Cryptogamie, Mycologie, 2006, 27 (3): 231-248

Some cercosporoid hyphomycetes from Brazil – IV

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Abstract — New and interesting collections of cercosporoid hyphomycetes from Brazil are reported in the present paper. The following new species are proposed: *Passalora marsdeniicola, Phloeospora ponteana*, *Pseudocercospora lueheae*, *P. marsdeniigena*, *P. piperigena*, *P. poltronieriana*, *P. trematigena*, *Stenella capparidacearum*, *S. hirtellae* and *S. periandrae*. *Pseudocercospora elephantopodicola* is a new combination, and *Stenella capparigena* is introduced as a new name.

Cercosporoid hyphomycetes / Taxonomy / new species / Brazil

Résumé — Quelques hyphomycètes cercosporoïdes du Brésil sont réévalués, après étude de collections nouvelles ou intéressantes. Les espèces nouvelles suivantes sont proposées : *Passalora marsdeniicola, Phloeospora ponteana*, *Pseudocercospora lueheae*, *P. marsdeniigena*, *P. piperigena*, *P. poltronieriana*, *P. trematigena*, *Stenella capparidacearum*, *S. hirtellae* et *S. periandrae*. Le binôme *Pseudocercospora elephantopodicola* est une combinaison nouvelle alors que celui du *Stenella capparigena* est un nom nouveau.

Hyphomycètes cercosporoïdes / Taxonomie / espèce nouvelle / Brésil

INTRODUCTION

The systematic search for cercosporoid hyphomycetes in Brazil (Braun *et al.* 1999; Braun & Freire 2002, 2004) has been continued since 2003. Most new collections are, as in the previous reports, from the State of Ceará, only a few from Mato Grosso, Pará and Tocantins. Various new species, numerous collections new to Brazil or at least new to the State of Ceará and new hosts were found by the second author. The cercosporoid hyphomycetes of the southern part of Brazil are relatively well-known from works published by Viégas (1945), and numerous papers published by Batista and co-workers (da Silva & Minter 1995), mainly from Pernambuco and Minas Gerais, whereas data from the State of Ceará, one of the driest parts of Brazil, are rather limited (Braun *et al.* 1999; Braun & Freire 2002). The great biodiversity of host plants in this area is reflected in the diversity of phytopathogenic fungi shown in the previously published papers as well as in the present one.

LIST OF THE SPECIES

All fungal genera and species are alphabetically arranged. The taxonomy and nomenclature follows Crous & Braun (2003). Most records are from different counties of the State of Ceará, but since some other collections are from other Brazilian states, it is necessary to provide detailed data of the particular localities. If not otherwise stated, the collections have been made by F. Freire. All specimens are deposited at HAL (Martin-Luther-University, Institute of Geobotany, Herbarium, Halle, Germany), duplicates are in F. Freire's private herbarium. The abbreviations "Co." = County and "Distr." = District are used. The new species, new combination and new name are registered in MycoBank (MB).

(1) *Cercospora apii* Fres., Beitr. Mykol. 3: 91, Frankfurt a.M. 1863, *s. lat.*

On *Passiflora edulis* (*Passifloraceae*), Ceará, Acarau City, 28 Jul. 2004; *Pistia* sp. (*Araceae*), Ceará, Icó City, 10 Sept. 2004.

Collections of *Cercospora apii s.lat.* on *Passiflora edulis* have previously been referred to as *C. passifloricola* Chupp, and those on *Pistia* spp. belong to the synonymous name *C. pistiae* Nag Raj, Govindu & Thirum. The latter fungus is known from Brazil (Crous & Braun 2003), but lacking in Mendes *et al.* (1998). The fungus on *Passiflora edulis* is new to Brazil.

(2) *Cercospora malayensis* F. Stevens & Solheim, Mycologia 23: 394 (1931)

On *Hibiscus sabdariffa* (*Malvaceae*), Ceará, Guaramiranga City, 5 Aug. 2005.

Known from Brazil (Chupp 1954, Crous & Braun 2003), but new to the State of Ceará.

(3) *Cercospora stevensonii* Chupp, A monograph of the fungus genus *Cercospora:* 231, Ithaca, New York

On *Codiaeum* cf. *variegatum* (*Euphorbiaceae*), Ceará, Maranguape City, 5 Sept. 2005.

First record from Brazil. This species is known from Cuba, India and the USA (Florida, Texas) on *Codiaeum variegatum* (Crous & Braun 2003).

(4) *Cercospora vernoniae* Ellis & Kellerm., Amer. Naturalist 17: 1166 (1883)

On *Vernonia scorpioides* (*Asteraceae*), Ceará, Guaramiranga City, 20 Apr. 2004.

Known from Brazil (Mendes *et al.* 1998), but new to Ceará.

(5) *Passalora ajrekari* (Syd.) U. Braun, Fungal Diversity 7: 52 (2001)

On Jatropha podagrica (*Euphorbiaceae*), Ceará, Guaramiranga City, 3 Feb. 2005 and 5 Aug. 2005.

New to Brazil, and host species new (Crous & Braun 2003).

(6) *Passalora cajani* (Henn.) U. Braun & Crous in Crous & Braun, *Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora.* CBS Biodiversity Series 1: 93 (2003)

On *Cajanus indicus* (*Fabaceae*), Ceará, Pajacus City, 23 Dec. 2003.

Known from Brazil (Chupp 1954, Crous & Braun 2003), but new to the State of Cerá.

(7) ***Passalora marsdeniicola* sp. nov.** [MB 500542] (Fig. 1)

Differt a P. ahmadii stromatibus et hyphis superficialibus nullis, conidiophoris solitariis.

Holotypus: on *Marsdenia* sp. (*Asclepiadaceae*), Brazil, State of Ceará, Monsenhor Tobosa City, 9 Sept. 2004, F. Freire (HAL 1892 [A] F), mixed with *Pseudocercospora marsdeniigena* [B].

Leaf spots lacking or almost so, at most visible as pale greenish olivaceous, yellowish to ochraceous discolorations, often between veins. Colonies hypophyllous, subeffuse to effuse, dark olivaceous-brown, often between veins, 1-10 mm wide or confluent, forming large patches. Stromata lacking. Mycelium internal and external, emerging through stomata, branched, (1-)2-4(-5) µm wide, septate, thin-walled, smooth, subhyaline to olivaceous. Conidiophores solitary, arising from superficial hyphae, lateral and occasionally terminal, differentiation between hyphae and conidiophores often difficult, conidiophores erect, simple or occasionally branched, straight, subcylindrical to sinuous or somewhat geniculate, often slightly clavate, width increasing towards the apex, 10-60 × 3-8 µm, more complex, branched conidiophores often longer, up to 100 µm, continuous to pluriseptate, often with constrictions at septa, thin-walled, pale olivaceous-brown, yellowish brown to medium brown, smooth; conidiogenous cells integrated, terminal, 10-30 µm long; conidiogenous loci subconspicuous to conspicuous, 1.5-2 µm diam., slightly thickened and darkened. Conidia catenate, in simple or occasionally branched chains, broadly ellipsoid-fusiform, subcylindrical, 15-60 × 4-8 µm, 0-7-septate, concolourous with the conidiophores, thin-walled, smooth, ends rounded to obconically truncate, hila 1.5-2 µm diam., unthickened to slightly thickened and somewhat darkened-refractive.

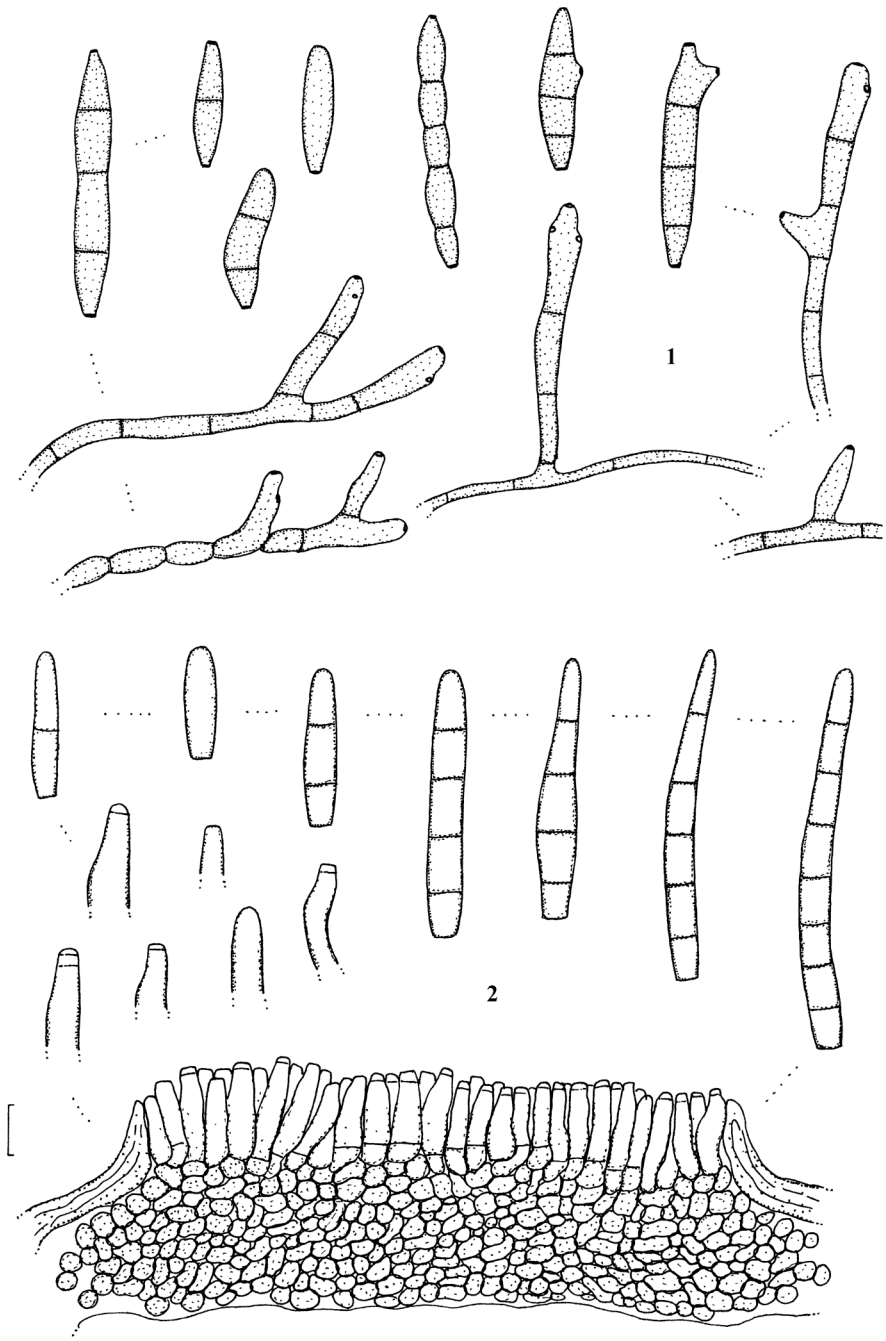
Passalora ahmadii (Petr.) U. Braun & Crous (≡ *Cercospora ahmadii* Petr., *Phaeoramularia ahmadii* (Petr.) U. Braun), known from Asia on *Marsdenia roylei*, and *Passalora marsdeniae* (S.K. Singh, K. Bhalla & Kamal) U. Braun & Crous (≡ *Phaeoramularia marsdeniae* S.K. Singh, K. Bhalla & Kamal), an Indian species on *Marsdenia verticulata*, differ from the new species in having fasciculate conidiophores arsing from stromata. Superficial hyphae with solitary conidiophores are lacking (Braun 1995a; Singh *et al.* 1999; Crous & Braun 2003). *Passalora elaeochroma* (Sacc.) U. Braun & Crous and *P. venturioides* (Peck) U. Braun & Crous, two *Passalora* species on *Asclepias* spp. (*Asclepiadaceae*), are easily distinguishable from *P. marsdeniicola* by having fasciculate conidiophores. *P. venturioides* is characterised by its loosely fasciculate conidiophores, erect to decumbent, growth "fulvia-like" (Braun & Melnik 1997).

(8) ***Phloeospora ponteana* sp. nov.** [MB 500543] (Fig. 2)

Holotypus: on *Triplaris gardneriana* (*Polygonaceae*), Brazil, State of Ceará, Pacoti City, Estação Ecológica do Maciço, 736 m alt., 5 Sept. 2004, F. Freire (HAL 1771 F).

Etymology: After Professor Dr. José Júlio da Ponte, eminent Brazilian Plant Pathologist.

Maculae amphigenae, subcirculares vel angulares-irregulares, 1-5 mm diam., pallide vel medio-atro-brunneae, margine indistincto vel atriore, interdum centro pallidiore, zonato. Conidiomata amphigena, solitaria vel laxe ad dense aggretata, griseo-albida vel subnigra, punctiformes vel pustulata, immersa, subepidermalia, 50-250 µm lata, subcirculares vel confluentes et majores, interdum oblonga vel irregulares, 30-100 µm alta, irregulariter dehiscentes, ad basim ex cellulis angularibus, 2-6 µm diam., tenuitunicatis, subhyalinis, viridibus



Figs. 1-2. 1 = *Passalora marsdeniicola*, superficial hyphae with solitary conidiophores, conidia, 2 = *Phloeospora ponteana*, acervulus, conidiophores, conidia (bar: 10 µm), drawn by U. Braun.

vel pallide olivaceo-brunneis composita (textura angularis). Conidiophora unicellulares, subcylindrica vel apicem versus leviter attenuata, non-ramosa, 5-30 × 3-5 µm, hyalina vel subhyalina, tenuitunicata, levia, locis terminalibus singularibus, truncatis vel subtruncatis, 2-2.5 µm diam., non-incrassatis, non-fuscatis, interdum proliferationibus percurrentibus, 1-2 annellatis. Conidia solitaria, subcylindrica, (15-)20-60(-90) × 4-7 µm, (0-)1-7(-8)-septata, hyalina vel subhyalina, tenuitunicata, levia, apice obtuso, late rotundato, basi truncata, obconice truncata vel rotundata, 2-3 µm lata, hila non-incrassata, non-fuscata.

Leaf spots amphigenous, subcircular to angular-irregular, 1-5 mm wide, pale to medium dark brown, centre sometimes paler, occasionally somewhat zonate, margin indefite or darker. Mycelium immered. Conidiomata amphigenous, solitary or in loose to dense groups, greyish white to blackish, punctiform-pustulate, immersed, subepidermal, 50-250 µm wide (diam.), subcircular in outline or confluent and larger, sometimes oblong to irregular in shape, 30-100 µm deep, dehiscence irregular, conidiomata at the base with textura angularis, cells 2-6 µm diam., thin-walled, subhyaline, greenish to pale olivaceous, conidiophores arising from the outer layer of the textura angularis, numerous, dense, erect, subcylindrical or somewhat attenuated towards the apex, unbranched, 5-30 × 3-5 µm, hyaline or subhyaline, thin-walled, smooth, with a single terminal conidiogenous locus, truncate or subtruncate, 2-2.5 µm diam., unthickened, not darkened-refractive, proliferation percurrent, with 1-2 terminal annellations. Conidia solitary, subcylindrical, (15-)20-60(-90) × 4-7 µm, (0-)1-7(-8)-septate, hyaline or subhyaline, thin-walled, smooth, apex obtuse, broadly rounded, base truncate, obconically truncate to rounded, 2-3 µm wide, hila neither thickened nor darkened-refractive.

Phloeospora ponteana agrees well with *Phloeospora* Wallr. emend. Sutton (1980), characterised by having acervulare conidiomata, colourless conidiophores with unilocal, percurrent, annellate conidiogenous cells and solitary, hyaline, septate conidia. The discrimination and delimitation between sporodochial species of *Pseudocercosporella* Deighton (hyphomycetes), *Phloeospora* and *Septoria* Sacc. is problematic and often confusing. The separation in sporodochia, acervuli and pycnidia seems to be artificial (Braun 1995b; Sutton & Crous 1997; Verkley & Priest 2000). The three genera represent anamorphs of the genus *Mycosphaerella* Johanson. Therefore, it seems to be justified to treat *Phloeospora ponteana* in the present paper under "cercosporoid hyphomycetes". A comprehensive revision of the complexes around *Phloeospora/ Septoria*, including molecular approaches, is not yet available. Hence, we tentatively prefer to follow the generic concept of Sutton (1980).

Phloeospora ponteana is the first species of *Phloeospora* in the sense of Sutton (1980) on a host belonging to the *Polygonaceae*. Species of *Phloeospora* have previously often been assigned to *Cylindrosporium* Grev. *s. lat*., but all species known on hosts of the *Polygonaceae* are not comparable and morphologically quite distinct, usually with much narrower conidia (*Cylindrosporium kuznetzovianum* Pisareva on *Atraphaxis muschketovii* in Kazakhstan, *C. oxyriae* Vasyag. on *Oxyria elatior* in Kazakhstan, *C. polygoni* H.R. Ibrahimov & T.M. Akhundov on *Polygonum hydropiper* in Azerbaijan, *C. pulchrum* Speg. and *C. pulveraceum* Speg. on *Polygonum* spp. in South America). The latter two species described from South America are characterised by having short, narrow conidia, 10-20 × 2.5-3 µm and 10-30 × 2-2.5 µm, respectively (Saccardo 1886). *C. rhei* Murashk. ex Vassiljevsky & Karak., *nom. inval.* (Vassiljevsky & Karakulin 1950) was described to have very long conidia, 75-133 × 4-5 µm.

(9) *Pseudocercospora bradburyae* (E. Young) Deighton, Mycol. Pap. 140: 140 (1976)

On *Centrosema sagittatum* (*Fabaceae*), Ceará, Cascavel Co., Preaoca Distr., 12 Jul. 2004.

Known from Brazil (Crous & Braun 2003), but lacking in Mendes *et al*. (1998). New to the State of Ceará on a new host species.

(10) *Pseudocercospora cochlospermi* (R.E.D. Baker & W.T. Dale) U. Braun & Crous, in Crous & Braun, *Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora.* CBS Biodiversity Series 1: 130 (2003)

On *Cochlospermum vitifolium* (*Cochlospermaceae*), Ceará, Pindoretama City, 9 Jan 2005.

New to Brazil.

(11) *Pseudocercospora consociata* (G. Winter) Y.L. Guo & X.J. Liu, Mycosystema 2: 232 (1989)

On *Ruellia* sp. (*Acanthaceae*), Ceará, Monsenhor Tabosa City, 9 Sept. 2004.

New to Brazil. This is a morphlogically somewhat deviating form with epiphyllous fruting composed of fasciculate conidiophores arising from stromata.

(12) *Pseudocercospora daturina* (J.M. Yen) Deighon, Mycol. Pap. 140: 143 (1976)

On *Brugmansia suaveolens* [≡ *Datura suaveolens*] (*Solanaceae*), Ceará, Guaramiranga City, 12 Jul. 2004.

New to Brazil on a new host. This species is known from India and Singapore on *Datura alba* and *D. atramonium* (Crous & Braun 2003). The fungus on *Brugmansia suaveolens* is morphologically indistinguishable.

(13) ***Pseudocercospora elephantopodicola*** (J.M. Yen & Gilles) **comb. nov.** [MB 500539]

Bas.: *Cercospora elephantopodicola* ("*elephantopicola*") J.M. Yen & Gilles, Cah. Maboké 9(2): 105-106 "1971" (1973).

On *Elephantopus* sp. (*Asteraceae*), Ceará, Guaramiranga City, 4 Jan. 2005.

This collection agrees well with the original description and illustration of *Cercospora elephantopodicola* (Yen 1973), characterised by having abundant superficial mycelium with solitary conidiophores. The latter species is a typical member of *Pseudocercospora* Speg. with inconspicuous conidiogenous loci. *Pseudocercospora elephantopodis* (Ellis & Everh.) R.F. Castañeda & U. Braun is morphologically very close, but superficial mycelium and solitary conidiophores are lacking. Type material (NY) and additional collections of the latter species have been examined. *P. elephantopodicola* is new to Brazil. The names "*elephatopi*" and "*elephantopicola*" have to be corrected, since epitheta derived from genera which are compound names with "-pus" (foot) have to be formed with "-odis", hence "*elephantopodis*" and "*elephantopodicola*" (see Barkman *et al*. 1986: 193).

(14) ***Pseudocercospora lueheae*** **sp. nov.** [MB 500544] (Fig. 3)

Differt a P. triumfettigena et P. triumfettae conidiis late ellipsoideis-ovoideis (-fusiformibus-subcylindraceis) vel breve obclavatis, 25-45 × 7-11 µm.

Holotypus: on *Luehea* sp. (*Tiliaceae*), Brazil, State of Tocantins, Pedra Branca (Krahô Indian Village), 10 Dec. 2003, F. Freire (HAL 1793 F).

Leaf spots lacking or with small epiphyllous speckles or discolorations, dingy greyish white, on the lower leaf surface with minute medium to dark brown speckles formed by the fungal colonies, 0.5-1 mm wide. Mycelium internal and external, superficial, branched, septate, 2-7 µm wide, thin-walled, pale olivaceous to olivaceous-brown, smooth. Stromata lacking. Conidiophores solitary, arising from superficial hyphae, often aggregated, intricated, immersed in the dense tomentum of the host leaves, forming an olivaceous-brown felt, tomentose, erect to decumbent, simple or branched, separation between mycelium and conidiophores difficult, 80-250 × 4-8 µm, apex often somewhat enlarged, up to 10 µm wide, flexuous-sinuous, but barely geniculate, conidiophores occasionally with enteroblastic-percurrent proliferations, pale to medium dark olivaceous or olivaceous-brown, wall thin to somewhat thickened, smooth, pluriseptate, cells sometimes guttulate-granulate; conidiogenous cells integrated, terminal, 20-60 µm long, subcylindrical to subclavate; conidiogenous loci inconspicuous to subdenticulate, but always unthickened, not darkened. Conidia solitary, broadly ellipsoid-ovoid (-subcylindrical-fusiform), short obclavate, straight to curved, 25-45 × 7-11 µm, 1-3-septate, pale to medium olivaceous-brown, thin-walled, smooth, apex obtuse, usually broadly rounded, base obconically truncate, (1.5-)2-3 µm diam., hila neither thickened nor darkened.

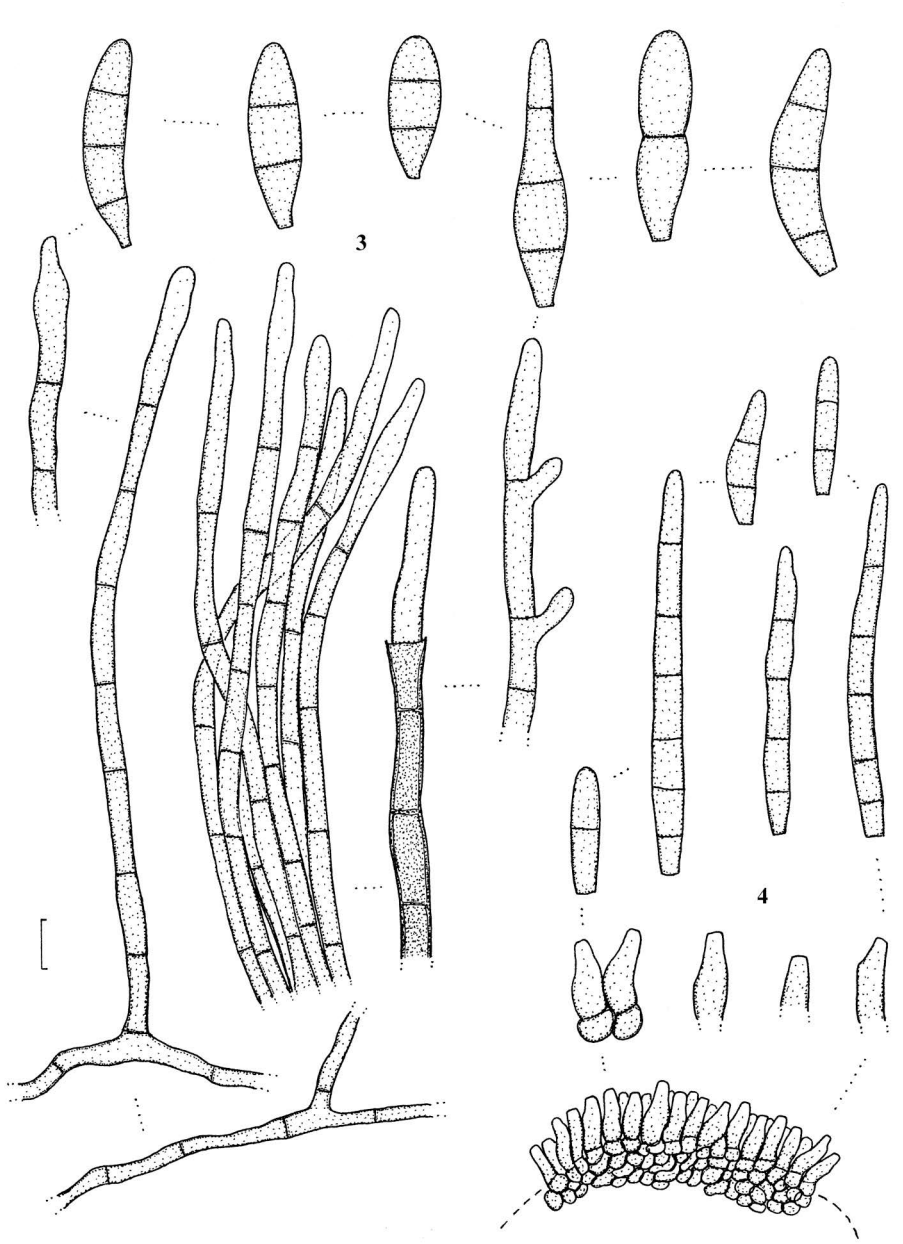
Among several species of *Pseudocercospora* described on hosts of the *Tiliaceae*, *P. lueheae* is close to *P. tiliacearum* K. Bhalla *et al.* (conidia 3-4.5 µm wide), *P. triumfettigena* (J.M. Yen & Gilles) Deighton (conidia scolecosporous, much longer) and *P. triumfettae* (Syd.) Deighton (conidia scolecosporous, pluriseptate) [Bhalla *et al.* 2001; Deighton 1976]. Some other species are easily distinguishable by having well-developed stromata (*Pseudocercospora corchorica* (Petr. & Cif.) Deighton, *P. mannanorensis* Bagyan., U. Braun & Jagad., *P. grewiigena* Y.L. Guo) and (or) fasciculate conidiophores and scolecosporous conidia (*P. berryae* Deighton, *P. macutensis* (Syd.) Deighton) [Deighton 1976, 1979; Bagyanarayana *et al.* 1995; Guo & Hsieh 1995; Guo *et al*. 1998].

(15) ***Pseudocercospora marsdeniigena* sp. nov.** [MB 500545] (Fig. 4)

Differt a P. marsdeniae et P. marsdeniicola stromatibus majoribus, 30-80 µm diam., conidiophoris 5-20 × 3-7 µm, 0(-1)-septatis, conidiis 15-80 × (3-)4-7(-8) µm.

Holotypus: on *Marsdenia* sp. (*Asclepiadaceae*), Brazil, State of Ceará, Monsenhor Tabosa City, 9 Sept. 2004, F. Freire (HAL 1892 [B] F), mixed with *Passalora marsdeniicola* [A].

Leaf spots amphigenous, angular-irregular, 2-10 mm wide, dark purplish violet to blackish, centre later greyish white to white, with narrow to broad purplish violet border, on the lower leaf surface margin sometimes indistinct. Caespituli mainly epiphyllous, punctiform, dark brown to blackish, scattered to subgregarious. Mycelium internal. Stromata well-developed, immersed, sometimes erumpent, 30-80 µm diam., cells 3-7 µm diam., subcircular to slightly angular in outline, olivaceous-brown. Conidiomata sporodochial. Conidiophores numerous, in dense fascicles, arising from stromata, erect, straight, subcylindrical-conic, ampulliform to slightly geniculate-sinuous, unbranched, 5-20 × 3-7 µm, 0(-1)-septate, pale to medium olivaceous, thin-walled, smooth; conidiophores reduced to conidiogenous cells; conidiogenous loci inconspicuous, unthickened, not darkened. Conidia solitary, obclavate-cylindrical, sometimes with constrictions



Figs. 3-4. Superficial hyphae with solitary conidiophores, conidiophore fascicles, conidiophores, conidia, 3 = *Pseudocercospora lueheae*, 4 = *P. marsdeniigena* (bar: 10 µm), drawn by U. Braun.

and swellings, 15-80 × (3-)4-7(-8) µm, 1-12-septate, pale to medium olivaceous or olivaceous-brown, thin-walled, smooth, apex obtuse, base short obconically truncate, 2-3 µm wide, hila unthickend, not darkened.

The two species of *Pseudocercospora* described on hosts of the genus *Marsdenia*, viz. *P. marsdeniicola* (A.K. Kar & Mandal) Deighton and *P. marsdeniae* (Hansf.) Deighton (Chupp 1954; Kar & Mandal 1970; Guo & Hsieh 1995; Guo *et al.* 1998) are easily distinguishable from the new species by having smaller stromata, much longer, pluriseptate conidiophores and narrower conidia.

There are numerous additional species of *Pseudocercospora* on various other hosts of the *Asclepiadaceae* [*P. asclepiadina* (Speg.) Deighton, *P. bastiana* Kamal, A.N. Rai & A.S. Moses (*nom. inval.*), *P. briareus* (Ellis & Everh.) U. Braun & Crous, *P. cryptostegiae* (W. Yamam.) Deighton, *P. fumosa* (Speg.) U. Braun, *P. gymnematis* Kamal & R.P. Singh, *P. midnapurensis* (A.K. Kar & M. Mandal) Deighton, *P. oxystelmatis* (S.A. Khan & Kamal) Kamal, A.N. Rai & A.S. Moses, *P. pergulariae* (J.M. Yen & Lim) J. M. Yen, *P. peronosporoidea* (Pat. & Har.) Deighton, *P. punctiformis* Goh & W.H. Hsieh, *P. tylophoricola* U. Braun, Bagyan. & Jagad.]. However, these species differ from *P. marsdeniigena* in having poorly developed or lacking stromata, superficial hyphae with solitary conidiophores, longer, often pluriseptate conidiophores and (or) narrower conidia (Chupp 1954; Kar & Mandal 1970; Deighton 1976, 1987; Kamal & Singh 1980; Yen & Lim 1980; Braun 2000; Crous & Braun 2003).

(16) *Pseudocercospora nigricans* (Cooke) Deighton, Mycol. Pap. 140: 149 (1976)

On *Senna alata* (*Caesalpiniaceae*), Ceará, Preaoca Distr., Cascavel Co., 18 Sept. 2005.

Known from Brazil (Crous & Braun 2003; Braun & Freire 2004), but *Senna alata* is a new host for this country.

(17) *Pseudocercospora nymphaeacea* (Cooke & Ellis) Deighton, Trans. Brit. Mycol. Soc. 88: 390 (1987)

On *Nymphaea* sp. (*Nymphaeaceae*), Ceará, Guaramiranga City, 9 Jan. 2005.

Known from Brazil (Chupp 1954), but not listed in Mendes *et al.* (1998). New to the State of Ceará.

(18) ***Pseudocercospora piperigena* sp. nov.** [MB 500546] (Fig. 5)

Differt a P. piperis-muricati hyphis superficialibus cum conidiophoris solitariis evolutis, conidiis obclavatis-cylindraceis, 50-120(-200) µm longis, pluriseptatis.

Holotypus: on *Piper arboreum* subsp. *tuberculatum* (*Piperaceae*), Brazil, State of Tocantins, Itacajá City, 11 Dec. 2003, F. Freire (HAL 1894 F).

Leaf spots indistinct, diffuse to subcircular, angular-irregular, 1-5 mm wide, occasionally confluent, pale to dark dingy brown, margin indefinite. Colonies hypophyllous, indistinctly punctiform to effuse, loose to dense, dark dingy olivaceous-brown, not very conspicuous. Mycelium internal and external, superficial hyphae emerging through stomata or from substomatal hyphal aggregations, sparingly branched, septate, thin-walled, subhyaline to pale olivaceous or olivaceous-brown, smooth. Stromata lacking or small, 10-30 µm diam., substomatal, loose to moderately dense, olivaceous-brown. Conidiophores in small, loose fascicles, arising from substomatal hyphae or stromata, erect to decumbent or conidiophores solitary, arising from superficial hyphae, lateral or

terminal, 10-80 × 2-6 µm, subcylindrical to geniculate-sinuous, somewhat attenuated towards the apex, flexuous, simple or branched, 0-7-septate, thin-walled, smooth, very pale olivaceous to medium olivaceous-brown, often paler towards the apex; conidiogenous cells integrated, terminal or intercalary, 10-30 µm long; conidiogenous loci inconspicuous, occasionally subdenticulate, but consistently unthickened, not darkened-refractive. Conidia solitary, occasionally disarticulating, narrowly obclavate-cylindrical, filiform, straight to curved, 50-120(-200) × 2-3(-3.5) µm, 4-12-septate, longer conidia indistinctly pluriseptate, subhyaline to pale olivaceous, thin-walled, smooth, apex subacute to subobtuse, base obconically truncate, 1-1.5 µm wide, hila unthickened, not darkened-refractive (long conidia often easily germinating, forming short to long basal or lateral branches which are easily confusable with superficial hyphae).

Pseudocercospora piperigena is easily recognisable by its very narrow conidia, resembling those of *P. piperis-muricati* (J.M. Yen) J.M. Yen (Yen & Lim 1980). The latter species has, however, much shorter, only 1-5-septate, cylindrical conidia, 30-65 × 2-3.5 µm, and superficial hyphae with solitary conidiophores are lacking. *P. arthantes* (Henn.) Crous, Alfenas & R.W. Barreto (Crous *et al*. 1997) on *Piper* spp. in Brazil, China, Venezuela (Crous & Braun 2003) and Fiji (Braun & Hill 2004) possesses similar, narrow conidia, but differs in having large stromata, 20-80 µm diam., with numerous, densely fasciculate conidiophores. The conidia in *P. piperis* (Pat.) Deighton (Chupp 1954; Ellis 1976) and *P. piperina* (J.M. Yen) J.M. Yen (Yen & Lim 1980) are much wider, 3-6 µm.

(19) *Pseudocercospora plumeriifolii* (Bat. & Peres) U. Braun, J. David & Freire, Cryptog. Mycol. 20(2): 102 (1999)

On *Hiamanthus obovatus* (*Apocynaceae*), Tocantins, Pedra Branca (Krahô Indian Village), 12 Dec. 2003.

This species was described on *Hiamanthus obovatus* from Minas Gerais. It is new to the State of Tocantins.

(20) ***Pseudocercospora poltronieriana* sp. nov.** [MB 500547] (Fig. 6)

Differt a P. cassiae-fistulae lesionibus distinctis, hyphis superficialibus bene evolutis, interdum aggregatis, conidiophoris laxe fasciculatis, fasciculis paucis.

Holotypus: on *Schizolobium amazonicum* (*Caesalpiniaceae*), Brazil, State of Pará, Belém City, 18 Feb. 2004, L. Poltronier (HAL 1776 F).

Etym.: Dedicated to Dr. Luiz S. Poltronieri (Brazilian Plant Pathologist), collector of the type material.

Leaf spots amphigenous, subcircular to angular-irregular, 1-10 mm wide, pale to medium dark brown, later greyish brown to dingy greyish white, margin indefinite or narrow, darker, occasionally with a diffuse greenish or yellowish halo. Caespituli amphigenous, punctiform to subeffuse, loose to dense, brown to dark brown, olivaceous-brown or blackish. Mycelium internal and external. Superficial hyphae sparingly branched, septate, 1.5-4 µm wide, pale olivaceous to olivaceous-brown, thin-walled, smooth, often forming loose to dense aggregations, often ropes. Stromata lacking or small, loose, 10-30 µm diam., olivaceous-brown, intraepidermal, occasionally substomatal. Conidiophores in relatively small fascicles, arising from internal hyphae or stromata, erumpent or emerging through stomata, loose, erect to decumbent, and conidiophores solitary, arising from superficial hyphae, lateral, occasionally terminal, straight, cylindrical-conic to slightly geniculate-sinuous, unbranched or occasionally branched, 5-80 × 2-5 µm, short conidiophores 0-3-septate, longer ones pluriseptate, pale olivaceous to

olivaceous-brown, thin-walled, smooth; conidiogenous cells integrated, terminal, occasionally intercalary or conidiophores reduced to conidiogenous cells, 5-25 µm long; conidiogenous loci inconspicuous, unthickened, not darkened, occasionally subdenticulate. Conidia solitary, narrowly obclavate-cylindrical, (15-)20-70 × 2-4 µm, indistinctly (1-)3-6-septate, subhyaline to pale olivaceous, thin-walled, smooth or almost so, apex subacute to obtuse, base obconically truncate, 1-1.5 µm wide, hila unthickened, not darkened-refractive.

There are numerous species of *Pseudocercospora* on a wide range of hosts belonging to the *Caesalpiniaceae*, but most of them are quite distinct in some ways, above all with regard to lacking superficial hyphae and solitary conidiophores. However, *Pseudocercospora caesalpiniae* Goh & W.H. Hsieh, *P. cassiae-alatae* (J.M. Yen & Lim) J.M. Yen, *P. cassiae-fistulae* Goh & W.H. Hsieh, *P. delonicis* (J.M. Yen) J.M. Yen and *P. variabilis* U. Braun & F. Freire (Hsieh & Goh 1990; Yen & Lim 1980; Braun & Freire 2004) are comparable species with superficial hyphae and solitary conidiophores. The later species differs in forming much larger stromata. Furthermore, superficial hyphae are only occasionally formed in this species. *P. cassiae-fistulae*, described from Taiwan but recently also recorded from Brazil (Braun & Freire 2002), is very close to the new species. However, the host genera, *Cassia* and *Schizolobium*, are not closely allied, and some morphological differences discriminate the two species. *P. cassiae-fistulosae* has angular, vein-limited lesions, sparingly developed superficial hyphae, not forming ropes, and the conidiophores are aggregated in dense, large fascicles. The other species cited above are easily distinguishable from *P. poltronieriana* by consistently non-fasciclate conidiophores, i.e., stromata and fascicles of conidiophores are lacking.

(21) *Pseudocercospora psychotriicola* (Chupp & Doidge) Crous & U. Braun, Sydowia 46: 216 (1994)

On *Psychotria colorata* (*Rubiaceae*), Ceará, Baturité Co., km 07 of the road Baturité to Guaramiranga, 7 Jul. 2005.

New to Brazil; new host species. The material from Brazil agrees well with the redescription of type material of this species published by Crous & Braun (1994).

(22) *Pseudocercospora purpurea* (Cooke) Deighton, Mycol. Pap. 140: 151 (1956)

On *Persea americana* (*Lauraceae*), Ceará, Guaramiranga City, 7 Jan. 2005.

Known from Brazil (Chupp 1954; Crous & Braun 2003), but lacking in the list of Mendes *et al.* (1998). New to the State of Ceará.

(23) *Pseudocercospora sawadae* (W. Yamam.) Goh & W.H. Hsieh, Trans. Mycol. Soc. Rep. China 2: 117 (1987)

On *Psidium guajava* (*Myrtaceae*), Ceará, Cascavel Co., Preaoca Distr., 28 Aug. 2005.

Known from Brazil (Chupp 1954; Mendes *et al.* 1998; Crous & Braun 2003), but new to the State of Ceará.

(24) *Pseudocercospora simulata* (Ellis & Everh.) U. Braun & R.F. Castañeda, Cryptog. Bot. 1: 54 (1998)

On *Senna alata* (*Caesalpiniaceae*), Ceará, Cascavel City, 4 Jul. 2004.

Known from Brazil (Crous & Braun 2003), but not listed in Mendes *et al.* (1998). New to the State of Ceará.

(25) *Pseudocercospora subsessilis* (Syd. & P. Syd.) Deighton, Mycol. Pap. 140: 154 (1976)

On *Azadirachta indica* (*Meliaceae*), Ceará, Maranguape City, 10 Aug. 2004, C. Uchoa.

New to Brazil.

(26) ***Pseudocercospora trematigena* sp. nov.** [MB 500548] (Fig. 7)

Differt a P. trematicola conidiophoris 5-20 µm longis, conidiis 20-60 × 1.5-4 µm.

Holotypus: on *Trema micrantha* (*Ulmaceae*), Brazil, State of Ceará, Monsenhor Tabosa City, 10 Sept. 2004, F. Freire (HAL 1895 F).

Leaf spots amphigenous, subcircular to angular-irregular, 1-4 mm wide, brown, greyish brown, finally greyish white, margin indefinite, occasionally vein-limited. Mycelium internal and external; superficial hyphae sparingly branched, 1-3 µm wide, septate, subhyaline to pale olivaceous or olivaceous-brown, thin-walled, smooth. Stromata lacking. Conidiophores occasionally in small, loose fascicles, emerging through stomata, but usually solitary, arising from superficial hyphae, lateral, rarely terminal, subcylindrical-conic to somewhat geniculate-sinuous, unbranched, 5-20 × 2-4 µm, 0-1-septate, pale olivaceous to olivaceous-brown, thin-walled, smooth, conidiophores mostly reduced to conidiogenous cells; conidiogenous loci inconspicuous. Conidia solitary, occasionally forming a single terminal or basal germ tube or secondary conidium, narrowly cylindrical to obclavate, 20-60 × 1.5-4 µm, 2-5-septate, pale olivaceous, thin-walled, smooth, apex subacute or subobtuse, base obconically truncate, 1-2 µm wide, hila unthickened, not darkened.

P. trematigena is close to *P. trematicola* (J.M. Yen) Deighton, but the latter species differs in having much longer conidiophores, up to 135 µm, pluriseptate, and wider conidia, 4-6.5 µm. In *P. trematis-cannabinae* (J.M. Yen & Lim) Deighton and *P. trematis-orientalis* (S.H. Sun) Deighton, superficial mycelium with solitary conidiophores is lacking, and *P. kiagweensis* Deighton is characterised by very long and much wider conidia, up to 200 × 5-7 µm (Deighton 1976).

(27) *Pseudocercospora triumfettae* (Syd.) Deighton, Mycol. Pap. 140: 122 (1976)

On *Triumfetta* sp. (*Tiliaceae*), Ceará, Pacoti City, Estação Ecológica do Maciço, 7 Sept. 2004.

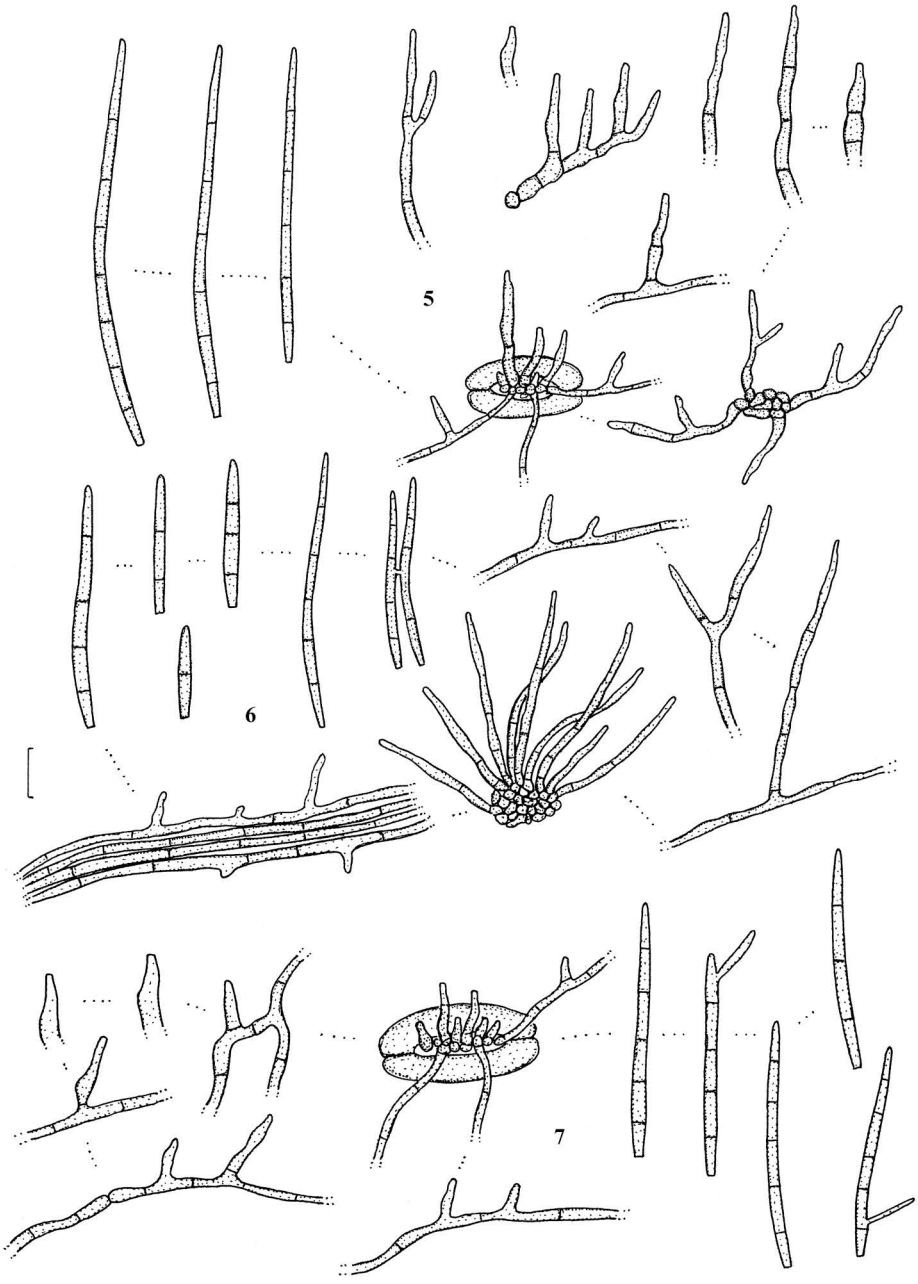
Known from Brazil (Chupp 1954; Mendes *et al.* 1998; Crous & Braun 2003). New to Ceará. Deighton (1976) provided a detailed description and good illustration of this species, indicating that the conidiophores are formed singly, arising from superficial hyphae. The present new collection from Brazil is characterised by having amphigenous fruiting, effuse on the lower leaf surface (conidiophores consistently solitary, arising from superficial hyphae), but punctiform on the upper leaf surface, forming distinct tufts.

(28) *Pseudocercospora viticicola* (J.M. Yen & Lim) J.M. Yen, Gard. Bull., Singapore 33: 190 (1980)

= *Cercospora viticis* Ellis & Everh.

On *Vitex agnus-castus* (*Verbenaceae*), Ceará, Fortaleza City, 20 Jan. 2005.

Known from Brazil (Crous & Braun 2003). Recorded from Ceará on *Aegiphila* sp. (Braun *et al.* 1999). The complicated nomenclature of this species has been discussed by Braun (1998).



Figs. 5-7. Superficial hyphae with solitary conidiophores, conidiophore fascicles, conidiophores, conidia, 5 = *P. piperigena*, 6 = *P. poltronieriana*, 7 = *Pseudocercospora trematigena* (bar: 10 µm), drawn by U. Braun.

(29) *Pseudocercospora venezuelae* (Chupp) Deighton, Mycol. Pap. 140: 113 (1976)

On *Solanum gilo* (*Solanaceae*), Mato Grosso, Terra Nova do Norte City, 23 Feb. 2005.

Known from Brazil (Chupp 1954; Deighton 1976), but lacking in Mendes *et al*. (1998). New to the State of Mato Grosso on a new host species.

(30) ***Stenella capparacearum* sp. nov.** [MB 500549] (Fig. 8)

Differt a S. cappariсola conidiophoris minoribus, 5-30(-50) × 2-5 µm, conidiis catenulatis, minoribus, 5-25 × 2-3.5(-4) µm.

Holotypus: on *Capparis cynophallophora* (*Capparaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 27 Dec. 2003, F. Freire (HAL 1896 F).

Leaf spots lacking. Colonies hypophyllous, subeffuse or in subcircular to irregular patches, 1-25 mm wide, pale to medium olivaceous-brown or greyish olivaceous. Mycelium internal and external; superficial hyphae sparingly branched, 1-4 µm wide, septate, subhyaline to pale olivaceous or olivaceous-brown, thin-walled, verruculose. Stromata lacking. Conidiophores solitary, arising from superficial hyphae, lateral, occasionally terminal, erect, subcylindrical, straight to usually strongly geniculate-sinuous, often somewhat increasing in width towards the tip (subclavate), usually unbranched, 5-30(-50) × 2-5 µm, 0-2(-4)-septate, pale to medium olivaceous or olivaceous-brown, thin-walled, smooth to somewhat verruculose-rugose; conidiogenous cells integrated, terminal, intercalary or conidiophores reduced to conidiogenous cells, 5-20 µm long; conidiogenous loci conspicuous, often numerous, crowded, 0.75-1.5 µm diam., slightly thickened and darkened. Conidia solitary to catenate, in simple chains, cylindrical, subcylindrical, ellipsoid-ovoid, 5-25 × 2-3.5(-4) µm, 0-2-septate, subhyaline to pale olivaceous or olivaceous-brown, thin-walled, verruculose, ends subobtuse, truncate or short obconically truncate, 1-1.5 µm wide, hila barely to slightly thickened and darkened.

Stenella cappariсola (Hansf. & Thirum.) J.L. Mulder [≡ *Cercospora cappariсola* Hansf. & Thirum.; = *Stenella capparis* ("*capparidis*") Kamal, R.P. Singh & P. Kumar], on *Capparis sepiaria* in India, is easily distinguishable from *S. capparacearum* by its much longer and wider conidiophores, 20-110 × 4-7 µm, and larger conidia, 20-180 × 5-7 µm, 0-20-septate, formed singly (Chupp 1954; Vasudeva 1963; Kamal *et al*. 1980). *Stenella cappariсola* ("*capparidicola*") S.K. Singh, Archana Singh & Kamal, *nom. illeg*. (Singh *et al.* 1997) on *Capparis zeylanica* in India resembles *S. cappariсola* (Hansf. & Thirum.) J.L. Mulder, but differs in having much longer, frequently catenate conidia, in simple or branched chains, up to 490 × 9 µm. The latter species requires a new name: ***Stenella capparigena*** U. Braun, **nom. nov.** [Bas.: *Stenella cappariсola* ("*capparidicola*") S.K. Singh, Archana Singh & Kamal, Mycol. Res. 101: 532, 1997; non *Stenella cappariсola* (Hansf. & Thirum.) J.L. Mulder, 1982; MB 500540].

(31) ***Stenella hirtellae* sp. nov.** [MB 500550] (Fig. 9)

Maculae nullae, interdum diffusae, flavidae. Coloniae hypophyllae, effusae, olivaceo-bruneae, deinde rubellae vel rubro-brunneae. Mycelium immersum et externum, superficiale. Hyphae per stoma emergentiae, ramosae, 1-5 µm latae, septatae, tenuitunicatae, subhyalinae vel olivaceo-brunneae, deinde saepe leviter rubellae, subleviae vel saepe verruculosae. Stromata nulla. Conidiophora solitaria, ex hyphis superficialibus oriunda, erecta, recta, subcylindrica vel valde geniculata-sinuosa, non-ramosa vel ramosa, 20-100 × 2-6 µm, pluriseptata, pallide olivacea vel olivaceo-brunnea, deinde saepe

irregulariter rubella, tenuitunicata vel leviter crassitunicata, sublevia vel verruculosa. Cellulae conidiogenae integratae, terminales vel intercalares, 20-40 µm longae. Cicatrices conidiales conspicuae, leviter incrassatae et fuscatae, ca. 1 µm diam. Conidia solitaria, anguste obclavata-cylindrica, (15-)25-55(-60) × (2.5-)3-4(-5) µm, 1-5-septata, subhyalina vel olivaceo-brunnea, tenuitunicata, sublevia vel verruculosa, apice obtuso vel subacuto, basi obconice truncata, 1-1.5 µm lata, hila leviter incrassata et fuscata.

Holotypus: on *Hirtella* sp. (*Chrysobalanaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 10 May 2004, F. Freire (HAL 1873 F).

Leaf spots lacking, occasionally visible as diffuse yellowish discolorations. Colonies hypophyllous, effuse, olivaceous-brown, later turning reddish or reddish brown. Mycelium internal and external; external hyphae emerging through stomata, branched, 1-5 µm wide, septate, thin-walled, subhyaline to olivaceous-brown, finally often with a reddish tinge, almost smooth to verruculose. Stromata lacking. Conidiophores solitary, arising from superficial hyphae, lateral, erect, straight, subcylindrical to strongly geniculate-sinuous, simple or branched, 20-100 × 2-6 µm, pluriseptate, pale olivaceous to olivaceous-brown, later sometimes with a reddish pigmentation which is irregularly distributed in the colonies, walls thin to somewhat thickened, almost smooth to verruculose; conidiogenous cells integrated, terminal or intercalary, 20-40 µm long; conidiogenous loci conspicuous, ca. 1 µm diam., somewhat thickened and darkened, visible as minute circles. Conidia solitary, narrowly obclavate-cylindrical, (15-)25-55(-60) × (2.5-)3-4(-5) µm, 1-5-septate, subhyaline to olivaceous-brown, thin-walled, almost smooth to verruculose, apex obtuse to subobtuse, base obconically truncate, 1-1.5 µm diam., hila slightly thickened and darkened.

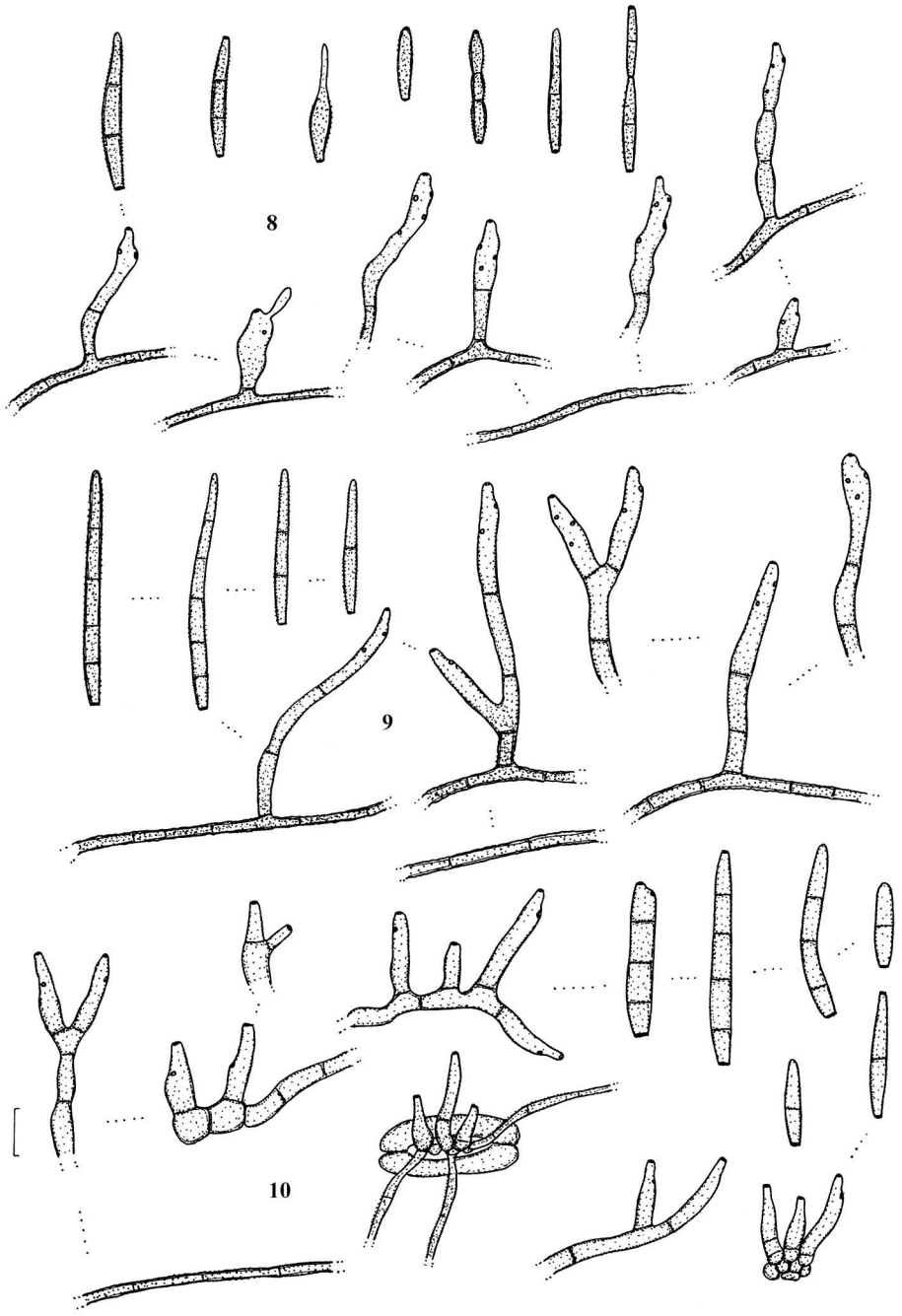
This is the first species of *Stenella* Syd. described from a host belonging to the family *Chrysobalanaceae*. There is no comparable species.

(32) ***Stenella periandrae* sp. nov.** [MB 500551] (Fig. 10)

Differt a S. canavalliae laesionibus bene evolutis, conidiophoris ad 80 µm longis, saepe fasciculatis vel aggregatis, conidiis levibus vel sublevibus.

Holotypus: on *Periandra coccinea* (*Fabaceae*), Brazil, State of Ceará, Baturité Co., km 07 of the road Baturité to Guaramiranga, 8 Jul. 2005, F. Freire (HAL 1897 F).

Leaf spots amphigenous, subcircular to irregular, 2-20 mm wide, yellowish, ochraceous, brown, greyish olivaceous, finally sometimes greyish white, margin usually conspicuous, dark brown, large spots often zonate, with irregular concentric rings. Colonies hypophyllous, not very conspicuous, greyish olivaceous. Mycelium internal and external; superficial hyphae emerging through stomata, sparingly branched, 1-4 µm wide, septate, thin-walled, subhyaline to olivaceous-brown, verruculose. Stromata lacking or only formed as small hyphal aggregations. Conidiophores solitary, in small fascicles or loose, irregular aggregations, often on or around leaf hairs, subcylindrical, straight to geniculate-sinuous, simple or occasionally branched, 10-80 × 3-5 µm, continuous to pluriseptate, thin-walled, pale olivaceous to olivaceous-brown, smooth or almost so; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 10-20 µm long; conidiogenous loci conspicuous, 1-1.5 µm diam., slightly thickened and darkened. Conidia catenate, occasionally in branched chains, cylindrical or subcylindrical, 15-50 × 3-4 µm, 1-4-septate, thin-walled, subhyaline to very pale olivaceous, smooth or almost so, ends rounded to truncate, hila slightly thickened and darkened, 1-1.5 µm diam.



Figs. 8-10. Superficial hyphae with solitary conidiophores, conidiophore fascicles, conidiophores, conidia, 8 = *Stenella capparacearum*, 9 = *S. hirtellae*, 10 = *S. periandrae* (bar: 10 µm), drawn by U. Braun.

This is an unusual new species, characterised by at least partly fasciculate, smooth conidiophores and smooth conidia. The verruculose (stenella-like) mycelium is abundant on lesions, but solitary conidiophores arising from the superficial hyphae have not been observed. *Stenella araguata* Syd. on *Pithecolobium lanceolatum* in South America, the type species of *Stenella*, is morphologically close to the new species, but differs in having smaller, 7-24 × 2-4 μm, brown, at least partly verruculose conidia (Ellis 1971). *S. canavalliae* (Syd. & P. Syd.) Deighton [incl. *S. canavalliae-roseae* (J.M. Yen & Gilles) J.M. Yen] is an additional morphologically similar species, which is, however, easily distinguishable by its much longer conidiophores, up to 300 μm, formed singly, verruculose conidia and lacking leaf spots (Chupp 1954; Ellis 1976; Hsieh & Goh 1990; Crous & Braun 2003).

Various other species of *Stenella* on hosts belonging to the *Fabaceae* are quite distinct by having non-fasciculate conidiophores and (or) much longer, pluriseptate conidia [*Stenella buteae* S. Misra, N. Srivast. & A.K. Srivast. (Misra *et al.* 1997), *S. crotalariicola* Chaudhary, C. Gupta & A.K. Srivast. (Chaudhary *et al.* 1991), *S. fabacearum* K. Srivast., A.K. Srivast. & Kamal (Srivastava *et al.* 1994)].

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