
Microfungi on the *Pandanaceae*: *Troposporopsis* gen. nov.

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Troposporopsis gen. nov. is proposed to accommodate hyphomycetes with solitary, erect, conidiophores, terminating with helicoid conidia that have areas of dark and light pigmentation. *Troposporopsis atropicis* sp. nov. is designated as the type species, while *T. rigidospora* comb. nov. is transferred from *Troposporella*. The two species are compared with each other and *Troposporopsis* is compared to *Acrodictys*, *Actinocladium*, *Arachnophora*, *Helicodendron*, *Troposporella* and *Xenosporium*.

Key words: Hyphomycetes, new species, *Pandanus*

Introduction

During studies of the microfungi inhabiting the *Pandanaceae*, a hyphomycete was found with characteristics similar to the genus *Troposporella*. *Troposporella* consists of three species, *T. fumosa* P. Karst. (1892) (holotype), *T. monospora* (W.B. Kendr.) M.B. Ellis (1976) and *T. rigidospora* R.F. Castañeda and W.B. Kendr. (1990). In *T. fumosa* the conidiomata are pulvinate, conidiophores are macronematous or semi-macronematous and are often repeatedly branched. The conidia are coiled 1½-2 times and are concolorous throughout (Ellis, 1971). *Troposporella monospora* also has semi-macronematous, branching conidiophores which form pulvinate conidiomata. The conidia, however, differ from the type species in that they are once coiled and have darkly pigmented septa (Ellis, 1976). The conidiophores of *T. rigidospora* differ from the other two species in that they are macronematous, erect, unbranched and are always solitary. The conidia are coiled 1½ times and have a light-dark-light pattern of pigmentation (Castañeda Ruiz and Kendrick, 1990). Our specimen is similar to *T. rigidospora* in that the conidiophores are macronematous, mononematous, erect and unbranched. It differs from *T. rigidospora* by having conidia which are once coiled, 7-10-septate and the dark area of pigmentation is restricted to a zone at the top of the

conidial arch.

Due of the difference in conidiophore and conidiomata morphology between our specimen and *T. fumosa*, we do not consider it to be congeneric with *Troposporella*, and therefore we propose *Troposporopsis* to accommodate it. *Troposporella rigidospora* is transferred to *Troposporopsis*.

Taxonomy

Troposporopsis S.R. Whitton, E.H.C. McKenzie and K.D. Hyde, **gen. nov.**

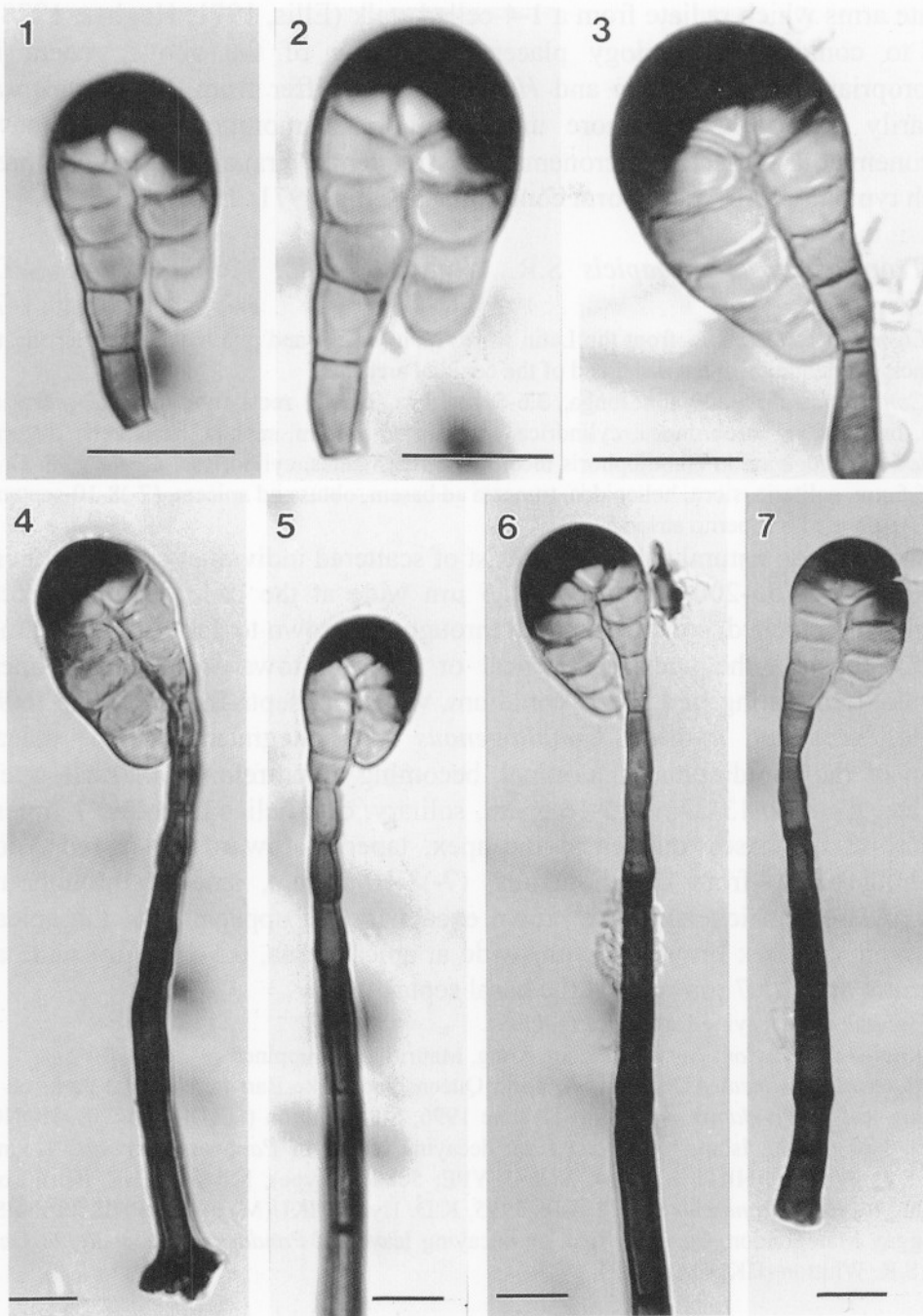
Etymology: *Troposporopsis*, refers to the morphological similarities between this genus and *Troposporella*.

Conidiophora macronemata, mononemata, erecta, recta, non-ramosa, solitaria, laevia, brunnea vel atrobrunnea, cylindrica, ad apicem truncata, septata. *Cella conidiogena* monoblastica, in conidiophoris incorporatae, terminales, regeneratio percurentis, cylindrica. *Conidia* solitaria, sicca, 1-1½ helicoida, ad basem truncata, ad apicem obtusa, septata, laevia, versicoloria.

Type species: *Troposporopsis atroapicis* S.R. Whitton, E.H.C. McKenzie and K.D. Hyde.

Colonies consist of individual or small groups of conidiophores scattered over the substrate surface. *Stroma* absent. *Setae* none. *Hyphopodia* none. *Conidiophores* macronematous, mononematous, erect, straight, solitary, unbranched, smooth throughout, brown to dark brown, septate, more or less cylindrical, truncate at the apex. *Conidiogenous cells* holoblastic, monoblastic, integrated into the apical region of the conidiophores, regenerating percurrently, cylindrical. *Conidia* solitary, dry, helicoid, coiled 1-1½ times, truncate at the base, broadly rounded at the distal end, not detaching easily from the conidiophores, multiseptate, smooth, walls and septa thickened, pigmentation variable but with areas of dark and light pigmentation.

Troposporopsis is characterised by macronematous, mononematous, erect, unbranched, solitary, conidiophores terminating in a single, integrated, conidiogenous cell. The conidia are smooth, 1-1½ helicoid, have multiple transverse septa and areas of dark and light pigmentation. *Acrodictys*, *Xenosporium*, *Arachnophora*, and *Actinocladium* have similar conidiophore morphology and conidial production to *Troposporopsis*, differing primarily in conidial morphology. In *Acrodictys* the conidia vary in shape, but are typically brown throughout and muriform (Ellis, 1971, 1976). The conidiophores in *Xenosporium* terminate in muriform, solitary conidia, which are typically curved or helicoid and often produce secondary conidia (Deighton and Pirozynski, 1966). Conidia of *Arachnophora* comprise a series of 2-3 cells which are in turn adorned with branched appendages. A *Selenosporella*-like synanamorph is sometimes produced directly on these conidial appendages (Hughes, 1979; Kirk, 1986). *Actinocladium* produces solitary conidia with 2-3



Figs. 1-7. Light micrograph of *Troposporopsis atroapicis*. 1-3. Conidia, 4-7. Conidia and conidiophores. Note the percurrent proliferation of the conidiophore in fig. 5. Bars: 10 μ m.

septate arms which radiate from a 1-4-celled stalk (Ellis, 1971; Hughes, 1978). Due to conidial morphology placement in any of the above genera is inappropriate. *Troposporella* and *Helicodendron* differ from *Troposporopsis* primarily due to conidiophore and conidiomata morphology, both have macronematous or semi-macronematous, frequently branched conidiophores which typically form punctiform conidiomata (Ellis, 1971; 1976).

1. *Troposporopsis atroapicis* S.R. Whitton, E.H.C. McKenzie and K.D. Hyde, **sp. nov.** (Figs. 1-7)

Etymology: *atroapicis*, from the Latin words *atro* (black) and *apicis* (apex), referring to the black pigmentation at the distal end of the conidial arch.

Conidiophora 55-200 µm longa, 3.6-5 µm lata, erecta, recta, non-ramosa, solitaria, laevia, brunnea vel atrobrunnea, cylindrica, truncata ad apicem, septata, basis cella flagara. *Cellulae conidiogenae* in conidiophoris incorporate, terminales, cylindricae. *Conidia* 13-27 × 9.5-16.5 µm, solitaria, sicca, helicoidea, truncata ad basem, obtusa ad apicem, (7-)8-10-septata, laevia, regio medio superno atriora.

Colonies on natural substrate consist of scattered individual conidiophores. *Conidiophores* 55-200 µm long, 3.6-5 µm wide at the base, distinct, erect, straight, unbranched, solitary, smooth throughout, brown to dark brown, fading slightly towards the apex, cylindrical or tapering towards the apex, apex truncate, terminating in a single conidium, walls and septa thickened, up to 9-septate, basal cell swollen. *Conidiogenous cells* integrated into the apical region of the conidiophores, terminal, becoming percurrent, cylindrical, apex truncate. *Conidia* 13-27 × 9.5-16.5 µm, solitary, dry, helicoid, coiled 1 times, truncate at the base, rounded at the apex, tapering towards both ends, not detaching easily from conidiophores, (7-)8-10-septate, smooth throughout, walls and septa thickened, pale brown except for the upper part of the apical bend which is dark brown, 4-8 µm wide at apical septa, 6.5-10.2 µm wide at the centre and 3-5.7 µm wide at the basal septa.

Habitat: On decaying leaves of *Pandanus*.

Known distribution: Australia, Hong Kong, Mauritius, Philippines.

Material examined: AUSTRALIA, north Queensland, Lake Barrine National Park, on a decaying leaf of *Pandanus monticola*, 18 June 1996, S.R. Whitton (HKU(M) 5090); HONG KONG, Hong Kong Island, Mt. Austin, on decaying leaves of *Pandanus furcatus*, 7 June 1995, S.R. Whitton (HKU(M) 5094, HOLOTYPE; 5088, isotype); MAURITIUS, Pétrin, on decaying leaves of *Pandanus* sp., 11 Aug. 1995, K.D. Hyde (HKU(M) 5087); PHILIPPINES, Barangay Maragondon, Quezon, Real, on decaying leaves of *Pandanus copelandii*, 21 Oct. 1996, S.R. Whitton (HKU(M) 5089).

2. *Troposporopsis rigidospora* (R.F. Castañeda and W.B. Kendr.) S.R. Whitton, E.H.C. McKenzie and K.D. Hyde, **comb. nov.**

≡ *Troposporella rigidospora* R.F. Castañeda and W.B. Kendr., University of Waterloo Biology Series 32: 43 (1990).

Table 1. Dimensional differences in species of *Troposporopsis*.

Character	<i>T. atroapicis</i>	<i>T. rigidospora</i>
Conidiophore length	55-200 µm	35-60 µm
Conidiophore basal width	3.6-5 µm	4-5 µm
Conidiophore septation	5-9	3-5
Conidial diam.	13-27 × 9.5-16.5 µm	11-26 × 9-15 µm
Conidial filament diam.	6.5-12 µm	5-8 µm
Conidial curvature	1	1½
Conidial septation	(7-)8-10	12-17

Conidiophore morphology and conidiogenesis in *T. atroapicis* and *T. rigidospora* is similar, therefore, the two species are distinguished primarily on conidial characters. In *T. atroapicis* the conidia coil no more than once, and have a distinctive darkly pigmented cap at the distal end of the conidial arch. In *T. rigidospora* the conidia coil 1½ times, and have a light-dark-light pattern of pigmentation. In addition, the conidia of *T. rigidospora* are 12-17-septate, whilst those of *T. atroapicis* are 7-10-septate (Castañeda and Kendrick, 1990) (see Table 1).

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