

Dothiorella thripsita



Fungal Planet 32 – 30 June 2009

***Dothiorella thripsita* R.G. Shivas & D.J. Tree, sp. nov.**

Conidia cylindracea ad clavata, recta, ambo extrema late rotundata, 20–25 × 8.5–11.5 µm, aseptata et pallide brunnea ubi sunt iuvenia, orientia septata et brunnea ubi sunt matura, saepe cum guttula in quaque cellula, paries dense et minute verruculosus, facies levis in LM, verruculosus in SEM.

Etymology. Named after the insect that feeds on this fungus.

Conidiomata pycnidial, solitary, immersed, partially erumpent when mature, dark-brown, globose to ellipsoidal, up to 300 × 200 µm diam, uniloculate, wall composed of an outer layer of dark brown, thick-walled textura angularis, and an inner layer of thin-walled hyaline cells. *Ostiole* central, circular, papillate. *Conidiophores* absent. *Conidiogenous cells* 10–15 × 3–6 µm, holoblastic, discrete, cylindrical, hyaline, smooth, indeterminate. *Conidia* cylindrical to clavate, straight, both ends broadly rounded, 20–25 × 8.5–11.5 µm, aseptate and pale brown when young, becoming septate and brown when mature, often with a guttule in each cell, wall densely and minutely verruculose, profile smooth under light microscope, verruculose in scanning electron microscope, in vitro on Sachs' agar supporting sterilised pieces of maize leaf and in vivo.

Culture characteristics — Colonies on 10 % potato-dextrose agar (Difco) grew up to 65 mm diam after 5 d in the dark at 23 °C; after 3 wk in the dark followed by 5 d under black light, colonies covered the entire plate and were olivaceous-black to charcoal, with sparse aerial mycelium; reverse greyish black to charcoal; colonies sterile. Abundant conidia produced on Sachs' agar supporting sterilised pieces of maize leaf.

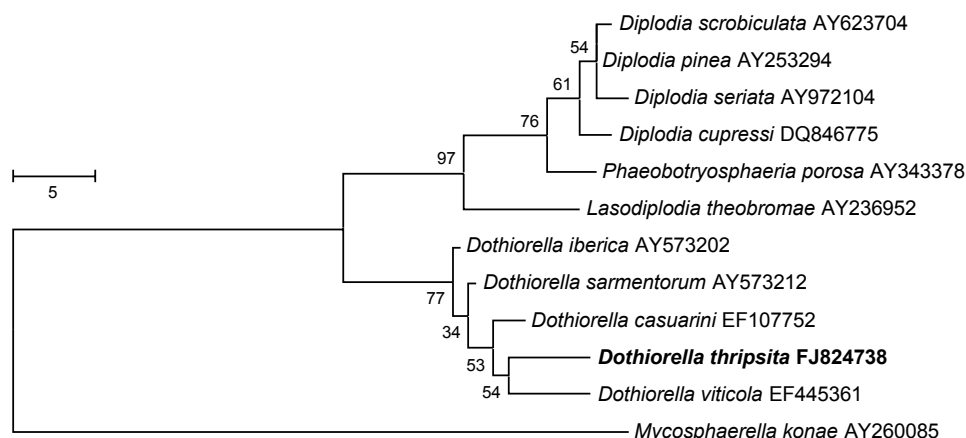
Typus. AUSTRALIA, Queensland, Tallegalla, 27° 35' 40" S, 152° 33' 01" E, alt. 160 m, on dead stems and phyllodes of *Acacia harpophylla* F. Muell. ex Benth. 24 Mar. 2008, D.J. Tree & C.E.C. Tree, isol. D.J. Tree, BRIP 51876, holotype; cultures ex-type BRIP 51876, GenBank FJ824738, MycoBank MB513166.

Notes — Thrips (Thysanoptera) are an order of insects that includes many plant pests. Approximately 10 % of the 6 000 known species of thrips feed on whole fungal spores¹. *Mecynothrips hardyi* (Priesner 1928) has only been found on dead leaves of brigalow (*Acacia harpophylla*) that are still attached to the plant. Larvae and adults of *M. hardyi* feed almost exclusively on conidia of *Do. thripsita*.

The conidia of *Do. thripsita* become dark and septate prior to discharge from the pycnidium, which distinguishes it from species of *Diplodia* and other anamorphic *Botryosphaeriaceae* that have morphologically similar conidia². There are three species of *Diplodia* reported on *Acacia* (*Mimosaceae*) in Australia, namely *D. acaciarum* (type on *Acacia decurrens*), *D. lichenopsis* (type on *Acacia complanata*), and *D. phyllodiorum* (type on *Acacia* sp.). According to the type descriptions, *Do. thripsita* has narrower conidia than *D. acaciarum* (18–24 × 11–15 µm) and has conidia that are longer and wider than those of *D. phyllodiorum* (6–10 × 4–5 µm). *Diplodia lichenopsis* has conidia that measure 20–25 × 8–10 µm, which are similar in size to those of *Do. thripsita*. However, *D. lichenopsis* has conidia with smooth walls, which differs from the verruculose walls of *Do. thripsita*.

The type specimen of *D. lichenopsis* was collected by Bailey in c. 1890, near the Brisbane River and forwarded to Cooke and Masee. Two isotype specimens were retained in Australia (BRIP 074 and VPRI 1394). Two further specimens of *D. lichenopsis* were collected in 1906 (BRIP 4999) and 1910 (BRIP 5000) by Tryon in Brisbane on *Acacia complanata*. Another specimen was collected by Bailey (BRIP 075) without further collection details. These specimens were examined for the presence of diplodia-like conidia. All of these specimens consist of several phyllodes of *Acacia complanata* exhibiting irregular pale grey leaf lesions, 5–10 mm diam, containing small dark spots less than 1 mm diam. On close examination these were found to be acervuli of *Pestalotiopsis* and no diplodia-like conidia were seen. It appears that no material of *D. lichenopsis* is extant.

The most parsimonious tree (TL = 112; CI = 0.725; RI = 0.855) was obtained from a max-mini branch-and-bound search of an ITS sequence alignment using MEGA4³. The scale bar shows 5 changes, 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* (GenBank AY260085).



Colour illustrations. *Acacia harpophylla* with dead leaves harbouring *Mecynothrips hardyi* and *Do. thripsita* from the type locality; adult male *M. hardyi*; conidia; pycnidia; SEM of conidia. Scale bar = 1 mm for adult male *M. hardyi*; other scale bars = 10 µm.

References. ¹Mound LA. 2007. New Australian spore-feeding Thysanoptera (Phlaeothripidae: Idolothripinae). *Zootaxa* 1604: 53–68. ²Wet J de, Slippers B, Preisig O, Wingfield B, Tsopelas P, Wingfield M. 2009. Molecular and morphological characterization of *Dothiorella casuarini* sp. nov. and other *Botryosphaeriaceae* with diplodia-like conidia. *Mycologia* doi:10.3852/07-180. ³Tamura K, Dudley J, Nei M, Kumar S. 2007. MEGA4: Molecular Evolutionary Genetics Analysis (MEGA) software v4.0. *Molecular Biology and Evolution*

Roger G. Shivas, Desley J. Tree, Yu Pei Tan & Emma L. Ballard, Plant Pathology Herbarium, Department of Employment, Economic Development & Innovation, 80 Meiers Rd, Indooroopilly 4068, Queensland, Australia; e-mail: desley.tree@dpi.qld.gov.au, roger.shivas@dpi.qld.gov.au, yupeit.tan@dpi.qld.gov.au, emma.ballard@dpi.qld.gov.au