Notes on cercosporoid fungi occurring on *Dodonaea* spp.

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*Passalora dodonaeae* Crous & U. Braun is newly described from leaves of *Dodonaea angustifolia* L. from South Africa. Type material of *Cercospora mitteriana* Syd. has been re-examined and this species reduced to synonymy with *Pseudocercospora mitteriana* Goh & W.H. Hsieh. *Pseudocercospora dodonaeae* Boesew. is also discussed, based on the re-examination of type material.

**Keywords:** *Cercospora mitteriana, Dodonaea, Passalora dodonaeae, Pseudocercospora,* systematics.

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**Introduction**

The present study arose from an attempt to name a collection of a cercosporoid fungus on *Dodonaea angustifolia* L. collected from the J.S. Marais Garden at Stellenbosch in South Africa. Pollack (1987) listed one species from *Dodonaea, Cercospora mitteriana* Syd., while Boesewinkel (1981) described *Pseudocercospora dodonaeae* Boesew., and Hsieh and Goh (1990) described *Pseudocercospora mitteriana* Goh & W.H. Hsieh from the same host. The South African collection had dematiaceous conidia with thickened hila, which were borne singly on fascicles of medium brown conidiophores with thickened, refractive scars. Although this collection could not be accommodated in *Pseudocercospora*, the conidial dimensions were similar to those of *P. mitteriana* and *C. mitteriana*. Furthermore, Chupp (1954) commented that the conidia of *C. mitteriana* were olivaceous, thus suggesting it to be inappropriately placed in *Cercospora*. These discrepancies justified a re-examination of the type specimens of these respective fungi.

**Treatment of species**

Chupp (1954), after examination of the type specimen of *Cercospora mitteriana* Syd., confirmed the observations of Sydow *et al.* (1937) that the conidia were subhyaline. Hsieh and Goh (1990) described a new species on *Dodonaea* as *Pseudocercospora mitteriana* Goh & W.H. Hsieh, using the same epithet. They also commented that *P. mitteriana* may be synonymous with *C. mitteriana*. The name *P. mitteriana* is legitimate as it is validly published with a Latin description although *C. mitteriana* was not definitely cited as synonym. The reallocation of *C. mitteriana* in *Pseudocercospora* would therefore produce a homonym. In the present study, types of both these fungi were examined. Conidia of *C. mitteriana* proved to be subcylindric to narrowly obclavate, pale olivaceous, and to have unthickened hila. Conidiophores were borne in fairly dense hypophyllous fascicles, and had inconspicuous conidial scars. These features are commonly associated with species of *Pseudocercospora*. The fungus represented by the type of *P. mitteriana* Goh & W.H. Hsieh is found to be the same as *Cercospora mitteriana* Syd. Both specimens are similar in their leaf symptoms, hypophyllous stromata, conidiophore and conidium dimensions and septation. *C. mitteriana* Syd. is therefore placed in synonymy under *P. mitteriana* Goh & W.H. Hsieh.

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![Figure 1](attachment:image.png) *Pseudocercospora mitteriana* Goh & W.H. Hsieh. A. Conidia and fasciculate conidiophores (GZU). B. Conidia and conidiophores (NCHUPP 155a) (scale bar: 10 μm).
mm diam. Fruiting bodies - chiefly hypophyllous. Stromata medium to dark brown, substomal becoming erumpent, 10–50 μm diam. Conidiophores in moderately rich fascicles, usually fairly dense, arising from stromata, straight, subcylindric to geniculate-sinuous, flexuous, simple, 10–30 × 2–5 μm 0–1-septate, pale olivaceous, smooth, with inconspicuous conidial scars. Conidiogenous cells terminal, pale olivaceous, smooth to finely verruculose, tapering to a subobtuse or swollen apex, 6–12 × 2–3.5 μm. Conidia solitary, subcylindric to narrowly obclavate, 25–90 × 2.5–4 μm, 2–7-septate, subhyaline to pale olivaceous, apex more or less obtuse, base truncate or somewhat obconically truncate, hilum neither thickened nor darkened.


On examination of NCHU 155a and the type lodged at GZU, only some minor differences were observed between them. In some cases, conidiophores were found to occur singly on superficial hyphae, and some large stromata were conidiophores situated on the outside of spermogonia, which in turn had rod-shaped spemiatia, 3–4 × 1 μm.

Pseudocercospora mitteriana should also be compared with P. dodonaeae Boesew., which is described below, based on the re-examination of type material.


Leaf spots amphigenous, light to medium brown, angular, 1–2 mm diam. Fruiting bodies hypophyllous. Stromata medium to dark brown, substomal to erumpent, up to 80 μm diam.; mycelium internal to external, branched, septate, thick-walled, smooth, brown, 2.5–7 μm diam. Conidiophores in dense, divergent fascicles, arising through stroma, situated on a substomatal or erumpent stroma, straight or sinuous, rarely geniculate in upper part, brown, becoming lighter toward apex, cylindrical, 1–4-septate, 30–90 × 3–5 μm. Conidiogenous cells light brown, smooth, tapering towards an obtuse or subobtuse apex, 15–40 × 3.5–4 μm. Conidia solitary, narrowly obclavate, straight to slightly curved, thick-walled, 30–150 × 2.5–4 μm, 1–6-septate, light brown, smooth to finely verruculose, apex subobtuse, base obconically truncate, hilum 2 μm wide, neither thickened nor darkened.


Boesewinkel (1981) separated P. dodonaeae from P. mitteriana by the presence of branched conidiophores in the former. An examination of the type of P. dodonaeae revealed that the conidiophores were not only branched and multi-septate, but also larger and darker pigmented than in P. mitteriana. Furthermore, conidia of P. dodonaeae were light brown, not pale olivaceous to almost hyaline as in P. mitteriana. Conidia also tended to be thick-walled, longer (30–150 × 2.5–4 μm), obclavate with a prominently obconically truncate base. Conidia were thin-walled, shorter (25–90 × 2.5–4 μm), subcylindric and lacked the prominently obconically truncate basal cell in P. mitteriana.

Passalora dodonaeae Crous & U. Braun sp. nov., Figure 3.


Leaf spots amphigenous, 3–15 mm diam., irregular, rarely extending across the midrib of leaves, not confined by leaf veins, brown with an irregular, diffuse margin. Mycelium mostly internal, consisting of branched, septate, thick-walled, smooth to verruculose, 3–4 μm diam. brown hyphae. Caespituli amphigenous, grey-brown, reaching 110 μm wide, and 80 μm high. Conidiophores fasciculate, arising from brown stromata, 20–40 μm diam. Fascicles dense, rich, conidiophores 25–40 × 4–6 μm, 1–3-septate, unbranched, straight to flexuous, thick-walled, verruculose, medium brown. Conidiogenous cells terminal, light brown, verruculose, straight to curved, tapering towards an irregular or bluntly rounded apex, becoming thin-walled and lighter in colour towards the apex, 15–25 × 4–6 μm with slightly darkened, thickened, refractive conidial scars. Conidia olivaceous, cylindric-oblavate, thick-walled, smooth, 0–1-septate, curved, apex obtuse, base truncate to obconically truncate, with a darkened, refractive hilum, 25–40 × 3.5–4 μm. Spermatia amphigenous, mixed with caespituli on lesions, reaching 100 μm diam. Spermatia hyaline, rod-shaped, 3–4 × 1–1.5 μm diam.
Specimen examined: South Africa, Western Cape, Stellenbosch, J.S. Marais Garden, living leaves of *Dodonaea angustifolia*, P.W. Crous, August 1995, PREM 52935 (holotype), cultures ex type STE-U 1222, 1223, also lodged at IMI.

*Passalora dodonaeae* can be separated clearly as a distinct taxon from *P. mitteriana* and *P. dodonaeae* by the shorter, 0–1-septate, smooth, olivaceous conidia with thickened, refractive hilum. Conidiophores are borne in amphigenous fascicles on subtomatal stromata, and have refractive, darkened scars typical of *Passalora* (Crous & Braun 1996). As far as we could establish, this is the only species of *Passalora* known from this host. Conidiophore fascicles were also frequently associated with spermatogonia, which indicates that *Passalora dodonaeae* may have a teleomorph that has yet to be discovered.

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**References**


