
Fungi from palms. XLVII. A new species of *Asterina* on palms from India

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During investigations into the foliicolous fungi in the Montane forests of Southern India, we collected an undescribed species of *Asterina* on leaves of *Calamus* sp. The new species is described and illustrated, and compared with other species of *Asterina* on palms.

Key words: *Asterinaceae*, new species, black mildews.

Introduction

Asterina species usually occur on the surface of leaves and to the unaided eye their colonies appear as indistinct dirty patches, comprising superficial mycelium with lateral hyphopodia, and having orbicular and astomatous thyrlothecia. Hyphopodia produce intracellular, bulbous haustoria from their lower surface. Thyrlothecia are shield-like structures made up of rows of cells, radiating from the central stellately dehiscent ostiole (Fig. 2). Asci are globose or ovate, 4-8-spored and bitunicate. Ascospores are ellipsoidal, bicelled with deeply constricted septa and brown (Fig. 3) and germinate by producing 1-2 appressoria from one or both cells.

In this paper we describe a new species of *Asterina* based on a specimen collected on palm leaves in the Montane forests of Southern India and provide notes on other *Asterina* species from palms. The present *Asterina* species can easily be confused with *Cirsosia* species known from palms, but it differs in several important aspects. In *Asterina* the hyphae produce lateral appressoria, while the orbicular thyrlothecia dehisce stellately at maturity. In *Cirsosia* appressoria are intercalary in the hyphae and thyrlothecia dehisce by forming vertical sutures at the centre.

Taxonomy

Asterina arecacearum V.B. Hosagoudar, T.K. Abraham and C.K. Biju, **sp. nov.** (Figs. 1-10)

Coloniae amphigenae, tenues vel subdensae, ad 10 mm diam., confluentes. *Hyphae* rectae vel anfractae, irregulariter acuteque vel laxe ramosae, laxe reticulatae, cellulis 22-26 × 4-6 µm. *Appressoria* pauca, unicellula, crassa posita, integra vel sublobata, 9-15 × 12-16 µm. *Thyriothecia* ad 350 µm diam., dispersa, rotunda vel ovata, stellato dehiscentes ad centre, margine crenata; *asci* 70-100 × 50-75 µm diam., 8-spori, saccati, bitunicati, apedicellati; *ascosporae* 36-40 × 14-19 µm, ellipsoideae, brunneae, bicellulae, fortiter constrictae ad septatae, parietis glabrae, tunica gelatinosa praeditae.

Etymology: In reference to the occurrence on palm (*Arecaceae*) leaves.

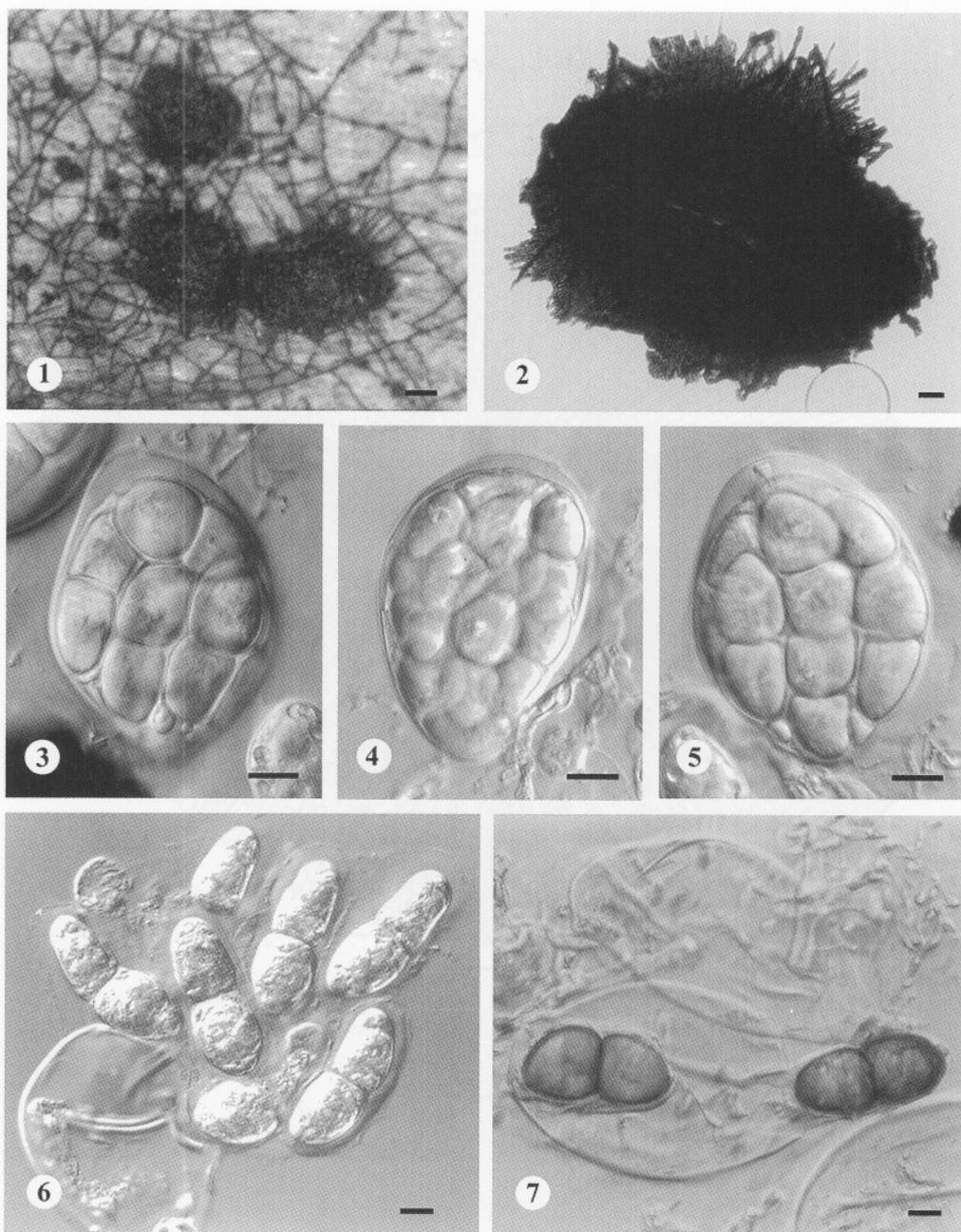
Colonies amphigenous, thin to subdense, up to 10 mm diam., confluent. *Hyphae* substraight to crooked, branching irregularly at varying angles, loosely reticulate, cells 22-26 × 4-6 µm. *Hyphopodia* scattered, few, unicellular, broad based, entire to sublobate, 9-15 × 12-16 µm (Fig. 8). *Thyriothecia* up to 350 µm diam., scattered, round to oval, stellately dehisced at the centre, margin crenate (Figs. 1, 2, 9). *Asci* 70-100 × 50-75 µm, 8-spored, saccate, bitunicate, apedicellate, notably thickened at the apex, with an ocular chamber (Figs. 3-7). *Ascospores* 36-40 × 14-19 µm, ellipsoidal, brown, 2-celled, strongly constricted at the septum, smooth-walled, surrounded by a narrow mucilaginous sheath (Figs. 6, 7).

Material examined: INDIA, Kerala, Idukki, Munnar, on leaves of *Calamus* sp. (*Arecaceae*), 18 November 1998, C.K. Biju (HCIO 43361, here designated **holotype**)

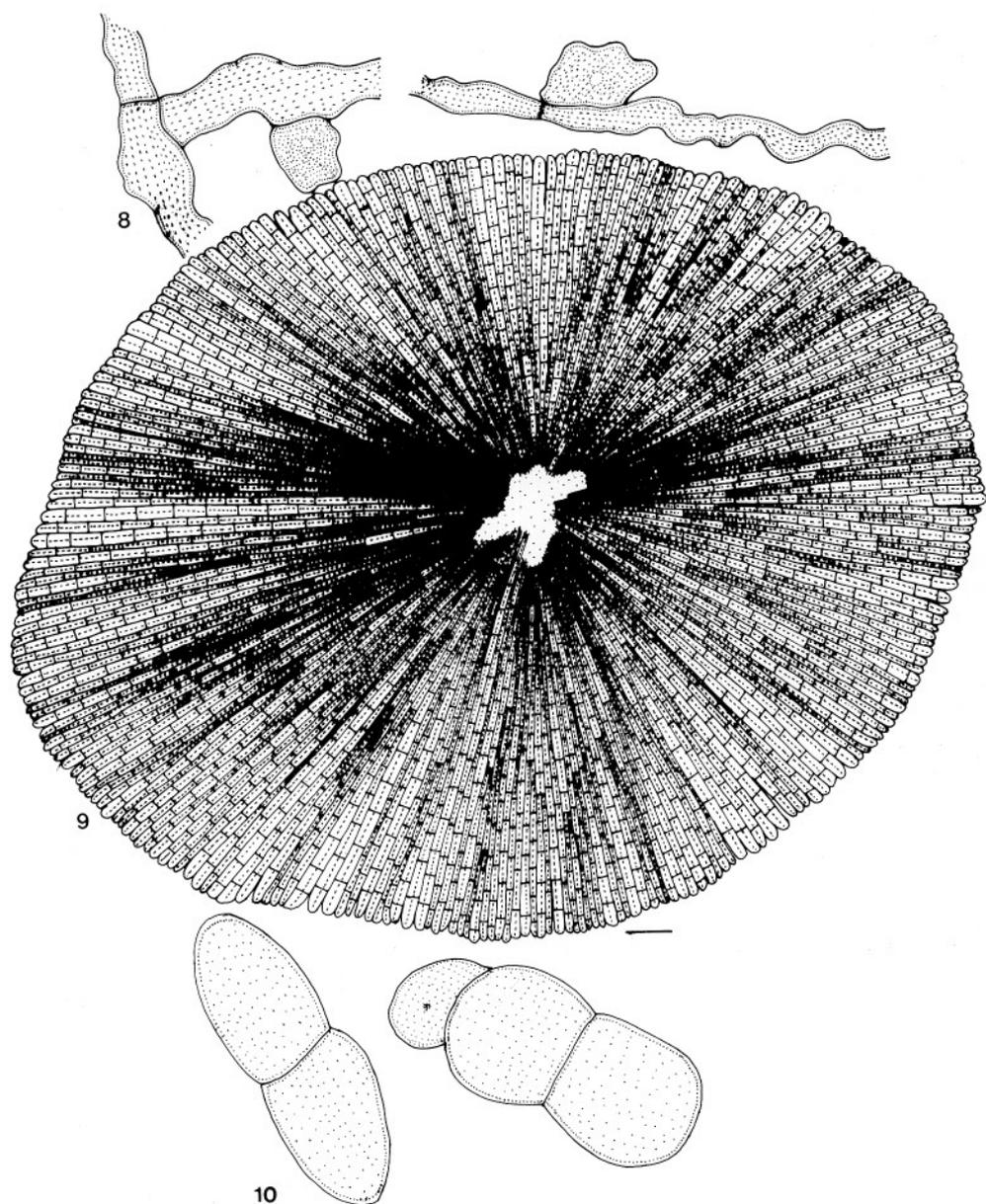
Isotypes: TBGT 262; HKU(M) 3353.

Notes: *Asterina bakeri* Syd. and P. Syd., *A. inquinans* Ellis and Everh., *A. palmarum* (Kunze) Gaill., *A. sabalicola* Earle, *A. subglobulifera* Höhn. and *A. transversalis* Syd. and P. Syd., have been described from palms (Hyde, 2001). Because of the intercalary appressoria, Hansford (1948) transferred *Asterina bakeri* to *Asterolibertia*. Later, Müller and Arx (1962) synonymised this species with *Cirsosia globulifera* (Pat.) E. Müll. and Arx. *Asterina transversalis* has also been transferred to *Cirsosia* (Batista and Maia, 1960), while *A. inquinans* is a species of *Ellisiodothis* (Theissen and Sydow, 1915; Petrak, 1953) and *A. palmarum* was considered to be a species of *Scolionema* (Theissen and Sydow, 1915). *Asterina sabalicola* and *A. subglobulifera*, the only two species from palms remaining in *Asterina*, do not appear to have been studied since they were introduced.

The ascospores of *Asterina arecacearum* are much larger than those of *A. sabalicola* (36-40 × 14-19 µm vs. 20 × 8 µm; Earle, 1890). *Asterina subglobulifera* has larger ascospores (40-44 × 18-20 µm) and oval and larger thyriothecia (500 × 300 µm) (Höhnel, 1920; Stevens and Ryan, 1939).



Figs. 1-7. *Asterina areacearum* (from holotype). 1. Superficial mycelium and thyriothechia. 2. Thyriothecium. 3-5. Asci with ocular chamber. 6. Ascospores released from the ascus. Note the mucilaginous sheath. 7. Older brown ascospores. Bars = 1 = 5 mm, 2-7 = 10 μ m.



Figs. 8-10. *Asterina arecacearum* (from holotype). **8.** Appressoriolate mycelium. **9.** Thyriothecium. **10.** Ascospores. One ascospore has germinated. Bar = 6 μ m.

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