Forest Microfungi. III.

Some New Taxa of Ascomycetes *)

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Abstract. Description and illustrations of 5 new species of Ascomycetes viz. *Didymosphaeria macrospora*, *Botryosphaeria cassiaecola*, *Boerlagomyces macrosporus*, *Thaxteriella silentvalliensis* and *Thyronectria odinae*, all being collected in the forests of Kerala (S. India).

During the course of mycological surveys into the forests of Kerala (South India), some rare and interesting Ascomycetes inhabiting various plant substrates were collected. These were further studied in detail with respect to their morphology, taxonomy and systematics. The present communication gives an account of only five such Ascomycetes which have been described as new species on the basis of comparative morphology and host-relationship.

The exsiccati have been deposited at Ajrekar Mycological Herbarium (AMH) of the Research Institute, Poona, India.

1. *Didymosphaeria macrospora* sp. nov. (Fig. 1, A—D)

Ascomata (pseudothecia) omnino-innata, ostiolata, uniloculata, globosa vel sub-globosa, nigra, crustosa, 350—500 μm; pariete pseudoparenchymatico e cellulis extus crassiusculis, intus tenuiter tunicatis composito, 25—40 μm crass. Asci cylindracei vel cylindraceo-clavati, hyalini, bitunicati, octospori, 75—90 × 12—15 μm. Ascosporae fusoideo-cylindraceae, utrinque rotundatae, leniter curvatae, brunneae, medio septatae, ad septum leniter constrictae, 25—30.5 × 5—7 μm; pseudoparaphyses filiformes, numerosae. Ad ramos Barleriae. India. Typus AHM 3873.

Ascomata (pseudothecia) completely embedded in the host tissue, black, crustose, ostiolate, globose to sub-globose, uniloculate, 350—500 μm across. Ostioles protruding and becoming erumpent by penetrating the epidermis with a distinct neck. The wall consists of thick-walled outer cells and thin-walled inner cells, 25—40 μm in thickness. Asci in wall layers, stipitate, cylindric to clavate, hyaline, bitunicate, paraphysate, 8-spored, 75—90 × 12—15 μm. Ascospores irregularly biseriate, fusoid-cylindric, rounded and tapering at the ends, slightly curved, 1-septate, slightly constricted at septa, dark

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brown, 25—30.5×5—7 µm. Pseudoparaphyses present, filiform, numerous.

Matrix: On dead twigs of *Barleria* sp. (Fam. Acanthaceae); Leg. K. I. M. V. at Devikulam, Kerala, India, 23. 1. 1976, AHM 3873 (Holotypus).

Remarks: The present fungus belongs to the Pleosporaceae and differs from other known species of the genus (HOLM 1957, SCHEIN-

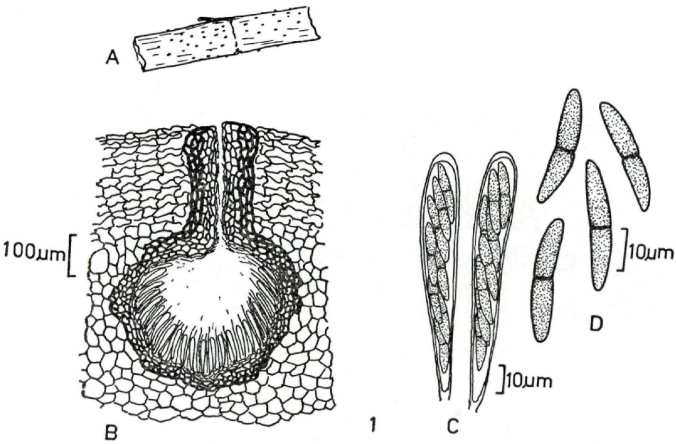

Fig. 1. *Didymosphaeria macrospora* sp. nov. A. Habit. B. Pseudothecium. C. Asci. D. Ascospores

PFLUG 1958, MÜLLER & v. ARX 1962, MUKERJI & JUNEJA 1975) by possessing much larger ascospores.

2. *Botryosphaeria cassiaecola* sp. n. (Fig. 2, A—D)

Ascomata (pseudothecia) solitaria vel aggregata, omnino immersa, unilocularia, globosa vel hemisphaerica, brunnea vel nigrescentia, parietibus constantibus e cellulis crassis (25—45 µm crassitudine), ostiolata, 300—375 µm diam. Asci cylindrici vel clavati, aparaphysati, brevipedicellati, hyalini, bitunicati, octospori, 115—145×22.5—30.5 µm. Ascosporae biseriatae vel irregulares, unicellulares, ellipsoideae, brunneae vel fuscobrunneae, 33—37×12.5—15.5 µm. Ad ramos Cassiae. India. Typus AMH 3870.

Ascomata (pseudothecia) solitary or aggregated in groups, completely embedded in host tissue, globose to hemisphaeric, brown to black, wall formed of thick-walled cells, wall being 25—45 µm, ostiolate, with slightly projected neck, 300—375 µm diam. Asci

originating from basal layer, cylindric to clavate, aparaphysate, hyaline, bitunicate, 8-spored, short-stalked, 115—145 × 22.5—30.5 µm. Ascospores (sometimes irregularely) biseriate, ellipsoid, one-celled, brown to dark brown, 33—37 × 12.5—15.5 µm.

Matrix: On dead twigs of *Cassia fistula* L. (Fam. Leguminosae), leg. K. I. M. V. at Peechi, Kerala, India, 25. 10. 1975, No. AMH 3870 (Holotypus).

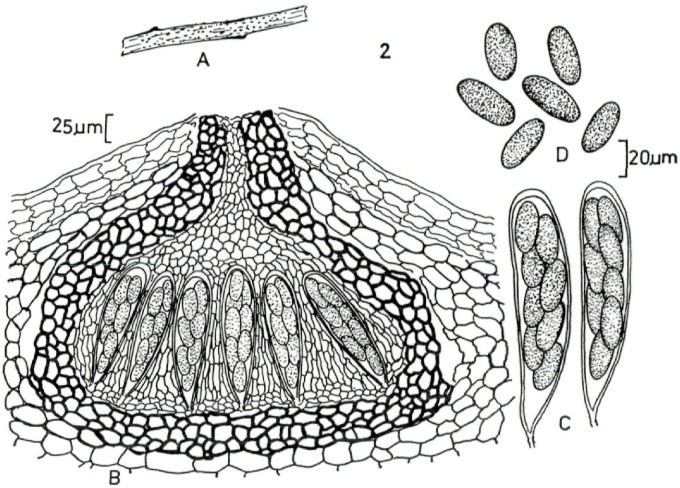

Fig. 2. *Botryosphaeria cassiaecola* sp. n. A. Habit. B. Pseudothecium. C. Asci. D. Ascospores

Remarks: According to the literature no species of *Botryosphaeria* are described from *Cassia fistula* L. or related species so far (Arx & Müller 1954, MacFarlane 1968, Bilgrami et al. 1979). Besides, the fungus under study proved to be distinct in morphology etc. from other known species of *Botryosphaeria* (Arx & Müller 1954) including *B. arxii* Rao & Narendra (Rao & Narendra 1974).

3. *Boerlagomyces macrosporus* sp. nov. (Fig. 3, A—D)

Ascomata (pseudothecia) sparsa vel laxe gregaria, superficialia, globosa, atra, praecipue ad basim myceliosa, 200—300 µm diam. Peridium usque ad 40 µm latum (30—45 µm) ex textura prismatica vel angulari, brunnea, extus crusta carbonacea. Asci cylindrici vel saccati, bitunicati, hyalini, octospori, breviter stipitati, 100—160 × 20—50 µm. Ascosporae subellipsoideae, olivaceo-

brunneae, cellulis terminalibus subhyalinis, muriformes, usque ad 14 septis transversis et paucis septis longitudinalibus instructae, 50—60.5 × 17—21 µm. Ad lignum putridum. India. Typus AMH 3874.

Ascomata (pseudothecia) superficial, scattered or gregarious, globose, with black basal mycelium, 200—300 µm diam. The outer wall consists of thick-walled prismatic to angular brown cells with carbonaceous walls, 30—45 µm. Asci cylindric with short stipe, bitunicate, 8-spored, hyaline, 100—160 × 20—50 µm. Ascospores sub-

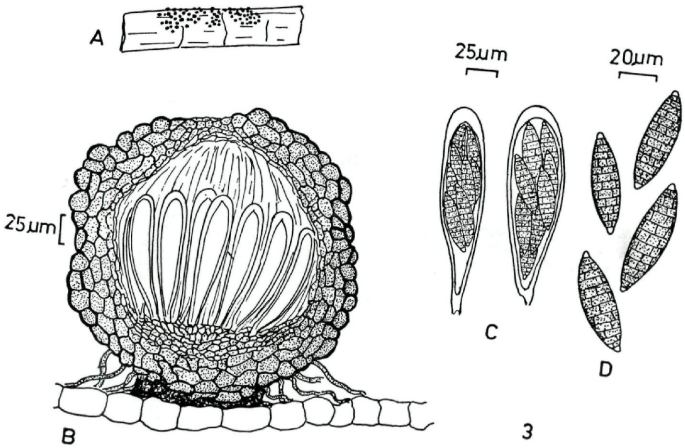

Fig. 3. *Boerlagomyces macrosporus* sp. n. A. Habit. B. Pseudothecium. C. Asci. D. Ascospores

ellipsoid, muriform, 50—60.5 × 17—21 µm, olivaceous brown, terminal cells subhyaline, with up to 14 transverse and few longitudinal septa.

Matrix: On dead wood of a dicot plant, leg. K. I. M. V. at Manjaly, Ekm., Kerala, India, 2. 10. 1977, No. AMH 3874 (Holotypus).

Remarks: The present pleosporaceous collection of *Boerlagomyces* Butzin (Willdenowia, 8: 37—40, 1977) differs from *Teichospora* Fuckel in the habit of ascomata being superficial in very early stages (person. commun. from Dr. E. Müller).

4. *Thaxteriella silentvalliensis* sp. nov. (Fig. 4, A—D)

Ascomata (pseudothecia) superficialia, fusca, in subiculo ex hyphis atro-brunneis septatis et ramosis, aggregata, globosa, uniloculata, erumpentia, cupulata, ostiolata, pseudoparenchymatica, e cellulis crassiuscule tunicatis

nigrescentibus composita, 440—500×430—516 µm. Paries pseudotheciorum 28—40 µm crassus. Asci cylindrici vel clavati, antice late rotundati, pedicellati, bitunicati, octospori, 150—245×25.5—30.5 µm. Ascosporae cylindrico-fusiformae, 10—14 septatae, plerumque aliquantum curvatae vel rectae, leves, extremis rotundatae, olivaceo-brunneae, 60—87.5×11—12 µm. Paraphysoidea numerosa, filiformes et hyalina. Ad lignum putridum. India. Typus AMH 3815.

Ascomata (pseudothecia) superficial, black, aggregated, on a subiculum of dark-brown, septate, branched hyphae, globose, uniloculate, ostiolate, made-up of thick-walled pseudoparenchymatic cells (wall 28—40 µm thick), 440—500×430—516 µm. Asci cylindric to

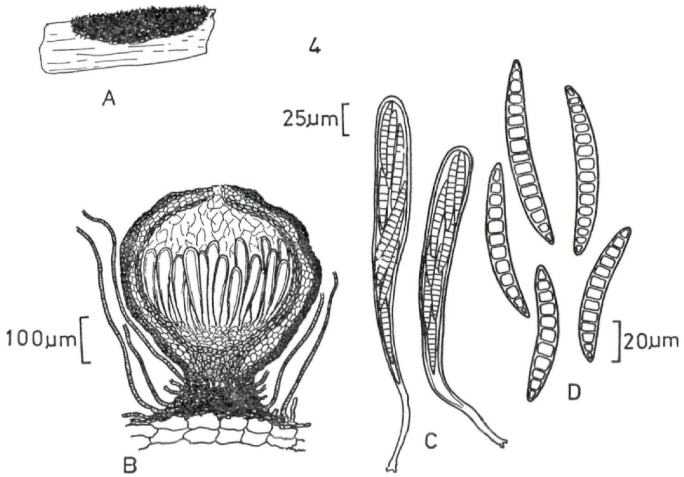

Fig. 4. *Thaxteriella silentvalliensis* sp. nov. A. Habit. B. Pseudothecium. C. Asci. D. Ascospores

clavate, rounded at the apex, arranged in wall layers, usually with a long stipe, bitunicate, octosporous, 150—235×25.5—30.5 µm. Ascospores cylindric to fusiform, 10—14 septate, usually somewhat curved, smooth, slightly tapering towards the rounded ends, olivaceous brown, 60—87.5×11—12 µm. Paraphysoids numerous, thread-like, hyaline, filiform.

Matrix: On dead wood of a dicot plant, leg. K. I. M. V. at Silent Valley, Kerala, India, 21. 1. 1976, No. AMH 3815 (Holotypus).

Remarks: The genus *Thaxteriella* (Sphaeriales) was proposed by Petrak (1924) with *T. corticola* as its type species (collected in Central

America). *Thaxteriella* is closely related to *Herpotrichia* FCKL. in possessing globose and black ascocarps with a subiculum formed of smooth, thick-walled hyphae and bitunicate asci. However, it can be distinguished from the latter by the profusely developed subiculum, sunken perithecia, besides shape and septation of ascospores (DHARNE & MÜLLER, 1969). PIROZYNSKI (1972) observed an associated conidial state (*Helicoma* sp.) in *T. pezizula* (BERK. & CURT.) PETR.

DHARNE & MÜLLER (1969) reported this genus for the first time from India (*Thaxteriella indica*), the material being collected from Mahabaleshwar (Maharashtra). NARENDRA (1974) rediscovered the

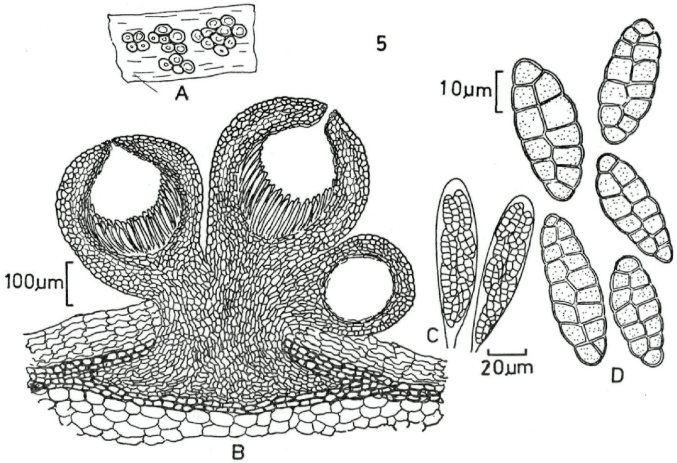

Fig. 5. *Thyronectria odinae* sp. nov. A. Habit. B. Perithecia. C. Asci. D. Ascospores

same species at the same locality. Recently, SUBHEDAR (1977) proposed a new species viz. *T. eugeniae*, on twigs of *Eugenia jambolana* L., collected from Sitanadi, S. India. The present taxon of Pleosporaceae resembles *Thaxteriella indica* DHARNE & MÜLLER (1969) in some respects, especially in the shape and size of the ascospores but differs from it in having distinctly larger perithecia and ascospores with comparatively less numbers of transverse septa.

5. *Thyronectria odinae* sp. nov. (Fig. 5, A—D)

Perithecia superficialia, constante e stroma arcte aggregata, globosa vel sub-globosa, laeves, rufobrunnea, 300—450 µm diam. Paries peritheciorum 30—55 µm crassus. Asci clavati vel cylindrici, aparaphysati, unitunicati,

hyalini vel sub-hyalini, octospori, 85—100 × 15—20.5 µm. Ascosporae hyalinae, laeves, biseriatae, muriformes, usque ad 8 septis transversalibus et 1 septo longitudinali instructae, 30—38.5 × 12—15.5 µm. Ad corticem Odinae. India. Typus AMH 3822.

Perithecia superficial, in dense clusters on a stromatic base, globose to sub-globose, smooth-walled, reddish-brown, wall 30—55 µm thick, collapsing and appearing cup-shaped, 300—450 µm in diameter. Asci clavate to cylindric, non-paraphysate, 8-spored, unitunicate, hyaline, 85—100 × 15—20.5 µm. Ascospores hyaline to sub-hyaline (straw-coloured), smooth-walled, biseriate, muriform, up to 8 transverse septa and one central longitudinal septum, 30—38.5 × 12—15.5 µm.

Matrix: On bark of *Odina wodier* ROXB. (Fam. Anacardiaceae) (in association with *Acanthonitschkea argentinensis* SPEG.), leg. K. I. M. V. at Thekkady, Kerala, India, 24. 1. 1976, No. AMH 3822 (Holotypus).

Remarks: The present taxon of *Hypocreales* shows some resemblance to *Thyronectria berolinensis* (SACC.) SEAVER (SEAVER, 1909) especially in the shape and size of perithecia but differs from it, however, in having comparatively larger ascospores (ascospores of *T. berolinensis* 18—20 × 6—8 µm).

The genus *Thyronectria* SACC. appears to be a new generic record for India (BUTLER & BISBY 1960, MUKERJI & JUNEJA 1975, BILGRAMI et al. 1979), though *Thyronectria lamyi* var. *pakistani* (person. commun. from Dr. E. MÜLLER) has already been described from Kagan Valley, Pakistan.

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