

***Dokmaia monthadangii* gen. et sp. nov., a synnematous anamorphic fungus on *Manglietia garrettii***

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*Dokmaia monthadangii* gen. et sp. nov. is described from dead leaves of *Manglietia garrettii* collected in Doi Suthep-Pui National Park, Thailand. The genus is synnematous and is compared with the similar genus, *Phaeoisaria*. *Dokmaia monthadangii* has cylindrical brown synnemata, which are covered by white conidia and conidiogenous cells towards the apex. Conidiogenous cells are polydentate and arise from small parenchymatous-like cells and are arranged in parallel rows at right angles to the axis of the synnemata. The denticles are cylindrical. Conidia are hyaline and ovoid or fusiform. Conidial secession is rhexolytic, leaving a basal frill, on the conidia. The new taxon is described and illustrated.

Keywords: hyphomycetes, new genus, *Phaeoisaria*, saprobe, synnemata, taxonomy.

We are currently studying the saprobes and endophytes associated with *Manglietia garrettii* Craib (Magnoliaceae), a partly deciduous tree up to 25 m tall, which is locally common in Doi Suthep-Pui National Park (Promputtha & al., 2002). Unlike the data available from monocotyledonous hosts (e.g. bamboo, Hyde & al., 2001; banana, Photita & al., 2001; palms, Yanna & al., 2001), there is very little information on host-specificity or recurrence from the litter of tropical broad leaf trees (Huhndorf & Lodge, 1997). Such data are needed to improve estimates of fungal diversity (Hawksworth, 2001; Hyde, 2001). We chose *M. garrettii* for an ecological study of its fungal biota (Promputtha & al., 2002) as its leaves are relatively large (18–30 × 8–12 cm) and thick

and should, therefore, support a wide range of fungi. During these studies we found an unusual synnematosous hyphomycete on dead leaves of this host, which we describe in the new genus *Dokmaia*.

### Materials and methods

Senescent and fallen brown leaves from *Manglietia garrettii* (montha-doi or montha-dang) were collected from Doi Suthep-Pui National Park, Chiang Mai, Thailand, during the rainy season between June and September 2001. Leaves were returned to the laboratory in individual plastic bags and incubated on tissue paper moistened with sterilized water. Samples were examined periodically for the presence of microfungi for up to two weeks. Fungi were mounted in water for examination with differential interference contrast microscopy. Cultures were obtained from single spores (Samuels, 1979; Choi & al., 1999) and grown on both potato dextrose agar (PDA, Scharlau Chemie) and malt extract agar (MEA, Scharlau Chemie), in the dark, at room temperature (~25° C).

### Taxonomy

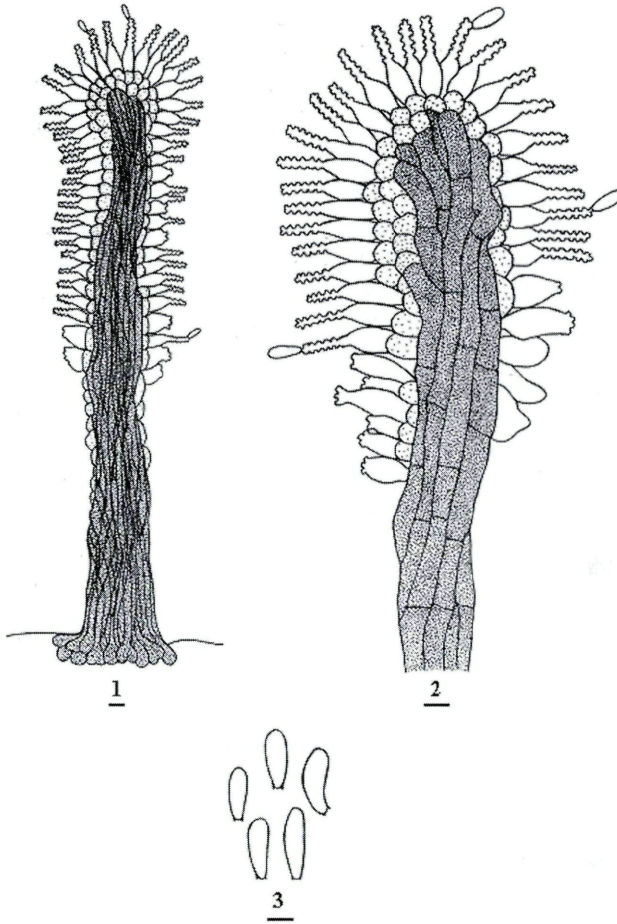
*Dokmaia* I. Promputtha, gen. nov.

Synnemata erecta, e substrato stromatico, solitaria vel sparsa, indeterminata, cylindrica, brunnea. Synnematis hyphae flexuosae, brunneae, septatae. Cellulae conidiogenae discretae, hyalinae, polyblasticae, cylindricae et truncatae, denticulatae. Conidia hyalina, laeva, cylindrica, obovoida vel fusiformia, ad apicem rotundata, ad basim truncata.

Synnemata arising from stromatic base, erect, stroma-like, solitary to scattered, indeterminate, cylindrical, brown, with white covering of conidiogenous cells and conidia. Hyphae of synnemata flexuous, brown, septate, texture intricate. – Conidiogenous cells polyblastic, arising from pale brown, parenchymatous-like cells, forming at apex and in parallel rows along upper half of synnemata, discrete, hyaline, denticulate; denticles cylindrical. – Conidia hyaline, smooth, aseptate, cylindrical, obovoid or fusiform, apex rounded, base truncate, with a marginal frill. – Conidial secession rhexolytic.

Species typica. – *Dokmaia monthadangii* Promputtha.

Etymology. – from the Thai 'dokmai' meaning flower, in reference to the flower-like appearance of the fungus.



Figs 1-3. - Diagram of *Dokmaia monthadangii* (from holotype).- 1. Synnema. - 2. Hyphae, conidiogenous cells and conidia. - 3. Conidia with basal frill. - Bars: 1-2 = 10  $\mu$ m; 3 = 3  $\mu$ m.

***Dokmaia monthadangii*** I. Promptuttha, sp. nov. - Figs 1-3.

Synnemata 240-435  $\mu$ m alta, 25-40  $\mu$ m diam., e stromatica basi orientia, erecta, solitaria vel sparsa, cylindrica, brunnea. Conidiophora 4.5-10.5  $\times$  3-6  $\mu$ m diam. Cellulae conidiogenae 3-10  $\times$  2-4  $\mu$ m, hyalinae, polyblasticae, denticulatae, cylindricae, truncatae, ad apicem 0.7-1.5  $\mu$ m alta, 0.5-0.75  $\mu$ m crassa. Conidia 6-7  $\times$  1.5-2.5  $\mu$ m, hyalina, laeva, obovoidea vel fusiformia, ad apicem rotundata.

Synnemata 240-435  $\mu$ m tall, 25-40  $\mu$ m diam., arising from a stromatic base, 4.5-7.5  $\mu$ m wide, 4.5-6  $\mu$ m deep, erect, scattered, cylindrical, brown, fertile part white. Hyphae of synnemata 2.5-4.5  $\mu$ m diam., flexuous, brown, septate, textura intricata. - Coni-

diogenous cells  $3\text{--}10 \times 2\text{--}4 \mu\text{m}$ , polyblastic, arising from pale brown, parenchymatous-like cells forming at apex and along upper half of synnemata in parallel rows at right angles to the axis of the synnemata, hyaline, denticulate; denticles cylindrical,  $0.7\text{--}1.5 \mu\text{m}$  high,  $0.5\text{--}0.75 \mu\text{m}$  wide. – Conidia  $6\text{--}7 \times 1.5\text{--}2.5 \mu\text{m}$ , solitary, hyaline, smooth, aseptate, obovoid or fusiform, apex rounded, base truncate, with a marginal frill. – Conidial secession rhexolytic.

Colonies on PDA reaching 8.5 cm diam. in one week at room temperature ( $\sim 25^\circ \text{C}$ ), mycelia mostly immersed, superficial aerial growth cottony, brown to greyish-brown, with granular particles immersed in the agar, margin entire, not colouring the agar, forming synnemata on agar surface.

Colonies reaching 8.5 cm diam. on MEA in one week at room temperature ( $\sim 25^\circ \text{C}$ ), mycelia mostly immersed, superficial aerial growth woolly, greyish-brown, margin entire, not colouring the agar, forming synnemata on agar surface.

**Etymology.** – the species epithet is derived from local name of the host.

**Holotype.** – THAILAND: Doi Suthep-Pui National Park, Chiang Mai, on dead leaves of *Manglietia garrettii*, 31 Jul. 2001, I. Promputtha & S. Thongkantha, PDD 74980 (leaves and dried culture), living culture (ex holotype) in BIOTEC, BCC 12186.

**Other material examined.** – THAILAND: Doi Suthep-Pui National Park, Chiang Mai, on dead leaves of *Manglietia garrettii*, 4 Aug. 2001, I. Promputtha & S. Thongkantha, HKU(M); *ibid.*, 16 Aug. 2001, I. Promputtha & S. Thongkantha, CMUMS 047.1; *ibid.*, 23 Aug. 2001, I. Promputtha, CMUMS 047.2.

## Discussion

*Dokmaia monthadangii* is most similar to species of *Phaeoisaria* in being synnematos and having conidiogenous cells which proliferate sympodially and form conidia on long denticles. The conidia of *Dokmaia* are released by rhexolytic secession, which leaves a basal frill on the conidia. By contrast, conidial secession in *Phaeoisaria* is schizolytic without any remains of ruptured cell-walls at base (de Hoog & Papendorf, 1996; Castaneda Ruiz & al., 2002). The conidiogenous cells of *Dokmaia* which arise from small brown cells, are urceolate and arranged in parallel rows at right angles, to the axis of the synnemata on the top.

*Nodulisporium* anamorph of Xylariaceae may also produce synnemata, with rhexolytic conidial formation. The conidia are similar to those of *Dokmaia*, being solitary, 1-celled, ellipsoid or obovoid, and sometimes with a small frill on the truncate base. The con-



idiogenous cells of *Nodulisporium*, however, are randomly arranged, sometimes penicillately, and are not in parallel rows as seen in *Dokmaia*.

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