

***Pseudoacrodictys dimorphospora* sp. nov.,
a new graminicolous hyphomycete from Thailand**

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Pseudoacrodictys dimorphospora, a new species collected on a decaying bamboo culm, Khao Yai National Park, Thailand is illustrated, described and compared with related taxa. This fungus is characterized by two conidial morphologies (ellipsoidal and lobed or branched) with a dark protruding basal cell and a drop of mucilage around the hyaline, protruding apical cells.

Keywords: *Acrodictys*, anamorphic fungi, graminicolous, *Pseudoacrodictys*, Thailand.

Ellis (1961) erected the genus *Acrodictys* M. B. Ellis to accommodate fungi with “brown dictyospores formed as blown-out ends on well defined, erect, brown conidiophores”. A total 33 species were referred to the genus. Baker & al. (2001) noted that the genus *Acrodictys* was heterogeneous and erected the genus *Acrodictyella* W. A. Baker & Partridge to accommodate a new fungus with annelidic conidiogenous cells. Baker & al. (2002a) emended the generic concept of *Acrodictys* as fungi with “pyriform conidia, uniformly septate, and gradually pigmented from a paler base to a darker upper portion; and proliferating conidiophores that are lageniform or doliiform in shape”. Three new genera were proposed to accommodate fungi previously classified in *Acrodictys* including: *Junwan-gia* W. A. Baker & Morgan-Jones for species with globose to subglobose, irregularly septate, evenly pigmented conidia and determinate or indeterminate irregularly proliferating conidiophores (Baker & al., 2002a), *Rhexoacrodictys* W. A. Baker & Morgan-Jones for species with rhexolytic secession of conidia (Baker & al., 2002b), and *Pseudoacrodictys* W. A. Baker & Morgan-Jones for species with “large, somewhat irregularly shaped, evenly dark-colored, numerous-celled conidia” (Baker & Morgan-Jones, 2003).

During an investigation and isolation of fungi in tropical forests of Thailand, an *Acrodictys*-like fungus was collected from dead culm

of pygmy bamboo. The large, irregularly shaped, evenly pigmented and numerous-celled conidia with appendages suggested placement in the genus *Pseudoacrodictys*. Of the seven *Pseudoacrodictys* species, *P. appendiculata* (M. B. Ellis) W. A. Baker & Morgan-Jones, *P. brevicornuta* (M. B. Ellis) W. A. Baker & Morgan-Jones, *P. corniculata* (R. F. Castañeda) W. A. Baker & Morgan-Jones, *P. deightonii* (M. B. Ellis) Baker & Morgan-Jones, *P. dennisii* (M. B. Ellis) Baker & Morgan-Jones, *P. viridescens* (B. Sutton & Alcorn) W. A. Baker & Morgan-Jones and *P. eickeri* (Morgan-Jones) W. A. Baker & Morgan-Jones (the type species), none have the same conidial morphology and the combination of appendages and mucilaginous sheaths as in this taxon. This fungus is therefore described as a new species, *Pseudoacrodictys dimorphospora*.

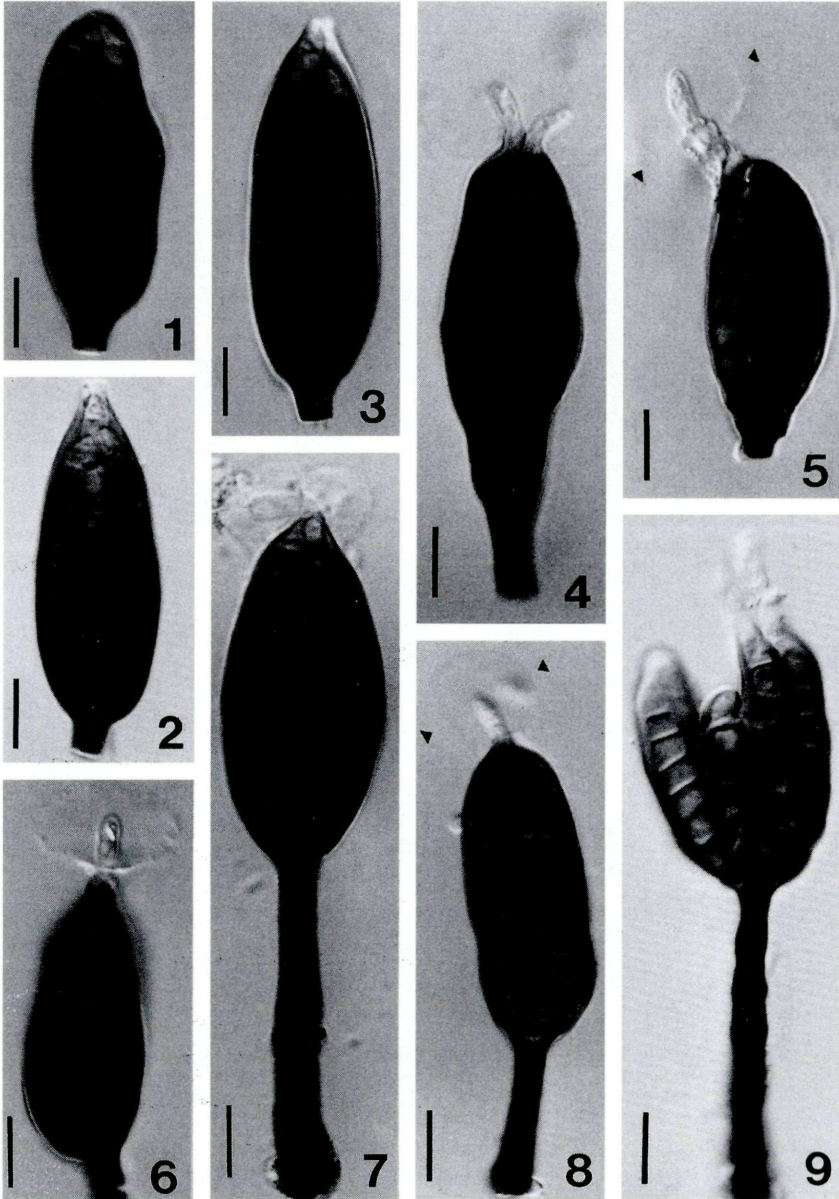
Materials and methods

Dead pygmy bamboo (*Arundinaria pusilla* A. Chevalier & A. Camus, Poaceae) collected from Khao Yai National Park, Thailand, was incubated in moist chambers in the laboratory and periodically examined for sporulating fungi. Fungi encountered were mounted in water and measurements, photographs and drawings made to enable identification. Conidial measurements include minimum-maximum range and the arithmetic mean (\bar{x}) with \pm standard deviation for n conidia measured. Single spore isolations were made on Difco[®] cornmeal agar (CMA) with added streptomycin sulfate to suppress bacterial growth. Axenic cultures were deposited in the BIOTEC Culture Collection (BCC). All material examined was dried down and deposited in the BIOTEC Bangkok Herbarium (BBH).

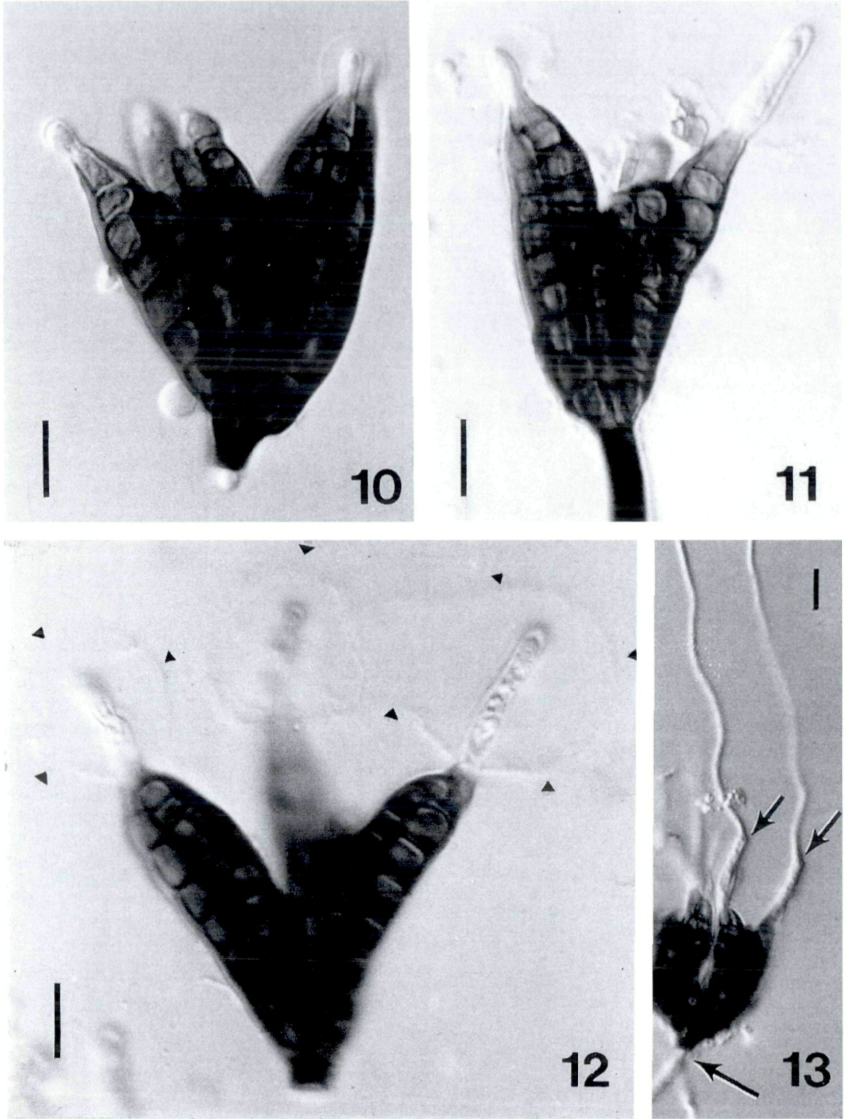
Taxonomy

Pseudoacrodictys dimorphospora Somrithipol & E. B. G. Jones, **sp. nov.** – Figs. 1–14.

Coloniae effusae, fuscae vel atrae. Mycelium partim superficiale et partim immersum ex hyphis ramosis, septatis, pallide brunneis vel olivaceo-brunneis, levibus, 1–3 μm crassis compositum. Conidiophora singula, erecta vel ascendente, recta vel flexuosa, saepe basi inflata, fusca vel atra, levia, septata, 30.5–68.3 μm longa, 4.9–8.5 μm crassa. Cellulae conidiogenae in apice conidiophori, proliferantes, doliiformes, 7.5–10 μm longae, 5–7 μm crassae. Conidia singula, primo in apice cellulae conidiogenae, biformia: ellipsoidea, 46.4–97.6 ($\bar{x} = 60 \pm 13.1$) μm longa, 11–32.9 ($\bar{x} = 21.2 \pm 5.4$) μm crassa; et lobulata vel furcata, 56.1–73.2 ($\bar{x} = 65.9 \pm 6.8$) μm longa, 24.4–85.4 ($\bar{x} = 54.9 \pm 23.8$) μm crassa, brunnea vel atro-brunnea, levia, septis numerosis transversalibus longitudinalibusque praedita; cellula basilari fusca, protrudenti; cellula apicali pallide brunnea vel hyalina, protrudenti, 6.1–28.1 μm longa, 2.4–4.9 μm crassa, tunica tenui saepe involuta.

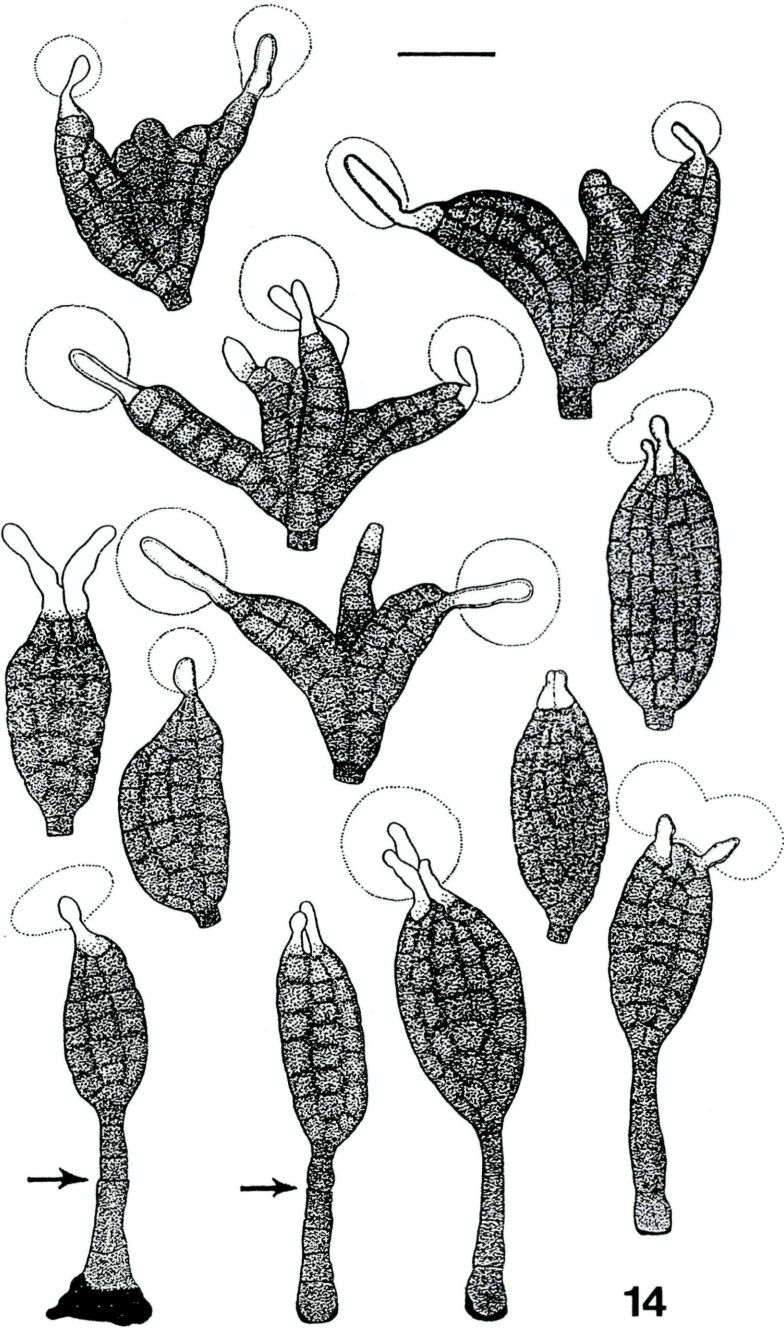


Figs. 1-9. Light micrographs of *Pseudoacrodictys dimorphospora* (from holotype). - 1-3. Some conidia without apical protruding cells. - 4-8. Conidia with mucilaginous sheath (arrowed) at the apical protruding cells. - 7-9. Conidia with conidiophores. - Bars: = 10 μ m.



Figs. 10–13. Light micrographs of *Pseudoacrodictys dimorphospora* (from holotype). – 10–12. Branched conidia with mucilaginous sheath (arrowed) at the apical protruding cells. – 13. Germination of conidia from the apical protruding cells and the basal cell (arrowed). – Bars: = 10 μ m.

Holotypus: Thailand, Khao Yai National Park, in culmo mortuo bambus (*Arundinaria pusilla*), 16 Aug. 2002, S. Somrithipol (SFC 1613) in BBH. *Cultura ex-typus*: BCC 12890 ex ellipsoideis conidiis; BCC 12891 ex lobulatis vel furcatis conidiis.



Figs. 14. Line drawing of *Pseudoacrodictys dimorphospora* (from holotype). Conidia and proliferating conidiophores (arrowed) – Bar: = 20 μ m.

Etymology: from Greek: δι (*di*), a prefix meaning two; μορφή (*morphe*), form; and spora (*spora*), seed, in reference to the two forms of the conidia.

Colonies effuse, dark blackish brown to black. Mycelium partly superficial, partly immersed in the substratum, composed of branched, septate, pale brown to olivaceous brown, smooth-walled, 1–3 μm thick hyphae. – Conidiophores arising singly, erect or ascending, straight or flexuous, often swollen at the base, dark blackish brown to black, smooth-walled, septate, 30.5–68.3 μm long, 4.9–8.5 μm thick. (Figs. 7–9, 14). – Conidiogenous cells terminal, proliferating, doliiiform, 7.5–10 μm long, 5–7 μm thick. – Conidia formed singly at the apex of the conidiogenous cells, two-shaped: ellipsoidal (Figs. 1–8, 14), 46.4–97.6 ($\bar{x} = 60 \pm 13.1$, $n = 20$) μm long, 11–32.9 ($\bar{x} = 21.2 \pm 5.4$, $n = 20$) μm thick and lobed or branched (Figs 10–12, 14), 56.1–73.2 ($\bar{x} = 65.9 \pm 6.8$, $n = 20$) μm long, 24.4–85.4 ($\bar{x} = 54.9 \pm 23.8$, $n = 20$) μm thick at the broadest part, dark brown to dark blackish brown, smooth-walled, with numerous transverse and longitudinal septa; basal cell dark blackish brown, protruding; apical cell pale brown to hyaline, protruding, 6.1–28.1 μm long, 2.4–4.9 μm thick and enveloped by a mucilaginous sheath (Figs. 5–8, 12, 14).

Conidia germinate from the basal and apical cells (Fig. 13, arrowed) within 48 hours. Colonies on CMA after 10 days at 20 °C with cool, fluorescent light reaching 3–3.5 cm in diam. Mycelium olivaceous immersed in the agar, reverse olivaceous yellow. On PDA, colonies under similar environmental conditions, 2 cm in diam. Mycelium cottony, olivaceous grey to olivaceous-green, reverse black, sterile.

Discussion

Pseudoacrodictys dimorphospora is similar to *Pseudoacrodictys dennisii* (M. B. Ellis) W. A. Baker & Morgan-Jones and *Pseudoacrodictys deightonii* (M. B. Ellis) W.A. Baker & Morgan-Jones in possessing lobed conidia. However, the latter two species lack protruding hyaline apical cells surrounded by mucilaginous sheaths. Conidia of *P. dimorphospora* are similar to those of *Pseudoacrodictys brevicornuta* (M. B. Ellis) W. A. Baker & Morgan-Jones, *Pseudoacrodictys corniculata* (R. F. Castañeda) W. A. Baker & Morgan-Jones and *Pseudoacrodictys viridescens* (B. Sutton & Alcorn) W. A. Baker & Morgan-Jones in having protruding cells but those of *P. corniculata* and *P. viridescens* are strongly curved without mucilaginous sheath while those of *P. brevicornuta* are short horn-like and randomly peripheral.

Acrodictys triarmatus Whitton, McKenzie & K. D. Hyde, which need further generic re-classification (Baker & al., 2002a), is also similar to *P. dimorphospora* in lobed conidia. Conidia of *A. triarmatus*, however, are without mucilaginous surrounded apical cells and without uniform pigmentation of conidiophores and conidia: the basal part of the conidiophore is darker than the apex, and basal cells of conidia are paler than the other cells (Whitton & al., 2000).

The two conidial morphologies of *Pseudoacrodictys dimorphospora* occurred at random in the same colony with neither type being more prominent. Baker & Morgan-Jones (2003) also observed the tendency of mature conidial cells of *Pseudoacrodictys* species to become compressed, contorted or appear to collapse. We did not, however, encounter this in our material.

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