A REASSESSMENT OF THE CERCOSpora SPECIES DESCRIBED BY C. CHUPP: SPECIMENS DEPOSITED AT BPI, MARYLAND, U.S.A.

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Abstract: Cercosporoid specimens lodged at BPI herbarium, including 31 type specimens originally treated by Charles Chupp were examined in the present study. Nine of these taxa are redistributed to Passalora, Pseudocercospora or Stenella. Mycosphaerella shoreae is newly described as the teleomorph of Stenella shoreae, occurring on Shorea talura from India. Pseudocercospora zanthoxylicola is proposed as a new name for Cercospora fagaraceae Chid., known on Zanthoxylum budrunga, also from India.

Key Words: Mycosphaerella, Passalora, Pseudocercospora, Stenella, systematics

Introduction
The most complete treatment of the genus Cercospora Fresen. was that of Chupp (1954). In his monograph, Chupp placed all taxa in Cercospora, and briefly noted whether conidia occurred singly or were catenate, pigmented or hyaline, as well as the nature of the conidial scars. Subsequent to this monographic study Deighton treated many of these species (1967, 1974, 1975, 1976, 1979), and relocated several to more well-defined anamorph genera. The features distinguishing these genera were also accepted by others, which in turn led to the creation of more genera. These genera have been recognised in treatments of these fungi from numerous countries including Taiwan (Hsieh & Goh, 1990), China (Guo & Hsieh, 1995), South Africa (Crous & Braun, 1996) and Russia
(Braun & Melnik, 1997). New technology aiding the separation of these anamorph genera have been the use of Scanning Electron Microscopy to show differences in the type of conidial scar structure (David, 1993), as well as the employment of molecular techniques (Stewart et al., 1999; Crous et al., 1999, 2000). In cases where specific hosts have been studied intensively, numerous cercosporoid fungi have been recorded (i.e. Crous, 1998). Because several morphologically similar, but different species can occur on the same host in different countries, numerous literature reports of "well-known" cercosporoids are in fact of different, and frequently undescribed taxa. To resolve this issue, it is of the utmost importance that the taxa treated by Chupp (1954) are re-examined using the concepts presently applied to this group. In this paper we present a treatment of the *Cercospora* type species treated by Chupp that are lodged at BPI in Maryland, U.S.A.

**Treatment of species**


**Host(s) & Dist.:** Achyranthes spp. (Amaranthaceae); Burma, India, Pakistan, Philippines, Zimbabwe, Sudan, Tanzania.

**Specimen examined:** India, Bangalore, living leaves of Achyranthesaspera L., M.J. Thirumalachar, 20 Aug. 1944, BPI 432384 (holotype).

Leaf spots small, circular light brown. Conidiophores unbranched and arranged in brown fascicles. Conidia long, hyaline, acicular, multiseptate, with truncate to slightly obconically truncate bases and subobtuse apices, proving that this species forms part of the *Cercospora api* Fresen. complex.


**Host(s) & Dist.:** Cytisus spp. (Leguminosae); U.S.A.

**Specimen examined:** U.S.A., Kansas, Manhattan, living leaves of *Cytisus capitatus* Scop., Kellerman & Swingle, 4 Sept. 1889, BPI 435451 (holotype).

This species forms part of the *Cercospora api* complex, being characterised by long, multiseptate, acicular conidia with truncate bases and acute to subobtuse apices.


**Host(s) & Dist.:** Exochordae spp. (Rosaceae); U.S.A.

**Specimen examined:** U.S.A., Alabama.

Deighton disposed the species in the *Cercospora* type examination. Of the type conidium, the first basal septum, multiseptate, and subobtuse apices. All this is 2–4 μm, only conidium 30 μm were light brown, densely conidium and conidiophores distinct from the *Cercospora* api complex.

4. *Cercospora lithospermi* (Lindl.) Rehder (= *E. grandiflora* (Mt.) Bref.)

**Host(s) & Dist.:** Lithospermum.

**Specimen examined:** U.S.A., Texas, carbolineae (J.F. Gmelin) Madr.

Chupp (1954) described the first basal examination of the type for the first basal septum, multiseptate, and subobtuse apices. All this is 2–4 μm, only conidium 30 μm were light brown, densely conidium and conidiophores distinct from the *Cercospora* api complex.


**Host(s) & Dist.:** Steaniandrin.

**Specimen examined:** U.S.A., Wisconsin, Benth., H.C. Greene, 14 Sept. 1940.

This species is associated with Morphiops radiatus. Morphologically it is characterised by brown conidiophores that truncate bases and subobtuse forms part of the *Cercospora* api complex.


**Host(s) & Dist.:** Parthenitis.

**Specimen examined:** U.S.A., *integrolatum* L., H.C. Greene.

Morphologically this could be *Cercospora api* complex.

7. *Cercospora peregrina* Crous & N.T. Teng

**Host(s) & Dist.:** Cercospora, p. 49

Deighton disposed this species to Pseudocercospora Speg. A re-examination of the type clearly shows, however, that this species is in fact a true representative of Cercospora, which has hyaline, multisepate, acicular conidia, and long unbranched, brown conidiophores. Furthermore, these features also demonstrate this species to be indistinguishable from others in the Cercospora api complex.


Host(s) & Dist.: Lithospermum spp. (Boraginaceae); U.S.A.


Chupp (1954) described conidia as being acicular to obclavate. A re-examination of the type found them to be more obclavate, being widest at the first basal septum, multisepate, with long obconically truncate bases and subobtuse apices. Although Chupp (1954) cites conidia to be 25–200 × 2–4 μm, only conidia 30–90 × 3–5 μm were observed. Conidiophores were light brown, densely fasciculate, 15–50 × 3.5–6 μm. Based on the conidium and conidiophore morphology, therefore, this species is clearly distinct from the Cercospora api complex.


Host(s) & Dist.: Stenandrum (= Gerardia) spp. (Acanthaceae); U.S.A.


This species is associated with small, circular, white leaf spots. Morphologically it is characterised by long, fasciculate, unbranched, brown conidiophores that give rise to hyaline, acicular conidia with truncate bases and subobtuse apices, 20–100 × 2–4 μm. This species forms part of the Cercospora api complex.


Host(s) & Dist.: Parthenium spp. (Compositae); Dominican Republic, U.S.A.


Morphologically this collection resembles other species in the Cercospora api complex.

Host(s) & Dist.: *Tabernaemontana* spp. (Apocynaceae); India, Mexico, U.S.A.

*Specimen examined:* Unknown, probably Mexico, intercepted at Texas, Brownsville U.S.A., living leaves of *Tabernaemontana diversifolia* (L.) R.Br. (= *T. coronaria* (Jacq.) Willd.), Hansel, 1 Nov. 1944, BPI 439128 (holotype).

This species is indistinguishable from others in the *Cercospora apiilii* complex.


*Host(s) & Dist.: Euphorbia* spp. (Euphorbiaceae); India.

*Specimen examined:* India, Bangalore, living leaves of *Euphorbia pulcherrima* Willd. ex Klotzsch, M.J. Thirumalachari, 11 Nov. 1945, BPI 439608 (holotype).

Conidia of this species are hyaline to subhyaline, suggesting that this taxon is intermediate between *Cercospora* and *Passalora* Fr. However, the conidial scars are predominantly thickened, uniformly darkened and refractive, except for the central pore, suggesting that it is a true species of *Cercospora*, as the conidial scar thickening is less prominent in *Passalora*. Furthermore, conidia are narrowly obclavate with subtruncate bases and obtuse apices, suggesting this species to be distinct from the *C. apiilii* complex. Hsieh & Goh (1990) considered the possibility that it could be synonymous with *Pseudocercospora petilii* Goh & W.H. Hsieh. However, the two taxa are clearly distinct.


*Host(s) & Dist.: Petiveria* spp. (Phytolaccaceae); Puerto Rico, South America.


This species is representative of the *C. apiilii* complex.


*Host(s) & Dist.: Secale* spp. (Graminaceae); U.S.A.


This species belongs in the *C. apiilii* complex.


* = *Cercospora nasturtii* var. *stanleyana* Ellis & E.B. Barthol., unknown fide Chupp (1954, p. 183).

*Host(s) & Dist.: Stanleya* spp. (Cruciferae); U.S.A.


*Chupp* (1954) proposed the species as an unproven basionym. The basionym of the complex, and it is therefore probably synonymous with


*Host(s) & Dist.: Codiaeum* spp. (Euphorbiaceae); U.S.A., Texas, L.J. Blume, C.G. Anderson No. 143, 1956.


This species is a true *Cercospora* based on its bluntly adpressed, smooth to verruculose, apex obtuse, base obtuse, septum, and more obtuse setae.


*Host(s) & Dist.: Preanthus* spp. (Asteraceae); U.S.A., South Dakota, R.B. Allen, 20 Aug. 1956.


This species belongs to these.


*Host(s) & Dist.: Cryptotaenia* spp. (Apiaceae); U.S.A.


*Host(s) & Dist.: Asteraceae*; U.S.A.


*Leaf spot* amphiogenous, occurring with dark brown internal, composed of small

*Caespituli:* hypophyllous, *Conidiophores* aggregating at the upper cells of a brown leaf, *Conidiophores* light brown to brown, septate, light brown, 

× 3-6 μm. *Conidial geni* verruculose to smooth, tapering, 

thickened, refractive content, 

× 5-6 μm. *Conidia* solitary at 

apex obtuse, base obtuse, 

smooth to verruculose, apex obtuse, base obtuse.
Chupp (1954) proposed an invalid new combination, based on an unpublished basionym. However, this species is part of the C. apii complex, and it is therefore not necessary to validate the name, as it is probably synonymous with the latter.


**Host(s) & Dist.: Codiaeum spp. (Euphorbiaceae); U.S.A.**

**Specimen examined:** U.S.A., Texas, Brownsville, living leaves of *Codiaeum variegatum* (L.) Blume, C.G. Anderson No. 49910, 20 Jan. 1942, BPI 441656 (holotype).

This species is a true *Cercospora*, and distinct from the *C. apii* complex based on its bluntly acicular conidia that are widest at the first basal septum, and have more obconically truncate bases.


**Host(s) & Dist.: *Prenanthes* spp. (Compositae); U.S.A.**

**Specimen examined:** U.S.A., Wisconsin, Madison, living leaves of *Prenanthes alba* L., H.C. Greene, 9 Sept. 1943, BPI 442557.

This species belongs to the *C. apii* complex.


= **Cercospora tertia** Chupp & H.C. Greene, *Am. Midland Nat.** 34, 269 (1945).

**Host(s) & Dist.: Aster spp. (Compositae); U.S.A.**

**Specimen examined:** U.S.A., Wisconsin, Madison, living leaves of *Aster ptarmicoides* (Nees) Torr. & A. Gray, H.C. Greene, 9 Aug. 1944, BPI 441875 (holotype).

15. **Passalora ambrosiae** (Chupp) Crous & U. Braun, comb. nov. Fig. 1

= **Cercospora ambrosiae** Chupp, *J. Dep. Agric. P. Rico* 14, 282 (1930).

Leaf spots amphiogenous, irregular to elongate, 0.5–5 mm diam., grey, occurring with dark brown spots caused by a *Septoria* sp. *Mycosystem* internal, composed of smooth, branched, hyaline hyphae, 2–3 μm diam. *Caespituli* hypophyllous, brown, up to 60 μm wide and 130 μm high. *Conidiophores* aggregated in fairly dense fascicles, arising from the upper cells of a brown stroma up to 60 μm wide and 35 μm high; *conidiophores* light brown, finely verruculose, subcylindrical, 0–4-septate, light brown, straight to geniculate-sinuous, unbranched, 30–100 × 3–6 μm. *Conidiogenous cells* terminal, unbranched, light brown, finely verruculose to smooth, tapering to flat-tipped apical loci, with darkened, thickened, refractive conidial scars, proliferating sympodially, 12–30 × 5–6 μm. *Conidia* solitary, oliveaceous, smooth, obclavate-cylindrical, apex obtuse, base obconically truncate, straight to mildly curved, 1–5-
septate, 28–95 × 6–10 μm; hila thickened, darkened throughout, refractive.

Host(s) & Dist.: *Ambrosia* spp. (Asteraceae); Colombia, Dominican Republic, Puerto Rico, Venezuela.


Conidia are olivaceous, obclavate-cylindrical, 1–5-septate with thickened, darkened scars. These features indicate that this species is best placed in *Passalora*.

16. *Passalora fagarina* (Chupp) Crous & U. Braun, comb. nov.  Fig. 2
   
   

*Leaf spots* amphigenous, irregular to angular, up to 4 mm diam., grey to light brown. *Mycelium* internal, composed of smooth, branched, hyaline hyphae, 2–3 μm diam. *Caespituli* amphigenous, medium brown, up to 100 μm wide and 340 μm high. *Conidiophores* aggregated in loose fascicles, arising from the upper cells of a weakly developed brown stroma; conidiophores medium brown, finely verruculose, subcylindrical, multisepatate, medium brown, straight to geniculate-sinuous, unbranched, up to 300 μm long and 7 μm wide. *Conidiogenous cells* terminal, unbranched, light to medium brown, smooth to finely verruculose, tapering to rounded apices, with darkened, thickened, refractive conidial scars, proliferating sympodially, 20–60 × 5–7 μm. *Conidia* solitary, light to medium brown, finely verruculose, obclavate, apex obtuse, base obconically truncate, straight to curved, 4–13-septate, 45–100 × 7–10 μm; hila thickened, darkened throughout, refractive.

Host(s) & Dist.: *Zanthoxylum* spp. (Rutaceae); Uganda.

*Specimen examined:* Uganda, Entebbe Road, living leaves of *Zanthoxylum nitens* Hiern (= *Fagara angolensis*), C.G. Hansford No. 3569, 1944, BPI 409810 (holotype).

Based on the structure of the conidial scars as well as pigmented conidia, the present species clearly belongs in *Passalora*. Chupp validated the homonym *Cercospora fagarae* Hansf. by changing the species epithet. However, he incorrectly cited it as a new combination, instead of a new name. In placing this species in *Passalora*, the author of the basionym is therefore Chupp, and not Hansf. as indicated by Chupp (1954).

Figs 1–3. Conidiophores and conidia of *Passalora ambrostae* (Fig. 1), *Passalora fagarina* (Fig. 2) and *Pseudocercospora zanthoxyllica* (Fig. 3). Bars = 10 μm.
darkened throughout, Colombia, Dominican
Republic, Cundinamarca, living leaves
specimen No. 580, 21 Jun 1929, BPI
Type, cylindrical, 1-5-septate with
papillate tips that this species is
new to science, comb. nov. Fig. 2
An illustration of the fungus

Conidia borne on 1 to 4 mm diam., grey to
brown, smooth, branched, hyaline
in mass, medium brown, up to
1 mm long, scattered in loose
aggregates, weakly developed brown
halo verruculose, subcylindrical,
signet-sinuous, unbranched,
endogenous cells terminal,
affixed to finely verruculose,
endogenous, refractive conidial
sporulation. Conidia solitary, light
brown to grey, apex obtuse, base
broadly truncate, 45-100 × 7-10
μm, refractive.

Honduras.

Z. Zanthoxylum nitens Hiern (=
79810, holotype).

On Zanthoxylum sp. as pigmented conidia,
not illustrated. Chupp validated the
description and illustrated the species epithet.
Chupp's original description, instead of a new
combination, the author of the basionym is
Zanthoxylum nitens (Hiern) Chupp (1954).

Z. passalora (Fig. 1), Passalora fagarina
(Chupp) 1 μm = 10 μm.
Cercospora fagaceae Child. (1959) is a later homonym of Cercospora fagaceae W. Yamam. (1934) and Cercospora fagaceae Hansf. (1947). Other than being a species of Pseudocercospora, a new species epithet is also proposed to validate this species: Pseudocercospora zanthoxyllicola Crous & U. Braun, nom. nov. (Fig. 3) (= Cercospora fagaceae Child., Sydowia 13, 160. 1959, homonym).

Leaf spots amphigenous, subcircular to irregular, 4–20 mm diam., medium brown to dark brown, with indistinct borders. Mycelium internal, composed of smooth, branched, hyaline to pale brown hyphae, 3–4 μm diam. Caespituli hypophyllous, black, up to 130 μm wide and 80 μm high. Conidiophores aggregated in dense fascicles, arising from the upper cells of a brown stroma up to 80 μm wide and 70 μm high; conidiophores light brown, smooth, subcylindrical, 0–2-septate, straight to mildly curved, predominantly unbranched, rarely branched above, 20–50 × 3–4 μm. Conidiogenous cells terminal, unbranched, pale brown, smooth, tapering to flat-tipped apices, conidial scars inconspicuous, proliferating sympodially, 15–25 × 1–4 μm. Conidia solitary, light to medium brown, finely verruculose, obelavate-subcylindrical, apex obtuse, base obconically truncate, straight to slightly curved, 1–5-septate, 25–40 × 5–6 μm; hila unthickened, not darkened.

Host(s) & Dist.: Zanthoxylum spp. (Rutaceae); India.

Specimen examined: India, Bombay State, living leaves of Zanthoxylum bavuranga DC (= Fagara bavuranga), P.P. Chidhar, 5 Mar. 1956, BPI 436259 (holotype).

Pseudocercospora zanthoxyllicola is distinct from P. fagaceae (W. Yamam.) Deighton (on Zanthoxylum from Taiwan), which has longer and narrower conidia, 20–105 × 3–5.5 μm, with up to 11 septa (Chupp, 1954). Furthermore, it is also distinct from P. xanthoxyl (Cooke) Y.L. Guo & X.J. Liu (= P. xanthoxyl Goh & W.H. Hsieh) which has epiphyllous fruiting structures, and narrower conidia, 20–65 × 2–4 μm with up to 10 septa (Hsieh & Goh, 1990).

17. Passalora lettsomiae (Thirum. & Chupp) Crous & U. Braun, comb. nov. Fig. 4

= Cercospora lettsomiae Thirum. & Chupp, Mycologia 40, 356 (1948).

Leaf spots amphigenous, angular, up to 2 mm diam., dark brown to black. Mycelium internal, composed of smooth, branched, hyaline hyphae, 2–3 μm diam. Caespituli predominantly hypophyllous, brown, up to 50 μm.

Figs 4–7. Conidiophores and conidia of Passalora lettsomiae (Fig. 4), Passalora panacis (Fig. 5), and Pseudocercospora pistaciæ (Fig. 6). Asci, ascospores, conidiophores and conidia of Mycosphaerella sornae and its anamorph, Stenella sornae (Fig. 7). Bar = 10 μm.
...homonym of Cercospora fagaeae Hansf. (1947). Zanthoxylum, a new species epithet is proposed as Cercospora zanthoxyllicola Chidd. & Chid.\n
Fruiting bodies: Spherical, 4–20 mm diam., with distinct borders. Mycelium dark brown to black, up to 130 μm wide and bearing fascicles, arising from dark septate hyphae, 1–5 septate, 1–5 μm wide and 70 μm high; conidiogenous cells conical, 0–2-septate, straight or slightly curved, 1–5-septate, 20–65 x 2–4 μm

Conidia: Solitary, light to dark brown, ellipsoidal, 1–5 μm wide, apex truncate, base truncate or slightly curved, 1–5-septate, 20–65 x 2–4 μm.

Distribution: India.

Specimens examined: Zanthoxylum bidrunga DC (= Z. fagaeae) (holotype).

Zanthoxylum from P. fagaeae (W. van), which has longer and narrower conidia, up to 11 septa (Chupp, 84). Z. xanthoxyli (Cooke) Y.L. Choo & W.H. Hsieh) which has ascospores, conidiophores and conidia of similar size.

Fig. 4

Chupp, Mycologia 40, 356
wide and 40 \( \mu \text{m} \) high. Conidiophores aggregated in loose fascicles, arising from the upper cells of a weakly developed stroma, consisting of a few pale brown cells; conidiophores light brown, finely verruculose, subcylindrical, 1-4-septate, straight to geniculate-sinuous, unbranched or branched above, 30-50 \( \times \) 4-5 \( \mu \text{m} \). Conidiogenous cells terminal, light brown, finely verruculose, tapering to rounded apices, with thickened, reflexed conidial scars, proliferating sympodially, 10-25 \( \times \) 4-5 \( \mu \text{m} \). Conidia solitary, light brown, finely verruculose, obclavate, apex obtuse, base obconically truncate, straight to curved, 1-6-septate, 20-75 \( \times \) 3-4.5 \( \mu \text{m} \); hila thickened, darkened throughout, refractive.

Host(s) & Dist.: Argyrea (= Leucasias) spp. (Convulvulaceae); India.
Specimen examined: India, Bangalore, living leaves of Leucasias elliptica Wright, M.J. Thirumalachar, 20 Dec, 1945, BPI 437663 (holotype).

The conidial shape, septation, and pigmentation place this species in Passalora.


\( \equiv \) Cerocospora panaeis Thirumalachar & Chupp, Mycologia 40, 358 (1948).


Leaf spots amphigenous, circular, up to 20 mm diam., medium brown with a dark brown border. Mycelium internal, composed of smooth, branched, hyaline hyphae, 3-4 \( \mu \text{m} \) diam. Caspiptidium predominantly hypophyllous, brown, up to 80 \( \mu \text{m} \) wide. Conidiophores aggregated in dense fascicles, arising from the upper cells of a brown stroma up to 50 \( \mu \text{m} \) wide and 30 \( \mu \text{m} \) high; conidiophores light brown, smooth, subcylindrical, 0-3-septate, straight to geniculate-sinuous, unbranched or branched above, 20-40 \( \times \) 3.5-6 \( \mu \text{m} \). Conidiogenous cells terminal, light brown, smooth, tapering to flat-tipped apices, with thickened, reflexed conidial scars, proliferating sympodially, 10-20 \( \times \) 3-4 \( \mu \text{m} \). Conidia solitary, olivaceous, smooth, obclavate, apex subobtuse, base obconically truncate, straight to mildly curved, 1-5-septate, 16-70 \( \times \) 2.5-4 \( \mu \text{m} \); hila thickened, darkened throughout, slightly refractive.

Host(s) & Dist.: Kalopanax spp., Panax spp. (Araliaceae); Cambodia, India.
Specimen examined: India, Bangalore, living leaves of Panax fruticosum Linn., M.J. Thirumalachar, 5 Aug, 1944, BPI 43921 (holotype).

The conidial scars are somewhat thickened and darkened and the conidia are pigmented, so that this species has to be transferred to Passalora.

19. Passalora querci (Ces.) Crous

\( \equiv \) Cerocospora querci Ces., Mycosphere 1, 2 (1937).

Leaf spots amphigenous, circular, up to 15 mm diam., dark brown, coalescing with age. Mycelium consisting of branched, hyaline, amphigenous, rarely asexual, comprising predominantly arising setae, arising from dark brown hairs; light brown, nearly straight, with dark brown, variably curved, branched, 1-3-septate, 20-40 \( \times \) 5-10 \( \mu \text{m} \); conidiogenous cells terminal, unbranched, 10-25 \( \times \) 3-4 \( \mu \text{m} \); conidia elliptic, conical, 10-25 \( \times \) 3-4 \( \mu \text{m} \), thick-walled, narrowly conical, apex obtuse, base truncate, straight to slightly curved, hila thickened, darkened throughout.

Host(s) & Dist.: Quercus spp. (Fagaceae), U.S.A., Mexico.
Specimen examined: U.S.A., Texas, unknown collector, 10 Jul. 1937.

The combination of conidia and conidiogenous cells, superficial secondary septa and the long setae, makes this species to be transferred to Mycvellosiella Rang.

20. Pseudocerocospora bryophila (Ces.) Crous


\( \equiv \) Pseudocerocospora bryophila (Ces.) Guo, Mycosystematics 8, 353 (1994).

Host(s) & Dist.: Aristolochia spp. (Aristolochiaceae); India.
Specimen examined: India, M.J. Thirumalachar, 20 Aug, 1944.

21. Pseudocerocospora brevispora (Guo) Crous

\( \equiv \) Cerocospora brevispora Ces., Mycosphere 1, 2 (1937).

Host(s) & Dist.: Broussonetia spp. (Moraceae); Caledonia, U.S.A.


Leaf spots amphigenous, irregular to circular, 1–3 mm diam., pale brown, coalescing with age. *Mycelium* internal and external, light brown, consisting of branched, smooth hyphae, 3–4 μm. *Conidiophores* amphigenous, rarely arranged in weakly developed brown fascicles, predominantly arising singly from superficial mycelium, climbing leaf hairs; light brown, non-to multisepate, subcylindrical, straight to variously curved, branched or not, 10–100 × 3–4 μm. *Conidiogenous cells* terminal, unbranched, light brown, smooth, tapering to flat-tipped apices, conidial scars darkened, refractive and thickened, proliferating sympodially, 10–25 × 3–4 μm. Conidia solitary, olivaceous, smooth, thick-walled, narrow obclavate, apex subobtuse, base long obconically truncate, straight to slightly curved, multisepate, 40–250 × 2.5–4.5 μm; hila thickened, and darkened.

**Hosts** & **Dist.**: *Quercus* spp. (Fagaceae); U.S.A.

**Specimen examined**: U.S.A., Louisiana, Kentwood, living leaves of *Quercus bicolor* Willd., unknown collector, 1 Oct. 1936, BPI 440181 (holotype).

The combination of conspicuous conidial scars, pigmented conidia, and superficial secondary mycelium refers the present species to *Mycevellosiella* Rangel. However, comprehensive molecular examinations of *Mycosphaerella* spp. with cerosporoid anamorphs as well as morphological considerations revealed that *Mycevellosiella* has to be reduced to synonymy with *Passalora* (Crous et al., 2000).

20. *Pseudocercospora bangalorensis* (Thirum. & Chupp) Deightorn,  


**Hosts** & **Dist.**: *Aristolochia* spp. (Aristolochiaceae); India.

**Specimen examined**: India, Bangalore, living leaves of *Aristolochia indica* L., M.J. Thirunalachar, 20 Aug. 1944, BPI 433248 (holotype).


**Hosts** & **Dist.**: *Broussonetia* spp. (Moraceae); China, Japan, New Caledonia, U.S.A.

**Specimen examined**: China, Kwangsi Prov., Yung Hsien, living leaves of *Broussonetia* sp., S.Y. Cheo No. 2900, 17 Oct. 1933, BPI 433862 (holotype).
   Host(s) & Dist.: *Brugmansia* spp. (Solanaceae); Costa Rica, India, Jamaica.
   Specimen examined: Jamaica, Shaw Park Hotel, above Ocho Rios, living leaves of *Brugmansia suaveolens* (Humb. & Bonpl. ex Willd.) Bercht. & J. Presl) (= *Datura suaveolens* Humb. & Bonpl. ex Willd., C.E. Chardon No. 39, 8 Apr. 1945, BPI 437481 (holotype).

   Host(s) & Dist.: *Crotalaria* spp., *Desmodium* spp. (Leguminosae); China.
   Specimen examined: China, Kwangsi Prov., Ling Yuen Hsien, living leaves of *Crotalaria* sp., S.Y. Cheo No. 2873, 1 Oct. 1933, BPI 437628 (holotype).

   Host(s) & Dist.: *Boehmeria* spp., *Pouzolzia* spp. (Urticaceae); China, India, Taiwan.

   Host(s) & Dist.: *Euodia* (= *Evodia*) spp., *Paramignya* spp. (Rutaceae); China, India.
   Specimen examined: India, Mysore, Balchonnur, living leaves of *Paramignya* sp., M.J. Thirumalalchar, 29 Apr. 1943, BPI 439236 (holotype).

26. *Pseudocercospora pistaciae* (Chupp) Crous & U. Braun, comb. nov. Fig. 6

Leaf spots amphigenous, brown to dark brown, surrounded by a 1-2 mm wide Mycelium internal and 1-2 mm wide Mycelium hyphae. Conidiophores aggregated in dense fascicles, up to 60 µm wide. Conidia: conidia unbranched, 5-15 x 2-3 µm, solitary, ovoidalaceous, smooth, subobtuse, base narrowly septate, 20-60 x 2-3 µm.

Host(s) & Dist.: *Pistacia* spp. (Anacardiaceae). Specimen examined: U.S.A., May 1948, R.A. M. Rudd, Sept. 1931, BPI 439246 (holotype)

Based on inconspicuous symptoms of *Pseudocercospora*

   ≡ *Cercospora wangii* Chupp (1948).
   Host(s) & Dist.: *Waltheria* spp., *Wrightia* spp. (Apocynaceae); China.

   ≡ *Cercospora wrightiae* Chupp (1948).
   Host(s) & Dist.: *Wrightia* spp. (Apocynaceae); China.

   Anamorph: *Stenella shoemakeri* (Chupp) Deighton, comb. nov.
   ≡ *Cercospora shoemakeri* (Chupp) Deighton (1948).
   ≡ *Pseudocercospora shoemakeri* (Chupp) Deighton (1948)
   Host: *Pseudotheca epiphylla* (Chupp) Deighton (1948)
   Pseudotheca epiphylla, 10-15 x 10-15 µm.
Leaf spots amphigenous, irregular, 0.5–3 mm diam., grey-brown to brown, surrounded by a dark brown border, coalescing with age. Mycelium internal and external, composed of smooth, branched, light brown hyphae, 3–4 μm diam. Conidiophores amphigenous, brown, up to 70 μm wide. Conidiophores arising singly from superficial mycelium, or aggregated in dense fascicles, arising from the upper cells of a brown stroma, up to 60 μm wide; conidiophores light brown, smooth, subcylindrical, reduced to conidiogenous cells, straight to slightly curved, unbranched, 5–15 x 2–3.5 μm, conidial scars inconspicuous. Conidia solitary, olivaceous, smooth, subcylindrical to narrowly obclavate, apex subobtuse, base narrowly obconically truncate, straight to curved, 3–5-septate, 20–60 x 2–3 μm; hila unthickened, not darkened.

Host(s) & Dist.: Pistacia spp. (Anacardiaceae); Taiwan, U.S.A.


Based on inconspicuous conidial scars, this species clearly belongs in *Pseudocercospora*.


Host(s) & Dist.: *Waltheria* spp. (Sterculiaceae); India.

Specimen examined: India, Bangalore, Yashavanthpur, living leaves of *Waltheria indica* L., M.J. Thirumalachar, 2 Sept. 1945, BPI 442533 (holotype).


Host(s) & Dist.: *Wrightia* spp. (Apocynaceae); China, India.

Specimen examined: India, Bangalore, living leaves of *Wrightia tinctoria* (Roxb.) R. Br., M.J. Thirumalachar, 26 Dec. 1945, BPI 442539 (holotype).

29. *Mycosphaerella shoreae* Crous & U. Braun, sp. nov.


Pseudothecia epiphylla, nigra, subependimalia, globosa, usque ad 90 μm alta. Asci fasciculati, biuniticati, obovoidei ad ellipsoidei, recti vel curvati, 20–30 x 8–10 μm. Ascosporae bi- ad triseriatae, hyalinae,
guttulatae, tenuitunicatae, rectae, fusoido-ellipsoidea, apice obtusae, latissimae in medio cellulae apicalis, in medio 1-septatae, 8–13 × 2.5–3 μm.

Leaf spots amphigenous, irregular, 3–10 mm diam., grey, surrounded by a thin, pale brown margin. Pseudothecia epiphyllous, separate, evenly dispersed, black, subepidermal, globose, up to 90 μm wide; apical ostiole papillate, 10–15 μm diam.; wall consisting of 2–3 layers of medium brown textura angularis, hymenium layer at base consisting of 1–2 layers of hyaline cells. Asci apaphysate, fasciculate, bitunicate, subsessile, obovoid to ellipsoid, straight to incurved, 8-spored, 20–30 × 8–10 μm. Ascospores bi- to tri-seriate, overlapping, hyaline, guttulate, thin-walled, straight to slightly curved, fusoid-ellipsoidal with obtuse ends, widest in the middle of the apical cell, medianly 1-septate, not constricted at the septum, tapering towards both ends, but more prominently towards the lower end, 8–13 × 2.5–3 μm. Mycelium internal and external, composed of verruculose, branched, light brown hyphae, 3–4 μm diam. Caespituli amphigenous, medium brown, up to 100 μm wide. Conidiophores aggregated in dense fascicles, arising from the upper cells of a brown stroma up to 80 μm wide; conidiophores medium brown, verruculose, subcylindrical, 0–4-septate, straight to geniculate-sinuous, unbranched, 12–70 × 3–4 μm. Conidiogenous cells terminal, light brown, finely verruculose, tapering to flat-tipped apices, with darkened, thickened, refractive conidial scars, proliferating sympodially, 12–25 × 2.5–3.5 μm. Conidia solitary, olivaceous, finely verruculose, narrowly obclavate, apex subobtuse, base long obconically truncate, straight to mildly curved, 1–14-septate, 15–120 × 2.5–4 μm; hila thickened, darkened, refractive.

Host(s) & Dist.: Shorea spp. (Dipterocarpaceae), India.

Specimen examined: India, Bangalore, Banergaon, living leaves of Shorea tahura Roxb., M.J. Thirumalachar, 28 Dec. 1944, BPI 441189 (holotype).

Deighton (1976) placed this species in Pseudocercospora. It is, however, better accommodated in Stenella Syd. based on the thickened conidial loci and verruculose, superficial hyphae. The thickening of the conidial scars is very slight, and more prominent in smaller conidia and conidiogenous cells than on the hila of larger conidia. Chupp's original description gives conidia as being smaller (15–60 × 2–4 μm), but was chiefly based on the epiphyllous fructifications, which are less well-developed than those on the hypophyllous surface.

Figs 8–10. Conidiophores and conidia of Pseudocercospora (Fig. 8), Stenella soliciis (Fig. 9) and Stenella solidaginis (Fig. 10). Bar = 10 μm.
lipsoideae, apice obtusae, 1- to 1-septatae, 8–13 × 2.5–3

Diam., grey, surrounded by phyllous, separate, evenly
90 μm wide; apical ostiole
2–3 layers of medium
base consisting of 1–2 layers
ulate, bitunicate, subsessile,
opored, 20–30 × 8–10 μm.
line, guttulate, thin-walled,
with obtuse ends, widest in
ate, not constricted at the
prominently towards the
and external, composed
3–4 μm diam. Caespituli
3 mm wide. Conidiophores
the upper cells of a brown
medium brown, verruculose,
ulate-sinuous, unbranched,
imal, light brown, finely
with darkened, thickened,
ially, 12–25 × 2.5–3.5 μm.
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oseporosa. It is, however,
the thickened conidial
thickening of the conidial
in smaller conidia and
conidia. Chupp’s original
5–60 × 2–4 μm), but was
ons, which are less well-
ace.


Leaf spots amphiogenous, irregular to angular, 0.5–2 mm diam., dark brown, coalescing with age. *Mycelium* internal and external, composed of verruculose, branched, light brown hyphae, 3–4 μm diam. *Caespituli* epiphyllous, brown, up to 60 μm wide. *Conidiophores* aggregated in dense fascicles, arising from the upper cells of a brown stroma up to 50 μm wide; conidiophores light brown, verruculose, subcylindrical, 1–3-septate, straight to geniculate-sinuous, mostly unbranched, 15–45 × 4–6 μm. *Conidiogenous cells* terminal, light brown, finely verruculose, tapering to flat-tipped apices, with darkened, thickened, refractive conidial scars, proliferating sympodially, 10–20 × 3–4 μm. *Conidia* solitary, light brown, finely verruculose, obclavate to obclavate-subcylindrical, apex obtuse, base obconically truncate, straight to mildly curved, 1–6-septate, 20–60 × 3–4.5 μm; hila thickened, darkened, refractive.

Host(s) & Dist.: *Salix* spp. (Salicaceae); U.S.A.


Since verruculose external hyphae are present, this species is better placed in *Stenella*.


Leaf spots indistinct, with effuse, amphiogenous fruiting. *Mycelium* internal and external, composed of verruculose, branched, light brown hyphae, 3–4 μm diam. *Caespituli* medium brown, up to 40 μm wide. *Conidiophores* arising singly from superficial mycelium, or aggregated in loose to dense fascicles, arising from stomata; stroma inconspicuous, or restricted to a few medium brown cells; conidiophores light brown, finely verruculose, subcylindrical, 0–7-septate, straight to geniculate-sinuous, mostly unbranched, 10–50 × 4–6 μm. *Conidiogenous cells* terminal, unbranched, light brown, finely verruculose, tapering to flat-tipped apices, with darkened, thickened, refractive conidial scars, proliferating sympodially, 10–20 × 2.5–5 μm. *Conidia* solitary, light brown, finely verruculose, narrowly obclavate to subcylindrical, apex obtuse, base long obconically truncate, straight to mildly curved, 1–7-septate, 15–50 × 3–5 μm; hila slightly thickened and darkened.

Host(s) & Dist.: *Solidago* sp. (Asteraceae), U.S.A.


Verruculose external hyphae, darkened conidial scars clearly visible.

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Literature


Host(s) & Dist.: *Solidago* spp. (Compositae); India, Japan, U.S.A.


Verrucose external hypae with solitary conidiophores and thickened, darkened conidial scars clearly refer this species to *Stenella*.

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**Literature**


