

## Meliolaceae of Kerala, India – XIII

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Three new species belonging to the family Meliolaceae, namely, *Asteridiella myristicacearum*, *Meliola oleacearum* and *M. shivaraजू* are described and illustrated in detail.

Keywords: Meliolaceae, Ascomycetes, Kerala, taxonomy.

### 1. *Asteridiella myristicacearum* V. B. Hosagoudar, **sp. nov.** – Fig. 1.

Coloniae epiphyllae, densae, crustosae, ad 2 mm diam., raro confluentes. Hyphae plerumque rectae vel raro flexuosae, oppositae vel irregulariter acutis vel obtusis angulis ramosae, laxae vel dense reticulatae, cellulae 16–19 × 8–10 µm. Appressoria alternata, dense posita, antrorsa vel subantrorsa, plerumque recta, raro recurvata, 25–40 µm longa; cellulae basillares cylindratae vel cuneatae, 8–11 µm longae; cellulae apicales ovatae vel globosae, stellatim vel irregulariter sublobatae vel fortiter lobatae, 17–28 × 19–21 µm. Phialides appressoriis intermixtae, alternatae, ampulliformes, 15–25 × 7–9 µm. Perithecia immatura, ad 100 µm diam.; ascospores oblongae vel leniter ellipsoideae, 4-septatae, constrictae, 41–45 × 14–21 µm.

Colonies epiphyllous, dense, crustose, up to 2 mm in diameter, rarely confluent. – Hyphae mostly straight but rarely flexuous, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 16–19 × 8–10 µm. – Appressoria alternate, closely arranged, antrorse to subantrorse, mostly straight, rarely recurved, 25–40 µm long; stalk cells cylindrical to cuneate, 8–11 µm long; head cells ovate to globose, stellately to irregularly sublobate to deeply lobate, 17–28 × 19–21 µm. – Phialides mixed with appressoria, alternate, ampulliform, 15–25 × 7–9 µm. – Perithecia immature, up to 100 µm in diameter. – Ascospores oblong to slightly ellipsoidal, 4-septate, constricted at the septa, 41–45 × 14–21 µm.

Holotype. – On leaves of a Myristicaceae member, Attayar, Neyyar wildlife sanctuary, Thiruvananthapuram, Kerala, India, March 19, 1997, V. B. Hosagoudar (HCIO 44140).

Isotype. – TBGT 553.

Etymology. – Referring to the host family, the Myristicaceae.

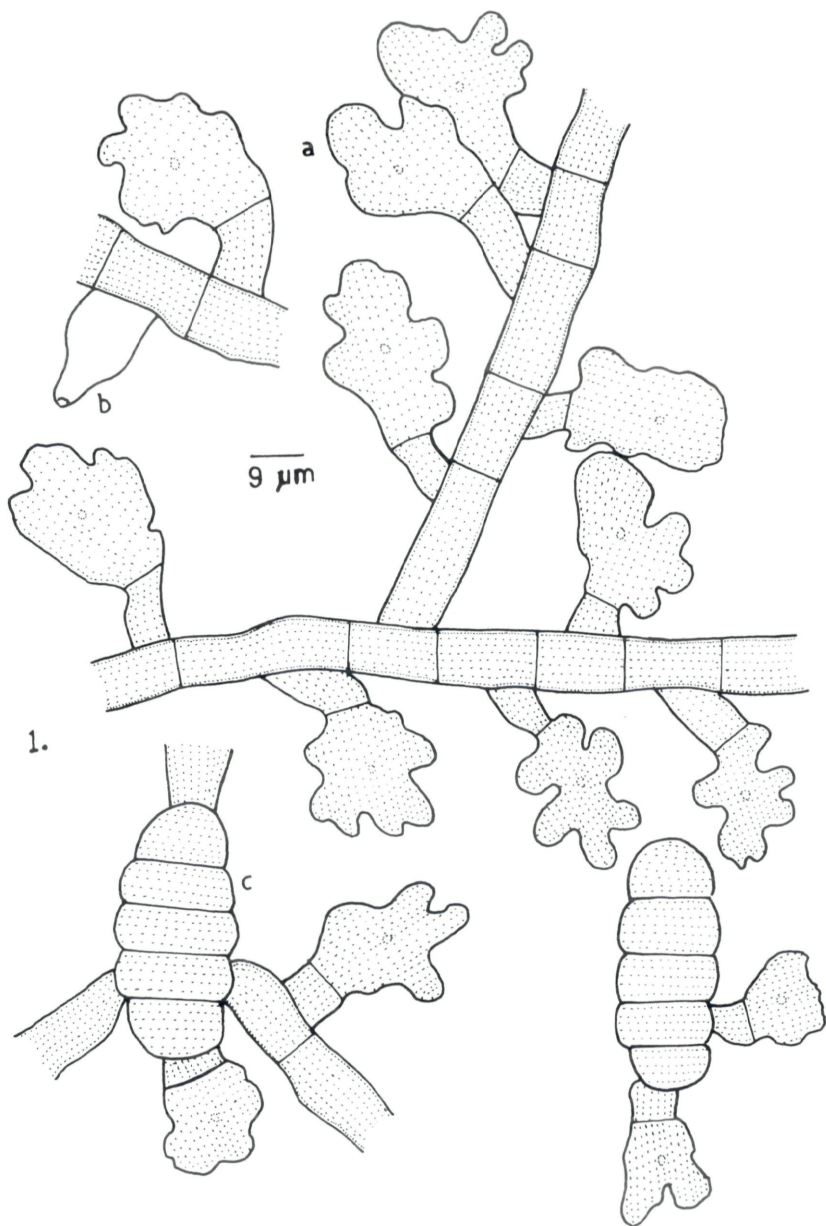


Fig. 1. – *Asteridiella myristicacearum* sp. nov. – a: Appressoria. – b: Philalides. – c: Ascospores.

This species differs from *Asteridiella knemae* Hansf. and *A. knemae* var. *microspora* Hosag. & Abraham in having stellately lobate head cells of appressoria (Hansford, 1961; Hosagoudar & Abraham, 1999).

2. *Meliola oleacearum* V. B. Hosagoudar, sp. nov. – Fig. 2.

Coloniae hypophyllae, densae, dispersae, ad 10 mm diam., confluentes. Hyphae flexuosae vel anfractuae, oppositae vel irregulariter acutis angulis ramosae, laxae vel dense reticulatae, cellulae  $20\text{--}26 \times 4\text{--}6.5\ \mu\text{m}$ . Appressoria alternata, antrorsa, retrorsa, patentia, hyphis versus curvata,  $14\text{--}24\ \mu\text{m}$  longae; cellulae basiales cylindratae vel cuneatae,  $3\text{--}6.5\ \mu\text{m}$  longae; cellulae apicales ovatae, oblongae, anguste oblongae, cylindratae, integrae, raro angulares vel sublobatae, rectae, curvulae vel uncinatae,  $11\text{--}18 \times 6\text{--}10\ \mu\text{m}$ . Phialides numerosae, appressoriis intermixtae, alternatae, ampulliformes, collo longo,  $20\text{--}26 \times 4\text{--}6.5\ \mu\text{m}$ . Setae myceliales numerosae, dispersae, simplices, rectae, flexuosae, sigmoideae, curvulae, uncinatae, ad  $400\ \mu\text{m}$  longae, ad apicem subobtusae vel obtusae. Perithecia dispersa, ad  $120\ \mu\text{m}$  diam.; ascosporae oblongae vel leniter ellipsoideae, 4-septatae, constrictae,  $35\text{--}40 \times 14\text{--}16\ \mu\text{m}$ .

Colonies hypophyllous, dense, scattered, up to 10 mm in diameter, confluent. – Hyphae flexuous to crooked, branching opposite to irregular at acute angles, loosely to closely reticulate, cells  $20\text{--}26 \times 4\text{--}6.5\ \mu\text{m}$ . – Appressoria alternate, antrorse, retrorse, spreading, curved towards hyphae,  $14\text{--}24\ \mu\text{m}$  long; stalk cells cylindrical to cuneate,  $3\text{--}6.5\ \mu\text{m}$  long; head cells ovate, oblong, narrowly oblong, cylindrical, entire, rarely angular to sublobate, straight, curved to

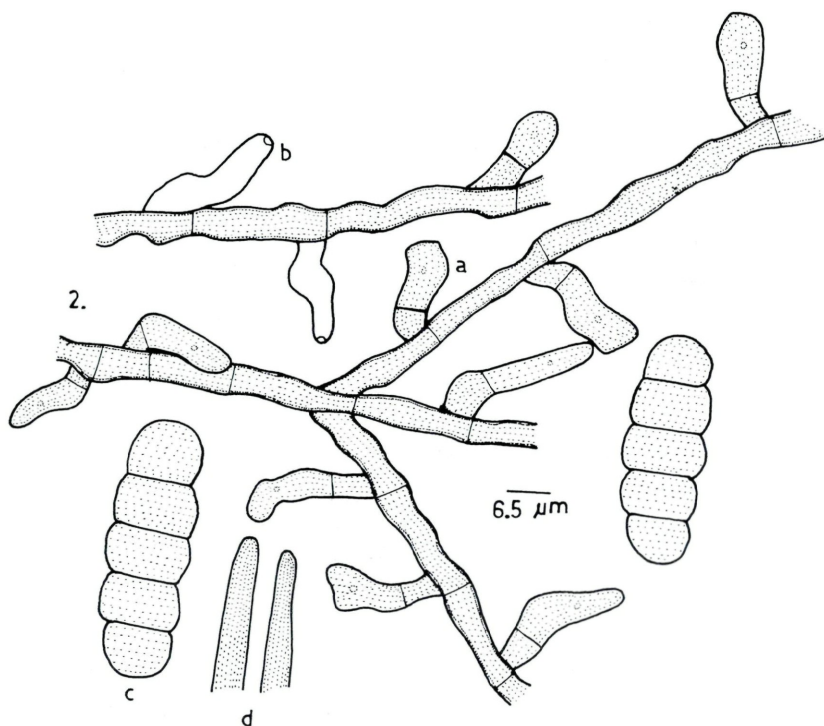


Fig. 2. – *Meliola oleacearum* sp. nov. – a: Appressoria. – b: Phialides. – c: Mycelial setae. – d: Ascospores.

uncinate,  $11-18 \times 6-10 \mu\text{m}$ . – Phialides many, mixed with appressoria, alternate, ampulliform, neck elongated,  $20-26 \times 4-6.5 \mu\text{m}$ . – Mycelial setae numerous, scattered, simple, straight, flexuous, sigmoid, curved, uncinata, up to  $400 \mu\text{m}$  long, subobtusate to obtusate at the tip. – Perithecia scattered, up to  $120 \mu\text{m}$  in diameter. – Ascospores oblong to slightly ellipsoidal, 4-septate, constricted,  $35-40 \times 14-16 \mu\text{m}$ .

Holotype. – On leaves of *Olea dioica* Roxb. (Oleaceae), in the campus of Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala, India, Jan. 25, 1997, V. B. Hosagoudar (HClO 44122).

Isotype. – TBGT 556.

Etymology. – referring to the host family, the Oleaceae.

Based on curved to uncinata mycelial setae, the present collection is closer to *Meliola petiolaris* Doidge reported on *Olea laurifolia* from South Africa (Hansford, 1961) but *M. oleacearum* differs from it in having shorter appressoria and straight, sigmoid, flexuous and uncinata setae. The upper surface of the leaves was infected with *Meliola malabarensis* Hansf.

**3. *Meliola shivarajui* V. B. Hosagoudar & M. Kamarudeen, sp. nov. – Fig. 3.**

Coloniae amphigenae, coloniae epiphyllae breviores, coloniae hypophyllae amplae, densae, ad  $3 \text{ mm}$  diam., confluentes. Hyphae plerumque rectae, oppositae vel irregulariter acutis vel obtusis angulis ramosae, laxae vel dense reticulatae, cellulae  $16-23 \times 6-7 \mu\text{m}$ . Appressoria alternata, plerumque antrorsa, raro subantrorsa vel recurvata,  $14-21 \mu\text{m}$  longae; cellulae basillares cylindratae vel cuneatae,  $3-5 \mu\text{m}$  longae; cellulae apicales ovatae, oblongae, integrae vel raro angulares,  $11-16 \times 8-11 \mu\text{m}$ . Phialides numerosae, appressoriis intermixtae, alternatae, ampulliformes,  $16-20 \times 6-8 \mu\text{m}$ . Setae myceliales numerosae, simplices, rectae vel late curvulae sed non-uncinatae, ad  $440 \mu\text{m}$  longae, ad apicem acutae, obtusae vel  $2-3$  minute dentatae. Perithecia dispersa vel laxae aggregata, ad  $144 \mu\text{m}$  diam.; ascosporae oblongae vel leniter fusiformes, 4-septatae, constrictae,  $40-47 \times 16-20 \mu\text{m}$ .

Colonies amphigenous, smaller on the upper surface, while larger on the lower surface, dense, up to  $3 \text{ mm}$  in diameter, confluent. – Hyphae mostly straight, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells  $16-23 \times 6-7 \mu\text{m}$ . – Appressoria alternate, mostly antrorse, often subantrorse to recurved,  $14-21 \mu\text{m}$  long; stalk cells cylindrical to cuneate,  $3-5 \mu\text{m}$  long; head cells ovate, oblong, entire to rarely angular,  $11-16 \times 8-11 \mu\text{m}$ . – Phialides numerous, mixed with appressoria, alternate, ampulliform,  $16-20 \times 6-8 \mu\text{m}$ . – Mycelial setae numerous, simple, straight to broadly curved but not uncinata, up to  $440 \mu\text{m}$  long, acute, obtuse to  $2-3$  times minutely dentate at the apex. – Perithe-



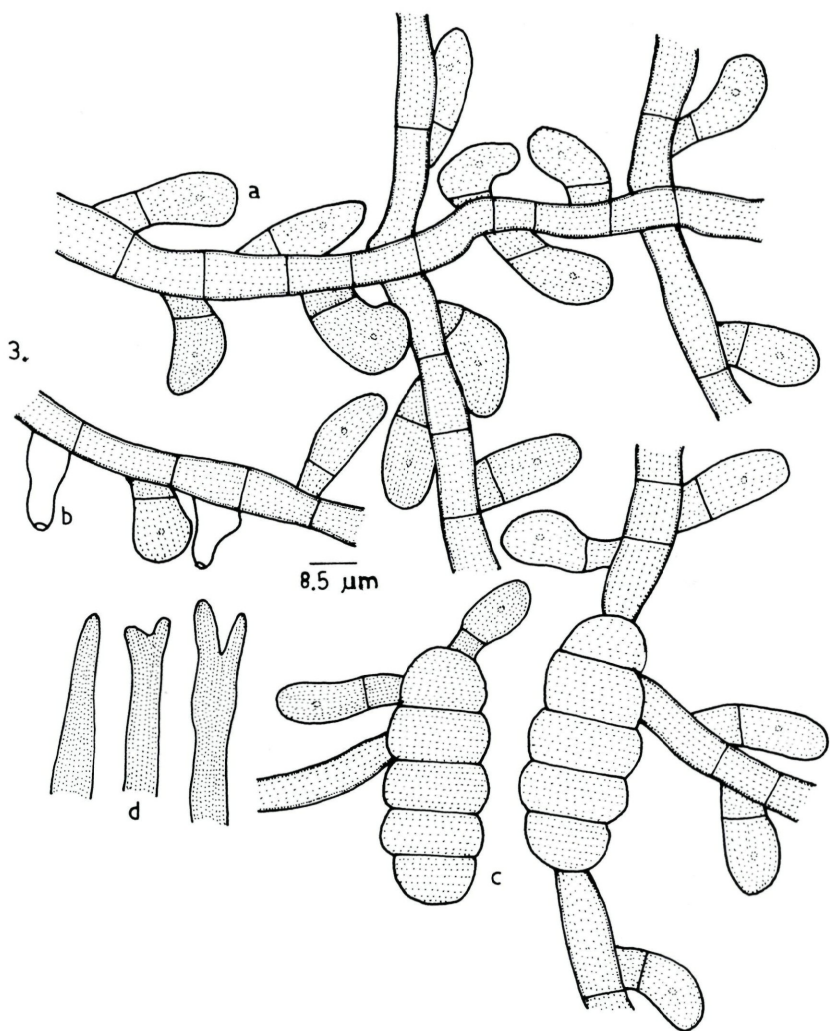


Fig. 3. – *Meliola shivarajui* sp. nov. – a: Appressoria. – b: Philalides. – c: Mycelial setae. – d: Ascospores.

cia scattered to loosely grouped, up to 144  $\mu\text{m}$  in diameter. – Ascospores oblong to slightly fusiform, 4-septate, constricted at the septa, 40–47  $\times$  16–20  $\mu\text{m}$ .

Holotype. – On leaves of *Semecarpus* sp. (Anacardiaceae), Ponmudy, Thiruvananthapuram, Kerala, India, Feb. 26, 2001, M. Kamarudeen (HCIO 44150).  
Isotype. – TBGT 551.

Etymology. – This species is named in honour of Dr. B. Shivaraju, Conservator of Forests.

*Meliola mangiferae* Earle and *M. glutae* Hosag. & Abraham are two species having entire and dentate mycelial setae (Hansford, 1961; Hosagoudar & al., 1997). However, *M. shivarajui* differs from the former species in having shorter appressoria, mycelial setae and smaller ascospores. It differs from the latter species in having shorter mycelial setae and smaller ascospores.

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