

## Some cercosporoid hyphomycetes from Brazil – III

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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 cnidoscolicola*, *P. jatrophigena*, *P. pavoniicola*, *Pseudocercospora amazoniae*, *P. brasiliensis*, *P. froelichiae*, *P. hybanthi*, *P. jacquemontiae*, *P. schrankiicola*, *P. ubajarensis*, *P. variabilis*, *Stenella hiamanthi*, *S. manihotis*, and *S. pavoniae*. *Pseudocercospora bertholletiae* is a new combination, while *P. caesalpinigena* and *P. yeniana* are two nomina nova. © ADAC/Elsevier, Paris.

**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 cnidoscolicola*, *P. jatrophigena*, *P. pavoniicola*, *Pseudocercospora amazoniae*, *P. brasiliensis*, *P. froelichiae*, *P. hybanthi*, *P. jacquemontiae*, *P. schrankiicola*, *P. ubajarensis*, *P. variabilis*, *Stenella hiamanthi*, *S. manihotis* et *S. pavoniae*. Le binôme *Pseudocercospora bertholletiae* est une combinaison nouvelle alors que *P. caesalpinigena* et *P. yeniana* sont deux noms nouveaux.

**hyphomycètes cercosporoïdes / taxonomie / espèce nouvelle / Brésil**

### INTRODUCTION

The continuous search for cercosporoid hyphomycetes in Brazil (Braun *et al.*, 1999; Braun & Freire, 2002) has been maintained between the years 2001 and 2003. Various new species, numerous collections new to this country 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 work published by Viégas (1945), and from numerous papers published by Batista and his co-workers (see da Silva & Minter, 1995). These reports dealt mainly with collections from Pernambuco and Minas Gerais, whereas data from the State of Ceará are still rather limited (Braun *et al.*, 1999; Braun & Freire 2002). The State of Ceará is one of the driest parts of Brazil, although the climate, and consequently the crops, are tropical. The notable biodiversity of host plants in this area is reflected in the diversity of their phytopathogenic fungi as was shown in the two previously published papers by the present authors.

### LIST OF THE SPECIES

All fungal genera and species here considered are alphabetically arranged. The taxonomy and nomenclature follow Crous & Braun (2003). Most records are from a number of counties of the State of Ceará, but since some additional collections are from other Brazilian states, it is necessary to provide detailed data of the particular localities. Unless not otherwise stated, the reported collections have been made by F. Freire. All treated specimens are deposited at HAL (Martin-Luther-University, Institute of Geobotany, Herbarium, Halle, Germany); duplicates are in F. Freire's private herbarium. Some rich collections have been distributed as exsiccatae (U. Braun: Fungi selecti exsiccati (ex herbario Universitatis Halensis) = U. Braun, Fungi sel. exs., e.g., in BPI, HMAS, IMI, LE, M, PDD). The abbreviations "Co." = County and "Distr." = District are used.

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

On *Angelonia* sp. (*Scrophulariaceae*), Ceará, Cascavel Co., Preaoca Distr., 3 Oct. 2003 (new host); *Gerbera jamesonii* (*Asteraceae*), Ceará, Jardim City, 30 Aug. 2003 (new to Ceará); *Mimosa sensitiva* (*Mimosaceae*), Ceará, Cascavel Co., Preaoca Distr., 10 Aug. 2003 (new host).

Collections of *Cercospora apii* s.lat. on *Gerbera jamesonii* have previously been referred to as *C. gerberae* Chupp & Viégas, and that on *Mimosa sensitiva* belongs to a synonym of *C. apii*, namely *C. canescens* Ellis & G. Martin.

2. ***Cercospora furfurella* Speg., Anales Soc. Ci. Argent. 26: 72 (1888)**

On *Boerhaavia coccinea* (*Nyctaginaceae*), Ceará, Cascavel Co., Preaoca Distr., 23 Nov. 2001; Ceará, Paraidaba Co., 6 Aug. 2002.

New to Ceará.

3. ***Cercospora virgaureae* (Thüm.) Allesch., Hedwigia 34: 286 (1895)**

On *Conyza* sp. (*Asteraceae*), Ceará, Cascavel Co., Preaoca Distr., 10 Aug. 2003 (U. Braun, Fungi sel. exs. 7).

This species is known from Brazil (São Paulo) on *Erigeron* sp. (Braun 1995; Mendes *et al.* 1998). Viégas (1961) listed *Conyza bonariensis* as a host of this species from South America.

4. ***Cladosporium cassiae-surathensis* J.M. Yen, Bull. Soc. Mycol. Fr. 97(3): 130-131 (1981)**

On *Chamaecrista* (*Cassia*) sp. (*Caesalpinaceae*), Ceará, Cascavel Co., Preaoca Distr., 30 Aug. 2003, mixed infection together with *Cercospora apii* s. lat. This is the first record of the fungus in South America.

5. ***Passalora cnidoscolicola* sp. nov.**

(Fig. 1)

Differt a *P. cnidoscolifolii* conidiis breve cylindratis vel ellipsoideis-obovoideis, 15-35 × (4-)5-7(-8) µm, (1-)2-3(-4)-septatis.

**Holotypus:** on *Cnidoscolus* sp. (*Euphorbiaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 27 Aug. 2003, F. Freire (HAL 1781).

Leaf spots lacking or only with diffuse to angular-irregular, greenish, yellowish to ochraceous discolorations. Caespituli hypophyllous, subeffuse, greyish

olivaceous-brown. Mycelium internal. Stromata lacking or small, substomatal, 10-20  $\mu\text{m}$  diam., brown. Conidiophores in small, loose fascicles, 2-10, arising from internal hyphae or small stromatic hyphal aggregations, emerging through stomata, erect, subcylindrical to geniculate-sinuuous, simple, rarely branched, 30-120  $\times$  3-6  $\mu\text{m}$ , continuous to pluriseptate throughout, pale to medium brown or olivaceous-brown, tips paler, sometimes even subhyaline, smooth, wall thin to somewhat thickened; conidiogenous cells integrated, terminal, 10-25  $\mu\text{m}$  long; conidiogenous loci conspicuous, somewhat thickened and darkened, 1-1.5  $\mu\text{m}$  wide. Conidia solitary, short cylindrical to ellipsoid-obovoid, 15-35  $\times$  (4-)5-7(-8)  $\mu\text{m}$ , (1-)2-3(-4)-septate, occasionally constricted at the septa, subhyaline to pale olivaceous, smooth or almost so, thin-walled, apex obtuse, broadly rounded, base short obconically truncate, hila somewhat thickened and darkened, 1-2  $\mu\text{m}$  wide.

*Passalora cnidoscolifolii* (Bat., Peres & O.A. Drumm.) U. Braun & F. Freire (Braun 2003), the only other species of *Passalora* on *Cnidocolus* spp., is distinguished from *P. cnidoscolicola* by having much longer, obclavate-cylindrical conidia, 20-90  $\times$  4-6  $\mu\text{m}$ , with 1-8 septa. *Passalora* species on other hosts of the Euphorbiaceae differ in having catenate conidia (*Phaeoramularia* type) [*Passalora ajrekari* (Syd.) U. Braun, *P. crotoniphila* (Speg.) Crous, *P. crotonis* (Ellis & Everh.) Crous & U. Braun, *P. crotonis-oligandri* (J.M. Yen & Gilles) Crous & U. Braun, *P. euphorbiicola* U. Braun & Crous, *P. manihotis* (F. Stevens & Solheim) U. Braun & Crous, *P. maritima* (Tracy & Earle) Crous & U. Braun], superficial hyphae with solitary conidiophores (*Mycovellosiella* type) [*Passalora manaosensis* (Henn.) U. Braun & Crous], colourless conidia [*Passalora sauropi* (P.K. Chi & S.Q. Chen) Y.L. Guo], large stromata and sporodochial conidiomata [*Passalora atrides* (Syd. & P. Syd.) Y.L. Guo, *P. crotonifolia* (Cooke) Crous, U. Braun & Alfenas], very long conidiophores, up to 220  $\mu\text{m}$  [*Passalora taihokuensis* (Goh & W.H. Hsieh) Y.L. Guo & W.H. Hsieh], much shorter conidiophores [*Passalora henningsii* (Allesch.) R.F. Castañeda & U. Braun] or narrower, verrucose conidia, 3-3.5  $\mu\text{m}$  wide [*Passalora verniciae* Crous, U. Braun & Alfenas].

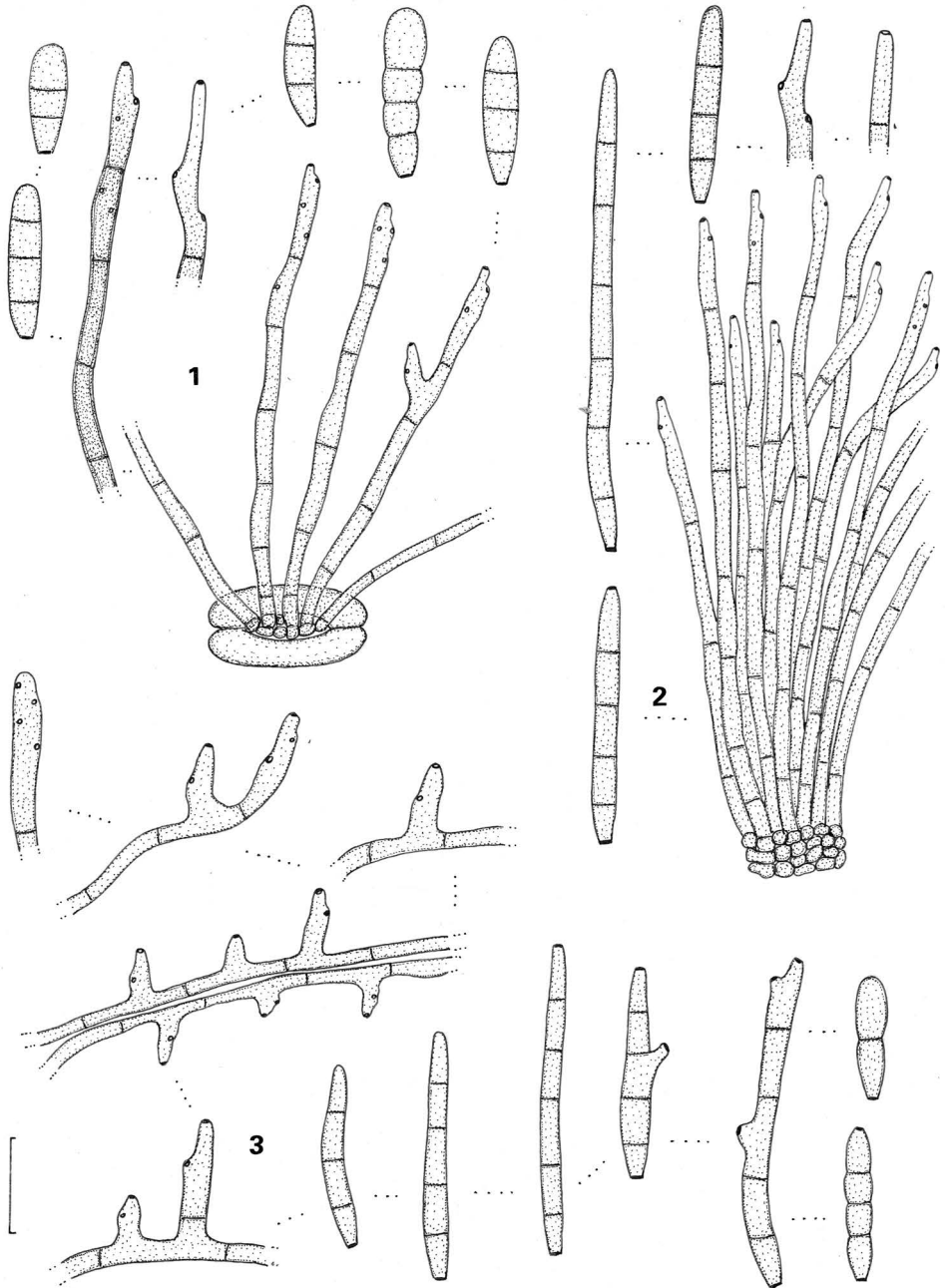
#### 6. *Passalora jatrophigena* sp. nov.

(Fig. 2)

Differt a *P. ajrekari* maculis omnino distinctis, conidiophoris saepe sub-synnematibus, 40-180  $\mu\text{m}$  longis et conidiis 40-100  $\mu\text{m}$  longis.

**Holotypus:** on *Jatropha* sp. (*Euphorbiaceae*), Brazil, State of Ceará, Quixadá City, 5 Feb. 2002, F. Freire (HAL 1777).

Leaf spots amphigenous, subcircular to angular-irregular, 1-5 mm wide, often zonate, brown, later centre paler, straw-coloured, pale greyish brown, surrounded by a narrow to wide darker border and diffuse, wide, brown halo, up to 15 mm wide, sometimes confluent and larger, forming large brown discolorations. Caespituli amphigenous, mainly epiphyllous, punctiform, scattered to dense, dingy greyish brown. Mycelium internal. Stromata immersed, 20-60  $\mu\text{m}$  diam., brown. Conidiophores in small, loose to moderately large, dense or very dense, almost synnematosus fascicles, arising from stromata, erumpent, erect, filiform-subcylindrical, occasionally slightly geniculate-sinuuous in the upper fertile portion, unbranched, 40-180  $\times$  3-7  $\mu\text{m}$ , pluriseptate, pale olivaceous to olivaceous-brown, wall thin or almost so, smooth to faintly rough-walled; conidiogenous cells integrated, terminal, 10-30  $\mu\text{m}$  long; conidiogenous loci somewhat thickened and darkened, 1.5-2.5  $\mu\text{m}$  wide. Conidia formed singly or in short, simple or branched chains, 40-100  $\times$  3-6  $\mu\text{m}$ , 2-7-septate, subhyaline to pale olivaceous or olivaceous-brown, smooth, thin-walled, apex obtuse, rounded to subtruncate, base truncate or short obconically truncate, 1.5-2.5  $\mu\text{m}$  wide, hila slightly thickened and darkened.



Figs. 1-3. Conidiophore fascicles, conidiophores, conidia, superficial hyphae, 1 = *Passalora cnidoscolicola*, 2 = *Passalora jatrophigena*, 3 = *Passalora pavonicola* (bar: 20 µm), drawn by U. Braun.

This species is easily distinguishable from *Passalora ajrekati* (Syd.) U. Braun (see Chupp 1954, Ellis 1976), the only other species of *Passalora* on *Jatropha* spp., by having much longer conidiophores, often in subsynnematosous conidiomata, and longer conidia. *Passalora* species on other hosts of the Euphorbiaceae (see under *Passalora cnidoscolicola* sp. nov.) differ in having loosely fasciculate, non-synnematosous conidiophores, catenate conidia or superficial mycelium with solitary conidiophores.

### 7. *Passalora pavoniicola* sp. nov.

(Fig. 3)

Differt a *P. malvacearum* et *P. sidarum* conidiis saepe cylindraceis, rami-catenatis, 10-70  $\mu\text{m}$  longis, 3-7  $\mu\text{m}$  latis, 1-7-septatis.

**Holotypus:** on *Pavonia cancellata* (*Malvaceae*), Brazil, State of Ceará, Ubajara City, 16 Oct. 2003, F. Freire (HAL 1798).

Leaf spots lacking or only with diffuse yellowish-ochraceous to brownish discolorations on the upper leaf surface, lower leaf surface with angular-irregular patches formed by dense fungal colonies, 1-5 mm wide, brownish, dingy greyish olivaceous-brown. Mycelium internal and external, superficial; stromata lacking; hyphae emerging through stomata, repent, climbing leaf hairs, occasionally forming ropes, sparingly branched, septate, smooth, pale olivaceous to olivaceous-brown, 1.5-5  $\mu\text{m}$  wide. Conidiophores or conidiogenous cells solitary, arising from superficial hyphae, lateral, occasionally terminal, subcylindrical, conical, slightly geniculate-sinuuous, unbranched, 5-40  $\times$  3-5  $\mu\text{m}$ , mostly 0-2(-3)-septate, often only formed as small lateral projections of procumbent threads, olivaceous to olivaceous-brown, thin-walled, smooth; conidiophores mostly reduced to conidiogenous cells, occasionally conidiogenous cells integrated, terminal, 5-25  $\mu\text{m}$  long; conidiogenous loci conspicuous, slightly thickened and darkened, 1.5-2  $\mu\text{m}$  wide. Conidia solitary as well as catenate, in simple or branched chains, branchings terminal and occasionally lateral (the conidia sometimes bear lateral scars at the end of short projections), cylindrical, subcylindrical to cylindrical-obclavate, 10-70  $\times$  3-7  $\mu\text{m}$ , 1-7-septate, occasionally constricted at the septa, subhyaline, pale olivaceous to olivaceous-brown, thin-walled, smooth, apex obtuse, rounded or truncate in catenate conidia, base short obconically truncate, hila 1-2  $\mu\text{m}$  wide, slightly thickened and darkened.

*Passalora pavoniicola* sp. nov. is a mycovellosiella-like species of the genus *Passalora* (with superficial hyphae and solitary conidiophores). *Passalora malvacearum* (B. Rai & Kamal) U. Braun & Crous (in Crous & Braun 2003;  $\equiv$  *Mycovellosiella malvacearum* B. Rai & Kamal, 1985), which was described from India on *Kydia calycina*, is distinguished by having much larger obclavate-cylindrical conidia, 14.5-277  $\times$  4.5-8  $\mu\text{m}$ , with up to 33 septa. *P. sidarum* (Petr. & Cif.) U. Braun & Crous (in Crous & Braun, 2003;  $\equiv$  *Mycovellosiella sidarum* (Petr. & Cif.) Deighton, 1974; incl. *M. sidae* (Olive) Deighton, see Braun 1998), known from the USA, West Indies and Australia, is characterised by having smaller, pale conidia, 9-40  $\times$  2-4.5  $\mu\text{m}$ , with 0-3 septa. *Ramularia malvastri* Linder ( $\equiv$  *Mycovellosiella malvastri* (Linder) Deighton) has colourless conidiophores and conidia, and is considered a true species of *Ramularia* Unger (see Braun 1998).

### 8. *Passalora pulchella* (T.S. Ramakr.) U. Braun & Crous, in Crous & Braun

*Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora*. CBS Biodiversity Studies, Vol. 1: 341 (2003).

*Cercospora pulchella* T.S. Ramakr., Proc. Indian Acad. Sci., Sect. B, 34: 163 (1951).

On *Indigofera hirsuta* (Fabaceae), Ceará, Cascavel Co., Preaoca Distr., 10 Aug. 2003 (U. Braun, Fungi sel. exs. 8).

New to Brazil (first record from South America) on a new host species.

9. *Pseudocercospora amazoniae* sp. nov. (Fig. 4)

Differt a *P. clerodendri* et *P. formosana* hyphis superficialibus nullis.

**Holotypus:** on *Amazonia* sp. (Verbenaceae), Brazil, State of Ceará, Beberibe City, 6 June 2003, F. Freire (HAL 1785).

Leaf spots amphigenous, subcircular to angular-irregular, 2-20 mm wide or confluent and larger, pale to medium dark brown, later dingy greyish brown to grey, margin indefinite. Caespituli amphigenous, finely punctiform, scattered, dark brown. Mycelium internal. Stromata lacking or small, 10-30  $\mu\text{m}$  diam., substomatal, brown. Conidiophores in small to moderately large fascicles, loose to moderately dense, mostly rather loose, arising from internal hyphae or stromata, emerging through stomata, erect, straight, subcylindrical to moderately geniculate-sinuose, unbranched, 10-50(-60)  $\times$  (2-)3-5(-6)  $\mu\text{m}$ , 0-2(-3)-septate, pale to medium olivaceous or olivaceous-brown, wall smooth to verruculose, thin to somewhat thickened; conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 10-25  $\mu\text{m}$  long; conidiogenous loci inconspicuous. Conidia solitary, 20-100  $\times$  (2-)2.5-5  $\mu\text{m}$ , short conidia narrowly obclavate-cylindrical, long conidia subacicular-filiform, (1-)3-9-septate, pale olivaceous to olivaceous-brown, smooth to faintly rough-walled, thin-walled, apex subacute to obtuse, base truncate to obconically truncate, 1-1.5(-2)  $\mu\text{m}$  wide, hila unthickened, not darkened.

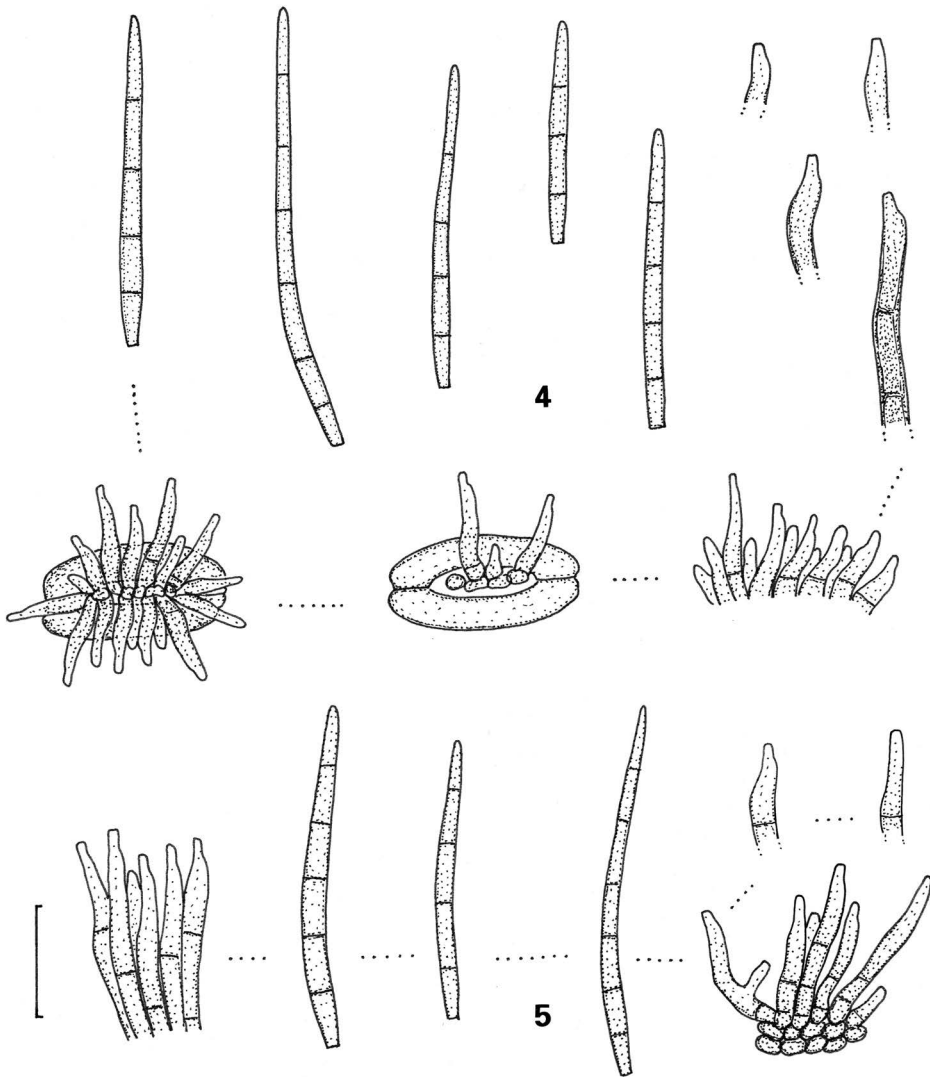
Conidia and conidiophores of *Pseudocercospora clerodendri* (Miyake) Deighton and *P. formosana* (W. Yamam.) Deighton are morphologically close to this new species, but they differ in having well-developed superficial mycelium with solitary conidiophores (Chupp 1954, Hsieh & Goh 1990). There are numerous other species of *Pseudocercospora* on hosts of the Verbenaceae, which are, however, easily distinguishable from *P. amazoniae* either by having superficial hyphae with solitary conidiophores (*Pseudocercospora callicarpae* (Cooke) Y.L. Guo & W.X. Zhao, *P. durantae* N. Pons, U. Braun & Crous, *P. lippiae-albae* U. Braun & R.F. Castañeda, *P. nycanthis* (A.K. Roy) U. Braun, Bagyan. & Jagad., *P. premnicola* Y.L. Guo & X.J. Liu, *P. viticicola* (J.M. Yen & Lim) J.M. Yen), much wider conidia, 3-8  $\mu\text{m}$  (*P. ranjita* (S. Chowdhury) Deighton, *P. premnicola* Y.L. Guo & X.J. Liu, *P. tectonicola* J.M. Yen, A.K. Kar & B.K. Das) or much longer conidiophores, up to 120  $\mu\text{m}$  (*P. guianensis* (F. Stevens & Solheim) Deighton, *P. kashotoensis* (W. Yamam.) Deighton) [Chupp 1954, Deighton 1976, Castañeda & Braun 1989, Yen & Lim 1980, Guo & Hsieh 1990, Guo *et al.* 1998, Crous & Braun 2003].

10. *Pseudocercospora annonae-squamosae* U. Braun & R.F. Castañeda, *Cryptog. Bot.* 1: 50 (1989)

*Pseudocercospora annonicola* Goh & W.H. Hsieh, *Cercospora* and similar fungi from Taiwan: 22 (1990).

On *Annona cherimola*  $\times$  *A. squamosa* (Annonaceae), Ceará, Paraipaba City, 19 May 2003, E. Cardoso; *A. pygmaea*, Pará, Amazonian Region, Belém City, 30 Aug. 2003, L. Poltronieri; *Rollinia mucosa*, Pará, Amazonian Region, Belém City, 28 Aug. 2003, L. Poltronieri (U. Braun, Fungi sel. exs. 9).

Braun & Freire (2002) published a first record of this species from Brazil on *Annona muricata*. *Annona cherimola*  $\times$  *A. squamosa*, *A. pygmaea* and *Rollinia mucosa* are new host species. *Rollinia* is a new host genus.



Figs 4-5. Conidiophore fascicles, conidiophores, conidia, 4 = *Pseudocercospora amazoniae*, 5 = *Pseudocercospora bertholletiae* (bar: 20  $\mu$ m), drawn by U. Braun.

11. *Pseudocercospora bertholletiae* (F.C. Albuquerque) comb. nov.

(Fig. 5)

Bas.: *Cercospora bertholletiae* F.C. Albuquerque, Bol. T cn. Inst. Agron. N. 38: 8 (1960).

On *Bertholletia excelsa* (Lecythidaceae), Par  (Amazonian Region), Bel m City, 2 Jul. 2003, L. Poltronieri.

Leaf spots amphigenous, subcircular to irregular, sometimes vein-limited, 2-20 mm wide, occasionally confluent, pale to dark brown, later greyish brown to

dingy grey, sometimes with a yellowish-ochraceous to brownish halo. Caespituli amphigenous, mainly hypophyllous, punctiform, dark brown. Mycelium internal. Stromata lacking or small, substomatal or intraepidermal, 10-30  $\mu\text{m}$  diam., brown. Conidiophores in small to moderately large fascicles, loose to dense, arising from internal hyphae or stromata, emerging through stomata or erumpent through the cuticle, erect, occasionally decumbent, straight, subcylindrical to geniculate-sinuous, unbranched or rarely branched, 10-50  $\times$  2-5  $\mu\text{m}$ , 0-2(-3)-septate, olivaceous to olivaceous-brown, smooth, thin-walled; conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 10-25  $\mu\text{m}$  long; conidiogenous loci inconspicuous. Conidia solitary, narrowly obclavate, 25-80  $\times$  2.5-4  $\mu\text{m}$ , 3-8-septate, pale olivaceous, smooth, thin-walled, apex subacute, base obconically truncate, 1.5-2  $\mu\text{m}$  wide, hila unthickened, not darkened.

*Cercospora bertholletiae* was described by Albuquerque (1960) from Brazil (Pará, Belém), where it has recently been recollected. Type material was not available for a study, but based on the new material from the original locality it was possible to reassess this species. Since the conidiogenous loci are inconspicuous, *C. bertholletiae* has to be placed in *Pseudocercospora*. *Pseudocercospora macrospora* (Bat. & Peres) Crous & R.L. Berchamol ( $\equiv$  *Cercosproa bertholletiae* var. *macrospora* Bat. & Peres), known from Brazil on the same host plant, is quite distinct in having large sporodochial conidiomata with numerous, densely arranged conidiophores and more or less cylindrical conidia with a truncate base (Crous *et al.* 2000).

12. *Pseudocercospora borrieriae* (Ellis & Everh.) Deighton, Mycol. Pap. 140: 140 (1976)

*Cercospora borrieriae* Ellis & Everh., Proc. Acad. Nat. Sci. Philad. 46: 379 (1894).

On *Mitracarpus* sp. (*Rubiaceae*), Ceará, Cascavel Co., Preaoca Distr., 22 June 2003.

Host new to Brazil. Collections on *Mitracarpus* spp. are morphologically indistinguishable from *P. borrieriae* on *Borreria* spp.

13. *Pseudocercospora brasiliensis* sp. nov. (Fig. 6)

Differt a *P. oroxylogena* hyphis superficialibus cum conidiophoris solitariis et conidiophoris fasciculatis saepe ramosis.

**Holotypus:** on *Cuspidaria erubescens* [ $\equiv$  *Piriadacus erubescens*] (*Bignoniaceae*), Brazil, State of Ceará, Tianguá City, 28 Aug. 2003, F. Freire (HAL 1776).

Leaf spots amphigenous, subcircular to angular-irregular, 1-8 mm wide, brown, dark brown to blackish, occasionally purplish black, finally dingy greyish brown, margin indefinite. Caespituli hypophyllous, subeffuse, dark brown to blackish. Mycelium internal as well as external; superficial hyphae sparingly branched, 2-5  $\mu\text{m}$  wide, septate, pale olivaceous to olivaceous-brown, smooth. Stromata lacking. Conidiophores in small, loose fascicles, arising from internal hyphae, emerging through stomata or formed singly, arising from superficial hyphae, erect, straight, subcylindrical to geniculate-sinuous, simple or often branched, 10-120  $\times$  3-10  $\mu\text{m}$ , continuous to pluriseptate, pale olivaceous to medium olivaceous-brown, smooth, thin-walled; conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 5-25  $\mu\text{m}$  long; conidiogenous loci inconspicuous. Conidia solitary, obclavate(-subcylindrical), 30-120  $\times$  4-9  $\mu\text{m}$ , (2-)-3-8(-10)-septate, pale olivaceous to olivaceous-brown, smooth, thin-walled, apex obtuse to subacute, base obconically truncate, (1.5-)2(-2.5)  $\mu\text{m}$  wide, hila unthickened, not darkened.



This is the first collection of a *Pseudocercospora* on a host of the genus *Cuspidaria*. This fungus is easily distinguishable from all known members of the genus *Pseudocercospora* on hosts of the Bignoniaceae by its very distinctive features. *P. oroxyligena* J.M. Yen, A.K. Kar & B.K. Das (Yen *et al.* 1982) is morphologically very similar, but superficial hyphae with solitary conidiophores are lacking and the conidiophores are unbranched. *Cercospora polymera* Syd. and *P. zeyheriae* (Henn.) Dianese, Furlanetto & L.T.P. Santos are characterized by their very large stromata, up to 240 µm diam. (Chupp 1954, Dianese *et al.* 1999). The following taxa differ from *P. brasiliensis* in having much smaller conidia, 2–6 µm wide (Chupp 1954, Yen & Lim 1980, Guo *et al.* 1998, Crous & Braun 2003): *Pseudocercospora bignoniacearum* B.K. Gupta & Kamal, *P. catalpicola* U. Braun, *P. catalpigena* U. Braun, *P. cybistacis* (Henn.) X.J. Liu & Y.L. Guo, *P. dolichandrones* (Chupp) Deighton, *P. hansfordii* (Chupp) Deighton (conidiophores up to 300 µm long), *P. haplophragmatis* (Kamal & R.P. Singh) U. Braun, *P. jahnii* (Syd.) U. Braun & Crous, *P. millingtoniae* Raghu Ram & Mallaiah, *P. pallida* (Ellis & Everh.) H.D. Shin & U. Braun, *P. sordida* (Sacc.) Deighton, *P. stereospermicola* Sriskantha & Sivan., *P. tabebuiae-roseoalbae* Inácio & Dianese, *P. tecomae-heterophyllae* (J.M. Yen) Y.L. Guo & X.J. Liu and *P. tecomicola* (J.M. Yen) U. Braun & Bagayn. Finally, *Cercospora bignoniicola* Speg. has cylindrical conidia (Chupp 1954).

**14. *Pseudocercospora byrsonimatis* (Pat.) U. Braun & Mouch., Mycol. Res. 104: 1010 (2000)**

*Cercospora byrsonimatis* Pat., Bull. Soc. Mycol. France 36: 40 (1920).  
On *Byrsonima* sp. (*Malpighiaceae*), Ceará, Beberibe City, 25 Sept. 2003.  
New to Ceará.

**15. *Pseudocercospora cotizensis* (A.S. Mull. & Chupp) Deighton, Mycol. Pap. 140: 142 (1976)**

*Cercospora cotizensis* A.S. Mull. & Chupp, Ceiba 1: 173 (1950).  
On *Crotalaria pallida* (*Fabaceae*), Ceará, Cascavel Co., Preaoca Distr.,  
15 June 2003 (U. Braun, Fungi sel. exs. 12) and 6 Jul. 2003.  
New to Brazil.

**16. *Pseudocercospora cruenta* (Sacc.) Deighton, Mycol. Pap. 140: 142 (1976)**

*Cercospora cruenta* Sacc., Michelia 2: 149 (1880).  
On *Canavalia* sp. (*Fabaceae*), Ceará, Ubajara City, 10 Oct. 2003.  
*Macroptilium lathyroides* (*Fabaceae*), Rio Grande do Norte, Mossoró City, 10 May  
2003 and Ceará, Pacajus city, 5 Jan. 2003.  
Hosts new to Brazil. In the literature, *Macroptilium lathyroides* was recorded as host of *Pseudocercospora nigricans* (Cooke) Deighton (Crous & Braun 2003), but available records are undoubtedly wrong and seem to be referable to *P. cruenta*. The host species of the latter fungus belongs to *Cassia s.lat.* (*Caesalpinaceae*), whereas *Macroptilium* is close to *Phaseolus* and its allied genera (*Fabaceae*, *Phaseolinae*).

**17. *Pseudocercospora davalliae* (A.K. Kar & M. Mandal) U. Braun & Crous, in Crous & Braun, *Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora*. CBS Biodiversity Studies, Vol. 1: 154 (2003)**

*Cercospora davalliae* A.K. & M. Mandal, Trans. Brit. Mycol. Soc. 53(3): 355 (1969).

On *Davallia fejeensis* (*Davalliaceae*), Ceará, Ubajara City, 10 Oct. 2002 (U. Braun, Fungi sel. exs. 14).

New to Brazil (first record from South America); new host species.

18. *Pseudocercospora eustomatis* (Peck) U. Braun, *Schlechtendalia* 2: 15 (1999)

*Cercospora eustomatis* ("eustomae") Peck, New York State Mus. Bull. 157: 45, 107 (1912).

On *Eustoma grandiflorum* (*Gentianaceae*), Ceará, São Benedito City, 5 May 2003 (U. Braun, Fungi sel. exs. 17).

New to Brazil.

19. *Pseudocercospora froelichiae* sp. nov. (Fig. 7)

Differt a *P. chamissoana* maculis nullis, caespitulis epiphyllis et stromatibus immersis.

**Holotypus:** on *Froelichia* sp. (*Amaranthaceae*), Brazil, State of Ceará, Paraipaba City, 6 Aug. 2002, F. Freire (HAL 1779).

**Paratypus:** on *Froelichia* sp. (*Amaranthaceae*), Brazil, Rio Grande do Norte State, Areia Branca City, 25 Aug. 2003, F. Freire (HAL 1780).

Leaf spots lacking or only with inconspicuous discolorations, yellowish-ochraceous, brownish or occasionally purplish, sooty patches on the upper leaf surface caused by dense fruiting, 1-5 mm wide. Mycelium immersed. Stromata immersed or somewhat erumpent, 10-50 µm diam., olivaceous-brown, composed of swollen hyphal cells, 2-7 µm diam., wall somewhat thickened. Conidiophores in small to moderately large fascicles, loose to dense, erumpent, erect, straight, subcylindrical-conical, slightly geniculate-sinuous, unbranched, 10-35 × 2-5 µm, 0-1(-2)-septate, pale olivaceous to olivaceous-brown, smooth, thin-walled; conidiophores either reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 10-25 µm long; conidiogenous loci inconspicuous. Conidia solitary, obclavate-cylindrical, 10-80 × 2-3.5 µm, 1-7-septate, pale olivaceous, smooth, wall thin, smooth, apex obtuse to subacute, base obconically truncate, 1-2 µm wide, hila unthickened, not darkened.

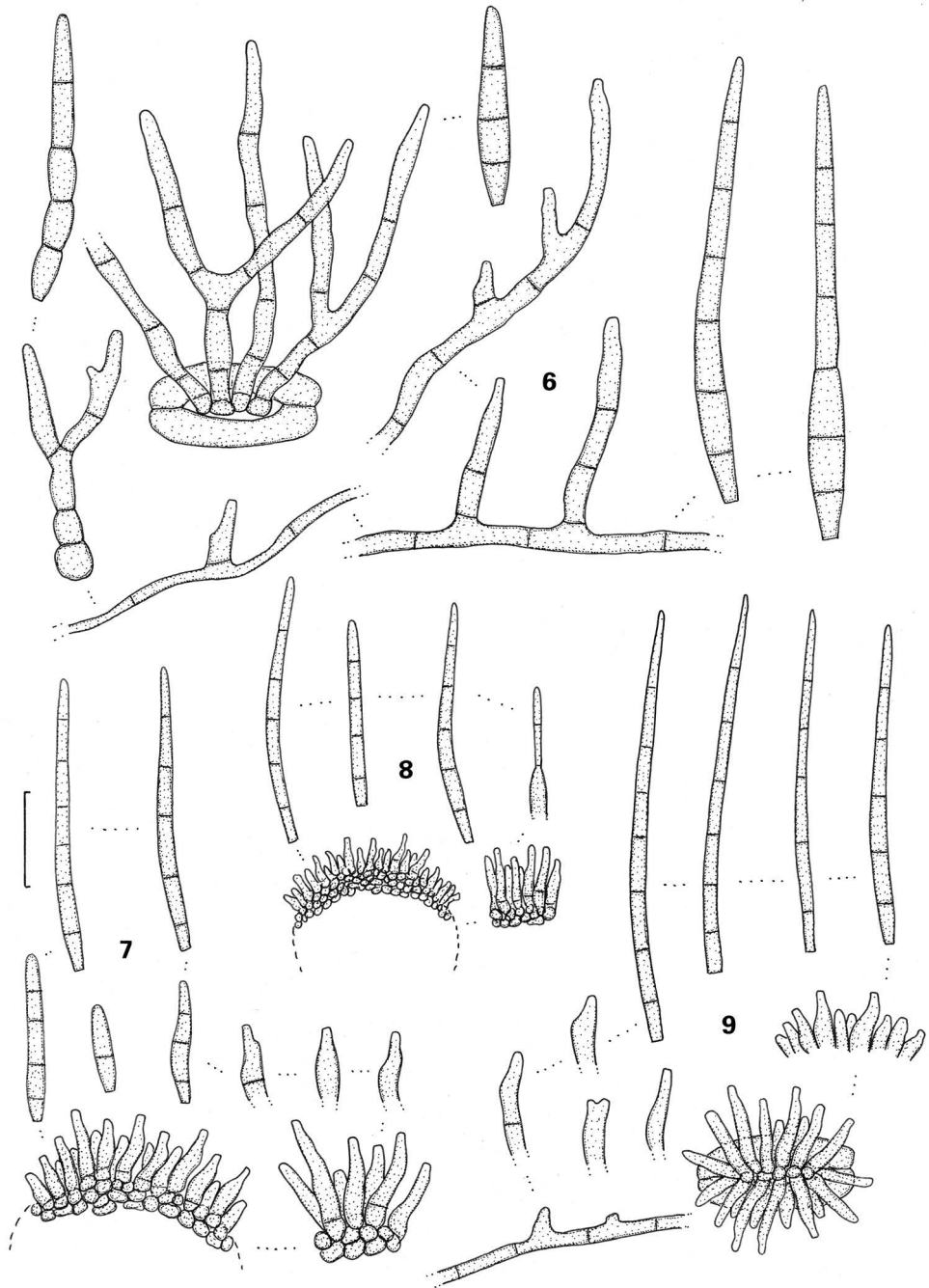
*Pseudocercospora froelichiae* on *Froelichia* sp. (*Amaranthaceae*, *Gomphrenoideae*) is close to *P. chamissoana* U. Braun & R.F. Castañeda on *Chamissoa altissima* (*Amaranthaceae*, *Amaranthoideae*), which differs, however, in forming distinct leaf spots, hypophyllous caespituli and substomatal stromata (Castañeda & Braun 1989). *Pseudocercospora amaranthicola* (Y.M. Yen) J.M. Yen is quite distinct by having consistently cylindrical conidia (Yen 1977). *P. gomphrenae-pulchellae* U. Braun, R. Delhey & M. Kiehr (Braun *et al.* 2001) from Argentina possesses larger stromata, up to 100 µm diam., and wider conidia, (2-)3-5(-6) µm, with wider hila, 1.5-3 µm.

20. *Pseudocercospora gangetici* (Bharadwaj) U. Braun, *Schlechtendalia* 2: 16 (1999)

*Cercospora gangetici* Bharadwaj, J. Indian Bot. Soc. 49: 120 (1970).

On *Desmodium* sp. (*Fabaceae*), Ceará, Cascavel Co., Preaoca Distr., 6 Aug. 2002.

This species is new to Brazil (first record from South America). It is well-characterized by having very long, erect to decumbent threads (conidiophores or superficial hyphae, differentiation often difficult), 50-350 × 3-7 µm, often branched, and broadly ellipsoid-ovoid to short cylindrical or obclavate conidia, (15-)20-50 ×



Figs. 6-9. Conidiophore fascicles, conidiophores, conidia, superficial hyphae, 6 = *Pseudocercospora brasiliensis*, 7 = *Pseudocercospora froelichiae*, 8 = *Pseudocercospora hybanthi*, 9 = *Pseudocercospora jacquemontiae* (bar: 20  $\mu$ m), drawn by U. Braun.

- 4-8 µm. There are several species of *Pseudocercospora* on *Desmodium* spp., which can be separated as follows (key to *Pseudocercospora* spp. on *Desmodium* spp.):
1. Conidia narrowly obclavate-cylindrical, more or less straight, 20-85 × 2-4 µm. . 2
  - 1\*. Conidia cylindrical, obclavate-cylindrical, ellipsoid-ovoid, straight, curved to sigmoid, much wider, (3-)4-8 µm, if narrower (2.5-5 µm wide) conidia strongly curved to sigmoid. . . . . 5
  2. Conidiophores consistently formed singly, arising from superficial hyphae, lateral or terminal, 5-45 µm long; conidia 18-75 × 2.5-4 µm, solitary or occasionally in short chains; on *Desmodium pulchellum*, India . . . . .  
 . . . . . *P. desmodiicola* (B. Rai & Kamal) U. Braun & Crous  
 [Rai & Kamal 1985: 566; Crous & Braun 2003]
  - 2\*. Conidiophores at least partly fasciculate, emerging through stomata; conidia consistently solitary . . . . . 3
  3. Conidiophores fasciculate as well as solitary, arising from superficial hyphae; conidia 30-80 × 2.5-4 µm; on *Desmodium pulchellum*, India . . . . .  
 . . . . . *P. bagdogrensis* (A.K. Kar & M. Mandal) Deighton  
 [Kar & Mandal 1969: 350; Deighton 1987: 388]
  - 3\*. Conidiophores consistently fasciculate, superficial mycelium lacking . . . . . 4
  4. Conidiophores in dense fascicles of more than 50, short, 10-30 × 2.5-4 µm; conidia 25-85 × 3-4 µm; on *Desmodium canum*, *D. velutinum*, *Desmodium* sp. and *Meibomia supina*, Brazil, China, Venezuela . . . . .  
 . . . . . *P. meibomiae* (Chupp) Deighton  
 [Chupp 1954: 319; Deighton 1976: 55; Crous & Braun 2003: 270]
  - 4\*. Conidiophores in loose fascicles of 3-10, longer, 25-100 × 3-4 µm; conidia 25-85 × 2-3 µm; on *Desmodium salicifolium*, Sierra Leone . . . . .  
 . . . . . *P. desmodii-salicifolii* Deighton  
 [Deighton 1987: 374]
  5. Conidiophores fasciculate, up to 150 µm long, unbranched; occasionally with superficial hyphae; conidia 25-60 × 2.5-5 µm, subcylindrical, straight to mostly strongly curved to sigmoid; on *Desmodium* sp., Guyana. . . . .  
 . . . . . *P. conjugans* (F. Stevens & Solheim) U. Braun & Crous  
 [Chupp 1954: 296; Crous & Braun 2003: 135]
  - 5\*. Conidiophores loosely fasciculate, erect to decumbent, up to 350 µm long, frequently branched; conidia (3-)4-8 µm wide . . . . . 6
  6. Definite leaf spots lacking; conidia mostly curved, often strongly curved; on *Crotalaria* sp. and *Desmodium* sp., China . . . . .  
 . . . . . *P. leguminum* (Chupp & Linder) Deighton  
 [Chupp 1954: 315; Deighton 1976: 55; Guo & Hsieh 1995: 166]
  - 6\*. Usually with small leaf spots, angular-irregular, 0.5-2 mm wide, yellowish, later pale to dark greyish or dingy brown; conidia (15-)20-90 × (3-)4-8 µm, straight to slightly curved; on *Desmodium adscendens*, *D. gangeticum*, *D. triflorum*, *Desmodium* sp., Brazil, Ghana, India, Venezuela . . . . .  
 . . . . . *P. gangetici* (Bharadwaj) U. Braun  
 [Deighton 1976: 58-64; Braun 1999: 16-17]

21. ***Pseudocercospora gardeniae* (Boedijn) Deighton, Mycol. Pap. 140: 144 (1976)**

*Cercospora gardeniae* Boedijn, Nova Hedwigia 3(4): 427 (1961).

On *Tocoyena* sp. (*Rubiaceae*), Ceará, Cascavel Co., Preaoca Distr., 23 Apr. 2003.

New to Brazil, and a new host species. *P. gardeniae* is known on *Gardenia* spp. from Indonesia and the Philippines. The collection on *Tocoyena* sp. proved

to be morphologically indistinguishable from *P. gardeniae* on *Gardenia* spp. (Braun 2001).

22. *Pseudocercospora guazumae* (Syd.) Deighton, Mycol. Pap. 140: 144 (1976)

*Cercospora guazumae* Syd., Ann. Mycol. 28: 213 (1930).

On *Guazuma ulmifolia* (*Ulmaceae*), Ceará, Cascavel Co., Preaoca Distr., 6 Jul. 2003.

New to Brazil.

23. *Pseudocercospora hybanthi* sp. nov. (Fig. 8)

Differt a *P. violae* stromatibus 20-100  $\mu\text{m}$  diam., conidiis hyalinis vel subhyalinis.

**Holotypus:** on *Hybanthus* sp. (*Violaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 27 Jul. 2003, F. Freire (HAL 1772).

Leaf spots amphigenous, subcircular to angular-irregular, 2-10 mm wide, whitish, greyish white, margin indefinite or with an ochraceous to brownish, slightly raised marginal line. Caespituli amphigenous, slightly punctiform, brown, scattered, occasionally denser. Primary mycelium internal; secondary mycelium external; secondary hyphae superficial, creeping, sparingly branched, septate, olivaceous to olivaceous-brown, 1.5-3  $\mu\text{m}$  wide, Mycelium internal. Stromata immersed, 20-110  $\mu\text{m}$  diam., pale to medium brown or olivaceous-brown, cells 2-6  $\mu\text{m}$  diam. Conidiophores in small fascicles to very large, sporodochial conidiomata, dense, arising from stromata, erumpent, erect, subcylindrical-conical to slightly geniculate-sinuuous, unbranched, short, 5-20  $\times$  1.5-4  $\mu\text{m}$ , 0(-1)-septate, subhyaline to pale olivaceous, yellowish or very pale olivaceous-brown, smooth, thin-walled; conidiophores usually reduced to conidiogenous cells; conidiogenous loci inconspicuous. Conidia solitary, narrowly obclavate-cylindrical to subacicular, 10-60  $\times$  1.5-3  $\mu\text{m}$ , 0-6-septate, hyaline or subhyaline, smooth, thin-walled, apex subacute to subobtuse, base truncate, obconically truncate or somewhat rounded, 1  $\mu\text{m}$  wide, hila unthickened, not darkened.

*Pseudocercospora violae* Deighton (1987) on *Viola* spp. in Africa is close to *P. hybanthi* sp. nov., but differs in having much smaller stromata [15-25(-45)  $\mu\text{m}$  diam.] and pigmented conidia. *P. violicola* X.J. Liu & Y.L. Guo (see Guo *et al.* 1998) on *Viola* sp. in China has much longer, pluriseptate conidiophores, up to 75  $\mu\text{m}$ , and wider conidia, 4-5.5  $\mu\text{m}$ . In *P. melicyti* U. Braun & C.F. Hill (Braun & Hill 2004), recently described from New Zealand on *Melicytus macrophyllus*, the stromata are lacking or small, the conidia are longer, up to 120  $\mu\text{m}$ , and the conidiophores are up to 50  $\mu\text{m}$  long, with up to 4 septa.

24. *Pseudocercospora ixoriae* (Solheim) Deighton, Mycol. Pap. 140: 145 (1976)

*Cercospora ixoriae* Solheim, Indian J. Agric. Sci. 3: 15 (1933).

On *Ixoria* sp. (*Rubiaceae*), Ceará, Jardim City, 29 Aug. 2003.

New to Brazil (first record from South America).

25. *Pseudocercospora jacquemontiae* sp. nov. (Fig. 9)

Differt a *P. timorensis* hyphis superficialibus cum conidiophoris solitariis et conidiis 1.5-3(-3.5)  $\mu\text{m}$  latis.

**Holotypus:** on *Jacquemontia* sp. (*Convolvulaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 10 Aug. 2003, F. Freire (HAL 1783).

**Paratypus:** on *Jacquemontia* sp., Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 5 Aug. 2003, F. Freire (HAL 1784).

Leaf spots amphigenous, diffuse to angular-irregular, 1-15 mm wide, yellowish-ochraceous, later pale to medium dark brown, margin indefinite. Caespituli hypophyllous, not very conspicuous, Slightly punctiform to subeffuse. Mycelium internal and external; superficial hyphae sometimes climbing leaf hairs, sparingly branched, 1-3  $\mu\text{m}$  wide, septate, subhyaline to pale olivaceous or olivaceous-brown, smooth. Stromata lacking to well-developed, substomatal, 10-30  $\mu\text{m}$  diam., olivaceous-brown. Conidiophores in small, loose to moderately large and dense fascicles, arising from stromata, through stomata, or solitary, arising from superficial hyphae, erect, straight, subcylindrical to moderately geniculate-sinuous, unbranched, 5-30  $\times$  1.5-4  $\mu\text{m}$ , 0-1(-2)-septate, subhyaline to pale olivaceous or olivaceous-brown, smooth, thin-walled; conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 5-20  $\mu\text{m}$  long; conidiogenous loci inconspicuous. Conidia solitary, narrowly obclavate-filiform or filiform-subacicular, 60-120  $\times$  1.5-3(-3.5)  $\mu\text{m}$ , indistinctly 3-8-septate, subhyaline to pale olivaceous, apex acute to subacute, base truncate to obconically truncate, 1-2  $\mu\text{m}$  wide, hila unthickened, not darkened, conidia occasionally germinating, with short lateral branchlets.

*Pseudocercospora timorensis* (Cooke) Deighton, which is widespread on *Ipomoea* spp., is morphologically similar to *P. jacquemontiae* sp. nov., but differs in having consistently internal mycelium (superficial hyphae and solitary conidiophores lacking) and wider conidia, (2-)2.5-5  $\mu\text{m}$  (Chupp 1954; García *et al.* 1996). Various other *Pseudocercospora* spp. on hosts belonging to the Convolvulaceae are easily distinguishable from *P. jacquemontiae* sp. nov.: *Pseudocercospora argyreiae* (Govindu & Thirum.) A.K. Das & K.K. Sarbajna, Geobios, News Report 9(1): 32 (1990), on *Argyreia* spp., India - conidiophores short, in dense sporodochial conidiomata, conidia 15-50  $\times$  2.5-3  $\mu\text{m}$  (Vasudeva 1963: 42); *P. haldibarensis* (A.K. Kar & Mandal) U. Braun, Fungal Diversity 7: 49 (2001), on *Ipomoea grandiflora*, India - conidiophores very long, up to 250  $\mu\text{m}$ , in synnematosus conidiomata; *P. operculinae* H.S.G. Rao, Arch. Singh & Kamal, Mycol. Res. 102(2): 159 (1998), on *Operculina terpehum*, India - conidiophores 125-350  $\mu\text{m}$  long, conidia 23-159  $\times$  2.5-6  $\mu\text{m}$ , 2-13-septate; *P. poranae* (S. Singh) A.K. Das & Chattopadh., J. Mycopathol. Res. 28: 30 (1990), on *Porana paniculata*, India - conidiophores 70-140  $\mu\text{m}$  long, pluriseptate, conidia 30-100  $\times$  3.5-9  $\mu\text{m}$  (Singh 1980).

*Pseudocercospora yeniana* nom. nov., Bas.: *Phaeoisariopsis argyreiae* J.M. Yen, A.K. Kar & B.K. Das, Mycotaxon 16(1): 37 (1982),  $\equiv$  *Pseudocercospora argyreiae* (J.M. Yen, A.K. Kar & B.K. Das) Deighton, Mycol. Res. 94(8): 110 (1990), non *P. argyreiae* (Govindu & Thirum.) A.K. Das & K.K. Sarbajna, 1990, on *Argyreia roxburghii*, India, is distinguished by long conidiophores up to 350  $\mu\text{m}$  long, in dense synnematosus fascicles, and cylindrical conidia, 55-110  $\times$  6-7  $\mu\text{m}$  (Deighton 1990).

26. *Pseudocercospora jahnii* (Syd.) U. Braun & Crous, in Crous & Braun, *Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora*. CBS Biodiversity Studies, Vol. 1: 230 (2003)

*Cercospora jahnii* Syd., Ann. Mycol. 28: 214 (1930).

On *Tabebuia serratifolia* (Bignoniaceae), Ceará, Ubajara City, 10 Oct. 2002 (U. Braun, Fungi sel. exs. 18).

This species is new to Brazil.

**27. *Pseudocercospora kurimensis* (Fukai) U. Braun, Sydowia 48: 213 (1996)**

*Cercospora kurimensis* Fukui, Bull. Mie Imp. Coll. Agric. Forest. 3: 13 (1933).

*C. nerii-indici* W. Yamam., J. Soc. Trop. Agric. 6: 605 (1934).

On *Nerium oleander* (*Apocynaceae*), Ceará, Beberibe City, 10 Aug. 2003, F. Freire (U. Braun, Fungi sel. exs. 19).

New to Brazil. *Pseudocercospora neriiicola* (Sacc.) Deighton has been reported from Brazil (Crous & Braun 2003). This species differs, however, from *P. kurimensis* in having large, epiphyllous, sporodochial conidiomata and cylindrical conidia. In the latter species, the conidiophores are formed singly, arising from superficial hyphae, and the conidia are narrowly obclavate.

**28. *Pseudocercospora mimosigena* U. Braun & F. Freire, Cryptog. Mycol. 23: 312 (2002)**

On *Mimosa tenuiflora* (*Mimosaceae*), Ceará, Cascavel Co., Preaoca Distr., 27 Jul. 2003 (U. Braun, Fungi sel. exs. 21).

This species has recently been described from Brazil on *Mimosa* sp. (Braun & Freire 2002). *M. tenuiflora* is a new host record for this species. In the latter collection, the anamorph is associated with immature ascomata of a *Mycosphaerella*. Only few asci with ascospores have been seen (ascomata obpyriform, 50-70 µm diam., cells 3-10 µm diam., asci 20 × 10-15 µm, ascospores short subcylindrical, 10 × 3 µm, hyaline, with a median septum, not constricted, ends broadly rounded).

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

*Cercospora nigricans* Cooke, Grevillea 12: 30 (1883).

On *Senna georgica* (*Caesalpinaceae*), Ceará, Ubajara City, 10 Oct. 2003 (U. Braun, Fungi sel. exs. 23). *Senna* (*Cassia*) sp. (*Caesalpinaceae*), Ceará, Cascavel Co., Preaoca Distr., 20 Sept. 2002. *Senna occidentalis*, Ceará, Cascavel Co., Preaoca Distr., 6 Jul. 2002.

This species is known from Brazil (Crous & Braun 2003), but not regarded in Mendes *et al.* (1998). It is an addition to the State of Ceará, and *Senna georgica* is a new host for this species. On the leaves of *Senna occidentalis* the following additional fungi have been found: *Cercospora apii* s.lat. (= *C. cassiocarpa* (Sacc.) Chupp), *Colletotrichum gloeosporioides* (Penz.) Penz. & Sacc. and an *Oidium* sp. (with *Ampelomyces quisqualis* Ces. ex Schltdl.).

**30. *Pseudocercospora piperis* (Pat.) Deighton, Mycol. Pap. 140: 150 (1976)**

*Cercospora piperis* Pat., Bull. Soc. Mycol. France 11: 233 (1895).

On *Piper hispidinervis* (*Piperaceae*), Pará (Amazonian Region), Belém City, 28 Aug. 2003, L. Poltronieri (U. Braun, Fungi sel. exs. 25).

This species is known from Brazil (Chupp 1954, Crous & Braun 2003), but it is not mentioned by Mendes *et al.* (1998). *Piper hispidinervis* is a new host record for *P. piperis*.

**31. *Pseudocercospora puerariicola* (W. Yamam.) Deighton, Mycol. Pap. 140: 151 (1976)**

*Cercospora puerariicola* W. Yamam., Trans. Sapporo Nat. Hist. Soc. 13: 142 (1934).

On *Pueraria javanica* (*Fabaceae*), Pará (Amazonian Region), Belém City, 27 Aug. 2003, L. Poltronieri (U. Braun, Fungi sel. exs. 26).

The first record of this species from Brazil due to Braun & Freire (2002) on *Dioclea* spp. This is the first report of this species on *Pueraria javanica* from Brazil.

32. *Pseudocercospora schrankiicola* sp. nov. (Fig. 10)

Differt a *P. morongiae* hyphis superficialibus nullis, conidiophoris brevioribus, 5-15  $\mu\text{m}$  longis, 0(-1)-septatis, conidiis cylindratis, subcylindratis vel subacicularibus.

**Holotypus:** on *Schranksia leptocarpa* (*Mimosaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 6 Jul. 2003, F. Freire (HAL 1773).

**Paratypus:** on *Schranksia leptocarpa* (*Mimosaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 27 Jul. 2003, F. Freire (HAL 1774).

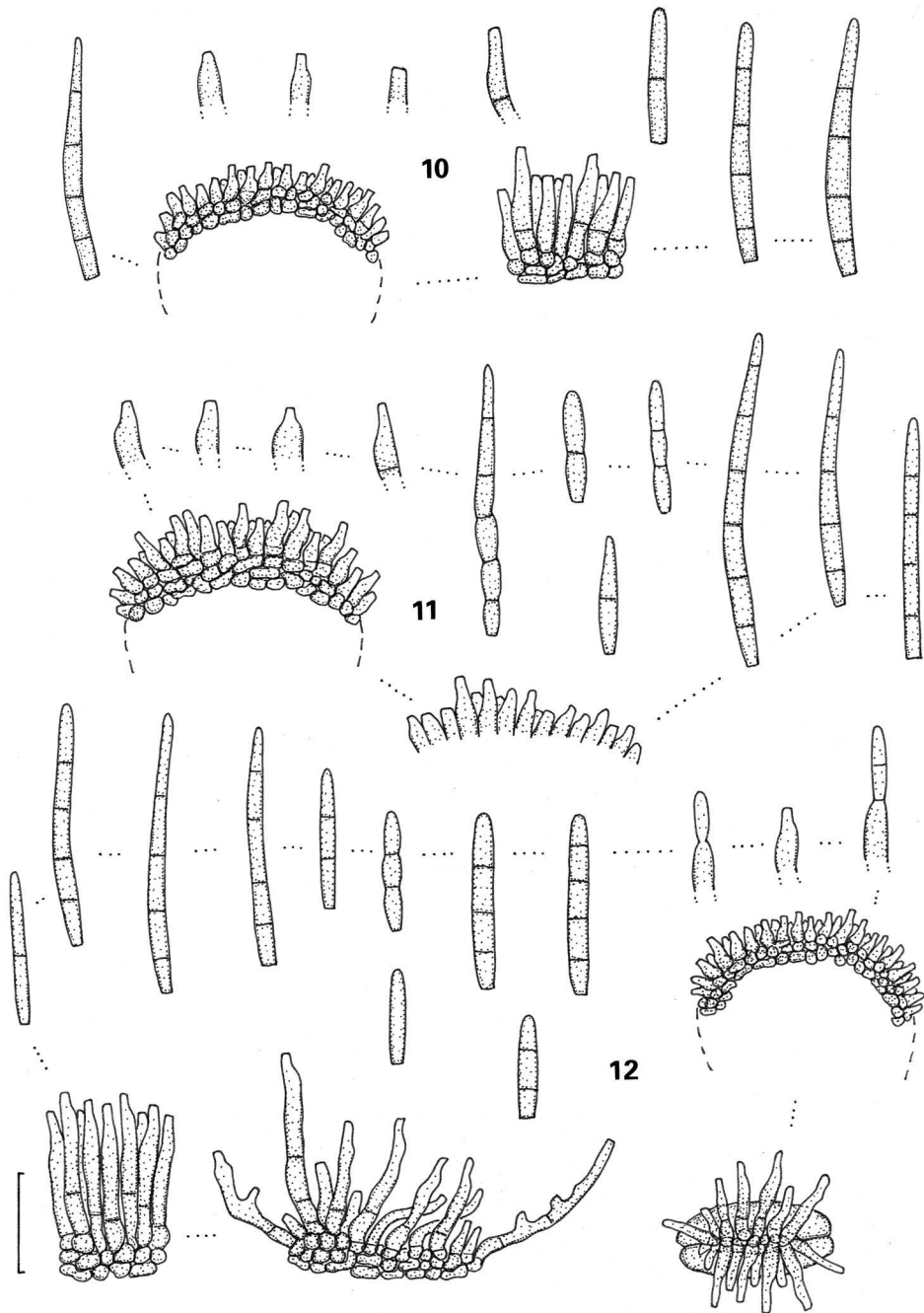
Leaf spots amphigenous, subcircular to angular-irregular, small, 0.5-2 mm wide, yellowish, brownish, later geyish to whitish, but soon becoming blackish by rich fruiting, margin indefinite. Caespituli amphigenous, punctiform, loose to dense, dark brown to blackish. Mycelium internal. Stromata immersed, occasionally somewhat erumpent, 20-70  $\mu\text{m}$  diam., medium to dark olivaceous-brown, composed of swollen hyphal cells, 2-7  $\mu\text{m}$  diam. Conidiophores in large, dense fascicles, forming sporodochial conidiomata, arising from stromata, erumpent, erect, straight, subcylindrical-conical to slightly geniculate-sinuuous, unbranched, 5-15  $\times$  2.5-5  $\mu\text{m}$ , 0(-1)-septate, subhyaline to pale olivaceous, smooth, thin-walled; conidiophores mostly reduced to conidiogenous cells; conidiogenous loci inconspicuous. Conidia solitary, cylindrical, subcylindrical (- subacicular), 30-60  $\times$  2.5-4  $\mu\text{m}$ , (1-)2-5-septate, subhyaline to pale olivaceous, smooth, thin-walled, apex obtuse or subobtuse, base truncate to obconically truncate, (1.5-)2-2.5(-3)  $\mu\text{m}$  wide, hila unthickened, not darkened.

*Pseudocercospora morongiae* (Tracy & Earle) U. Braun & Crous, known from North America on *Schranksia nuttallii* and *S. uncinata*, differs from *P. schrankiicola* sp. nov. in having superficial hyphae with solitary conidiophores, longer, septate conidiophores, 10-135  $\times$  3-5  $\mu\text{m}$ , and obclavate(-cylindrical) conidia (Chupp 1954). Among the numerous taxa of *Pseudocercospora* on legumes, there are only few similar species having large sporodochial conidiomata, short conidiophores and cylindrical conidia. *P. luetzelburgiae* U. Braun & Freire (2002) and *P. urariae* Deighton (1976), though similar, differ in having wider conidia, 4-6  $\mu\text{m}$ . Other species with large stromata could be distinguished by either obclavate or obclavate-cylindrical conidia with obconically truncate bases [*Pseudocercospora ceratoniae* (Pat. & Trab.) Deighton, *P. dalbergiae* (S.H. Sun) J.M. Yen, *P. glycines* (Cooke) Deighton, *P. pachyrrhizae* (Sawada & Katsuki) Goh & W.H. Hsieh, *P. taichungensis* Goh & W.H. Hsieh] or superficial hyphae with solitary conidiophores [*Pseudocercospora cassiae-fistulosae* Goh & W.H. Hsieh, *P. lepedezicola* Goh & W.H. Hsieh, *P. vataireae* (Henn.) U. Braun & Freire].

33. *Pseudocercospora struthanthi* U. Braun, F. Freire & N. Pons, in Braun & Freire, *Cryptog. Mycol.* 23(4): 316 (2002)

On *Phoradendron* sp. (*Viscaceae*), Ceará, Cascavel Co., Preaoca Distr., 15 Aug. 2002. On *Struthanthus* sp. (*Loranthaceae*), Ceará, Fortaleza City, 13 May 2003 (U. Braun, Fungi sel. exs. 27).





Figs. 10-12. Conidiophore fascicles, conidiophores, conidia, superficial hyphae, 10 = *Pseudocercospora schrankiicola*, 11 = *Pseudocercospora ubajarensis*, 12 = *Pseudocercospora variabilis* (bar: 20  $\mu$ m), drawn by U. Braun.

*Phoradendron* sp. is a new host for Brazil. Burrnett (1958) recorded *Cercospora struthanthi* Chupp & A.S. Mull. (*nom. inval.*) on *Phoradendron serotinum* in Florida.

34. *Pseudocercospora ubajarensis* sp. nov. (Fig. 11)

Differt a *P. litseicola* conidiophoris brevioribus, 5-25 × 2.5-5 µm, 0(-1)-septatis, conidiis brevioribus, 15-70 × 2.5-4 µm, 1-6-septatis, hilis 1-2 µm latis.

**Holotypus:** on *Ocotea* sp. (*Lauraceae*), Brazil, State of Ceará, Ubajara City, 16 Oct. 2003, F. Freire (HAL 1799).

Leaf spots indistinct, diffuse or only with pale subcircular to angular-irregular discolorations, 2-10 mm wide, greyish brown to dingy greyish white, margin indefinite. Caespituli amphigenous, punctiform, greyish to blackish, scattered to gregarious. Mycelium internal. Stromata immersed, large, 20-100 µm diam., occasionally confluent, olivaceous to olivaceous-brown, composed of swollen hyphal cells, 2-5 µm diam. Conidiophores numerous, in dense fascicles, arising from stromata, erumpent, forming sporodochial conidiomata, erect, straight, subcylindrical to conical, slightly geniculate to sinuous, unbranched, 5-25 × 2.5-5 µm, 0(-1)-septate, pale olivaceous, thin-walled, smooth; conidiophores usually reduced to conidiogenous cells, conidiogenous loci inconspicuous. Conidia solitary, obclavate-subcylindrical, 15-70 × 2.5-4 µm, 1-6-septate, subhyaline to pale olivaceous, smooth, thin-walled, apex subacute to subobtuse, base obconically truncate, occasionally truncate in subcylindrical conidia, 1-2 µm wide, hila unthickened, not darkened.

*Pseudocercospora ubajarensis* sp. nov. is morphologically similar to *P. litseicola* (Boedijn) Y.L. Guo & X.J. Liu (Guo & Hsieh 1995, Braun 2001), but it differs in having longer conidiophores, up to 40 µm, 0-2-septate, by longer conidia, up to 140 µm, 3-13-septate, and, above all, by larger hila, 2-3 µm wide. Other species of the genus *Pseudocercospora* on hosts of the *Lauraceae* are distinguished by having superficial mycelium with solitary conidiophores [*P. cinnamomi* (Sawada & Katsuki) Goh & W.H. Hsieh, *P. lindericola* (W. Yamam.) Goh & W. H. Hsieh, *P. litseae-cubebae* Y.L. Guo, *P. litseigena* U. Braun], by lacking stromata [*P. lauracearum* H.S.G. Rao, A.S. Moses & S. Narayan], by much longer, septate conidiophores [*P. purpurea* (Cooke) Deighton, *P. unicolor* (Sacc. & Penz.) P.M. Kirk, conidia 4-5 µm wide], by filiform-acicular conidia [*P. machili* Goh & W.H. Hsieh] or by much longer, wider conidia and larger hila [*P. litseae* (A.N. Rai, B. Rai & Kamal) U. Braun, conidia up to 110 × 5.5 µm, hila 2-4 µm wide].

35. *Pseudocercospora variabilis* sp. nov. (Fig. 12)

Differt a *P. taichungensis* hyphis interdum superficialibus, conidiophoris variabilis, laxe vel dense fasciculatis, interdum ramosis, conidiis saepe cylindraceis vel subcylindraceis, 2-5 µm latis.

**Holotypus:** on *Caesalpinia* sp. (*Caesalpinaceae*), Brazil, State of Ceará, Beberibe City, 25 Sept. 2003, F. Freire (HAL 1802). **Paratypi:** on *Caesalpinia ferrea*, Brazil, State of Ceará, Fortaleza City, 17 Sept. 2003, F. Freire (HAL 1801); Cascavel Co., Preaoca Distr., 3 Oct. 2003, F. Freire (HAL 1800).

Leaf spots amphigenous, subcircular to angular-irregular, 1-10 mm wide, pale to medium dark brown, margin indefinite or with a narrow darker margin or marginal line. Caespituli amphigenous, punctiform, scattered to dense, brown. Mycelium internal; occasionally with some superficial hyphae, sparingly branched, 1.5-3.5 µm wide, septate, subhyaline to pale olivaceous, thin-walled, smooth or almost so. Stromata small to usually well-developed, 10-100 µm diam., rarely

confluent, up to 200  $\mu\text{m}$ , immersed, occasionally substomatal, pale to dark olivaceous-brown. Conidiophores usually numerous, arising from stromata, erumpent, in large, dense fascicles, forming sporodochial conidiomata, occasionally in smaller and looser fascicles, sometimes emerging through stomata, rarely solitary, arising from superficial hyphae, lateral or terminal, erect, straight, subcylindrical-conical to geniculate-sinuous, occasionally branched, 5-50(-60)  $\times$  2-5  $\mu\text{m}$ , sometimes uniformly short, 5-20  $\mu\text{m}$ , 0-3-septate, subhyaline, pale olivaceous to olivaceous-brown, medium to dark olivaceous-brown in mass, thin-walled, smooth; conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, 5-25  $\mu\text{m}$  long; conidiogenous loci inconspicuous. Conidia solitary, cylindrical, subcylindrical, ellipsoid-fusiform to short obclavate-cylindrical, 10-50  $\times$  2-5  $\mu\text{m}$ , (0-)-1-4(-5)-septate, subhyaline to pale olivaceous, thin-walled, smooth, apex obtuse, rarely subacute, base truncate to usually short obconically truncate, 1.5-2  $\mu\text{m}$  wide, hila unthickened, not darkened.

The conidiomata and conidiophores are rather variable in *Pseudocercospora variabilis*, but the conidia are uniform. On *Caesalpinia ferrea*, the conidiomata are hypophyllous and sporodochial, with uniformly short conidiophores, 5-20  $\mu\text{m}$ . On *Caesalpinia* sp., the caespituli are amphigenous and rather variable. Some superficial hyphae and reduced conidiophore fascicles emerging through stomata only develop on the lower leaf surface. *Pseudocercospora taichungensis* Goh & W.H. Hsieh, described from Taiwan on *Cassia fistula*, is morphologically close to *P. variabilis*, but differs in having strictly short conidiophores in sporodochial conidiomata and narrower, usually obclavate conidia, 20-55  $\times$  1.5-3  $\mu\text{m}$  (Hsieh & Goh 1990). *Pseudocercospora caesalpiniae* Goh & W.H. Hsieh, also described from Taiwan (Hsieh & Goh 1990), is distinguished by having well-developed superficial mycelium with solitary conidiophores and acicular to narrowly obclavate-cylindrical conidia, 20-80  $\times$  2-3  $\mu\text{m}$ .

*Pseudocercospora caesalpinigena* U. Braun **comb. nov.** ( $\equiv$  *Cercoseptoria caesalpiniae* J.M. Yen, A.K. Kar & B.K. Das, Mycotaxon 16(1): 80, 1982, non *Pseudocercospora caesalpiniae* Goh & W.H. Hsieh, 1989), which was described from India on *Caesalpinia digyna*, is also a member of *Pseudocercospora* (*Cercoseptoria* Petr. is a synonym of *Pseudocercospora*, see Crous & Braun 2003), but differs in having consistently cylindrical conidia with truncate bases, 35-85  $\mu\text{m}$  long. Stromata are lacking. *Cercospora caesalpiniae* G.P. Agarwal & N.D. Sharma (Agarwal & Sharma 1973) is a doubtful species with uncertain generic affinity; type material could not be traced (Crous & Braun 2003). However, based on the original description, this species is quite distinct by having very long conidiophores (up to 220  $\mu\text{m}$ ) and conidia (up to 90  $\mu\text{m}$ ). *Pseudocercospora lepedezicola* Goh & W.H. Hsieh on *Lespedeza cyrtobotrya* in Taiwan (Hsieh & Goh 1990) has similar conidiomata and conidia, but differs in having well-developed superficial hyphae with solitary conidiophores. Furthermore, the host plant of the latter species belongs to the Fabaceae.

**36. *Semipseudocercospora aeschynomenes* (U. Braun & Crous) U. Braun & Crous, in Crous & Braun, *Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora*. CBS Biodiversity Series, Vol. 1 : 47 (2003)**

*Pseudodidymaria aeschynomenes* U. Braun & Crous, Feddes Repert. 113: 114 (2002).

*Cercospora aeschynomenes* A.S. Mull. & Chupp, Arq. Inst. Biol. Rio de Janeiro 3: 91 (1936), *nom. inval.*

On *Aeschynomene hystrix* (*Fabaceae*), Ceará, Cascavel Co., Preaoca Distr., 6 Jul. 2003 (U. Braun, Fungi sel. exs. 30).

New host record for *S. aeschynomenes*; new to Ceará.

37. *Stenella hiamanthi* sp. nov.

(Fig. 13)

Differt a *S. plumeriae* maculis omnino distinctis, caespitulis saepe rubro-brunneis, conidiophoris ad  $150 \times 8 \mu\text{m}$ , conidiis tenuitunicatis.

**Holotypus:** on *Hiamanthus drasticus* (*Apocynaceae*), Brazil, Ceará, Cascavel City, 26 June 2003, F. Freire (HAL 1775).

Leaf spots lacking, only with diffuse yellowish-ochraceous discolorations or irregular spots, 2-10 mm wide, discoloured patches sometimes larger, up to 20 mm wide. Caespituli epiphyllous, punctiform, loose to dense, reddish to medium dark brown. Primary mycelium internal; secondary mycelium external; secondary hyphae emerging through stomata, superficial, creeping, branched, 1-3  $\mu\text{m}$  wide, septate, thin-walled, subhyaline, pale olivaceous, olivaceous-brown to brownish, verruculose. Stromata lacking or only with a small substomatal aggregation of swollen hyphal cells, 10-20  $\mu\text{m}$  diam. Conidiophores in small to moderately large, loose to rather dense fascicles, arising from internal hyphae or small hyphal aggregations, emerging through stomata, erect to decumbent, or solitary, arising from creeping hyphae, lateral or terminal, straight, subcylindrical to geniculate-sinuous, unbranched or often branched,  $10\text{-}150 \times 3\text{-}8 \mu\text{m}$ , aseptate to usually pluriseptate, olivaceous to reddish brown, wall somewhat thickened, almost smooth to verruculose; conidiogenous cells integrated, terminal or conidiophores occasionally reduced to conidiogenous cells; conidiogenous loci conspicuous, slightly thickened and darkened, 1.5-2  $\mu\text{m}$  wide. Conidia solitary, obclavate-cylindrical, 25-60  $\times$  3-5  $\mu\text{m}$ , (1-)3-5-septate, pale olivaceous to olivaceous-brown, thin-walled, verruculose, apex obtuse, base obconically truncate, 1.5-2.5  $\mu\text{m}$  wide, hila slightly thickened and darkened.

*Stenella hiamanthi* sp. nov. resembles *S. plumeriae* Sarbajna & Chattopadhyay (1991), described from India on *Plumeria acutifolia*, but the latter species differs in having quite distinct leaf spots, dark brown to blackish caespituli, shorter conidiophores, up to  $82.5 \times 4.5 \mu\text{m}$ , and thick-walled conidia. *Stenella alyxiae* H.Y. Yip (1989), known from Australia on *Alyxia buxifolia*, has much shorter and narrower conidiophores,  $18.5\text{-}35 \times 2.7\text{-}4.5 \mu\text{m}$ , and cylindrical, often disarticulating conidia.

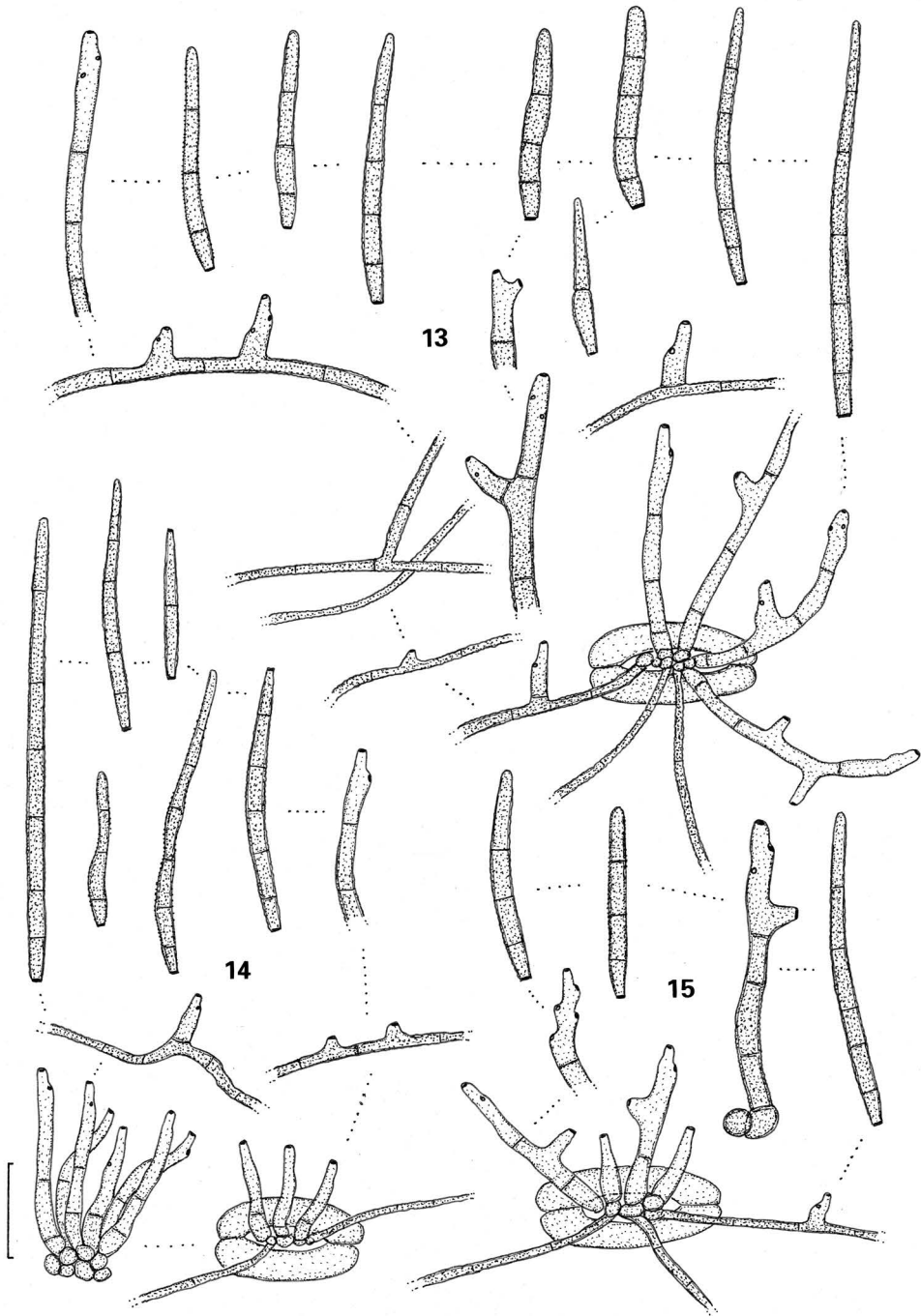
38. *Stenella manihotis* sp. nov.

(Fig. 14)

Differt a *S. brideliicola* conidiophoris brevioribus, (5-)10-60  $\mu\text{m}$ , conidiis solitariis, 3-6  $\mu\text{m}$  latis.

**Holotypus:** on *Manihot* sp. (*Euphorbiaceae*), Brazil, Mato Grosso State, Rosário do Oeste Co., 23 Dec. 2001, F. Freire (HAL 1778).

Leaf spots amphigenous, angular-irregular, 2-5 mm wide, on the upper leaf surface brown, greyish brown to dingy grey or greyish white, on the lower leaf surface olivaceous, olivaceous-brown or brown, with a narrow dark, often almost black margin. Caespituli amphigenous, punctiform, dark brown to blackish. Primary mycelium internal; secondary mycelium external; secondary hyphae emerging through stomata, superficial, sparingly branched, septate, 1-3  $\mu\text{m}$  wide, subhyaline to pale olivaceous-brown, thin-walled, verruculose. Stromata lacking or small, 10-25  $\mu\text{m}$  diam., substomatal, composed of a few brownish swollen hyphal cells. Conidiophores in small to somewhat larger, loose to moderately dense fascicles, arising from internal hyphae or stomata, through stomata, occasionally



Figs. 13-15. Conidiophore fascicles, conidiophores, conidia, superficial hyphae, 13 = *Stenella hiamanthi*, 14 = *Stenella manihotis*, 15 = *Stenella pavoniae* (bar: 20  $\mu$ m), drawn by U. Braun.

formed singly, arising from creeping hyphae, lateral, conidiophores erect, straight, subcylindrical to geniculate-sinuous, unbranched, (5-)10-60  $\times$  3-7  $\mu\text{m}$ , 0-2(-3)-septate, subhyaline, pale olivaceous to olivaceous-brown, wall thin, smooth to rough-walled; conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 10-25  $\mu\text{m}$  long; conidiogenous loci conspicuous, somewhat thickened and darkened, 1-2  $\mu\text{m}$  wide. Conidia solitary, occasionally in short chains, cylindrical-filiform, narrowly obclavate-subcylindrical, 25-160  $\times$  3-6  $\mu\text{m}$ , 2-16-septate, subhyaline to very pale olivaceous, smooth to verruculose, apex subacute to obtuse, base truncate to obconically truncate, 1.5-2  $\mu\text{m}$  wide, hila slightly thickened and darkened.

*Stenella brideliicola* K. Srivast., A.K. Srivast. & Kamal (Srivastava *et al.* 1994), described from India on *Bridelia stipularis*, is easily distinguishable by much longer conidiophores, up to 310  $\times$  7.5  $\mu\text{m}$ , and broader conidia, 4-7  $\mu\text{m}$ , often formed in chains. *S. alteramni* R.F. Castañeda & W.B. Kendr. (Castañeda & Kendrick 1991: 113), a Cuban species on *Alteramnus lucidus*, differs by large stromata, 25-80  $\mu\text{m}$  diam., longer conidiophores, 40-115  $\mu\text{m}$ , and wider conidia, 3-4  $\mu\text{m}$ .

39. *Stenella pavoniae* sp. nov.

(Fig. 15)

Differt a *St. kydiae* conidiis 30-70  $\times$  2.5-4.5  $\mu\text{m}$ , (2-)3-6(-8)-septatis.

**Holotypus:** on *Pavonia cancellata* (*Malvaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 6 June 2003, F. Freire (HAL 1782).

**Paratypus:** on *Pavonia* sp. (*Malvaceae*), Brazil, State of Ceará, Cascavel Co., Preaoca Distr., 10 Aug. 2002, F. Freire (HAL 1783).

Leaf spots lacking to angular-irregular, 1-5 mm wide, on the upper leaf surface less conspicuous, only formed as small, dark discolorations, on the lower leaf surface brown or reddish brown by rich fruiting. Colonies hypophyllous, effuse, brownish to reddish brown. Primary mycelium internal; secondary mycelium external; hyphae emerging through stomata, superficial, sparingly branched, 1.5-5  $\mu\text{m}$  wide, septate, at first pale olivaceous, later reddish brown, thin-walled, verruculose. Stromata lacking or small, substomatal, 10-25  $\mu\text{m}$  diam., brown to reddish brown. Conidiophores in small, loose fascicles, arising from internal hyphae or from small stromata, through stomata, erect to decumbent, or conidiophores solitary, arising from superficial hyphae, lateral, occasionally terminal, straight, subcylindrical-conical to geniculate-sinuous, unbranched to branched, 10-90  $\times$  2-7  $\mu\text{m}$ , continuous to pluriseptate, at first olivaceous to olivaceous-brown, but soon becoming reddish brown, wall thin to somewhat thickened, at first smooth, later verruculose; conidiophores reduced to conidiogenous cells or conidiogenous cells integrated, terminal, intercalary or pleurogenous, 10-40  $\mu\text{m}$  long; conidiogenous loci conspicuous, somewhat thickened and darkened, 1-1.5  $\mu\text{m}$  wide. Conidia solitary, cylindrical-obclavate, 30-70  $\times$  2.5-4.5  $\mu\text{m}$ , (2-)3-6(-8)-septate, subhyaline to very pale olivaceous or yellowish green, thin-walled, verruculose, apex obtuse or subobtuse, occasionally subacute, base rounded, truncate to obconically truncate, 1-2  $\mu\text{m}$  wide, hila somewhat thickened and darkened.

*Stenella kydiae* A.K. Singh & Kamal (1994), which was described from India on *Kydia calycina*, differs from *St. pavoniae* sp. nov. in having much longer and wider conidia, up to 150  $\times$  5-9.75  $\mu\text{m}$ , with up to 25 septa.

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