



Four new Meliolaceae (Sordariomycetes: Meliolales) members from Kottayam forests in Kerala State, India

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During a survey of the foliicolous fungi in the Western Ghats region of Kerala State, authors collected several specimens from the Kottayam forest. Of these, the following five distinct and interesting Meliolaceae taxa are described and illustrated here. Four taxa do not match with any of the described Meliolaceae members, hence are described as new.

1. *Appendiculella elaeocarpicola* sp. nov.

(Fig. 1)

Materials examined: 04.iii.2007, on leaves of *Elaeocarpus tuberculatus* Roxb. (Elaeocarpaceae), Chapathu, Ponthanpuzha, Kottayam, Kerala, India, coll. P.J. Robin, HClO 48808 (holotype), TBGT 3184 (isotype) (MycoBank 561265).

Coloniae epiphyllae, subdensae, ad 3mm diam.. Hyphae rectae vel undulatae, plerumque oppositae

acuteque vel laxe ramosae, laxe vel arte reticulatae, cellulae 22–29 x 3–5 µm. Appressoria alternata, antrorsa vel subantrorsa, 17–19 µm longa; cellulae basillares cylindratae vel cuneatae, 5–7 µm longae; cellulae apicales globosae, ovatae, integrae, 12–14 x 7–10 µm. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 14–22 x 7–10 µm. Perithecia dispersa, globosa, ad 106µm in diam.; appendages peritheciales conoideae, rectae vel curvulae, striatus horizontalis, attenuatae vel late roundata ad apicem, ad 24µm longae; ascospores oblongae vel ellipsoideae, 4-septatae, constrictae ad septatae, 34–38 x 12–14 µm.

Colonies epiphyllous, subdense, up to 3mm in diameter. Hyphae straight to undulate, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 22–29 x 3–5 µm. Appressoria alternate, antrorse to subantrorse, 17–19 µm long; stalk cells cylindrical to cuneate, 5–7 µm long; head cells globose, ovate, entire, 12–14 x 7–10 µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 14–22 x 7–10 µm. Perithecia scattered, globose, up to 106 µm in diameter; perithecial appendages conoid, straight to curved, horizontally striated, attenuated to broadly rounded at the apex, up to 24µm long; ascospores oblong to ellipsoidal, 4-septate, constricted at the septa, 34–38 x 12–14 µm.

Asteridiella elaeocarpi-tuberculati Hosag., *A. elaeocarpicola* Hansf. and *Meliola elaeocarpi* Yates are known on this host genus (Hansford 1961; Hosagoudar 1996, 2008; Hosagoudar et al. 1997; Hosagoudar & Agarwal 2008). *Appendiculella elaeocarpicola* sp. nov. differs from all these species in having perithecial appendages.

Etmology: The specific epithet is based on the host genus.

2. *Meliola sterculicola* sp. nov.

(Fig. 2)

Materials examined: 22.xii.2006, on leaves of *Sterculia* sp. (Sterculiaceae), Ponthanpuzha, Placherry, Kottayam, Kerala, India, coll. P.J. Robin & M. Harish HClO 48143 (holotype), TBGT 2879 (isotype) (MycoBank 561266).

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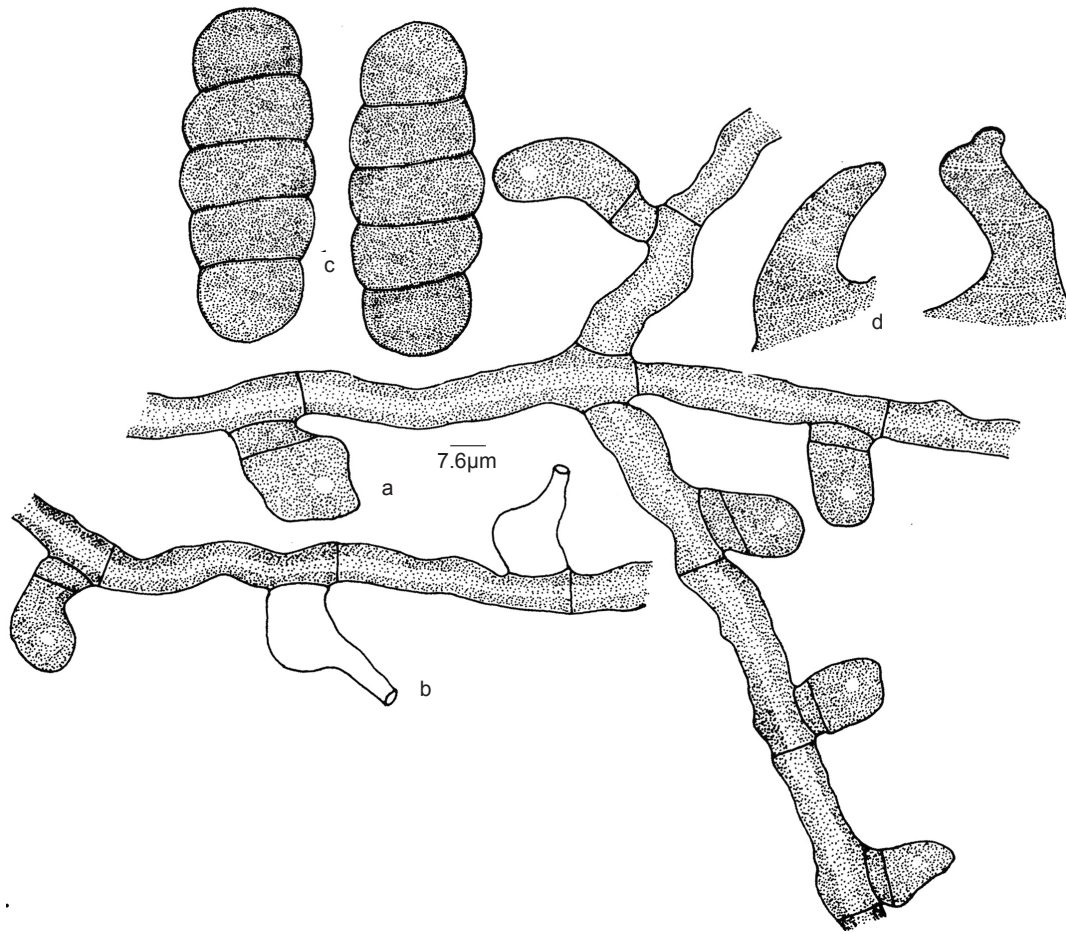


Figure 1. *Appendiculella elaeocarpicola* sp. nov.
 a - Appressorium; b - Phialide; c - Ascospores; d - Perithecial appendage

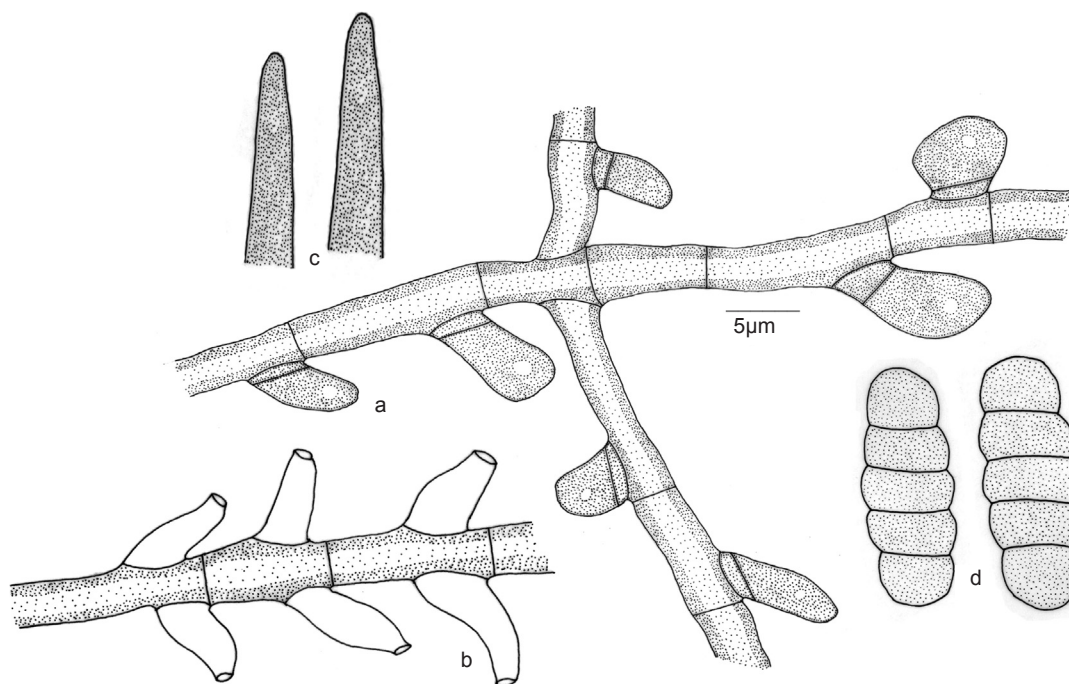


Figure 2. *Meliola sterculicola* sp. nov.
 a - Appressorium; b - Phialide; c - Apical portion of the mycelial setae; d - Ascospores

Coloniae epiphyllae, tenues, ad 3mm diam., confluentes. Hyphae rectae vel subrectae, plerumque oppositae ad laxe ramosae, laxe vel arte reticulatae, cellulae 19–26 x 4–7 μm . Appressoria plerumque alternata, unilateralis, antrorsa vel subantrorsa, 21–26 μm longa; cellulae basiales cylindratae vel cuneatae, 5–10 μm longae; cellulae apicales ovatae, globosae, integrae, angularis vel leniter lobatae, 19–14 x 10–12 μm . Phialides producentes mycelia separata, oppositae, alternatae vel unilateralis, ampulliformes, 14–24 x 5–7 μm . Setae paucae, simplices, rectae, acute ad apicem, ad 480 μm longae. Perithecia dispersa, globosa, ad 110 μm diam.; ascosporae oblongae, ellipsoidales, 4-septatae, constrictus ad septatae, 34–41 x 14–17 μm .

Colonies epiphyllous, thin, up to 3mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at wide angles, loosely to closely reticulate, cells 19–26 x 4–7 μm . Appressoria mostly alternate, unilateral, antrorse to subantrorse, 21–26

μm long; stalk cells cylindrical to cuneate, 5–10 μm long; head cells ovate, globose, entire, angular to slightly lobate, 19–14 x 10–12 μm . Phialides borne on a separate mycelial branch, opposite, alternate to unilateral, ampulliform, 14–24 x 5–7 μm . Mycelial setae few, simple, straight, acute at the tip, up to 480 μm long. Perithecia scattered, globose, up to 110 μm in diameter; ascospores oblong, ellipsoidal, 4-septate, constricted at the septa, 34–41 x 14–17 μm .

Based on the digital formula 3111.3222, it can be compared with *Meliola sterculiacearum* Hosag. & Kamar. known on the same host genus from Wayanad in Western Ghats. However, *Meliola sterculicola* sp. nov. differs from it in having longer appressoria with angular to sublobate head cells and phialides borne on a separate mycelia branch (Hosagoudar 2005).

Etmology: The specific epithet is based on the host genus.

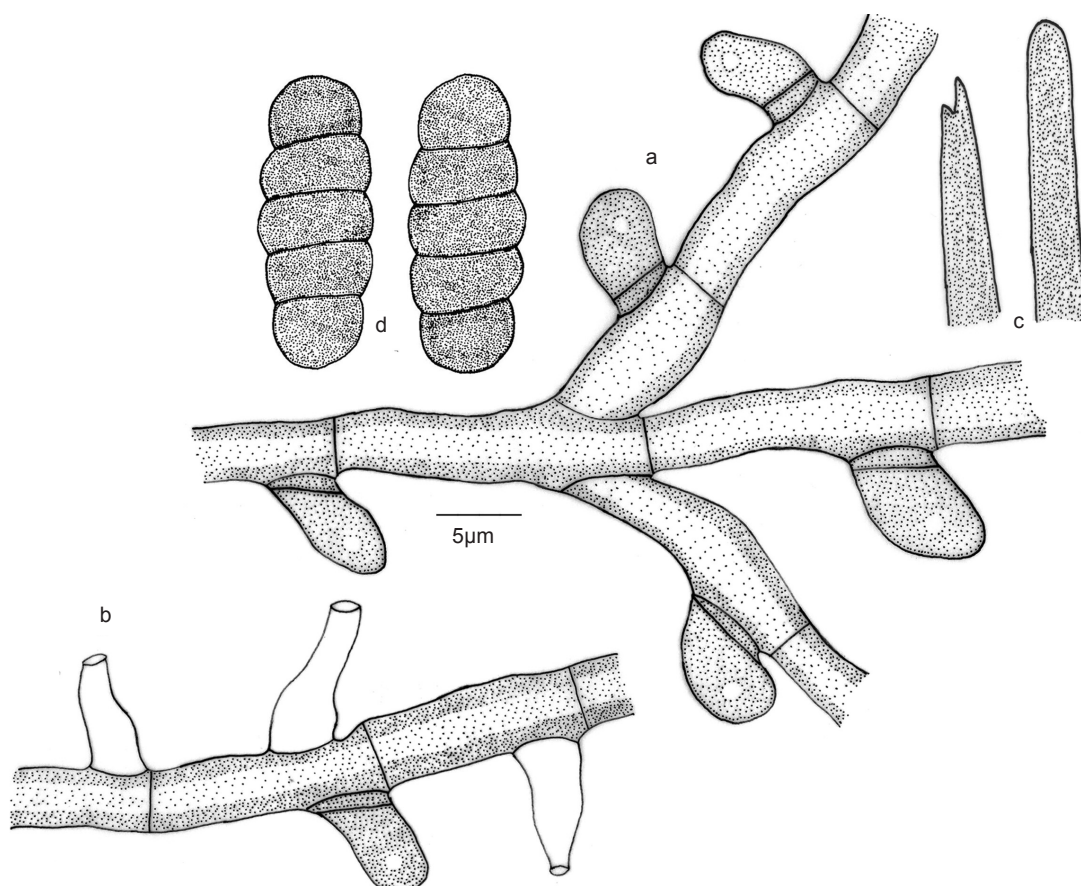


Figure 3. *Meliola gouaniae* Hansf. var. *keralica* var. nov.

a - Appressorium; b - Phialide; c - Apical portion of the mycelial setae; d - Ascospores

3. *Meliola gouaniae* Hansf. var. *keralica* var. nov. (Fig.3)

Materials examined: 12.iii.2007, on leaves of *Gouania* sp. (Rhamnaceae), Ponthanpuzha, Kottayam, Kerala, India, P.J. Robin HCIO 48793 (holotype), TBGT 3169 (isotype) (MycoBank 561268).

Affinis *Meliola gouaniae* sed differt a var. *gouaniae* setae myceliales nontorulose, longioribus et dentatus.

Colonies epiphyllous, thin, up to 4mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, loosely reticulate, cells 19–29 x 5–7 µm. Appressoria mostly alternate, unilateral, antrorse to subantrorse, 12–17 µm long; stalk cells cylindrical to cuneate, 2–7 µm long; head cells ovate, globose, entire, angular to slightly lobate, 10–14 x 7–10 µm. Phialides mixed with appressoria, alternate to opposite, unilateral, ampulliform, 21–29 x 5–7 µm. Mycelial setae scattered, simple, straight, obtuse to dentate at the tip, up to 420µm long. Perithecia scattered, globose, up to 178µm in diameter; ascospores obovoidal, 4-septate, constricted at the septa, 31–38 x 12–14 µm.

The present taxon is similar to *Meliola gouaniae* Hansf. known on *Gouania* sp. from Sierra Leone and

Java. However, *Meliola gouaniae* Hansf. var. *keralica* var. nov. differs from the var. *gouaniae* in having longer and not torulose but dentate mycelial setae.

Etmology: Named after the collection locality.

4. *Meliola lophopetaligena* sp. nov. (Fig. 4)

Materials examined: 09.ix.2007, on leaves of *Lophopetalum wightiana* Arn. (Celastraceae), Ponthanpuzha, Kottayam, Kerala, India, coll. P.J. Robin HCIO 48792 (holotype), TBGT 3168 (isotype) (MycoBank 561267).

Coloniae epiphyllae, densae, velutinae, ad 4mm diam., confluentes. Hyphae rectae vel subrectae, plerumque opposite acuteque ramosae, laxe vel arte reticulatae, cellulae 22–31 x 7–12 µm. Appressoria opposita, ad 3% alternata, positus ad spatium (pro parte maxima appressoria nulla), arte antrorsa, antrorsa vel subantrorsa, 19–26 µm longa; cellulae basiliares cylindraceae vel cuneatae, 2–7 µm longae; cellulae apicales ovatae, globosae, integrae, angularis vel leniter lobatae, 10–14 x 7–10 µm. Phialides appressoriis intermixtae, oppositae vel alternatae, ampulliformes, 19–26 x 9–12 µm. Setae myceliales numerosae, dispersae, simplices, rectae, acutae vel

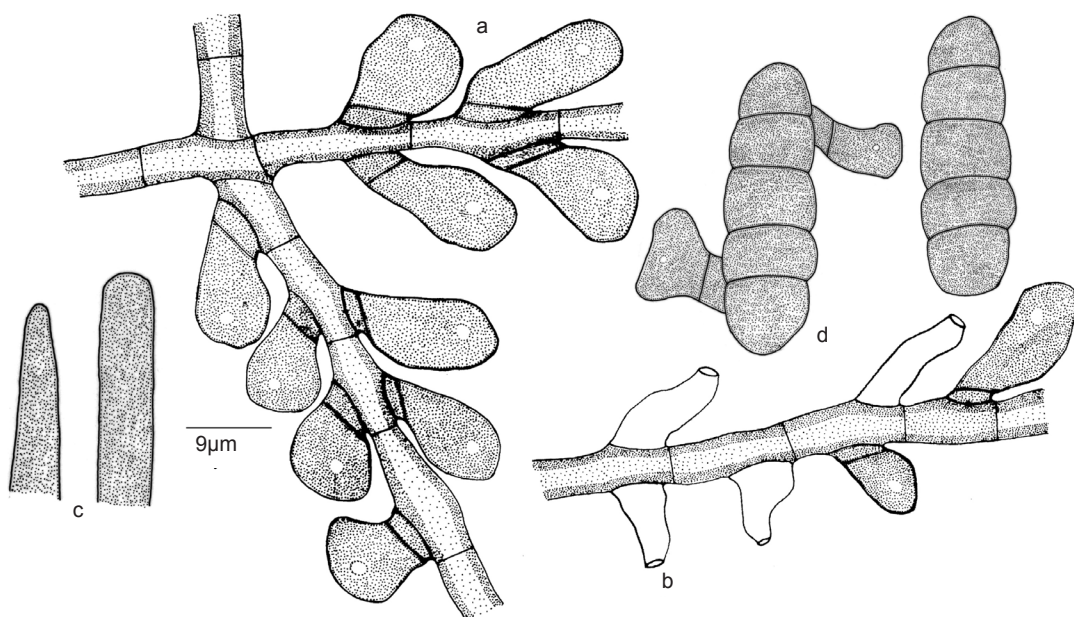


Figure 4. *Meliola lophopetaligena* sp. nov.

a - Appressorium; b - Phialide; c - Apical portion of the mycelial setae; d - Ascospores

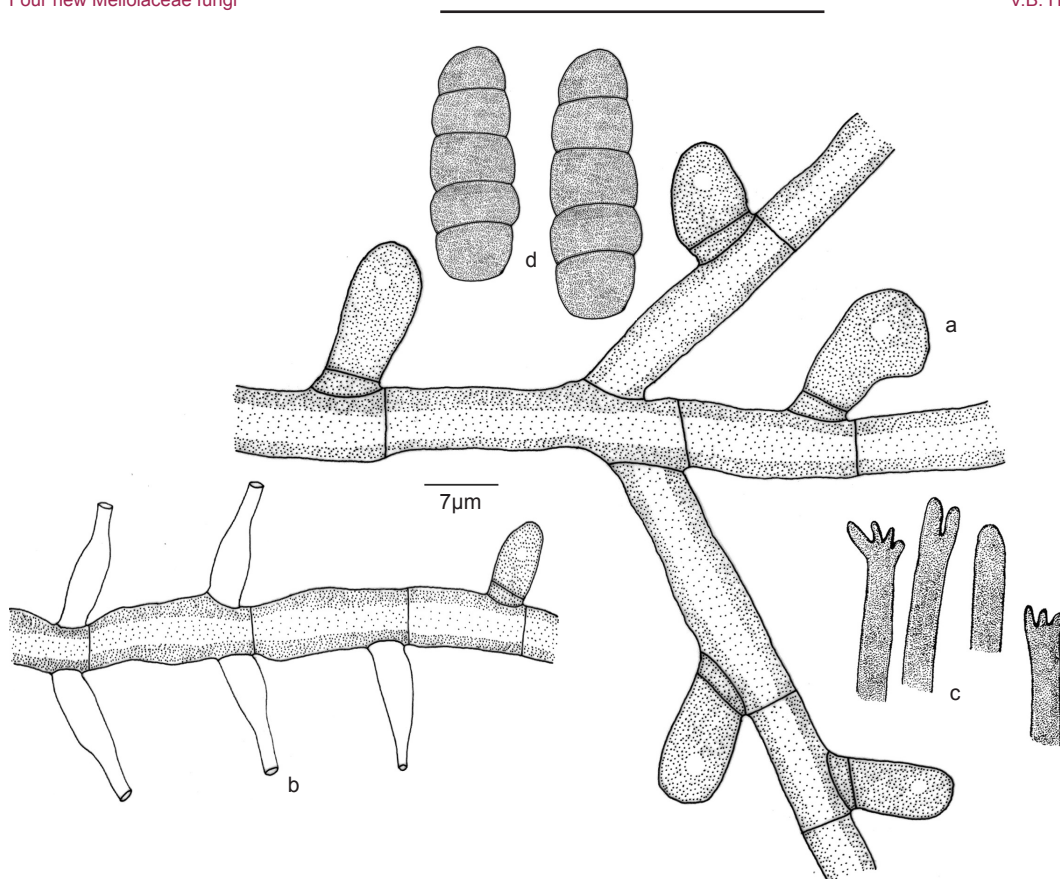


Figure 5. *Meliola garugae* Stev. & Rold.

a - Appressorium; b - Phialide; c - Apical portion of the mycelial setae; d - Ascospores

obtusae ad apicem, ad 780 μ m longae. Perithecia dispersa, globosa, ad 250 μ m diam.; ascosporae oblongae vel cylindratae, 4-septatae, constrictus ad septatae, 36–46 x 12–17 μ m.

Colonies epiphyllous, dense, velvety, up to 4mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at acute angles, loosely to closely reticulate, cells 22–31 x 7–12 μ m. Appressoria opposite, about 3% alternate, arranged after an intermittent interval (in most places mycelium devoid of appressoria), closely antrorse, antrorse to subantrorse, 19–26 μ m long; stalk cells cylindrical to cuneate, 2–7 μ m long; head cells ovate, globose, entire, angular to slightly lobate, 10–14 x 7–10 μ m. Phialides mixed with appressoria, opposite to alternate, ampulliform, 19–26 x 9–12 μ m. Mycelial setae numerous, scattered, simple, straight, acute to obtuse at the tip, up to 780 μ m long. Perithecia scattered, globose, up to 250 μ m in diameter; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 36–46 x 12–17 μ m.

Meliola lophopetali Stev. ex Hansf. is known on

Lophopetalum toxicum from Philippines. However, *Meliola lophopetaligena* sp. nov. differs from it in having closely arranged longer appressoria arranged after an intermittent intervals, longer mycelial setae and larger ascospores (Hansford 1961). It also differs from *Meliola chennaiana* Hosag. & Goos known on *Lophopetalum* sp. from Chennai, Eastern Ghats in having 3% opposite appressoria, ovate, globose, entire, angular to slightly lobate head cells of the appressoria and phialides mixed with appressoria (Goos & Hosagoudar 1998).

Etmology: The specific epithet is based on the host genus.

5. *Meliola garugae* Stev. & Rold., Philippine J. Sci. 56: 67, 1935; Hansf., Sydowia Beih. 2: 399, 1961. (Fig. 5)

Materials examined: 29.vi.2007, on leaves of *Garuga pinnata* Roxb. (Burseraceae), Vazhoor,

Kottayam, Kerala, India, P.J. Robin HClO 48791, TBGT 3167.

Colonies amphigenous, mostly epiphyllous, up to 3mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite to alternate at acute angles, loosely reticulate, cells 24–36 x 5–7 µm. Appressoria alternate to unilateral, antrorse to subantrorse, 14–19 µm long; stalk cells cylindrical to cuneate, 5–7 µm long; head cells ovate, globose, entire, 10–12 x 7–10 µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, neck elongated, 19–24 x 7–10 µm. Mycelial setae numerous, scattered, straight, dentate, cristate, bifid to obtuse at the tip, up to 370µm long. Perithecia scattered, up to 170µm in diameter; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 36–43 x 14–17 µm.

This species was known in *Garuga* sp. from the Philippines and was known only from a single collection (Hansford 1961). It is reported here for the first time from India on a hitherto unrecorded host species (Hosagoudar 1996, 2008).

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