

## NEW SPECIES AND NEW RECORDS OF CERCOSPOROID HYPHOMYCETES FROM BRAZIL, NEW ZEALAND AND VENEZUELA

UWE BRAUN, FRANCISCO DAS CHARGAS OLIVEIRA FREIRE & RADAMES URTIAGA

**Abstract.** Four new species of cercosporoid hyphomycetes are described: *Passalora majewskii* U. Braun & F. O. Freire on *Sparattanthelium botocudorum* Mart. and *Pseudocercospora avicenniicola* U. Braun & F. O. Freire on *Avicennia geminans* (L.) Stern. (both from Brazil), *P. hilliana* U. Braun on *Helmholtzia glaberrima* (Hook. f.) Caruel from New Zealand, and *P. urerae* U. Braun & R. Urtiaga on *Urera baccifera* (L.) Gaudich. ex Wedd. from Venezuela. New records are given for *Cercospora apii* Fresen. s.l. on the new host *Helmholtzia glaberrima* in New Zealand, *C. caleifolii* Bat., J. Upadhyay & Netto on *Calea* sp. new to Venezuela, *Pseudocercospora namae* (Dearn. & House) U. Braun & Crous new to Brazil on the new host *Hydrolea spinosa* L., and *P. struthanthi* Braun, F. O. Freire & N. Pons in Brazil on the new host *Tripodanthus* sp. The nomenclature of several species from Brazil, New Zealand and Venezuela previously assigned to *Stenella* Syd. is reassessed, and those species are reallocated to *Zasmidium* Fr.

**Key words:** *Cercospora*, *Passalora*, *Pseudocercospora*, new taxa, host range, distribution

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### INTRODUCTION

Cercosporoid hyphomycetes are anamorphs of the ascomycete genus *Mycosphaerella* Johanson and are among the largest groups of mitosporic fungi worldwide (Crous & Braun 2003). More than 3000 species names have been referred to *Cercospora* Fresen. and about 550 to *Passalora* Fr. (Crous & Braun 2003). About 1450 species have been assigned to *Pseudocercospora* Speg. and 220 to *Stenella* Syd. (see MycoBank database). The inventory of the cercosporoid fungi is far from complete, especially in tropical and subtropical countries. Braun *et al.* (1999) and Braun and Freire (2003, 2004, 2006) published a series of contributions to the cercosporoid hyphomycetes of Brazil. Braun and Hill (2002, 2004, 2008), Braun, Hill and Dick (2003) and Braun *et al.* (2006) dealt with the diversity of *Cercospora* and allied genera in New Zealand, and Braun and Urtiaga (2008) examined collections

of this fungal group from Venezuela. Some additional new cercosporoid collections from these countries are described and recorded here. The specimens from New Zealand were among a final set of fungi sent by the late Caleb F. Hill, who passed away last year. We dedicate this paper to C. F. Hill and to Tomasz Majewski on the occasion of his 70<sup>th</sup> birthday.

### MATERIAL AND METHODS

Material was mounted in distilled water and examined without staining by standard light microscopy with 100× oil immersion objectives (bright field and phase contrast at ×1000). For each collection, 30 measurements of conidia and other structures were made in water; extremes are given in parentheses. Collections are deposited in the Herbarium of Martin Luther University, Halle (Saale), Germany (HAL).

## NEW SPECIES AND NEW RECORDS

*Cercospora apii* Fresen. *s.l.*

Beitr. Mykol. 3: 91. 1863.

SPECIMEN EXAMINED. On *Helmholtzia glaberrima* (Hook. f.) Caruel (Phylidraceae): NEW ZEALAND. Auckland, Manurewa, Hill Road, Auckland Botanic Gardens, 25 Jan. 2009, *leg. C. F. Hill 438-B* (HAL 2343 F).

NOTES. This is the first record of a *Cercospora* species on *Helmholtzia* and a host of the Phylidraceae in general (Crous & Braun 2003). The morphology agrees well with the *C. apii* complex as defined by Crous and Braun (2003): Leaf spots subcircular to somewhat irregular, dingy grey or greyish white; mycelium internal; stromata lacking or with only a few brown swollen hyphal cells in the substomatal cavity; conidiophores in divergent fascicles, 1–12, emerging through stomata, erect, straight, subcylindrical to usually distinctly geniculate-sinuuous, unbranched, 30–160 × 3–7 µm, (0–)1–7-septate, pale to medium brown, thin-walled, smooth or almost so; conidiogenous cells integrated, terminal and intercalary, conidiogenous loci conspicuous, thickened and darkened, 2–3 µm wide; conidia formed singly, acicular, hyaline, 60–320 × 2.5–4.0 µm, pluriseptate, thin-walled, smooth, hilum thickened and darkened, 2.5–3.0 µm wide. Following the advice of Crous and Braun (2003), this collection is assigned to *C. apii s.l.* since no cultures, molecular sequence analyses or results of inoculation tests are available.

*Cercospora caleifolii* Bat., J. Upadhyay & Netto

Mycopathol. Mycol. Appl. 29: 172. 1966.

SPECIMEN EXAMINED. On *Calea* sp. (Asteraceae): VENEZUELA. LARA STATE: Villanueva, Nov. 2008, *leg. R. Urtiaga* (HAL 2350 F).

NOTES. This species is only known from the type collection in Brazil, which has been re-examined [on *Calea pinnatifida* (R. Br.) Less., Brazil, Pôrto Alegre, 26 Apr. 1961, *leg. A. S. Romeu*, IMUR 40585]. Batista *et al.* (1966) described conidiophores 30–120 µm long and acicular conidia 16.5–100 × 1.5–3 µm. The type collection is in poor condition. Only a few conidia up to 85 × 4 µm

have been found. Shorter conidia are narrowly obclavate. In the collection from Venezuela the conidiophores and conidia are much longer, up to 350 µm and 250 µm, respectively. Longer conidia are also somewhat wider, 2.5–5 µm. However, the length of conidiophores and conidia in *Cercospora* spp. is often rather variable and strongly depends on environmental influences such as humidity and temperature. Therefore the new collection from Venezuela is tentatively assigned to *C. caleifolii*.

*Passalora majewskii* U. Braun & F. O. Freire, *sp. nov.*

Fig. 1

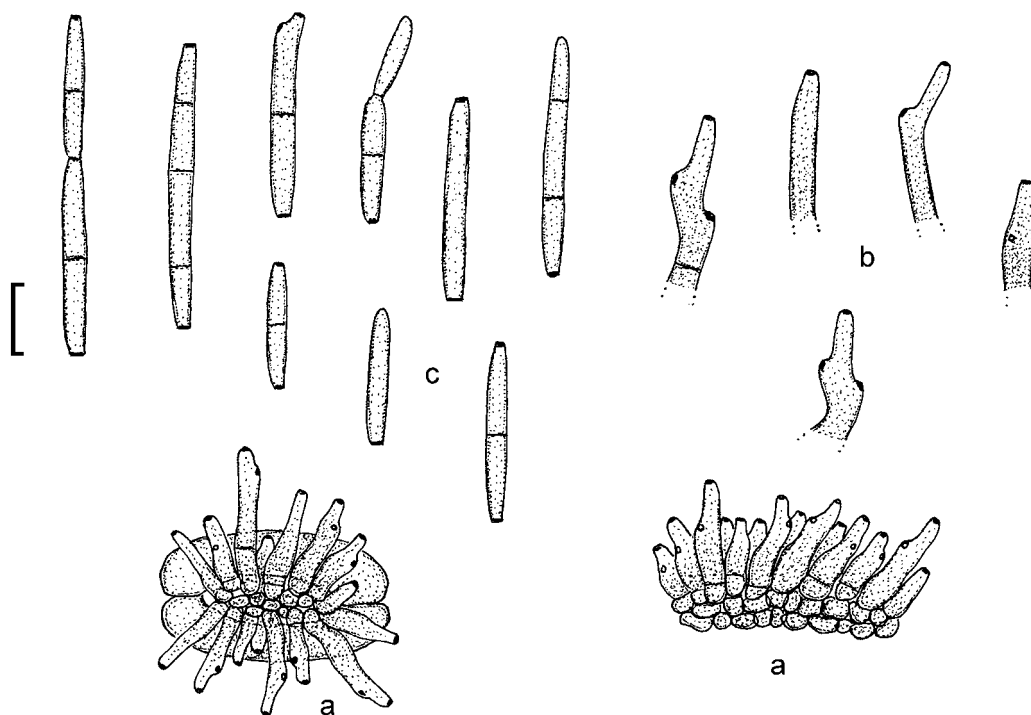
MycoBank no. MB 516642.

*Maculae amphigenae, subcirculares vel plerumque angulares-irregulares, 2–20 mm diam., interdum confluentes, stramineae, bruneolae vel griseo-brunneae. Margine indistincto vel margine tenui atriore, interdum leniter elevato cinctae, interdum cum zona diffusa discolorata. Mycelium immersum. Stromata 10–60 µm diam., substomatalia vel intraepidermalia, medio- vel atro-olivaceo-brunnea, ex cellulis inflatis composita, 2–7 µm diam. Caespituli amphigeni, punctiformes, dispersi, medio-, atro- vel griseo-brunnei. Conidiophora dense fasciculata, pauca vel numerosa, ex cellulis stromatibus oriunda, per stoma emergentia vel erumpentia, cylindracea-conica, recta vel modice geniculata-sinuosa, non-ramosa, 5–35 × 2–5 µm, 0–1(–2)-septata, pallide olivacea vel olivaceo-brunnea, laevia vel dilute verruculosa. Cellulae conidiogenae integratae, terminales vel conidiophoris in cellulis conidiogenis reductis, 5–20 µm longae; cicatrices conidiales conspicuae, 1–2 µm diam., leniter incrassatae et fuscatae. Conidia catenata, interdum ramificata, ellipsoidea-fusiformia vel cylindrica, 8–55 × 2.5–4.5 µm, 0–3(–4)-septata, subhyalina vel pallide olivacea, tenuitunicata, laevia, utrinque truncata vel leniter attenuata, hila leniter incrassata et fuscata.*

TYPE: On *Sparattanthelium botocudorum* Mart. (Hernandiaceae): BRAZIL. STATE OF CEARÁ: Guarimiranga City, alt. 910 m, 10 Jan. 2007, *leg. F. Freire* (HOLOTYPE: HAL 2346 F).

ETYMOLOGY: The epithet honors Tomasz Majewski, Polish mycologist, on the occasion of his 70<sup>th</sup> anniversary.

Foliicolous, leaf spots amphigenous, subcircular to usually angular-irregular, 2–20 mm diam.,



**Fig. 1.** *Passalora majewskii* U. Braun & F. O. Freire *sp. nov.* on *Sparattanthelium botocudorum* Mart. (based on type material). a – conidiophore fascicles, b – conidiophores, c – conidia. Scale bars: 10 µm. U. Braun del.

sometimes confluent and larger, straw-colored, brownish to greyish brown, margin indefinite or with a narrow dark border, occasionally slightly raised, sometimes with a diffuse discolored halo. Mycelium internal. Stromata almost lacking or substomatal to intraepidermal, 10–60 µm diam., medium to dark olivaceous-brown, composed of swollen hyphal cells, 2–7 µm diam. Caespituli amphigenous, punctiform, scattered, medium to dark brown or greyish brown. Conidiophores in small to large, mostly moderately large fascicles, usually rather dense, arising from stromata, emerging through stomata or erumpent, cylindrical-conical, straight to moderately geniculate-sinuous, unbranched, 5–35 × 2–5 µm, 0–1(–2)-septate, pale olivaceous to olivaceous-brown, thin-walled, smooth to faintly rough-walled. Conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 5–20 µm long; conidiogenous loci conspicuous, cicatrized, 1–2 µm wide, slightly thickened and darkened. Co-

nidia catenate, in simple or occasionally branched chains, ellipsoid-fusiform to cylindrical, 8–55 × 2.5–4.5 µm, 0–3(–4)-septate, subhyaline to pale olivaceous, thin-walled, smooth, ends truncate to somewhat attenuated, hila slightly thickened and darkened, 1–2 µm wide.

**NOTES.** On account of its thickened and darkened conidiogenous loci and conidial hila, and its pigmented conidiophores and conidia, this species has to be assigned to *Passalora* (Crous & Braun 2003). Due to its conidia formed in chains, this hyphomycete is phaeoramularioid; that is, it belongs to a morphological group within *Passalora* which was previously treated as a separate genus, *Phaeoramularia* Munt.-Cvetk. Species of *Passalora* are host-specific, confined to single host species, hosts of a single genus or at most a few closely allied host genera. There is no comparable species. This is the first member of *Passalora* on *Sparattanthelium* and the Hernandiaceae in general.

*Pseudocercospora avicenniicola* U. Braun  
& F. O. Freire, *sp. nov.*

Fig. 2

Mycobank no. MB 516643.

*Pseudocercosporae avicennae similis, sed hyphis superficialibus nullis, conidiophoris brevioribus, 5–60 μm longis et conidiis brevioribus, tandem 20–40 × 3–6 μm et 0–4-septatis.*

TYPE: On *Avicennia geminans* (L.) Stern. [Acanthaceae, Avicennioideae (= Avicenniaceae)]: BRAZIL. STATE OF CEARÁ: Fortaleza City, 20 Aug. 2008, leg. M. Alves Souza (HOLOTYPE: HAL 2347 F).

ETYMOLOGY: Epithet derived from the host genus.

Leaf spots amphigenous, at first indistinct, later angular-irregular, oblong, size very variable, often vein-limited, dingy grey-olivaceous to brown, margin indefinite. Caespituli hypophyllous, effuse, loose to dense, greyish olivaceous to grey-brown. Mycelium internal. Stromata lacking or small, 10–25 μm diam., olivaceous-brown, substomatal

to somewhat erumpent. Conidiophores in small to moderately large fascicles, arising from stromata, emerging through stomata, erect to decumbent, straight, subcylindrical to distinctly geniculate-sinuous, simple or often branched, some decumbent threads with lateral branchlets growing like and confusable with superficial hyphae with solitary conidiophores, 5–60 × 2.5–5.0 μm, 0–7-septate, pale to medium olivaceous or olivaceous-brown, thin-walled, smooth. Conidiogenous cells integrated, terminal or conidiophores sometimes reduced to conidiogenous cells, 5–20 μm long, conidiogenous loci inconspicuous, neither thickened nor darkened. Conidia formed singly, short clavate, obclavate-cylindrical, straight to mostly curved-sigmoid, 20–40 × 3–6 μm, 0–4-septate, pale olivaceous, thin-walled, smooth, apex rounded, base short obconically truncate, hilum 1–2 μm wide, neither thickened nor darkened.

NOTES. This is the second *Pseudocercospora* species on *Avicennia* and the Avicennioideae

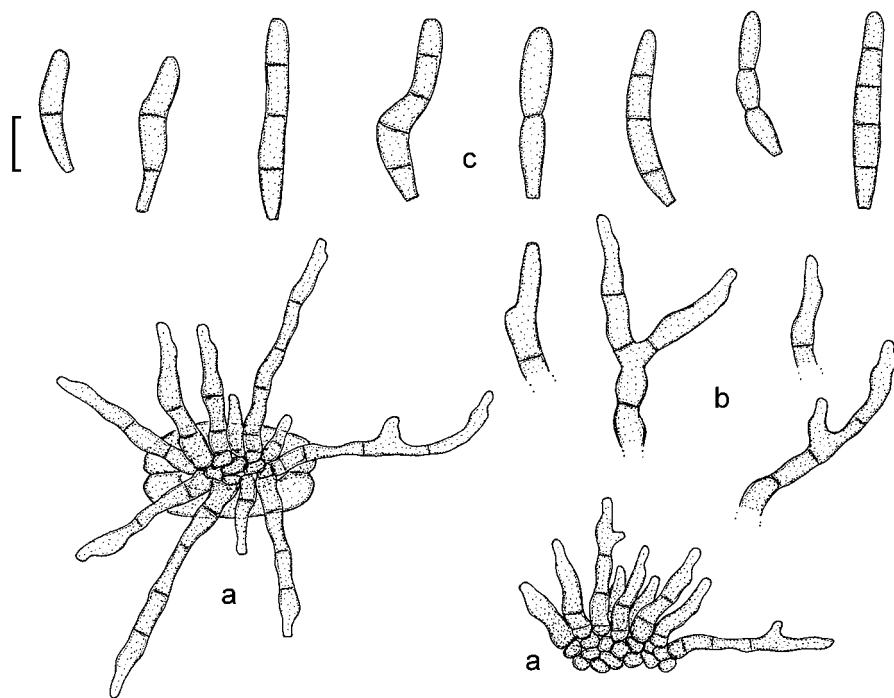
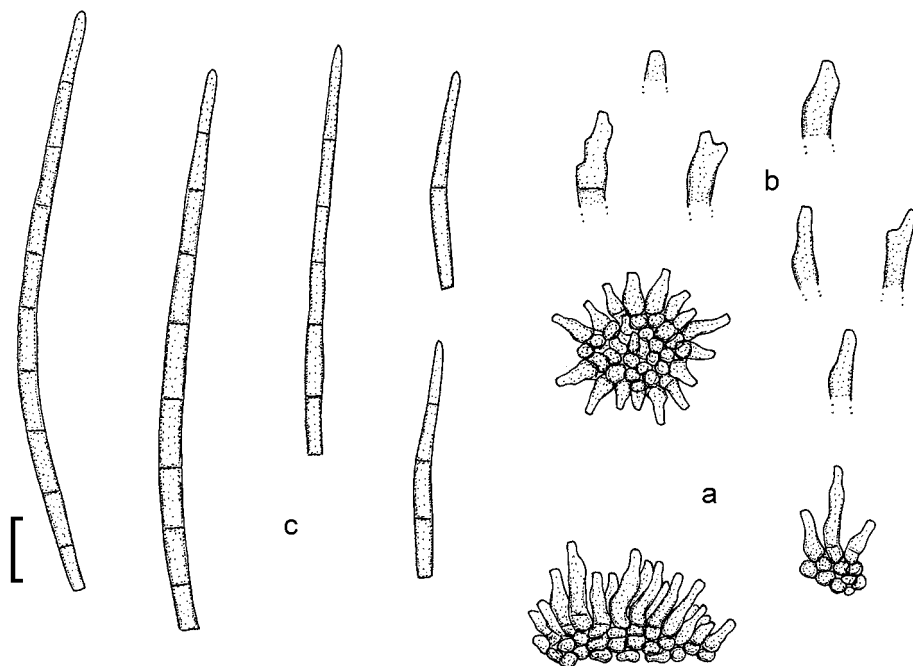


Fig. 2. *Pseudocercospora avicenniicola* U. Braun & F. O. Freire *sp. nov.* on *Avicennia geminans* (L.) Stern. (based on type material). a – conidiophore fascicles, b – conidiophores, c – conidia. Scale bars: 10 μm. U. Braun del.



**Fig. 3.** *Pseudocercospora hilliana* U. Braun *sp. nov.* on *Helmholtzia glaberrima* (Hook. f.) Caruel (based on type material). a – conidiophore fascicles, b – conidiophores, c – conidia. Scale bars: 10  $\mu$ m. U. Braun del.

(= Avicenniaceae) in general. Based on new phylogenetic results, *Avicennia* is now placed in the Acanthaceae [www.mobot.org/MOBOT/Research/APweb/welcome.html ('Angiosperm Phylogeny Website')]. *Pseudocercospora avicenniae* R. G. Shivas, A. J. Young & Crous (Shivas, Young & Crous 2009) has recently been described from Australia on *Avicennia marina* (Forssk.) Vierh., but this species is distinguished from *P. avicenniicola* by its much longer conidiophores, up to 90  $\mu$ m, its much longer, pluriseptate conidia, 20–90  $\mu$ m long, 3–12-septate, and the formation of superficial hyphae. *Pseudocercospora avicenniicola* differs from all other *Pseudocercospora* species on hosts of the Acanthaceae in having characteristically short, broad, mostly curved-sigmoid conidia with few septa. *Pseudocercospora blechi* U. Braun, Crous & N. Pons (Braun *et al.* 2002) has similar, relatively short conidia, up to 60  $\mu$ m long and 2–4  $\mu$ m wide, but the small leaf spots, 0.5–3.0 mm diam., are quite distinct and the conidiophores are longer, up to 90  $\mu$ m. All other *Pseudocercospora* spp. on hosts of this family quite differ by hav-

ing much longer conidiophores and longer, pluriseptate conidia, up to ca 125  $\mu$ m [*P. barleriae* (J. M. Yen & Lim) U. Braun, *P. baphicacanthi* Goh & W. H. Hsieh, *P. consociata* (G. Winter) Y. L. Guo & X. J. Liu, *P. justiciae* (F. L. Tai) Y. L. Guo & X. J. Liu (Guo & Hsieh 1995; Hsieh & Goh 1990; Yen & Lim 1980)] or at least the conidia are much longer, narrower and pluriseptate [*P. acanthi* Deighton, *P. adenosmae* Y. L. Guo, *P. lepidagathidis* U. Braun & Crous, *P. odontone-matis* (Chupp) U. Braun & Crous, *P. rhinacanthi* (Höhn.) Deighton, *P. thunbergiicola* (J. M. Yen) Deighton (Chupp 1954; Deighton 1976, 1987; Yen & Lim 1980; Guo 2001; Crous & Braun 2003; Braun & Crous 2005)].

***Pseudocercospora hilliana* U. Braun, *sp. nov.***

Fig. 3

Mycobank no. MB 516644.

*Pseudocercosporae pancratii similis, sed maculis foliorum nullis, stromatibus ad 60  $\mu$ m diam., conidiis variantibus, basi truncata vel leniter obconice truncata.*

*Differt a P. asphodelina maculis foliorum nullis, conidiis longioribus, ad 110 µm, 1–10-septatis.*

TYPE: On *Helmholtzia glaberrima* (Hook. f.) Caruel (Phylidraceae): NEW ZEALAND. Auckland, Manurewa, Hill Road, Auckland Botanic Gardens, 25 Jan. 2009, leg. C. F. Hill 438-A (HOLOTYPE: HAL 2342 F).

ETYMOLOGY: The epithet honors Caleb F. Hill, mycologist in New Zealand, who passed away in 2009.

Foliicolous, definite leaf spots lacking, caespituli on necrotic leaves, necrotic portions of leaves or discolored, necrotic areas of green leaves, amphigenous, punctiform, scattered, greyish to dark brown. Mycelium internal, occasionally with a few pale, superficial hyphae arising from stromata, 1–3 µm wide, septate, thin-walled, smooth. Stromata substomatal or intraepidermal, immersed to slightly erumpent, 10–60 µm diam., subglobose to irregular, dark olivaceous-brown or brown, composed of swollen hyphal cells, circular to irregular in outline, 2–8 µm diam. Conidiophores arising from stromata, through stomata or erumpent, in small to moderately large fascicles, loose to usually rather dense, subcylindrical to conical, straight to slightly geniculate-sinuuous, unbranched, 5–25(–30) × 2–4 µm, sometimes up to 5.5 µm wide at the very base, subhyaline to pale olivaceous or olivaceous-brown, 0–2-septate, thin-walled, smooth. Conidiogenous cells integrated, terminal or conidiophores reduced to conidiogenous cells, 5–20 µm long, conidiogenous loci truncate or subtruncate, 1–2 µm wide, neither thickened nor darkened. Conidia formed singly, narrowly obclavate-subcylindrical to acicular-filiform, 25–110 × 2–4 µm, indistinctly 1–10-septate, subhyaline to pale olivaceous or olivaceous-brown, thin-walled, smooth, apex subacute, base truncate to slightly obconically truncate, basal hilum 1.5–2.5 µm wide, neither thickened nor darkened.

NOTES. Species of the genus *Pseudocercospora* are host-specific, usually confined to a single host species, host genus or sometimes a few closely allied host genera within a particular family. *Pseudocercospora helmholtziae* is the first species of *Pseudocercospora* on a host of the monocot family

Phylidraceae. There are only few comparable species on hosts belonging to other monocot families. All of them are distinguished from *P. helmholtziae* by forming distinct leaf spots. *Pseudocercospora pancratii* (Ellis & Everh.) U. Braun & R. F. Castañeda on various hosts of the Amaryllidaceae is morphologically rather similar, but differs in having variable stromata, up to 125 µm diam., and conidia with long obconically truncate bases (Chupp 1954; Braun & Castañeda 1991). *Pseudocercospora asphodelina* (Sacc.) U. Braun (Braun 1993) on *Asphodelus* spp., Asphodelaceae, also bears a certain resemblance, but its conidia are much smaller, (15–)20–50(–60) µm, only 0–4-septate and very pale. The conidia of *P. dianellae* U. Braun & C. F. Hill (Braun, Hill & Dick 2003) on *Dianella nigra* Colenso, Phormiaceae, in New Zealand are very close to those of *P. helmholtziae*, but superficial hyphae with solitary conidiophores are formed. *Pseudocercospora libertiae* U. Braun & C. F. Hill (Braun, Hill & Dick 2003) on *Libertia ixiooides* (G. Forst.) Spreng., Iridaceae, also known from New Zealand, has smaller stromata, up to 30 µm diam., and the conidia are consistently acicular-filiform. The conidia of *P. pallidissima* (Chupp) Deighton (Chupp 1954) on *Smilax* spp., Smilacaceae, are shorter, up to 70 µm, and always obclavate-cylindrical with distinctly obconically truncate base. *Pseudocercospora rhapsisicola* (Tomimaga) Goh & W. H. Hsieh (Hsieh & Goh 1990; Guo & Hsieh 1995) on *Rhapis* spp., Arecaceae, differs by its colorless conidia which are often abruptly bent at the septa. *Pseudocercospora coperniciae* U. Braun & F. O. Freire (Braun & Freire 2002) on *Copernicia prunifera* (Mill.) H. E. Moore, Arecaceae, in Brazil, has much shorter conidia, (10–)15–50(–60) µm, with few septa. *Pseudocercospora manusensis* Matsush. (Matsushima 1993) on the rotten petioles of an unknown member of the Arecaceae in Peru is very similar, but the conidia are densely pluriseptate. Other species are easily distinguished by their much longer conidiophores [e.g., *P. arecacearum* U. Braun & C. F. Hill (Braun & Hill 2006), *P. dendrobii* Goh & W. H. Hsieh (Hsieh & Goh 1990)], lacking stromata [e.g., *P. carbonacea* (Miles) Pons & B. Sutton (Pons & Sutton 1988)], much broader conidia [e.g., *P. dioscoreae*

U. Braun, Mouch. & McKenzie (Braun *et al.* 1999), *P. contraria* (Syd. & P. Syd.) Deighton (Pons & Sutton 1988), *P. cordylines* U. Braun (Braun 1998), *P. musae* (Zimm.) Deighton (Chupp 1954), *P. pycnidioides* (Chupp) U. Braun & Crous (Chupp 1954), *P. roystoniae* U. Braun & Crous (Braun, Crous & Kamal 2003)], consistently cylindrical conidia with obtuse apex [e.g., *P. eumusae* Crous & Mour. (Crous & Mourichon 2002), *P. assamensis* Arzanlou & Crous, *P. indonesiana* Arzanlou & Crous and *P. longispora* Arzanlou & Crous (Arzanlou *et al.* 2008)] or percurrent conidiogenous cells [*P. concentrica* (Cooke & Ellis) U. Braun & Crous (Chupp 1954; Braun & Hill 2002)].

***Pseudocercospora namae*** (Dearn. & House)

U. Braun & Crous

in Crous & Braun, *Mycosphaerella* and its anamorphs: 1. Names published in *Cercospora* and *Passalora*. CBS Biodiversity Series 1: 288. 2003.

SPECIMEN EXAMINED. On *Hydrolea spinosa* L. (Hydrophyllaceae): BRAZIL. PIAU STATE: Picos City, 30 Jul. 2009, leg. F. Freire (HAL 2344 F).

NOTES. This species is known from the U.S.A. on *Hydrolea ovata* Nutt. *ex* Choisy (Chupp 1954; Crous & Braun 2003). It is new to Brazil on a new host species.

***Pseudocercospora struthanthi*** U. Braun, F. O. Freire & N. Pons

Cryptog. Mycol. 23: 316. 2002.

≡ *Cercospora struthanthi* Chupp & A. S. Muller., Bol. Soc. Venez. Ci. Nat. 8: 57. 1942, *nom. invalid.*

SPECIMEN EXAMINED. On *Tripodanthus* sp. (Loranthaceae): BRAZIL. STATE OF CEARÁ; Guaraccaba do Norte City, 980 m alt., 3 Mar. 2009, leg. M. Alves Souza (HAL 2348 F).

NOTES: *Pseudocercospora struthanthi* is known from Brazil, the U.S.A. (Florida) and Venezuela on *Phoradendron flavescens* (Pursh) Nutt *ex* A. Gray, *P. serotium* (Raf.) M. C. Johnst., *Phoradendron* sp. and *Struthanthus* sp. (Chupp 1954; Braun *et al.* 2002; Braun & Freire 2004). The collection on *Tripodanthus* sp. agrees well with *P. struthanthi* (stromata 10–50 µm diam., conidiophores densely

fasciculate, 5–25 × 2–5 µm, 0–1-septate, conidia narrowly obclavate to subacicular, 35–110 × 2.0–3.5 µm, 3–10-septate, pale olivaceous). *Tripodanthus* is a new host genus for this species.

***Pseudocercospora urerae*** U. Braun & R. Urtiaga, *sp. nov.* Fig. 4

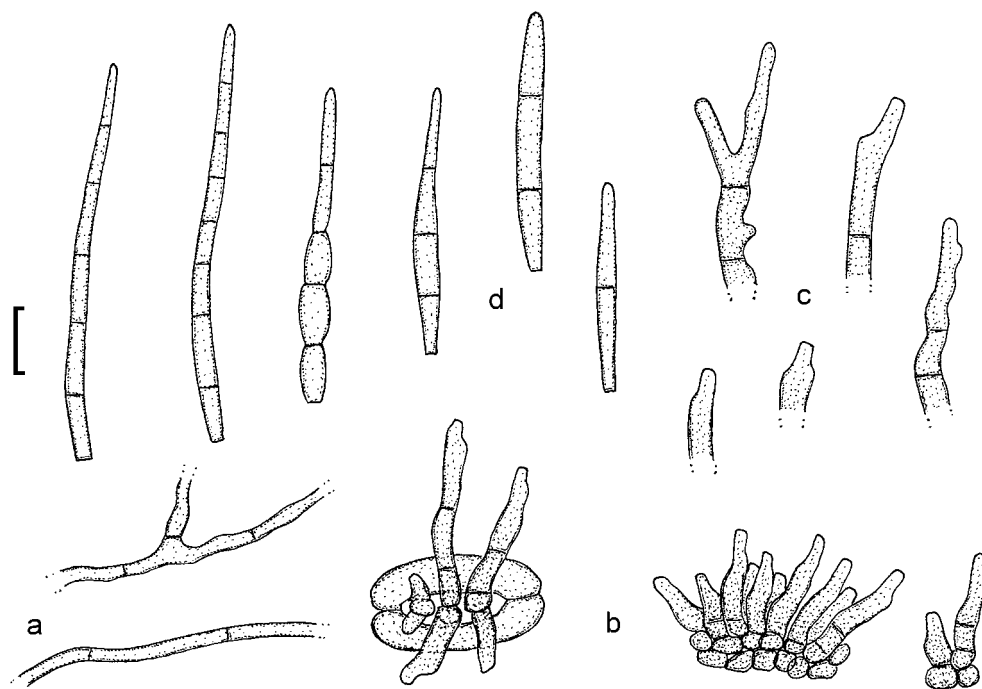
Mycobank no. MB 516645.

*Pseudocercosporae pouzolziae valde similis, sed conidiophoris solitariis vel saepe laxe fasciculatis, brevioribus, 5–35 µm, interdum cum hyphis superficialibus.*

TYPE. On *Urera baccifera* (L.) Gaudich. *ex* Wedd. (Urticaceae): VENEZUELA. LARA STATE: Villanueva, 1100 m alt., Nov. 2008, leg. R. Urtiaga (HOLOTYPE: HAL 2349 F).

ETYMOLOGY: Epithet derived from the host genus.

Leaf spots amphigenous, subcircular to irregular, 2–10 mm diam., occasionally confluent, ochraceous, brown to greyish brown, later dingy greyish brown to grey, margin indefinite or narrow, darker. Caespituli amphigenous, rather inconspicuous to punctiform, greyish brown. Mycelium internal, occasionally with some superficial hyphae, 1.5–3.0 µm wide, sparingly branched, subhyaline to pale olivaceous, septate, thin-walled, smooth. Stromata lacking or small, 10–30 µm diam., substomatal, occasionally intraepidermal, olivaceous-brown. Conidiophores solitary to fasciculate, fascicles small to moderately large, mostly loose, erect, straight, subcylindrical or narrower towards the apex to strongly geniculate-sinuous, simple or branched, 5–35 × 2–5 µm, 0–3-septate, pale olivaceous to medium olivaceous-brown, thin-walled, smooth. Conidiogenous cells integrated, terminal or conidiophores sometimes reduced to conidiogenous cells, 5–20 µm long, conidiogenous loci inconspicuous, neither thickened nor darkened. Conidia solitary, obclavate-cylindrical, 20–80 × 2.5–5.0 µm, 1–10-septate, occasionally constricted at the septa, subhyaline to pale olivaceous, thin-walled, smooth, apex obtuse to subacute, base short obconically truncate, 1.0–1.5 µm wide, hila neither thickened nor darkened.



**Fig. 4.** *Pseudocercospora urerae* U. Braun & R. Uriaga *sp. nov.* on *Urera baccifera* (L.) Gaudich. *ex* Wedd. (based on type material). a – superficial hyphae, b – conidiophore fascicles, c – conidiophores, d – conidia. Scale bars: 10 µm. U. Braun del.

NOTES. Several species of the genus *Pseudocercospora* are known on hosts of the Urticaceae. *Pseudocercospora pouzolziae* (Syd.) Y. L. Guo & X. J. Liu on *Pouzolzia* spp. (Chupp 1954; Guo & Hsieh 1995) is morphologically very close to *P. urerae*, but this species is distinguished by its large, densely fasciculate, longer conidiophores and the lack of superficial hyphae. Furthermore, the two genera, *Urera* and *Pouzolzia*, are not closely allied and belong to different tribes of the Urticaceae: Urticeae and Boehmerieae, respectively. *Pseudocercospora boehmeriigena* U. Braun [? *Cercospora boehmeriae* Peck, *Pseudocercospora boehmeriae* (Peck) Y. L. Guo & X. J. Liu, *non P. boehmeriae* Goh & W. H. Hsieh] is also similar, but differs in having large stromata, 25–65 µm diam., usually with large, dense fascicles of longer conidiophores, up to 75 µm (Chupp 1954; Guo & Hsieh 1995). Other species quite differ by having very long and narrow conidia, 60–110 × 1.5–3.0 µm [*P. fukuui* (Yamam.) W. H. Hsieh & Goh (Chupp 1954; Hsieh & Goh 1990)], very long conidiophores and much

wider conidia [*P. mysorensis* (Thirum. & Chupp) Deighton, *P. pipturi* (F. Stevens & Glick) U. Braun & Crous, *P. pipturicola* U. Braun & McKenzie (Chupp 1954; Guo & Hsieh 1995; Braun *et al.* 1999)] or very long conidiophores arising from superficial hyphae [*P. pileae* P. N. Singh, S. K. Singh & S. C. Tripathi, *P. urticacearum* R. K. Verma, Kamal & Budathoki (Budathoki *et al.* 1989; Singh *et al.* 1996)].

#### REASSESSMENT OF THE NOMENCLATURE OF SEVERAL *STENELLA* SPECIES DESCRIBED FROM BRAZIL, NEW ZEALAND AND VENEZUELA

*Stenella* Syd. is a cercosporoid hyphomycete genus established for species characterized by having superficial, verruculose hyphae with solitary conidiophores, conidiogenous cells with conspicuous conidiogenous loci (thickened and darkened), and conidia formed singly or in chains, with thickened and darkened hila (Crous & Braun 2003). Recently some species with similar conidia but



lacking superficial mycelium have also been placed in *Stenella* (Braun & Crous 2005; Shivas, Young & Braun 2009). Such species were previously placed in *Stenellopsis* B. Huguenin, but this genus was reduced to synonymy with *Stenella* by Braun and Crous (2005), a conclusion supported by results of molecular sequence analyses (see Shivas, Young & Braun 2009). Recently *Zasmidium* Fr. proved to be the oldest name for *Stenella*-like hyphomycetes within the Mycosphaerellaceae (Arzanlou *et al.* 2007; Crous *et al.* 2009), as well as phenotypically and phylogenetically indistinguishable. However, the type species of *Stenella*, *S. araguata* Syd., clusters within the Teratosphaeriaceae, and differs in having pileate conidiogenous loci (versus planate loci in *Zasmidium*). Therefore we prefer to maintain two phylogenetic genera, that is, *Stenella* currently confined to the type species in the Teratosphaeriaceae and *Zasmidium* for *Stenella*-like anamorphs with planate loci within the Mycosphaerellaceae. The following species described from Brazil, New Zealand and Venezuela are affected and have to be reallocated:

***Zasmidium aucklandicum*** (U. Braun & C. F. Hill) U. Braun, *comb. nov.*

MycoBank no. MB 516646.

BASIONYM: *Stenella aucklandica* U. Braun & C. F. Hill, Australas. Pl. Pathol. **32**(1): 96. 2003.

***Zasmidium capparacearum*** (U. Braun & F. O. Freire) U. Braun & F. O. Freire, *comb. nov.*

MycoBank no. MB 516647.

BASIONYM: *Stenella capparacearum* U. Braun & F. O. Freire, Cryptog. Mycol. **27**(3): 244. 2006.

***Zasmidium guazumae*** (U. Braun & R. Urtiaga) U. Braun & R. Urtiaga, *comb. nov.*

MycoBank no. MB 516648.

BASIONYM: *Stenella guazumae* U. Braun & R. Urtiaga, Feddes Repert. **119**(5–6): 502. 2008.

***Zasmidium hirtellae*** (U. Braun & F. O. Freire) U. Braun & F. O. Freire, *comb. nov.*

MycoBank no. MB 516649.

BASIONYM: *Stenella hirtellae* U. Braun & F. O. Freire, Cryptog. Mycol. **27**(3): 244. 2006.

***Zasmidium himatanthi*** (U. Braun & F. O. Freire) U. Braun & F. O. Freire, *comb. nov.*

MycoBank no. MB 516652.

BASIONYM: *Stenella himatanthi* U. Braun & F. O. Freire, Cryptog. Mycol. **25**(3): 240. 2004.

***Zasmidium pavoniae*** (U. Braun & F. O. Freire) U. Braun & F. O. Freire, *comb. nov.*

MycoBank no. MB 516653.

BASIONYM: *Stenella pavoniae* U. Braun & F. O. Freire, Cryptog. Mycol. **25**(3): 242. 2004.

***Zasmidium periandrae*** (U. Braun & F. O. Freire) U. Braun & F. O. Freire, *comb. nov.*

MycoBank no. MB 516654.

BASIONYM: *Stenella periandrae* U. Braun & F. O. Freire, Cryptog. Mycol. **27**(3): 245. 2006.

***Zasmidium schubertianum*** (U. Braun & R. Urtiaga) U. Braun & R. Urtiaga, *comb. nov.*

MycoBank no. MB 516655.

BASIONYM: *Stenella schubertiana* U. Braun & R. Urtiaga, Feddes Repert. **119**(5–6): 504. 2008.

***Zasmidium simaroubacearum*** (U. Braun & F. O. Freire) U. Braun & F. O. Freire, *comb. nov.*

MycoBank no. MB 516656.

BASIONYM: *Stenella simaroubacearum* U. Braun & F. O. Freire, Cryptog. Mycol. **23**(4): 325. 2003 [‘2002’].

***Zasmidium sinuosogeniculatum*** (U. Braun & C. F. Hill) U. Braun, *comb. nov.*

MycoBank no. MB 516657.

BASIONYM: *Stenella sinuosogeniculata* U. Braun & C. F. Hill, Australas. Mycol. **27**(2): 54. 2008.

***Zasmidium stemodiicola*** (U. Braun & F. O. Freire) U. Braun & F. O. Freire, *comb. nov.*

MycoBank no. MB 516658.

BASIONYM: *Stenella stemodiicola* U. Braun & F. O. Freire, Cryptog. Mycol. **23**(4): 327. 2003 [‘2002’].

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