

## Meliolaceae of Kerala, India-XXXII

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**Abstract:** This paper gives an account of five taxa of the genus *Meliola*. Of these, *Meliola dioscoreacearum*, *M. dioscoregena* and *M. vazhachalensis* are the new species, while, *M. erythrinae* var. *indica* and *M. strophanthicola* var. *indica* are the new varieties collected from the Western Ghats region of Kerala state. All these fungi are described and illustrated in detail.

**Keywords:** *Meliola*, New species, Kerala, India

### Introduction

During a survey of the foliicolous fungi in the Western Ghats region of Kerala state, several foliicolous fungi have been collected from Vazhachal forest in Thrissur district, Peppara Wildlife Sanctuary in Thiruvananthapuram district and Kozhencherry region in Pathanamthitta districts. Of these, five taxa are described and illustrated in detail.

### Taxonomy

#### 1. *Meliola dioscoreacearum* sp. nov. (Fig. 1)

Coloniae epiphyllae, densae, velutinae, ad 2 mm in diam., confluentes. Hyphae rectae, oppositae acutaeque ramosae, laxae vel arte reticulatae, cellulae 16-34 x 4-7  $\mu$ m. Appressoria alternata, ad 3% opposita, antrorsa vel subantrorsa, recta vel curvula, 14-19  $\mu$ m longa; cellulae basiales cylindratae vel cuneatae, 2-5  $\mu$ m longae; cellulae apicales curvulae, cylindratae, ovatae, integrae, ad apicem rotundatae, 12-15 x 7-10  $\mu$ m. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 14-24 x 7-10  $\mu$ m. Setae myceliales dispersae, rectae, simplices, acutae vel dentatae ad apicem, ad 510  $\mu$ m longae. Perithecia dispersa, verrucosa, ad 200  $\mu$ m diam.; ascospores cylindratae, 4-septatae, fortiter constrictae ad septatae, 36-38 x 14-17  $\mu$ m.

Colonies epiphyllous, dense, velvety, up to 2 mm in diameter, confluent. Hyphae straight, branching opposite at acute angles, loosely to closely reticulate, cells 16-34 x 4-7  $\mu$ m. Appressoria alternate, about 3% opposite, antrorse to subantrorse, straight to curved, 14-19  $\mu$ m long; stalk cells cylindrical to cuneate, 2-5  $\mu$ m long; head cells curved, cylindrical, ovate, entire, rounded at the apex, 12-15 x 7-10  $\mu$ m. Phialides mixed with appressoria, alternate to opposite, ampulliform, 14-24 x 7-10  $\mu$ m. Mycelial setae scattered, straight, simple, acute to dentate at the tip, up to 510  $\mu$ m long. Perithecia scattered, verrucose, up to 200  $\mu$ m in diam.; ascospores cylindrical, 4-septate, strongly constricted at the septum, 36-38 x 14-17  $\mu$ m.

**Materials examined:** On leaves of *Dioscorea* sp. (Dioscoreaceae), Lower Sholayar, Vazhachal, Thrissur, Kerala, India, Nov. 12, 2007, Jacob Thomas & al, HClO 48251 (type), TBGT 2990 (isotype).

Based on the dentate mycelial setae and oppositely placed appressoria, this species can be compared with *Meliola dioscoreicola* Hansf. & Deight. and its variety

*peruviensis* Hansf. but differs from both in having only 3% opposite appressoria, minutely dentate mycelial setae and the apical cells of the appressoria are typically ovate to cylindrical (Hansford, 1961). This forms the first report of meliolaceous fungi on the members of the family Dioscoreaceae (Hosagoudar, 1996, 2008).

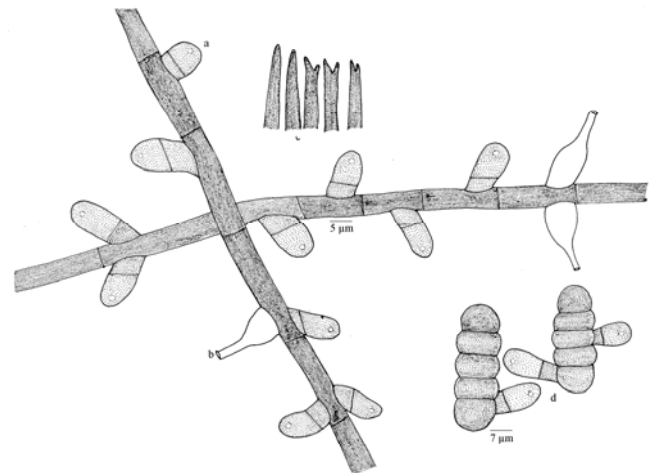


Fig. 1. *Meliola dioscoreacearum* sp. nov.  
a. Appressorium, b. Phialide, c. Apical portion of mycelial setae, d. Ascospores

#### 2. *Meliola dioscoregena* sp. nov. (Fig. 2)

Coloniae epiphyllae, densae, velutinae, ad 2 mm diam. Hyphae rectae vel subrectae, oppositae acutaeque ramosae, arte reticulatae, cellulae 9-15 x 4-7  $\mu$ m. Appressoria opposita, minusve 1% alternata, antrorsa vel patentia, recta vel leniter curvula, 12-17  $\mu$ m longa; cellulae basiales cylindratae vel cuneatae, 2-5  $\mu$ m longae; cellulae apicales subglobosae vel ovatae, integrae, 9-12 x 7-10  $\mu$ m. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 7-14 x 4-7  $\mu$ m. Setae myceliales dispersae vel aggregatae juxta perithecia, rectae, simplices, acutae vel obtusae ad apicem, ad 440  $\mu$ m longae. Perithecia plerumque aggregata ad colonis centralis, verrucosa, ad 190  $\mu$ m diam.; ascospores cylindratae vel ellipsoideae, 4-septatae, constrictae, 36-41 x 14-17  $\mu$ m.

Colonies epiphyllous, dense, velvety, up to 2 mm in diameter, not confluent. Hyphae straight to substraight, branching opposite at acute angles, closely reticulate, cells 9-15 x 4-7  $\mu$ m. Appressoria opposite, less than 1% alternate, antrorse to spreading, straight to slightly curved, 12-17  $\mu$ m long; stalk cells cylindrical to cuneate, 2-5  $\mu$ m long; head cells subglobose to ovate, entire, 9-12 x 7-10  $\mu$ m. Phialides mixed with appressoria, alternate to opposite, ampulliform, 7-14 x 4-7  $\mu$ m. Mycelial setae scattered to grouped around perithecia, straight, simple, acute to obtuse at the tip, up to 440  $\mu$ m long. Perithecia mostly grouped at the centre of the colony, verrucose, up

to 190  $\mu\text{m}$  in diam.; ascospores cylindrical to ellipsoidal, 4-septate, constricted, 36-41 x 14-17  $\mu\text{m}$ .

**Materials examined:** On leaves of *Dioscorea* sp. (Dioscoreaceae), Peppara Wildlife Sanctuary, November 18, 2007, Jacob Thomas and Vimalkumar HCIO 48250 (type), TBGT 2989 (isotype).

Typically opposite appressoria distinguishes this species from rest of the *Meliola* species known on the members of the family Dioscoreaceae (Hansford, 1961, Hosagoudar *et al.* 1997).

Ascospores produce three appressoria from the terminal cells and the mycelium is being produced from the sub-terminal cells.

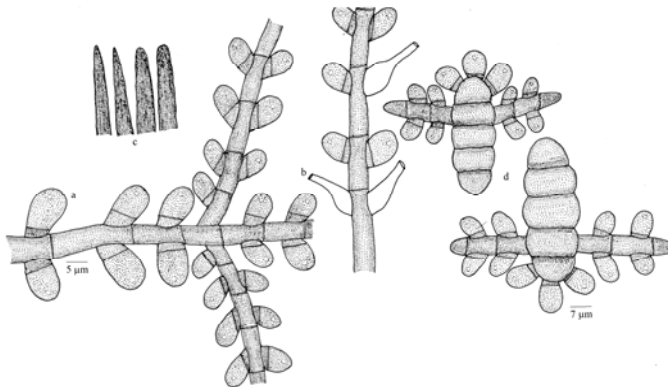


Fig. 2. *Meliola dioscoregena* sp. nov.  
a. Appressorium, b. Phialide, c. Apical portion of mycelial setae, d. Ascospores

### 3. *Meliola erythrinae* Sydow var. *indica* var. nov. (Fig. 3)

Differt a var. *erythrinae* appressoria 5% opposita.

Colonies epiphyllous, thin, up to 3 mm in diameter, confluent. Hyphae substraight to slightly undulate, branching opposite at acute to wide angles, loosely to closely reticulate, cells 21-41 x 4-7  $\mu\text{m}$ . Appressoria alternate, 5% unilateral, 5% opposite, antrorse to spreading, straight to curved, 12-17  $\mu\text{m}$  long; stalk cells cylindrical to cuneate, 2-5  $\mu\text{m}$  long; head cells subglobose, clavate, entire, 9-12 x 12-15  $\mu\text{m}$ . Phialides mixed with appressoria, opposite to alternate, ampulliform, 14-22 x 7-10  $\mu\text{m}$ . Mycelial setae numerous, scattered to grouped around perithecia, straight, simple, acute to obtuse at the tip, up to 410  $\mu\text{m}$  long. Perithecia scattered to grouped, verrucose, up to 160  $\mu\text{m}$  in diam.; ascospores cylindrical to subellipsoidal, 4-septate, constricted at the septa, 33-43 x 12-17  $\mu\text{m}$ .

**Materials examined:** On leaves of *Erythrina variegata* L. (*E. indica* Lam.) (Fabaceae), near Lower Sholayar dam, Vazhachal, Thrissur, Kerala, India, Nov. 12, 2007, Jacob Thomas & al HCIO 48253 (type), TBGT 2992 (isotype).

The present collection is similar to *Meliola erythrinae* but the variety differs from the var. *erythrinae* in having 5% opposite appressoria.

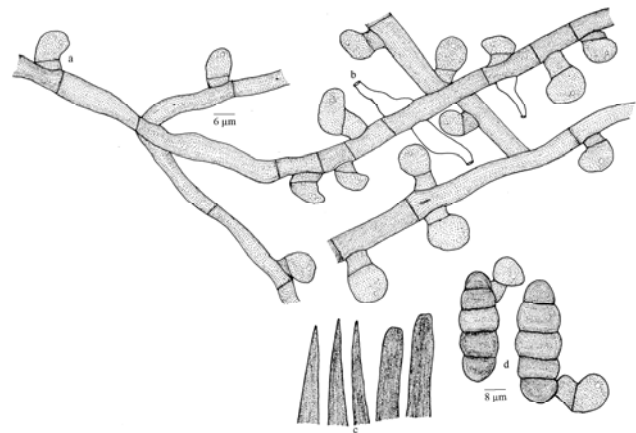


Fig. 3. *Meliola erythrinae* Sydow var. *indica* var. nov.

a. Appressorium, b. Phialide, c. Apical portion of mycelial setae, d. Ascospores

### 4. *Meliola strophanthicola* Hansf. var. *indica* var. nov. (Fig. 4)

Colonies amphigenous, dense, velvety, up to 4 mm in diameter, confluent. Hyphae substraight to undulate, branching mostly opposite to undulate, branching mostly opposite at acute to wide angles, loosely to closely reticulate, cells 19-26 x 5-7  $\mu\text{m}$ . Appressoria alternate, antrorse to subantrorse, spreading, 17-24  $\mu\text{m}$  long; stalk cells cylindrical to cuneate, 6-9  $\mu\text{m}$  long; head cells cylindrical, ovate, entire, 11-15 x 6-9  $\mu\text{m}$ . Phialides mixed with appressoria, opposite to alternate, ampulliform, 13-18 x 5-7  $\mu\text{m}$ . Mycelial setae numerous, scattered to grouped around perithecia, simple, straight to curved, acute at the tip, up to 480  $\mu\text{m}$  long. Perithecia scattered, verrucose, up to 170  $\mu\text{m}$  in diam.; ascospores cylindrical to subellipsoidal, 4-septate, slightly constricted at the septa, 33-38 x 11-16  $\mu\text{m}$ .

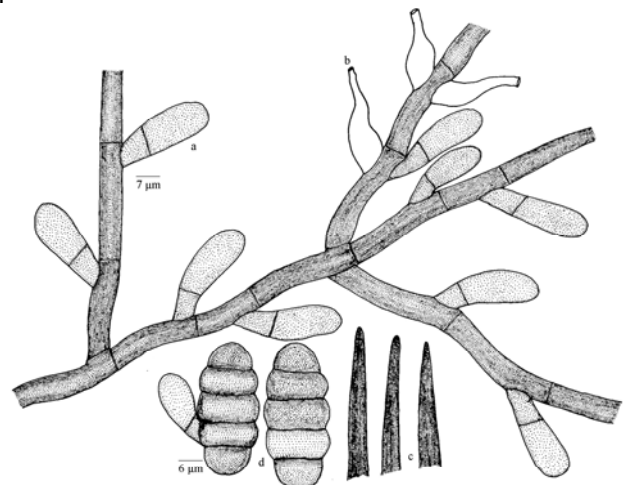


Fig. 4. *Meliola strophanthicola* Hansf. var. *indica* var. nov.

a. Appressorium, b. Phialide, c. Apical portion of mycelial setae, d. Ascospores

**Materials examined:** On leaves of *Strophanthus wightianus* Wallich ex Wight (Apocynaceae), St. Thomas College Campus, Kozhencherry, Pathanamthitta, Kerala,

India, Feb. 1, 2007, Jacob Thomas HCIO 48017 (type), TBGT 2800 (isotype).

Two species of the genus *Meliola*, *M. monilispora* Gaill. and *M. strophanthicola* Hansf. are known on the host genus *Strophanthus* from Congo Francoise and Uganda (Hansford, 1961). The present collection differs from the former species in having only acute mycelial setae in contrast to all dentate ones. It is similar to the later species but the new variety differs from the var. *strophanthicola* in having distinctly smaller ascospores (33-38 x 11-16  $\mu\text{m}$ ) in contrast to 42-46 x 15-17  $\mu\text{m}$ .

5. *Meliola vazhachalensis* sp. nov. (Fig. 5)

Coloniae epiphyllae, subdensae, velutinae, ad 4 mm in diam., confluentes. Hyphae rectae, oppositae acuteque ramosae, laxae vel arte reticulatae, cellulae 12-28 x 5-7  $\mu\text{m}$ . Appressoria opposita, antrorsa, subantrorsa vel patentia, 12-17  $\mu\text{m}$  longa; cellulae basillares cylindratae vel cuneatae, 2-5  $\mu\text{m}$  longae; cellulae apicales ovatae, cylindratae, leniter attenuatae et late rotundatae ad apicem, integrae, 9-15 x 7-10  $\mu\text{m}$ . Phialides appressorii intermixtae, alternatae to oppositae, ampulliformes, 14-22 x 5-9  $\mu\text{m}$ . Setae myceliales juxta perithecia aggregatae, simplices, uncinatae vel leniter circinatae, acutae ad apicem, ad 220  $\mu\text{m}$  longae. Perithecia dispersa, verrucosa, ad 140  $\mu\text{m}$  diam.; ascospores cylindratae vel obovoidea, 4-septatae, constrictae ad septatae, 28-36 x 12-15  $\mu\text{m}$ .

Colonies epiphyllous, subdense, velvety, up to 4 mm in diameter, confluent. Hyphae straight, branching opposite at acute angles, loosely to closely reticulate, cells 12-28 x 5-7  $\mu\text{m}$ . Appressoria opposite, antrorse, to subantrorse to spreading, 12-17  $\mu\text{m}$  long; stalk cells cylindrical to cuneate, 2-5  $\mu\text{m}$  long; head cells ovate, cylindrical, slightly attenuated and broadly rounded at the apex, entire, 9-15 x 7-10  $\mu\text{m}$ . Phialides mixed with appressoria, alternate to opposite, ampulliform, 14-22 x 5-9  $\mu\text{m}$ . Mycelial setae grouped around perithecia, simple, uncinuate to slightly coiled, acute at the tip, up to 220  $\mu\text{m}$  long. Perithecia scattered, verrucose, up to 140  $\mu\text{m}$  in diam.; ascospores cylindrical to obovoidal, 4-septate, constricted at the septa, 28-36 x 12-15  $\mu\text{m}$ .

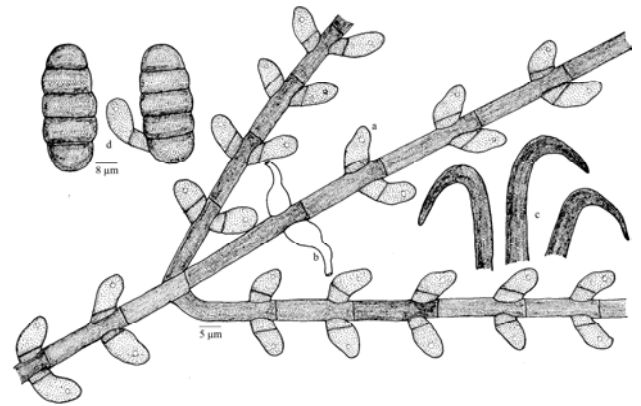


Fig. 5. *Meliola vazhachalensis* sp. nov.

a. Appressorium, b. Phialide, c. Apical portion of mycelial setae, d. Ascospores

**Materials examined:** On leaves of *Aglaia* sp. (Meliaceae), Lower Sholayar, Vazhachal, Thrissur, Kerala, Nov. 12, 2007, Jacob Thomas & al HCIO 48206 (type), TBGT 2942 (isotype).

This species can be compared with *Meliola reinwardtiodendri* Hosag. known on *Reinwardtiodendron anamallayanum* (Bedd.) from Anamalai forests, Coimbatore, Tamil Nadu having opposite appressoria with uncinuate mycelial setae. The new species differs from it having distinctly attenuated head cells of appressoria in contrast to broadly rounded to truncate ones. (Hosagoudar, 1996).

**References**

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