

Xenosonderhenia syzygii



Fungal Planet 124 – 4 June 2012

***Xenosonderhenia* Crous, gen. nov.**

Etymology. Similar to *Sonderhenia*, but distinct in lacking distoseptate conidia.

Foliicolous, associated with leaf spots. *Conidiomata* pycnidial, black, globose, substomatal, erumpent, predominantly epiphyllous, with central ostiole, lined with periphyses; wall of 2–3 layers of brown *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* lining the inner cavity, subcylindrical to doliiform; finely verruculose, pale brown, proliferating apically with several percurrent proliferations. *Conidia* subcylindrical, brown, finely verruculose, apex obtuse, base truncate with visible scar, (1–)3-euseptate, but septa with visible

central pore. *Conidia* of synanamorph intermingled in same conidioma, but conidiogenous cells proliferating percurrently or sympodially; conidia hyaline to subhyaline, narrowly obclavate, apex subobtuse, base truncate, straight to curved, transversely multi-septate. Synanamorph also hyphomycetous, developing in aerial mycelium; conidiophores subcylindrical, straight to curved, 0–2-septate, hyaline to subhyaline, proliferating sympodially at apex. *Conidiophores* solitary or fasciculate or forming on a reduced stroma.

Type species. *Xenosonderhenia syzygii*.
Mycobank MB800389.

***Xenosonderhenia syzygii* Crous, sp. nov.**

Etymology. Named after the host genus on which it occurs, *Syzygium*.

Leaf spots amphigenous, irregular, 2–10 mm diam, medium brown with irregular white patches due to raised epidermis, surrounded by a wide, red-purple border with visible black conidiomata aggregated around the outer zones of lesions. *Conidiomata* pycnidial, black, globose, substomatal, erumpent, predominantly epiphyllous, up to 120 µm diam, with central ostiole, 10 µm diam, lined with periphyses; wall of 2–3 layers of brown *textura angularis*. *Conidiophores* reduced to conidiogenous cells. *Conidiogenous cells* lining the inner cavity, subcylindrical to doliiform, 4–6 × 3–4 µm; finely verruculose, pale brown, proliferating apically with several percurrent proliferations. *Conidia* subcylindrical, brown, finely verruculose, apex obtuse, base truncate with visible scar (2.5–3 µm diam), (1–)3-euseptate, but septa with visible central pore, (12–)13–15 × (4.5–)5–6 µm.

In culture on synthetic nutrient-poor agar — Dimorphic, forming a synanamorph. *Conidiomata* pycnidial, exuding masses of brown conidia. *Conidiophores* reduced to conidiogenous cells, or one supporting cell, proliferating percurrently. *Conidia* cylindrical, brown, finely verruculose, apex obtuse, base truncate, 3–5-euseptate, 15–23 × 4–5 µm. *Conidia* of synanamorph intermingled in same conidioma, but conidiogenous cells proliferating percurrently or sympodially; conidia hyaline to subhyaline, narrowly obclavate, apex subobtuse, base truncate, straight to curved, 25–80 × 2.5–3 µm, up to 11-septate. Synanamorph also developing in aerial mycelium (on PNA); conidiophores subcylindrical, straight to curved, 0–2-septate, hyaline to subhyaline, 8–15 × 2–3 µm, proliferating sympodially at apex. *Conidiophores* solitary or fasciculate or on a reduced stroma.

Culture characteristics — (in the dark, 25 °C after 3 wk): Colonies erumpent, spreading, moderate to woolly aerial mycelium, feathery margins, reaching 10 mm diam. On MEA surface dirty white, reverse iron-grey with patches of orange; on OA olivaceous grey with patches of orange; on PDA dirty white, reverse olivaceous grey.

Colour illustrations. Waterfall at Lowveld Botanical Garden, Nelspruit; symptomatic leaf; close-up of leaf spots; conidiomata sporulating on potato-dextrose agar; conidiogenous cells giving rise to dimorphic conidia. Scale bars = 10 µm.

Typus. SOUTH AFRICA, Mpumalanga, Nelspruit, Lowveld Botanical Garden, on leaves of *Syzygium cordatum* (Myrtaceae), 17 Aug. 2011, P.W. Crous, M.K. Crous, M. Crous & K.L. Crous, holotype CBS H-20968, cultures ex-type CPC 19790 = CBS 132688, ITS sequence GenBank JX069872 and LSU sequence GenBank JX069856, Mycobank MB800390.

Notes — In the past *Hendersonia* was mainly seen as a genus to accommodate pigmented counterparts of *Stagonospora*, though the genus has since been rejected in favour of the latter (Sutton 1977). Taxa occurring on *Eucalyptus* were subsequently placed in the genus *Sonderhenia* (Swart & Walker 1988), which appears to represent a distinct phylogenetic lineage in the *Mycosphaerellaceae* (Crous et al. 2009a, b). *Sonderhenia* is characterised by having pigmented, percurrently proliferating conidiogenous cells, and brown, distoseptate, oval to subcylindrical conidia, and *Mycosphaerella*-like teleomorphs. Based on its distoseptate conidia, *Sonderhenia* is clearly distinct from *Xenosonderhenia*.

Two other genera of pycnidial coelomycetous fungi with brown, percurrently proliferating conidiogenous cells occur in the *Mycosphaerellaceae*, namely *Readeriella* and *Phaeophleospora*. *Phaeophleospora* has brown, scolecosporous conidia, is paraphyletic (Crous et al. 2009a, b), but clusters apart from *Xenosonderhenia*. *Readeriella* has conidia with subtruncate bases, *Cibiessiae* synanamorphs, and also clusters apart from *Xenosonderhenia*. Morphologically *Xenosonderhenia* is unique in being dimorphic, and forming hyaline to subhyaline, narrowly obclavate conidia of a synanamorph on culture, which occur separately, or in the same conidiomata with *Xenosonderhenia* conidia.

Based on a megablast search of NCBI's GenBank nucleotide database, the closest hit using the ITS sequence is *Mycosphaerella elaeocarp* (GenBank EU040212; Identities = 500/535 (93 %), Gaps = 14/535 (3 %)), followed by *Mycosphaerella elongata* (GenBank EF394833; Identities = 478/504 (95 %), Gaps = 7/504 (1 %)), and *Mycosphaerella coacervata* (GenBank EU167596; Identities = 490/533 (92 %), Gaps = 16/533 (3 %)). Closest hits using the LSU sequence yielded highest similarity to *Mycosphaerella elaeocarp* (GenBank EU040212; Identities = 859/864 (99 %), Gaps = 0/864 (0 %)), *Mycosphaerella marasasii* (GenBank GU214445; Identities = 855/879 (97 %), Gaps = 10/879 (1 %)), and *Mycosphaerella stromatosa* (GenBank EU167598; Identities = 848/877 (97 %), Gaps = 4/877 (0 %)).