

New foliicolous fungi from the campus flora of Madras Christian College, India

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A casual visit to the Madras Christian College, authors collected five foliicolous fungi. Of these, *Asteridiella emciciana* on *Scutia myrtina* (Burm. f.) Kurz (Rhamnaceae) and *Asterina emciciana* on *Maerua apetala* (Spreng) M. Jacobs (Capparaceae) were found new and are described and illustrated in detail.

Key words: black mildews, tar spot, *Asteridiella*, *Asterina*, new species.

In December 2007, on the campus area of the Madras Christian College, we collected four foliicolous fungi belonging to black mildews (*Asteridiella emciciana* sp. nov., *Asterina emciciana* sp. nov., *Meliola carissae* var. *spinari*, and *M. palmicola* var. *africana*) and one tar spot fungus (*Phyllachora hugoniae*) from leaves of *Hugonia mystax*. All these fungi are listed and the new species are described and illustrated in detail.

Materials and Methods

Infected plant parts were selected and scrutinized in the field, field notes were made regarding their apparent pathogenicity, nature of colonies, nature of infection and the collection locality. For each collection, a separate field number was given. In the field, each infected plant was collected separately in polythene bags along with the host twig (preferably with the reproductive parts to facilitate the identity of the corresponding host). These infected plant parts were pressed neatly and dried in between blotting papers. After ensuring their dryness, they were used for microscopic study. Scrapes were taken directly from the infected host and mounted in 10 % KOH solution. After 30 min, KOH was replaced by Lactophenol. Both mountants worked well as clearing agents and made the septa visible for taking measurements.

To study the entire colony in its natural condition, a drop of high quality natural colored or well transparent nail polish was applied to

the selected colonies and carefully thinned with the help of a fine brush without disturbing the colonies. Colonies with hyper parasites showing a woolly nature were avoided. The treated colonies along with their host plants were kept in dust free chamber for half an hour. When the nail polish on the colonies was fully dried, a thin, colorless or slightly apple rose colored (depending upon the colour tint of the nail polish) film or flip was formed with the colonies firmly embedded in it. In case of soft host parts, the film was lifted off with a slight pressure on the opposite side of the leaves and just below the colonies. In case of hard host parts, the film was eased off with the help of a razor or scalpel. A drop of DPX embedding medium (Sigma-Aldrich 44581) was spread on a clean slide and the film was spread properly on it. One or two more drops of DPX were added on the film and a clean cover glass was placed over it. By gently pressuring on the cover glass, excessive amounts of DPX were removed after drying. Care was taken to avoid air bubbles. These slides were labeled and placed in a dust free chamber for one to two days for drying. These permanent slides were then used for further studies. For immersed fungi, sections were made and stained in cotton blue.

After the study of each collection, part of the material was retained in the regional herbarium, Tropical Botanic Garden, Thiruvananthapuram (TBGT) and part of it was deposited in the Herbarium Cryptogamae Indiae Orientalis (HCIO), IARI, New Delhi.

Taxonomy

Asteridiella emciciana V. B. Hosagoudar, P. J. Robin and G. R. Archana **sp. nov.** – Fig. 1.

MycoBank no.: MB 515179

Coloniae amphigenae, plerumque epiphyllae, tenues, ad 3 mm diam. Hyphae rectae, subrectae vel leniter undulatae, plerumque oppositae acuteque ramosae, laxe vel arte reticulatae, cellulae 24–31 μm longae. Appressoria alternata, unilateralis, antrorsa vel subantrorsa, 21–26 μm longa; cellulae basiliares cylindraceae vel cuneatae, 7–9 μm longae; cellulae apicales globosae, ovatae, oblongae, integrae, angularis vel leniter lobatae, 12–17 x 10–12 μm . Phialides appressoriis intermixtae, oppositae, alternatae vel unilateralis, ampulliformes, 14–19 x 5–7 μm . Perithecia dispersa, ad 110 μm in diam.; ascospores oblongae, ellipsoideae vel cylindraceae, 4-septatae, constrictae ad septatae, 34–39 x 12–14 μm .

Holotypus. – *Asteridiella emciciana* V. B. Hosagoudar, P. J. Robin and G. R. Archana: INDIA, in foliis *Scutia myrtina* (Burm. f.) Kurz (Rhamnaceae), in vicinia Madras Christian College, Chennai, Tamil Nadu, 24 Dec 2007, V. B. Hosagoudar *et al.* HCIO 48442 (typus), TBGT 3163 (isotypus).

Colonies amphigenous, mostly epiphyllous, thin, up to 3 mm in diameter. – Hyphae straight, substraight to slightly undulate, branching mostly opposite at acute angles, loosely to closely reticulate, cells 24–31 μm long. – Appressoria alternate, unilateral, antrorse to subantrorse, 21–26 μm long; stalk cells cylindrical to cuneate, 7–9 μm long;

head cells globose, ovate, oblong, entire, angular to slightly lobate, $12\text{--}17 \times 10\text{--}12 \mu\text{m}$. – Phialides mixed with appressoria, opposite, alternate to unilateral, ampulliform, $14\text{--}19 \times 5\text{--}7 \mu\text{m}$. – Perithecia scattered, up to $110 \mu\text{m}$ in diam. – Ascospores oblong, ellipsoidal to cylindrical, 4-septate, constricted at the septa, $34\text{--}39 \times 12\text{--}14 \mu\text{m}$.

E tymology. – This species is named after the college MCC (emcici)

Host plant. – *Scutia myrtina* (Burm. f.) Kurz

Material examined: *Asteridiella emcicana* V. B. Hosagoudar, P. J. Robin and G. R. Archana: INDIA, Campus of Madras Christian College, Chennai, Tamil Nadu, on leaves of *Scutia myrtina* (Burm. f.) Kurz (Rhamnaceae), 24 Dec 2007, V. B. Hosagoudar *et al.* HClO 48442 (type), TBGT 3163 (isotype).

Asteridiella colubrinae (Stev.) Hansf., known from Panama on *Colubrina rufa* (Vell.) Reissek, is the only species of the genus *Asteridiella* on Rhamnaceae (Hansford 1961, Hosagoudar 1996, Hosagoudar *et*

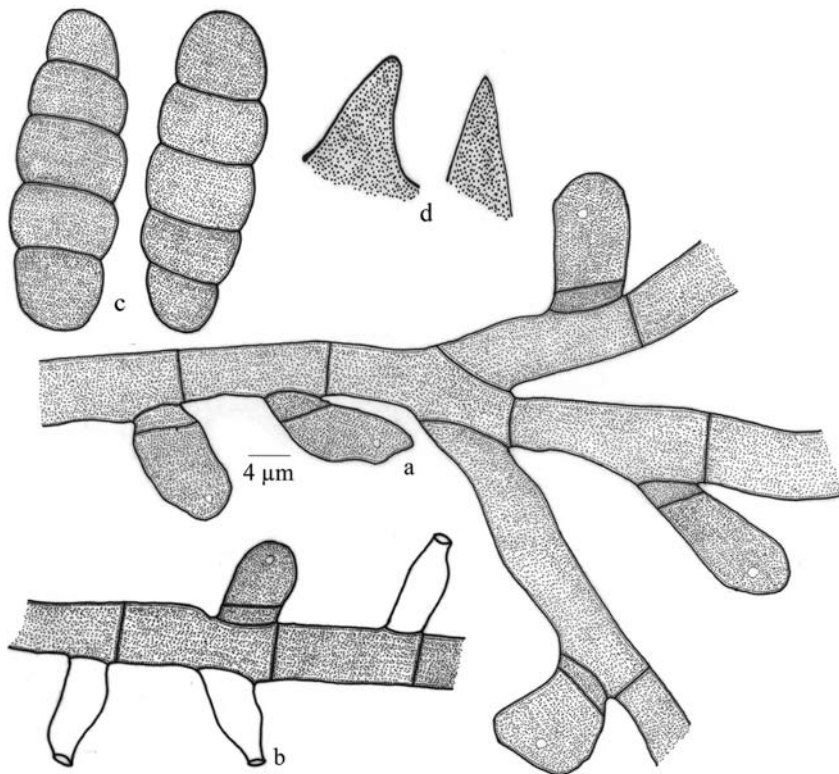


Fig. 1. – *Asteridiella emcicana* sp. nov.; **a.** Hyphae with appressoria, **b.** Hyphae with phialides, **c.** Ascospores, **d.** Perithecial wall cells.

al. 1997, Hosagoudar 2008, Hosagoudar & Agarwal 2008). However, *A. emciciana* differs from it having straight hyphae with entire, angular to sublobate head cells of the appressoria.

Asterina emciciana V. B. Hosagoudar, P. J. Robin and G. R. Archana **sp. nov.** – Fig. 2.

MycoBank no.: MB 515178

Coloniae amphigenae, plerumque epiphyllae, tenues, ad 3 mm diam. Hyphae rectae vel flexuosae, oppositae vel alternatim acuteque ramosae, laxe reticulatae, cellulae 22–34 × 5–7 µm. Appressoria alternata, unilateralis, ad 3% opposita, 12–18 µm longa; cellulae basillares cylindratae vel cuneatae, 5–7 µm longae; cellulae apicales ovatae, globosae, integrae, angularis vel sublobatae, 5–10 × 5–7 µm. Thyriothecia dispersa, orbicularis, ad 101 µm diam., dehiscens stellatim ad centralis; asci globosi, octospori, ad 41 µm diam.; ascosporae brunneae, ellipsoideae, uniseptatae, constrictus ad septatae, 19–36 × 7–10 µm, parietus glabrus.

Holotypus. – *Asterina emciciana* V. B. Hosagoudar, P. J. Robin and G. R. Archana: INDIA, in foliis *Maerua apetala* (Spreng) M. Jacobs (Capparaceae), in vicinia Madras Christian College, Chennai, Tamil Nadu, 24 Dec 2007, V. B. Hosagoudar *et al.* HClO 48441 (type), TBGT 3162 (isotype).

Colonies amphigenous, mostly epiphyllous, thin, up to 3 mm in diameter. – Hyphae straight to flexuous, branching opposite to alternate at acute angles, loosely reticulate, cells 22–34 × 5–7 µm. – Appressoria alternate, unilateral, about 3% opposite, 12–18 µm long; basal cells cylindrical to cuneate, 5–7 µm long; head cells ovate, globose, entire, angular to sublobate, 5–10 × 5–7 µm. – Thyriothecia scattered, orbicular, up to 101 µm in diam., dehiscing stellately at the center. – Asci globose, octosporous, up to 41 µm in diam. – Ascospores brown, ellipsoidal, uniseptate, constricted at the septum, 19–36 × 7–10 µm, wall smooth.

Etymology. – This species is named after the college MCC (emcici).

Host plant. – *Maerua apetala* (Spreng) M. Jacobs

Material examined: *Asterina emciciana* V. B. Hosagoudar, P. J. Robin and G. R. Archana: INDIA, Campus of Madras Christian College, Chennai, Tamil Nadu, on leaves of *Maerua apetala* (Spreng) M. Jacobs (Capparaceae), 24 Dec 2007, V. B. Hosagoudar *et al.* HClO 48441 (holotype), TBGT 3162 (isotype).

Asterina capparidis Syd., P. Syd & E.J. Butler [as '*capparidis*'] was collected on *Capparis* sp. from Chennai by E. J. Butler during the year 1903 (Sydow *et al.* 1911, Hosagoudar & Abraham 2000). The present new species differs from it in having 3 % opposite appressoria and distinctly longer ascospores.

Meliola carissae Doidge var. ***spinari*** Hosag., Curr. Sci. 58: 145, 1989.

Material examined: *Meliola carissae* Doidge var. ***spinari*** Hosag.: INDIA, Campus of Madras Christian College, Chennai, Tamil Nadu, on leaves of *Carissa spinarum* L. (Apocynaceae), 24 Dec 2007, V. B. Hosagoudar *et al.* HClO 48329, TBGT 3050.

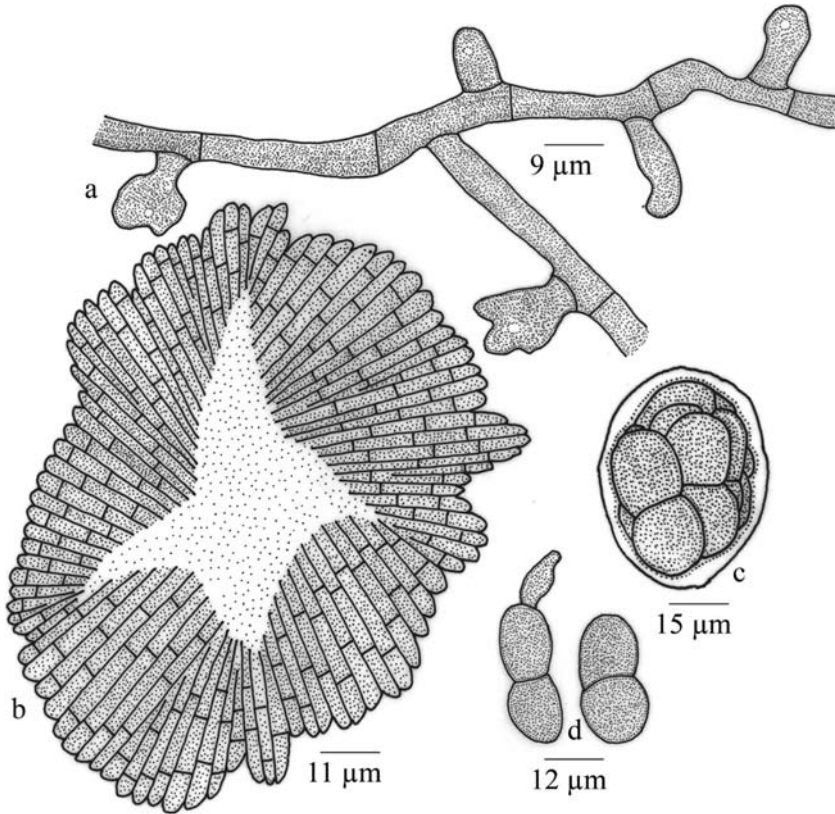


Fig. 2. – *Asterina emciciana* sp. nov.; **a.** Hyphae with two celled appressoria. **b.** Thyriothecium. **c.** Mature ascus with spores. **d.** Ascospores, one germinating.

Meliola palmicola Wint.var. ***africana*** Hansf., Sydowia 10: 81, 1957.

Material examined: ***Meliola palmicola*** Wint.var. ***africana*** Hansf.: INDIA, Campus of Madras Christian College, Chennai, Tamil Nadu, on leaves of *Phoenix sylvestris* (L.) Roxb. (Arecaceae), 24 Dec 2007, V. B. Hosagoudar *et al.* HCIO 48328, TBGT 3049.

Phyllachora hugoniae Theiss. & Sydow, Ann. Mycol. 13: 512, 1915; Ramakrishnan, T.S., Proc. Indian Acad. Sci. 35: 111, 1962; Kamat, Sesahdri & Pande, A Monographic Study of Indian species of *Phyllachora*, p. 45, 1978.

Material examined: ***Phyllachora hugoniae*** Theiss. & Sydow.: INDIA, in the campus of Madras Christian college, Chennai, Tamil Nadu, on leaves of *Hugonia mystax* L. (Linaceae), 24 Dec 2007, V. B. Hosagoudar *et al.* TBGT 3191.

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