascomycota	acorns fruits pods seed	<i>Quercus robur</i> <i>Avicennia marina</i> <i>Ilex cinerea</i> <i>Delonix regia</i> <i>Pinus thunbergii</i>	Poland India Hong Kong Thailand Japan	Jankowiak 2008 Mehdi & Saifullah 2000 Tang et al. 2003a Somrithipol et al. 2002b Watanabe 2010
<i>Acrocalymma pterocarpi</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Acrocalymmaceae, Dothideomycetes, Ascomycota	pod	<i>Pterocarpus indicus</i>	Thailand	Jayasiri et al. 2019
<i>Acrospeira mirabilis</i> Berk. & Broome	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Acrospeira</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Acrostalagmus luteoalbus</i> (Link) Zare, W. Gams & Schroers [as <i>Acrostalagmus</i> <i>cinnabarinus</i> Corda]	Plectosphaerellaceae, Sordariomycetes, Ascomycota	seeds	<i>Larix decidua</i>	USSR	Kozłowska 1968, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959
<i>Acrostaphylus lignicola</i> Subram.	Hypoxylaceae, Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
<i>Acrothecium tenebrosum</i> (Preuss) Sacc.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Aecidium acanthocarpi</i> J. Walker & van der Merwe [#]	<i>Incertae sedis</i> , Pucciniomycetes, Basidiomycota	fruit	<i>Acanthocarpus</i> <i>verticillatus</i>	Australia	Walker & van der Merwe 2009
<i>Agarwalomyces indicus</i> R.K. Verma & Kamal ^{#**}	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruits	Lythraceae	India	Verma & Rai 1987
<i>Akanthomyces lecanii</i> (Zimm.) Spatafora, Kepler & B. Shrestha [as <i>Verticillium</i> <i>lecanii</i> (Zimm.) Viégas]	Cordycipitaceae, Sordariomycetes, Ascomycota	seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
<i>Albifimbria verrucaria</i> (Alb. & Schwein.) L. Lombard & Crous [as <i>Myrothecium</i> <i>verrucaria</i> (Alb. & Schwein.) Ditmar]	Stachybotryaceae, Sordariomycetes, Ascomycota	seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
<i>Albonectria rigidiuscula</i> (Berk. & Broome) Rossman & Samuels [as <i>Fusarium</i> <i>rigidiusculum</i> W.C. Snyder & H.N. Hansen]	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus ponderosa</i>	USA	James 1983a
<i>Allomyces anomalus</i> R. Emers.	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Lycium cestroides</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Allophoma siamensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Didymellaceae, Dothideomycetes, Ascomycota	pod	<i>Radermachera</i> <i>sinica</i>	Thailand	Jayasiri et al. 2019
<i>Alternaria alternata</i> (Fr.) Keissl.	Pleosporaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		cones	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		cones, seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Magnolia grandiflora</i>	Thailand	Jayasiri et al. 2019
		fruits	<i>Wikstroemia nutans</i>	Hong Kong	Tang et al. 2003a
		pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Abies koreana</i>	Korea	Cho et al. 2007
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Betula pendula</i>	Finland, Poland	Lilja 1979, Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Callistephus chinensis</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012
		seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seeds	<i>Dahlia × hybrida</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014, Naz et al. 2015
		seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seed	<i>Larix</i> sp.	Japan	Watanabe 2010
		seed	<i>Leucaena leucocephala</i>	Australia	Nik & Parbery 1977
		seed	<i>Macroptilium atropurpureum</i>	Australia	Nik & Parbery 1977
		seed	<i>Macroptilium lathyroides</i>	Australia	Nik & Parbery 1977
		seed	<i>Macrotyloma axillare</i>	Australia	Nik & Parbery 1977
		seed	<i>Medicago scutellata</i>	Australia	Nik & Parbery 1977
		seeds	<i>Picea abies</i>	Poland	Krol et al. 2015
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1986, 1987, Mittal et al. 1990
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i>	South Africa	Cilliers et al. 1995
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982
		seeds	<i>Pinus roxburghii</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seeds	<i>Pinus wallichiana</i>	Taiwan	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Primula</i> × <i>polyantha</i>	imported to Taiwan	Wu et al. 2006

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
		seeds	<i>Robinia pseudoacacia</i>	Hungary	Hangyal-Balul 1983, Mittal et al. 1990
		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
		seeds	<i>Tagetes patula</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Tectona grandis</i>	India	Mohan et al. 2005
		seed	<i>Trifolium semipilosum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Viola wittrockiana</i>	imported to Taiwan	Wu et al. 2006
<i>Alternaria arbusti</i> E.G. Simmons	Pleosporaceae, Dothideomycetes, Ascomycota	pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
<i>Alternaria atra</i> (Preuss) Woudenb. & Crous [as <i>Stemphylium atrum</i> (Preuss) Sacc.]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Alternaria atra</i> (Preuss) Woudenb. & Crous [as <i>Ulocladium atrum</i> Preuss]		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Callistephus chinensis</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Dahlia × hybrida</i>	imported to Taiwan	Wu et al. 2006

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seed	<i>Medicago sativa</i>	Australia	Nik & Parbery 1977
		seeds	<i>Primula malacoides</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Tagetes patula</i>	imported to Taiwan	Wu et al. 2006
<i>Alternaria botrytis</i> (Preuss) Woudenb. & Crous [as <i>Ulocladium botrytis</i> Preuss]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds seeds	<i>Casuarina</i> spp. <i>Cosmos sulphureus</i>	India imported to Taiwan	Sahai & Otra 1982 Wu et al. 2006
<i>Alternaria brassicae</i> (Berk.) Sacc.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds seeds	<i>Pyrus</i> spp. <i>Picea excelsa</i>	India USSR	Sahai & Otra 1982 Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Alternaria chartarum</i> Preuss [as <i>Ulocladium chartarum</i> (Preuss) E.G. Simmons]	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Anderson 1986a Watanabe 2010
<i>Alternaria circinans</i> (Berk. & M.A. Curtis) P.C. Bolle	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Alternaria citri</i> (Penz.) Mussat	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Alternaria consortialis</i> (Thüm.) J.W. Groves & S. Hughes	Pleosporaceae, Dothideomycetes, Ascomycota	seeds seeds seeds seeds seed	<i>Agropyron cristatum</i> <i>Alnus glutinosa</i> <i>Apium graveolens</i> <i>Medicago sativa</i> <i>Pseudotsuga</i> <i>menziesii</i>	Canada Poland Canada Canada USA	Connors 1967 Krol et al. 2015 Connors 1967 Connors 1967 Gordon 1967, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seed	<i>Quercus rubra</i>	Poland	Krol et al. 2015
<i>Alternaria consortialis</i> (Thüm.) J.W. Groves & S. Hughes [as <i>Stemphylium</i> <i>consortiale</i> (Thüm.) J.W. Groves & Skolko]		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula</i> <i>alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
<i>Alternaria cosmosa</i> Y.S. Li & W.S. Wu [#]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Cosmos sulphureus</i>	imported to Taiwan, Taiwan	Wu & Li 2005 , Wu et al. 2006
<i>Alternaria danida</i> E.G. Simmons [#]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Ageratum</i> <i>houstonianum</i>	Italy	Simmons 1997
<i>Alternaria dianthi</i> J.V. Almeida & Sousa da Câmara	Pleosporaceae, Dothideomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
<i>Alternaria dianthicola</i> Neerg.	Pleosporaceae, Dothideomycetes, Ascomycota	pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Dianthus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
<i>Alternaria ellipsoidea</i> E.G. Simmons [#]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Dianthus barbatus</i>	USA	Simmons 2002
<i>Alternaria eryngii</i> (Pers.) S. Hughes & E.G. Simmons	Pleosporaceae, Dothideomycetes, Ascomycota	pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
<i>Alternaria graminicola</i> E.G. Simmons [#]	Pleosporaceae, Dothideomycetes, Ascomycota	grain	Poaceae plant [as Gramineae]	UK	Simmons 2007
<i>Alternaria humicola</i> Oudem.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Alternaria infectoria</i> E.G. Simmons	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Alternaria infectoria</i> E.G. Simmons [as <i>Lewia</i> <i>infectoria</i> (Fuckel) M.E. Barr & E.G. Simmons]		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
<i>Alternaria iridicola</i> (Ellis & Everh.) J.A. Elliott	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Alternaria jesenskae</i> Lzbuda, P. Elias & Sterfl. [#]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Fumana procumbens</i>	Slovakia	Labuda et al. 2008
<i>Alternaria linicola</i> J.W. Groves & Skolko [#]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Linum usitatissimum</i>	Canada	Groves & Skolko 1944, Connors 1967
<i>Alternaria longipes</i> (Ellis & Everh.) E.W. Mason	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
<i>Alternaria longissima</i> Deighton & MacGarvie	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
<i>Alternaria maritima</i> G.K. Sutherl.	Pleosporaceae, Dothideomycetes, Ascomycota	fruits	<i>Avicennia marina</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Alternaria patula</i> H.C. Wu & W.S. Wu [#]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Tagetes patula</i>	imported to Taiwan, Taiwan	Wu & Wu 2005, Wu et al. 2006
<i>Alternaria peponis</i> Yatel	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Alternaria oudemansii</i> (E.G. Simmons) Woudenb. & Crous [as <i>Ulocladium oudemansii</i> E.G. Simmons]	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Prisyazhnyuk 1960, Mittal et al. 1990 Watanabe 2010
<i>Alternaria radicina</i> Meier, Drechsler & E.D. Eddy	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Alternaria ranunculi</i> E.G. Simmons [#]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Ranunculus</i> sp.	Israel	Simmons 2007

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Alternaria raphani</i> J.W. Groves & Skolko	Pleosporaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Alternaria resedae</i> Neerg.#	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Reseda odorata</i>	Denmark	Neergaard 1945
<i>Alternaria</i> spp.	Pleosporaceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus nigra</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus nigra</i> ssp. <i>nigra</i>	Canada	Vujanovic et al. 2000
<i>Alternaria</i> spp. [as <i>Ulocladium</i> spp.]		cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Acer saccharum</i>	USA	Mittal et al. 1990, Janerette 1979
		seed	<i>Larix kaempferi</i>	Japan	Watanabe 2010
<i>Alternaria</i> sp. [as <i>Lewia</i> sp.]		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		cones, seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
			<i>Pinus sylvestris</i> 'Fastigiata'	Canada	Vujanovic et al. 2000
		pod	<i>Colophospermum mopane</i>	Southern Africa	Jordaan et al. 2006
		seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acer saccharum</i>	USA	Janerette 1979, Mittal et al. 1990
		seeds	<i>Albizia lebbek</i>	India	Natarajan et al. 2003
seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990		
seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990		
seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Betula alleghaniensis</i>	USA	Shigo & Yelenosky 1963, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Smoot & Segall 1963, Mittal et al. 1990
		seeds	<i>Cupressus arizonica</i>	Uruguay	Anderson 1986a
		seeds	<i>Cupressus macrocarpa</i>	Uruguay	Anderson 1986a
		seeds	<i>Cupressus torulosa</i>	Uruguay	Anderson 1986a
		seeds	<i>Dalbergia sissooides</i>	India	Mohanani et al. 2005
		seeds	<i>Enterolobium contortisiliquum</i>	Uruguay	Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	South Africa, Uruguay	Anderson 1986a, Jimu et al. 2016
		seeds	<i>Eucalyptus maidenii</i>	Uruguay	Anderson 1986a
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay, USA	Anderson 1986a, Fraedrich & Miller 1995
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	Georgia, USA	Anderson 1986a, b, Huang & Kuhlman 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Alternaria tenuis</i> Nees	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	Turkey	Oskay et al. 2018
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seed	<i>Agrostis gigantea</i>	Canada	Connors 1967
		seeds	<i>Albizia falcataria</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Albizia lebbeck</i>	India	Natarajan et al. 2003
		seed	<i>Anethum graveolens</i>	Canada	Connors 1967
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	Canada	Connors 1967
		seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	El-Kady et al. 1986, Mittal et al. 1990
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	Bangladesh	Mittal et al. 1990
seed	<i>Bromus inermis</i>	Canada	Connors 1967		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Callistephus chinensis</i>	China	Gloyer 1931, Crosier & Heit 1948
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	India	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India, Uruguay	Munjal & Sharma 1975
		seed	<i>Dactylis glomerata</i>	Canada	Connors 1967
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
		seed	<i>Elymus virginicus</i>	Canada	Connors 1967
		seeds	<i>Eucalyptus camaldulensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Hungary	Mittal et al. 1990
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Larix decidua</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Lobelia erinus</i>	UK	Hall & Taylor 1983, Mittal et al. 1990
		seed	<i>Lolium perenne</i>	Canada	Connors 1967
		seed	<i>Medicago sativa</i>	Canada	Connors 1967
		seed	<i>Phleum pratense</i>	Canada	Connors 1967
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seed	<i>Poa compressa</i>	Canada	Connors 1967
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
		seed	<i>Salvia officinalis</i>	Canada	Connors 1967
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
<i>Alternaria tenuissima</i> (Kunze) Wiltshire	Pleosporaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seeds	<i>Betula pendula</i>	Finland	Lilja 1979, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
		seed	undetermined plant	India	Goswami & Ojha 2004
<i>Amorocoelophoma cassiae</i> Jayasiri, E.B.G. Jones & K.D. Hyde ^{***}	Amorosiaceae, Dothideomycetes, Ascomycota	pod	<i>Cassia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Anisogenispora insignissima</i> S.M. Leão, Gusmão & R.F. Castañeda ^{***}	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruit	dicotyledonous plant	Brazil	Leão-Ferreira et al. 2018
<i>Anteaglonium gordoniae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Anteagloniaceae, Dothideomycetes, Ascomycota	capsule	<i>Gordonia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Antennospora quadricornuta</i> (Cribb & J.W. Cribb) T.W. Johnso	Halosphaeriaceae, Sordariomycetes, Ascomycota	fruit	undetermined plant	Panama	Schmitt & Shearer 2003

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Anthostomella clypeata</i> (De Not.) Sacc.	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
<i>Anthracoidea multicaulis</i> Vánky & Salo [#]	Anthracoideaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Carex multicaulis</i>	USA	Vánky & Salo 2011
<i>Apiocarpella</i> sp.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Aplosporella dryobalanopsis</i> S.N.S. Srivast. [#]	Aplosporellaceae, Dothideomycetes, Ascomycota	fruit, seeds	<i>Dryobalanops aromatica</i>	Malaysia	Srivastava 1956a, Mittal et al. 1990
<i>Aposphaeria</i> sp.	Melanommataceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Arachnophora fagicola</i> Hennebert [#]	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	cupules	<i>Fagus sylvatica</i>	Belgium	Hennebert 1963
<i>Arachnophora hughesii</i> R.F. Castañeda & Guarro [#]	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	pod	<i>Samanea saman</i>	Cuba	Castañeda-Ruíz & Guarro 1998
<i>Arcopilus aureus</i> (Chivers) X.Weï Wang & Samson [as <i>Chaetomium aureum</i> Chivers]	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Gossypium</i> sp.	Pakistan	Lodhi & Naem 1955
<i>Archephoma cycadeoidellae</i> K. Watan., H. Nishida & Tak. Kobay ^{***}	Fossil fungus	cone	<i>Cycadeoidella japonica</i>	Japan	Watanabe et al. 1999
<i>Arthrimum</i> spp.	Apiosporaceae, Sordariomycetes, Ascomycota	fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seed	<i>Gentiana</i> sp.	Japan	Watanabe 2010
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Chamaecyparis obtusa</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Abies koreana</i>	Korea	Cho et al. 2007
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
<i>Arthrobotrys arthrobotryoides</i> (Berl.) Lindau	Orbiliaceae, Orbiliomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Arthrobotrys oligosporus</i> Fresen.	Orbiliaceae, Orbiliomycetes, Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Arthrobotrys superbus</i> Corda	Orbiliaceae, Orbiliomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Arthrobotrys superbus</i> var. <i>oligosporus</i> (Fresen.) Coem.	Orbiliaceae, Orbiliomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Arxotrichum succineum</i> (L.M. Ames) A. Nováková & M. Kolařík [as <i>Chaetomium succineum</i> L.M. Ames]	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
<i>Ascochyta agropyrina</i> (Fairm.) Trotter	Didymellaceae, Dothideomycetes, Ascomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
<i>Ascochyta conorum</i> Henn.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Ascochyta fagi</i> Woron.	Didymellaceae, Dothideomycetes, Ascomycota	fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012, Tateno et al. 2015
<i>Ascochyta</i> spp.	Didymellaceae, Dothideomycetes, Ascomycota	fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Acer palmatum</i>	South Korea	Mathur 1974, Anderson 1986a
Ascomycetes	Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
<i>Ascotricha</i> sp.	Xylariaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Aspergillus aculeatus</i> Iizuka	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
<i>Aspergillus aculeatus</i> [as 'occuleatus']	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Cupressus sempervirens</i>	Egypt	Farang et al. 1977, Mittal et al. 1990
<i>Aspergillus amstelodami</i> Thom & Church	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Aspergillus caespitosus</i> Raper & Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Aspergillus candidus</i> Link	Aspergillaceae, Eurotiomycetes, Ascomycota	pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Leucaena leucocephala</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		<i>Aspergillus candidus</i> Link [as <i>Aspergillus candidum</i>]		seeds	<i>Abies sibirica</i>
seeds	<i>Dalbergia sissoo</i>			India	Kumar 2014

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Aspergillus carneus</i> Blochwitz	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
<i>Aspergillus chevalieri</i> Thom & Church	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
<i>Aspergillus clavatus</i> Desm.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Albizia lebbbeck</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990, Natarajan et al. 2003
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Aspergillus delicatus</i> H.Z. Kong [#]	Aspergillaceae, Eurotiomycetes, Ascomycota	fruit	undetermined plant	China	Kong 1997
<i>Aspergillus flavipes</i> (Bainier & R. Sartory) Thom & Church	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Cupressus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
<i>Aspergillus flavus</i> Link	Aspergillaceae, Eurotiomycetes, Ascomycota	fruit	<i>Artocarpus communis</i>	Nigeria	Amusa et al. 2002
		fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
		pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Acacia auriculiformis</i>	Philippines, Thailand	Quiniones 1985, 1987, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Agathis philippinensis</i>	Philippines	Quiniones 1987

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Agathis robusta</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Albizia falcataria</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Albizia julibrissin</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Albizia lebbeck</i>	India, Philippines	Quiniones 1985, 1987, Mittal et al. 1990, Natarajan et al. 2003
		seeds	<i>Albizia procera</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Alstonia macrophylla</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Anthocephalus chinensis</i>	Philippines	Quiniones 1987
		seeds	<i>Antidesma ghaesembilla</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Bauhinia acuminata</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bombax anceps</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	Bangladesh	Mittal et al. 1990
		seeds	<i>Calamus ornatus</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Cassia fistula</i>	India, Thailand	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cupressus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Dalbergia cochinchinensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990, Kumar 2014
		seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
		seeds	<i>Eucalyptus alba</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus deglupta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Gliricidia sepium</i>	Philippines	Dayan 1986, 1987, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Lagerstroemia speciosa</i>	Philippines	Dayan 1986, 1987, Anderson 1986a
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seed	<i>Leucaena leucocephala</i>	Australia, Bangladesh, Philippines	Nik & Parbery 1977, Quiniones 1985, 1987, Mittal et al. 1990, Islam et al. 2008
		seed	<i>Medicago truncatula</i>	Australia	Nik & Parbery 1977
		seeds	<i>Melia azedarach</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Parkia roxburghii</i>	Philippines	Dayan 1986, Anderson 1986a
		seeds	<i>Parkia roxburghii</i>	Philippines	Quiniones 1987
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Quiniones 1987
		seeds	<i>Pinus caribaea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland, USSR	Garbowski 1936, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India, Pakistan	Munjal & Sharma 1975, Mittal et al. 1990, Ashaer 2000
		seeds	<i>Pittosporum resiniferum</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Quiniones 1987
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Samanea saman</i>	Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Serialbizzia acle</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Sesbania grandiflora</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	India, Thailand	Mittal & Sharma 1982b, Mittal et al. 1990
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seeds	<i>Swietenia macrophylla</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Toona calantas</i>	Philippines	Quiniones 1987
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Wallaceodendron celibcum</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Xylia xylocarpa</i> var. <i>kerrii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Aspergillus flavus</i> var. <i>oryzae</i> (Ahlb.) Kurtzman, M.J. Smiley, Robnett & Wicklow	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus kesiya</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Aspergillus fumigatus</i> Fresen.	Aspergillaceae, Eurotiomycetes, Ascomycota	fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
		pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Albizia lebbeck</i>	India	Natarajan et al. 2003
		seeds	<i>Atropa belladonna</i> var. <i>lutea</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cassia fistula</i>	India	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Cupressus</i> spp.	India	Sahai & Otra 1982

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus deglupta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Leucaena leucocephala</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seed	<i>Peltophorum pterocarpum</i> [= <i>Peltophorum ferrugineum</i>]	India	Goswami & Ojha 2004
		seeds	<i>Pinus merkusii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Rhamnus purshiana</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Shorea robusta</i>	Thailand	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Aspergillus funiculosus</i> G. Sm.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Aspergillus glaucus</i> (L.) Link	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	Bangladesh	Mittal et al. 1990
		seed	<i>Leucaena leucocephala</i>	Australia	Nik & Parbery 1977
		seed	<i>Lotononis angolensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Medicago truncatula</i>	Australia	Nik & Parbery 1977
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
		seed	<i>Stylosanthes gracilis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
<i>Aspergillus glaucus</i> (L.) Link [as <i>Aspergillus glauca</i>]		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
<i>Aspergillus humicola</i> Chaudhuri & Sachar	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Aspergillus janus</i> Raper & Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus wallichiana</i>	Pakistan	Ashaer 2000
<i>Aspergillus koningii</i> Oudem.	Aspergillaceae, Eurotiomycetes,	seeds	<i>Cedrus deodara</i>	India	Mittal 1983
<i>Aspergillus koningii</i> Oudem. [as 'koninge']	Ascomycota	seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Aspergillus luchuensis</i> Inui	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Aspergillus nidulans</i> (Eidam) G. Winter	Aspergillaceae, Eurotiomycetes, Ascomycota	fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
<i>Aspergillus niger</i> Tiegh.	Aspergillaceae, Eurotiomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008, Krol et al. 2015
		fruit	<i>Artocarpus communis</i>	Nigeria	Amusa et al. 2002
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
		pod, seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		pod, seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Acacia auriculiformis</i>	Philippines, Thailand	Quiniones 1985, 1987, Anderson 1986a, Mittal et al. 1990
seeds	<i>Albizia falcataria</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990		
seeds	<i>Albizia julibrissin</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990		
seeds	<i>Albizia lebbeck</i>	India, Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990,		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Albizia procera</i>	Philippines	Natarajan et al. 2003, Mohanani et al. 2005
		seeds	<i>Alnus glutinosa</i>	Poland	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Atropa belladonna</i> var. <i>caucasica</i>	Poland or/ imported to Poland	Krol et al. 2015 Czeczuga et al. 2009
		seeds	<i>Bauhinia acuminata</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Bombax anceps</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	Bangladesh	Mittal et al. 1990
		seeds	<i>Calamus ornatus</i>	Philippines	Quiniones 1987
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	India, Thailand	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Casuarina</i> <i>equisetifolia</i>	India, Philippines, Thailand	Anderson 1986a, Quiniones 1985, 1987, Mittal et al. 1990, Anju et al. 2012
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otrá 1982
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Cupressus</i> spp.	India	Sahai & Otrá 1982
		seeds	<i>Dalbergia</i> <i>cochinchinensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014, Mittal & Sharma 1981b, Mittal et al. 1990, Mohanan et al. 2005
		seeds	<i>Eucalyptus alba</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus deglupta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Gliricidia sepium</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Holarrhena antidysenterica</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Lagerstroemia calyculata</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Larix decidua</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Leucaena leucocephala</i>	Bangladesh, Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990, Islam et al. 2008
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Macroptilium atropurpureum</i>	Australia	Nik & Parbery 1977

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Melia azedarach</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Parkia roxburghii</i>	Philippines	Quiniones 1987
		seeds	<i>Picea abies</i>	Poland, USSR	Prisyazhnyuk 1960, Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Quiniones 1985, Anderson 1986a, 1987
		seeds	<i>Pinus caribaea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i>	South Africa	Cilliers et al. 1995
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Pinus kesiya</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	Honduras	Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland, USSR	Urosevic 1961, Anderson 1986a, Krol et al. 2015
		seeds	<i>Pinus taeda</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pittosporum resiniferum</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pterocarpus indicus</i>	Philippines	Quiniones 1987
		seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
		seeds	<i>Ribes aureus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Samanea saman</i>	Philippines, Thailand	Quiniones 1985, Anderson 1986a, Mittal et al. 1990, 1987
		seeds	<i>Sapium</i> spp.	India	Sahai & Otrá 1982
		seeds	<i>Sesbania grandiflora</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	India, Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Shorea</i> spp.	India	Singh et al. 1979, Mittal et al. 1990
		seeds	<i>Swietenia macrophylla</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mohanán et al. 2005
		seeds	<i>Toona calantas</i>	Philippines	Quiniones 1987
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a, 1987
		seeds	<i>Xylia xylocarpa</i> var. <i>kerrii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Aspergillus niger</i> var. <i>niger</i> Tiegh.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
<i>Aspergillus ochraceus</i> G. Wilh.	Aspergillaceae, Eurotiomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seed	<i>Abies balsamea</i>	Canada	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Albizia lebbeck</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	Bangladesh	Mittal et al. 1990
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Cassia fistula</i>	India	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus kesiya</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Aspergillus ochraceus</i> G. Wilh. [as 'ochraceum']		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Aspergillus oryzae</i> (Ahlb.) Cohn	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds pod, seed	<i>Casuarina</i> spp. <i>Sesbania bispinosa</i>	India India	Sahai & Otra 1982 Anita et al. 2009
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
<i>Aspergillus parasiticus</i> Speare	Aspergillaceae, Eurotiomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
<i>Aspergillus phoenicis</i> (Corda) Thom & Currie	Aspergillaceae, Eurotiomycetes, Ascomycota	seed seeds	<i>Sesbania bispinosa</i> <i>Albizia lebbeck</i>	India India	Anita et al. 2009 Mittal & Sharma 1982a, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
<i>Aspergillus repens</i> (Corda) Sacc.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
<i>Aspergillus restrictus</i> G. Sm.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Holarrhena antidysenterica</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Lagerstroemia calyculata</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Aspergillus ruber</i> (Jos. König, Spieck. & W. Bremer) Thom & Church	Aspergillaceae, Eurotiomycetes, Ascomycota	seed	<i>Macropodium atropurpureum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Aspergillus spinulosporus</i> Hubka, S.W. Peterson & M. Kolařík [as <i>Aspergillus nidulans</i> var. <i>echinulatus</i> Fennell & Raper]	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Casuarina</i> spp., <i>Pyrus</i> spp.	India	Sahai & Otra 1982
<i>Aspergillus</i> spp.	Aspergillaceae, Eurotiomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Acacia confusa</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Albizia falcataria</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Albizia lebbbeck</i>	India	Mohanani et al. 2005
		seeds	<i>Albizia procera</i>	Philippines	Agmata 1979, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Anthocephalus chinensis</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Azadirachta indica</i>	Malaysia	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Smoot & Segall 1963, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich 1969, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	India	Mittal et al. 1990
		seeds	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009, Seena & Sridhar 2004
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seeds	<i>Dalbergia sissooides</i>	India	Mohanani et al. 2005
		seeds	<i>Delonix regia</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus tereticornis</i>	India	Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Leucaena leucocephala</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Manilkara bidentata</i>	USA	Bayman et al. 1998
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i>	Taiwan, USA	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus luchuensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus patula</i>	East Africa	Gibson 1957, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	Hungary, UK	Hangyal 1973, Whittle 1977, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdel 1978, Anderson 1986a
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seeds	<i>Pinus thunbergii</i> [= <i>Pinus thunbergiana</i>]	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	Bloomberg 1966, Gordon 1967, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Bloomberg 1966
		seeds	<i>Sesbania grandiflora</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a, Mohanan et al. 2005
		seeds	<i>Vitex parviflora</i>	Philippines	Agmata 1979, Anderson 1986a
<i>Aspergillus sulphureus</i> Desm.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
<i>Aspergillus sulphureus</i> Desm. [as ' <i>sulphureus</i> ']		seeds	<i>Albizia lebbek</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	India	Mittal & Sharma 1981a, Mittal et al. 1990
<i>Aspergillus sydowii</i> (Bainier & Sartory) Thom & Church	Aspergillaceae, Eurotiomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Aspergillus sydowii</i> (Bainier & Sartory) Thom & Church [as 'sydowi']		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Albizia lebbek</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seed	<i>Stylosanthes gracilis</i>	Australia	Nik & Parbery 1977
		pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
<i>Aspergillus tamarii</i> Kita	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Cassia floribunda</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Leucaena leucocephala</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus patula</i>	Kenya	Gibson 1957, Mittal et al. 1990
		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Acacia auriculiformis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bombax anceps</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Aspergillus terreus</i> Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Acacia auriculiformis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bombax anceps</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cassia siamea</i>	Thailand	Quiniones 1985, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Aspergillus terricola</i> Marchal & É.J. Marchal	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Aspergillus unguis</i> (Émile-Weill & L. Gaudin) Thom & Raper	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
<i>Aspergillus ustus</i> (Bainier) Thom & Church	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
<i>Aspergillus varicolor</i> (Berk. & Broome) Thom & Raper	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Albizia lebbbeck</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seed	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seeds	<i>Cupressus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus kesiya</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Xylia xylocarpa</i> var. <i>kerrii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Aspergillus wentii</i> Wehmer	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Albizia lebbbeck</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Asteroma</i> sp.	Gnomoniaceae, Sordariomycetes, Ascomycota	fruits	<i>Ardisia quinquegona</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
<i>Asteromella</i> sp.	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Atrocalyx krabiensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Lophiotremataceae, Dothideomycetes, Ascomycota	pods	<i>Acacia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Aureobasidium melanogenum</i> (Herm.-Nijh.) Zalar, Gostinčar & Gunde- Cim. [as <i>Aureobasidium pullulans</i> var. <i>melanogenum</i> Herm.-Nijh.]	Sacotheciaceae, Dothideomycetes, Ascomycota	pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Aureobasidium pullulans</i> (de Bary & Löwenthal) G. Arnaud	Sacotheciaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		cones	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		cones	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seed	<i>Agrostis gigantea</i>	Canada	Connors 1967
		seed	<i>Anethum graveolens</i>	USA	Connors 1967
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	Canada	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967
		seeds	<i>Betula pendula</i>	Finland	Lilja 1979, Mittal et al. 1990
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seed	<i>Dactylis glomerata</i>	Canada	Connors 1967
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Lolium perenne</i>	Canada	Connors 1967
		seed	<i>Medicago sativa</i>	Canada	Connors 1967
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Anderson 1986a
		seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
<i>Aureobasidium pullulans</i> var. <i>aubasidani</i> Yurlova	Sacotheciaceae, Dothideomycetes, Ascomycota	Pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Aureobasidium</i> spp.	Sacotheciaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer saccharum</i>	USA	Janerette 1979, Mittal et al. 1990
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013, Hayatgheibi 2013
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
<i>Austropleospora keteleeriae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#] Basidiomycete	Didymosphaeriaceae, Dothideomycetes, Ascomycota Basidiomycota	cone cones seed capsules seeds seeds seeds seeds	<i>Keteleeria fortunei</i> <i>Pinus densiflora</i> <i>Eucalyptus grandis</i> <i>Corallorhiza striata</i> <i>Delonix regia</i> <i>Eucalyptus grandis</i> <i>Platanthera hyperborea</i>	China Japan South Africa Canada Thailand South Africa Canada	Jayasiri et al. 2019 Kasai et al. 1995 Jimu et al. 2016 Zelmer et al. 1996 Somrithipol et al. 2002b Jimu et al. 2016 Zelmer et al. 1996
<i>Basipetospora rubra</i> G.T. Cole & W.B. Kendr. <i>Beauveria</i> sp.	Monascaceae, Eurotiomycetes, Ascomycota Cordycipitaceae, Sordariomycetes, Ascomycota	seeds seed seed	<i>Quercus robur</i> <i>Pinus thunbergii</i> <i>Pinus monticola</i>	Turkey Japan USA	Oskay et al. 2018 Watanabe 2010 Ganley & Newcombe 2006
<i>Beltrania rhombica</i> Penz.	Beltraniaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Beltrania santapau</i> Piroz. & S.D. Patil	Beltraniaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Beltrania</i> spp.	Beltraniaceae, Sordariomycetes, Ascomycota	fruits seeds	<i>Psychotria asiatica</i> <i>Albizia lebbbeck</i>	Hong Kong India	Tang et al. 2003a Mohanan et al. 2005
<i>Beltraniella vateriae</i> K. Swapna, Nagaveni, Kunwar & Manohar.#	Beltraniaceae, Sordariomycetes, Ascomycota	seeds	<i>Vateria indica</i>	India	Priya et al. 2011
<i>Bhadradriella hyalina</i> Nagaraju, Kunwar & Manohar.#	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	pods	<i>Roystonea regia</i>	India	Nagaraju et al. 2011a
<i>Biflagellosporella</i> <i>amazonensis</i> Matsush.#	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruit	<i>Inga</i> sp.	Peru	Matsushima 1993
<i>Bipolaris setariae</i> Shoemaker	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Setaria viridis</i>	Canada	Connors 1967
<i>Bipolaris sorokiniana</i> Shoemaker	Pleosporaceae, Dothideomycetes, Ascomycota	seed seed seed seed seed seed	<i>Agropyron cristatum</i> <i>Elymus virginicus</i> <i>Festuca elatior</i> <i>Linum usitatissimum</i> <i>Lolium perenne</i> <i>Setaria viridis</i>	Canada Canada Canada Canada Canada Canada	Connors 1967 Connors 1967 Connors 1967 Connors 1967 Connors 1967 Connors 1967
<i>Bipolaris</i> sp.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds seeds	<i>Eucalyptus grandis</i> <i>Platanus</i> <i>occidentalis</i> <i>Pinus kesiya</i>	South Africa USA USA Thailand	Jimu et al. 2016 Fakir et al. 1971, Mittal et al. 1990 Chalermpongse et al. 1984, Mittal et al. 1990
<i>Bispora antennata</i> (Pers.) E.W. Mason	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Gentiana</i> sp.	Japan	Watanabe 2010
<i>Bispora betulina</i> (Corda) S. Hughes	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seed	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Bispora</i> sp. Black sterile mycelium	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota Fungi	seeds seeds	<i>Albizia lebbbeck</i> <i>Dalbergia sissooides</i>	India India	Mohanan et al. 2005 Mohanan et al. 2005
<i>Blakeslea trispora</i> Thaxt.	Choanephoraceae, Mucoromycetes, Mucoromycota	seeds seeds	<i>Tectona grandis</i> <i>Crataegus azarolus</i>	India Poland or/ imported to Poland	Mohanan et al. 2005 Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Blastocladia angusta</i> A. Lund	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Celtis tenuifolia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cephalotaxus drupacea</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cornus sanguinea</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lonicera caprifolium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Blastocladia arborata</i> S.N. Dasgupta & R. John [#]	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	fruits	myrtaceous plant	India	Das-Gupta & John 1988
<i>Blastocladia globosa</i> Kanouse	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Arum korolkowii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Bryonia cretica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Juniperus communis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Juniperus oxycedrus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Opuntia ficus-indica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sorbus torminalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Trifolium pratense</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Vicia sativa</i>	Poland	Kiziewicz 2005
<i>Blastocladia gracilis</i> Kanouse	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lonicera etrusca</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lonicera periclymenum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rhamnus purshiana</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds			

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Rhus copallina</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Blastocladiella pringsheimii</i> Reinsch	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Celtis tenuifolia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Juniperus communis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lycium chinense</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Blastocladiella ramosa</i> Thaxt.	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Ginkgo biloba</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Humulus lupulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Humulus scandens</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Ilex verticillata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lonicera etrusca</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rhododendron nipponicum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Blastocladiella sessilis</i> S.N. Dasgupta & R. John [#]	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	various submerged fruits	undetermined plants	India	Das-Gupta & John 1988
<i>Blastocladiella emersonii</i> Cantino & Hyatt	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Zantedeschia albo- maculata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Blastocladiella microcystogena</i> Whiffen	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Bryonia dioica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Blastocladiella stuebenii</i> Couch & Whiffen	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Daphne gnidium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Opuntia ficus-indica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Blastocladiopsis parva</i> Whiffen ex Sparrow	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Atropa komarovii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Bryonia dioica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Conium maculatum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Humulus lupulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Humulus scandens</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sambucus ebulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Vicia sativa</i>	Poland	Kiziewicz 2005
<i>Blyttiomycetes laevis</i> Sparrow	<i>Incertae sedis</i> , Chytridiomycetes, Chytridiomycota	seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Boeremia linicola</i> (Naumov & Vassiljevsky) Jayawardena, Jayasiri & K.D. Hyde [as <i>Ascochyta linicola</i> Naumov & Vassiljevsky]	Didymellaceae, Dothideomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Boothiomycetes macroporosus</i> (Karling) Letcher [as <i>Rhizophydium</i> <i>macroporosum</i> Karling]	Terramycetaceae, Rhizophydiomycetes, Chytridiomycota	seeds	<i>Asparagus officinalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Paris quadrifolia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Botryocrea sclerotioides</i> (Höhn.) Petr.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus elliotii</i>	South Africa	Cilliers et al. 1995
<i>Botryodiplodia acicola</i> (Sacc.) Petr.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
<i>Botryodiplodia palmarum</i> (Cooke) Petr. & Syd.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Cupressus</i> <i>sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
<i>Botryodiplodia ribis</i> (Schulzer & Sacc.) Namysl.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
<i>Botryodiplodia</i> spp.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Adenanthera microsperma</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria bidwillii</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	India	Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Mathur 1974, Mittal et al. 1990
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seeds	<i>Eucalyptus grandis</i>	Uruguay	Mathur 1974, Anderson 1986a
		seeds	<i>Ficus benjamina</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena</i> spp.	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus caribaea</i>	Madagascar	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus elliottii</i>	USA	Mathur 1974, Mittal et al. 1990
		seeds	<i>Pinus khasya</i>	Madagascar	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Mittal et al. 1990
		seeds	<i>Shorea assamica</i>	Malaysia	Hong 1981, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Botryodiplodia theobromae</i> Pat. = <i>Lasiodiplodia theobromae</i> (Pat.) Griffon & Maubl.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruit	<i>Artocarpus communis</i>	Nigeria	Amusa et al. 2002
		fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia punctata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Bridelia tomentosa</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Acacia auriculiformis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Acacia confusa</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Acrocarpus fraxinifolius</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Albizia falcataria</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Cordia alliodora</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Dalbergia cochinchinensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Grevillea robusta</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Hevea</i> sp.	Malaysia	Edwards & Sutherland 1979, Mittal et al. 1990
		seeds	<i>Hevea brasiliensis</i>	India	Srivastava 1964, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Holarrhena antiodysenterica</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Leucaena leucocephala</i>	Thailand	Quiniones 1985, Mittal et al. 1990
		seeds	<i>Melia azedarach</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus</i> spp.	Nicaragua	Richardson 1983, Anderson 1986a
		seeds	<i>Pinus caribaea</i>	Guatemala, Nicaragua, Honduras	Mathur 1974
		seeds	<i>Pinus merkusii</i>	Philippines, Thailand	Agmata 1979, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus oocarpa</i>	Central America, UK	Rees 1982, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Tectona grandis</i>	-	Mathur 1974, Anderson 1986a
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1987
		seeds	<i>Albizia falcataria</i>	Philippines	Quiniones 1987
		seeds	<i>Albizia julibrissin</i>	Philippines	Quiniones 1987
		seeds	<i>Leucaena leucocephala</i>	Bangladesh, Philippines	Quiniones 1987, Islam et al. 2008
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1987
		seeds	<i>Tectona grandis</i>	India	Mohanan et al. 2005
<i>Botryosphaeria dothidea</i>	Botryosphaeriaceae, Dothideomycetes,	cones	<i>Pinus patula</i>	South Africa	Smith et al. 1996
(Moug.) Ces. & De Not.	Ascomycota	cones	<i>Pinus radiata</i>	South Africa	Smith et al. 1996

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Botryosphaeria</i> spp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruits	<i>Ardisia punctata</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Botryosphaeria stevensii</i> Shoemaker	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
<i>Botryotinia fuckeliana</i> (de Bary) Whetzel	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Botryotrichum</i> sp.	Chaetomiaceae, Sordariomycetes, Ascomycota,	seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
<i>Botrytis allii</i> Munn	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Botrytis cinerea</i> Pers.	Sclerotiniaceae, Leotiomycetes, Ascomycota	cones	<i>Pinus ponderosa</i>	USA	James 1983a, James 1995
		cones	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Abies amabilis</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acer ginolamax</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer</i> sp.	South Korea	Mathur 1974, Mittal et al. 1990
		seeds	<i>Acrocarpus fraxinifolius</i>	India	Mathur 1974, Anderson 1986a
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	Canada	Connors 1967
		seeds	<i>Betula</i> <i>alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Callistephus</i> <i>chinensis</i>	China	Gloyer 1931, Crosier & Heit 1948
		seeds	<i>Carpinus eximia</i>	South Korea	Mathur 1974, Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Cedrela toona</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Centaurea cyanus</i>	China	Gloyer 1931, Crosier & Heit 1948
		seeds	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Jacaranda</i> <i>mimosifolia</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Larix decidua</i>	Poland, USSR	Kozłowska 1968, Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Lolium perenne</i>	Canada	Conners 1967
		seed	<i>Nierembergia frutescens</i>	Canada	Conners 1967
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus caribaea</i>	Cuba	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus nigra</i>	Hungary	Turchetti 1982, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a, James 1995
		seeds	<i>Pinus sylvestris</i>	Poland, UK, USSR	Urosevic 1961, Whittle 1977, Anderson, 1986a Krol et al. 2015, Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
		seed	<i>Salvia officinalis</i>	Canada	Conners 1967
<i>Botrytis</i> sp.	Sclerotiniaceae, Leotiomyces, Ascomycota	seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
<i>Botrytis viciae-hirsutae</i> X.Y. Wang, L.X. Zhang & Z.Y. Zhang [#]	Sclerotiniaceae, Leotiomyces, Ascomycota	fruit	<i>Vicia hirsuta</i>	China	Wang et al. 1995
<i>Brachydesmiella brasiliensis</i> R.F. Castañeda, Gusmão & Heredia [#]	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	Pods	Fabaceae plant	Brazil	Castañeda-Ruiz et al. 2006
Brown, sterile mycelia	Fungi	seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Brunneiperidium involucratum</i> Daranag., Camporesi & K.D. Hyde [#]	Xylariaceae, Sordariomyces, Ascomycota	cone	<i>Pinus sylvestris</i>	Italy	Daranagama et al. 2015

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Buerenia myrrhidendri</i> Döbbeler [#]	Protomycetaceae, Taphrinomycetes, Ascomycota	fruits	<i>Myrridendron donnell-smithii</i>	Costa Rica	Döbbeler 1995
<i>Cadophora fastigiata</i> Lagerb. & Melin [as <i>Phialophora fastigiata</i> (Lagerb. & Melin) Conant]	Ploettnerulaceae, Leotiomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
<i>Cadophora malorum</i> (Kidd & Beaumont) W. Gams [as <i>Phialophora malorum</i> (Kidd & Beaumont) McColloch]	Ploettnerulaceae, Leotiomycetes, Ascomycota	seeds seed	<i>Pinus elliottii</i> <i>Pinus densiflora</i>	South Africa Japan	Cilliers et al. 1995 Watanabe 2010
<i>Calcarisporium</i> sp.	Calcarisporiaceae, Sordariomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Caldariomyces fumago</i> Woron.	Capnodiaceae, Dothideomycetes, Ascomycota,	fruit	<i>Gustavia superba</i>	Panama	Goos & Pirozynski 1975
<i>Calonectria brasiliensis</i> (Bat. & Cif.) L. Lombard, M.J. Wingf. & Crous [as <i>Cylindrocladium brasiliense</i> (Bat. & Cif.) Peerally]	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	Brazil	Cruz & Figueiredo 1961, Anderson 1986a
<i>Calonectria gracilis</i> Crous, M.J. Wingf. & Alfenas [as <i>Cylindrocarpon gracile</i> Bugnic.]	Nectriaceae, Sordariomycetes, Ascomycota	cones cones seeds	<i>Pinus ponderosa</i> <i>Pseudotsuga menziesii</i> var. <i>glauca</i> <i>Pseudotsuga menziesii</i> var. <i>glauca</i> undetermined plant	USA USA USA	James 1995 James 1995 James 1995
<i>Calonectria kytensis</i> Terash.	Nectriaceae, Sordariomycetes, Ascomycota	fruit		Panama	Samuels & Dumon 1982, Piepenbring 2006
<i>Calonectria morganii</i> Crous, Alfenas & M.J. Wingf. [as <i>Cylindrocladium scoparium</i> Morgan]	Nectriaceae, Sordariomycetes, Ascomycota	seeds seeds seeds	<i>Horsfieldia</i> sp. <i>Maesopsis eminii</i> <i>Shorea roxburghii</i>	Malaysia Malaysia Malaysia	Lee & Ahmad 1982, Mittal et al. 1990 Lee & Ahmad 1982, Mittal et al. 1990 Lee & Ahmad 1982, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Shorea talura</i>	Malaysia	Lee & Ahmad 1982, Mittal et al. 1990
<i>Caloscypha fulgens</i> (Pers.) Boud.	Caloscyphaceae, Pezizomycetes, Ascomycota	seeds	<i>Abies amabilis</i>	Canada	Sutherland 1979, Mittal et al. 1990
		seeds	<i>Abies grandis</i>	Canada	Sutherland 1979, Mittal et al. 1990
		seeds	<i>Abies lasiocarpa</i>	Canada	Talgø et al. 2010
		seeds	Coniferae plant	Canada	Anderson 1986a
		seeds	<i>Picea abies</i>	Canada, UK, USA	Gordon et al. 1976, Mittal et al. 1990
		seeds	<i>Picea engelmannii</i>	Canada, USA	Sutherland 1979, Wicklō-Howard & Skujins 1980, Mittal et al. 1990
		seeds	<i>Picea glauca</i>	Canada	Epnors 1964, Sutherland 1979, Mittal et al. 1990
		seeds	<i>Picea glauca</i> × <i>P.</i> <i>engelmannii</i>	Canada	Sutherland 1979, Mittal et al. 1990
		seeds	<i>Picea sitchensis</i>	Canada , UK, USA	Paden et al. 1978, Harvey Jr 1980, Woods et al. 1982, Mittal et al. 1990
		seeds	<i>Picea</i> spp.	Canada, USA	Epnors 1964, Anderson 1986a
		seeds	<i>Pinus contorta</i>	Canada	Sutherland 1979, Mittal et al. 1990
		seeds	<i>Pinus monticola</i>	Canada	Sutherland 1979, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	Canada	Sutherland 1979, Mittal et al. 1990
seeds	<i>Pseudotsuga</i> <i>menziesii</i>	Canada	Sutherland 1979, Mittal et al. 1990		
seeds	<i>Tsuga heterophylla</i>	Canada	Sutherland 1979, Mittal et al. 1990		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Tsuga mertensiana</i>	Canada	Sutherland 1979, Mittal et al. 1990
<i>Calycellina ochracea</i> (Grelet & Croz.) Dennis	Pezizellaceae, Leotiomyces, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Calycina cupulicola</i> [#] [as <i>Cystopezizella cupulicola</i> Svrček]	Pezizellaceae, Leotiomyces, Ascomycota	cupule	<i>Quercus robur</i>	former Czechoslovakia	Svrcek 1987
<i>Camarosporium</i> sp.	Camarosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Chamaecyparis lawsoniana</i>	France, Italy	Motta & Saponaro 1983, Mittal et al. 1990
		seeds	<i>Cupressus abramsiana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus arizonica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus glabra</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus goveniana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica</i> var. <i>benthamii</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus sempervirens</i>	France, Italy	Motta & Saponaro 1983, Mittal et al. 1990
		seeds	<i>Cupressus torulosa</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Thuja orientalis</i>	Italy, France	Motta & Saponaro 1983, Mittal et al. 1990
<i>Candida albicans</i> (C.P. Robin) Berkhout	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	seeds	<i>Ficus pumila</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Candida asparagi</i> F.Y. Bai & H.Z. Lu [#]	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruit	<i>Asparagus filicinus</i>	China	Lu et al. 2004
<i>Candida berthetii</i> Boidin, Pignal, Mermiér & Arpin	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Candida blankii</i> -like	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida caryicola</i> Kurtzman [#]	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	nut	<i>Carya glabra</i>	USA	Kurtzman 2001
<i>Candida citrea</i> Nakase	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida fructus</i> (Nakase) S.A. Mey. & Yarrow	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida insectamans</i> D.B. Scott, Van der Walt & Klift	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida krusei</i> (Castell.) Berkhout	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida leandrae</i> Ruivo, Pagnocca, Lachane & C.A. Rosa [#]	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruit	<i>Leandra reversa</i>	Brazil	Ruivo et al. 2004
<i>Candida linzhiensis</i> F.Y. Bai & Z.W. Wu [#]	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruit	undetermined plant	China	Wu & Bai 2006
<i>Candida lipolytica</i> -like	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida norvegensis</i> Dietrichson ex Uden & H.R. Buckley	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida parapsilosis</i> (Ashford) Langeron & Talice	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida quercitrusa</i> -like	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida rugopelliculosa</i> - like	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida sorbosa</i> -like complex	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida sorboxylosa</i> -like complex	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Candida</i> spp.	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	seeds	<i>Acer saccharum</i>	USA	Janerette 1979, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Candida uthaithanina</i> Limtong, Jindam., Am- [#]	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruit in dipterocarp forest	undetermined plant	Thailand	Limtong et al. 2011
Capnodiales spp.	Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
<i>Caryospora quercus</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Caryosporaceae, Dothideomycetes, Ascomycota	fruit	<i>Quercus</i> sp.	Thailand	Jayasiri et al. 2019
<i>Catenaria anguillulae</i> Sorokīn	Catenariaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Atropa belladonna</i> var. <i>caucasica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Prunella grandiflora</i> ssp. <i>pyrenaia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sambucus racemosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Vicia sativa</i>	Poland	Kiziewicz 2005
<i>Catenaria verrucosa</i> Karling	Catenariaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Vicia sativa</i>	Poland	Kiziewicz 2005
<i>Catenochytridium carolinianum</i> Berdan	Catenochytridiaceae, Cladochytriomycetes, Chytridiomycota	seeds	<i>Crataegus azarolus</i> , <i>Sambucus ebulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Catenophlyctis variabilis</i> (Karling) Karling	Catenariaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Sambucus ebulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Catenularia</i> sp.	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Centrolepidosporium scleroderium</i> R.G. Shivas & Vánky ^{***}	<i>Incertae sedis</i> , Ustilaginomycetes, Basidiomycota	nutlets	<i>Centrolepis exserta</i>	Australia	Shivas & Vánky 2007
<i>Cephaliphora tropica</i> Thaxt.	Ascodesmidaceae, Pezizomycetes, Ascomycota	seed	<i>Macroptilium lathyroides</i>	Australia	Nik & Parbery 1977
<i>Cephalosporium curtipes</i> Sacc.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Cephalosporium roseum</i> Oudem.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
<i>Cephalosporium</i> spp.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Acrocarpus fraxinifolius</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Albizia falcataria</i>	Philippines	Mathur 1974, Mittal et al. 1990
		seeds	<i>Alnus maximowiczii</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Delonix regia</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Endospermum peltatum</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus deglupta</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Ficus krishnae</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	India	Mathur 1974, Anderson 1986a
seeds	<i>Gmelina moluccana</i>	Solomon Islands	Mathur 1974, Anderson 1986a		
seeds	<i>Lagerstroemia speciosa</i>	Philippines	Quiniones 1985, Anderson 1986a		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Leucaena leucocephala</i>	Philippines	Quiniones 1987, Mathur 1974, Anderson 1986a
		seeds	<i>Mimosa caesalpiniaefolia</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Panax ginseng</i>	South Korea	Anderson 1986a
		seeds	<i>Pinus elliottii</i>	Taiwan, USA	Rowan & Debarr 1974, Anderson 1986a
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus merkusii</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus taeda</i>	Georgia, USA	Anderson 1986a, b, Huang & Kuhlman 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Bloomberg 1969, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mathur 1974, Anderson 1986a
<i>Cephalosporium subverticillatum</i> Schulzer & Sacc.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Cephalothecium roseum</i> Corda	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Larix decidua</i>	USSR	Kozłowska 1968, Mittal et al. 1990
<i>Ceratobasidium</i> spp.	Ceratobasidiaceae, Agaricomycetes, Basidiomycota	seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
<i>Ceratocystis ethacetica</i> (Went) Mbenoun & Z.W. de Beer [#] [as <i>Thielaviopsis</i>	Ceratocystidaceae, Sordariomycetes, Ascomycota	fruits	<i>Saccharum</i> sp.	Indonesia	Mbenoun et al. 2014

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>ethacetica</i> Went]					
<i>Ceratocystis fagacearum</i> (Bretz) J. Hunt	Ceratocystidaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USA	Mittal et al. 1990
<i>Ceratocystis</i> spp.	Ceratocystidaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	Georgia	Huang & Kuhlman 1990
<i>Ceratorrhiza</i> sp.	Ceratobasidiaceae, Agaricomycetes, Basidiomycota	seeds	<i>Corallorhiza maculata</i>	Canada	Zelmer et al. 1996
		seeds	<i>Platanthera dilatata</i>	Canada	Zelmer et al. 1996
		seeds	<i>Platanthera hyperborea</i>	Canada	Zelmer et al. 1996
<i>Cercospora</i> spp.	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seeds seeds, seed capsules	<i>Spiranthes lacera</i> <i>Eucalyptus grandis</i>	Canada South Africa	Zelmer et al. 1996 Jimu et al. 2016
<i>Ceuthospora</i> sp.	Phacidiaceae, Leotiomycetes, Ascomycota	seeds cones, seeds cones, seeds cones, seeds	<i>Tectona grandis</i> <i>Pinus albicaulis</i> <i>Pinus sylvestris</i> <i>Pinus tabulaeformis</i>	India Canada Canada Canada	Anderson 1986a Vujanovic et al. 2000 Vujanovic et al. 2000 Vujanovic et al. 2000
<i>Chaetocladium brefeldii</i> Tiegh. & G. Le Monn.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Sorbus torminalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Chaetomella</i> sp.	Chaetomellaceae, Leotiomycetes, Ascomycota	seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
<i>Chaetomium affine</i> Corda [as ' <i>offine</i> ']	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Chaetomium cochliodes</i> Palliser	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Platanus occidentalis</i>	USA	Mittal et al. 1990
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	Canada	Connors 1967
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Chaetomium elatum</i> Kunze	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds seed seed	<i>Medicago sativa</i> <i>Pinus densiflora</i> <i>Pinus patula</i>	Canada Japan Kenya	Connors 1967 Watanabe 2010 Gibson 1957, Mittal et al. 1990
<i>Chaetomium gangligerum</i> L.M. Ames	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Erysimum cheiri</i>	Pakistan	Lodhi & Naem 1955

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Chaetomium globosum</i> Kunze	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Pseudotsuga menziesii</i>	Canada	Gordon 1967, Mittal et al. 1990
		seeds	<i>Verbena</i> sp.	Pakistan	Lodhi & Naeem 1955
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		Pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seed	<i>Abies balsamea</i>	Canada	Connors 1967
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Agrostis gigantea</i>	Canada	Connors 1967
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Munjaj & Sharma 1975
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seed	<i>Desmodium intortum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
seed	<i>Linum usitatissimum</i>	Canada	Connors 1967		
seed	<i>Lolium perenne</i>	Canada	Connors 1967		
seed	<i>Macroptilium atropurpureum</i>	Australia	Nik & Parbery 1977		
seed	<i>Phleum pratense</i>	Canada	Connors 1967		
seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus pinaster</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland, USSR	Urosevic 1961, Anderson 1986a, Krol et al. 2015
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seed	<i>Poa compressa</i>	Canada	Connors 1967
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seed	<i>Stylosanthes gracilis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
		seed	<i>Teramnus uncinatus</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium repens</i>	Australia	Nik & Parbery 1977
<i>Chaetomium murorum</i> Corda	Chaetomiaceae, Sordariomycetes, Ascomycota	seed seeds	<i>Linum usitatissimum</i> <i>Pinus wallichiana</i>	Canada India	Connors 1967 Mittal & Sharma 1982b, Mittal et al. 1990
<i>Chaetomium oblatum</i> Dreyfuss & Arx [#]	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	undetermined plant	Israel	von Arx et al. 1986
<i>Chaetomium spinulosum</i> Sörgel	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
<i>Chaetomium spirale</i> Zopf	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds seeds	<i>Pinus roxburghii</i> <i>Pinus sylvestris</i>	India Poland	Munjal & Sharma 1975, Mittal et al. 1990 Garbowski 1936, Mittal et al. 1990
<i>Chaetomium</i> spp.	Chaetomiaceae, Sordariomycetes, Ascomycota	fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Albizia falcataria</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Albizia lebbbeck</i>	India	Natarajan et al. 2003, Mohanan et al. 2005
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	India	Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines, Thailand	Quiniones 1985, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Dalbergia cochinchinensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Dalbergia sissoides</i>	India	Mohanan et al. 2005
		seeds	<i>Delonix regia</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Delonix regia</i>	Philippines	Quiniones 1987
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Holarrhena antidysenterica</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Parkia roxburghii</i>	Philippines	Dayan 1986, Anderson 1986a
		seeds	<i>Parkia roxburghii</i>	Philippines	Quiniones 1987
		seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Quiniones 1985, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Quiniones 1987
		seeds	<i>Pinus caribaea</i>	Central America	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus contorta</i>	USA	Sutherland 1979, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	Taiwan, USA	Rowan & Debarr 1974, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus kesiya</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus oocarpa</i>	Central America	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	Poland	Garbowski 1936, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	Georgia, USA	Anderson 1986a, b, Huang & Kuhlman 1990
		seeds	<i>Polyscias nodosa</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Samanea saman</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Serialbizia acle</i>	Philippines	Quiniones 1985, 1987 Anderson 1986a
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a, Mohanani et al. 2005
<i>Chaetomium trilaterale</i> Chivers	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
<i>Chaetophoma</i> sp.	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
<i>Chaetopsina fulva</i> Rambelli	Nectriaceae, Sordariomycetes, Ascomycota	seeds pods	<i>Pinus taeda</i> <i>Delonix regia</i>	USA Thailand	Covington et al. 1982 Somrithipol et al. 2002b
<i>Chaetopsina indica</i> Nagaraju, Kunwar, Sureshk. & Manohar. [#]	Nectriaceae, Sordariomycetes, Ascomycota	fruit	<i>Albizia lebeck</i>	India	Nagaraju et al. 2011b
<i>Chaetosphaeria garethjonesii</i> R.H. Perera, Maharachch. & K.D. Hyde [#]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pod	Fabaceae plant	Thailand	Perera et al. 2016b
<i>Chaetostylum fresenii</i> Tiegh. & G. Le Monn.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Chalastospora gossypii</i> (Jacz.) U. Braun & Crous [as <i>Cladosporium malorum</i> Heald]	Pleosporaceae, Dothideomycetes, Ascomycota	seed seed seed seed	<i>Agropyron cristatum</i> <i>Bromus inermis</i> <i>Linum usitatissimum</i> <i>Medicago sativa</i>	Canada Canada Canada Canada	Connors 1967 Connors 1967 Connors 1967 Connors 1967
<i>Cheilaria</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
<i>Chlamydomyces</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Chloridium chloroconium</i> (W. Gams & Hol.-Jech.) Réblová & Seifert [as <i>Gonytrichum chlamydosporium</i> G.L. Barron & G.C. Bhatt]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
<i>Chloridium</i> sp.	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pods cones	<i>Delonix regia</i> <i>Pinus densiflora</i>	Thailand Japan	Somrithipol et al. 2002b Kasai et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Chrysomyxa ledi</i> (Alb. & Schwein.) de Bary	Coleosporiaceae, Pucciniomycetes, Basidiomycota	cones	<i>Picea abies</i>	Finland	Kaitera et al. 2014
		cones	<i>Picea glauca</i>	Finland	Kaitera et al. 2014
		cones	<i>Picea omorika</i>	Finland	Kaitera et al. 2014
<i>Chrysomyxa monesis</i> Ziller	Coleosporiaceae, Pucciniomycetes, Basidiomycota	cones	<i>Picea sitchensis</i>	Canada	Wood 1986
<i>Chrysomyxa pyrolata</i> (Körn.) G. Winter	Coleosporiaceae, Pucciniomycetes, Basidiomycota	cones	<i>Picea abies</i>	Finland	Kaitera 2013, Kaitera et al. 2009, 2014
		cones	<i>Picea glauca</i>	Canada	Sutherland et al. 1984
		cones	<i>Picea pungens</i>	USA	Nelson & Krebill 1970, 1982
		cones seeds	<i>Picea</i> spp. <i>Picea abies</i>	Canada Finland, USSR	Wood 1986 Prisyazhnyuk 1960, Mittal et al. 1990, Tillman-Sutela et al. 2004
<i>Chrysomyxa woroninii</i> Tranzschel	Coleosporiaceae, Pucciniomycetes, Basidiomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Chrysosporium</i> sp.	Onygenaceae, Eurotiomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Chytridium xylophilum</i> Cornu	Chytridiaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Armeria transmontana</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa komarovii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Bryonia cretica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Datura stramonium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus aureus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Polygonum amphibium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Chytriomycetes aureus</i> Karling	Chytriomycetaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Atropa komarovii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus gyoerffyi</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Ciboria alni</i> (Maul) Whetzel	Sclerotiniaceae, Leotiomycetes, Ascomycota	seed seeds	<i>Alnus rugosa</i> <i>Alnus</i> sp.	Canada former Czechoslovakia	Connors 1967 Anderson 1986a
<i>Ciboria batschiana</i> (Zopf) N.F. Buchw.	Sclerotiniaceae, Leotiomycetes, Ascomycota	acorns seeds	<i>Quercus robur</i> <i>Quercus petraea</i>	Poland France	Jankowiak 2008 Delatour & Morelet 1979, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	France , Germany	Delatour & Morelet 1979, Mittal et al. 1990, Schroder et al. 2004
		seeds	<i>Quercus rubra</i>	France	Anderson 1986a
<i>Ciboria betulae</i> (Woronin) W.L. White	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds seeds	<i>Quercus</i> spp. <i>Betula</i> spp.	France Asia, Europe, North America, former Czechoslovakia	Anderson 1986a Buchwald 1947, Mittal et al. 1990
<i>Ciboria rufofusca</i> (O. Weberb.) Sacc.	Sclerotiniaceae, Leotiomycetes, Ascomycota	cone	<i>Picea</i> sp.	Canada	Connors 1967
<i>Cirrenalia nigrospora</i> Somrith. Chatmala & E.B.G. Jones [#]	Halosphaeriaceae, Sordariomycetes, Ascomycota	pod pods seeds	<i>Delonix regia</i> <i>Hevea brasiliensis</i> <i>Borassus machadonis</i>	Thailand Thailand Thailand	Somrithipol et al. 2002a Somrithipol et al. 2002b Somrithipol et al. 2002b
		seeds	<i>Choerospondias axillaris</i>	Thailand	Somrithipol et al. 2002b
<i>Cirrenalia</i> sp.	Halosphaeriaceae, Sordariomycetes, Ascomycota	pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Cistella</i> sp.	Calloriaceae, Leotiomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Cladochytrium crassum</i> Hillegas	Cladochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Polygonum amphibium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Cladochytrium hyalinum</i> Berdan	Cladochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Armeria maritima</i> ssp. <i>maritima</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sambucus ebulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Cladochytrium taianum</i> S.C. Shen & Siang	Cladochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Ginkgo biloba</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Cladochytrium tenue</i> Nowak.	Cladochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Cicuta virosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Ficus pumila</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Juniperus oxycedrus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lonicera caprifolium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Cladonia lacryma</i> S. Hammer.#	Cladoniaceae, Lecanoromycetes, Ascomycota	cones	cone producing evergreen plant	USA	Hammer 2001
<i>Cladophialophora chaetospora</i> (Grove) Crous & Arzanlou [as <i>Septonema chaetospora</i> (Grove) S. Hughes]	Herpotrichiellaceae, Eurotiomycetes, Ascomycota	seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
<i>Cladosporium aphidis</i> Thüm.	Cladosporiaceae, Dothideomycetes, Ascomycota	pod	<i>Laburnum anagyroides</i>	UK	Jayasiri et al. 2019
<i>Cladosporium aterrimum</i> Ellis & Everh.	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Cladosporium austrohemisphaericum</i> Bensch, Crous & U. Braun#	Cladosporiaceae, Dothideomycetes, Ascomycota	fruit	<i>Lagunaria patersonia</i>	New Zealand	Bensch et al. 2015
<i>Cladosporium bauhiniana</i> Arv.Kumar, Anju Kumar & KHarwar#	Cladosporiaceae, Dothideomycetes, Ascomycota	Pods	<i>Bauhinia variegata</i>	India	Kumar et al. 2006
<i>Cladosporium chlorocephalum</i> (Fresen.) E.W. Mason & M.B. Ellis	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Cladosporium</i> <i>cladosporioides</i> (Fresen.) G.A. de Vries	Cladosporiaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		cones	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		cones, seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		fruits	<i>Ardisia punctata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Bridelia tomentosa</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum</i> <i>sempervirens</i>	Hong Kong	Tang et al. 2003a
		pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Acacia confusa</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seed	<i>Anethum graveolens</i>	Canada	Connors 1967
		seed	<i>Apium graveolens</i>	Canada	Connors 1967
			var. <i>dulce</i>		
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Cassia siamea</i>	Philippines	Quiniones 1985, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines	Quiniones 1987

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seeds	<i>Cupressus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Delonix regia</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seed	<i>Elymus virginicus</i>	Canada	Connors 1967
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seeds	<i>Leucaena leucocephala</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Medicago sativa</i>	Canada	Connors 1967
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Musanga cecropioides</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pittosporum resiniferum</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seed	<i>Salvia officinalis</i>	Canada	Connors 1967
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a
<i>Cladosporium cucumerinum</i> Ellis & Arthur	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
<i>Cladosporium dominicanum</i> Zalar, de Hoog & Gunde- Cim.	Cladosporiaceae, Dothideomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Jayasiri et al. 2019
<i>Cladosporium elegans</i> Penz.	Cladosporiaceae, Dothideomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Cladosporium elegantulum</i> Pidopl. & Deniak	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Cladosporium entadae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Cladosporiaceae, Dothideomycetes, Ascomycota	pod	<i>Entada phaseoloides</i>	Thailand	Jayasiri et al. 2019
<i>Cladosporium epiphyllum</i> (Pers.) Nees	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a
<i>Cladosporium herbarum</i> (Pers.) Link	Cladosporiaceae, Dothideomycetes, Ascomycota	acorns cones	<i>Quercus robur</i> <i>Picea glauca</i>	Poland Canada	Jankowiak 2008 Mittal & Wang 1987

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	USA	Connors 1967
		seeds	<i>Betula pendula</i>	Finland	Lilja 1979, Mittal et al. 1990
		seed	<i>Bromus inermis</i>	Canada	Connors 1967
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Hungary, UK, USSR	Urosevic 1961, Whittle 1977, Anderson 1986a
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Cladosporium hordei</i> Pass.	Cladosporiaceae, Dothideomycetes, Ascomycota		cone	China	Jayasiri et al. 2019
<i>Cladosporium magnoliigena</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Cladosporiaceae, Dothideomycetes, Ascomycota		<i>Magnolia grandiflora</i>		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Cladosporium oxysporum</i> Berk. & M.A. Curtis	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seed	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Cladosporium</i> spp.	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acacia auriculiformis</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Janerette 1979, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Callistephus chinensis</i>	China	Gloyer 1931, Crosier & Heit 1948
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines	Quiniones 1987
		seeds	<i>Casuarina equisetifolia</i>	Philippines, Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
seeds	<i>Delonix regia</i>	Philippines	Dayan 1986, Mittal et al. 1990		
seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002		
seeds	<i>Endospermum peltatum</i>	Philippines	Agmata 1979, Anderson 1986a		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013, Hayatgheibi 2013
		seeds	<i>Lagerstroemia speciosa</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Leucaena leucocephala</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus kesiya</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seed	<i>Pinus monticola</i>	USA	Ganley & Newcombe 2006
		seeds	<i>Pinus patula</i>	Kenya	Gibson 1957, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
		Seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Polyscias nodosa</i>	Philippines	Agmata 1979, Anderson 1986a
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Cladosporium sphaerospermum</i> Penz.	Cladosporiaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Callistephus chinensis</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
<i>Cladosporium tenuissimum</i> Cooke	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
<i>Claviceps bothriochloae</i> Tanda & Y. Muray [#]	Clavicipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Bothriochloa parviflora</i>	Japan	Tanda 1991
<i>Claviceps microspora</i> Tanda [#]	Clavicipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Arundinella hirta</i>	Japan	Tanda 1985
<i>Claviceps panicoidearum</i> Tanda & Y. Harada [#]	Clavicipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Isachne globose</i>	Japan	Tanda & Harada 1989
<i>Clavochytridium simplex</i> Doweld [as <i>Blastocladiella simplex</i> V.D. Matthews]	Blastocladiaceae, Blastocladiomycetes, Blastocladiomycota	seeds	<i>Hyoscyamus aureus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus gyoerffy</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus niger</i> var. <i>vernalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lonicera etrusca</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lycium chinense</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Clavochytridium variabile</i> Doweld [as <i>Blastocladiella variabilis</i> Harder & Sörgel]	Blastocladiaceae, Blastocladiomycetes Blastocladiomycota	seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Clohiesia</i> sp.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
<i>Clonostachys candelabrum</i> (Bonord.) Schroers [as <i>Verticillium candelabrum</i> Bonord.]	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Clonostachys compactiuscula</i> (Sacc.) D. Hawksw. & W. Gams [as <i>Bionectria compactiuscula</i>] Schroers [as <i>Verticillium compactiusculum</i> Sacc.]	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Clonostachys rosea</i> (Link) Schroers, Samuels, Seifert & W. Gams	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Clonostachys</i> sp. [as <i>Sesquicillium</i>]	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus robur</i>	Turkey	Oskay et al. 2018
<i>Coccomyces strobilicola</i> Spooner [#]	Bionectriaceae, Sordariomycetes, Ascomycota	pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Cochliobolus</i> spp.	Rhytismataceae, Leotiomycetes, Ascomycota	cone	<i>Picea</i> sp.	Austria	Spooner 1987
<i>Collariella bostrychodes</i> (Zopf) X. Wei Wang & Samson [as <i>Chaetomium bostrychodes</i> Zopf]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Colletotrichum aotearoa</i> B.S. Weir & P.R. Johnst. [#]	Glomerellaceae, Sordariomycetes, Ascomycota	berries	<i>Coprosma</i> sp.	New Zealand	Weir et al. 2012
		fruits	<i>Dysoxylum spectabile</i>	New Zealand	Weir et al. 2012
<i>Colletotrichum capsici</i> (Syd. & P. Syd.) E.J. Butler & Bisby	Glomerellaceae, Sordariomycetes, Ascomycota	fruits	<i>Vitex lucens</i>	New Zealand	Weir et al. 2012
		seeds	<i>Sesbania grandiflora</i>	India	Anderson 1986a, Srinivasan 1952
<i>Colletotrichum cosmi</i> Damm, P.F. Cannon & Crous [#]	Glomerellaceae, Sordariomycetes, Ascomycota	seed	<i>Cosmos</i> sp.	The Netherlands	Damm et al. 2012
<i>Colletotrichum dematium</i> (Pers.) Grove	Glomerellaceae, Sordariomycetes, Ascomycota	seeds	<i>Viola wittrockiana</i>	imported to Taiwan	Wu et al. 2006
<i>Colletotrichum gloeosporioides</i> (Penz.) Penz. & Sacc.	Glomerellaceae, Sordariomycetes, Ascomycota	fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia punctata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia quinquegona</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
seeds	<i>Agathis macrophylla</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a		
seeds	<i>Agathis philippinensis</i>	Philippines	Quiniones 1987		
seeds	<i>Albizia lebbbeck</i>	India	Mohanan et al. 2005		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Dalbergia cochinchinensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Leucaena leucocephala</i>	Malaysia, Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seeds	<i>Pterocarpus indicus</i>	Philippines	Mathur 1974, Anderson 1986a, Quiniones 1987
		seeds	<i>Pongamia pinnata</i>	India	Jamaluddin et al. 1983, Mittal et al. 1990
		seeds	<i>Shorea acuminata</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Shorea materialis</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mohanan et al. 2005
<i>Colletotrichum gloeosporioides</i> (Penz.) Penz. & Sacc. [as <i>Glomerella cingulata</i> (Stoneman) Spauld. & H. Schrenk]		fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
<i>Colletotrichum godetiae</i> Neerg.	Glomerellaceae, Sordariomycetes, Ascomycota	seed	<i>Clarkia hybrida</i> , cv. kelvon glory	Denmark	Damm et al. 2012
		fruits	<i>Sambucus nigra</i>	The Netherlands	Damm et al. 2012
<i>Colletotrichum graminicola</i> (Ces.) G.W. Wilson	Glomerellaceae, Sordariomycetes, Ascomycota	seeds	<i>Leucaena leucocephala</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
<i>Colletotrichum lindemuthianum</i> (Sacc. & Magnus) Briosi & Cavara	Glomerellaceae, Sordariomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
<i>Colletotrichum lini</i> (Westerd.) Tochinai	Glomerellaceae, Sordariomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Colletotrichum musae</i> (Berk. & M.A. Curtis) Arx	Glomerellaceae, Sordariomycetes, Ascomycota	fruits	<i>Ardisia quinquegona</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Colletotrichum orbiculare</i> Damm, P.F. Cannon & Crous	Glomerellaceae, Sordariomycetes, Ascomycota	fruits	<i>Wikstroemia nutans</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
<i>Colletotrichum</i> spp.	Glomerellaceae, Sordariomycetes, Ascomycota	seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Acer palmatum</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acrocarpus fraxinifolius</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Cedrela odorata</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Pinus caribaea</i>	UK	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990
<i>Colletotrichum</i> spp. [as <i>Glomerella</i>]		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Colletotrichum truncatum</i> (Schwein.) Andrus & W.D. Moore	Glomerellaceae, Sordariomycetes, Ascomycota	seeds	<i>Leucaena leucocephala</i>	Philippines	Quiniones 1987
<i>Comminutispora</i> spp.	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Conidioxyphium</i> sp.	Trichomeriaceae, Eurotiomycetes, Ascomycota	fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Conioscypha varia</i> Shearer	Conioscyphaceae, Sordariomycetes, Ascomycota	fruit	<i>Scheelea zonensis</i>	Panama	Goos & Pirozynski 1975
<i>Coniosporium aterrimum</i> (Corda) Sacc.	<i>Incertae sedis</i> , Eurotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Coniothecium atrum</i> Corda	<i>Incertae sedis</i> , Leotiomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Coniothecium</i> sp.	<i>Incertae sedis</i> , Leotiomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Coniothyrium conicola</i> Vesterg.	Coniothyriaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Coniothyrium leprosum</i> Fairm. [#]	Coniothyriaceae, Dothideomycetes, Ascomycota	fruits	<i>Eucalyptus</i> sp.	USA	Millspaugh & Nuttall 1923
<i>Coniothyrium olivaceum</i> Bonord.	Coniothyriaceae, Dothideomycetes, Ascomycota	seed	<i>Betula</i>	USA	Smoot & Segall 1963, Mittal et al. 1990
		seeds	<i>Melilotus</i> sp.	Canada	Connors 1967
<i>Coniothyrium quercinum</i> (Bonord.) Sacc.	Coniothyriaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1964, Mittal et al. 1990
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
<i>Coniothyrium</i> spp.	Coniothyriaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Smoot & Segall 1963, Mittal et al. 1990
		seeds	<i>Chamaecyparis lawsoniana</i>	France, Italy	Motta & Saponaro 1983, Mittal et al. 1990
		seeds	<i>Cupressus abramsiana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus arizonica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus glabra</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus goveniana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica</i> var. <i>benthamii</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus sempervirens</i>	France, Italy	Motta & Saponaro 1983, Mittal et al. 1990
		seeds	<i>Cupressus torulosa</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Sequoia sempervirens</i>	USA	Davidson 1970, Mittal et al. 1990
		seeds	<i>Thuja orientalis</i>	Italy, France	Motta & Saponaro 1983, Mittal et al. 1990
<i>Coniozoma leucospermi</i> (Crous & Denman) Crous	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Cophinforma atrovirens</i> (Mehl & Slippers) A. Alves	Botryosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Ailanthus</i> sp.	Thailand	Jayasiri et al. 2019

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
& A.J.L. Phillips <i>Coprinosia</i> spp.	Psathyrellaceae, Agaricomycetes, Basidiomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Coprinus</i> sp.	Agaricaceae, Agaricomycetes, Basidiomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975
<i>Cordana terrestris</i> (Timonin) Hern.-Restr., Gené & Guarro [as <i>Pseudobotrytis terrestris</i> (Timonin) Subram.]	Cordanaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Cordyceps farinosa</i> (Holmsk.) Kepler, B. Shrestha & Spatafora [as <i>Paecilomyces farinosus</i> (Holmsk.) A.H.S. Br. & G. Sm.]	Cordycipitaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Corollospora novofusca</i> Kohlm. & Volkm.-Kohlm.#	Halosphaeriaceae, Sordariomycetes, Ascomycota	fruit	<i>Casuarina</i> sp.	USA	Kohlmeyer & Volkman-Kohlmeyer 1991
<i>Corynelia fructigena</i> A.R. Wood, van der Linde, Cheew. & Crous#	Coryneliaceae, Eurotiomycetes, Ascomycota	fruit	<i>Podocarpus latifolius</i>	South Africa	Wood et al. 2015
<i>Corynespora</i> sp. [as ' <i>Corynospora</i> ']	Corynesporascaceae, Dothideomycetes, Ascomycota	seeds	<i>Cassia siamea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Cronartium conigenum</i> Hedgc. & N.R. Hunt	Cronartiaceae, Pucciniomycetes, Basidiomycota	cones cones cones	<i>Pinus maximinoi</i> <i>Pinus oocarpa</i> <i>Pinus pseudostrobus</i>	Guatemala Guatemala Guatemala	Rayachhltry et al. 1995b Rayachhltry et al. 1995a Rayachhltry et al. 1995a
<i>Cronartium harknessii</i> E. Meinecke [as <i>Peridermium harknessii</i> J.P. Moore]	Cronartiaceae, Pucciniomycetes, Basidiomycota	cones	<i>Pinus contorta</i>	USA	Byler & Platt 1972
<i>Cryptococcus foliicola</i> Q.M. Wang & F.Y. Bai	Cryptococcaceae, Tremellomycetes, Basidiomycota	cones seeds	<i>Pinus muricata</i> <i>Fraxinus excelsior</i>	USA Sweden	Byler & Platt 1972 Hayatgheibi 2013
<i>Cryptococcus</i> sp.	Cryptococcaceae, Tremellomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Cryptophiale udagawae</i> Piroz. & Ichinoe	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Cryptospora longispora</i> Servazzi	Gnomoniaceae, Sordariomycetes, Ascomycota	seeds	<i>Araucaria excelsa</i>	USA	Kahn et al. 1965, Mittal et al. 1990
<i>Cunninghamella echinulata</i> (Thaxt.) Thaxt. ex Blakeslee	Cunninghamellaceae, Mucoromycetes, Mucoromycota	seed	<i>Apium graveolens</i> var. <i>dulce</i>	Canada	Connors 1967
<i>Cunninghamella elegans</i> Lendn.	Cunninghamellaceae, Mucoromycetes, Mucoromycota	seed	<i>Linum usitatissimum</i> <i>Apium graveolens</i> var. <i>dulce</i>	Canada Canada	Connors 1967 Connors 1967
<i>Curreya conorum</i> (Fuckel) Sacc.	Didymosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Curreya</i> spp.	Didymosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Curvularia australiensis</i> (Bugnic. ex M.B. Ellis) Manamgoda, L. Cai & K.D. Hyde [as <i>Drechslera</i> <i>australiensis</i> Bugnic. ex M.B. Ellis]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds seeds	<i>Cupressus</i> spp. <i>Eucalyptus</i> sp.	India India	Sahai & Otra 1982 Saxena 1985, Mittal et al. 1990
<i>Curvularia hawaiiensis</i> (Bugnic. ex M.B. Ellis) Manamgoda, L. Cai & K.D. Hyde [as <i>Drechslera</i> <i>hawaiiensis</i> Bugnic. ex M.B. Ellis]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp. <i>Viola wittrockiana</i>	India imported to Taiwan	Sahai & Otra 1982 Wu et al. 2006
<i>Curvularia palleescens</i> Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Leucaena</i> <i>leucocephala</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Curvularia affinis</i> Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus wallichiana</i>	India	Munjhal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Holarrhena</i> <i>antidysenterica</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Quercus</i> <i>castaneifolia</i>	Iran	Kavosi et al. 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Curvularia brachyspora</i> Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Acacia auriculiformis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1985, Anderson 1986a, 1987
<i>Curvularia clavata</i> B.L. Jain	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
<i>Curvularia eragrostidis</i> (Henn.) J.A. Mey.	Pleosporaceae, Dothideomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seed	<i>Desmodium uncinatum</i>	Australia	Nik & Parbery 1977
		seed	<i>Macropodium atropurpureum</i>	Australia	Nik & Parbery 1977
		seed	<i>Macropodium lathyroides</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
		seed	<i>Teramnus uncinatus</i>	Australia	Nik & Parbery 1977
<i>Curvularia geniculata</i> (Tracy & Earle) Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Holarrhena antidysenterica</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
		seeds	<i>Samanea saman</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seed	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
<i>Curvularia inaequalis</i> (Shear) Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971,

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Betula</i>	USA	Mittal et al. 1990
		seeds	<i>alleghaniensis</i>		Friedrich et al. 1971,
		seeds	<i>Dactylis glomerata</i>	Canada	Mittal et al. 1990
		seeds	<i>Eucalyptus</i>	India	Connors 1967
			<i>citriodora</i>		Mittal & Sharma 1984,
		seeds	<i>Festuca elatior</i>	Canada	Mittal et al. 1990
		seeds	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961,
					Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961,
					Anderson 1986a
<i>Curvularia intermedia</i> Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Platanus</i>	USA	Fakir et al. 1971, Mittal
<i>Curvularia lunata</i> (Wakker) Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>occidentalis</i>		et al. 1990
		seeds	<i>Acacia confusa</i>	Philippines	Agmata 1979, Anderson
		seed	<i>Bauhinia</i> sp.	Thailand	1986a
		seeds	<i>Bombax anceps</i>	Thailand	Chalermpongse et al.
		seeds	<i>Bombax ceiba</i>	Bangladesh	1984, Mittal et al. 1990
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al.
					1984, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Thailand	Chalermpongse et al.
					1984, Mittal et al. 1990
		seeds	<i>Casuarina</i>	Philippines	Quiniones 1985, 1987,
		seeds	<i>equisetifolia</i>		Anderson 1986a
		seeds	<i>Dalbergia sissoo</i>	India	Naz et al. 2015
		seeds	<i>Delonix regia</i>	India, Philippines	Dayan 1986, Mittal et al.
		seeds	<i>Eucalyptus grandis</i>	Thailand	1990, Sahu et al. 2003
					Chalermpongse et al.
		seeds	<i>Eucalyptus</i> sp.	India	1984, Mittal et al. 1990
					Saxena 1985, Mittal et
					al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus tereticornis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Lagerstroemia calyculata</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Leucaena leucocephala</i>	Bangladesh , Thailand	Chalermpongse et al. 1984, Mittal et al. 1990, Islam et al. 2008
		seeds	<i>Melia azedarach</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Musanga cecropioides</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus kesiya</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Shorea robusta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a
<i>Curvularia maculans</i> (C.K. Bancr.) Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Mittal 1983
<i>Curvularia ovoidea</i> (Hiroë) Munt.-Cvetk.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
<i>Curvularia pallescens</i> Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Anthocephalus chinensis</i>	Philippines	Quiniones 1987
		seeds	<i>Bombax anceps</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cassia floribunda</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	India, Philippines	Quiniones 1985, 1987, Anderson 1986a, Anju et al. 2012
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975
		seeds	<i>Eucalyptus alba</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Triplaris cumingiana</i>	Philippines	Dayan 1986, Mittal et al. 1990
<i>Curvularia prasadii</i> R.L. Mathur & B.L. Mathur	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Curvularia senegalensis</i> (Speg.) Subram.	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
<i>Curvularia spicifera</i> (Bainier) Boedijn	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
<i>Curvularia</i> spp.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Setaria glauca</i>	Pakistan	Lodhi & Naem 1955
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Albizia lebbeck</i>	India	Natarajan et al. 2003
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975
		seeds	<i>Dalbergia sissooides</i>	India	Mohanan et al. 2005
		seeds	<i>Eucalyptus alba</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus grandis</i>	South Africa, Uruguay	Anderson 1986a, Jimu et al. 2016
		seeds	<i>Eucalyptus maidenii</i>	Uruguay	Anderson 1986a
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay, USA	Anderson 1986a, Fraedrich & Miller 1995
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mohanani et al. 2005
<i>Curvularia verruculosa</i> Tandon & Bilgrami ex M.B. Ellis	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
<i>Cutaneotrichosporon cutaneum</i> (Beurm., Gougerot & Vaucher bis) Xin Zhan Liu, F.Y. Bai, M. Groenew. & Boekhout [as <i>Trichosporon cutaneum</i> (Beurm., Gougerot & Vaucher bis) M. Ota]	Trichosporonaceae, Tremellomycetes, Basidiomycota	seeds	<i>Rhododendron smirnowii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Valeriana officinalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Cyathus ibericus</i> J.C. Zamora & Poveda-Molero [#]	Nidulariaceae, Agaricomycetes, Basidiomycota	cones	<i>Pinus halepensis</i>	Spain	Crous et al. 2016
<i>Cyberlindnera macluriae</i> (Kurtzman) Minter [#] [as <i>Pichia macluriae</i> Kurtzman]	Phaffomycetaceae, Saccharomycetes, Ascomycota	pomes	<i>Maclura pomifera</i>	USA	Kurtzman 2000
<i>Cyberlindnera saturnus</i> (Klöcker) Minter [as <i>Hansenula saturnus</i> (Klöcker) Syd. & P. Syd.]	Phaffomycetaceae, Saccharomycetes, Ascomycota	seeds	<i>Bryonia cretica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Humulus lupulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Juniperus communis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Pistacia terebinthus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Podophyllum peltatum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rhus copallina</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rhus gueinzii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sambucus racemosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Cycasicola leucaenae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Thyridariaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Cyclaneusma minus</i> (Butin) DiCosmo, Peredo & Minter	Marthamycetaceae, Leotiomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Cylindroaseptospora leucaenae</i> Jayasiri, E.B.G. Jones & K.D. Hyde ^{###}	Didymosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Cylindroaseptospora siamensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Cylindrocephalum</i> spp.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
<i>Cylindrocephalum stellatum</i> (Harz) Sacc.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Cylindrochytridium endobioticum</i> Willoughby	<i>Incertae sedis,</i> Cladochytriomycetes, Chytridiomycota	seeds	<i>Cornus sanguinea</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Cylindrochytridium johnstonii</i> Karling	<i>Incertae sedis,</i> Cladochytriomycetes, Chytridiomycota	seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Cylindrocladium</i> spp.	Nectriaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Pinus lambertiana</i>	USA	Anderson 1986a, Schubert 1961
		seeds	<i>Shorea assamica</i>	Malaysia	Hong 1981, Mittal et al. 1990
<i>Cylindrodendrum hubeiense</i> (W.Y. Zhuang, Y. Nong & J. Luo) L. Lombard & Crous [#] [as <i>Neonectria hubeiensis</i> W.Y. Zhuang, Y. Nong & J. Luo]	Nectriaceae, Sordariomycetes, Ascomycota	fruits	<i>Rhododendron</i> sp.	China	Zhuang et al. 2007
<i>Cylindrodendrum</i> sp.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus robur</i>	Turkey	Oskay et al. 2018
<i>Cylindromyces striatus</i> Manohar., D.K. Agarwal & N.K. Rao ^{##*}	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	Pods	undetermined plant	India	Manoharachary et al. 2004
<i>Cylindrosporella alnea</i> (Pers. ex Lévl.) Höhn.	Gnomoniaceae, Sordariomycetes, Ascomycota	seeds	<i>Alnus</i> sp.	Denmark	Anderson 1986a
<i>Cylindrosporium platanoidis</i> (Allesch.) Died.	Ploettnerulaceae, Leotiomycetes, Ascomycota	seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
<i>Cytosphaera</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
<i>Cytospora chrysosperma</i> (Pers.) Fr.	Cytosporaceae, Sordariomycetes, Ascomycota	seeds, pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Cytospora curreyi</i> Sacc.	Cytosporaceae, Sordariomycetes, Ascomycota	seeds	<i>Larix</i> spp.	UK	Noble et al. 1958, Anderson 1986a
<i>Cytospora intermedia</i> Sacc.	Cytosporaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Cytospora intermedia</i> Sacc. [as <i>Valsa intermedia</i> Nitschke]	Cytosporaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Cytospora pinastri</i> Fr.	Cytosporaceae, Sordariomycetes, Ascomycota	cones, seeds	<i>Pinus albicaulis</i>	Canada	Vujanovic et al. 2000
<i>Cytospora</i> spp.	Cytosporaceae, Sordariomycetes, Ascomycota	seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	Turkey	Oskay et al. 2018
<i>Dactylaria</i> spp.	Calloriaceae, Leotiomycetes, Ascomycota	fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Dactylium dendroides</i> (Bull.) Fr.	Orbiliaceae, Orbiliomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Dasyscyphella longistipitata</i> Hosoya	Lachnaceae, Leotiomycetes, Ascomycota	fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012
<i>Dasyscyphella longistipitata</i> Hosoya [#]	Lachnaceae, Leotiomycetes, Ascomycota	fruit cupule	<i>Fagus sylvatica</i>	Japan	Ono & Hosoya 2001
<i>Dasyscyphus fuscescens</i> (Pers.) Gray	Hyaloscyphaceae, Leotiomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Dasyscyphus</i> sp.	Hyaloscyphaceae, Leotiomycetes, Ascomycota	cone	<i>Picea sitchensis</i>	USA	Connors 1967
<i>Dasyscyphus virgineus</i> (Batsch) Gray	Hyaloscyphaceae, Leotiomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Davidhawksworthia ilicicola</i> Crous ^{###}	Dermateaceae, Leotiomycetes, Ascomycota	fruit	<i>Ilex aquifolium</i>	The Netherlands	Crous & Groenewald 2016
<i>Davidiella</i> spp.	Davidiellaceae, Dothideomycetes, Ascomycota	seed capsules, seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Delitschia nypae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Delitschiaceae, Dothideomycetes, Ascomycota	fruit	<i>Nypa fruticans</i>	Thailand	Jayasiri et al. 2019
<i>Delonicicola siamense</i> R.H. Perera, Maharachch. & K.D. Hyde ^{###}	Delonicicolaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Perera et al. 2017
<i>Dendrophoma</i> sp.	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	seeds	<i>Cupressus torulosa</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus elliottii</i>	USA	Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Dendrostoma leiphaemia</i> (Fr.) Senan. & K.D. Hyde [as <i>Amphiporthe leiphaemia</i>	Erythroglloeaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
(Fr.) Butin]					
<i>Dermatosorus schoenoplecti</i> Vánky & R.G. Shiva [#]	Anthracoideaceae, Ustilaginomycetes, Basidiomycota	seeds	<i>Schoenoplectus mucronatus</i>	Australia	Vánky & Shivas 2003
Diaporthales sp.	Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Diaporthe angelicae</i> (Berk.) Wehm.	Diaporthaceae, Sordariomycetes, Ascomycota	seeds	<i>Heracleum sphondylium</i>	France	Gomes et al. 2013
<i>Diaporthe archeri</i> [as <i>Phomopsis archeri</i> B. Sutton]	Diaporthaceae, Sordariomycetes, Ascomycota	fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Bridelia tomentosa</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Wikstroemia nutans</i>	Hong Kong	Tang et al. 2003a
		Pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Diaporthe arecae</i> (H.C. Srivast., Zakia & Govindar.) R.R. Gomes, Glienke & Crous [#]	Diaporthaceae, Sordariomycetes, Ascomycota	fruits	<i>Areca catechu</i>	India	Gomes et al. 2013
<i>Diaporthe casuarinae</i> [as <i>Phomopsis casuarinae</i> (Tassi) Died.]	Diaporthaceae, Sordariomycetes, Ascomycota	seeds	<i>Casuarina equisetifolia</i>	Australia, USA	Bose 1944, Anderson 1986a, Bayman et al. 1998
<i>Diaporthe collariana</i> R.H. Perera & K.D. Hyde [#]	Diaporthaceae, Sordariomycetes, Ascomycota	fruits	<i>Magnolia champaca</i>	Thailand	Perera et al. 2018a
<i>Diaporthe conorum</i> (Desm.) Niessl [as <i>Phomopsis conorum</i> (Sacc.) Died.]	Diaporthaceae, Sordariomycetes, Ascomycota	cones, seeds	<i>Pinus mugo</i> ‘Galica’	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus nigra</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i>	Canada	Vujanovic et al. 2000
<i>Diaporthe eres</i> Nitschke	Diaporthaceae, Sordariomycetes, Ascomycota	fruits	<i>Fraxinus</i> sp.	The Netherlands	Gomes et al. 2013
		seeds	<i>Abies nordmanniana</i>	Austria	Talgø et al. 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Diaporthe heveae</i> [as <i>Phomopsis heveae</i> (Petch) Boedijn]	Diaporthaceae, Sordariomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
		seeds	<i>Hevea brasiliensis</i>	Malaysia	Mittal et al. 1990, Srivastava 1956b
		seeds	<i>Hevea</i> sp.	Malaysia	Edwards & Sutherland 1979, Mittal et al. 1990
<i>Diaporthe hongkongensis</i> R.R. Gomes, Glienke & Crous [#]	Diaporthaceae, Sordariomycetes, Ascomycota	fruit	<i>Dichroa febrifuga</i>	Hong Kong	Gomes et al. 2013
<i>Diaporthe insularis</i> Nitschke	Diaporthaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Diaporthe occulta</i> (Fuckel) Nitschke [as <i>Phomopsis</i> <i>occulta</i> Traverso]	Diaporthaceae, Sordariomycetes, Ascomycota	seeds	<i>Juniperus virginiana</i>	Denmark	Neergaard 1958, Anderson 1986a
		seeds	<i>Larix</i> spp.	Denmark	Anderson 1986a
<i>Diaporthe pseudotsugae</i> Dissan., Camporesi & K.D. Hyde [#]	Diaporthaceae, Sordariomycetes, Ascomycota	cones	<i>Pseudotsuga</i> <i>menziesii</i>	Italy	Dissanayake et al. 2017
<i>Diaporthe quercella</i> [as <i>Phomopsis quercella</i> (Sacc. & Roum.) Died.]	Diaporthaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1983, Mittal et al. 1990
<i>Diaporthe rosae</i> Samarakoon & K.D. Hyde	Diaporthaceae, Sordariomycetes, Ascomycota	fruits	<i>Magnolia champaca</i>	Thailand	Perera et al. 2018c
<i>Diaporthe</i> spp.	Diaporthaceae, Sordariomycetes, Ascomycota	fruits	<i>Senna siamea</i>	Thailand	Perera et al. 2018c
		cones, seeds	<i>Pinus contorta</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus mugo</i> ‘Galica’	Canada	Vujanovic et al. 2000
		fruits	<i>Maesa perlarius</i>	Hong Kong	Gomes et al. 2013
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1983, Mittal et al. 1990
		cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
[as <i>Phomopsis</i>]	fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012, Tateno et al. 2015	
		fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		pod	<i>Colophospermum mopane</i>	Southern Africa	Jordaan et. al 2006
		seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1987
		seeds	<i>Acer palmatum</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Janerette 1979, Mittal et al. 1990
		seeds	<i>Acrocarpus fraxinifolius</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Cordia alliodora</i>	Colombia	Mathur 1974, Anderson 1986a
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Leucdena diversifolia</i>	Guatemala	Mathur 1974, Anderson 1986a
		seeds	<i>Melia azedarach</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i>	USA	Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland, UK	Whittle 1977, Krol et al. 2015
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
<i>Diaporthe stipata</i> [as <i>Phomopsis stipata</i> (Lib.) B. Sutton]	Diaporthaceae, Sordariomycetes, Ascomycota	fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Diaporthe subordinaria</i> (Desm.) R.R. Gomes, Glienke & Crous	Diaporthaceae, Sordariomycetes, Ascomycota	seeds	<i>Plantago lanceolata</i>	New Zealand	Gomes et al. 2013
<i>Diaporthe viticola</i> Nitschke	Diaporthaceae, Sordariomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
<i>Dicoccum asperum</i> (Corda) Sacc.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Dichotomopilus dolichotrichus</i> (L.M. Ames) X.Weï Wang & Samson [as <i>Chaetomium dolichotrichum</i> L.M. Ames]	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Dichotomopilus erectus</i> (Skolko & J.W. Groves) X.Weï Wang & Samson [as <i>Chaetomium erectum</i> Skolko & J.W. Groves]	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
<i>Dichotomopilus funicola</i> (Cooke) X.Weï Wang & Samson [as <i>Chaetomium funicola</i> Cooke]	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Abies nordmanniana</i>	Austria	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seed	<i>Anethum graveolens</i>	Canada	Connors 1967
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seed	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Pinus densiflora</i>	Japan	Watanabe 2010
<i>Dichotomopilus indicus</i> (Corda) X.Weï Wang & Samson [as <i>Chaetomium indicum</i> Corda]	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus elliotii</i>	South Africa	Cilliers et al. 1995
		acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Lolium perenne</i>	Scotland	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Dichotomopilus reflexus</i> (Skolko & J.W. Groves) X.Wei Wang & Samson [as <i>Chaetomium reflexum</i> Skolko & J.W. Groves]	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
<i>Dictyochaeta fruticola</i> (M.S. Patil, U.S. Yadav & S.D. Patil) Whitton, McKenzie & K.D. Hyde [#] [as <i>Codinaea fruticola</i> M.S. Patil, U.S. Yadav & S.D. Patil]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	carpus	<i>Butea monosperma</i>	India	Patil et al. 1991
<i>Dictyochaeta</i> sp.	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Dictyochaetopsis brasiliensis</i> M. Claduch, Gené, Stchigel & Guarro [#]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	fruit	Papillonaceae plant	Brazil	Calduch et al. 2002
<i>Dictyocheiropora lithocarpi</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Dictyosporiaceae, Dothideomycetes, Ascomycota	fruit	<i>Lithocarpus</i> sp.	Thailand	Jayasiri et al. 2019
<i>Dictyocheiropora nabanheensis</i> Tibpromma & K.D. Hyde	Dictyosporiaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Dictyopolyschema pirozynskii</i> M.B. Ellis	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds seeds	<i>Abies lasiocarpa</i> <i>Abies nordmanniana</i>	Canada, Norway Austria, Georgia, Russia	Talgø et al. 2010 Talgø et al. 2010
<i>Dictyosporium tetraseriale</i> Goh, Yanna & K.D. Hyde	Dictyosporiaceae, Dothideomycetes, Ascomycota	seeds pods	<i>Abies procera</i> <i>Delonix regia</i>	Norway Thailand	Talgø et al. 2010 Somrithipol et al. 2002b
<i>Didymella coffeae-arabicae</i> (Aveskamp, Verkley & Gruyter) Qian Chen & L. Cai	Didymellaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	China	Jayasiri et al. 2019

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Didymella fabae</i> G.J. Jellis & Punith.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Didymella glomerata</i> (Corda) Qian Chen & L. Cai	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus robur</i>	Turkey	Oskay et al. 2018
<i>Didymella glomerata</i> (Corda) Qian Chen & L. Cai [as <i>Phoma glomerata</i> (Corda) Wollenw. & Hochapfel]		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Didymella pomorum</i> (Thüm.) Qian Chen & L. Cai [as <i>Phoma pomorum</i> Thüm.]	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
<i>Didymocrea leucaenae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Didymosphaeria</i> sp.	Didymosphaeriaceae, Dothideomycetes, Ascomycota	Pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Dinemasporium strigosum</i> (Pers.) Sacc.	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
<i>Dioszegia</i> sp.	Bulleribasidiaceae, Tremellomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Diplodia conigena</i> Desm.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Diplodia frumenti</i> Ellis & Everh.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
<i>Diplodia gossypina</i> Cooke	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Miller & Bramlett 1979, Anderson 1986a
<i>Diplodia magnoliigena</i> Jayasiri, E.B.G. Jones &	Botryosphaeriaceae, Dothideomycetes, Ascomycota	cone	<i>Magnolia grandiflora</i>	China	Jayasiri et al. 2019

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
K.D. Hyde [#]					
<i>Diplodia rosulata</i> Gure, Slippers & Stenlid [#]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Prunus africana</i>	Ethiopia	Gure et al. 2005a
<i>Diplodia</i> spp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus elliotii</i>	Taiwan, USA	Rowan & Debarr 1974, Mittal et al. 1990
		Seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Pinus luchuensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus thunbergii</i> [= <i>Pinus thunbergiana</i>]	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Podocarpus falcatus</i>	Ethiopia	Gure et al. 2005a
		seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
<i>Diplodina</i> sp.	Gnomoniaceae, Sordariomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Diplodites sweetii</i> Kalgutkar, Nambudiri & Tidwell [#]	Fossil fungus	permineralized fruit	<i>Viracarpon</i> sp.	India	Kalgutkar et al. 1993
<i>Discosia querci</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> sp.	UK	Jayasiri et al. 2018a
<i>Discosia</i> sp.	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Grevillea robusta</i>	Rwanda	Mathur 1974, Anderson 1986a
<i>Discotubeufia browneae</i> Jayasiri, E.B.G. Jones & K.D. Hyde ^{##}	Tubeufiaceae, Dothideomycetes, Ascomycota	pod	<i>Brownea</i> sp.	Thailand	Jayasiri et al. 2019
<i>Discula quercina</i> (Cooke) Sacc.	Gnomoniaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
<i>Discula</i> spp.	Gnomoniaceae, Sordariomycetes, Ascomycota	seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
<i>Discula umbrinella</i> (Berk. & Broome) M. Morelet	Gnomoniaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus rubra</i>	France	Anderson 1986a
<i>Dothidea</i> sp.	Dothideaceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
<i>Dothiorella lampangensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruit	Rutaceae plant	Thailand	Jayasiri et al. 2019
<i>Dothiorella sempervirentis</i> Abdollahz., Zare & A.J.L. Phillips [#]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	cones	<i>Cupressus sempervirens</i>	Iran	Abdollahzadeh et al. 2014
<i>Dothiorella</i> spp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Araucaria excelsa</i>	USA	Kahn et al. 1965, Mittal et al. 1990
		seeds	<i>Howea forsteriana</i>	North America	Anderson 1986a
		seeds	<i>Pinus elliotii</i> var. <i>elliottii</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Podocarpus falcatus</i>	Ethiopia	Gure et al. 2005a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pongamia pinnata</i>	India	Jamaluddin et al. 1983, Mittal et al. 1990
<i>Drechslera bicolor</i> (Mitra) Subram. & B.L. Jain	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Macroptilium atropurpureum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Pinus caribaea</i>	Cuba	Mathur 1974, Anderson 1986a
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
<i>Drechslera dictyoides</i> (Drechsler) Shoemaker	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Festuca elatior</i>	Canada	Connors 1967
<i>Drechslera halodes</i> (Drechsler) Subram. & B.L. Jain	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
<i>Drechslera maydis</i> (Y. Nisik. & C. Miyake) Subram. & B.L. Jain	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
<i>Drechslera rostrata</i> (Drechsler) M.J. Richardson & E.M. Fraser	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Chamaecyparis obtusa</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Melia azedarach</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Drechslera siccans</i> (Drechsler) Shoemaker	Pleosporaceae, Dothideomycetes, Ascomycota	seed	<i>Lolium perenne</i>	Canada	Connors 1967
<i>Drechslera sorokiniana</i> (Shoemaker) Subram. & B.L. Jain	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
<i>Drechslera</i> spp.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	Uruguay	Anderson 1986a
		seeds	<i>Jacaranda mimosifolia</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Drechslera tetramera</i> (McKinney) Subram. & B.L. Jain	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Tectona grandis</i>	India	Mohanani et al. 2005
		seeds	<i>Holarrhena antidysenterica</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Leucaena leucocephala</i>	Philippines	Agmata 1979, Anderson 1986a
<i>Drepanopeziza brunnea</i> (Ellis & Everh.) Rossman & W.C. Allen [<i>Marssonina brunnea</i> (Ellis & Everh.) Magnus]	Drepanopezizaceae, Leotiomycetes, Ascomycota	seeds	<i>Populus</i> sp.	New Zealand	Spiers & Wenilam 1983, Mittal et al. 1990
<i>Echinobotryum atrum</i> Corda	Microascaceae, Sordariomycetes, Ascomycota	seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
<i>Endochytrium digitatum</i> Karling	Endochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Endochytrium ramosum</i> Sparrow	Endochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Ilex verticillata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Endoconidioma rosae-hissaricae</i> Wanas., Gafforov, E.B.G. Jones & K.D. Hyde [#]	Dothideaceae, Dothideomycetes, Ascomycota	fruits	<i>Rosa canina</i>	Uzbekistan	Wanasinghe et al. 2018
<i>Endophragmia</i> sp.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Endophragmiella bukkensis</i> Révay [#]	Helminthosphaeriaceae, Sordariomycetes, Ascomycota	cone	<i>Picea abies</i>	Hungary	Révay 1987
<i>Endophragmiella lignicola</i> S. Hughes	Helminthosphaeriaceae, Sordariomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Kirk 1986
<i>Endoraecium kauaianum</i> Berndt [#]	Raveneliaceae, Pucciniomycetes, Basidiomycota	fruits	<i>Acacia koa</i>	USA	Berndt 2011

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Entoloma alboproximum</i> (Largent, Aime & T.W. Henkel) Mešić & Tkalčec# [as <i>Nolanea alboproxima</i> Largent, Aime & T.W. Henkel]	Entolomataceae, Agaricomycetes, Basidiomycota	seed husks	<i>Dicymbe</i> sp.	Guyana	Henkel et al. 2014
<i>Epichlōe canadensis</i> Charlton & C.A. Young#	Clavicipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Elymus canadensis</i>	USA	Charlton et al. 2012
<i>Epichlōe typhina</i> (Pers.) Brockm.	Clavicipitaceae, Sordariomycetes, Ascomycota	seed	<i>Festuca arundinacea</i>	USA	Rycyk Jr & Sharpe 1984
<i>Epicoccum neglectum</i> Desm.	Didymellaceae, Dothideomycetes, Ascomycota	seed	<i>Festuca rubra</i>	New Zealand	Latch et al. 1984
		seed	<i>Bromus inermis</i>	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seed	<i>Lolium perenne</i>	Canada	Connors 1967
		seed	<i>Phleum pratense</i>	Canada	Connors 1967
		seed	<i>Poa compressa</i>	Canada	Connors 1967
		acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		cones, seeds	<i>Pinus nigra</i>	Canada	Vujanovic et al. 2000
<i>Epicoccum nigrum</i> Link	Didymellaceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus sylvestris</i>	Canada	Vujanovic et al. 2000
		fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seed	<i>Apium graveolens</i>	USA	Connors 1967
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seed	<i>Dactylis glomerata</i>	Canada	Connors 1967
		seed	<i>Elymus virginicus</i>	Canada	Connors 1967
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
seed	<i>Linum usitatissimum</i>	Canada	Connors 1967		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Macropitium atropurpureum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdel 1978, Anderson 1986a
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Poa annua</i>	Pakistan	Lodhi & Naeem 1955
		seeds	<i>Quercus robur</i>	Germany, Poland	Krol et al. 2015, Schroder et al. 2004
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium semipilosum</i>	Australia	Nik & Parbery 1977
<i>Epicoccum poae</i> Qian Chen, Crous & L. Cai [#]	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Poa annua</i>	USA	Chen et al. 2017
<i>Epicoccum purpurascens</i> Ehrenb. ex Schldl.	Didymellaceae, Dothideomycetes, Ascomycota	cones	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds, pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Quercus alba</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Quercus falcata</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Quercus nigra</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Quercus phellos</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Epicoccum</i> spp.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer saccharum</i>	USA	Janerette 1979, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
		seed	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
<i>Epochnium monilioides</i> Link	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Epulorhiza</i> sp.	Tulasnellaceae, Agaricomycetes, Basidiomycota	seeds	<i>Cypripedium acaule</i>	Canada	Zelmer et al. 1996

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cypripedium calceolus</i>	Canada	Zelmer et al. 1996
		seeds	<i>Platanthera hyperborea</i>	Canada	Zelmer et al. 1996
		seeds	<i>Platanthera praeclara</i>	Canada	Zelmer et al. 1996
		seeds	<i>Spiranthes magnicamporum</i>	Canada	Zelmer et al. 1996
<i>Eriospora leucostoma</i> Berk. & Broome	Stictidaceae, Lecanoromycetes, Ascomycota	fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
<i>Ernakulamia krabiensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Tetraplosphaeriaceae, Dothideomycetes, Ascomycota	Pods	Acacia sp.	Thailand	Jayasiri et al. 2019
<i>Erysiphe diervillae</i> var. <i>chasanensis</i> V.P. Gelyuta [#]	Erysiphaceae, Leotiomyces, Ascomycota	fruit	Weigela praecox	Japan	Gelyuta 1990
<i>Erysiphe</i> sp.	Erysiphaceae, Leotiomyces, Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a
<i>Eudarluka biconica</i> Katum.	Phaeosphaeriaceae, Dothideomycetes, Ascomycota	seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
<i>Eurotium chevalieri</i> L. Mangin	Aspergillaceae, Eurotiomyces, Ascomycota	seed pod	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Eurotium rubrum</i> Jos. König, Spieck. & W. Bremer	Aspergillaceae, Eurotiomyces, Ascomycota	seeds	<i>Sesbania bispinosa</i> <i>Quercus castaneifolia</i>	India Iran	Anita et al. 2009 Kavosi et al. 2013
<i>Eurotium</i> spp.	Aspergillaceae, Eurotiomyces, Ascomycota	Pods seeds	<i>Delonix regia</i> <i>Pinus caribaea</i>	Thailand Belize [as British Honduras]	Somrithipol et al. 2002b Hocking 1968
<i>Exobasidium symploci-japonicae</i> var. <i>carpogenum</i> Nagao & S. Ogawa [#]	Exobasidiaceae, Exobasidiomycetes, Basidiomycota	fruit	<i>Symplocos lucida</i>	Japan	Nagao et al. 2003
<i>Exophiala</i> spp.	Herpotrichiellaceae, Eurotiomyces, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Exserohilum rostratum</i> (Drechsler) K.J. Leonard &	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus elliottii</i>	South Africa	Cilliers et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
Suggs					
<i>Fairmaniella leprosa</i> (Fairm.) Petr. & Syd.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	Pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Filobasidium wieringae</i> (Á. Fonseca, Scorzetti & Fell) Xin Zhan Liu, F.Y. Bai, M. Groenew. & Boekhout [as <i>Cryptococcus wieringae</i> Á. Fonseca, Scorzetti & Fell]	Filobasidiaceae, Tremellomycetes, Basidiomycota	seeds seeds	<i>Fraxinus excelsior</i> <i>Shorea talura</i>	Sweden Malaysia	Hayatgheibi 2013 Mittal et al. 1990
<i>Fitzpatrickella operculata</i> Benny, Samuelson & Kimbr.#	Coryneliaceae, Eurotiomycetes, Ascomycota	fruits	<i>Drimys confertifolia</i>	Chile	Benny et al. 1985
<i>Flabellascoma minimum</i> A. Hashim., K. Hiray. & Kaz. Tanaka	Lophiostomataceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> <i>leucocephala</i>	Thailand	Jayasiri et al. 2019
<i>Fumago vagans</i> Pers.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	cone	<i>Humulus lupulus</i>	Canada	Conners 1967
<i>Fusariella indica</i> R.Y. Roy & B. Rai	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
<i>Fusarium acuminatum</i> Ellis & Everh.	Nectriaceae, Sordariomycetes, Ascomycota	cones cones	<i>Pinus ponderosa</i> <i>Pseudotsuga</i> <i>menziesii</i> var. <i>glauca</i>	USA USA	James 1995 James 1995
		seed	<i>Acer negundo</i>	Canada	Conners 1967
		seed	<i>Agropyron cristatum</i>	Canada	Conners 1967
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	USA	Conners 1967
		seed	<i>Festuca rubra</i>	Canada	Conners 1967
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seed	<i>Linum usitatissimum</i>	Canada	Conners 1967
		seeds	<i>Pinus elliotii</i>	Argentina	Lori & Salerno 2003
		seeds	<i>Pinus ponderosa</i>	USA	James 1985a, 1995
		seeds	<i>Pinus taeda</i>	Argentina	Lori & Salerno 2003
		seeds	<i>Pseudotsuga</i> <i>menziesii</i>	Canada, USA	James 1986a, Axelrood et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	USA	James 1995
<i>Fusarium anthophilum</i> (A. Braun) Wollenw.	Nectriaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Fusarium arthrosporioides</i> Sherb.	Nectriaceae, Sordariomycetes, Ascomycota	seed	<i>Lolium perenne</i>	Canada	Connors 1967
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Fusarium avenaceum</i> (Fr.) Sacc. [as <i>Gibberella avenacea</i> R.J. Cook]	Nectriaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Lolium perenne</i>	Scotland	Connors 1967
		seeds	<i>Picea abies</i>	Italy, USSR	Prisyazhnyuk 1960, Mittal et al. 1990, Motta et al. 1996
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Axelrood et al. 1995
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Fusarium bulbigenum</i> Cooke & Masee	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Fusarium bulbigenum</i> var. <i>blasticola</i> (Rostr.) Wollenw.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Fusarium chlamydosporum</i> Wollenw. & Reinking	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
<i>Fusarium circinatum</i> Nirenberg & O'Donnell	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus radiata</i>	USA	Dwinell 1999
<i>Fusarium caeruleum</i> Lib. ex Sacc.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Fusarium compactum</i> (Wollenw.) Raillo	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
<i>Fusarium culmorum</i> (Wm.G. Sm.) Sacc.	Nectriaceae, Sordariomycetes, Ascomycota	seed	<i>Abies</i> spp.	UK	Anderson 1986a, Batko 1956
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Lolium perenne</i>	Canada	Connors 1967
		seed	<i>Medicago sativa</i>	Canada	Connors 1967
		seeds	<i>Medicago truncatula</i>	Australia	Nik & Parbery 1977
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Tectona grandis</i>	-	Mathur 1974, Anderson 1986a
<i>Fusarium dlamini</i> Marasas, P.E. Nelson & Toussoun	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
<i>Fusarium equiseti</i> (Corda) Sacc.	Nectriaceae, Sordariomycetes, Ascomycota	seed	<i>Acrocarpus</i> <i>fraxinifolius</i>	India, Rwanda	Mathur 1974, Anderson 1986a
		seed	<i>Albizia gummifera</i>	Rwanda	Mathur 1974, Mittal et al. 1990
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	Canada	Connors 1967
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seed	<i>Bombax ceiba</i>	India	Mathur 1974, Mittal et al. 1990
		seed	<i>Cupressus</i> spp.	Syria	Mathur 1974, Anderson 1986a
		seed	<i>Delonix regia</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus deglupta</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Festuca elatior</i>	Canada	Connors 1967
		seeds	<i>Festuca rubra</i>	Canada	Connors 1967
		seeds	<i>Gmelina arborea</i>	India	Mathur 1974, Anderson 1986a
		seed	<i>Grevillea robusta</i>	Rwanda	Mathur 1974, Anderson 1986a
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Lolium perenne</i>	Canada	Connors 1967
		seeds	<i>Panicum mileaceum</i>	Canada	Connors 1967
		seeds	<i>Phleum pratense</i>	Canada	Connors 1967
		seeds	<i>Picea abies</i>	Italy, USSR	Prisyazhnyuk 1960, Mittal et al. 1990, Motta et al. 1996
		seeds	<i>Pinus caribaea</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	Argentina	Lori & Salerno 2003
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus merkusii</i>	Zambia	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus taeda</i>	Argentina, Georgia	Huang & Kuhlman 1990, Lori & Salerno 2003
		seeds	<i>Portulaca grandiflora</i>	Canada	Connors 1967
		seeds	<i>Prosopis juliflora</i>	Chile	Mathur 1974, Mittal et al. 1990
		seeds	<i>Prosopis tamarugo</i>	Chile	Mathur 1974, Mittal et al. 1990
		seeds	<i>Robinia pseudoacacia</i>	Hungary	Hangyal-Balul 1983, Mittal et al. 1990
		seeds	<i>Setaria viridis</i>	Canada	Connors 1967
		seeds	<i>Tectona grandis</i>	-	Mathur 1974, Anderson 1986a
<i>Fusarium graminearum</i> Schwabe	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Fusarium heterosporum</i> Nees & T. Nees	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Fusarium incarnatum</i> (Desm.) Sacc.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus elliottii</i>	Argentina	Lori & Salerno 2003
<i>Fusarium lateritium</i> Nees	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	Argentina	Lori & Salerno 2003
		seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Axelrood et al. 1995
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Fusarium moniliforme</i> J. Sheld.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Abies grandis</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Abies nordmanniana</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1987
		seeds	<i>Acacia raddiana</i>	Israel	Mathur 1974, Anderson 1986a
		seeds	<i>Acer</i> sp.	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acrocarpus fraxinifolius</i>	India, Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Adenantha microsperma</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Adina cordifolia</i>	India	Mathur 1974, Anderson 1986a
		seed	<i>Albizia falcataria</i>	Philippines	Mathur 1974, Quiniones 1987, Anderson 1986a
		seed	<i>Albizia julibrissin</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Albizia procera</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Albizia stipulata</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Alstonia macrophylla</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Anthocephalus chinensis</i>	Philippines	Quiniones 1987

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Calamus ornatus</i>	Philippines	Quiniones 1987
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Cedrela odorata</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Cedrela toona</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Chukrasia tabularis</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Cordia alliodora</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seeds	<i>Dalbergia sissoo</i>	India, Madagascar	Mathur 1974, Anderson 1986a, Kumar 2014
		seeds	<i>Endospermum peltatum</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Eucalyptus camaldulensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus grandis</i>	Uruguay	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Ficus benjamina</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Gmelina arborea</i>	India	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Grevillea robusta</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Jacaranda mimosifolia</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Juniperus coreana</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Kydia calycina</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena cunningham</i>	Malawi	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena diversifolia</i>	Guatemala	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena latisiliqua</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena leucocephala</i>	Malaysia, Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena</i> spp.	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Mimosa caesalpiniaefolia</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Mimosa scabrella</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras], Central America, Honduras, Madagascar	Hocking 1968, Rees 1982, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus caribaea</i> var. <i>bahamensis</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus caribaea</i> var. <i>caribae</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus caribaea</i> var. <i>hondurensis</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i>	Canada, USA	Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Brazil, USA	Matur 1974, Anderson 1986a, Fraedrich & Miller 1995
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus khasya</i>	Brazil, Madagascar	Mathur 1974, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Philippines, Zambia	Agmata 1979, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus occidentalis</i>	Cuba	Anderson 1986a, Richardson 1979
		seeds	<i>Pinus oocarpa</i>	Central America, India, UK	Rees 1982, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus palustris</i>	USA	Pawuk 1978, Anderson 1986a
		seeds	<i>Pinus pinaster</i>	Italy, Uruguay	Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus pungens</i>	USA	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a
		seeds	<i>Pinus taeda</i>	Brazil, Canada, USA	Mason & van Arsdel 1978, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus wallichiana</i>	Pakistan	Ashaer 2000
		seeds	<i>Pittosporum resiniferum</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Polyscias nodosa</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Prosopis juliflora</i>	Brazil, Chile	Mathur 1974, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Axelrood et al. 1995
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pterospermum acerifolium</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Quercus</i> spp.	India	Sahai & Otrá 1982
		seeds	<i>Tectona grandis</i>	India, Philippines, Thailand	Mathur 1974, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Toona calantas</i>	Philippines	Quiniones 1987
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Ulmus davidiana</i>	South Korea	Mathur 1974, Anderson 1986a
<i>Fusarium moniliforme</i> var. <i>minus</i> Wollenw. & Reinking	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Fusarium moniliforme</i> var. <i>subglutinans</i> Wollenw. & Reinking	Nectriaceae, Sordariomycetes, Ascomycota	cones, seeds	<i>Pinus taeda</i>	USA	Barrows-Broadus & Dwinell 1985
		seeds	<i>Pinus echinata</i>	USA	Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA, Philippines	Miller & Bramlett 1979, Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus pinaster</i>	Italy	Mittal et al. 1990, Motta 1986
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
<i>Fusarium nivale</i> Ces. ex Berl. & Voglino	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Fusarium oxysporum</i> Schltdl.	Nectriaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus ponderosa</i>	USA	James 1995
		cones, seeds	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	USA	James 1995
		pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		pod, seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria bidwillii</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	El-Kady et al. 1986, Mittal et al. 1990
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Conners 1967
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Caltha leptosepala</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Eucalyptus deglupta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seed	<i>Hyoscyamus niger</i>	Canada	Connors 1967
		seeds	<i>Larix decidua</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Larix occidentalis</i>	USA	James 1986b, James et al. 1996
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Mimosa scabrella</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Picea abies</i>	Italy, Poland	Krol et al. 2015
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Picea glauca</i>	Canada, USA	James 1985b, Mittal & Wang 1986, Mittal et al. 1990
		seeds	<i>Picea pungens</i>	USA	James 1985b
		seeds	<i>Pinus caribaea</i>	Belize [or as British Honduras], Cuba, UK	Hocking 1968, Rees 1982, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	Argentina, South Africa	Cilliers et al. 1995, Lori & Salerno 2003
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus lambertiana</i>	USA	Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus palustris</i>	USA	Pawuk 1978, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a, James 1986c, 1995
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus taeda</i>	Argentina, USA, Uruguay	Mason & van Arsdel 1978, Anderson 1986a, Lori & Salerno 2003
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	James 1983b, 1984, 1986a, Axelrood et al. 1995
		seeds	<i>Pterospermum acerifolium</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1964, Mittal et al. 1990
		seeds	<i>Robinia pseudoacacia</i>	Hungary	Hangyal-Balul 1983, Mittal et al. 1990
		seeds	<i>Shorea materialis</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mathur 1974, Anderson 1986a
<i>Fusarium oxysporum</i> f. <i>lini</i> (Bolley) W.C. Snyder & H.N. Hansen	Nectriaceae, Sordariomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Fusarium oxysporum</i> f. <i>perniciosum</i> (Hepting) Toole	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Albizia julibrissin</i>	USA	Quiniones 1985, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Fusarium oxysporum</i> f.sp. <i>elaeidis</i> Toovey	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Elaeis guineensis</i>	Africa, Colombia, Surinam	Locke & Colhoun 1973, Mittal et al. 1990
<i>Fusarium oxysporum</i> f.sp. <i>koae</i> D.E. Gardner	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Acacia</i> spp.	Hawaii	Anderson 1986a, Gardner 1980
<i>Fusarium oxysporum</i> var. <i>aurantiacum</i> (Corda) Rabenh.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Fusarium poae</i> (Peck) Wollenw.	Nectriaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seed	<i>Apium graveolens</i>	Canada	Connors 1967
		seeds	var. <i>dulce</i>		
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Panicum mileaceum</i>	Canada	Connors 1967
		seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
		seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
<i>Fusarium proliferatum</i> (Matsush.) Nirenberg ex Gerlach & Nirenberg	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	Gordon 1967, Mittal et al. 1990, Axelrood et al. 1995
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
		seeds	<i>Pinus elliottii</i>	Argentina	Lori & Salerno 2003
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus taeda</i>	Argentina	Lori & Salerno 2003
<i>Fusarium redolens</i> Wollenw.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Fusarium roseum</i> Link [as <i>Gibberella pulicaris</i> (Kunze) Sacc.]	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
		seeds	<i>Pinus lambertiana</i>	USA	Anderson 1986a
		seed	<i>Pinus palustris</i>	USA	Pawuk 1978, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	James 1983a
		seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdel 1978, Anderson 1986a
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Fusarium sambucinum</i> Fuckel	Nectriaceae, Sordariomycetes, Ascomycota	seed	<i>Hyoscyamus niger</i>	Canada	Connors 1967
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Larix occidentalis</i>	USA	James 1986b, James et al. 1996
		seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
		seeds	<i>Pinus ponderosa</i>	USA	James 1985a
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Axelrood et al. 1995
<i>Fusarium sambucinum</i> var. <i>coeruleum</i> Wollenw.	Nectriaceae, Sordariomycetes, Ascomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
<i>Fusarium sarcochroum</i> (Desm.) Sacc.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Abies amabilis</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Acacia modesta</i>	India	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Acer palmatum</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acrocarpus fraxinifolius</i>	India, Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Adenanthera microsperma</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Albizia falcataria</i>	Philippines	Mathur 1974, Mittal et al. 1990
		seeds	<i>Albizia gummifera</i>	Rwanda	Mathur 1974, Mittal et al. 1990
		seeds	<i>Albizia julibrissin</i>	Philippines	Quiniones 1987
		seeds	<i>Albizia procera</i>	Philippines	Agmata 1979, Quiniones 1987, Anderson 1986a
		seeds	<i>Alstonia macrophylla</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Anogeissus pendula</i>	Costa Rica	Mathur 1974, Mittal et al. 1990
		seeds	<i>Anthocephalus chinensis</i>	Philippines	Quiniones 1987
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Bombax malabaricum</i>	Pakistan	Lodhi & Naeem 1955
		seeds	<i>Calamus ornatus</i>	Philippines	Quiniones 1987
		seeds	<i>Carpinus eximia</i>	South Korea	Mathur 1974, Mittal et al. 1990
		seeds	<i>Cassia acutifolia</i>	Egypt	Mathur 1974, Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	India	Mathur 1974, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cassia siamea</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cedrela odorata</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Cordia alliodora</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Delonix regia</i>	Brazil, Philippines	Dayan 1986, Anderson 1986a, Quiniones 1987
		seeds	<i>Eucalyptus camaldulensis</i>	Egypt	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus maidenii</i>	Uruguay	Anderson 1986a
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Ficus benjamina</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Gmelina arborea</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Gmelina moluccana</i>	Solomon Islands	Mathur 1974, Anderson 1986a
		seeds	<i>Grevillea robusta</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Kydia calycina</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena leucocephala</i>	India, Philippines	Singh et al. 1983, Anderson 1986a, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Leucaena</i> spp.	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Melaleuca</i> spp.	India	Anderson 1986a
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Mimosa caesalpiniaefolia</i>	Brazil	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Mimosa scabrella</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Pinus caribaea</i>	Cuba, UK	Rees 1982, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i> var. <i>hondurensis</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus elliottii</i>	Argentina, USA	Mathur 1974, Anderson 1986a, Lori & Salerno 2003
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Georgia, Uruguay, USA	Anderson 1986a, Huang & Kuhlman 1990, Fraedrich & Miller 1995
		seeds	<i>Pinus kesiya</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Pinus khasya</i>	Madagascar	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus merkusii</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus patula</i>	Madagascar	Anderson 1986a, Gibson 1957
		seeds	<i>Pinus pinaster</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus taeda</i>	Argentina, Canada, Georgia	Mathur 1974, Anderson 1986a, Huang & Kuhlman 1990, Lori & Salerno 2003
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Polyscias nodosa</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Prosopis juliflora</i>	Chile	Mathur 1974, Mittal et al. 1990
		seeds	<i>Prosopis tamarugo</i>	Chile	Mathur 1974, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Sesbania sesban</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Taxodium mucronatum</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Tectona grandis</i>	India, Philippines, Thailand	Mathur 1974, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Toona calantas</i>	Philippines	Quiniones 1987
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Wallaceodendron celibicum</i>	Philippines	Dayan 1986, Anderson 1986a, Quiniones 1987
<i>Fusarium sporotrichioides</i> Sherb.	Nectriaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		cones	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		cones, seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Fusarium</i> spp.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus ponderosa</i>	USA	James 1985a
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Robinia pseudoacacia</i>	Hungary	Hangyal-Balul 1983, Mittal et al. 1990
		cones, seeds	<i>Pinus nigra</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus nigra</i> ssp. <i>nigra</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i> 'Argentea- Compacta'	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus uncinata</i>	Canada	Vujanovic et al. 2000
		fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia punctata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a		
fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a		
fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a		
seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Albizia lebbbeck</i>	India	Natarajan et al. 2003, Mohanan et al. 2005
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Bombax ceiba</i>	India	Mittal et al. 1990
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seeds	<i>Dalbergia sissoides</i>	India	Mohanan et al. 2005
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus globulus</i>	Portugal	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Hungary, Poland	Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013, Hayatgheibi 2013
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Leucaena leucocephala</i>	Bangladesh	Islam et al. 2008
		seeds	<i>Maesopsis eminii</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Picea abies</i>	Poland	Krol et al. 2015
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus elliotii</i>	Taiwan, USA	Mittal et al. 1990
		seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus luchuensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Hungary, Poland	Hangyal 1973, Mittal et al. 1990, Krol et al. 2015

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Mittal et al. 1990
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus thunbergii</i> [= <i>Pinus thunbergiana</i>]	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seed	<i>Portulaca grandiflora</i>	Canada	Connors 1967
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	Germany, Poland, Turkey	Schroder et al. 2004, Krol et al. 2015, Oskay et al. 2018
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1983, Mittal et al. 1990
		seeds	<i>Shorea assamica</i>	Malaysia	Hong 1981, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Shorea talura</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mohan et al. 2005
<i>Fusarium stilboides</i> Wollenw.	Nectriaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Fusarium subglutinans</i> (Wollenw. & Reinking) P.E. Nelson, Toussoun & Marasas	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	USA	Fraedrich & Miller 1995
<i>Fusarium subglutinans</i> f.sp. <i>pini</i> J.C. Correll, T.R. Gordon, McCain, J.W. Fox, Koehler, D.L. Wood & M.E. Schultz	Nectriaceae, Sordariomycetes, Ascomycota	cones seeds	<i>Pinus radiata</i> <i>Pinus radiata</i>	USA USA	Dwinell 1998 Dwinell 1998, Storer et al. 1998

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Fusarium torulosum</i> (Berk. & M.A. Curtis) Nirenberg	Nectriaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Fusarium tricinctum</i> (Corda) Sacc.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
		seeds	<i>Picea glauca</i>	USA	James 1985b
		seeds	<i>Picea pungens</i>	USA	James 1985b
		seeds	<i>Pinus palustris</i>	USA	Pawuk 1978, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdel 1978, Anderson 1986a
<i>Fusarium verticillioides</i> (Sacc.) Nirenberg	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Pinus elliottii</i>	Argentina	Lori & Salerno 2003
		seeds	<i>Pinus taeda</i>	Argentina	Lori & Salerno 2003
<i>Fusella olivacea</i> (Corda) Sacc.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Fusicoccum</i> spp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus flexilis</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus mugo</i> ‘Galica’	Canada	Vujanovic et al. 2000
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Pinus elliottii</i>	USA	Rowan & Debarr 1974, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Fusicolla acetilerea</i> (Tubaki, C. Booth & T. Harada) Gräfenhan & Seifert [as <i>Fusarium merismoides</i> var. <i>acetilereum</i> Tubaki, C. Booth & T. Harada]	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	UK	Rees 1982, Mittal et al. 1990
<i>Fusicolla merismoides</i> (Corda) Gräfenhan [as	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus caribaea</i>	UK	Rees 1982, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Fusarium merismoides</i> Corda]		seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Fusidium</i> spp.	Nectriaceae, Sordariomycetes, Ascomycota	acorns cones seeds	<i>Quercus robur</i> <i>Pinus densiflora</i> <i>Acer saccharum</i>	Poland Japan USA	Jankowiak 2008 Kasai et al. 1995 Friedrich et al. 1971, Mittal et al. 1990
<i>Gaeumannomyces</i> sp.	Magnaporthaceae, Sordariomycetes, Ascomycota	fruits fruits fruits	<i>Dichroa febrifuga</i> <i>Psychotria asiatica</i> <i>Sarcandra glabra</i>	Hong Kong Hong Kong Hong Kong	Tang et al. 2003a Tang et al. 2003a Tang et al. 2003a
<i>Genicularia</i> spp.	Orbiliaceae, Orbiliomycetes, Ascomycota	seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
<i>Geniculodendron pyriforme</i> G.A. Salt	Caloscyphaceae, Pezizomycetes, Ascomycota	seeds seeds seeds seeds seeds seeds seeds	<i>Abies concolor</i> 'glauca' <i>Abies concolor</i> <i>Abies grandis</i> <i>Larix occidentalis</i> <i>Picea engelmannii</i> <i>Picea sitchensis</i> <i>Picea</i> spp. <i>Pinus resinosa</i>	USA Germany (imported seeds from USA and Canada) Germany (imported seeds from USA and Canada), USA USA Germany (imported seeds from USA and Canada) Canada, Germany (imported seeds from USA and Canada) Canada Canada	Schröder et al. 2002 Schröder et al. 2002 James et al. 1996 Schröder et al. 2002 Sutherland & Woods 1978, Schröder et al. 2002 Woods et al. 1982, Anderson 1986a Epnerns 1964, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus</i> spp.	UK	Salt 1974, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Canada	Epnerns 1964, Mittal et al. 1990
<i>Geniculosporium</i> spp.	Xylariaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012, Tateno et al. 2015
<i>Geomyces</i> sp.	Thelebolaceae, Leotiomycetes, Ascomycota	seed	<i>Pinus monticola</i>	USA	Ganley & Newcombe 2006
<i>Geopyxis</i> sp.	Tarzettaceae, Pezizomycetes, Ascomycota	seed	<i>Pinus monticola</i>	USA	Ganley & Newcombe 2006
<i>Geotrichum</i> spp.	Dipodascaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Albizia lebbek</i>	India	Natarajan et al. 2003
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seeds	<i>Dalbergia sissoo</i>	India	Naz et al. 2015
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	USA	Mittal et al. 1990
<i>Gibbera sphyrospermi</i> G.J. Samuel, M.E. Barr & C.T. Rogers [#]	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		fruit	<i>Sphyrospermum cordifolium</i>	Panama	Samuels et al. 1988
<i>Gilmaniella</i> spp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Glaxoa pellucida</i> P.F. Cannon ^{***}	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		cones	<i>Cupressus semipervirens</i>	UK	Cannon 1997

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Gliocephalotrichum bulbilium</i> J.J. Ellis & Hesselt.	Nectriaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Gliocephalotrichum</i> sp.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
<i>Gliocladium roseum</i> Bainier	Bionectriaceae, Sordariomycetes, Ascomycota	seed	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliotii</i>	South Africa	Cilliers et al. 1995
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Gliocladium solani</i> (Harting) Petch	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b
		fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
<i>Gliocladium</i> spp.	Hypocreaceae, Sordariomycetes, Ascomycota	fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
		cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		seed	<i>Gentiana</i> sp.	Japan	Watanabe 2010
		seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Bloomberg 1969, Mittal et al. 1990
<i>Gliocladium verticillioides</i> (G.A. Newton) Pidoplitschka	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Gliomastix roseogrisea</i> (S.B. Saksena) Summerb.	Bionectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Mittal 1983

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as <i>Cephalosporium roseogriseum</i> S.B. Saksena]					
<i>Gliocladiopsis tenuis</i> (Bugnic.) Crous & M.J. Wingf. [as <i>Cylindrocarpon tenue</i> Bugnic.]	Nectriaceae, Sordariomycetes, Ascomycota	cones	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	USA	James 1995
<i>Gloeosporium acericola</i> Allesch.	Dermateaceae, Leotiomycetes, Ascomycota	seeds	<i>Acer</i> sp.	USSR	Anderson 1986a
<i>Gloeosporium bolleyi</i> R. Sprague	Dermateaceae, Leotiomycetes, Ascomycota	seed	<i>Setaria viridis</i>	Canada	Connors 1967
<i>Gloeosporium</i> spp.	Dermateaceae, Leotiomycetes, Ascomycota	seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Liriodendron tulipifera</i>	USA	Anderson 1986a
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Gloeosporium ulmicola</i> Miles	Dermateaceae, Leotiomycetes, Ascomycota	seeds	<i>Ulmus pumila</i>	Romania	Georgescu & Petrescu 1954, Mittal et al. 1990
		seeds	<i>Ulmus</i> spp.	Romania	Richardson 1979, Anderson 1986a
<i>Gloeotinia temulenta</i> (Prill. & Delacr.) M. Wilson, Noble & E.G. Gray	Helotiaceae, Leotiomycetes, Ascomycota	seed	<i>Lolium perenne</i>	Scotland	Connors 1967
<i>Gloniopsis fluctiformis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Hysteriaceae, Dothideomycetes, Ascomycota	fruit	Combretaceae plant	Thailand	Jayasiri et al. 2019
<i>Gloniopsis leucaenae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Hysteriaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Gnomonia quercina</i> Kleb.	Gnomoniaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Gnomoniopsis fructicola</i> (G. Arnaud) Sogonov [as <i>Gnomonia fructicola</i> (G. Arnaud) Fall]	Gnomoniaceae, Sordariomycetes, Ascomycota	fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
<i>Gonapodya bohémica</i> Cejp	Gonapodyaceae, Monoblepharidomycetes, Chytridiomycota	seeds	<i>Sambucus racemosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Gonapodya polymorpha</i> Thaxt.	Gonapodyaceae, Monoblepharidomycetes, Chytridiomycota	seeds	<i>Calluna vulgaris</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lonicera periclymenum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lotus uliginosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lycium chinense</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Prunella grandiflora</i> ssp. <i>pyrenaia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		<i>Gonapodya prolifera</i> (Cornu) A. Fisch.	Gonapodyaceae, Monoblepharidomycetes, Chytridiomycota	seeds	<i>Borago officinalis</i>
seeds	<i>Ginkgo biloba</i>			Poland or/ imported to Poland	Czeczuga et al. 2009
seeds	<i>Humulus lupulus</i>			Poland or/ imported to Poland	Czeczuga et al. 2009
seeds	<i>Humulus scandens</i>			Poland or/ imported to Poland	Czeczuga et al. 2009
seeds	<i>Rhus gueinzii</i>			Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Gonapodya siliquiformis</i> (Reinsch) Thaxt. [as ' <i>siliquaeformis</i> ']	Gonapodyaceae, Monoblepharidomycetes, Chytridiomycota	seeds	<i>Bryonia alba</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Daphne gnidium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Daphne mezereum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus niger</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sambucus ebulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sorbus torminalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Gonatobotrys flavus</i> Bonord	Ceratostomataceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Gonatobotryum</i> spp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Gonytrichum macrocladum</i> (Sacc.) S. Hughes	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Graminopassalora graminis</i> (Fuckel) U. Braun, C. Nakash., Videira & Crous [as <i>Passalora graminis</i> (Fuckel) Höhn.]	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seed	<i>Phleum pratense</i>	Canada	Connors 1967
<i>Graphium rigidum</i> (Pers.) Sacc.	Graphiaceae, Sordariomycetes, Ascomycota	fruit	<i>Apeiba</i> sp.	Panama	Morris & Finley 1956
<i>Graphium</i> sp.	Graphiaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
<i>Guignardia cocogena</i> (Cooke) Punith.	Phyllostictaceae, Dothideomycetes, Ascomycota	fruits	<i>Ardisia punctata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum</i> <i>sempervirens</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Guignardia dioscoreae</i> Sawada ex Katum.	Phyllostictaceae, Dothideomycetes, Ascomycota	fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
<i>Guignardia musae</i> Racib.	Phyllostictaceae, Dothideomycetes, Ascomycota	fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
<i>Guignardia robiniae</i> S. Ito & Kobayasi	Phyllostictaceae, Dothideomycetes, Ascomycota	seeds	<i>Robinia pseudoacacia</i>	Japan	Sato & Shoji 1960, Anderson 1986a
<i>Gymnoascus bourquelotii</i> Boud.	Gymnoascaceae, Eurotiomycetes, Ascomycota	seeds	<i>Gossypium</i> sp.	Pakistan	Lodhi & Naem 1955
<i>Gymnopus asetosus</i> Antonín, Ryoo & Ka [#]	Omphalotaceae, Agaricomycetes, Basidiomycota	cone	undetermined plant	South Korea	Antonín et al. 2014
<i>Gymnosporangium clavariiforme</i> (Wulfen) DC.	Pucciniaceae, Pucciniomycetes, Basidiomycota	fruit	<i>Amelanchier</i> sp.	Canada	Connors 1967
<i>Gymnosporangium clavipes</i> Cooke & Peck	Pucciniaceae, Pucciniomycetes, Basidiomycota	fruit	<i>Amelanchier</i> sp.	Canada	Connors 1967
<i>Gymnosporangium inconspicuum</i> F. Kern	Pucciniaceae, Pucciniomycetes, Basidiomycota	fruit	<i>Amelanchier florida</i>	Canada	Connors 1967
<i>Hanseniaspora guilliermondii</i> Pijper	Saccharomycodaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Hanseniaspora meyeri</i> Cadez, Poot, Raspor & M.T. Sm. [#]	Saccharomycodaceae, Saccharomycetes, Ascomycota	fruit	<i>Sapindus</i> sp.	USA	Cadez et al. 2003
<i>Hanseniaspora occidentalis</i> M.T. Sm.	Saccharomycodaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Hansfordia</i> spp.	Hansfordiaceae, Sordariomycetes, Ascomycota	seeds seeds	<i>Pinus taeda Tectona grandis</i>	USA India	Anderson 1986a, b Anderson 1986a
<i>Hapalophragmiopsis ponderosa</i> (Syd., P. Syd. & E.J. Butler) Thirum. [as 'ponderosum']	Raveneliaceae, Pucciniomycetes, Basidiomycota	seeds	<i>Acacia</i> spp.	India	Malia & Tattar 1978, Anderson 1986a
<i>Helicoma guttulatum</i> Y.Z. Lu, Boonmee & K.D. Hyde	Tubeufiaceae, Dothideomycetes, Ascomycota	fruits fruits	<i>Lithocarpus</i> sp. undetermined plant	Thailand Thailand	Jayasiri et al. 2019 Jayasiri et al. 2019
<i>Helicomyces candidus</i> (Preuss) Sacc.	Tubeufiaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Helicomyces elegans</i> Morgan	Tubeufiaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Helicomyces roseus</i> Link	Tubeufiaceae, Dothideomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Helicosporium melghatianum</i> Dharkar, Subhedar, Hande & Shahezaad [#]	Tubeufiaceae, Dothideomycetes, Ascomycota	Pods	<i>Pongamia pinnata</i>	India	Dharkar et al. 2010
<i>Helicosporium pulvinatum</i> (Nees & T. Nees) Pers.	Tubeufiaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Helicosporium</i> sp.	Tubeufiaceae, Dothideomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Helminthosporium linicola</i> Kletsh.	Massarinaceae, Dothideomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Helminthosporium rostratum</i> Drechsler	Massarinaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Helminthosporium sativum</i> Pammel, C.M. King & Bakke	Massarinaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Bombax ceiba</i>	Pakistan	Lodhi & Naeem 1955
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Helminthosporium</i> spp.	Massarinaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Araucaria bidwillii</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990, Naz et al. 2015
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	USA	Rowan & Debarr 1974, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Helminthosporium spiciferum</i> (Bainier) Nicot	Massarinaceae, Dothideomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Helminthosporium tetramerum</i> McKinney [as 'tetramer']	Massarinaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
Helotiales sp.	Leotiomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Helotium fagineum</i> (Pers.) Fr.	Helotiaceae, Leotiomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Helotium strobilinum</i> (Fr.) Fuckel	Helotiaceae, Leotiomycetes, Ascomycota	seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Helotium virgultorum</i> Fr.	Helotiaceae, Leotiomycetes, Ascomycota	seeds	<i>Picea abies</i>	USSR	Barrows-Broadus & Dwinell 1985, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Hendersonia strobilina</i> Curr.	Phaeosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Hermatomyces sphaericus</i> (Sacc.) S. Hughes	Hermatomycetaceae, Dothideomycetes, Ascomycota	pod	<i>Entada phaseoloides</i>	Thailand	Jayasiri et al. 2019
<i>Herpotrichia juniperi</i> (Sacc.) Petr.	Melanommataceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus contorta</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus densiflora</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus mugo</i> ‘Galica’	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus ponderosa</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus rigida</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i> ‘Argentea- Compacta’	Canada	Vujanovic et al. 2000
<i>Heterobasidion annosum</i> (Fr.) Bref.	Bondarzewiaceae, Agaricomycetes, Basidiomycota	cones, seeds	<i>Pinus tabulaeformis</i>	Canada	Vujanovic et al. 2000
		seeds	<i>Abies</i> spp.	North America	Batko 1959, Anderson 1986a
<i>Heteroconium decorosum</i> R.F. Castañeda, Saikawa & Guaro [#]	Antennulariellaceae, Dothideomycetes, Ascomycota	pod	<i>Samanea saman</i>	Cuba	Castañeda-Ruíz et al. 1999
<i>Hirsutella uncinata</i> Seifert & H. Boulay [#]	Ophiocordycipitaceae, Sordariomycetes, Ascomycota	follicles	<i>Hakea</i> sp.	Australia	Seifert & Boulay 2004
<i>Hormiscium antiquum</i> (Corda) Sacc.	Torulaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Hormiscium stilbosporum</i> (Corda) Sacc.	Torulaceae, Dothideomycetes, Ascomycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Hormodendrum</i> sp. [as ‘ <i>Hormodendron</i> ’]	Cladosporiaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	Salisbury 1955, Mittal et al. 1990
<i>Hormonema</i> spp.	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	Pods seed capsules	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seed	<i>Pinus monticola</i>	USA	Jimu et al. 2016
					Ganley & Newcombe 2006
<i>Humicola fuscoatra</i> Traaen	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Humicola homopilata</i> (Omvik) X. Wei Wang & Houbraken [as <i>Chaetomium homopilatum</i> Omvik]	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Humicola</i> sp.	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Hyalocephalotrichum indicum</i> Nagaraju, Kunwar, Sureshk. & Manohar. [#]	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruit litter	<i>Acacia auriculiformis</i>	India	Nagaraju et al. 2011c
<i>Hyalodendron</i> sp.	Trichosporonaceae, Tremellomycetes, Basidiomycota	seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdell 1978, Anderson 1986a
<i>Hyaloscypha cupularum</i> Svrček [#]	Hyaloscyphaceae, Leotiomycetes, Ascomycota	cupule	<i>Quercus</i> sp.	former Czechoslovakia	Svrček 1987

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Hyaloscypha leuconica</i> (Cooke ex Stev.) Nannf.	Hyaloscyphaceae, Leotiomyces, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Hyaloscypha strobilicola</i> var. <i>parvispora</i> Huhtinen [#]	Hyaloscyphaceae, Leotiomyces, Ascomycota	cone scales	<i>Pinus sabiniana</i>	USA	Huhtinen 1990
<i>Hyaloscypha sulphureopilosa</i> Svrček [#]	Hyaloscyphaceae, Leotiomyces, Ascomycota	cones	<i>Picea abies</i>	former Czechoslovakia	Svrcek 1986
<i>Hydnum auriscalpium</i> L.	Hydnaceae, Agaricomycetes, Basidiomycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Hymenoscyphus cassiae</i> M.P. Sharma [#]	Helotiaceae, Leotiomyces, Ascomycota	pods	<i>Cassia</i> sp.	India	Sharma 1991
<i>Hymenoscyphus fraxineus</i> (T. Kowalski) Baral, Queloz & Hosoya [as <i>Chalara fraxinea</i> T. Kowalski]	Helotiaceae, Leotiomyces, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013, Hayatgheibi 2013, Marčiulyrienė et al. 2017
<i>Hymenoscyphus seminis-alni</i> Baral, B. Grauw. & M. Eckel [#]	Helotiaceae, Leotiomyces, Ascomycota	seeds	<i>Alnus glutinosa</i>	Germany	Baral 1996
<i>Hymenoscyphus splendens</i> Abdullah, Descals & J. Webster [#]	Helotiaceae, Leotiomyces, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Abdullah et al. 1981
<i>Hyphopichia buzzinii</i> L.R. Ribeiro, A.R.O. Santos, N. Jacques, Grondin, Casareg., C.A. Lara, Lachance & C.A. Rosa [#]	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruit	<i>Clidemia</i> sp.	Guiana	Ribeiro et al. 2017
<i>Hypocreales</i> sp.	Sordariomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
<i>Hypoderma conigenum</i> (Pers.) DC.	Rhytismataceae, Leotiomyces, Ascomycota	seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Hypoxylon hinnuleum</i> (G. Sm.) Kuhnert & Sir	Hypoxylaceae, Sordariomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as <i>Nodulisporium hinnuleum</i> G. Sm.]					
<i>Hypoxylon</i> spp. [as <i>Nodulisporium</i>]	Hypoxylaceae, Sordariomycetes, Ascomycota	cones seeds	<i>Pinus densiflora</i> <i>Pinus taeda</i>	Japan USA	Kasai et al. 1995 Anderson 1986a, b
<i>Hysterobrevium hakeae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Hysteriaceae, Dothideomycetes, Ascomycota	fruit	<i>Hakea actites</i>	Australia	Jayasiri et al. 2018a
<i>Ilyonectria destructans</i> (Zinssm.) Rossman, L. Lombard & Crous [as <i>Cylindrocarpon</i> <i>destructans</i> (Zinssm.) Scholten]	Nectriaceae, Sordariomycetes, Ascomycota	seeds seeds seeds	<i>Abies alba</i> <i>Alnus glutinosa</i> <i>Fagus sylvatica</i>	Poland Poland Poland	Krol et al. 2015 Krol et al. 2015 Krol et al. 2015
<i>Ilyonectria radicolica</i> (Gerlach & L. Nilsson) P. Chaverri & Salgado [as <i>Cylindrocarpon</i> <i>radicolica</i> Wollenw.]	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea excelsa</i> , <i>Pinus</i> <i>sylvestris</i> , <i>Quercus</i> spp.	USSR	Urosevic 1961, 1983, Anderson 1986a, Mittal et al. 199
<i>Iodophanus carneus</i> (Pers.) Korf	Pezizaceae, Pezizomycetes, Ascomycota	seeds	coniferae plant	Scotland	Vaartaja et al. 1964, Anderson 1986a
<i>Isaria</i> spp.	Cordycipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
<i>Issatchenkia occidentalis</i> Kurtzman, M.J. Smiley & C.J. Johnson	Saccharomycetaceae, Saccharomycetes, Ascomycota	seeds fruits	<i>Pinus taeda</i> <i>Parahancornia</i> <i>amapa</i>	USA Brazil	Anderson 1986a, b Morais et al. 1995
<i>Ityorhoptrum verruculosum</i> M.B. Ellis ex P.M. Kirk	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Kirk 1986
<i>Juxtiphoma eupyrena</i> (Sacc.) Valenz.-Lopez, Crous, Stchigel, Guarro & Cano [as <i>Phoma eupyrena</i> Sacc.]	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Larix occidentalis</i>	USA	James et al. 1996

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Kallichroma tethys</i> (Kohlm. & E. Kohlm.) Kohlm. & Volkm.-Kohlm.	Bionectriaceae, Sordariomycetes, Ascomycota	seed pod	<i>Canavalia cathartica</i> <i>Sesbania bispinosa</i>	India India	Anita & Sridhar 2009 Anita et al. 2009
<i>Rhizophlyctis hyalina</i> (Karling) Sparrow <i>Karlingia hyalina</i> Karling	Rhizophlyctidaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Trifolium pratense</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Karlingia polonica</i> Hassan	Rhizophlyctidaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Armeria maritima</i> ssp. <i>maritima</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Karlingia rosea</i> (de Bary & Woronin) A.E. Johanson	Rhizophlyctidaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Vicia sativa</i>	Poland	Kiziewicz 2005
<i>Karlingia spinosa</i> Karling	Rhizophlyctidaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Ficus pumila</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Karlingiella elongata</i> (Karling) G.H. Jerônimo, A.L. Jesus & Pires-Zottar. [as <i>Nowakowskiella elongata</i> Karling]	<i>Incertae sedis</i> , Chytridiomycetes, Chytridiomycota	seeds	<i>Cicuta virosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Karlingiomyces lobatus</i> (Karling) Sparrow	Polychytriaceae, Polychytriomycetes, Chytridiomycota	seeds	<i>Ginkgo biloba</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Khuskia oryzae</i> H.J. Huds.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
<i>Kionocephala catenulata</i> M.B. Ellis ex P.M. Kirk ^{***}	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	fruit cupule	<i>Fagus sylvatica</i>	UK	Kirk 1986
<i>Kloeckera africana</i> (Klöcker) Janke	Saccharomycetaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Kloeckera apiculata</i> (Reess) Janke	Saccharomycetaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Kuraishia borneana</i> Kurtzman, Kurtzman & Robnett [#]	Pichiaceae, Saccharomycetes, Ascomycota	fruit waste	undetermined plant	Brunei	Kurtzman & Robnett 2014
<i>Lacellina graminicola</i> (Berk. & Broome) Petch	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
<i>Lachnum tengii</i> W.Y Zhuang [#]	Lachnaceae, Leotiomycetes, Ascomycota	nuts	undetermined plant	China	Zhuang 2002

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Laetinaevia colobanathi</i> I.J. Gamundi & H.A. Soubedi [#]	Calloriaceae, Leotiomycetes, Ascomycota	fruit	<i>Colobanthus quitensis</i>	Antarctica	Gamundi & Spinedi 1988
<i>Lanceispora</i> sp.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Lasiodiplodia</i> sp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Lasiodiplodia avicenniarum</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruit	<i>Avicennia marina</i>	Thailand	Jayasiri et al. 2019
<i>Lasiodiplodia pseudotheobromae</i> A.J.L. Phillips, A. Alves & Crous	Botryosphaeriaceae, Dothideomycetes, Ascomycota	pod pod	<i>Azelia xylocarpa</i> <i>Quercus</i> sp.	Thailand Thailand	Jayasiri et al. 2019 Jayasiri et al. 2019
<i>Lasiodiplodia swieteniae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruit	<i>Swietenia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Lasiodiplodia theobromae</i> (Pat.) Griffon & Maubl.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruit fruit, pod pod pod	undetermined plant undetermined plant <i>Acacia</i> sp. <i>Calophyllum inophyllum</i>	Guinea Thailand Thailand Thailand	Phillips et al. 2013 Jayasiri et al. 2019 Jayasiri et al. 2019 Jayasiri et al. 2019
		seeds seeds	<i>Pinus caribaea</i> <i>Pinus elliottii</i>	Central America Brazil, South Africa	Rees 1988 Cilliers et al. 1995, Maciel et al. 2015
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
<i>Lauriomyces ellipticus</i> Somrith. & E.B.G. Jones [#]	Lauriomycetaceae, Leotiomycetes, Ascomycota	fruit	<i>Pinus taeda</i> undetermined plant	Brazil Thailand	Maciel et al. 2015 Somrithipol & Jones 2007
<i>Lauriomyces sakaeratensis</i> Somrith., Kosol & E.B.G. Jones [#]	Lauriomycetaceae, Leotiomycetes, Ascomycota	fruits	<i>Dipterocarpus costatus</i>	Thailand	Somrithipol et al. 2006
<i>Lecanora shangrilaensis</i> Z.T. Zhao & L. Lü [#]	Lecanoraceae, Lecanoromycetes, Ascomycota	cones	<i>Pinus</i> sp.	China	Lü & Zhao 2017

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Lecanora substrobilina</i> Printzen [#]	Lecanoraceae, Lecanoromycetes, Ascomycota	cones	<i>Pinus</i> sp.	USA	Printzen 2001
<i>Lecythophora</i> spp.	Coniochaetaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Leptosphaeria</i> sp.	Leptosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Leptosphaerulina</i> sp.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
<i>Leptostroma</i> sp.	Rhytismataceae, Leotiomyces, Ascomycota	cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
<i>Leptoxyphium kurandae</i> Crous & R.G. Shivas	Capnodiaceae, Dothideomycetes, Ascomycota	fruits	<i>Lagerstroemia loudonii</i>	Thailand	Jayasiri et al. 2019
<i>Leucaenicola aseptata</i> Jayasiri, E.B.G. Jones & K.D. Hyde ^{***}	Bambusicolaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Leucaenicola phraeana</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Bambusicolaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Lirula macrospora</i> (R. Hartig) Darker	Rhytismataceae, Leotiomyces, Ascomycota	seeds	<i>Abies</i> spp	USSR	Anderson 1986a
<i>Lophiotrema praemorsum</i> (Lasch) Sacc.	Lophiotremataceae, Dothideomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Lophiotrema psychotriae</i> A.M.C. Tang, K.D. Hyde, C.K.M. Tsui & R.T. Corlett [#] [as ‘ <i>psychotrii</i> ’]	Lophiotremataceae, Dothideomycetes, Ascomycota	fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a, b
		fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a
<i>Lophium zalerioides</i> J.F. Li, Phookamsak, Camporesi & K.D. Hyde [#]	Mytiliniaceae, Dothideomycetes, Ascomycota	cone	<i>Cupressus glabra</i>	Italy	Hyde et al. 2017
<i>Lophodermium pinastri</i> (Schrad.) Chevall.	Rhytismataceae, Leotiomyces, Ascomycota	seeds	<i>Pinus</i> spp.	North America, UK	Noble et al. 1958, Anderson 1986a
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Lophodermium seditiosum</i> Minter, Staley & Millar	Rhytismataceae, Leotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	Germany	Bentele et al. 2014
<i>Macrochytrium botrydioides</i> Minden	<i>Incertae sedis</i> , Chytridiomycetes, Chytridiomycota	seeds	<i>Armeria</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>transmontana</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Asparagus officinalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa caucasica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa komarovii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Bryonia dioica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Celtis australis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
seeds	<i>Podophyllum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009		
seeds	<i>peltatum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009		
seeds	<i>Sorbus torminalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009		
<i>Macrophoma fraxini</i> Delacr.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus</i> sp.	former Czechoslovakia	Anderson 1986a
<i>Macrophoma nitens</i> Berl. & Voglino	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Macrophoma</i> spp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruits	<i>Ardisia quinquegona</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Cleistocalyx</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>operculatus</i>		
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Eucalyptus camaldulensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
<i>Macrophomina phaseolina</i> (Tassi) Goid.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Albizia stipulata</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Cedrela odorata</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Leucdena diversifolia</i>	Guatemala	Mathur 1974, Anderson 1986a
		seeds	<i>Musanga cecropioides</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus caribaea</i>	Central America, Madagascar, UK	Rees 1982, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus merkusii</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Swietenia macrophylla</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Tabebuia heptaphylla</i>	Brazil	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Macrophomina phaseolina</i> (Tassi) Goid. [as <i>Macrophomina phaseoli</i> (Maubl.) S.F. Ashby]		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a
<i>Macrophomina phaseolina</i> (Tassi) Goid. [as <i>Macrophoma phaseoli</i> Maubl.]		seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1987
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1987
		seeds	<i>Gmelina arborea</i>	Philippines	Quiniones 1987
		seeds	<i>Toona calantas</i>	Philippines	Quiniones 1987
<i>Macrophomina</i> spp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Chukrasia tabularis</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Cupressus arizonica</i>	Uruguay	Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Leucaena</i> spp.	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Shorea acuminata</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Shorea talura</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	-	Mathur 1974, Anderson 1986a
<i>Malassezia globosa</i> Midgley, E. Guého & J. Guillot	Malasseziaceae, Malasseziomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Malassezia</i> sp.	Malasseziaceae, Malasseziomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Marasmius cryptocystidiatus</i> Corner [#]	Marasmiaceae, Agaricomycetes, Basidiomycota	fruit husks	<i>Willughbeia</i> sp.	Singapore	Corner 1996
<i>Marasmius fagi</i> (Kalamees) Kalamees [#] [as <i>Collybia fagi</i> Kalamees]	Marasmiaceae, Agaricomycetes, Basidiomycota	fruit	<i>Fagus</i> sp.	Russia	Vaasma et al. 1986
<i>Marasmius micromerus</i> Corner [#]	Marasmiaceae, Agaricomycetes, Basidiomycota	fruits	<i>Polyalthia</i> sp.	Malaysia	Corner 1996
<i>Massarina</i> spp.	Massarinaceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
<i>Melampsora abietis-canadensis</i> (Farl.) C.A. Ludw.	Melampsoraceae, Pucciniomycetes, Basidiomycota	cone	<i>Tsuga canadensis</i>	Canada	Connors 1967
<i>Melanconium apiocarpum</i> Link	Melanconidaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Mittal et al. 1990, Urosevic 1961
<i>Melanconium apiocarpum</i> Link [as 'apiocarpon']		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Melanconium bicolor</i> Nees	Melanconidaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea excelsa, Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Melanospora papillata</i> Hotson	Ceratostomataceae, Sordariomycetes, Ascomycota	seed	<i>Linum usitatissimum, Lolium perenne</i>	Canada	Connors 1967
<i>Melanospora</i> spp.	Ceratostomataceae, Sordariomycetes,	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Melanospora</i> spp. [as <i>Gonatobotrys</i>]	Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Melanospora simplex</i> (Corda) D. Hawksw. [as <i>Gonatobotrys simplex</i> Corda]	Ceratostomataceae, Sordariomycetes, Ascomycota	seeds seed seed	<i>Pinus taeda</i> <i>Agropyron cristatum</i> <i>Linum usitatissimum</i>	USA Canada Canada	Anderson 1986a, b Connors 1967 Connors 1967
<i>Melanospora zamiae</i> Corda	Ceratostomataceae, Sordariomycetes, Ascomycota	seeds	<i>Abies</i> spp.	UK	Batko 1959, Anderson 1986a
		seed	<i>Gossypium</i> sp.	Pakistan	Lodhi & Naeem 1955
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Lolium perenne</i>	Canada	Connors 1967
<i>Memnoniella echinata</i> (Rivolta) Galloway	Stachybotryaceae, Sordariomycetes, Ascomycota	Pods seeds	<i>Delonix regia</i> <i>Cassia fistula</i>	Thailand India	Somrithipol et al. 2002b Mittal & Sharma 1981a, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cassia siamea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Memnoniella</i> spp.	Stachybotryaceae, Sordariomycetes, Ascomycota	seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Meniscoideisporites cretacea</i> K. Watan., H. Nishida & Tak. Kobay***	Fossil fungus	cone	<i>Cycadeoidella japonica</i>	Japan	Watanabe et al. 1999
<i>Menisporopsis</i> sp.	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a
<i>Metarhizium</i> sp.	Clavicipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Metschnikowia laotica</i> Sipiczki [#]	Metschnikowiaceae, Saccharomycetes, Ascomycota	fruit	undetermined plant	Laos	Sipiczki 2014
<i>Meyerozyma guilliermondii</i> (Wick.) Kurtzman & M. Suzuki [as <i>Candida guilliermondii</i> (Castell.) Langeron & Guerra]	Debaryomycetaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Micraspis strobilina</i> Dennis	Micraspidaceae, Leotiomycetes, Ascomycota	cones	<i>Pinus sylvestris</i>	UK	Dennis 1971

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Microascus longirostris</i> Zukal	Microascaceae, Sordariomycetes, Ascomycota	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
<i>Microbotryum perfoliatae</i> Vánky [#]	Microbotryaceae, Microbotryomycetes, Basidiomycota	seeds	<i>Claytonia perfoliata</i>	USA	Vánky 1998
<i>Microbotryum silybum</i> Vánky & Berner [#]	Microbotryaceae, Microbotryomycetes, Basidiomycota	seed	<i>Silybum marianum</i>	Greece	Vánky & Berner 2003
<i>Microdochium</i> sp. [as <i>Monographella</i>]	Microdochiaceae, Sordariomycetes, Ascomycota	seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
<i>Microsphaeropsis globulosa</i> (Sousa da Câmara) B. Sutton	Didymosphaeriaceae, Dothideomycetes, Ascomycota	fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
<i>Microthecium sepedonioides</i> (Preuss) Y. Marín, Stchigel, Guarro & Cano [as <i>Papulaspora sepedonioides</i> Preuss]	Ceratostomataceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Millerozyma acaciae</i> (Van der Walt) Kurtzman & M. Suzuki [as <i>Pichia acaciae</i> Van der Walt]	Debaryomycetaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Mollisia ligni</i> (Desm.) P. Karst.	Mollisiaceae, Leotiomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Mollisia</i> sp.	Mollisiaceae, Leotiomycetes, Ascomycota	cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
<i>Monacrosporium</i> sp.	Orbiliaceae, Orbiliomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Monilia sitophila</i> (Mont.) Sacc.	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Monilia sitophila</i> (Mont.) Sacc. [as <i>sitophyla</i>]		seeds	<i>Abies sibirica</i>	USSR	Mittal et al. 1990,
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Monilia</i> sp.	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Alnus sibirica</i>	South Korea	Mathur 1974, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Chamaecyparis obtusa</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Samanea saman</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Monilinia amelanchieris</i> (J.M. Reade) Honey	Sclerotiniaceae, Leotiomyces, Ascomycota	fruit	<i>Amelanchier</i> sp.	Canada	Connors 1967
<i>Monilinia azaleae</i> Honey [#] [as <i>Monilia azalea</i> L.R. Batra]	Sclerotiniaceae, Leotiomyces, Ascomycota	fruits	<i>Rhododendron roseum</i>	USA	Batra 1991
<i>Monilinia fructicola</i> (G. Winter) Honey	Sclerotiniaceae, Leotiomyces, Ascomycota	fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
<i>Monilinia gaylussaciae</i> L.R. Batra [#] [as <i>Monilia gaylussaciae</i> L.R. Batra]	Sclerotiniaceae, Leotiomyces, Ascomycota	fruits	<i>Gaylussacia baccata</i>	USA	Batra 1988
<i>Monilinia jezoensis</i> Yuk. Takah., T. Sano & Y. Harada [#] [as <i>Monilia jezoensis</i> Yuk. Takah., Ichihashi & Y. Harada]	Sclerotiniaceae, Leotiomyces, Ascomycota	fruits	<i>Rhododendron kaempferi</i>	Japan	Takahashi et al. 2005
<i>Monilinia ssiori</i> Y. Harada, Ma. Saaki & T. Sano [#]	Sclerotiniaceae, Leotiomyces, Ascomycota	fruits	<i>Prunus ssiori</i>	Japan	Harada et al. 2005
<i>Monochaetia ilicina</i> (Sacc.) Nag Raj	Sporocadaceae, Sordariomyces, Ascomycota	fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
<i>Monochaetia karstenii</i> (Sacc. & P. Syd.) B. Sutton	Sporocadaceae, Sordariomyces, Ascomycota	fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
<i>Monochaetia</i> sp.	Sporocadaceae, Sordariomyces, Ascomycota	cones	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
<i>Monocillium</i> spp.	Niessliaceae, Sordariomyces, Ascomycota	seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus tereticornis</i>	India	Anderson 1986a
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Monotospora</i> sp.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Monotosporella</i> sp.	Pleurotheciaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Mortierella candelabrum</i> Tiegh. & G. Le Monn.	Mortierellaceae, Mortierellomycetes, Mucoromycota	seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Mortierella hyalina</i> (Harz) W. Gams	Mortierellaceae, Mortierellomycetes, Mucoromycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Mucor adventitius</i> Oudem.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Mucor circinelloides</i> Tiegh.	Mucoraceae, Mucoromycetes, Mucoromycota	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Mucor erectus</i> Bainier	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sorbus torminalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Mucor globosus</i> Schreb.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Mucor globosus</i> Schreb. [as 'globosum']		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Mucor hiemalis</i> Wehmer	Mucoraceae, Mucoromycetes, Mucoromycota	cones	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967
		seed	<i>Abies alba</i>	Poland	Krol et al. 2015
		seed	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus patula</i>	Kenya	Gibson 1957, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Mucor microsporus</i> Bonord.	Mucoraceae, Mucoromycetes, Mucoromycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
<i>Mucor mucedo</i> L.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USSR	James & Genz 1982, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Prisyazhnyuk 1960, Mittal et al. 1990, Czeczuga et al. 2009
<i>Mucor piriformis</i> A. Fisch.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	
<i>Mucor piriformis</i> A. Fisch. [as <i>Mucor alboater</i> Naumov]		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Mucor plumbeus</i> Bonord.	Mucoraceae, Mucoromycetes, Mucoromycota	pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a
<i>Mucor racemosus</i> Bull.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	UK, USSR	Prisyazhnyuk 1960, Urosevic 1961, Whittle 1977, Anderson 1986a
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Sorbus torminalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Mucor silvaticus</i> Hagem	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Mucor</i> spp.	Mucoraceae, Mucoromycetes, Mucoromycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		cones	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Abies nordmanniana</i>	Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acer saccharum</i>	USA	Janerette 1979, Mittal et al. 1990
		seeds	<i>Albizia lebbek</i>	India	Natarajan et al. 2003
		seeds	<i>Abies nordmanniana</i>	Georgia, Russia	Talgø et al. 2010
		seeds	<i>Bombax anceps</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	India	Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	India	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983, Mittal et al. 1990
		seeds	<i>Dalbergia cochinchinensis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus tereticornis</i>	India	Anderson 1986a
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Macroptilium atropurpureum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Georgia, USA	Huang & Kuhlman 1990, Fraedrich & Miller 1995
		seeds	<i>Pinus lambertiana</i>	USA	Schubert 1961, Anderson 1986a
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus patula</i>	East Africa	Gibson 1957, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Hungary, Poland, UK	Hangyal 1973, Whittle 1977, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	Anderson 1986a, James 1984

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
		seeds	<i>Swietenia macrophylla</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a, Mohanan et al. 2005
<i>Mucor spinosus</i> Schrank	Mucoraceae, Mucoromycetes, Mucoromycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Mucor strictus</i> Hagem	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Sorbus torminalis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Mundkurella japonica</i> Denchev & Kakish.#	Urocystidaceae, Ustilaginomycetes, Basidiomycota	fruits	<i>Kalopanax pictus</i>	Japan	Denchev & Kakishima 2007
<i>Muyocopron dipterocarpi</i> Mapook, Boonmee & K.D. Hyde	Muyocopronaceae, Dothideomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Jayasiri et al. 2019
<i>Muyocopron lithocarpi</i> Mapook, Boonmee & K.D. Hyde	Muyocopronaceae, Dothideomycetes, Ascomycota	pod pod	<i>Cercis chinensis</i> <i>Peltophorum</i> sp.	China, Thailand China, Thailand	Jayasiri et al. 2019 Jayasiri et al. 2019
<i>Mycena albidrosea</i> Robiich.#	Mycenaceae, Agaricomycetes, Basidiomycota	cones	<i>Picea abies</i>	Italy	Robich 2003
<i>Mycena cupressincola</i> Robich#	Mycenaceae, Agaricomycetes, Basidiomycota	cones	<i>Cupressus</i> sp.	Italy	Robich 2016
<i>Mycena deeptha</i> Aravind. & Manim.#	Mycenaceae, Agaricomycetes, Basidiomycota	fruits	<i>Vateria indica</i>	India	Aravindakshan et al. 2012
<i>Mycena depilata</i> R. Singer#	Mycenaceae, Agaricomycetes, Basidiomycota	fruit	dicotyledonous plant	Brazil	Singer 1989
<i>Mycena detrusa</i> Mass Geest & E Horak#	Mycenaceae, Agaricomycetes, Basidiomycota	cupule	<i>Lithocarpus</i> sp.	Papua New Guinea	Geesteranus & Horak 1995
<i>Mycena extenuata</i> Mass Geest. & de Meijer#	Mycenaceae, Agaricomycetes, Basidiomycota	fruit	Bignoniaceae plant	Brazil	Geesteranus & de Meijer 1998
<i>Mycena mirata</i> (Peck) Sacc	Mycenaceae, Agaricomycetes, Basidiomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Mycena plumipes</i> (Kalchbr.) P.A. Moreau [#] [as <i>Agaricus plumipes</i> Kalchbr.]	Mycenaceae, Agaricomycetes, Basidiomycota	cones	<i>Pinus</i> sp.	Hungary	Moreau 2003
<i>Mycocalicium hyaloparvicellulum</i> Daranagama & K.D. Hyde [#]	Mycocaliciaceae, Eurotiomycetes, Ascomycota	cone	<i>Pinus halepensis</i>	Italy	Ariyawansa et al. 2015
<i>Mycocalicium llimonae</i> Hladun & D. Muñiz [#]	Mycocaliciaceae, Eurotiomycetes, Ascomycota	cones	<i>Pinus halepensis</i>	Spain	Muñiz & Hladun 2007
<i>Mycogone</i> sp.	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Nothofagus</i> sp.	UK	Anderson 1986a
<i>Mycosphaerella</i> sp.	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
Mycosphaerellaceae sp.	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Mycovellosiella fulva</i> (Cooke) Arx	Mycosphaerellaceae, Dothideomycetes, Ascomycota	fruit	<i>Artocarpus communis</i>	Nigeria	Amusa et al. 2002
<i>Myrothecium mucunae</i> R.F. Castaneda & W.B. Kendr [#]	Stachybotriaceae, Sordariomycetes, Ascomycota	seed	<i>Mucuna urens</i>	Cuba	Castañeda-Ruíz & Kendrick 1991
<i>Myrothecium</i> spp.	Stachybotriaceae, Sordariomycetes, Ascomycota	Pods pod seeds	<i>Delonix regia</i> <i>Sesbania bispinosa</i> <i>Tectona grandis</i>	Thailand India -	Somrithipol et al. 2002b Anita et al. 2009 Mathur 1974, Anderson 1986a
		seeds	<i>Tilia americana</i>	USA	Mathur 1974, Anderson 1986a
<i>Mytilinidion didymospora</i> Jayasiri, Camporesi & K.D. Hyde [#]	Mytiliniaceae, Dothideomycetes, Ascomycota	cones	<i>Cupressus glabra</i>	Italy	Jayasiri et al. 2018a
<i>Mytilinidion scolecosporum</i> M.L. Lohman	Mytiliniaceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
<i>Naemacyclus fimbriatus</i> (Schwein.) DiCosmo, Peredo & Minter	Marthamycetaceae, Leotiomycetes, Ascomycota	cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
<i>Naemacyclus minor</i> Butin	Marthamycetaceae, Leotiomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Nakazawaea ernobii</i> (Lodder & Kreger-van Rij) Kurtzman & Robnett [as <i>Candida karawaiewii</i> Yarrow & S.A. Mey.]	<i>Incertae sedis</i> , Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Naranus cryptomeriae</i> Ts. Watan.***	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Cryptomeria japonica</i>	Japan	Watanabe 1995
<i>Nawawia filiformis</i> (Nawawi) Marvanová	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Nectria gigantospora</i> Zimm.	Nectriaceae, Sordariomycetes, Ascomycota	fruits	<i>Didymopanax morototoni</i>	Panama	Samuels & Dumon 1982, Piepenbring 2006
<i>Nectria haematococca</i> Berk. & Broome	Nectriaceae, Sordariomycetes, Ascomycota	fruit	palm tree	Panama	Samuels & Dumon 1982
<i>Nectria radiculicola</i> Gerlach & L. Nilsson	Nectriaceae, Sordariomycetes, Ascomycota	fruit	Balanophoraceae plant	Peru	Samuels & Dumon 1982
<i>Nectria</i> spp.	Nectriaceae, Sordariomycetes, Ascomycota	fruit	undetermined plant	Panama	Samuels & Dumon 1982
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
Nectriaceae sp.	Nectriaceae, Sordariomycetes, Ascomycota	fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Quercus robur</i>	Turkey	Oskay et al. 2018
		seeds	<i>Acacia auriculiformis</i>	Philippines	Quiniones 1987
<i>Neocosmospora solani</i> (Mart.) L. Lombard & Crous [as <i>Fusarium solani</i> (Mart.) Sacc.]	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Agathis dammara</i>	Philippines	Quiniones 1985, Mittal et al. 1990
		seeds	<i>Albizia lebbbeck</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Albizia procera</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Albizia stipulata</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Alstonia macrophylla</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria bidwillii</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	El-Kady et al. 1986, Mittal et al. 1990
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	India	Mathur 1974, Mittal et al. 1990
		seed	<i>Bromus inermis</i>	Canada	Connors 1967
		seeds	<i>Calamus ornatus</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Quiniones 1987
		seeds	<i>Cedrela odorata</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Chamaecyparis obtusa</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Dalbergia sissoo</i>	India, Madagascar	Mathur 1974, Anderson 1986a, Kumar 2014
		seeds	<i>Endospermum peltatum</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Gmelina arborea</i>	India, Philippines	Mathur 1974, Anderson 1986a, Quiniones 1987
		seeds	<i>Grevillea robusta</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Larix decidua</i>	Poland	Krol et al. 2015
		seeds	<i>Leucaena leucocephala</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Leucaena</i> spp.	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Picea glauca</i>	USA	James 1985b
		seeds	<i>Picea pungens</i>	USA	James 1985b
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Cuba, UK	Rees 1982, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i> var. <i>caribae</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus elliottii</i>	Argentina, USA	Rowan & Debarr 1974, Anderson 1986a, Lori & Salerno 2003
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus merkusii</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	Central America	Rees 1982, Anderson 1986a
		seeds	<i>Pinus palustris</i>	USA	Pawuk 1978, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a
		seeds	<i>Pinus taeda</i>	Argentina, USA	Mathur 1974, Anderson 1986a, Lori & Salerno 2003
		seeds	<i>Pittosporum resiniferum</i>	Philippines	Quiniones 1985, Anderson 1986a, 1987
		seeds	<i>Prosopis juliflora</i>	Chile	Mathur 1974, Mittal et al. 1990
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Pseudotsuga menziesii</i>	USA	James 1983b, 1984
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a, Quiniones 1987
		seeds	<i>Pterospermum acerifolium</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Quercus alba</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Quercus falcata</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Quercus nigra</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Quercus phellos</i>	USA	Vozzo 1984, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Taxodium mucronatum</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Tectona grandis</i>	Philippines	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Toona calantas</i>	Philippines	Quiniones 1987
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a, 1987
		seeds	<i>Ulmus davidiana</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Wallaceodendron celibcum</i>	Philippines	Quiniones 1985, 1987, Anderson 1986a
<i>Neodeightonia planchoniae</i> Jayasiri & K.D. Hyde [#]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruit	Planchonia sp.	Thailand	Jayasiri et al. 2019
<i>Neofusicoccum eucalyptorum</i> (Crous, H. Sm. ter & M.J. Wingf.) Crous, Slippers & A.J.L. Phillips	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds, seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Neofusicoccum mangiferae</i> (Syd. & P. Syd.) Crous, Slippers & A.J.L. Phillips [as <i>Fusicoccum eucalypti</i> Sousa da Câmara]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Neofusicoccum parvum</i> (Pennycook & Samuels) Crous, Slippers & A.J.L. Phillips [as <i>Botryosphaeria parva</i> Pennycook & Samuels]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruit	<i>Magnolia grandiflora</i>	China	Jayasiri et al. 2019
		pod	<i>Cercis chinensis</i>	China	Jayasiri et al. 2019
		seeds	<i>Podocarpus falcatus</i>	Ethiopia	Gure et al. 2005a
<i>Neofusicoccum ribis</i> (Slippers, Crous & M.J. Wingf.) Crous, Slippers & A.J.L. Phillips [as <i>Botryosphaeria ribis</i> Grossenb. & Duggar]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus caribaea</i>	UK	Mittal et al. 1990
<i>Neohelicosporium fusisporum</i> Jayasiri & K.D. Hyde [#]	Tubeufiaceae, Dothideomycetes, Ascomycota	fruit	Malvaceae plant	Thailand	Jayasiri et al. 2017b

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Neohelicosporium hyalosporum</i> Y.Z. Lu, J.C. Kang & K.D. Hyde	Tubeufiaceae, Dothideomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Jayasiri et al. 2019
<i>Neolindgomyces pandani</i> Jayasiri, E.B.G. Jones & K.D. Hyde ^{***} [as <i>Neolindgomyces pandanae</i> Jayasiri, E.B.G. Jones & K.D. Hyde]	Lindgomycetaceae, Dothideomycetes, Ascomycota	fruit	<i>Pandanus</i> sp.	Thailand	Jayasiri et al. 2019
<i>Neonectria didymum</i> [as <i>Cylindrocarpon didymum</i> (Harting) Wollenw.]	Nectriaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus ponderosa</i>	USA	James 1995
		cones	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	USA	James 1995
		seeds	<i>Pinus elliottii</i>	South Africa	Cilliers et al. 1995
		seeds	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	USA	James 1995
<i>Neonectria ramulariae</i> Wollenw.	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Abies koreana</i>	Korea	Cho et al. 2007
<i>Neonectria</i> spp. [as <i>Cylindrocarpon</i>]	Nectriaceae, Sordariomycetes, Ascomycota	seeds	<i>Abies nordmanniana</i>	Georgia	Talgø et al. 2010
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
<i>Neopestalotiopsis clavispora</i> (G.F. Atk.) Maharachch., K.D. Hyde & Crous [as <i>Pestalotia clavispora</i> G.F. Atk.]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
		acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Neopestalotiopsis foedans</i> (Sacc. & Ellis) Maharachch., K.D. Hyde & Crous [as <i>Pestalotiopsis foedans</i> (Sacc. & Ellis) Steyaert]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus oocarpa</i>	Central America	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Neopyrenochaeta cercidis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Neopyrenochaetaceae, Dothideomycetes, Ascomycota	pod	<i>Cercis chinensis</i>	China	Jayasiri et al. 2019
<i>Neorousoella entadae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Rousoellaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Neorousoella leucaenae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Rousoellaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Neosartorya delicata</i> H.Z. Kong [#]	Aspergillaceae, Eurotiomycetes, Ascomycota	fruit	undetermined plant	China	Kong 1997
<i>Neoscytalidium dimidiatum</i> (Penz.) Crous & Slippers [as <i>Hendersonula toruloidea</i> Natrass]	Botryosphaeriaceae, Dothideomycetes, Ascomycota	fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
<i>Neosetophoma lunariae</i> Crous & R.K. Schumach. [#]	Phaeosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Lunaria annua</i>	Germany	Hernandez-Restrepo et al. 2016
<i>Neotyphodium huerfanum</i> (J.F. White, G.T. Cole & Morgan-Jones) Glenn, C.W. Bacon & Hanlin [#] [as <i>Acremonium huerfanum</i> J.F. White, G.T. Cole & Morgan-Jones]	Clavicipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Festuca arizonica</i>	USA	White et al. 1987
<i>Neurospora cerealis</i> (Dowding) Dania García, Stchigel & Guarro [as <i>Gelasinospora cerealis</i> Dowding]	Sordariaceae, Sordariomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
<i>Neurospora</i> sp.	Sordariaceae, Sordariomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Neurospora tetraspora</i> Dania García, Stchigel & Guarro [as <i>Gelasinospora</i> <i>tetrasperma</i> Dowding]	Sordariaceae, Sordariomycetes, Ascomycota	seed	<i>Festuca rubra</i>	Canada	Connors 1967
<i>Niesslia pusilla</i> (Speg. & Roum.) G. Winter	Niessliaceae, Sordariomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Nigrospora gossypii</i> Jacz.	Apiosporaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> <i>castaneifolia</i>	Iran	Kavosi et al. 2013
<i>Nigrospora oryzae</i> (Berk. & Broome) Petch	Apiosporaceae, Sordariomycetes, Ascomycota	seed	<i>Bromus inermis</i>	Canada	Connors 1967
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seeds	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
		seeds	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Nigrospora sacchari</i> (Speg.) E.W. Mason	Apiosporaceae, Sordariomycetes, Ascomycota	pod	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
<i>Nigrospora sphaerica</i> (Sacc.) E.W. Mason	Apiosporaceae, Sordariomycetes, Ascomycota	pod	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seed	<i>Elymus virginicus</i>	Canada	Connors 1967
		seeds	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Helichrysum</i> sp.	Pakistan	Lodhi & Naeem 1955
		seed	<i>Poa compressa</i>	Canada	Connors 1967
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
		fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012
<i>Nigrospora</i> spp.	Apiosporaceae, Sordariomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds, seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Cupressus</i> spp.	Syria	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	Georgia, USA	Huang & Kuhlman 1990, Fraedrich & Miller 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a
<i>Nothophoma quercina</i> (Syd. & P. Syd.) Qian Chen & L. Cai	Didymellaceae, Dothideomycetes, Ascomycota	cone	<i>Keteleeria fortune</i>	China	Jayasiri et al. 2019
<i>Nowakowskiella elegans</i> (Nowak.) J. Schröt.	Nowakowskiellaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Armeria maritima</i> ssp. <i>maritima</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Armeria transmontana</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cicuta virosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cornus capitata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cuscuta europaea</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Ficus pumila</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lotus uliginosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Prunella grandiflora</i> ssp. <i>pyrenaia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sambucus ebulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Ulex europaeus</i>	Poland or/ imported to Poland	Czczuga et al. 2009
<i>Nowakowskiella</i>	Nowakowskiellaceae, Chytridiomycetes,	seeds	<i>Vicia sativa</i>	Poland	Kiziewicz 2005
<i>hemisphaerospora</i> Shanor	Chytridiomycota	seeds	<i>Armeria maritima</i>	Poland or/ imported to Poland	Czczuga et al. 2009
<i>Nowakowskiella macrospora</i>	Nowakowskiellaceae, Chytridiomycetes,	seeds	<i>Ficus pumila</i>	Poland or/ imported to Poland	Czczuga et al. 2009
Karling	Chytridiomycota				
<i>Nowakowskiella profusa</i>	Nowakowskiellaceae, Chytridiomycetes,	seeds	<i>Ficus pumila</i>	Poland or/ imported to Poland	Czczuga et al. 2009
Karling	Chytridiomycota				
<i>Nowakowskiella ramosa</i> E.J.	Nowakowskiellaceae, Chytridiomycetes,	seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czczuga et al. 2009
Butler	Chytridiomycota				
		seeds	<i>Ulex europaeus</i>	Poland or/ imported to Poland	Czczuga et al. 2009
<i>Ochroconis ailanthi</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Sympoventuriaceae, Dothideomycetes, Ascomycota	pod	<i>Ailanthus</i> sp.	Thailand	Jayasiri et al. 2019
<i>Oedocephalum</i>	<i>Incertae sedis</i> , Pezizomycetes,	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>glomerulosum</i> (Bull.) Sacc.	Ascomycota	seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland	Garbowski 1936, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Oedocephalum lineatum</i>	<i>Incertae sedis</i> , Pezizomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975
B.K. Bakshi		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
<i>Oedocephalum</i> spp.	<i>Incertae sedis</i> , Pezizomycetes, Ascomycota	seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Oidiodendron</i> spp.	Myxotrichaceae, Leotiomycetes, Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Oidiodendron cereale</i> (Thüm.) G.L. Barron	Myxotrichaceae, Leotiomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Oidiodendron flavum</i> Svilv.	Myxotrichaceae, Leotiomyces, Ascomycota	seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Oidiodendron griseum</i> Robak	Myxotrichaceae, Leotiomyces, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Oidium</i> sp.	Erysiphaceae, Leotiomyces, Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Olpidium gregarium</i> (Nowak.) J. Schröt.	Olpidiaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Calla palustris</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Olpitrichum</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Ombrophila strobilina</i> (Fr.) P. Karst.	Gelatinodiscaceae, Leotiomyces, Ascomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Oospora glauca</i> (Preuss) Sacc.	Erysiphaceae, Leotiomyces, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Oospora lactis</i> (Fresen.) Sacc.	Erysiphaceae, Leotiomyces, Ascomycota	seed	<i>Apium graveolens</i> var. <i>dulce</i>	USA	Connors 1967
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Phleum pratense</i>	Canada	Connors 1967
<i>Oospora verticillioides</i> Sacc.	Erysiphaceae, Leotiomyces, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		cones	<i>Pinus cembroides</i>	Mexico	Marmolejo & Butin 1990
<i>Ophiostoma conicola</i> Marm. & Butin [#]	Ophiostomataceae, Sordariomyces, Ascomycota	cones	<i>Pinus cembroides</i>	Mexico	Marmolejo & Butin 1990
<i>Ophiostoma</i> spp.	Ophiostomataceae, Sordariomyces, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, 1983, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Ophiostoma valachicum</i> Georgescu, Teodoru & Badea	Ophiostomataceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1964, Mittal et al. 1990
<i>Ovatospora brasiliensis</i> (Bat. & Pontual) X.Wei Wang & Samson [as <i>Chaetomium brasiliense</i> Bat. & Pontual]	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Desmodium intortum</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
<i>Paecilomyces divaricatus</i> (Thom) Samson, Houbraken & Frisvad [as <i>Spicaria divaricata</i> (Thom) J.C. Gilman & E.V. Abbott]	Thermoascaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Paecilomyces puntonii</i> (Vuill.) Nann.	Thermoascaceae, Eurotiomycetes, Ascomycota	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
<i>Paecilomyces roseolus</i> G. Sm.	Thermoascaceae, Eurotiomycetes, Ascomycota	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
<i>Paecilomyces</i> spp.	Thermoascaceae, Eurotiomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Albizia lebbek</i>	India	Mohanan et al. 2005
		seeds	<i>Dalbergia sissoides</i>	India	Mohanan et al. 2005
		seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
		seeds	<i>Eucalyptus alba</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus deglupta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
<i>Paecilomyces variotii</i> Bainier	Thermoascaceae, Eurotiomycetes, Ascomycota	seed	<i>Pinus merkusii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mohanan et al. 2005
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Palaeodiplodites yezoensis</i> K. Watan., H. Nishida & Tak. Kobay ^{***}	Fossil fungus	cone	<i>Cycadeoidella japonica</i>	Japan	Watanabe et al. 1999
<i>Palaeopericonia fritzschei</i> C.G. Ibáñez & Zamuner ^{***}	Fossil fungus	fossilised cones	<i>Araucaria mirabilis</i>	USA	Ibáñez & Zamuner 1996
<i>Papiliotrema laurentii</i> (Kuff.) Xin Zhan Liu, F.Y. Bai, M. Groenew. & Boekhout [as <i>Cryptococcus laurentii</i> (Kuff.) C.E. Skinner]	Rhynchogastremaceae, Tremellomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Papularia arundinis</i> (Corda) Fr.	Apiosporaceae, Sordariomycetes, Ascomycota	seed	<i>Acer</i> sp.	China	Connors 1967
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seed	<i>Elymus virginicus</i>	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Phleum pratense</i>	Canada	Connors 1967
		seed	<i>Poa compressa</i>	Canada	Connors 1967
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
<i>Papularia sphaerosperma</i> (Pers.) Höhn.	Apiosporaceae, Sordariomycetes, Ascomycota	seed	<i>Lolium perenne</i>	Canada	Connors 1967
<i>Papulaspora</i> spp.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Araucaria bidwillii</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Manilkara bidentata</i>	USA	Bayman et al. 1998
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Paraconiothyrium archidendri</i> Verkley, Göker & Stielow [as <i>Austropleospora archidendri</i> (Verkley, Göker & Stielow) Ariyaw. & K.D. Hyde]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Paraconiothyrium fuckelii</i> (Sacc.) Verkley & Gruyter [as <i>Coniothyrium fuckelii</i> Sacc.]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
		seeds	<i>Picea abies</i>	Poland	Krol et al. 2015
		seed	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
<i>Parascedosporium putredinis</i> (Corda) Lackner & de Hoog	Microascaceae, Sordariomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Perera et al. 2018b
<i>Paramyrothecium roridum</i> (Tode) L. Lombard & Crous [as <i>Myrothecium roridum</i> Tode]	Stachybotryaceae, Sordariomycetes, Ascomycota	seeds	<i>Acrocarpus fraxinifolius</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Eucalyptus grandis</i>	Uruguay	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Mathur 1974, Anderson 1986a
<i>Passalora</i> sp.	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Penicillium africanum</i> Samson & Seifert [#]	Aspergillaceae, Eurotiomycetes, Ascomycota	seed	undetermined plant	Africa	Samson & Seifert 1986
<i>Penicillium indicum</i> K. Swapna & Nagaveni [#]	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Dysoxylum malabaricum</i>	India	Priya & Nagveni 2012
<i>Penicillium albicans</i> Bainier	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Penicillium arenarium</i> Shaposhn. & Manteifel	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Penicillium aurantiogriseum</i> Dierckx	Aspergillaceae, Eurotiomycetes, Ascomycota	cones, seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012
		seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
<i>Penicillium brefeldianum</i> B.O. Dodge	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
<i>Penicillium brevicompactum</i> Dierckx	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Penicillium arenicola</i> Chalab. [as <i>Penicillium canadense</i> G. Sm.]	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Cassia fistula</i>	India	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India, Pakistan	Mittal & Sharma 1982b, Mittal et al. 1990, Ashaeer 2000
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Penicillium arenicola</i> Chalab. = <i>Penicillium canadense</i> G. Sm. [as ' <i>canadicum</i> ']		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Penicillium candidum</i> Link	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Penicillium capsulatum</i> Raper & Fennell	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012
<i>Penicillium cataractarum</i> Visagie, Malloch & Seifert [#]	Aspergillaceae, Eurotiomycetes, Ascomycota	nuts	<i>Carya cordiformis</i>	Canada	Visagie et al. 2016
<i>Penicillium citrinum</i> Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Dalbergia sissoo</i>	India	Naz et al. 2015
<i>Penicillium chrysogenum</i> Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		pod, seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Penicillium chrysogenum</i> Thom [as <i>P. notatum</i> Westling]		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Anderson 1986a, Urosevic 1961
		seeds	<i>Pseudotsuga menziesii</i>	USA	James 1984, Anderson 1986a
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras], Thailand	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Penicillium chrysogenum</i> var. chrysogenum Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Delonix regia</i>	India	Sahu et al. 2003
<i>Penicillium citrinum</i> Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	pod, seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Canavalia maritima</i>	India	Seena & Sridhar 2004
		seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Penicillium coccotrypicola</i> Holdom, Y.P. Tan & R.G. Shivas [#]	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Archontophoenix cunninghamiana</i>	Australia	Crous et al. 2014
<i>Penicillium crustaceum</i> (L.) Fr.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Garbowski 1936, Anderson 1986a
<i>Penicillium cyclopium</i> Westling	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seed	<i>Desmodium uncinatum</i>	Australia	Nik & Parbery 1977
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Lotononis angolensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Macroptilium atropurpureum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seed	<i>Stylosanthes gracilis</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium burchellianum</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium repens</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium semipilosum</i>	Australia	Nik & Parbery 1977
<i>Penicillium decumbens</i> Thom	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Macroptilium lathyroides</i>	Australia	Nik & Parbery 1977
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seed	<i>Stylosanthes gracilis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
<i>Penicillium digitatum</i> (Pers.) Sacc.	Aspergillaceae, Eurotiomycetes, Ascomycota	fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a
<i>Penicillium divergens</i> Bainier & Sartory	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR, Poland	Urosevic 1961, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Penicillium ellipsoideosporum</i> L. Wang & H.Z. Kong [#]	Aspergillaceae, Eurotiales, Eurotiomycetes	seeds	<i>Ficus microcarpa</i>	China	Wang & Kong 2000
<i>Penicillium expansum</i> Link	Aspergillaceae, Eurotiales, Eurotiomycetes	seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	Poland, USSR	Prisyazhnyuk 1960, Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Penicillium frequentans</i> Westling	Aspergillaceae, Eurotiales, Eurotiomycetes	seed	<i>Casuarina</i> spp.	UK	Whittle 1977
		seed	<i>Cupressus</i> spp	UK	Whittle 1977
		seed	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Lotononis angolensis</i>	Australia	Nik & Parbery 1977
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		seeds	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
		seeds	<i>Teramnus uncinatus</i>	Australia	Nik & Parbery 1977
<i>Penicillium fuscum</i> (Sopp) Raper & Thom	Aspergillaceae, Eurotiales, Eurotiomycetes	seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
<i>Penicillium glabrum</i> (Wehmer) Westling	Aspergillaceae, Eurotiales, Eurotiomycetes	pod, seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Pinus elliotii</i>	South Africa	Cilliers et al. 1995
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
<i>Penicillium glabrum</i> (Wehmer) Westling [as 'glabra']		fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
<i>Penicillium glaucoalbidum</i> (Desm.) Houbraken & Samson [as <i>Thysanophora</i> <i>penicillioides</i> (Roum.) W.B. Kendr.]	Aspergillaceae, Eurotiomycetes, Ascomycota	cones, seed	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995, Watanabe 2010
		seeds	<i>Picea abies</i>	Finland	Tillman-Sutela et al. 2004
<i>Penicillium glaucum</i> Link	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Penicillium granulatum</i> Bainier	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Cupressus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Larix decidua</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
<i>Penicillium implicatum</i> Biourge	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> <i>castaneifolia</i>	Iran	Kavosi et al. 2013
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
<i>Penicillium italicum</i> Wehmer	Aspergillaceae, Eurotiomycetes, Ascomycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	USA	James 1984, Anderson 1986a
<i>Penicillium janthinellum</i> Biourge	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
<i>Penicillium lanosum</i> Westling	Aspergillaceae, Eurotiomycetes, Ascomycota	seed	<i>Lotononis angolensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Macroptilium atropurpureum</i>	Australia	Nik & Parbery 1977
		seed	<i>Medicago sativa</i>	Australia	Nik & Parbery 1977
		seed	<i>Medicago tribuloides</i>	Australia	Nik & Parbery 1977
		seed	<i>Medicago truncatula</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
		seed	<i>Teramnus uncinatus</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium burchellianum</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium repens</i>	Australia	Nik & Parbery 1977
		seed	<i>Trifolium semipilosum</i>	Australia	Nik & Parbery 1977
<i>Penicillium lapidosum</i> Raper & Fennell	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
<i>Penicillium luteoviride</i> Biourge	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Penicillium martensii</i> Biourge	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Cupressus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Penicillium multicolor</i> Grig.-Man. & Porad.	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Penicillium nigricans</i> K.W. Zaleski	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Pinus taeda</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Pyrus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Sapium</i> spp	India	Sahai & Otra 1982
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Penicillium nucicola</i> Visagie, Malloch & Seifert [#]	Aspergillaceae, Eurotiales, Eurotiomycetes	nuts	<i>Carya ovata</i>	Canada	Visagie et al. 2016
<i>Penicillium oxalicum</i> Currie & Thom	Aspergillaceae, Eurotiales, Eurotiomycetes	seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
<i>Penicillium patulum</i> Bainier	Aspergillaceae, Eurotiales, Eurotiomycetes	seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
<i>Penicillium restrictum</i> J.C. Gilman & E.V. Abbott	Aspergillaceae, Eurotiales, Eurotiomycetes	seeds	<i>Cedrus deodara</i>	India	Mittal 1983
<i>Penicillium roqueforti</i> Thom	Aspergillaceae, Eurotiales, Eurotiomycetes	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Penicillium</i> spp.	Aspergillaceae, Eurotiomycetes, Ascomycota	acorns, seeds	<i>Quercus robur</i>	Poland	Jankowiak 2008, Krol et al. 2015
		cones, seed	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995, Watanabe 2010
		cones, seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, James 1995, Mittal et al. 1990
		cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
		cones, seeds	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	USA	James 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012
		fruit	<i>Artocarpus communis</i>	Nigeria	Amusa et al. 2002
		fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
		fruits	<i>Bridelia tomentosa</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Sarcandra glabra</i>	Hong Kong	Tang et al. 2003a
		pod, seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		Pods	<i>Delonix regia</i>	Thailand, Philippines	Dayan 1986, Mittal et al. 1990, Somrithipol et al. 2002b
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acacia auriculiformis</i>	Philippines, Thailand	Chalermpongse et al. 1984, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Acacia confusa</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Albizia falcataria</i>	Philippines	Dayan 1986, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Albizia julibrissin</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Albizia lebbeck</i>	India, Philippines	Agmata 1979, Anderson 1986a, Quiniones 1987, Natarajan et al. 2003,

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Albizia procera</i>	Philippines	Mohanani et al. 2005
		seeds	<i>Alnus glutinosa</i>	Poland	Agmata 1979, Anderson 1986a, Quiniones 1987
		seeds	<i>Alstonia macrophylla</i>	Philippines	Krol et al. 2015
		seeds	<i>Anthocephalus chinensis</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Antidesma ghaesembilla</i>	Philippines	Agmata 1979, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Araucaria angustifolia</i>	Australia	Dayan 1986, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Bauhinia acuminata</i>	Philippines	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Smoot & Segall 1963, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Finland, Poland	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Bombax anceps</i>	Thailand	Lilja 1979, Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Bombax ceiba</i>	Bangladesh, India	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia bakeriana</i>	Thailand	Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	India, Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
					Mittal & Sharma 1981a, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cassia siamea</i>	Philippines, Thailand	Quiniones 1985, 1987, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines, USA	Quiniones 1985, 1987, Anderson 1986a , Bayman et al. 1998
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seeds	<i>Dalbergia sissooides</i>	India	Mohanani et al. 2005
		seed	<i>Desmodium uncinatum</i>	Australia	Nik & Parbery 1977
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seeds	<i>Eucalyptus citriodora</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus deglupta</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	India, South Africa	Anderson 1986a, Jimu et al. 2016
		seeds	<i>Eucalyptus maidenii</i>	Uruguay	Anderson 1986a
		seeds	<i>Eucalyptus tereticornis</i>	India	Anderson 1986a
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
		seeds	<i>Gliricidia sepium</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Philippines, Thailand	Quiniones 1985, Anderson 1986a, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Lagerstroemia calyculata</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Lagerstroemia speciosa</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Leucaena leucocephala</i>	Bangladesh, Philippines, Thailand	Chalermpongse et al. 1984, Anderson 1986a, Quiniones 1987, Mittal et al. 1990, Islam et al. 2008
		seeds	<i>Manilkara bidentata</i>	USA	Bayman et al. 1998
		seed	<i>Medicago truncatula</i>	Australia	Nik & Parbery 1977
		seeds	<i>Melia azedarach</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Musanga cecropioides</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Parkia roxburghii</i>	Philippines	Dayan 1986, Anderson 1986a, Quiniones 1987
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Picea abies</i>	Poland	Krol et al. 2015
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Piliostigma malabaricum</i>	Philippines	Quiniones 1985, Anderson 1986a, 1987
		seeds	<i>Pinus caribaea</i>	Belize [or as British Honduras]	Hocking 1968, Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	Taiwan, USA	Rowan & Debarr 1974, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay, USA	Anderson 1986a, Fraedrich & Miller 1995
		seeds	<i>Pinus kesiya</i>	Philippines, Thailand	Quiniones 1985, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus lambertiana</i>	USA	Anderson 1986a, Schubert 1961
		seeds	<i>Pinus merkusii</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Hungary, Poland	Hangyal 1973, Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdel 1978, Anderson 1986a
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pittosporum resiniferum</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	Salisbury 1955, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
		seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
		seeds	<i>Samanea saman</i>	Philippines, Thailand	Quiniones 1985, 1987, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Sequoia sempervirens</i>	USA	Davidson 1970, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Serialbizzia acle</i>	Philippines	Quiniones 1985, Anderson 1986a, 1987
		seeds	<i>Shorea assamica</i>	Malaysia	Hong 1981, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
		seeds	<i>Swietenia macrophylla</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a, Mohanan et al. 2005
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Vitex parviflora</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Wallaceodendron celibcum</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Xylia xylocarpa</i> var. <i>kerrii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Penicillium steckii</i> K.W. Zaleski	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
<i>Penicillium thomii</i> Maire	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds cones	<i>Sapium</i> spp. <i>Picea glauca</i>	India Canada	Sahai & Otra 1982 Mittal & Wang 1987
<i>Penicillium urticae</i> Bainier	Aspergillaceae, Eurotiomycetes, Ascomycota	cones, seeds seeds	<i>Pinus strobus</i> <i>Cupressus</i> spp.	Canada India	Mittal & Wang 1987 Sahai & Otra 1982
<i>Penicillium viridicatum</i> Westling	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds seeds	<i>Pyrus</i> spp. <i>Larix occidentalis</i>	India USA	Sahai & Otra 1982 James et al. 1996
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Penicillium vulpinum</i> (Cooke & Masee) Seifert & Samson [as <i>Penicillium</i> <i>claviforme</i> Bainier]	Aspergillaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
<i>Peniophora</i> sp.	Peniophoraceae, Agaricomycetes, Basidiomycota	seeds	<i>Quercus robur</i>	Turkey	Oskay et al. 2018
<i>Periconia byssoides</i> Pers.	Periconiaceae, Dothideomycetes, Ascomycota	fruits	<i>Magnolia</i> <i>grandiflora</i>	Thailand	Jayasiri et al. 2019
		pod	<i>Peltophorum</i> sp.	Thailand	Jayasiri et al. 2019
		seed	<i>Acer</i> sp.	Canada	Connors 1967
<i>Periconia byssoides</i> Pers. [as <i>Periconia pycnospora</i> Fresen.]		seed	<i>Agropyron cristatum</i>	China	Connors 1967
		seed	<i>Cryptomeria</i> <i>japonica</i>	Japan	Watanabe 2010
<i>Periconia circinata</i> (L. Mangin) Sacc. & D. Sacc.	Periconiaceae, Dothideomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Periconia delonicis</i> Jayasiri, E.B.G. Jones & K.D. Hyd [#]	Periconiaceae, Dothideomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Jayasiri et al. 2019
<i>Periconia</i> spp.	Periconiaceae, Dothideomycetes, Ascomycota	pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Peridermium conorum-</i> <i>piceae</i> (Reess) Arthur & F. Kern	Cronartiaceae, Pucciniomycetes, Basidiomycota	cones	<i>Picea canadensis</i>	USA	Arthur & Kern 1906
		cones	<i>Picea engelmannii</i>	USA	Arthur & Kern 1906

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		cones	<i>Picea excelsa</i>	USA	Arthur & Kern 1906
		cones	<i>Picea Mariana</i>	USA	Arthur & Kern 1906
		cones	<i>Picea rubra</i>	USA	Arthur & Kern 1906
<i>Perisporium vulgare</i> Corda	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Pestalotiopsis adusta</i> (Ellis & Everh.) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Diploclisia</i> <i>glaucescens</i>	Hong Kong	Maharachchikumbura et al. 2014
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
<i>Pestalotiopsis diploclisiae</i> Maharachch., K.D. Hyde & Crous [#]	Sporocadaceae, Sordariomycetes, Ascomycota	fruit	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
<i>Pestalotiopsis espaillatii</i> (Cif. & Gonz. Frag.) Satya	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
<i>Pestalotiopsis flavidula</i> (Tassi) Y.X. Chen [as <i>Pestalotia flavidula</i> Tassi]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Georgia	Huang & Kuhlman 1990
<i>Pestalotiopsis funerea</i> (Desm.) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	cones, seeds	<i>Pinus koraiensis</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus mugo</i> ‘Hesse’	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus mugo</i> var. <i>pumilio</i>	Canada	Vujanovic et al. 2000
		seeds	<i>Chamaecyparis</i> <i>lawsoniana</i>	France, Italy	Motta & Saponaro 1983, Mittal et al. 1990
		seeds	<i>Cupressus</i> <i>abramsiana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus arizonica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus funebris</i>	Uruguay	Anderson 1986a
		seeds	<i>Cupressus glabra</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Cupressus goveniana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica</i> var. <i>benthamii</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus sempervirens</i>	France, Italy	Motta & Saponaro 1983, Mittal et al. 1990
		seeds	<i>Cupressus torulosa</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus alba</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	Uruguay	Anderson 1986a
		seeds	<i>Libocedrus decurrens</i>	UK	Anderson 1986a
		seeds	<i>Pinus</i> spp.	UK	Anderson 1986a
		seeds	<i>Pseudotsuga menziesii</i>	UK	Anderson 1986a
		seeds	<i>Thuja orientalis</i>	Italy, France	Motta & Saponaro 1983, Mittal et al. 1990
<i>Pestalotiopsis glandicola</i> (Castagne) Steyaert [as <i>Pestalotia castagnei</i> Desm.]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Pestalotiopsis glandicola</i> (Castagne) Steyaert [as <i>Pestalotia glandicola</i> (Castagne) Guba]		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Pestalotiopsis gracilis</i> (Kleb.) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
<i>Pestalotiopsis guepinii</i> (Desm.) Steyaert [as 'guepini']	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Cupressus macrocarpa</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus elliottii</i>	South Africa	Cilliers et al. 1995
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a
<i>Pestalotiopsis mangiferae</i> (Henn.) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
<i>Pestalotiopsis neglecta</i> (Thüm.) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
<i>Pestalotiopsis phoenicis</i> (Vize) Y.X. Chen	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits seeds	<i>Psychotria asiatica</i> <i>Shorea obtuse</i>	Hong Kong Thailand	Tang et al. 2003a Song et al. 2014
<i>Pestalotiopsis shoreae</i> Yu Song, Tangthir., K.D. Hyde & Y. Wang [#]	Sporocadaceae, Sordariomycetes, Ascomycota				
<i>Pestalotiopsis</i> spp.	Sporocadaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Bauhinia purpurea</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bauhinia variegata</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Cassia bakeriana</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Mauritius	Bose 1944, Anderson 1986a
		seeds	<i>Chamaecyparis</i> sp.	Japan	Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Eucalyptus maidenii</i>	Uruguay	Anderson 1986a
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	Scotland	Anderson 1986a
<i>Pestalotiopsis</i> spp. [as <i>Pestalospaeria</i>]		seed	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
<i>Pestalotiopsis versicolor</i> (Speg.) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
<i>Peyronellaea</i> sp.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Pezicula cinnamomea</i> (DC.) Sacc.	Dermateaceae, Leotiomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Pezicula eucalypti</i> Korf & Iturr [#]	Dermateaceae, Leotiomycetes, Ascomycota	capsule	<i>Eucalyptus</i> sp.	Spain	Iturriaga & Korf 1997
<i>Peziza sciophila</i> Medardi [#]	Pezizaceae, Pezizomycetes, Ascomycota	cones	<i>Picea</i> sp.	Italy	Medardi 2007
<i>Phaeoisaria clematidis</i> (Fuckel) S. Hughes	Pleurotheciaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Phaeomarasmius laccarioides</i> Har. Takah. [#]	Tubariaceae, Agaricomycetes, Basidiomycota	fruits fruit	<i>Microcos paniculata Liquidambar styraciflua</i>	Hong Kong Japan	Tang et al. 2003a Takahashi 2001
<i>Phaeosphaeria lunariae</i> Crous & R.K. Schumach. [#]	Phaeosphaeriaceae, Dothideomycetes, Ascomycota	Pods	<i>Lunaria annua</i>	Germany	Hernandez-Restrepo et al. 2016
<i>Phaeosphaeria sinensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Phaeosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Wisteria</i> sp.	China	Jayasiri et al. 2019
<i>Phialophora atrovirens</i> (J.F.H. Beyma) Schol- Schwarz	Herpotrichiellaceae, Eurotiomycetes, Ascomycota	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
<i>Phialophora</i> spp.	Herpotrichiellaceae, Eurotiomycetes, Ascomycota	seed acorns	<i>Pinus thunbergii Quercus robur</i>	Japan Poland	Watanabe 2010 Jankowiak 2008

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
<i>Phlyctochytrium aureliae</i> Ajello	Phlyctochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Arum korolkowii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Zantedeschia albo-maculata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Phoma anceps</i> Sacc.	Didymellaceae, Dothideomycetes, Ascomycota	seed	<i>Medicago sativa</i>	Canada	Connors 1967
<i>Phoma araucariae</i> Traverso	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Araucaria excelsa</i>	USA	Mittal et al. 1990
<i>Phoma herbarum</i> Westend.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
<i>Phoma hibernica</i> Grimes, M. O'Connor & Cummins	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Phoma lineolata</i> Desm.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Larix</i> spp.	Denmark, UK, USA	Noble et al. 1958, Anderson 1986a
<i>Phoma</i> spp.	Didymellaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		cones, seeds	<i>Pinus sylvestris</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i> 'Watereri'	Canada	Vujanovic et al. 2000
		fruits	<i>Alocasia odora</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Bridelia tomentosa</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex asprella</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
		pod	<i>Colophospermum mopane</i>	Southern Africa	Jordaan et al. 2006
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seed	<i>Larix</i> sp.	Japan	Watanabe 2010
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acacia auriculiformis</i>	Philippines	Mathur 1974, Anderson 1986a, Quiniones 1987
		seeds	<i>Acacia confusa</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Acacia modesta</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Acacia raddiana</i>	Israel	Mathur 1974, Anderson 1986a
		seeds	<i>Acacia</i> spp.	Egypt	Mathur 1974, Anderson 1986a
		seeds	<i>Acer palmatum</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Acrocarpus fraxinifolius</i>	India, Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Adenantha microsperma</i>	India	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Adina cordifolia</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Agathis robusta</i>	Philippines , UK	Quiniones 1985, 1987, Anderson 1986a
		seeds	<i>Albizia falcataria</i>	Philippines	Mathur 1974, Mittal et al. 1990
		seeds	<i>Albizia lebbeck</i>	Philippines	Quiniones 1987
		seeds	<i>Albizia stipulata</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Alnus sibirica</i>	South Korea	Mathur 1974, Mittal et al. 1990
		seeds	<i>Alstonia macrophylla</i>	Philippines	Quiniones 1987
		seeds	<i>Anogeissus pendula</i>	Costa Rica	Mathur 1974, Mittal et al. 1990
		seeds	<i>Anthocephalus cadamba</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Bauhinia</i> sp.	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Bauhinia variegata</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Bombax ceiba</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Callistephus chinensis</i>	China	Gloyer 1931, Crosier & Heit 1948
		seeds	<i>Cassia fistula</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia siamea</i>	Philippines	Quiniones 1985, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Cedrela odorata</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Cedrela serrata</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Cedrela serrulata</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Chukrasia tabularis</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Cordia alliodora</i>	Colombia	Mathur 1974, Anderson 1986a
		seeds	<i>Cryptomeria japonica</i>	Madagascar	Mathur 1974, Anderson 1986a
		seeds	<i>Cupressus cashmeriana</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Cupressus lusitanica</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Cupressus</i> spp.	Syria	Mathur 1974, Anderson 1986a
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
		seeds	<i>Delonix regia</i>	India, Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seeds	<i>Eucalyptus alba</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus camaldulensis</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Eucalyptus grandis</i>	India, South Africa	Mathur 1974, Anderson 1986a, Jimu et al. 2016

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Eucalyptus tereticornis</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Eucommia ulmoides</i>	USA	Mathur 1974, Anderson 1986a
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013, Hayatgheibi 2013
		seeds	<i>Gliricidia sepium</i>	Philippines	Quiniones 1987
		seeds	<i>Gmelina arborea</i>	India, Philippines	Mathur 1974, Anderson 1986a, Quiniones 1987
		seeds	<i>Hovenia dulcis</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Jacaranda mimosifolia</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Kydia calycina</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Lagerstroemia speciosa</i>	India, Philippines	Mathur 1974, Anderson 1986a, Quiniones 1987
		seeds	<i>Leucaena leucocephala</i>	Philippines	Quiniones 1985, 1987, Mittal et al. 1990
		Seeds	<i>Leucaena leucocephala</i> var. <i>Cunningham</i>	Cuba	Mathur 1974, Anderson 1986a
		seeds	<i>Leucaena</i> spp.	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Leucdena diversifolia</i>	Guatemala	Mathur 1974, Anderson 1986a
		seeds	<i>Maesopsis eminii</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Mimosa caesalpiniaefolia</i>	Brazil	Mathur 1974, Anderson 1986a
		seeds	<i>Ougeinia dalbergioides</i>	-	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Parkia roxburghii</i>	Philippines	Quiniones 1987
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
		seeds	<i>Pinus caribaea</i> var. <i>hondurensis</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus kesiya</i>	Philippines	Quiniones 1987
		seeds	<i>Pinus khasya</i>	Philippines, Zambia	Mathur 1974, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Zambia	Chalermpongse et al. 1984, Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	Central America	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus</i> spp.	Japan	Homechin et al. 1986, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seeds	<i>Platanus</i> <i>occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Polyscias nodosa</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Pongamia pinnata</i>	India	Jamaluddin et al. 1983, Mittal et al. 1990
		seeds	<i>Pseudotsuga</i> <i>menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pterospermum acerifolium</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
		seeds	<i>Samanea saman</i>	Philippines , Thailand	Chalermpongse et al. 1984, Quiniones 1987, Mittal et al. 1990
		seeds	<i>Sequoia sempervirens</i>	USA	Davidson 1970, Mittal et al. 1990
		seeds	<i>Serialbizia acle</i>	Philippines	Quiniones 1987
		seeds	<i>Sesbania sesban</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Shorea materialis</i>	Malaysia	Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a, Quiniones 1987
		seeds	<i>Taxodium mucronatum</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Tectona grandis</i>	India, Philippines	Mathur 1974, Mittal et al. 1990, Mohanan et al. 2005
		seeds	<i>Toona calantas</i>	Philippines	Quiniones 1987
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seeds	<i>Wallaceodendron celibcum</i>	Philippines	Quiniones 1987
<i>Phoma strobiligena</i> Desm.	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Phragmotrichum chailletii</i> Kunze [#]	Melanommataceae, Dothideomycetes, Ascomycota	cones	<i>Abies</i> sp.	Switzerland	Schmidt & Kunze 1823
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Phyllosticta aucubae-japonicae</i> N. Zhou & L. Cai [#]	Phyllostictaceae, Dothideomycetes, Ascomycota	fruit	<i>Aucuba japonica</i>	Japan	Hernandez-Restrepo et al. 2016

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Phyllosticta cocoicola</i> (Bat.) Sivan.	Phyllostictaceae, Dothideomycetes, Ascomycota	fruits	<i>Diplospora dubia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
<i>Phyllosticta osteospora</i> var. <i>samaricola</i> D. Sacc.	Phyllostictaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus</i> sp.	USSR	Anderson 1986a
<i>Phyllosticta platanoides</i> f. <i>negundinis</i> Sacc.	Phyllostictaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer</i> sp.	USSR	Anderson 1986a
<i>Phyllosticta</i> spp.	Phyllostictaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer</i> sp.	-	Noble et al. 1958, Anderson 1986a
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Physalidiella elegans</i> (Luppi Mosca) Rulamort [as <i>Physalidium elegans</i> Luppi Mosca]	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Physalospora obtusa</i> (Schwein.) Cooke	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
<i>Physocladia obscura</i> (Sparrow) Sparrow	Chytriomycetaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Zantedeschia aethiopica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Pichia kluyveri</i> var. <i>kluyveri</i> Bedford ex Kudryavtsev	Pichiaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Pichia kluyveri</i> -like	Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Pichia membranifaciens</i> -like	Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Pichia muscicola</i> -like	Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Pichia sargentensis</i> -like	Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
<i>Pilaira anomala</i> (Ces.) J. Schröt.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Pilobolus</i> sp.	Pilobolaceae, Mucoromycetes, Mucoromycota	fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
<i>Pilocintractia adriana</i> Vánky [#]	Anthracoideaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Fimbristylis miliacea</i>	India	Vánky 2006
<i>Pilophora agaricina</i> Wallr.	Rhizopodaceae, Mucoromycetes, Mucoromycota	pod	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
<i>Piptocephalis freseniana</i> de Bary	Piptocephalidaceae, Zoopagomycetes, Mucoromycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Pithomyces alabamensis</i> (Matsush.) P.M. Kirk	Astrosphaeriellaceae, Dothideomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Pithomyces cynodontis</i> M.B. Ellis	Astrosphaeriellaceae, Dothideomycetes, Ascomycota	seeds	<i>Casuarina</i> spp., <i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Pithomyces</i> spp.	Astrosphaeriellaceae, Dothideomycetes, Ascomycota	seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Pithyella hispida</i> Rativ. & R Galán [#]	Helotiaceae, Leotiomycetes, Ascomycota	fruit	<i>Quercus agrifolia</i>	USA	Galán et al. 1994
<i>Pleiochaeta</i> sp.	Dothidotthiaceae, Dothideomycetes, Ascomycota	seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
<i>Pleogibberella calamia</i> (Cooke) Berl. & Voglino	Nectriaceae, Sordariomycetes, Ascomycota	fruit	<i>Calamus fasciculatus</i>	India	Cooke 1884

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as <i>Gibberella calamia</i> Cooke]					
<i>Pleohelicoon fagi</i> Jayasiri, E.B.G. Jones & K.D. HydeK ^{***}	Pleomonodictydaceae, Dothideomycetes, Ascomycota	cupule	<i>Fagus sylvatica</i>	UK	Jayasiri et al. 2019
<i>Pleospora infectoria</i> Fuckel	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
<i>Pleospora laricina</i> Rehm	Pleosporaceae, Dothideomycetes, Ascomycota	cones	<i>Pinus mugo</i> ‘Hesse’	Canada	Vujanovic et al. 2000
<i>Pleospora</i> spp.	Pleosporaceae, Dothideomycetes, Ascomycota	cones, seeds	<i>Pinus ponderosa</i>	Canada	Vujanovic et al. 2000
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
Pleosporales spp.	Dothideomycetes, Ascomycota	seeds seeds	<i>Eucalyptus grandis</i> <i>Fraxinus excelsior</i>	South Africa Sweden	Jimu et al. 2016 Cleary et al. 2013
<i>Pleurophoma italica</i> Tibpromma, Camporesi & K.D. Hyde [#]	Lentitheciaceae, Sordariomycetes, Ascomycota	cone	<i>Pinus nigra</i>	Italy	Tibpromma et al. 2017
<i>Pleurophragmium</i> sp.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
<i>Podospora bulbillosa</i> (W. Gams & Mouch.) X. Wei Wang & Houbraken [as <i>Cladorrhinum</i> <i>bulbillosum</i> W. Gams & Mouch.]	Podosporaceae, Sordariomycetes, Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Polydesmia turbinata</i> Raitv. & R. Galán [#]	Amorphothecaceae, Leotiomycetes, Ascomycota	fruit capsule	<i>Eucalyptus globulus</i>	Spain	Raitviir & Galán 1995
<i>Polyphagus euglenae</i> (Bail) Nowak.	Polyphagaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa caucasica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa pallidiflora</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Hyoscyamus albus</i>	Poland or/ imported to Poland	Czczuga et al. 2009
		seeds	<i>Paris quadrifolia</i>	Poland or/ imported to Poland	Czczuga et al. 2009
		seeds	<i>Podophyllum peltatum</i>	Poland or/ imported to Poland	Czczuga et al. 2009
<i>Polyspora lini</i> Laff.	Sacotheciaceae, Dothideomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Propolis faginea</i> (Schrad.) P. Karst.	Marthamycetaceae, Leotiomyces, Ascomycota	seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Propolis occulta</i> Chlebická [#]	Marthamycetaceae, Leotiomyces, Ascomycota	cones	<i>Pinus sylvestris</i>	Czech Republic	Chlebická 2014
<i>Propolis rhodoleuca</i> (Sommerf.) Fr.	Marthamycetaceae, Leotiomyces, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Protrudomyces lateralis</i> (A. Braun) Letcher [as <i>Rhizophydium laterale</i> (A. Braun) Rabenh.]	Protrudomycetaceae, Rhizophydiomycetes, Chytridiomycota	seeds	<i>Hyoscyamus niger</i>	Poland or/ imported to Poland	Czczuga et al. 2009
		seeds	<i>Ilex aquifolium</i>	Poland or/ imported to Poland	Czczuga et al. 2009
<i>Prosopidicola mexicana</i> Crous & C.L. Lennox ^{##}	Prosopidicolaceae, Sordariomycetes, Ascomycota	pods	<i>Prosopis glandulosa</i>	USA	Lennox et al. 2004
<i>Pseudoanthostomella pini-nigrae</i> Daranag., Camporesi & K.D. Hyde [#]	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	cones	<i>Pinus nigra</i>	Italy	Daranagama et al. 2016
<i>Pseudoberkleasmium acaciae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Pseudoberkleasmiaceae, Dothideomycetes, Ascomycota	pod	<i>Acacia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Pseudoboubovia benkertii</i> (B. Perić) U. Lindem., M. Vega, B. Perić & R. Tena [#] [as <i>Kotlabaea benkertii</i> B. Perić]	Pulvinulaceae, Pezizomycetes, Ascomycota	cones	<i>Cupressus sempervirens</i>, <i>Pinus halepensis</i>	Montenegro	Lindemann et al. 2015

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Pseudocamarosporium piceae</i> Wijayaw., Camporesi & K.D. Hyde [#]	Montagnulaceae, Dothideomycetes, Ascomycota	cones	<i>Picea excelsa</i>	Italy	Wijayawardene et al. 2014
<i>Pseudocercospora mapelanensis</i> J.A. Osorio & Jol. Roux [#]	Mycosphaerellaceae, Dothideomycetes, Ascomycota	fruits	<i>Barringtonia racemosa</i>	South Africa	Osorio et al. 2015
<i>Pseudocercospora ulei</i> (Henn.) B.T. Hora & Mizubuti [as <i>Microcyclus ulei</i> (Henn.) Arx]	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seeds	<i>Hevea brasiliensis</i>	South and Central America, Caribbean	Mittal et al. 1990
<i>Pseudochaetosphaeronema siamensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Macrodiplodiopsidaceae, Dothideomycetes, Ascomycota	pod	<i>Tamarindus</i> sp.	Thailand	Jayasiri et al. 2019
<i>Pseudocoleophoma bauhiniae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Dictyosporiaceae, Dothideomycetes, Ascomycota	pod	<i>Bauhinia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Pseudodictyosporium wauense</i> Matsush.	Dictyosporiaceae, Dothideomycetes, Ascomycota	fruit cupule	<i>Fagus sylvatica</i>	UK	Jayasiri et al. 2019
<i>Pseudofusicoccum calophylli</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Phyllostictaceae, Dothideomycetes, Ascomycota	fruit	<i>Calophyllum inophyllum</i>	Thailand	Jayasiri et al. 2019
<i>Pseudohalonectria fagicola</i> R.H. Perera, E.B.G. Jones & K.D. Hyde [#]	Pseudohalonectriaceae, Sordariomycetes, Ascomycota	cupule	<i>Fagus sylvatica</i>	UK	Perera et al. 2016a
<i>Pseudohalonectria hampshirensis</i> R.H. Perera, E.B.G. Jones & K.D. Hyde [#]	Pseudohalonectriaceae, Sordariomycetes, Ascomycota	cupule	<i>Fagus sylvatica</i>	UK	Perera et al. 2016a
<i>Pseudohelicomyces aquaticus</i> Y.Z. Lu, Boonmee & K.D. Hyde	Tubeufiaceae, Dothideomycetes, Ascomycota	pod	<i>Tamarindus indica</i>	Thailand	Jayasiri et al. 2019
<i>Pseudohelicomyces menglunicus</i> J.F. Li, Rungtiwa Phookamsak &	Tubeufiaceae, Dothideomycetes, Ascomycota	seed	undetermined plant	China	Phookamsak et al. 2019

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Pseudohelicomyces quercus</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Tubeufiaceae, Dothideomycetes, Ascomycota	cupule	<i>Quercus</i> sp.	Thailand	Jayasiri et al. 2019
<i>Pseudohelicomyces talbotii</i> (Goos) Y.Z. Lu & K.D. Hyde	Tubeufiaceae, Dothideomycetes, Ascomycota	fruits	Meliaceae plant	Thailand	Jayasiri et al. 2019
<i>Pseudopithomyces chartarum</i> (Berk. & M.A. Curtis) Jun F. Li, Ariyaw. & K.D. Hyde [as <i>Sporidesmium bakeri</i> Syd. & P. Syd.]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	fruits	<i>Magnolia grandiflora</i>	Thailand	Jayasiri et al. 2019
		pod	<i>Bauhinia</i> sp.	Thailand	Jayasiri et al. 2019
		pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
		pod	<i>Radermachera sinica</i>	Thailand	Jayasiri et al. 2019
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
<i>Pseudopithomyces entadae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Entada phaseoloides</i>	Thailand	Jayasiri et al. 2019
<i>Pseudopithomyces maydicus</i> (Sacc.) Jun F. Li, Ariyaw. & K.D. Hyde [as <i>Pithomyces maydicus</i> (Sacc.) M.B. Ellis]	Didymellaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
<i>Pseudothielavia terricola</i> (J.C. Gilman & E.V. Abbott) X. WeiWang & Houbraken [as <i>Thielavia terricola</i> (J.C. Gilman & E.V. Abbott) C.W. Emmons]	Chaetomiaceae, Sordariomycetes, Ascomycota	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Puccinia salihae</i> Krigbag & aime [#]	Pucciniaceae, Pucciniomycetes, Basidiomycota	fruit	<i>Thymelaea aucheri</i>	Turkey	Kirbag et al. 2011
<i>Pucciniastrum areolatum</i> (Fr.) G.H. Otth	Pucciniastraceae, Pucciniomycetes, Basidiomycota	seeds	<i>Picea</i> spp.	Germany	Anderson 1986a
<i>Pucciniastrum epilobii</i> (Pers.) G.H. Otth	Pucciniastraceae, Pucciniomycetes, Basidiomycota	cone	<i>Abies lasiocarpa</i>	Canada	Connors 1967
<i>Pullularia pullulans</i> (de Bary & Löwenthal) Berkhout	Sacrotheciaceae, Dothideomycetes, Ascomycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Pullularia</i> spp.	Sacrotheciaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a
<i>Purpurepithecium murisporum</i> Jayasiri & K.D. Hyde [#]	Gloniaceae, Dothideomycetes, Ascomycota	cone	<i>Pinus</i> sp.	Italy	Jayasiri et al. 2017a
<i>Pyrenochaeta globosa</i> Ts. Watanabe [#]	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seeds	<i>Pinus thunbergii</i>	Japan	Watanabe 1992
<i>Pyrenochaeta</i> spp.	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
<i>Pyrenophora dematioidea</i> (Bubák & Wróbl.) Rossman & K.D. Hyde [as <i>Drechslera dematioidea</i> (Bubák & Wróbl.) Scharif]	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus robur</i>	Poland	Krol et al. 2015

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Pyrofomes demidoffii</i> (Lév.) Kotl. & Pouzar	Polyporaceae, Agaricomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Pyronema omphalodes</i> (Bull.) Fuckel	Pyronemataceae, Pezizomycetes, Ascomycota	seeds	<i>Pinus</i> spp.	Poland	Richardson 1979, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	Poland	Garbowski 1936, Mittal et al. 1990
<i>Quercicola fusiformis</i> Jayasiri, E.B.G. Jones & K.D. Hyde ^{***}	Astrosphaeriellaceae, Dothideomycetes, Ascomycota	fruit	<i>Quercus</i> sp.	Thailand	Jayasiri et al. 2019
<i>Quercicola guttulospora</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Astrosphaeriellaceae, Dothideomycetes, Ascomycota	fruit	Fagaceae plant	Thailand	Jayasiri et al. 2019
<i>Racodium therryanum</i> Thüm.	Racodiaceae, Dothideomycetes, Ascomycota	seeds	<i>Abies koreana</i>	Korea	Cho et al. 2007
<i>Radulidium subulatum</i> (de Hoog) Arzanlou, W. Gams & Crous [as <i>Ramichloridium</i> <i>subulatum</i> de Hoog]	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seeds seed	<i>Picea jezoensis</i> <i>Cryptomeria</i> <i>japonica</i>	Japan Japan	Cheng & Igarashi 1987 Watanabe 2010
<i>Ramichloridium anceps</i> (Sacc. & Ellis) de Hoog	Dissoconiaceae, Dothideomycetes, Ascomycota	seed	<i>Cryptomeria</i> <i>japonica</i>	Japan	Watanabe 2010
<i>Ramichloridium</i> sp.	Dissoconiaceae, Dothideomycetes, Ascomycota	seed seeds	<i>Pinus thunbergii</i> <i>Picea jezoensis</i>	Japan Japan	Watanabe 2010 Cheng & Igarashi 1987
<i>Ramularia coleosporii</i> Sacc.	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Ramularia</i> spp.	Mycosphaerellaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	Australia	Drake 1974, Mittal et al. 1990
<i>Rectifusarium ventricosum</i> (Appel & Wollenw.) L. Lombard & Crous [as <i>Fusarium ventricosum</i> Appel & Wollenw.]	Nectriaceae, Sordariomycetes, Ascomycota	seeds seed	<i>Fraxinus excelsior</i> <i>Prunus serrulata</i>	Sweden Japan	Hayatgheibi 2013 Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Remotididymella bauhiniae</i> Jayasiri, E.B.G. Jones & K.D. Hyde ^{***}	Didymellaceae, Dothideomycetes, Ascomycota	pod	<i>Bauhinia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Repetoblastiella olivacea</i> R.F. Castañeda, Minter & M. Stadler ^{***}	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	nuts	<i>Couropita</i> <i>guianensis</i>	Cuba	Castañeda-Ruíz et al. 2010
<i>Resinicium bicolor</i> (Alb. & Schwein.) Parmasto	Rickenellaceae, Agaricomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Restilago capensis</i> Vánky ^{***}	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Basidiomycota	nutlets	<i>Ischyrolepis</i> <i>capensis</i>	South Africa	Vánky 2008a
<i>Restiosporium anarthriae</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Anarthria laevis</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium apodasmiae</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Apodasmia</i> <i>eremophila</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium baloskionis</i> Vánky & R.G. Shivas [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Baloskion</i> <i>tetraphyllum</i>	Australia	Vánky & Shivas 2003
<i>Restiosporium chaetanhi</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Chaetanthus</i> <i>aristatus</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium dapsilanthi</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Dapsilanthus elatior</i>	Australia	Vánky 2003
<i>Restiosporium desmocladi</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Desmocladius</i> <i>elongatus</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium eurychordae</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Eurychorda</i> <i>complanata</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium flexuosum</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Desmocladius</i> <i>flexuosus</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium guringaliae</i> Vánky & R.G. Shivas [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Guringalia</i> <i>dimorpha</i>	Australia	Vánky 2007
<i>Restiosporium hypolaenae</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Hypolaena</i> <i>fastigiata</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium lepyrodiae</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Lepyrodia scariosa</i>	Australia	Vánky & Shivas 2006

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Restiosporium pallentis</i> Vánky & R.G. Shiva [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Baloskion pallens</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium patei</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Lepidobolus densus</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium proliferum</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Anarthria proliferata</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium spathacei</i> Vánky, R.G. Shivas & C. Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	capsules	<i>Dapsilanthus spathaceus</i>	Australia	Vánky & Shivas 2006
<i>Restiosporium sphacelatum</i> Vánky [#]	Websdaneaceae, Ustilaginomycetes, Basidiomycota	nutlets	<i>Chordifex sphacelatus</i>	Australia	Vánky & Shivas 2006
<i>Rhinocladia</i> spp.	Herpotrichiellaceae, Eurotiomycetes, Ascomycota	seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
<i>Rhinotrichum repens</i> Preuss	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Rhizidium lignicola</i> Lindau	Chytriomycetaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Polygonum amphibium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizidium nowakowskii</i> Karling	Chytriomycetaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Hyoscyamus albus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizidium richmondense</i> Willoughby	Chytriomycetaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Atropa caucasica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizoctonia solani</i> J.G. Kühn	Ceratobasidiaceae, Agaricomycetes, Basidiomycota	seeds	<i>Abies balsamea</i>	USA	Mittal et al. 1990
		seeds	<i>Abies fraseri</i>	USA	Mittal et al. 1990
		seeds	<i>Abies</i> spp	USA	Heit & Natti 1969, Mittal et al. 1990
		seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria bidwillii</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Araucaria heterophylla</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Callistephus chinensis</i>	China	Gloyer 1931, Crosier & Heit 1948
		seeds	<i>Fagus sylvatica</i>	France, Poland	Richardson 1983, Anderson 1986a, Krol et al. 2015
		seeds	<i>Leucaena</i> spp.	Philippines	Mathur 1974, Anderson 1986a
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus nigra</i>	Italy	Turchetti 1982, Mittal et al. 1990
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Ulmus americana</i>	USA	Mittal et al. 1990
		seeds	<i>Ulmus</i> spp.	Denmark	Richardson 1979, Anderson 1986a
<i>Rhizoctonia</i> spp.	Ceratobasidiaceae, Agaricomycetes, Basidiomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seeds	<i>Pinus elliotii</i>	Taiwan	Rowan & Debarr 1974, Mittal et al. 1990
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Rhizomarasmius setosus</i> (Sowerby) Antonín & A. Urb. [as <i>Marasmius recubans</i> Quél. as ' <i>reenbans</i> ']	Physalacriaceae, Agaricomycetes, Basidiomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Rhizomucor pusillus</i> (Lindt) Schipper [as <i>Mucor pusillus</i> Lindt]	Lichtheimiaceae, Mucoromycetes, Mucoromycota	seeds	<i>Cupressus</i> spp., <i>Sapium</i> spp.	India	Sahai & Otra 1982

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Rhizophlyctis rosea</i> (de Bary & Woronin) A. Fisch.	Rhizophlyctidaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Armeria maritima</i> ssp. <i>maritima</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa caucasica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa komarovii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Atropa pallidiflora</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cicuta virosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cornus australis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Cuscuta europaea</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Ginkgo biloba</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus albus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus aureus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Lotus uliginosa</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Prunella grandiflora</i> ssp. <i>pyrenaia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Ulex europaeus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizophydium ampullaceum</i> (A. Braun) A. Fisch.	Rhizophydiaceae, Rhizophydiomycetes, Chytridiomycota	seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Bryonia cretica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Polygonum amphibium</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizophydium carpophilum</i> Zopf	Rhizophydiaceae, Rhizophydiomycetes, Chytridiomycota	seeds	<i>Lonicera periclymenum</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Rhododendron insigne</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizophydium coronum</i> A.M. Hanson	Rhizophydiaceae, Rhizophydiomycetes, Chytridiomycota	seeds	<i>Bryonia cretica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizophydium globosum</i> (A. Braun) Rabenh.	Rhizophydiaceae, Rhizophydiomycetes, Chytridiomycota	seeds	<i>Hyoscyamus gyoerffyi</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus muticus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Sambucus ebulus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizophydium olla</i> H.E. Petersen	Rhizophydiaceae, Rhizophydiomycetes, Chytridiomycota	seeds	<i>Paris quadrifolia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Rhizopus arrhizus</i> A. Fisch.	Rhizopodaceae, Mucoromycetes, Mucoromycota	seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus patula</i>	Kenya	Gibson 1957, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	Poland, USSR	Garbowski 1936, Anderson 1986a
		seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdel 1978, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
<i>Rhizopus betivorus</i> Nevod	Rhizopodaceae, Mucoromycetes, Mucoromycota	seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
<i>Rhizopus cohnii</i> Berl. & De Toni	Rhizopodaceae, Mucoromycetes, Mucoromycota	seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
<i>Rhizopus nigricans</i> Ehrenb.	Rhizopodaceae, Mucoromycetes, Mucoromycota	cones	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		cones, seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		Seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012
		seeds	<i>Casuarina</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Cedrus deodara</i>	India	Mittal 1983
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Hungary, Poland, UK, USSR	Hangyal 1973, Whittle 1977, Mittal et al. 1990,

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus wallichiana</i>	Pakistan	Krol et al. 2015
		seeds	<i>Quercus rubra</i>	Poland	Ashaer 2000
		seeds	<i>Quercus</i> spp.	USSR	Krol et al. 2015
		seeds	<i>Shorea robusta</i>	Thailand	Urosevic 1959, Mittal et al. 1990
<i>Rhizopus nodosus</i> Namysl.	Rhizopodaceae, Mucoromycetes, Mucoromycota	seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Rhizopus oryzae</i> Went & Prins. Geerl.	Rhizopodaceae, Mucoromycetes, Mucoromycota	seed	<i>Agropyron cristatum</i>	Canada	Czczuga et al. 2009
		seed	<i>Larix</i> sp.	Japan	Connors 1967
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Albizia lebbek</i>	India	Watanabe 2010
		seeds	<i>Cassia fistula</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Mittal & Sharma 1981a, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Mittal 1983
		seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India, Pakistan	Mittal & Sharma 1982c, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990, Ashaer 2000
<i>Rhizopus</i> spp.	Rhizopodaceae, Mucoromycetes, Mucoromycota	fruits	<i>Avicennia marina</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
		Pods	<i>Delonix regia</i>	Thailand	Mehdi & Saifullah 2000
					Somrithipol et al. 2002b

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Abies lasiocarpa</i>	Canada	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Georgia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acacia confusa</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Acer saccharum</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Albizia falcataria</i>	Philippines	Dayan 1986, Mittal et al. 1990
		seeds	<i>Albizia lebbbeck</i>	India	Mohanan et al. 2005
		seeds	<i>Araucaria angustifolia</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Bombax ceiba</i>	Bangladesh, India	Mittal et al. 1990
		seed	<i>Canavalia cathartica</i>	India	Anita & Sridhar 2009
		seeds	<i>Cassia fistula</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seeds	<i>Eucalyptus deglupta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Eucalyptus grandis</i>	Uruguay	Anderson 1986a
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Leucaena leucocephala</i>	Bangladesh, Thailand	Chalermpongse et al. 1984, Mittal et al. 1990, Islam et al. 2008
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Georgia, Uruguay, USA	Anderson 1986a, Huang & Kuhlman 1990, Fraedrich & Miller 1995
		seeds	<i>Pinus lambertiana</i>	USA	Anderson 1986a, Schubert 1961
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus patula</i>	East Africa	Gibson 1957, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	Georgia, USA	Covington et al. 1982, Anderson 1986a, Huang & Kuhlman 1990
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus thunbergii</i> [= <i>Pinus thunbergiana</i>]	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	Anderson 1986a, Bloomberg 1966, James 1984
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Swietenia macrophylla</i>	Philippines	Dayan 1986, Mittal et al. 1990
<i>Rhizopus stolonifer</i> (Ehrenb.) Vuill.	Rhizopodaceae, Mucoromycetes, Mucoromycota	fruit	<i>Artocarpus communis</i>	Nigeria	Amusa et al. 2002
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seed	<i>Stylosanthes guianensis</i>	Australia	Nik & Parbery 1977
		seed	<i>Stylosanthes humilis</i>	Australia	Nik & Parbery 1977
<i>Rhizopus tonkinensis</i> Vuill.	Rhizopodaceae, Mucoromycetes, Mucoromycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Phleum pratense</i>	Canada	Connors 1967
<i>Rhodotorula</i> sp.	Sporidiobolaceae, Microbotryomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Rhizidhysteron rufulum</i> (Spreng.) Speg.	Hysteriaceae, Dothideomycetes, Ascomycota	fruit	<i>Swietenia mahagoni</i>	Thailand	Jayasiri et al. 2019
<i>Rosellinia limonispora</i> Ellis & Everh. [as 'limoniiformis']	Xylariaceae, Sordariomycetes, Ascomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seed	<i>Bromus inermis</i>	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Rosellinia obliquata</i> var. <i>americana</i> (Sommerf.) Sacc.	Xylariaceae, Sordariomycetes, Ascomycota	cone	<i>Pinus ponderosa</i>	Canada	Connors 1967
<i>Saccharomycopsis amapae</i> (P.B. Morais, C.A. Rosa, S.A. Mey., Mend.-Hagler & Hagler) Casarég. & N. Jacques [#] [as <i>Candida amapae</i> P.B. Morais, C.A. Rosa, S.A. Mey., Mend.-Hagler & Hagler]	Saccharomycopsidaceae, Saccharomycetes, Ascomycota	fruit	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Sarcinomyces</i> sp.	<i>Incertae sedis</i> , Eurotiomycetes, Ascomycota	seeds	<i>Pinus monticola</i>	USA	Ganley & Newcombe 2006
<i>Sarocladium kiliense</i> (Grütz) Summerb. [as <i>Acremonium</i> <i>kiliense</i> Grütz]	Sarocladiaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Sarocladium strictum</i> (W. Gams) Summerb. [as <i>Acremonium strictum</i> W. Gams]	Sarocladiaceae, Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Eucalyptus</i> sp.	India	Mittal et al. 1990
		seeds	<i>Fraxinus excelsior</i>	Sweden	Reddy et al. 1982, Hayatgheibi 2013
		seeds	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Sarocladium strictum</i> (W. Gams) Summerb. [as <i>Cephalosporium</i> <i>acremonium</i> Corda]		seeds	<i>Melia</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus kesiya</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
<i>Sarocladium zae</i> (W. Gams & D.R. Sumner) Summerb. [as <i>Acremonium zae</i> W. Gams & D.R. Sumner]	Sarocladiaceae, Sordariomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Saturnispora diversa</i> (Ohara, Nonom. & Yunome ex van Uden & Buckley) Kurtzman	Pichiaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia</i> <i>amapa</i>	Brazil	Morais et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as <i>Candida diversa</i> Ohara, Nonom. & Yunome ex van Uden & Buckley] <i>Stauronematopsis sojae</i> (Uecker & Kulik) Abbas, B. Sutton & Ghaffar [as <i>Pseudorobillarda sojae</i> Uecker & Kulik]	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Schizophyllum alneum</i> (L.) J. Schröt.	Schizophyllaceae, Agaricomycetes, Basidiomycota	fruits seeds	<i>Ilex cinerea</i> <i>Quercus</i> spp.	Hong Kong USSR	Tang et al. 2003a Mittal et al. 1990
<i>Schizophyllum commune</i> Fr.	Schizophyllaceae, Agaricomycetes, Basidiomycota	seeds seeds	<i>Cassia fistula</i> <i>Cassia javanica</i> [= <i>Cassia nodosa</i>]	India India	Goswami & Ojha 2004 Goswami & Ojha 2004
		seeds	<i>Elaeis guineensis</i>	Malaysia	Turner 1981, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pseudotsuga menziesii</i>	USA	Rediske & Shea 1965, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
		seeds	<i>Shorea assamica</i>	Malaysia	Hong 1981, Mittal et al. 1990
<i>Schizothecium curvisporum</i> (Cain) N. Lundq. [as <i>Sordaria curvispora</i> Cain]	Lasiochaeraceae, Sordariomycetes, Ascomycota	seeds seed	<i>Shorea robusta</i> <i>Apium graveolens</i> var. <i>dulce</i>	India USA	Goswami & Ojha 2004 Connors 1967
<i>Schwanniomyces etchellsii</i> (Kreger-van Rij) M. Suzuki & Kurtzman [as <i>Pichia etchellsii</i> Kreger-van Rij]	Debaryomycetaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Schwanniomyces vanrijiae</i> (Van der Walt & Tscheuschner) M. Suzuki & Kurtzman [as <i>Debaryomyces vanrijiae</i> var. <i>yarrowii</i> (Santa María & C. García) Kreger-van Rij]	Debaryomycetaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia</i> <i>amapa</i>	Brazil	Morais et al. 1995
<i>Sclerophoma</i> spp.	Dothioraceae, Dothideomycetes, Ascomycota	seeds seeds seeds	<i>Abies lasiocarpa</i> <i>Abies nordmanniana</i> <i>Abies procera</i>	Canada, Norway Russia Norway	Talgø et al. 2010 Talgø et al. 2010 Talgø et al. 2010
<i>Sclerophoma pithyophila</i> (Corda) Höhn.	Dothioraceae, Dothideomycetes, Ascomycota	cones	<i>Pinus sylvestris</i>	UK	Whittle 1977
		cones, seeds	<i>Pinus</i> × <i>schwerinii</i> (<i>P. strobus</i> × <i>P.</i> <i>wallichiana</i>)	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus nigra</i> ssp. <i>laricio</i>	Canada	Vujanovic et al. 2000
		Pods	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
<i>Sclerotinia betulae</i> Woronin	Sclerotiniaceae, Leotiomycetes, Ascomycota	seed	<i>Betula papyrifera</i>	Canada	Connors 1967
<i>Sclerotinia libertiana</i> Fuckel	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Sclerotinia pseudotuberosa</i> (Rehm) Rehm	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Sclerotinia sclerotiorum</i> (Lib.) de Bary	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Sclerotium</i> spp.	Sclerotiniaceae, Leotiomycetes, Ascomycota	seeds	<i>Abies</i> spp.	-	Ono 1974, Anderson 1986a
		seeds	<i>Araucaria</i> <i>cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seed	<i>Pseudotsuga</i> <i>menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Scolecobasidium constrictum</i> E.V. Abbott	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
<i>Scolecobasidium humicola</i> G.L. Barron & L.V. Busch	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Scopulariopsis brevicaulis</i> Bainier	Microascaceae, Sordariomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Scopulariopsis canadensis</i> F.J. Morton & G. Sm.	Microascaceae, Sordariomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
<i>Scutellinia pseudovitrea</i> W.Y. Zhuang & Zhu L. Yang [#]	Pyronemataceae, Pezizomycetes, Ascomycota	fruits	<i>Platanus</i> sp.	China	Zhuang 2013
<i>Scytalidium lignicola</i> Pesante	Hyaloscyphaceae, Leotiomycetes, Ascomycota	pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
<i>Scytalidium</i> spp.	Hyaloscyphaceae, Leotiomycetes, Ascomycota	fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
<i>Scytinostroma mediterraneense</i> Boidin & Lanq. [#]	Peniophoraceae, Agaricomycetes, Basidiomycota	cones	<i>Pinus halepensis</i>	France	Boidin & Lanquetin 1987
<i>Sebacina</i> sp.	Sebacinaceae, Agaricomycetes, Basidiomycota	seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
<i>Seimatosporium caninum</i> (Brunaud) B. Sutton	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Ardisia crenata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ardisia punctata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Seimatosporium</i> spp.	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Microcos paniculata</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Viburnum sempervirens</i>	Hong Kong	Tang et al. 2003a
<i>Seiridium cardinale</i> (W.W. Wagner) B. Sutton & I.A.S. Gibson	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Chamaecyparis lawsoniana</i>	France, Italy	Motta & Saponaro 1983, Mittal et al. 1990
		seeds	<i>Cupressus abramsiana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus arizonica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus glabra</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus goeniana</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus lusitanica var. benthamii</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus macrocarpa</i>	Italy	Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus sempervirens</i>	France, Italy	Motta 1984, Mittal et al. 1990
		seeds	<i>Cupressus</i> spp.	Italy	Mittal et al. 1990
		seeds	<i>Cupressus torulosa</i>	France, Italy	Saponaro & Motta 1984, Mittal et al. 1990
seeds	<i>Thuja orientalis</i>	Italy, France	Motta 1984, Mittal et al. 1990		
<i>Seiridium herteri</i> = <i>Pestalotia herteri</i> Petr. [as ' <i>hertigii</i> ']	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
' <i>Seiridium kawakamii</i> ' = <i>Pestalotia kawakamii</i> Sawada	Sporocadaceae, Sordariomycetes, Ascomycota	fruits	<i>Ilex cinerea</i>	Hong Kong	Tang et al. 2003a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as ' <i>Pestalotiopsis kawakamii</i> ']					
' <i>Seiridium parrotiae</i> ' [as <i>Pestalotia parrotiae</i> T.M. Achundov]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Parrotia persica</i>	USSR	Akhundov & Papusha 1981, Mittal et al. 1990
<i>Seiridium</i> spp. [as <i>Pestalotia</i>]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Acer palmatum</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Adenantha microsperma</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Albizia falcataria</i>	Philippines	Mathur 1974, Mittal et al. 1990
		seeds	<i>Albizia procera</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Araucaria cunninghamii</i>	Australia	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Araucaria excelsa</i>	USA	Kahn et al. 1965, Mittal et al. 1990
		seeds	<i>Callistemon viminalis</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Casuarina equisetifolia</i>	Philippines, USA	Mathur 1974, Mittal et al. 1990, Bayman et al. 1998
		seeds	<i>Eucalyptus deglupta</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Grevillea robusta</i>	Rwanda	Mathur 1974, Anderson 1986a
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Leucaena leucocephala</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Manilkara bidentata</i>	USA	Bayman et al. 1998
		seeds	<i>Mimosa caesalpiniafolia</i>	Brazil	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Madagascar	Mathur 1974, Anderson 1986a
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliottii</i>	USA	Rowan & Debarr 1974, Anderson 1986a
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus khasya</i>	Zambia, Madagascar	Mathur 1974 Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Zambia	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus oocarpa</i>	Zambia	Mathur 1974, Anderson 1986a
		seeds	<i>Pinus patula</i>	Madagascar	Gibson 1957, Anderson 1986a
		seeds	<i>Pinus roxburghii</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	Georgia, USA, Uruguay	Mason & van Arsdel 1978, Huang & Kuhlman 1990, Mittal et al. 1990
		seeds	<i>Pinus thunbergii</i> [= <i>Pinus thunbergiana</i>]	Japan, Taiwan	Jong & Chen 1966, Mittal et al. 1990, Watanabe 2010
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Prosopis juliflora</i>	Brazil	Mathur 1974, Mittal et al. 1990
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Pterocarpus indicus</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pterospermum acerifolium</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Sequoia sempervirens</i>	USA	Davidson 1970, Mittal et al. 1990
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Taxodium mucronatum</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a, Mohanan et al. 2005
		seeds	<i>Terminalia myriocarpa</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Thuja</i> spp.	Spain	Anderson 1986a
		seeds	<i>Triplaris cumingiana</i>	Philippines	Quiniones 1985, Anderson 1986a
		seeds	<i>Ulmus davidiana</i>	South Korea	Mathur 1974, Anderson 1986a
<i>Seiridium quercina</i> [as <i>Pestalotia quercina</i> Guba]	Sporocadaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Selenophoma bromigena</i> (Sacc.) R. Sprague & Aar.G. Johnson	Sacotheciaceae, Dothideomycetes, Ascomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Bromus inermis</i>	Canada	Connors 1967
<i>Selenophoma donacis</i> (Pass.) R. Sprague & Aar.G. Johnson	Sacotheciaceae, Dothideomycetes, Ascomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
<i>Selenophoma obtusa</i> R. Sprague & Aar.G. Johnson	Sacotheciaceae, Dothideomycetes, Ascomycota	seed	<i>Bromus inermis</i>	Canada	Connors 1967
<i>Selenosporella curvispora</i> G. Arnaud ex MacGarvie	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Selenosporella</i> sp.	<i>Incertae sedis</i> , Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Sepedonium chrysospermum</i> (Bull.) Fr.	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Sepedonium</i> sp. [as ' <i>Sepedonicum</i> ']	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
<i>Septobasidium sabal-minor</i> Couch ex L.D. Gómez & Henk [#]	Septobasidiaceae, Pucciniomycetes, Basidiomycota	fruits	<i>Sabal minor</i>	USA	Gómez & Henk 2004
<i>Septochytrium variable</i> Berdan	Septochytriaceae, Chytridiomycetes, Chytridiomycota	seeds	<i>Bryonia cretica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Crataegus azarolus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Hyoscyamus gyoerffyi</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Juniperus oxycedrus</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Vicia sativa</i>	Poland	Kiziewicz 2005
		seeds	<i>Zantedeschia albo-maculata</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Septoria</i> spp.	Mycosphaerellaceae, Dothideomycetes, Ascomycota	cones	<i>Pinus ayacahuite</i>	Canada	Vujanovic et al. 2000
		fruits	<i>Dichroa febrifuga</i>	Hong Kong	Tang et al. 2003a
		seeds	<i>Acer palmatum</i>	South Korea	Mathur 1974, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013, Hayatgheibi 2013
		seeds	<i>Mimosa caesalpiniaefolia</i>	Brazil	Mathur 1974, Anderson 1986a
<i>Shiraia</i> spp.	Shiraiaceae, Dothideomycetes, Ascomycota	seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
<i>Simocybe panamensis</i> R. Singer [#]	Crepidotaceae, Agaricomycetes, Basidiomycota	fruit	undetermined plant	Panama	Singer 1989
<i>Simplicillium</i> sp.	Cordycipitaceae, Sordariomycetes, Ascomycota	seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
<i>Sirococcus conigenus</i> (Pers.) P.F. Cannon & Minter	Gnomoniaceae, Sordariomycetes, Ascomycota	cones, seeds	<i>Pinus nigra</i> ssp. <i>laricio</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus ponderosa</i>	Canada	Vujanovic et al. 2000
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Picea abies</i>	Italy	Motta et al. 1996
<i>Sirococcus conigenus</i> (Pers.) P.F. Cannon & Minter [as <i>S. strobilinus</i> Preuss] [#]		cones	<i>Pinus abies</i>	Germany	Preuss 1855
		seeds	<i>Picea abies</i>	Canada	Sutherland et al. 1981, Mittal et al. 1990
		seeds	<i>Picea engelmannii</i>	Canada, USA	Sutherland et al. 1981, Anderson 1986a
		seeds	<i>Picea glauca</i>	Canada	Sutherland et al. 1981, Mittal et al. 1990
		seeds	<i>Picea glauca</i> × <i>P. engelmannii</i>	Canada	Sutherland et al. 1981, Mittal et al. 1990
		seeds	<i>Picea sitchensis</i>	Canada	Salt 1964, Mittal et al. 1990
		seeds	<i>Picea</i> spp.	Canada	Sutherland et al. 1981, Anderson 1986a
<i>Sirococcus piceicola</i> Rosssman, Castl., DF Farr & Stanosz [#]	Gnomoniaceae, Sordariomycetes, Ascomycota	cone scales	<i>Picea sitchensis</i>	Canada	Rosssman et al. 2008
<i>Soloacrosporiella acaciae</i> Crous & M.J. Wingf. ^{***}	<i>Incertae sedis</i> , Dothideomycetes, Ascomycota	Pods	<i>Acacia mangium</i>	Malaysia	Crous et al. 2015a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Sordaria alcina</i> N. Lundq.	Sordariaceae, Sordariomycetes, Ascomycota	seeds	<i>Abies lasiocarpa</i>	Norway	Talgø et al. 2010
<i>Sordaria fimicola</i> (Roberge ex Desm.) Ces. & De Not.	Sordariaceae, Sordariomycetes, Ascomycota	seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	Canada	Connors 1967
		seed	<i>Bromus</i> sp.	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Sordaria nodulifera</i> TsuneoWatanabe [#]	Sordariaceae, Sordariomycetes, Ascomycota	seed	<i>Platanus</i> <i>occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Prunus serrulata</i> <i>Prunus jamasakura</i>	Japan Japan	Watanabe 2010 Watanabe 1989
<i>Sordaria tamaensis</i> Ts. Watan [#]	Sordariaceae, Sordariomycetes, Ascomycota	seeds	<i>Prunus jamasakura</i>	Japan	Watanabe 1989
<i>Spegazzinia flabellata</i> S.M. Leão & Gusmão [#]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	fruit	undetermined plant	Brazil	Leão-Ferreira & Gusmão 2010
<i>Spegazzinia radermacherae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Didymosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Radermachera</i> <i>sinica</i>	Thailand	Jayasiri et al. 2019
<i>Spegazzinia tessartha</i> (Berk. & M.A. Curtis) Sacc.	Didymosphaeriaceae, Dothideomycetes, Ascomycota	seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Sphaeronaema</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota,	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Sphaeropsis sapinea</i> (Fr.) Dyko & B. Sutton	Botryosphaeriaceae, Dothideomycetes, Ascomycota	cones	<i>Pinus nigra</i>	Sweden	Oliva et al. 2013
		cones	<i>Pinus patula</i>	South Africa	Smith et al. 1996
		cones	<i>Pinus radiata</i>	South Africa	Smith et al. 1996
		cones	<i>Pinus sylvestris</i>	Sweden	Oliva et al. 2013
		cones, seeds	<i>Pinus albicaulis</i> <i>Engelm.</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus resinosa</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i>	Canada	Vujanovic et al. 2000
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
		seeds	<i>Pinus caribaea</i>	Australia	Rees & Webber 1988
		seeds	<i>Pinus devoniana</i> [= <i>Pinus michoacana</i>]	Zambia	Rees & Webber 1988
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
		seeds	<i>Pinus oocarpa</i>	Honduras, Zambia	Rees & Webber 1988
		<i>Sphaeropsis sapinea</i> (Fr.) Dyko & B. Sutton [as <i>Diplodia pinea</i> (Desm.) J. Kickx f.]		seeds	<i>Pinus sylvestris</i>
seeds	<i>Pinus ponderosa</i>			USA	James & Genz 1982, Anderson 1986a
seeds	<i>Pinus</i> spp.			UK, USA	Anderson 1986a
seeds	<i>Pinus taeda</i>			Uruguay	Anderson 1986a
seeds	<i>Pinus wallichiana</i>			Pakistan	Ashaer 2000
<i>Sphaeropsis sapinea</i> (Fr.) Dyko & B. Sutton [<i>Diplodia sapinea</i> (Fr.) Fuckel]		cones	<i>Pinus nigra</i>	The Netherlands	Phillips et al. 2013
		cone	<i>Pinus</i> sp.	China	Jayasiri et al. 2019
		cones, seeds	<i>Pinus nigra</i> ssp. <i>laricio</i>	France	Decourcelle et al. 2015
		cones	<i>Pinus sylvestris</i>	France	Decourcelle et al. 2015
<i>Sphaeropsis sapinea</i> (Fr.) Dyko & B. Sutton [as <i>Macrophoma sapinea</i> (Fr.) Petr.]		seeds	<i>Pinus oocarpa</i>	UK	Rees 1982, Mittal et al. 1990
		seeds	<i>Pinus pseudostrobus</i>	UK	Rees 1982, Mittal et al. 1990
<i>Sphaeropsis</i> spp.	Botryosphaeriaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus elliottii</i>	Taiwan, USA	Rowan & Debarr 1974, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	Georgia, USA	Covington et al. 1982, Huang & Kuhlman 1990, Mittal et al. 1990
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus thunbergii</i> [= <i>Pinus</i> <i>thunbergiana</i>]	Taiwan	Jong & Chen 1966, Mittal et al. 1990
<i>Sphaerostilbella</i> <i>penicillioides</i> (Corda)	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Eucalyptus</i> <i>citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
Rossmann, L. Lombard & Crous [as <i>Gliocladium</i> <i>penicillioides</i> Corda]		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Sphaerulina mimosae-</i> <i>pigrae</i> H.C. Evans & G. Carrión [#]	Mycosphaerellaceae, Dothideomycetes, Ascomycota	Pods	<i>Mimosa pigra</i>	Australia	Evans et al. 1993
<i>Spicaria elegans</i> (Corda)	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
Harz		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Spicaria simplicissima</i> Oudem.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Albizia lebbek</i>	India	Mittal & Sharma 1982a, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Spicaria</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
<i>Spondylocladiella</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
<i>Spondylocladium</i> sp.	<i>Incertae sedis</i> , <i>Incertae sedis</i> , Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Sporidesmium britannicum</i> B. Sutton [#]	Sporidesmiaceae, Sordariomycetes, Ascomycota	cupule	<i>Fagus sylvatica</i>	UK	Minter 1986
<i>Sporobolomyces roseus</i> Kluyver & C.B. Niel	Sporidiobolaceae, Microbotryomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Sporobolomyces</i> spp.	Sporidiobolaceae, Microbotryomycetes, Basidiomycota	seeds seed seeds	<i>Eucalyptus grandis</i> <i>Fraxinus excelsior</i> <i>Pinus thunbergii</i>	South Africa Sweden Japan	Jimu et al. 2016 Hayatgheibi 2013 Watanabe 2010
<i>Sporoschisma hemipsilum</i> (Berk. & Broome) Zelski, A.N. Mill. & Shearer [as <i>Melanochaeta hemipsila</i> (Berk. & Broome) E. Müll., Harr & Sulmont]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Sporoschisma hemipsilum</i> (Berk. & Broome) Zelski, A.N. Mill. & Shearer [as <i>Sporoschisma saccardoii</i> E.W. Mason & S. Hughes]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Sporoschisma nigroseptatum</i> D. Rao & P.Rag. Rao	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Sporoschismopsis</i> sp.	Reticulascaceae, Sordariomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Sporothrix dimorphospora</i> (Roxon & S.C. Jong) Madrid, Gené, Cano & Guarro	Ophiostomataceae, Sordariomycetes, Ascomycota	seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as <i>Humicola dimorphospora</i> Roxon & S.C. Jong]					
<i>Sporothrix</i> spp.	Ophiostomataceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Sporothrix stenoceras</i> (Robak) Z.W. de Beer, T.A. Duong & M.J. Wingf.	Ophiostomataceae, Sordariomycetes, Ascomycota	seeds	<i>Tectona grandis</i> <i>Pinus elliottii</i>	India South Africa	Anderson 1986a Cilliers et al. 1995
[as <i>Ophiostoma stenoceras</i> (Robak) Nannf.]					
<i>Sporotrichum roseum</i> Link	Fomitopsidaceae, Agaricomycetes, Basidiomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Sporotrichum</i> spp.	Fomitopsidaceae, Agaricomycetes, Basidiomycota	seed	<i>Betula papyrifera</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
<i>Stachybotrys alternans</i> Bonord.	Stachybotryaceae, Sordariomycetes, Ascomycota	seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Larix decidua</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Mittal & Sharma 1982c, Mittal et al. 1990
<i>Stachybotrys chartarum</i> (Ehrenb.) S. Hughes	Stachybotryaceae, Sordariomycetes, Ascomycota	seed	<i>Eucalyptus</i> sp.	India	Reddy et al. 1982, Mittal et al. 1990
		seeds	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Stachybotrys chartarum</i> (Ehrenb.) S. Hughes = <i>Stachybotrys atrus</i> Corda [as 'atra']		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
<i>Stachybotrys chartarum</i> (Ehrenb.) S. Hughes		seeds	<i>Pinus sylvestris</i>	Poland, USSR	Garbowski 1936, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>= Stachybotrys lobulatus</i> Berk. [as ' <i>lobulata</i> ']					
<i>Stachybotrys parvisporus</i> S. Hughes [as ' <i>parvispora</i> ']	Stachybotryaceae, Sordariomycetes, Ascomycota	fruits fruits seeds	<i>Ardisia punctata</i> <i>Ilex cinerea</i> <i>Cedrus deodara</i>	Hong Kong Hong Kong India	Tang et al. 2003a Tang et al. 2003a Mittal 1983
<i>Stachybotrys phaeophialis</i> L. Lombard & Crous [#]	Stachybotryaceae, Sordariomycetes, Ascomycota	seed	undetermined plant	China	Lombard et al. 2016
<i>Stachybotrys</i> spp.	Stachybotryaceae, Sordariomycetes, Ascomycota	seeds	<i>Callistephus</i> <i>chinensis</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Dahlia × hybrida</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Dianthus</i> <i>caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seeds	<i>Eucalyptus globulus</i>	India	Anderson 1986a
		seeds	<i>Primula × polyantha</i>	imported to Taiwan	Wu et al. 2006
<i>Stagonospora arenaria</i> (Sacc.) Sacc.	Massarinaceae, Dothideomycetes, Ascomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
<i>Stagonospora</i> spp.	Massarinaceae, Dothideomycetes, Ascomycota	seeds	<i>Phragmites australis</i>	Germany	Ernst et al. 2003
<i>Stagonosporopsis pini</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Didymellaceae, Dothideomycetes, Ascomycota	cone	<i>Pinus</i> sp.	China	Jayasiri et al. 2019
<i>Staphylotrichum</i> sp.	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Stemphylium botryosum</i> Wallr.	Pleosporaceae, Dothideomycetes, Ascomycota	seed seed	<i>Anethum graveolens</i> <i>Apium graveolens</i> var. <i>dulce</i>	Canada Canada	Connors 1967 Connors 1967
		seed	<i>Asparagus officinalis</i> var. <i>altilis</i>	Canada	Connors 1967

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Casuarina equisetifolia</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seed	<i>Festuca elatior</i>	Canada	Connors 1967
		seed	<i>Festuca rubra</i>	Canada	Connors 1967
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seed	<i>Salvia officinalis</i>	Canada	Connors 1967
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
<i>Stemphylium ilicis</i> Tengwall	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Stemphylium parasiticum</i> (Thüm.) J.A. Elliott	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Callistephus chinensis</i>	China	Gloyer 1931, Crosier & Heit 1948
<i>Stemphylium paxianum</i> (Szabó) Lindau	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Stemphylium pyriforme</i> Bonord. [as 'piriforme']	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Stemphylium radicinum</i> (Meier, Drechsler & E.D. Eddy) Neerg.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
<i>Stemphylium</i> spp.	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Stemphylium vesicarium</i> (Wallr.) E.G. Simmons	Pleosporaceae, Dothideomycetes, Ascomycota	seeds	<i>Callistephus chinensis</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Cosmos sulphureus</i>	imported to Taiwan	Wu et al. 2006
		seeds	<i>Cupressus sempervirens</i>	Egypt	Farag et al. 1977, Mittal et al. 1990
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Dianthus</i> spp.	Taiwan	Li & Wu 2002
		seeds	<i>Tagetes patula</i>	imported to Taiwan	Wu et al. 2006
<i>Stereum hirsutum</i> (Willd.) Pers. [as 'Sterum'] Sterile mycelia	Stereaceae, Agaricomycetes, Basidiomycota Fungi	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Abies koreana</i>	Korea	Cho et al. 2007
		seeds	<i>Eucalyptus globulus</i>	India	Sharma & Mohanan 1980, Mittal et al. 1990
		seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	South Africa, Taiwan, USA	Rowan & Debarr 1974, Mittal et al. 1990, Cilliers et al. 1995
		seeds	<i>Pinus insularis</i>	Philippines	Agmata 1979, Anderson 1986a
		seeds	<i>Pinus luchuensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus nigra</i>	Hungary	Hangyal 1973, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus thunbergii</i> [= <i>Pinus thunbergiana</i>]	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
		seeds	<i>Swietenia macrophylla</i>	Philippines	Agmata 1979, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Sharma & Mohanan 1980, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Stictis fimbriata</i> Schwein.	Stictidaceae, Lecanoromycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Stilbum nanum</i> (Ehrenb.) Spreng. [as ' <i>Stilbella nanum</i> ']	Chionosphaeraceae, Agaricostilbomycetes, Basidiomycota	seeds	<i>Cedrus deodara</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus roxburghii</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus wallichiana</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
<i>Stomiopeltis phyllanthi</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Micropeltidaceae, Dothideomycetes, Ascomycota	fruit	<i>Phyllanthus emblica</i>	China	Jayasiri et al. 2019
<i>Stomiopeltis sinensis</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Micropeltidaceae, Dothideomycetes, Ascomycota	fruit	<i>Harpephyllum</i> sp.	China	Jayasiri et al. 2019
<i>Strobiloscypha keliae</i> N.S. Weber & Denison ^{#**}	Strobiloscyphaceae, Pezizomycetes, Ascomycota	cones	<i>Chamaecyparis lawsoniana</i>	USA	Weber & Denison 1995
<i>Strobilurus diminutivus</i> Desjardin [#]	Physalacriaceae, Agaricomycetes, Basidiomycota	cone scales	<i>Pinus</i> sp.	USA	Desjardin 2000
<i>Strobilurus esculentus</i> (Wulfen) Singer	Physalacriaceae, Agaricomycetes, Basidiomycota	cones	<i>Picea smithiana</i>	India	Goswami & Ojha 2004
<i>Strobilurus stephanocystis</i> (Kühner & Romagn. ex Hora) Singer	Physalacriaceae, Agaricomycetes, Basidiomycota	cones	<i>Pinus</i> sp.	India	Goswami & Ojha 2004
<i>Stysanus medius</i> Sacc.	Microascaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus roxburghii</i>	India	Munjaj & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	Poland	Garbowski 1936, Mittal et al. 1990
<i>Stysanus microsporus</i> Sacc.	Microascaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
<i>Stysanus stemonitis</i> (Pers.) Corda	Microascaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Stysanus stemonitis</i> (Pers.) Corda [as 'stemonites']		seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
<i>Sydowia</i> spp.	Dothioraceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Sydowia polyspora</i> (Bref. & Tavel) E. Müll.	Dothioraceae, Dothideomycetes, Ascomycota	seeds	<i>Abies koreana</i>	Korea	Cho et al. 2005, Cho et al. 2007
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Symmetrospora coprosmae</i> (Hamam. & Nakase) Q.M. Wang, F.Y. Bai, M. Groenew. & Boekhout [#] [as <i>Bullera coprosmae</i> Hamam. & Nakase]	Symmetrosporaceae, Cystobasidiomycetes, Basidiomycota	fruit	<i>Coprosma tenuifolia</i>	New Zealand	Hamamoto & Nakase 1996
<i>Symphysira clematidis</i> Baral [#]	Helotiaceae, Leotiomycetes, Ascomycota	fruit	<i>Clematis vitalba</i>	Germany	Weber 1992
<i>Symphyosirinia chaerophylli</i> M. Svrček [#]	Helotiaceae, Leotiomycetes, Ascomycota	seeds	<i>Chaerophyllum hirsutum</i>	former Czechoslovakia	Svrcek 1989
<i>Sympodiella goidanichii</i> (Rambelli) Crous & Hern.- Restr. [#] [as <i>Ceratosporella goidanichii</i> Rambelli]	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	cupule	<i>Fagus sylvatica</i>	Italy	Crous et al. 2019
<i>Syncephalastrum cinereum</i> Bainier	Syncephalastraceae, Mucoromycetes, Mucoromycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Syncephalastrum racemosum</i> Cohn ex J. Schröt.	Syncephalastraceae, Mucoromycetes, Mucoromycota	seeds	<i>Acacia auriculiformis</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Cassia fistula</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seeds	<i>Eucalyptus alba</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Gmelina arborea</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus merkusii</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Mason & van Arsdel 1978, Anderson 1986a
		seeds	<i>Samanea saman</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
		seeds	<i>Shorea robusta</i>	Thailand	Chalermpongse et al. 1984, Mittal et al. 1990
<i>Syncephalastrum</i> sp.	Syncephalastraceae, Mucoromycetes, Mucoromycota	seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
<i>Tainosphaeria crassiparies</i> F.A. Fernández & Hundorf ^{###}	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Tainosphaeria siamensis</i> Jiao Yang, K.D. Hyde & Jian K. Liu	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pod	<i>Hymenaea</i> sp.	USA	Fernández & Huhndorf 2005
<i>Talaromyces aculeatus</i> (Raper & Fennell) Samson, N. Yilmaz, Frisvad & Seifert [as <i>Penicillium aculeatum</i> Raper & Fennell]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
<i>Talaromyces aculeatus</i> (Raper & Fennell) Samson, N. Yilmaz, Frisvad & Seifert [as <i>Penicillium aculeatum</i> Raper & Fennell]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus taeda</i>	Georgia	Huang & Kuhlman 1990
<i>Talaromyces coalescens</i> (Quintan.) Samson, N. Yilmaz & Frisvad [as <i>Penicillium coalescens</i> Quintan.]	Trichocomaceae, Eurotiomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Talaromyces diversus</i> (Raper & Fennell) Samson, N. Yilmaz & Frisvad	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as <i>Penicillium diversum</i> Raper & Fennell]					
<i>Talaromyces funiculosus</i> (Thom) Samson, N. Yilmaz, Frisvad & Seifert	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
[as <i>Penicillium funiculosum</i> Thom]					
<i>Talaromyces islandicus</i> (Sopp) Samson, N. Yilmaz, Frisvad & Seifert	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
= <i>Penicillium islandicum</i> Sopp [as 'islandium']					
<i>Talaromyces palmae</i> (Samson, Stolk & Frisvad) Samson, N. Yilmaz, Frisvad & Seifert# [as <i>Penicillium</i> <i>palmae</i> Samson, Stolk & Frisvad]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Chrysalidocarpus</i> <i>lutescens</i>	The Netherlands	Samson et al. 1989
<i>Talaromyces purpureogenus</i> Samson, N. Yilmaz, Houbraken, Spierenb., Seifert, Peterson, Varga & Frisvad [as <i>Penicillium</i> <i>purpureogenum</i> Stoll]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
<i>Talaromyces ruber</i> (Stoll) N. Yilmaz, Houbraken, Frisvad & Samson [as <i>Penicillium</i> <i>rubrum</i> Stoll]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds seeds seeds	<i>Eucalyptus</i> <i>citriodora</i> <i>Larix occidentalis</i> <i>Pinus roxburghii</i>	India USA India	Mittal & Sharma 1984, Mittal et al. 1990 James et al. 1996 Mittal & Sharma 1982c, Mittal et al. 1990
<i>Talaromyces ruber</i> (Stoll) N. Yilmaz, Houbraken, Frisvad & Samson = <i>Penicillium rubrum</i> Stoll [as 'ruber']		seed seed seed	<i>Macroptilium</i> <i>atropurpureum</i> <i>Macroptilium</i> <i>lathyroides</i> <i>Trifolium repens</i>	Australia Australia Australia	Nik & Parbery 1977 Nik & Parbery 1977 Nik & Parbery 1977

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Talaromyces rugulosus</i> (Thom) Samson, N. Yilmaz, Frisvad & Seifert [as <i>Penicillium rugulosum</i> Thom]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
<i>Talaromyces variabilis</i> (Sopp) Samson, N. Yilmaz, Frisvad & Seifert [as <i>Penicillium variabile</i> Sopp]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1986, Mittal et al. 1990
<i>Talaromyces verruculosus</i> (Peyronel) Samson, N. Yilmaz, Frisvad & Seifert [as <i>Penicillium verruculosum</i> Peyronel]	Trichocomaceae, Eurotiomycetes, Ascomycota	seed	<i>Pinus sylvestris Medicago sativa</i>	UK Canada	Whittle 1977 Connors 1967
<i>Talaromyces wortmannii</i> (Klöcker) C.R. Benj [as <i>Penicillium wortmannii</i> Klöcker]	Trichocomaceae, Eurotiomycetes, Ascomycota	seeds	<i>Cedrus deodara</i>	India	Mittal 1983
<i>Taphrina alni-incanae</i> (J.G. Kühn) Magnus	Taphrinaceae, Taphrinomycetes, Ascomycota	seeds	<i>Alnus</i> sp.	Poland	Anderson 1986a
<i>Taphrina</i> sp.	Taphrinaceae, Taphrinomycetes, Ascomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
<i>Teichospora thailandica</i> (Thambug. & K.D. Hyde) Jaklitsch & Voglmayr [as <i>Ramusculicola thailandica</i> Thambug. & K.D. Hyde]	Teichosporaceae, Dothideomycetes, Ascomycota	pod	<i>Acacia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Teratosphaeria zuluensis</i> (M.J. Wingf., Crous & T.A. Cout.) M.J. Wingf. & Crous	Teratosphaeriaceae, Dothideomycetes, Ascomycota	seed capsules, seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Tetracoccusporium</i> sp.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Thamnidium elegans</i> Link	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990 Prisyazhnyuk 1960, Mittal et al. 1990 Prisyazhnyuk 1960, Mittal et al. 1990 Dolejs 1964, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	
		seeds	<i>Picea abies</i>	USSR	
		seeds	<i>Pinus sylvestris</i>	USSR	
<i>Thamnostylum lucknowense</i> (J.N. Rai, J.P. Tewari & Mukerji) Arx & H.P. Upadhyay	Lichtheimiaceae, Mucoromycetes, Mucoromycota	seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990
<i>Thecaphora hosackiae</i> Vánky [#]	Glomosporiaceae, Ustilaginomycetes, Basidiomycota	pods	<i>Hosackia parviflora</i>	USA	Vánky 2008b
<i>Thecaphora maireanae</i> R.G. Shivas & Vánky [#]	Glomosporiaceae, Ustilaginomycetes, Basidiomycota	fruits	<i>Maireana pentagona</i>	Australia	Vánky & Shivas 2003
<i>Thecaphora oberwinkleri</i> K. Vánky [#]	Glomosporiaceae, Ustilaginomycetes, Basidiomycota	seeds	<i>Androsace fedtschenkoi</i>	China	Vánky 1988
<i>Thecaphora oxytropis</i> S.R. Wang [#]	Glomosporiaceae, Ustilaginomycetes, Basidiomycota	seeds	<i>Oxytropis ochrocephala</i>	China	Wang & Zeng 2006
<i>Thecaphora pakistanica</i> Vánky, S.H. Iqbal & Khalid [#]	Glomosporiaceae, Ustilaginomycetes, Basidiomycota	capsules	<i>Androsace rotundifolia</i>	Pakistan	Vánky et al. 2007
<i>Thecaphora ulicis</i> Vánky [#]	Glomosporiaceae, Ustilaginomycetes, Basidiomycota	seeds	<i>Ulex minor</i>	UK	Vánky 2008b
<i>Thekopsora padi</i> (Kunze & J.C. Schmidt) Kleb. [as ' <i>Thecospora padi</i> ']	Pucciniastraceae, Pucciniomycetes, Basidiomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		cones	<i>Picea abies</i>	Finland	
		cones	<i>Picea engelmannii</i>	Finland	
<i>Thekopsora areolata</i> (Fr.) Magnus	Pucciniastraceae, Pucciniomycetes, Basidiomycota	cones	<i>Picea glauca</i>	Finland	Kaitera 2013, Kaitera et al. 2009, 2014 Kaitera et al. 2014 Kaitera et al. 2014

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Thielaviopsis</i> sp.	Ceratocystidaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea jezoensis</i>	Japan	Cheng & Igarashi 1987
<i>Thielavia</i> spp.	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Bombax ceiba</i>	India	Mittal et al. 1990
<i>Thozetella cristata</i> Piroz. & Hodges	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
<i>Thozetella fabacearum</i> R.H. Perera & K.D. Hyde [#]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pod	Fabaceae plant	Thailand	Perera et al. 2016b
<i>Thozetella lithocarp</i> R.H. Perera & K.D. Hyde [#]	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	fruit	<i>Lithocarpus</i> sp.	Thailand	Phookamsak et al. 2019
<i>Thozetella nivea</i> (Berk.) Kuntze	Chaetosphaeriaceae, Sordariomycetes, Ascomycota	pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Tilletia brachypodii-</i> <i>mexicana</i> Vánky [#]	Tilletiaceae, Exobasidiomycetes, Basidiomycota	seeds	<i>Brachypodium</i> <i>mexicanum</i>	Venezuela	Vánky 1995
<i>Tilletia colombiana</i> Vánky [#]	Tilletiaceae, Exobasidiomycetes, Basidiomycota	seeds	<i>Brachypodium</i> <i>mexicanum</i>	Colombia	Vánky 1995
<i>Tilletia laguri</i> G.M. Zhang, G.X. Lin & J.R. Deng [#]	Tilletiaceae, Exobasidiomycetes, Basidiomycota	seeds	<i>Lagurus ovatus</i>	Italy	Zhang et al. 1995
<i>Tilletia walkeri</i> Castl. & Carris [#]	Tilletiaceae, Exobasidiomycetes, Basidiomycota	seeds	<i>Lolium multiflorum</i> [= <i>Festuca perennis</i>]	USA	Castlebury & Carris 1999
<i>Tomentella afrostoposa</i> Yorou [#]	Thelephoraceae, Agaricomycetes, Basidiomycota	pods	<i>Afzelia africana</i>	Guinea	Yorou et al. 2011
<i>Torula convoluta</i> Harz	Torulaceae, Dothideomycetes, Ascomycota	seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Torula fici</i> Crous	Torulaceae, Dothideomycetes, Ascomycota	fruit	<i>Garcinia</i> sp.	Thailand	Jayasiri et al. 2019
<i>Torula herbarum</i> (Pers.) Link	Torulaceae, Dothideomycetes, Ascomycota	seed	<i>Cryptomeria</i> <i>japonica</i>	Japan	Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Mittal et al. 1990
<i>Torula</i> spp.	Torulaceae, Dothideomycetes, Ascomycota	acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		seed	<i>Cercis chinensis</i>	Japan	Watanabe 2010
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Torulomyces lagena</i> Delitsch	Aspergillaceae, Eurotiomycetes, Ascomycota,	seed	<i>Cryptomeria japonica</i>	Japan	Watanabe 2010
Tremellales	Tremellomycetes, Basidiomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Trichaegum</i> sp.	<i>Incertae sedis, Incertae sedis,</i> Ascomycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
<i>Trichocladium griseum</i> (Traaen) X. Wei Wang & Houbraken [as <i>Humicola grisea</i> Traaen]	Chaetomiaceae, Sordariomycetes, Ascomycota	seeds	<i>Casuarina equisetifolia</i>	India	Anju et al. 2012
		seeds	<i>Dalbergia sissoo</i>	India	Mittal & Sharma 1981b, Mittal et al. 1990
<i>Trichoderma asperellum</i> Samuels, Lieckf. & Nirenberg	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Abies koreana</i>	Korea	Cho et al. 2007
'Trichoderma conispora' [as <i>Hypocrea conispora</i> Y. Doi & G.J. Samuels] [#]	Hypocreaceae, Sordariomycetes, Ascomycota	fruit	undetermined plant	Indonesia	Samuels et al. 1990
<i>Trichoderma deliquescens</i> (Sopp) Jaklitsch [as <i>Gliocladium deliquescens</i> Sopp]	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Sapium</i> spp.	India	Sahai & Otra 1982
<i>Trichoderma hamatum</i> (Bonord.) Bainier	Hypocreaceae, Sordariomycetes, Ascomycota	pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
<i>Trichoderma harzianum</i> Rifai	Hypocreaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		pod	<i>Sesbania bispinosa</i>	India	Anita et al. 2009
		seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010
		seeds	<i>Pinus elliotii</i>	South Africa	Cilliers et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seed	<i>Prunus serrulata</i>	Japan	Watanabe 2010
		seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013
<i>Trichoderma koningii</i> Oudem.	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Alnus glutinosa</i>	Poland	Krol et al. 2015
		seeds	<i>Betula pendula</i>	Poland	Krol et al. 2015
		seeds	<i>Betula verrucosa</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Picea abies</i>	Poland	Krol et al. 2015
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		seeds	<i>Pinus sylvestris</i>	Poland	Krol et al. 2015
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
		seeds	<i>Quercus pedunculata</i>	USSR	Kozłowska 1968, Mittal et al. 1990
		seeds	<i>Quercus rubra</i>	Poland	Krol et al. 2015
<i>Trichoderma koningii</i> Oudem. [as 'koenigii']		seeds	<i>Pinus patula</i>	Kenya	Gibson 1957, Mittal et al. 1990
<i>Trichoderma lignorum</i> (Tode) Harz	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Abies sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Larix sibirica</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
		seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	Georgia	Huang & Kuhlman 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Trichoderma</i> spp.	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1959, Mittal et al. 1990
		cones	<i>Pinus ponderosa</i>	USA	James 1995
		cones, seeds	<i>Pinus</i> spp.	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	USA	James 1995
		fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012
		fruits	<i>Avicennia marina</i>	India	Mehdi & Saifullah 2000
		Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Abies lasiocarpa</i>	Canada, Norway	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Austria, Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Albizia lebbek</i>	India	Mohanani et al. 2005
		seeds	<i>Dalbergia sissooides</i>	India	Mohanani et al. 2005
		seeds	<i>Dianthus caryophyllus</i>	Taiwan	Li & Wu 2002
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Picea engelmannii</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus contorta</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	South Africa, USA	Mittal et al. 1990, Cilliers et al. 1995
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	USA	Fraedrich & Miller 1995
seeds	<i>Pinus nigra</i>	Hungary	Friedrich et al. 1971, Mittal et al. 1990		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Trichoderma viride</i> Pers.	Hypocreaceae, Sordariomycetes, Ascomycota	seeds	<i>Pinus oocarpa</i>	Honduras	Mittal et al. 1990
		seeds	<i>Pinus patula</i>	East Africa	Gibson 1957, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	Fuller & Hildebrand 1985, Mittal et al. 1990, Cilliers et al. 1995
		seeds	<i>Pinus sylvestris</i>	Hungary	Garbowski 1936, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Salisbury 1955, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mohanan et al. 2005
		acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
		cones	<i>Pinus ponderosa</i>	USA	James 1983a
		cones	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
		seeds	<i>Betula pendula</i>	Finland	Lilja 1979, Mittal et al. 1990
		seeds	<i>Cedrus deodara</i>	India	Munjil & Sharma 1975, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
seeds	<i>Eucalyptus citriodora</i>	India	Mittal & Sharma 1984, Mittal et al. 1990		
seeds	<i>Eucalyptus</i> hybrid	India	Mittal 1986, Mittal et al. 1990		
seeds	<i>Eucalyptus maidenii</i>	Uruguay	Anderson 1986a		
seed	<i>Festuca elatior</i>	Canada	Connors 1967		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
		seed	<i>Medicago sativa</i>	Canada	Connors 1967
		seed	<i>Phleum pratense</i>	Canada	Connors 1967
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus elliotii</i> var. <i>elliotii</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus roxburghii</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus sylvestris</i>	UK	Whittle 1977
		seeds	<i>Pinus wallichiana</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada, USA	Bloomberg 1966, Anderson 1986a, James 1984
		seeds	<i>Quercus</i> spp.	India	Sahai & Otra 1982
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Trichophaea abundans</i> (P. Karst.) Boud. [as <i>Patella abundans</i> (P. Karst.) Seaver]	Pyronemataceae, Pezizomycetes, Ascomycota	seed	<i>Linum usitatissimum</i>	Canada	Connors 1967
<i>Trichosporon</i> sp.	Trichosporonaceae, Tremellomycetes, Basidiomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Trichosporum cerealis</i> (Thüm.) Sacc.	Piedraiaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
<i>Trichosporum olivatum</i> Sacc.	Piedraiaceae, Dothideomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Trichothecium roseum</i> (Pers.) Link	Myrotheciomyetaceae, Sordariomycetes, Ascomycota	cones, seeds cones, seeds	<i>Pinus leucodermis</i> <i>Pinus mugo</i>	Canada Canada	Vujanovic et al. 2000 Vujanovic et al. 2000

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		cones, seeds	<i>Pinus mugo</i> 'Hesse'	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus mugo</i> var. <i>pumilio</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus nigra</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus nigra</i> ssp. <i>laricio</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus nigra</i> ssp. <i>nigra</i>	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus strobus</i>	Canada	Mittal & Wang 1987
		cones, seeds	<i>Pinus sylvestris</i> 'Euro-Asia'	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus uncinata</i>	Canada	Vujanovic et al. 2000
		seeds	<i>Abies alba</i>	Poland	Krol et al. 2015
		seed	<i>Abies balsamea</i>	Canada	Connors 1967
		seeds	<i>Abies lasiocarpa</i>	Canada	Talgø et al. 2010
		seeds	<i>Abies nordmanniana</i>	Georgia, Russia	Talgø et al. 2010
		seeds	<i>Abies procera</i>	Norway	Talgø et al. 2010
		seeds	<i>Acer pseudoplatanus</i>	Poland	Krol et al. 2015
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Betula pendula</i>	Finland, Poland	Lilja 1979, Mittal et al. 1990, Krol et al. 2015
		seeds	<i>Cedrus deodara</i>	Uruguay	Manoharachary et al. 1978, Anderson 1986a
		seeds	<i>Dalbergia sissoo</i>	India	Kumar 2014
		seeds	<i>Eucalyptus</i> sp.	India	Saxena 1985, Mittal et al. 1990
		seeds	<i>Fagus sylvatica</i>	Poland	Krol et al. 2015
		seeds	<i>Larix occidentalis</i>	USA	James et al. 1996
		seeds	<i>Picea abies</i>	Poland	Krol et al. 2015
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Picea glauca</i>	Canada	Mittal & Wang 1987
		seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a
		seeds	<i>Pinus nigra</i>	Hungary	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus sylvestris</i>	Hungary, Poland, USSR	Hangyal 1973, Anderson 1986a
		seeds	<i>Pinus taeda</i>	Uruguay	Anderson 1986a
		seed	<i>Poa compressa</i>	Canada	Connors 1967
		seeds	<i>Pseudotsuga menziesii</i>	USA	Gordon 1967, Mittal et al. 1990
		seeds	<i>Quercus castaneifolia</i>	Iran	Kavosi et al. 2013
		seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
		seeds	<i>Quercus</i> spp.	India, USSR	Urosevic 1959, Sahai & Otra 1982, Mittal et al. 1990
		seed	<i>Setaria viridis</i>	Canada	Connors 1967
		seeds	<i>Thuja</i> spp.	India	Sahai & Otra 1982
<i>Trichothecium</i> spp.	Myrotheciomycetaceae, Sordariomycetes, Ascomycota	seeds	<i>Araucaria bidwillii</i>	Egypt	Kamara et al. 1981, Mittal et al. 1990
		seeds	<i>Pinus patula</i>	East Africa	Gibson 1957, Mittal et al. 1990
		seeds	<i>Pinus taeda</i>	USA	Covington et al. 1982, Anderson 1986a
		seeds	<i>Pseudotsuga menziesii</i>	Canada	Bloomberg 1969, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Anderson 1986a
<i>Tripospermum myrti</i> (Lind)	Neodevriesiaceae, Dothideomycetes, Ascomycota	seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
<i>Tripospermum</i> sp.	Neodevriesiaceae, Dothideomycetes, Ascomycota	seed	<i>Pinus densiflora</i>	Japan	Watanabe 2010

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Tritirachium</i> spp.	Tritirachiaceae, Tritirachiomycetes, Basidiomycota	seeds seeds	<i>Picea jezoensis</i> <i>Pinus taeda</i>	Japan Uruguay	Cheng & Igarashi 1987 Anderson 1986a, b
<i>Truncatella angustata</i> (Pers.) S. Hughes	Sporocadaceae, Sordariomycetes, Ascomycota	seeds seeds seeds	<i>Larix decidua</i> <i>Picea abies</i> <i>Pinus sylvestris</i>	Poland Poland Poland	Krol et al. 2015 Krol et al. 2015 Krol et al. 2015
<i>Truncatella angustata</i> (Pers.) S. Hughes [as <i>Pestalotia truncata</i> Lév.]		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Truncatella hartigii</i> (Tubeuf) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	cones, seeds cones, seeds cones, seeds	<i>Pinus contorta</i> <i>Pinus densiflora</i> <i>Pinus sylvestris</i>	Canada Canada Canada	Vujanovic et al. 2000 Vujanovic et al. 2000 Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i> 'Argentea-Compacta'	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i> 'Beuvronensis'	Canada	Vujanovic et al. 2000
		cones, seeds	<i>Pinus sylvestris</i> 'Fastigiata'	Canada	Vujanovic et al. 2000
		cones, seeds seeds	<i>Pinus sylvestris</i> 'Watereri' <i>Pinus tabulaeformis</i>	Canada UK	Vujanovic et al. 2000 Batko 1956, Anderson 1986a
<i>Truncatella laurocerasi</i> (Westend.) Steyaert	Sporocadaceae, Sordariomycetes, Ascomycota	seeds seeds	<i>Nothofagus</i> sp. <i>Pyrus</i> spp.	UK Romania	Anderson 1986a Richardson 1979
<i>Tubaria keralensis</i> K.P.D. Latha & Manim.#	Tubariaceae, Agaricomycetes, Basidiomycota	fruits	<i>Casuarina</i> sp.	India	Latha et al. 2016
<i>Tubercularia</i> spp.	Icmadophilaceae, Lecanoromycetes, Ascomycota	cones, seeds cones, seeds cones, seeds cones, seeds cones, seeds	<i>Pinus</i> × <i>schwerinii</i> (<i>P. strobus</i> × <i>P. wallichiana</i>) <i>Pinus ayacahuite</i> <i>Pinus parviflora</i> <i>Pinus peuce</i> <i>Pinus ponderosa</i>	Canada Canada Canada Canada Canada	Vujanovic et al. 2000 Vujanovic et al. 2000 Vujanovic et al. 2000 Vujanovic et al. 2000 Vujanovic et al. 2000

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Tubeufia dictyospora</i> Y.Z. Lu, Boonmee & K.D. Hyde	Tubeufiaceae, Dothideomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Jayasiri et al. 2019
<i>Tubeufia entadae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Tubeufiaceae, Dothideomycetes, Ascomycota	pod	<i>Entada phaseoloides</i>	Thailand	Jayasiri et al. 2019
<i>Typhula peronata</i> (Pers.) Fr.	Typhulaceae, Agaricomycetes, Basidiomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Umbelopsis isabellina</i> (Oudem.) W. Gams [as <i>Mortierella isabellina</i> Oudem.]	Umbelopsidaceae, <i>Incertae sedis</i> , Mucoromycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		seed	<i>Pinus thunbergii</i>	Japan	Watanabe 2010
		seeds	<i>Pinus wallichiana</i>	India	Mittal & Sharma 1982b, Mittal et al. 1990
<i>Umbelopsis ramanniana</i> (Möller) W. Gams [as <i>Mortierella ramanniana</i> (Möller) Linnem.]	Umbelopsidaceae, <i>Incertae sedis</i> , Mucoromycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Umbelopsis ramanniana</i> (Möller) W. Gams [as <i>Mucor ramannianus</i> Möller]		seeds	<i>Pinus caribaea</i>	Belize [as British Honduras]	Hocking 1968, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Urosevic 1961, Anderson 1986a
<i>Umbelopsis</i> sp.	Umbelopsidaceae, <i>Incertae sedis</i> , Mucoromycota	seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
Undetermined Ascomycete	-	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
Undetermined Basidiomycete	-	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013
Undetermined fungi	-	seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
		seeds	<i>Calypso bulbosa</i>	Canada	Zelmer et al. 1996
		seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Platanthera hyperborea</i>	Canada	Zelmer et al. 1996
<i>Urceolella pinicola</i> Raitv. & R. Galán [#]	Calloriaceae, Leotiomycetes, Ascomycota	cone	<i>Pinus halepensis</i>	Spain	Raitviir & Galán 1993
<i>Urceolella triseptata</i> Raitv. & R. Galán [#]	Calloriaceae, Leotiomycetes, Ascomycota	cupule	<i>Quercus rotundifolia</i>	Spain	Raitviir & Galán 1993
<i>Urocystis aurea</i> Vánky [#]	Urocystidaceae, Ustilaginomycetes, Basidiomycota	capsules	<i>Hypoxis aurea</i>	India	Vánky 2004
<i>Uromycladium naracoortense</i> Berndt [as 'naracoortensis'] [#]	Pileolariaceae, Pucciniomycetes, Basidiomycota	Pods	<i>Acacia cf. iteaphylla</i>	Australia	Berndt 2010
<i>Ustilago echinochloae</i> L. Guo & Y.-c. Wang [#]	Ustilaginaceae, Ustilaginomycetes, Basidiomycota	seeds	<i>Echinochloa crus-galli</i>	China	Vánky & Guo 1987
<i>Ustilago hordei</i> (Pers.) Lagerh.	Ustilaginaceae, Ustilaginomycetes, Basidiomycota	seed	<i>Agropyron cristatum</i>	Canada	Connors 1967
<i>Vaginatispora nypae</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Lophiostomataceae, Dothideomycetes, Ascomycota	fruit	<i>Nypa</i> sp.	Thailand	Jayasiri et al. 2019
<i>Valsa pini</i> (Alb. & Schwein.) Fr.	Valsaceae, Sordariomycetes, Ascomycota	cones, seeds	<i>Pinus flexilis</i>	Canada	Vujanovic et al. 2000
<i>Valsa</i> spp.	Valsaceae, Sordariomycetes, Ascomycota	cones, seeds	<i>Pinus peuce</i>	Canada	Vujanovic et al. 2000
<i>Vargamycetes aquaticus</i> (Dudka) Tóth	Amniculicolaceae, Dothideomycetes, Ascomycota	seeds	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Verruculina enalia</i> (Kohlm.) Kohlm. & Volk.-Kohlm.	Testudinaceae, Dothideomycetes, Ascomycota	fruit cupule	<i>Fagus sylvatica</i>	UK	Jayasiri et al. 2019
<i>Verticillium albo-atrum</i> Reinke & Berthold	Plectosphaerellaceae, Sordariomycetes, Ascomycota	fruit	<i>Pandanus</i> sp.	Thailand	Jayasiri et al. 2019
		seed	<i>Apium graveolens</i> var. <i>dulce</i>	USA	Connors 1967
		seeds	<i>Eucalyptus</i> sp.	India	Lee & Ahmad 1982, Mittal et al. 1990
		seeds	<i>Picea excelsa</i>	USSR	Urosevic 1961, Anderson 1986a

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus sylvestris</i>	USSR	Dolejs 1964, Anderson 1986a
<i>Verticillium epimyces</i> Berk. & Broome	Plectosphaerellaceae, Sordariomycetes, Ascomycota	seeds	<i>Quercus</i> spp.	USSR	Urosevic 1962, Mittal et al. 1990
<i>Verticillium glaucum</i> Bonord.	Plectosphaerellaceae, Sordariomycetes, Ascomycota	seeds	<i>Picea abies</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
		seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Verticillium</i> spp.	Plectosphaerellaceae, Sordariomycetes, Ascomycota	pod	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
		seeds	<i>Acer campestre</i>	South Korea	Mathur 1974, Anderson 1986a
		seeds	<i>Azadirachta indica</i>	India	Mathur 1974, Mittal et al. 1990
		seeds	<i>Betula alleghaniensis</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Dalbergia sissooides</i>	India	Mohan et al. 2005
		seeds	<i>Eucalyptus grandis</i>	Uruguay	Anderson 1986a
		seeds	<i>Fagus</i> spp.	former Czechoslovakia	Urosevic 1964, Mittal et al. 1990
		seeds	<i>Ficus benjamina</i>	India	Mathur 1974, Anderson 1986a
		seeds	<i>Picea abies</i>	UK	Mittal et al. 1990
		seeds	<i>Picea sitchensis</i>	UK	Salt 1964, Mittal et al. 1990
		seeds	<i>Picea</i> spp.	UK	Anderson 1986a
		seeds	<i>Pinus armandii</i> var. <i>mastersiana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pinus elliottii</i>	Taiwan, USA	Rowan & Debarr 1974, Anderson 1986a, Mittal et al. 1990
seeds	<i>Pinus elliottii</i> var. <i>elliottii</i>	Uruguay	Anderson 1986a		
seeds	<i>Pinus massoniana</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990		

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		seeds	<i>Pinus taeda</i>	USA	Anderson 1986a, b
		seeds	<i>Pinus taiwanensis</i>	Taiwan	Jong & Chen 1966, Mittal et al. 1990
		seeds	<i>Pseudotsuga menziesii</i>	Canada, UK, USA	Gordon 1967, Anderson 1986a, Mittal et al. 1990
		seeds	<i>Pterocarpus indicus</i>	Philippines	Mathur 1974, Anderson 1986a
		seeds	<i>Quercus robur</i>	Germany	Schroder et al. 2004
		seeds	<i>Quercus</i> spp.	USSR	Urosevic 1983, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mathur 1974, Anderson 1986a, Mohanan et al. 2005
		seeds	<i>Tsuga heterophylla</i>	UK	Anderson 1986a
<i>Vishniacozyma carnescens</i> (Verona & Luchetti) Xin Zhan Liu, F.Y. Bai, M. Groenew. & Boekhout [as <i>Cryptococcus carnescens</i> (Verona & Luchetti) M. Takash., Sugita, Shinoda & Nakase]	Bulleribasidiaceae, Tremellomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Cleary et al. 2013
<i>Vishniacozyma victoriae</i> (M.J. Montes, Belloch, Galiana, M.D. García, C. Andrés, S. Ferrer, Torr.-Rodr. & J. Guinea) Xin Zhan Liu, F.Y. Bai, M. Groenew. & Boekhout [as <i>Cryptococcus victoriae</i> M.J. Montes, Belloch, Galiana, M.D. García, C.	Bulleribasidiaceae, Tremellomycetes, Basidiomycota	seeds	<i>Fraxinus excelsior</i>	Sweden	Hayatgheibi 2013

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
Andrés, S. Ferrer, Torr.- Rodr. & J. Guinea]					
<i>Volutella ciliata</i> (Alb. & Schwein.) Fr.	Nectriaceae, Sordariomycetes, Ascomycota	cone	<i>Abies balsamea</i>	Canada	Connors 1967
<i>Volutella</i> sp.	Nectriaceae, Sordariomycetes, Ascomycota	Pods	<i>Delonix regia</i>	Thailand	Somrithipol et al. 2002b
<i>Vuilleminia comedens</i> (Nees) Maire	Vuilleminiaceae, Bartheletiomycetes, Basidiomycota	seeds	<i>Quercus</i> spp.	USSR	Mittal et al. 1990
White, sterile fungi	-	seeds	<i>Acer rubrum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharinum</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Acer saccharum</i>	USA	Friedrich 1969, Mittal et al. 1990
		seeds	<i>Albizia lebbek</i>	India	Mohanan et al. 2005
		seeds	<i>Cedrus deodara</i>	India	Munjal & Sharma 1975, Mittal et al. 1990
		seeds	<i>Dalbergia sissoo</i>	India	Naz et al. 2015
		seeds	<i>Fraxinus americana</i>	USA	Friedrich et al. 1971, Mittal et al. 1990
		seeds	<i>Tectona grandis</i>	India	Mohanan et al. 2005
<i>Wickerhamiella fruticola</i> Pagnocca, C.A. Rosa, Dayo- Owoy. & A. Rodrigues [#]	Trichomonascaceae, Saccharomycetes, Ascomycota	fruits	<i>Hedychium coronarium</i>	Brazil	Dayo-Owoyemi et al. 2014
<i>Wickerhamiella sergipiensis</i> (R.C. Trindade, M.A. Resende, Lachance & C.A. Rosa) C. Vega & Lachance [#] [as <i>Candida sergipensis</i> R.C. Trindade, M.A. Resende, Lachance & C.A. Rosa]	Trichomonascaceae, Saccharomycetes, Ascomycota	frozen fruit pulp	<i>Hancornia speciosa</i>	Brazil	Trindade et al. 2004
<i>Wickerhamiella versatilis</i> (Echells & T.A. Bell) de Vega & Lachance	Trichomonascaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
[as <i>Candida versatilis</i> (Etchells & T.A. Bell) S.A. Mey. & Yarrow] <i>Wickerhamomyces anomalus</i> (E.C. Hansen) Kurtzman, Robnett & Bas.-Powers	Phaffomycetaceae, Saccharomycetes, Ascomycota	seeds	<i>Atropa komarovii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
[as <i>Hansenula anomala</i> (E.C. Hansen) Syd. & P. Syd.] <i>Wickerhamomyces pijperi</i> (Van der Walt & Tscheuschner) Kurtzman, Robnett & Bas.-Powers	Phaffomycetaceae, Saccharomycetes, Ascomycota	fruits	<i>Parahancornia amapa</i>	Brazil	Morais et al. 1995
[as <i>Pichia pijperi</i> Van der Walt & Tscheuschner] <i>Wiesneriomyces javanicus</i> Koord.	Wiesneriomycetaceae <i>Incertae sedis</i> , Ascomycota	fruit	<i>Scheelea zonensis</i>	Panama	Goos & Pirozynski 1975
<i>Xenocamarosporium acaciae</i> Crous & M.J. Wingf.	Didymosphaeriaceae, Dothideomycetes, Ascomycota	pod	<i>Leucaena</i> sp.	Thailand	Jayasiri et al. 2019
<i>Xylaria aethiopica</i> J. Fourn., Y.M. Ju, H.M. Hsieh & U. Lindem. [#]	Xylariaceae, Sordariomycetes, Ascomycota	Pods	<i>Millettia ferruginea</i>	Ethiopia	Fournier et al. 2018
<i>Xylaria alata</i> F. San Martín & J.D. Rogers [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruit	undetermined plant	Mexico	San Martín González & Rogers 1989
<i>Xylaria arbuscula</i> Sacc	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Quercus</i> sp.	Mexico	San Martín González & Rogers 1989
<i>Xylaria aristata</i> Mont.	Xylariaceae, Sordariomycetes, Ascomycota	pod	<i>Guazuma ulmifolia</i>	Mexico	San Martín González & Rogers 1989
<i>Xylaria beilschmiediae</i> G. Huang & L. Guo [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruit	<i>Beilschmiedia percoriacea</i>	China	Huang et al. 2014a
<i>Xylaria byttneriae</i> G. Huang, L. Guo & Na Liu [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits fruits	<i>Byttneria integrifolia</i> <i>Byttneria pilosa</i>	China China	Huang et al. 2014b Huang et al. 2014b

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Xylaria carpophila</i> (Pers.) Fr.	Xylariaceae, Sordariomycetes, Ascomycota	fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012
<i>Xylaria duranii</i> F. San Martín & Vanoye [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruit remaining	<i>Quercus polymoroha</i>	Mexico	San Martín et al. 2001
<i>Xylaria euphorbiicola</i> Rehm [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Euphorbia</i> sp.	Brazil	Rehm 1901
<i>Xylaria guazumae</i> González & Rogers [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Guazuma ulmifolia</i>	Mexico	San Martín González & Rogers 1989
<i>Xylaria heloidea</i> Penz. & Sacc. [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	Legume plant	Indonesia	Penzig & Saccardo 1897
<i>Xylaria himalayensis</i> Narula & Rawla [#]	Xylariaceae, Sordariomycetes, Ascomycota	seeds	angiospermous plant	India	Narula et al. 1984
<i>Xylaria jaliscoensis</i> F. San Martín, J.D. Rogers & Y.M. Ju [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Magnolia iltisiana</i>	Mexico	Rogers et al. 2002
<i>Xylaria karyophthora</i> Husbands, Urbina & Aime [#]	Xylariaceae, Sordariomycetes, Ascomycota	seeds	<i>Chlorocardium rodiei</i>	Guyana	Husbands et al. 2018
<i>Xylaria liquidambaris</i> J.D. Rogers, Y.M. Ju & F. San Martín [as 'liquidambar'] [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Liquidambar styraciflua</i>	USA, Mexico, China	Rogers 1979a, San Martín González & Rogers 1989, Rogers et al. 200
<i>Xylaria magnoliae</i> J.D. Rogers [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Magnolia grandiflora</i>	USA	Rogers 1979a
		fruits	<i>Magnolia schiedeana</i>	Mexico	San Martín González & Rogers 1989
		fruits	<i>Magnolia</i> sp.	USA	Rogers 1979a
<i>Xylaria magnoliae</i> var. <i>microspora</i> J.D. Rogers, Y.M. Ju & Whalley [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Talauma ovata</i>	Brazil	Trierveiler-Pereira et al. 2009
<i>Xylaria oxyacanthae</i> Tul. & C. Tul.	Xylariaceae, Sordariomycetes, Ascomycota	fruit seeds	<i>Magnolia</i> sp. <i>Crataegus monogyna</i>	Thailand USA, Mexico	Rogers et al. 2002 Rogers et al. 2008, San Martín González & Rogers 1989

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		pod	Fabaceae plant	Mexico	San Martín González & Rogers 1989
		seeds	Vitaceae plant	USA, Mexico	Rogers et al. 2008, San Martín González & Rogers 1989
<i>Xylaria persicaria</i> (Schwein.) Berk. & M.A. Curtis	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Liquidambar formosana</i>	Korea	Han & Shin 2007
		fruits	<i>Liquidambar styraciflua</i>	Korea	Han & Shin 2007
<i>Xylaria rhizocola</i> (Mont.) Mont.	Xylariaceae, Sordariomycetes, Ascomycota	seed	Palm	Brazil	Ju et al. 2018
		seeds	undetermined plant	France [as French Guiana]	Ju et al. 2018
<i>Xylaria rossmaniae</i> Y.M. Ju, J.D. Rogers & H.M. Hsieh [as ' <i>rossmaniae</i> '] [#]	Xylariaceae, Sordariomycetes, Ascomycota	pod	<i>Elizabetha</i> sp.	Venezuela	Ju et al. 2018
<i>Xylaria</i> spp.	Xylariaceae, Sordariomycetes, Ascomycota	cones	<i>Pinus densiflora</i>	Japan	Kasai et al. 1995
		fruit cupules	<i>Fagus crenata</i>	Japan	Fukasawa et al. 2012, Tateno et al. 2015
		seeds	<i>Casuarina equisetifolia</i>	USA	Bayman et al. 1998
		seeds	<i>Eucalyptus globulus</i>	Uruguay	Lupo et al. 2001
		seeds	<i>Phyllostachys edulis</i>	China	Shen et al. 2014
		seeds	<i>Platanus occidentalis</i>	USA	Fakir et al. 1971, Mittal et al. 1990
<i>Xylaria terminaliae- bellericae</i> A. Pande & Waing. [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Terminalia bellerica</i>	India	Pande & Waingankar 2004
<i>Xylaria terminaliae- crenulatae</i> A. Pande & Waing. [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Terminalia crenulata</i>	India	Pande & Waingankar 2004
<i>Xylaria vivanii</i> Y.M. Ju, J.D. Rogers, J. Fourn. & H.M. Hsieh	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Magnolia dodecapetala</i>	French West Indies	Ju et al. 2018
		fruits	<i>Magnolia</i> sp.	Brazil	Ju et al. 2018

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Xylaria vivanii</i> Y.-M. Ju, J. D. Rogers, J. Fournier & H.-M. Hsieh [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Magnolia dodecapetala</i>	French West Indies	Ju et al. 2018
		fruits	<i>Magnolia</i> sp.	French West Indies	Ju et al. 2018
<i>Xylaria xanthinovelutina</i> (Mont.) Mont. [as ' <i>ianthino-velutina</i> ']	Xylariaceae, Sordariomycetes, Ascomycota	fruit	<i>Couropita guianensis</i>	Brazil	Ju et al. 2018
		fruits	<i>Swietenia macrophylla</i>	French West Indies	Ju et al. 2018
		fruits	<i>Talauma</i> sp.	Brazil	Ju et al. 2018
		pod	<i>Ebenopsis ebano</i> [= <i>Pithecellobium flexicaule</i>]	Mexico	Trierveiler-Pereira et al. 2009
		pod	Fabaceae plant	Trinidad	San Martín González & Rogers 1989
		pod	<i>Guazuma ulmifolia</i>	Mexico	Trierveiler-Pereira et al. 2009
		pod	undetermined plant	Mexico, Brazil, USA, Philippines, USA, Venezuela	Rogers 1979a, San Martín González & Rogers 1989, Trierveiler-Pereira et al. 2009
		Pods	<i>Acacia</i> sp.	Brazil	Ju et al. 2018
Pods	<i>Eperua</i> sp.	Guyana	Ju et al. 2018		
Pods	Legume plant	Brazil, Congo, France [as French Guiana], Venezuela	Ju et al. 2018		
<i>Xylaria luzonensis</i> Henn.	Xylariaceae, Sordariomycetes, Ascomycota	Pods	<i>Bauhinia cumingiana</i>	Philippines	Ju et al. 2018
<i>Xylaria magnoliae</i> var. <i>magnoliae</i> J.D. Rogers [#]	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Magnolia</i> sp.	USA	Rogers 1979a
<i>Xylaria oxyacanthae</i> Tul. & C. Tul.	Xylariaceae, Sordariomycetes, Ascomycota	fruits	<i>Cornus florida</i>	USA	Ju et al. 2018
		fruits	<i>Cornus sanguinea</i>	France	Ju et al. 2018

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
<i>Xylaria palmicola</i> G. Winter	Xylariaceae, Sordariomycetes, Ascomycota	seeds	<i>Carpinus betulus</i>	France	Ju et al. 2018
		seeds	<i>Carpinus</i> sp.	France	Ju et al. 2018
		fruits	<i>Patrisia</i> sp.	Brazil	Ju et al. 2018
		seeds	<i>Euterpe globosa</i>	USA	Ju et al. 2018
		seeds	<i>Euterpe</i> sp.	Brazil	Ju et al. 2018
<i>Xylaria warburgii</i> Henn.	Xylariaceae, Sordariomycetes, Ascomycota	seeds	Palm	Brazil	Ju et al. 2018
		fruits	<i>Sloanea berteriana</i>	USA	Ju et al. 2018
		fruits	<i>Sloanea</i> sp.	Papua New Guinea	Ju et al. 2018
		fruits	undetermined plant	Taiwan	Ju et al. 2018
Xylariales spp.	Sordariomycetes, Ascomycota	seed capsules	<i>Eucalyptus grandis</i>	South Africa	Jimu et al. 2016
<i>Xylohyphites verrucosa</i> Kalgutkar & Sigler ^{***}	Fossil fungus	permineralized fruit	<i>Viracarpon</i> sp.	India	Kalgutkar & Sigler 1995
<i>Xylosphaera carpophila</i> (Pers.) Dumort. Yeats	Xylariaceae, Sordariomycetes, Ascomycota	fruit cupules	<i>Fagus sylvatica</i>	UK	Carré 1964
<i>Yelsemia arthropodii</i> J. Walker [#]	Melanotaeniaceae, Ustilaginomycetes, Basidiomycota	seeds	<i>Pinus ponderosa</i>	USA	James & Genz 1982, Anderson 1986a
		acorns	<i>Quercus robur</i>	Poland	Jankowiak 2008
<i>Yelsemia droserae</i> R.G. Shivas, Vánky & Athip. [#]	Melanotaeniaceae, Ustilaginomycetes, Basidiomycota	capsules	<i>Arthropodium minor</i>	Australia	Walker 2001
<i>Zeloasperisporium pterocarpi</i> Jayasiri, E.B.G. Jones & K.D. Hyde [#]	Zeloasperisporiaceae, Dothideomycetes, Ascomycota	pod	<i>Pterocarpus</i> sp.	Thailand	Jayasiri et al. 2018b
<i>Zoophagus insidians</i> Sommerst.	Zoopagaceae, Zoopagomycetes, Mucoromycota	seeds	<i>Atropa belladonna</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Bryonia cretica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Canna indica</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Ficus pumila</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
		seeds	<i>Kalmia latifolia</i>	Poland or/ imported to Poland	Czeczuga et al. 2009

Table 2 Continued.

Species	Taxonomy	Substrate	Host	Country	References
		seeds	<i>Rhododendron smirnowii</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Zygorhynchus heterogamus</i> (Vuill.) Vuill.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Rosa mollis</i>	Poland or/ imported to Poland	Czeczuga et al. 2009
<i>Zygorhynchus vuilleminii</i> Namysl.	Mucoraceae, Mucoromycetes, Mucoromycota	seeds	<i>Pinus sylvestris</i>	USSR	Prisyazhnyuk 1960, Mittal et al. 1990
<i>Zygosporium gibbum</i> (Sacc., M. Rousseau & E. Bommer) S. Hughes	Zygosporiaceae, Sordariomycetes, Ascomycota	fruits	<i>Cleistocalyx operculatus</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Ilex pubescens</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Litsea rotundifolia</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Psychotria asiatica</i>	Hong Kong	Tang et al. 2003a
		fruits	<i>Rhodomyrtus tomentosa</i>	Hong Kong	Tang et al. 2003a

Discussion

Diversity of fungi on wild seeds and fruits

In this paper we review the fungal taxa described from wild fruit substrates until December 2019 (Table 2). Currently 300 new fungal species have been described from wild seeds/fruit substrates, from 54 countries (Index Fungorum 2020). Fungi reported from wild seeds and fruits belong to 609 fungal genera of different fungal families and included 28 novel genera (Table 2). Ascomycota and Basidiomycota are the major fungal phyla reported from wild seeds and fruits with significantly fewer Mucoromycota, Chytridiomycota, and Blastocladiomycota reported (Fig. 58). The highest number of fungi on wild seed/fruit substrates, belong to Ascomycota with 82% reported (Fig. 58). The dominant genera include: *Alternaria*, *Aspergillus*, *Candida*, *Chaetomium*, *Cladosporium*, *Colletotrichum*, *Curvularia*, *Diaporthe*, *Drechslera*, *Fusarium*, *Mucor*, *Penicillium*, *Pestalotiopsis*, *Restiosporium*, *Rhizopus*, *Talaromyces*, *Trichoderma* and *Xylaria*. (Fig. 60). Most were recorded as asexual morphic taxa, with fewer sexual morphs. Wild seed and fruit fungi belong to 27 fungal classes (Fig. 59). The number of Sordariomycetes taxa (30%) and Dothideomycetes taxa (26%) associated with forest seeds and fruits are significantly higher than other classes (Fig. 59). Lichenization is one of the major lifestyles among fungi, and are classified in the Ascomycota and Basidiomycota (Lücking et al. 2017). There are three novel lichen fungi, *Cladonia lacryma*, *Lecanora shangrilaensis* and *Lecanora substrobilina*, described from wild seed/fruit substrates (Table 2).

Forest tree seeds have vast diversity in their size, shape and texture (Sutherland et al. 2002). The size and texture of tree seeds ranging from small and hard to the relatively large and fleshy (Sutherland et al. 2002) may influence the fungal diversity. The highest number of new wild seed/fruit fungi are from Thailand (18%), while Australia, China, USA and India also have significant numbers of novel species (Fig. 62). Fruit diversity in tropical regions is higher than in temperate regions which may lead to an increase in the availability and variety of resources or substrates for fungal

colonisation (Hyde et al. 2005). Mittal et al. (1990) indicated that the climate conditions in the tropics also facilitate the development of seed-borne fungi in the region. Most of the new fungi have been described from wild fruits and coniferous cones (246 taxa), when compared to seeds (54 taxa).

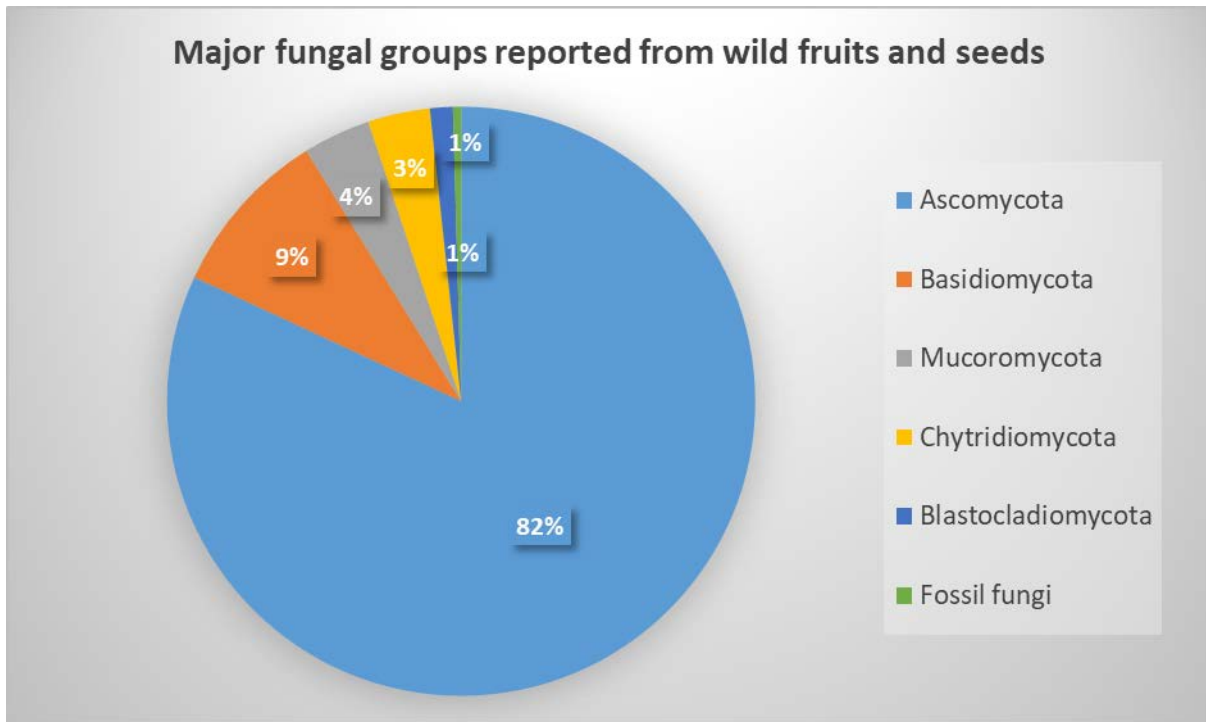


Figure 58 – Percentage of species belonging to major fungal phyla reported from wild seeds and fruits.

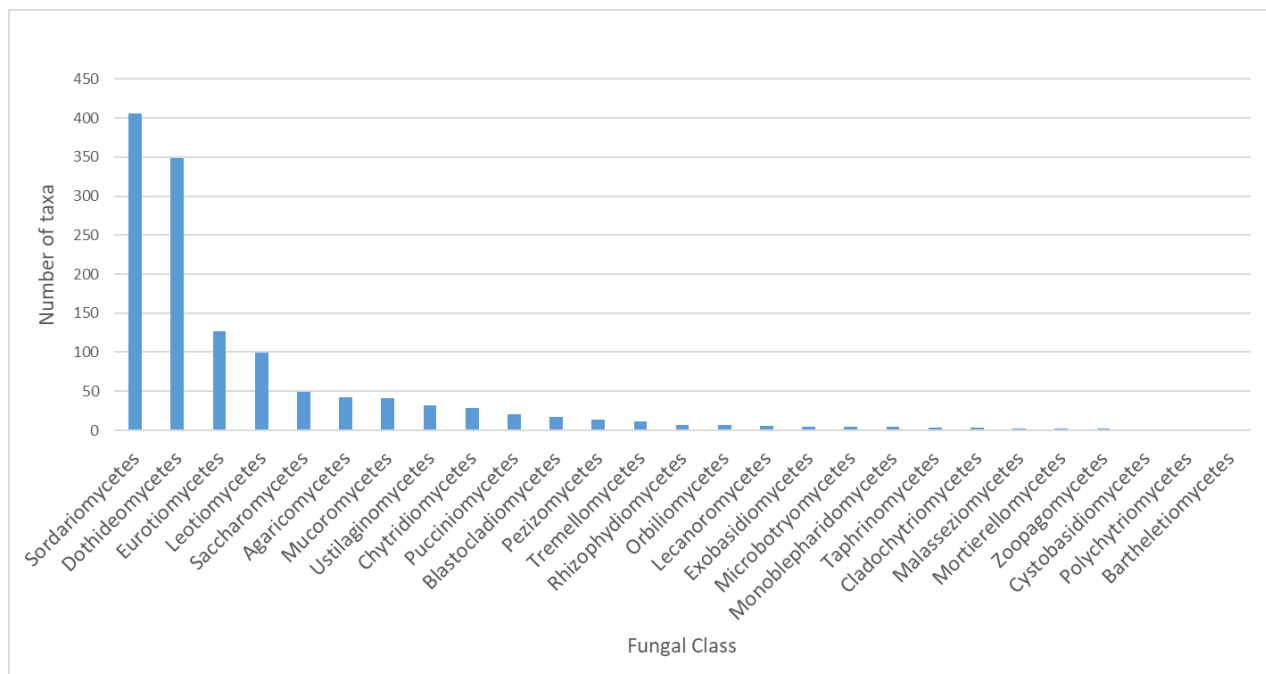


Figure 59 – Number of wild seeds/fruit inhabiting fungi belonging to different fungal classes.

Wild seed and fruit fungi have been described from 80 plant families, although most were collected from the legume family, Fabaceae (Fig. 63, Table 2). Fabaceae is the third largest

flowering plant family with worldwide distribution (Gepts et al. 2005). Pinaceae, Fagaceae, Restionaceae, and Poaceae are the other plant host families from where the novel wild seed/fruit fungi were mostly described (Fig. 63).

Fusarium species isolated from wild fruits in our study are mainly belonging to *Fusarium lateritium* species complex (Fig. 24). Species of this complex prefer seed and fruit substrates. They are commonly reported from fruits of commercially important plants, for example, *Fusarium stilboides* associated with fruits of banana, bell pepper (*Capsicum annuum*) and *Coffea arabica* (Geiser et al. 2005, Sandoval-Chávez et al. 2011, Zeng et al. 2013), while *Fusarium lateritium* was isolated from fruits of banana, *Coffea arabica*, dragon plant (*Cereus undatus*) and hazelnut (*Corylus avellana*) (Abo-El-Dahab & El-Goorani 1969, To et al. 1999, Geiser et al. 2005, Vitale et al. 2011). *Fusarium lateritium*, *F. sarcochroum* and *F. stilboides* are also reported from seeds of various forest plants and acorns of *Quercus robur* (Table 2).

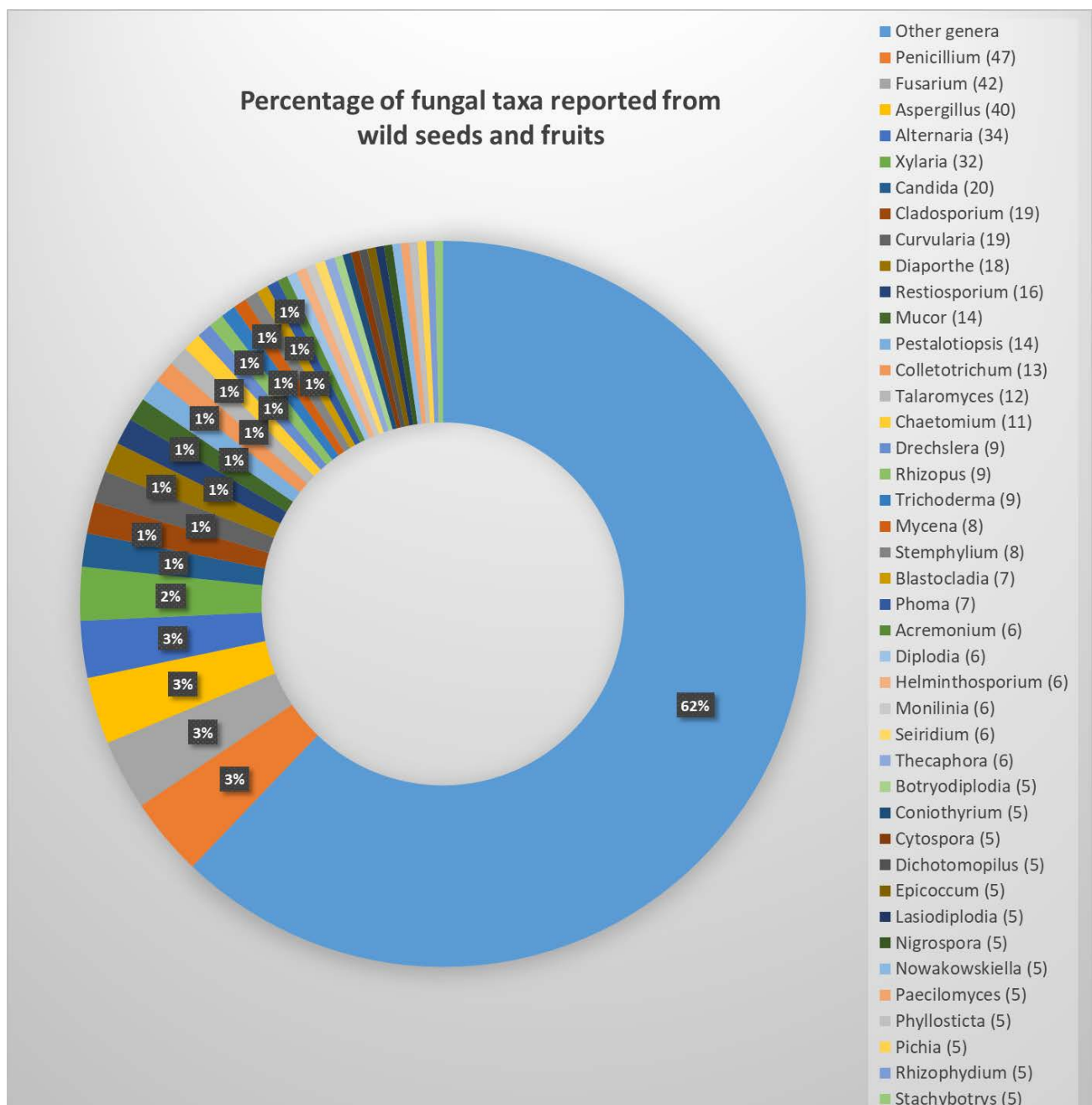


Figure 60 – Percentage of fungal species in different genera reported from wild seeds and fruits (number of species reported for each genus are given in brackets).

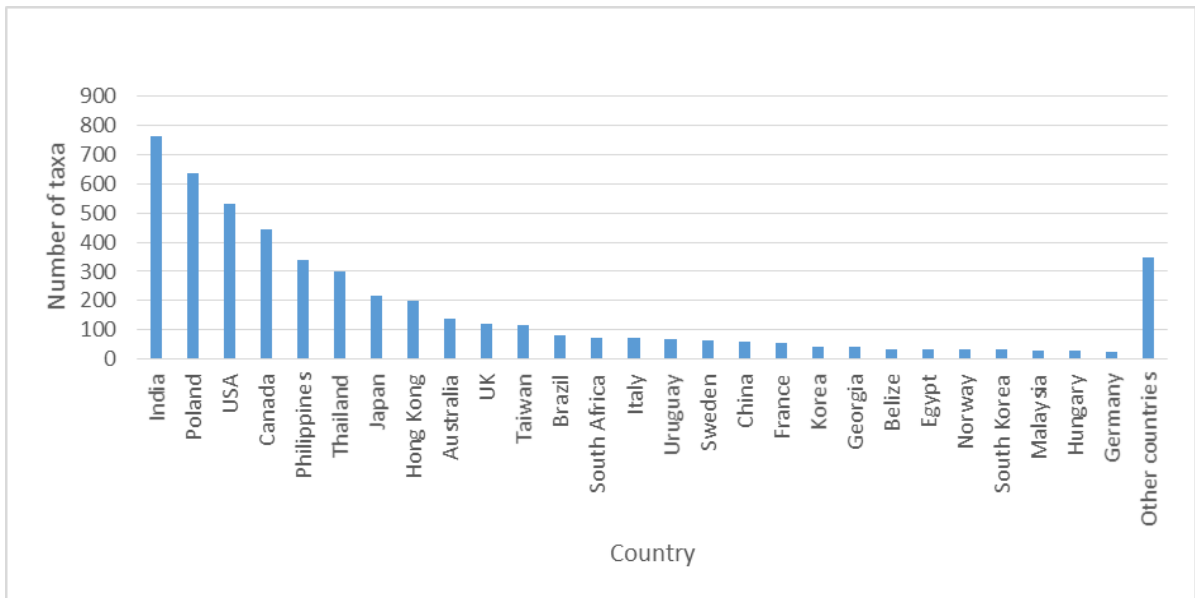


Figure 61 – Number of wild seeds/fruit inhabiting fungi reported from different countries.

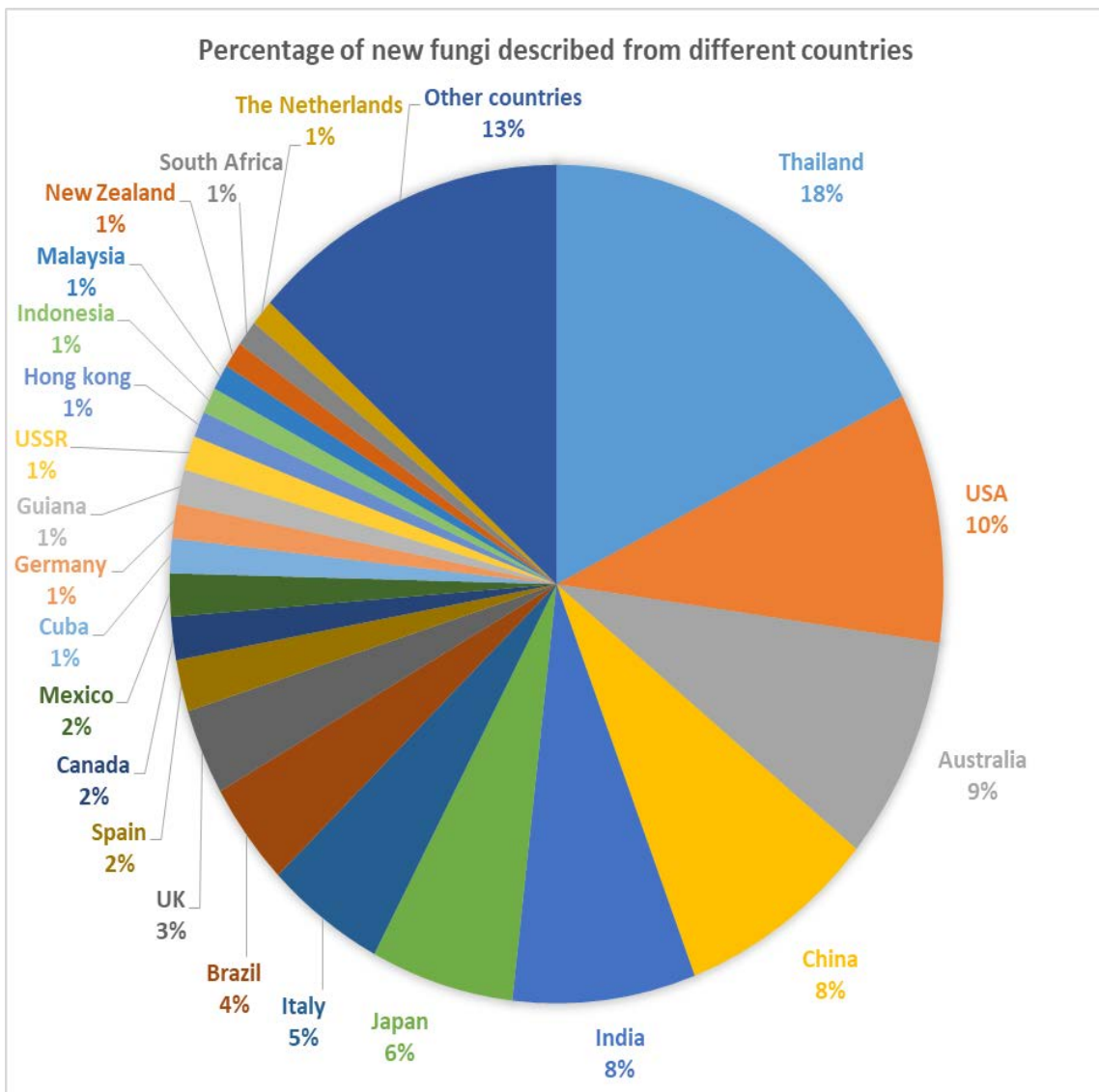


Figure 62 – Percentage of new seed and fruit fungi described from different countries.

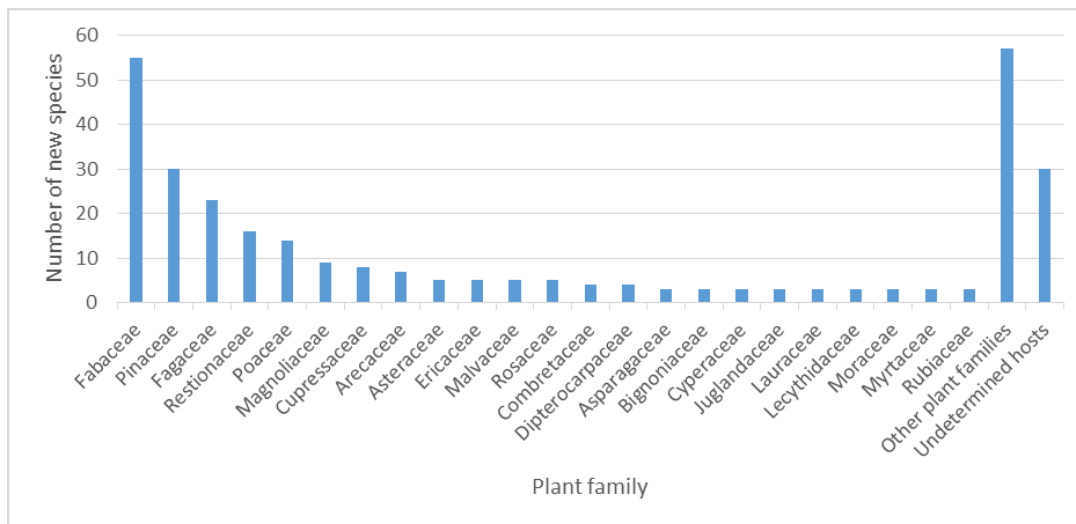


Figure 63 – Number of new wild seed and fruit fungi reported from different plant host families.

Basidiomycota

The second largest group of fungi reported from wild seeds and fruits is Basidiomycota (9%), including 65 new species (Fig. 58). This group includes several classes such as Agaricomycetes, Cystobasidiomycetes, Exobasidiomycetes, Microbotryomycetes, Pucciniomycetes and Ustilaginomycetes.

Discomycetes

Discomycetes are a group of apothecia-producing fungi, having operculate or inoperculate asci, in the phylum Ascomycota (Ekanayaka et al. 2017). There were 20 discomycete species newly introduced from wild seeds and fruits (Table 2).

Rust fungi

Rust fungi (Pucciniales, Pucciniomycetes) are biotrophic pathogenic fungi with a narrow host range (Niks 1987). They are less likely to infect seeds/fruits however, they can also be found from fruits (Walker & van der Merwe 2009, Berndt 2011). *Aecidium acanthocarpi* and *Endoraecium kauaianum* were described from fruits of *Acanthocarpus verticillatus* and *Acacia koa*, respectively (Walker & van der Merwe 2009, Berndt 2011). We list four rust fungi described from wild seeds/fruits substrates including the above two species (Table 2).

Smut fungi

Many smuts produce spores in seeds (Table 2). We list 36 new smut fungi reported from wild seed and fruits worldwide (Table 2). They belong in Urocystidales, Ustilaginales (Ustilaginomycetes), Microbotryales (Microbotryomycetes) and Tilletiales (Exobasidiomycetes) (Table 2). *Centrolepidosporium* was described from fruits of *Centrolepis exserta* in Australia (Shivas & Vánky 2007). Restionaceae plants are the most common hosts for many seed/fruit inhabiting smut fungi, while others were found on Fabaceae, Cyperaceae, Poaceae, Araliaceae, Amaranthaceae, Primulaceae, Hypoxidaceae, Asparagaceae, Asteraceae, Droseraceae, Primulaceae and Montiaceae hosts (Fig. 60).

Clavicipitaceous fungi

Five new clavicipitaceous parasites have been described from seeds and fruits since 1981 and, three (*Claviceps bothriochloae*, *C. microspora* and *C. panicoidearum*) were from non-commercial grass seeds collected in Japan (Tanda 1985, 1991, Tanda & Harada 1989). Generally, clavicipitaceous species have a narrow host range (Rodriguez et al. 2009).

Yeasts

We listed 13 new yeast species belonging to 8 genera namely *Candida*, *Cyberlindnera*, *Hanseniaspora*, *Hyphopichia*, *Kuraishia*, *Metschnikowia*, *Saccharomycopsis* and *Wickerhamiella* described from wild seeds and fruits (Table 2). The succession of yeast species colonizing the fallen ripe fruit of amapa (*Parahancornia amapa*) and *Clusia grandiflora* in tropical forests was examined by Morais et al. (1995). Fruits with sugary, soft, fleshy inner layer are prone to yeast colonisation during the first few days of fruit fall (Miller & Phaff 1962, Morais et al. 1995).

Host-specificity

It has been reported that xylariaceous taxa have specific and distinct relationships with their hosts (Rogers 1979b, 2000, Laessøe & Lodge 1994, Ju et al. 2018). Some of the seed/fruit associated species of *Xylaria* appear to be host-specific, as they are restricted to one host species, genus or family (Husbands et al. 2018, Ju et al. 2018). *Xylaria carpophila* occurs only on *Fagus sylvatica*; *X. karyophthora* on *Chlorocardium*; *X. liquidambar* on *Liquidambar*; *X. magnoliae* var. *magnolia* and var. *microspora* on *Magnolia*, and *X. warburgii* on *Sloanea* (Rogers et al. 1992, 2002, Husbands et al. 2018, Ju et al. 2018). *Xylaria palmicola* and *X. rhizocola* are probably associated only with palm seeds (Ju et al. 2018). In contrast, Ju et al. (2018) collected *X. oxyacanthae* from fruits/seeds of plants in various families, such as *Carpinus* (Betulaceae), *Carya* (Juglandaceae), and *Cornus* (Cornaceae), *Crataegus* (Rosaceae), and *Prunus* (Rosaceae). However, whether seed and fruit fungi are host-specific is doubtful for most species associated with seeds and fruits, especially if they have been collected only once or twice (Ju et al. 2018). There are other species such as *X. clusiae*, *X. duranii*, and *X. heloidea* not only grow on fallen fruits or seeds, but also can be found on fallen leaves as well (Ju et al. 2018). *Xylaria xanthinovelutina* (= *X. ianthinovelutina*), probably the most commonly found fruit inhabiting *Xylaria* species, usually occurs on woody pods of legumes but has also been found on dead woody substrates (Martín 1970, Ju et al. 2018). Clavicipitaceous grass fungi are known to be specific at the family level (Petrini 1996, Zhou & Hyde 2001). Most *Epichloë* and *Neotyphodium* species are host-specific and show symbiotic relationships with C3 grasses (Bacon & White 2000).

Production of bioactive compounds

Shen et al. (2014) revealed that some wild seed fungi can be potential sources of bioactive compounds and plant defense activators. They screened 49 endophytic fungal strains from seeds of moso bamboo (*Phyllostachys edulis*) in China for production of bioactive substances and identified *Cladosporium* sp., *Curvularia* sp., undefined fungal genus 1, *Penicillium* sp. and *Shiraia* sp. with antimicrobial activity against clinical bacteria and yeasts. *Shiraia* sp. produced hypocrellin which has promising antileishmanial properties (Ma et al. 2004, Shen et al. 2014).

Decomposition of wild seeds and fruits and fungal succession

Decomposition and nutrient cycling play a crucial role in the balance of ecosystems. Saprobic fungi are vital for decomposition and nutrient cycling processes on the forest floor (Somrithipol et al. 2002a, Bucher et al. 2004, Fukasawa et al. 2012). Fungi secrete extracellular enzymes and play an important role in decomposition of lignocellulose substrates in forest ecosystems (Pointing et al. 2005, Fukasawa et al. 2012). In forest ecosystems the wild seed/fruit litter (especially the woody seed covering organs) is quantitatively important, since it contributes to total carbon in forest soils (Fukasawa et al. 2012). Mast-seeding (masting), the periodic synchronous production of seed crops by a plant population (Kelly 1994), can be observed in many forest tree species (Suzuki et al. 2005) (Fig. 60). Mast seeding of *Fagus crenata* (Japanese beech) occurs every 5–7 years (Hiroki & Matsubara 1995, Suzuki et al. 2005, Fukasawa et al. 2012). Cupules are the second largest component of beech litter and comprises up to 28% of total annual litter fall in mast-seeding years (Kawada & Maruyama 1986). Pine cones are one component of coniferous litter (Kasai et al. 1995). A study conducted in a coniferous forest (giant sequoia, white fir and sugar pine) in USA revealed 4–10% of the total litter fall was cones (Stohlgren 1988).

Nutrient rich substrates (cereals, fruits, berries) are usually colonised by rapidly growing asexual filamentous fungi such as *Colletotrichum* spp., *Fusarium* spp., *Diaporthe* spp. (Marasas et al. 1998, Somrithipol et al. 2002b, Torp & Nirenberg 2004, Prihastuti et al. 2009, Weir et al. 2012, Udayanga et al. 2013, Crous et al. 2015b). Woody substrates such as cupules of beech, legume pods, cones and woody seeds are rich in lignin and celluloses and provide substrates for saprobic fungi (eg. *Xylaria carpophila*, *Pseudohalonestria fagicola*, *P. hampshirensis* on cupules of *Fagus* spp.; *Thozetella nivea* on seed pods of *Delonix regia*; *Lecanora substrobilina* on cones of *Pinus*; *Xylaria magnoliae* on magnolia fruits (Rogers 1979a, Rogers et al. 1992, Printzen 2001, Somrithipol et al. 2002b, Fukasawa et al. 2012, Perera et al. 2016a). Furthermore, all Helotiales sexual morphic taxa collected from wild fruits/seeds are reported from woody substrates (Table 2).

The fungal assemblages associated with seeds/fruits, in different stages of decomposition also vary (Somrithipol et al. 2002b, Fukasawa et al. 2012). Fungi with different decay abilities successively colonise fruits/seeds and therefore enhance the decay process and is time dependent (Rayner & Boddy 1988, Somrithipol et al. 2002b, Fukasawa et al. 2012). Loss of weight as fruits/seeds are decomposed can be observed during the fungal succession process (Somrithipol et al. 2002b, Fukasawa et al. 2012). Few fungal succession studies have focused on seeds and fruits (Carré 1964, Kuthubutheen 1984, Somrithipol et al. 2002b, Fukasawa et al. 2012). Fukasawa et al. (2012) studied litter decomposition patterns by fungal colonisers on beech cupules, while Somrithipol et al. (2002b) reported succession on seed pods of *Delonix regia*.

Fukasawa et al. (2012) found that the major and early stage holocellulose decomposers in beech cupule litter are *Xylaria* spp. Xylariaceous taxa are recognised as endophytes of live beech plants (Chapela 1989, Sahashi et al. 1999, Osono & Mori 2003) including cupules (Fukasawa et al. 2012). Following the selective holocellulose decay process, acid-unhydrolyzable residues are decomposed by Basidiomycetes that replaced *Xylaria* spp. (Fukasawa et al. 2012). In contrast, fallen fruits of *Delonix regia* were dominated by litter fungi such as *Dictyochoaeta*, *Helicosporium*, *Phaeoisaria*, *Phoma* and *Sporoschisma* species (Somrithipol et al. 2002b). Surprisingly, *Aspergillus*, *Chaetomium*, *Penicillium*, and *Rhizopus* species, were the main groups of fungi on *D. regia* seed pods when samples were collected directly from the tree (with no contact with soil). Similar fungi (*Aspergillus niger*, *Aspergillus flavus*, *Penicillium* sp., and *Rhizopus* sp.) were associated with decaying *Artocarpus communis* (breadfruit) kept in storage (Amusa et al. 2002). Kasai et al. (1995) observed that *Xylaria* sp. and *Phomopsis* sp. are frequently associated with *Pinus densiflora* cones when attached to the tree. Conversely *Mortierella* spp. and *Trichoderma* spp. were the early stage decomposers of cones on the ground (Kasai et al. 1995).

Resin acids, an important group of extractives found in conifers, were identified in seed cones of *Picea glauca* and *Pinus* spp. (Hafizoglu & Holmbom 1987, Eberhardt et al. 1994). Some of these resin acids can inhibit fungal decay of seed cones of *Pinus* spp. by imparting water repellency or by inhibiting white rot-fungi (Eberhardt et al. 1994). Takahashi et al. (2010) studied the effects of tannin (polyphenolic compounds) content in *Quercus serrata* acorns, on the pathogenic fungus *Ciboria batschiana*. They revealed acorns with higher tannin contents were more resistant to *Ciboria batschiana* infection (Takahashi et al. 2010). Collectively, the determining factors for the fungal community after death of fallen seed/fruit tissues include the size of the tissue, nutrients, secondary metabolites (antimicrobial compounds such as resin acids, polyphenols), contents of the tissues, moisture content, existing endophytic fungi, and also the life cycles of fungal decomposers (Rayner & Boddy 1988, Somrithipol et al. 2002b, Tang et al. 2003a, Fukasawa et al. 2012).

Sarmiento et al. (2017) mentioned that communities of fallen seed-associated fungi are structured predominantly by host plant species other than by soil type, forest characteristics, or time in the soil. Carré (1964) indicated that the occurrence pattern of fruiting bodies of fungi on fallen fruits was mostly affected by the weather rather than accumulation and availability of food materials. However, the pattern of occurrence of fruiting bodies was not considered as a proper index for fungal succession in internal tissues (Rayner & Boddy 1988, Fukasawa et al. 2012). Osono (2011) observed that decomposition rate of fungal species was higher in warmer climates than in cooler locations. Tang et al. (2003a) indicated that the surface area of the fruit does not

significantly correlate with the number of fungal species. Tang et al. (2005) also observed less diversity and different groups of fungi occurring on persistent fruits of *Ardisia* spp., *Dichroa febrifuga*, *Sarcandra glabra*, and *Wikstroemia nutans* that cling to the branches and do not drop, when compared to non-persistent fruits.



Figure 62 – Fruits on the forest floor (a, b in Sri Lanka, c, d in Thailand, e Taiwan, f–h UK). a–c *Pinus* spp. d, e Unidentified fruits. f Fir cone with a bright coloured discomycete. g, h *Fagus sylvatica* (h. with a *Xylaria* sp.).



Figure 63 – Fruits on the forest floor (a, b, e, f in UK, c, d in Singapore). a *Quercus* fruits on forest floor. b Fruits infect by a fungus while still on the palm tree. c Fallen *Terminalia catappa* (sea almond) fruits on forest floor colonised by *Schizophyllum commune*. d Close up of *Schizophyllum commune* colonising *Terminalia catappa* fruits. e *Fagus sylvatica* (beech) cupules and seeds on forest floor. f *Pseudotsuga menziesii* cone.

A study of succession of yeast species colonizing *Parahancornia amapa* fruits found that the common fruit-associated genera *Kloeckera* and *Hanseniaspora* spp., *Candida guilliermondii*, and *Candida krusei* colonised fruits during the first three days after fruit fall (Morais et al. 1995). They also reported that the succession of yeasts species on fallen fruits is determined by both competitive interactions of yeast species (such as production of killer toxins) and the selective dispersion of yeast species by vectors such as *Drosophila* spp.

Effects of fungi on seed germination and survival of forest plants

Biological factors causing mortality of buried seeds in natural forest communities are not widely understood (Blaney & Kotanen 2001). Few field experiments have addressed this topic although fungi are believed to be most responsible cause of buried seed mortality (Kremer 1993, Blaney & Kotanen 2001). Soil fungi such as *Fusarium* spp., *Lasiodiplodia* spp. and *Trichoderma* spp. infect forest seeds (Gallery et al. 2007, Sarmiento et al. 2017). Knowledge of host-specific nature of fungi that infect seeds of tropical trees is limited (Gallery et al. 2007, Sarmiento et al. 2017).

Different assemblages of fungi usually colonise pine cone scales and seeds on the forest floor (Lilja et al. 1995, Vujanovic et al. 2000). Anderson et al. (1984) reported that some of these fungi destroy embryos and gametophyte tissues of the pine seeds, kill seeds, or damage cones. This damage happens in both mature and premature cones in natural forests and as well as cone collections in storage conditions (Fraedrich & Miller 1995, Vujanovic et al. 2000). *Sphaeropsis sapinea* often infects cones and seeds, and is considered one of the most destructive pathogens of *Pinus* causing die-back and canker diseases (Smith et al. 1996, Vujanovic et al. 2000). Cram & Fraedrich (2010) listed several seed-borne pathogens of coniferous forest trees in North America. *Caloscypha fulgens*, *Fusarium circinatum*, *F. oxysporum*, *F. moniliforme* var. *moniliforme*, *F. proliferatum*, *Lasiodiplodia theobromae*, *Sirococcus conigenus*, *Diplodia pinea* and *Trichothecium roseum* are reported as seed-borne pathogens of *Abies grandis*, *Picea* spp., *Pinus* spp., *Pseudotsuga menziesii*, *Tsuga heterophylla* and are responsible for seed diseases, cotyledon blight, damping-off, shoot dieback, cankers and root rot of coniferous plants in North America (Fraedrich et al. 1994, Cram & Fraedrich 2010).

Pathogenic fungi damage fruits/cones, infect seeds, destroy internal tissues, endosperm and the embryo leading to reduction in storage lifespan, seed vigour and seedling germination in forests and nurseries (Anderson et al. 1984, Cram & Fraedrich 2010). Moreover, some fungi can weaken and make seeds susceptible to a number of soil-borne pathogens (Mamatha et al. 2000, Gure 2004). Mittal & Wang (1987) indicated that saprobic fungi do not affect seed viability or vigor as they colonise dead plant material. However, saprobic fungi also can behave as seed pathogens under some conditions, following seed or seed coat injuries, favorable moisture and temperature conditions in seeds or fruits/cones (Singh & Mittal 1989, Gure 2004). These fungi can impact on the reproduction of forest trees and potentially contribute to maintaining diversity in terrestrial communities (Sarmiento et al. 2017). *In vitro* experiments found that most of the fungi associated with *Quercus* seeds inhibited their germination (Sahai & Otra 1982). The incubation time period of fungal culture filtrates and different fungal strains have different inhibitory effects on seed germination (Armolik & Dickson 1956, Sahai & Otra 1982). Sahai & Otra (1982) attributed that to the amount of toxin production by fungi in different incubation stages.

Some seed-inhabiting fungi have a positive effect on seed germination. Mittal & Wang (1993) and Gure et al. (2005b) observed a significant increase in germination in seeds of *Pinus strobus* by *Alternaria alternata*, *Cladosporium cladosporioides*, *Epicoccum purpurascens* and *Mucor hiemalis*; and seeds of *Podocarpus falcatus* by *Diaporthe* sp.

Seed/fruit fungi dispersal and quarantine aspects

Fruits play an important role in seed dispersal (Tang et al. 2003a). Various agents are involved in the dispersal of seeds and fruits, such as animals, wind, water, self-dispersal and creeping diaspores (creeping diaspores occur with variation in humidity) (Howe & Smallwood 1982). Dispersal of seeds/fruits also brings about dispersal of their inhabiting microbes. Infected plant seeds might introduce plant diseases to a new area by long distance dispersal of pathogens (Gure 2014).

Unintentional or deliberate introduction of fungi through human activities leads to extensive spread of plant diseases, sometimes causing epidemics (Blaney & Kotanen 2001, Palm 2001, Wingfield et al. 2001, Desprez-Loustau 2009). Many plant diseases often emerge during the initial stages of establishment of exotic species (Palm 2001, Wingfield et al. 2001, Desprez-Loustau

2009). Fungal pathogens are most likely introduced with planting stock, seeds, or cones (Wingfield et al. 2001). Alien fungal invasions through seeds is poorly researched, hence the need for greater future attention (Palm 2001, Wingfield et al. 2001, Desprez-Loustau 2009). Repeated introductions of *Sphaeropsis sapinea* infected seeds of different pine species from a wide range of countries, apparently explains the high genetic diversity of this fungus in South Africa (Smith et al. 2000, Wingfield et al. 2001, Burgess & Wingfield 2002). Exotic *Pinus* species were introduced to New Zealand with the implementation of afforestation projects at the end of the 19th Century (Burgess & Wingfield 2002). However, comparatively low genetic diversity of *Sphaeropsis sapinea* was observed in New Zealand as they reduced the import of pine seeds after the local seeds became abundant (Wingfield et al. 2001). The quantity of imported pine seeds to South Africa was higher and it occurred repeatedly over a longer period of time leading to a higher genotypic diversity of *Sphaeropsis sapinea* (Burgess & Wingfield 2002). Western Australia also imported pine seeds for plantations mostly from other Australian states and New Zealand. Very low genotypic diversity of *Sphaeropsis sapinea* in South and Western Australia was observed due to a small amount of exotic pine seeds importation over a shorter period (Burgess & Wingfield 2002). Wernham (1942) reported an incident of introduction of *Epichloë typhina* infected seeds of *Festuca rubra* from Hungary to Pennsylvania, USA. Dogwood anthracnose caused by *Discula destructiva* may have entered USA through imported seeds of kousa dogwood (*Cornus kousa*) from Asia (native region) (Palm 2001). Pitch canker disease of wild pines (*Pinus radiata*) caused by the seed-borne fungus *Fusarium circinatum* was first discovered in California in 1986 (Dick 1998, Gordon 2006). Infected pine forestry seeds imported from California are one of the pathways the disease was introduced into North America, New Zealand and many other countries (Dick 1998, Gordon 2006). The seed-borne fungus *Fusarium subglutinans* f. sp. *pini*, the causative agent of pine pitch canker disease (Dick & Dobbie 2002), has the potential of becoming a serious threat to *Pinus radiata* plantations if introduced to New Zealand (Storer et al. 1998, Dick & Dobbie 2002).

Transmission of diseases through international transport of seeds is of concern and preventive measures are needed (Neergaard 1977). Hence, quarantine regulations have been introduced by governments to control or prevent the spread of pests and diseases entering through its borders via seeds (Tanner 1997, Wingfield et al. 2001, Sharma & Thakur 2007). The risk of introducing harmful pathogens through transport of seeds, and the need of take action to overcome these risks must be recognised (Cleary et al. 2013). Even though governments have introduced quarantine regulations, they need the support of the public and industry to fulfill their aims (Wingfield et al. 2001, Cleary et al. 2013). Morphological and molecular identification of wild seed/fruit fungi and knowledge of the fungal biodiversity will lead to better assessment of risks associated with seed transport and plant diseases. Such databases, as provided in this paper, will be advantageous for effective quarantine decisions and policies in trading agricultural commodities between countries, and in order to safeguard plant resources (Palm 2001, Burgess & Wingfield 2002).

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