

*Zasmidium macluricola*



Fungal Planet 39 – 23 December 2009

**Zasmidium macluricola** R.G. Shivas, A.J. Young & U. Braun, *sp. nov.*

Conidiomata sporodochialia, hypophylla, densa. Mycelium internum. Conidiophora multa, compacta, densis fasciculis tegentibus superficiem stromatum, 15–45 × 4–6 µm, 0–1-septata. Conidia sola vel catenis breviter ramosis, subcylindracea ad fusioidea, recta, 15–45 × 4–5 µm, 0–3-septata.

*Etymology.* Named after the host plant *Maclura* (*Moraceae*).

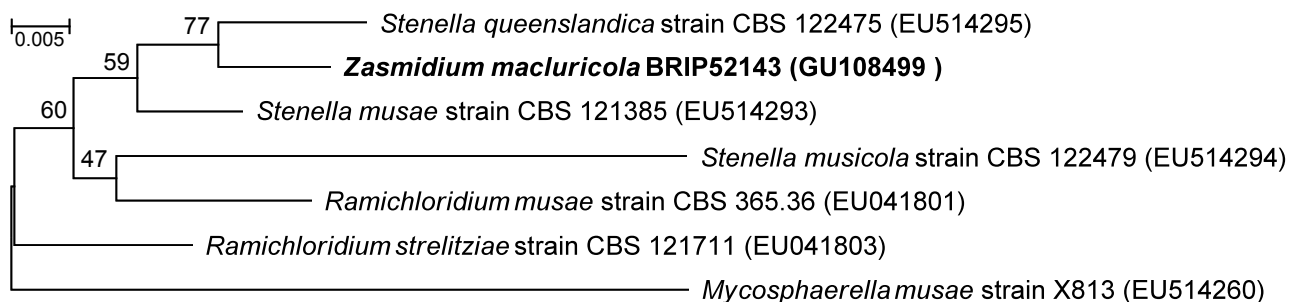
*Leaf spots* circular to irregular with irregular margin, up to 2 cm diam, often coalescing, covering entire leaf; upper leaf surface chlorotic, becoming pale brown and necrotic, lower leaf surface dark from abundant sporulation. *Conidiomata* sporodochial, hypophyllous, dense, punctiform, pulvinate, confluent, dark brown to black. *Mycelium* internal. *Stromata* well-developed, erumpent. *Conidiophores* numerous, compact, in dense fascicles, erect, subcylindrical to geniculate-sinuous, unbranched, 15–45 × 4–6 µm, 0–1-septate, pale reddish brown, tips paler, wall smooth; conidiophores reduced to conidiogenous cells or integrated, terminal, 10–20 µm long, proliferation sympodial, scars conspicuous, terminal and lateral, aggregated, 1.5–2 µm diam, thickened, darkened, sometimes subdenticulate, truncate. *Conidia* solitary or in short branched chains, subcylindrical to fusoid, straight, slightly curved or sinuous, 15–45 × 4–5 µm, 0–3-septate, often slightly constricted at septa, minutely verruculose, pale reddish brown, ends rounded, hila slightly thickened and darkened.

*Typus.* AUSTRALIA, Queensland, Conway National Park, alt. 200 m, on leaves of *Maclura cochinchinensis*, 8 Aug. 2008, S.G. Pearson, BRIP 52143, holotype; cultures ex-type BRIP 52143, GenBank GU108499; MycoBank MB515310.

*Notes* — The new species on *Maclura* fits well into the concept of *Stenellopsis*, which was a *Stenella*-like genus with fasciculate conidiophores and verruculose conidia, but lacking superficial mycelium. *Stenellopsis* was reduced to synonymy with *Stenella* as the formation of superficial mycelium was not

considered a reliable feature within cercosporoid hyphomycetes<sup>1</sup>. There are about 210 species of *Stenella*, which is an aggregate of similar cercosporoid species that mostly have solitary conidiophores, arising from superficial hyphae with catenate or solitary, verruculose conidia<sup>2</sup>. Placement of species in *Stenella* is problematic because it appears to have evolved more than once in *Mycosphaerella*. The new species on *Maclura* has conidiophores in dense fascicles which is not typical for *Stenella* in its traditional circumscription. *Cercospora prosopidis*, which is morphologically similar to the *Maclura* hyphomycete in its well-developed stromata, fasciculate conidiophores, but lacking superficial mycelium was transferred to *Stenella*.

ITS sequence analysis indicates that the new species is closely related to *S. queenslandica*, isolated from *Musa banksii* in north Queensland, Australia, and is positioned within a clade containing *Z. cellare* (the type species of *Zasmidium*) as well as several species of *Stenella* and *Ramichloridium* within the *Mycosphaerellaceae*<sup>3</sup>. *Zasmidium* is the oldest name for *Stenella*-like hyphomycetes in the *Mycosphaerellaceae* as well as being morphologically and phylogenetically indistinguishable from them. The type species of *Stenella*, *S. araguata*, clusters within the *Teratosphaeriaceae* and differs from *Stenella*-like *Mycosphaerella* anamorphs in having pileate conidiogenous loci (versus planate loci in *Zasmidium*). We prefer to maintain two phylogenetic genera and assign the new species on *Maclura* to *Zasmidium*, although most former *Stenella* spp. have not yet been transferred. Several anamorphic members of the *Mycosphaerellaceae* have been recorded on *Maclura*, e.g. *Mycovellosiella*, *Prathigada*, *Pseudocercospora*, *Ramularia* and *Stigmina*, which prompted us to choose a new epithet for fear of designating a future homonym as the current classification of these fungi is not stable.



Neighbour-joining tree of an ITS sequence alignment using MEGA4. The scale bar shows 0.005 changes per site, and bootstrap support values from 1 000 replicates are shown at the nodes. The species described here is printed in **bold face**. The tree was rooted to *Mycosphaerella musae* strain X813 (GenBank EU514260).

*Colour illustrations.* *Maclura cochinchinensis* with chlorotic leaves caused by *Z. macluricola* from the type locality; symptoms of infection by *Z. macluricola*; stromata; conidia. Scale bar = 1 cm for leaves of *M. cochinchinensis*; other scale bars = 10 µm.

*References.* <sup>1</sup>Braun U, Crous PW. 2005. Additions and corrections to names published in *Cercospora* and *Passalora*. *Mycotaxon* 92: 395–416. <sup>2</sup>Crous PW, Braun U. 2003. *Mycosphaerella* and its anamorphs. *CBS Biodiversity Series* 1: 1–571. <sup>3</sup>Arzanlou M, Groenewald JZ, Gams W, Braun U, Crous PW. 2007. Phylogenetic and morphotaxonomic revision of *Ramichloridium* and allied genera. *Studies in Mycology* 58: 57–93.

Roger G. Shivas & A.J. Young, Plant Pathology Herbarium, Queensland Primary Industries and Fisheries, 80 Meiers Rd, Indooroopilly 4068, Queensland, Australia; e-mail: roger.shivas@deedi.qld.gov.au & anthony.young@deedi.qld.gov.au  
 Kerensa J. McCallie, Department of Environment and Resource Management, Central Queensland Region, Airlie Beach 4802, Queensland, Australia; e-mail: kerensa.mccallie@derm.qld.gov.au  
 Steven G. Pearson, Queensland Parks and Wildlife, Capricornia Region, Airlie Beach 4802, Queensland, Australia  
 e-mail: steven.pearson@y7mail.com  
 Uwe Braun, Martin-Luther-Universität, Institut für Biologie, Bereich Geobotanik und Botanischer Garten, Herbarium, Neuwerk 21, D-06099 Halle (Saale), Germany; e-mail: uwe.braun@botanik.uni-halle.de