MELIOLACEAE OF KERALA, INDIA – XVIII NEW SPECIES, VARIETIES AND RECORDS

V.B. Hosagoudar

Microbiology Division, Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala 695562, India.
Email: hosagoudar@hotmail.com

Abstract

This paper gives an account of five Meliolaceae members. Of these, *Meliola lanneae* is a new species, *Irenopsis sidae* var. *indica* and *Meliola hemidesmicola* var. *indica* are new varieties, while *Meliola hyptidis* and *Meliola ichnocarpi-volubili* are new records for India.

Keywords

Meliolaceae, New species, new varieties, new records, Kerala, India

Abbreviations

HCIO - Herbarium Cryptogamae Indiae Orientalis, New Delhi
TBGT - Tropical Botanic Garden, Thiruvananthapuram

Meliola lanneae
V.B. Hosagoudar *et* A. Manojkumar, sp. nov.
(Fig. 1)

Material examined
Holotype: 4.x.2002, Placherry forest, Ranni, Pathanamthitta, Kerala, India, on leaves of *Lannea coromandelica* (Houtt.) Merr. (Anacardiaceae), coll. A. Manojkumar, HCIO 44616.
Isotype: TBGT 898.

Etymology
Named after the host genus *Lannea coromandelica*.

Diagnosis
Coloniae epiphyllae, densae, crustosae, ad 5mm diam., confluentes. Hyphae rectae vel subrectae, alternate, opposite vel irregulariter acuteque vel laxe ramosae, laxe vel arte reticulatae, cellulae 17-24 x 7-9µm. Appressoria alternata vel unilateralia, antrorsa vel subantrorsa, recta vel leniter curvula, 24-30µm longa; cellulae basilares cylindraceae vel cuneatae, 8-12µm longae; cellulae apicales ovatae, oblongae vel cylindraceae, integrae, angularae vel truncatae ad apicem, 16-18 x 11-15µm. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 17-27 x 6-7µm. Setae myceliales paucae, juxta perithecia aggregatae, simplices, rectae vel curvulae, paucae geniculatae ad apicem, obtusae ad apicem, ad 400 longae. Perithecia dispersa vel laxe aggregata, globosa, ad 212µm diam.; ascosporae oblongae vel leniter ellipsoideae, 4-septatae, constrictae, 40-48 x 16-20µm.

Colonies epiphyllous, dense, crustose, up to 5mm in diameter, confluent. Hyphae straight to substraight, branching alternate, opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 17-24 x 7-9µm. Appressoria alternate to unilateral, antrorse to subantrorse, straight to slightly curved, 24-30µm long; stalk cells cylindrical to cuneate, 8-12µm long; head cells ovate, oblong to cylindrical, entire, angular to truncate at the apex, 16-18 x 11-15µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 17-27 x 6-7µm. Mycelial setae few, grouped around perithecia, simple, straight to curved, few geniculate at the apex, obtuse at the tip, up to 400µm long. Perithecia scattered to loosely grouped, globose, up to 212µm in diameter; ascospores oblong to slightly ellipsoidal, 4-septate, constricted at the septa, 40-48 x 16-20µm.

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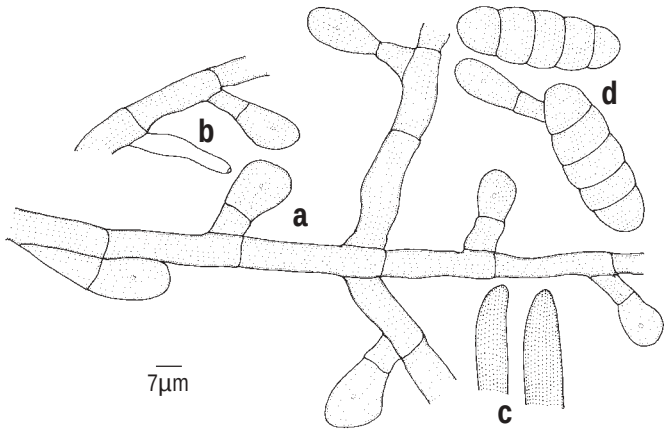

Figure 1. **Meliola lanneae** ***sp. nov.***
a. Appressorium; b. Phialide; c. Mycelial setae; d. Ascospores

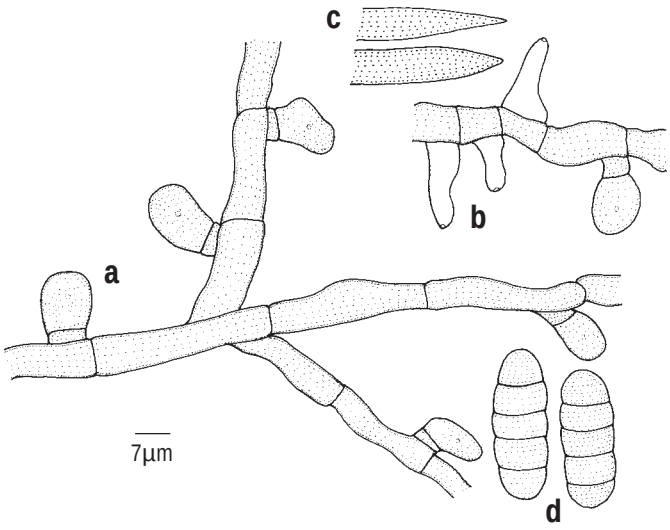

Figure 2. Irenopsis sidae (Rehm) Hughes var. indica var. nov.
a. Appressorium; b. Phialide; c. Perithecial setae; d. Ascospores

Remarks
Meliola geniculata Sydow & Butler is known on this host from Pulliyanur, Kerala (Hosagoudar, 1996). *M. lanneae* differs from it in having longer appressoria, only obtuse mycelial setae and larger ascospores. Based on the Beeli formula 3111.4232, *Meliola lanneae* can be compared with *M. rhoina* Doidge known from South Africa but differs from it in having longer and only antrorse appressoria with entire head cells and phialides mixed with appressoria (Hansford, 1961).

Irenopsis sidae **(Rehm) Hughes var.** ***indica***
V.B. Hosagoudar ***et*** **A. Manojkumar, var. nov.**
(Fig. 2)

Affinis var. sidae *differt a coloniis densis, appressoriis 5% oppositis et setiis peritheciales brevioribus.*

Material examined
Holotype: 9.x.2002, Karikulam, Ranni, Pathanamthitta, Kerala, India, on leaves of *Sida cordata* (Burm. f.) Borssum Waalkes (Malvaceae), coll. A. Manojkumar, HCIO 44625.
Isotype: TBGT 907

Etymology
The new variety is named after the host country India.

Diagnosis
Colonies amphigenous, mostly epiphyllous, subdense to dense, up to 2mm in diameter, confluent. Hyphae straight to flexuous, branching alternate, opposite to irregular at acute angles, loosely to closely reticulate, cells 22-29 x 7-9µm. Appressoria alternate, about 5% opposite, antrorse, subantrorse to rarely retrorse, 14-18µm long; stalk cells cylindrical to cuneate, 3-6µm long; head cells ovate to globose, entire, angular to truncate at the apex, straight to curved, 9-13 x 8-10µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 14-18 x 6-8µm. Perithecia scattered, globose, perithecial cells slightly projected, perithecial setae 0-12 in numbers, simple, straight, acute at the apex, deep brown, septa not visible, up to 125µm long; ascospores oblong, 4-septate, slightly constricted at the septa, 30-32 x 11-13µm.

Remarks
Based on the Beeli formula, the present collection is close to *Irenopsis aciculosa* (Wint.) Stev. known on many members of the family Malvaceae from the tropical countries and *I. sidae* Hughes known on *Sida javensis* and *S. mysorensis* from Philippines. However, the latter species differs from the former in having only straight but not incurved perithecial setae. Hence, the present collection is closer to the latter species (Hansford, 1961). The new variety differs from the var. *sidae* in having dense colonies, 5% opposite appressoria and shorter perithecial setae.

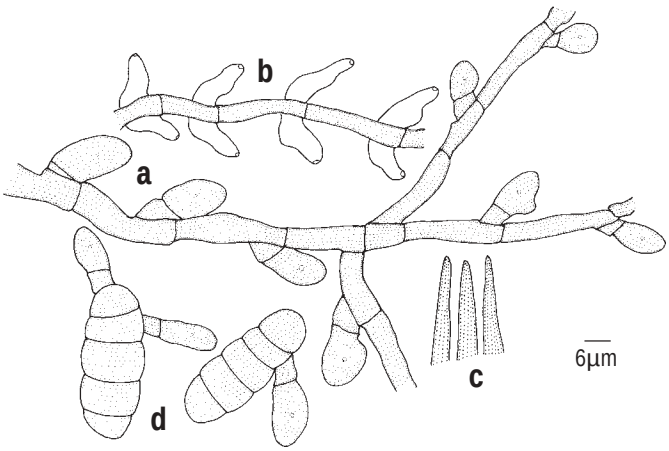

Figure 3. **Meliola hemidesmicola** ***Hosag. var.*** **indica** ***var. nov.***
a. Appressorium; b. Phialide; c. Mycelial setae; d. Ascospores

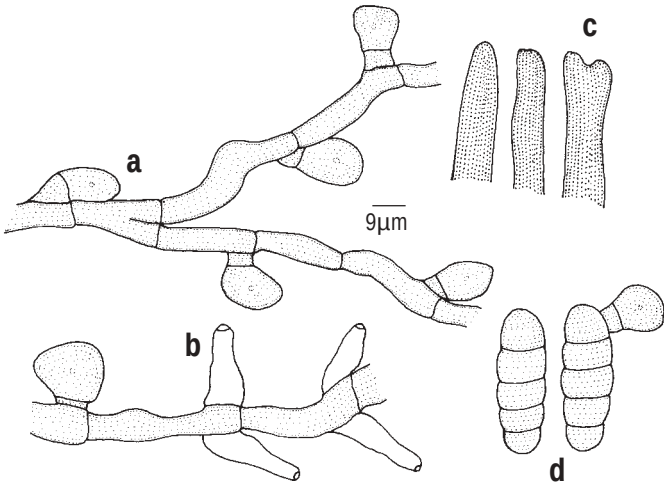

Figure 4. **Meliola hyptidis** ***Sydow***
a. Appressorium; b. Phialide; c. Mycelial setae; d. Ascospores

Meliola hemidesmicola **Hosag. var.** ***indica***
V.B. Hosagoudar ***et*** **A. Manojkumar, var. nov.**
(Fig. 3)

Differt a var. hemidesmicola phialidis producentes in hyphis myceliis separatis

Material examined
Holotype: 7.ix.2002, Palode, Thiruvananthapuram, Kerala, India, on leaves of *Hemidesmus indicus* (L.) R. Br. (Periplocaceae), coll. A. Manojkumar, HCIO 44636.
Isotype: TBGT 918.

Etymology
The new variety is named after the host country India.

Diagnosis
Colonies epiphyllous, thin to subdense, up to 2mm in diameter. Hyphae flexuous, branching opposite to irregular at acute to wide angles, loosely reticulate, cells 24-32 x 6-7µm. Appressoria alternate, antrorse to closely antrorse, 19-23µm long; stalk cells cylindrical to cuneate, 6-8µm long; head cells ovate, globose, pyriform, attenuated towards the apex, entire, 12-15 x 9-11µm. Phialides numerous, borne on a separate mycelial branch, alternate to opposite, ampulliform, 9-15 x 6-7µm. Mycelial setae scattered to grouped around perithecia, simple, mostly curved but not uncinate, often straight, acute to obtuse at the tip, up to 400µm long. Perithecia scattered, globose, up to 150µm in diameter; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 32-37 x 11-15µm.

Remarks
The two species, *Meliola hemidesmi* Kamal and *M. hesmidesmicola* Hosag., are known on the host genus *Hemidesmus.* The present collection is close to the latter species in the morphology and measurements (Hosagoudar, 1996). However, the new variety differs from the var. *hemidesmicola* in having phialides borne on a separate mycelial branch.

The present host plant is having linear and filiform leaves. It appears that as the host varies in its morphology, the fungus also changes its morphology and adopts with its host by changing its morphology.

Meliola hyptidis **Sydow**
(Fig. 4)

Ann. Mycol. 8: 36, 1910; Hansf., Sydowia Beih. 2: 70, 961.

Material examined
4.x.2002, Placherry forest, Ranni, Pathanamthitta, Kerala, India, on leaves of *Hyptis suaveilense* (L.) Poit. (Lamiaceae), coll. A. Manojkumar, HCIO 44620, TBGT 902.

Diagnosis
Colonies amphigenous, mostly epiphyllous, dense, up to 1 mm in diameter, confluent, Hyphae flexuous to crooked, branching alternate, opposite to irregular at acute angles, loosely to closely reticulate, cells 24-32 x 4-6µm. Appressoria

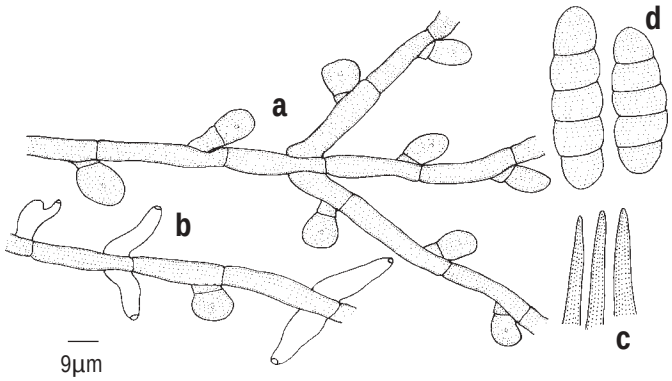

Figure 5. **Meliola ichnocarpi-volubili *Hansf.***
a. Appressorium; b. Phialide; c. Mycelial setae; d. Ascospores

distantly placed, alternate to unilateral, antrorse to retrorse, straight to curved, spreading, 19-21µm long; stalk cells cylindrical to cuneate, 6-10µm long; head cells ovate, oblong, straight to curved, entire to angular to truncate at the apex, 9-15 x 8-10µm. Mycelial setae mostly grouped around perithecia, simple, straight to curved, obtuse to slightly and inconspicuously bifid at the tip, up to 225µm long. Perithecia scattered to loosely grouped, verrucose, up to 140µm diameter; ascospores oblong to cylindrical, 4-septate, constricted, 32-38 x 9-12µm.

Remarks
In the present collection appressoria are longer and the mycelial setae showed bifid nature. This species is reported here for the first time from India (Hosagoudar, 1996; Bilgrami *et al*. 1991).

***Meliola ichnocarpi-volubili* Hansf.,**
Sydowia 16: 320, 1963.
(Fig. 5)

Meliola ichnocarpi Stev. & Rold., Philippine J. Sci. 56: 66, 1935 (*non* Hansf. & Thirum., 1948); Hansf., Sydowia Beih. 2: 561, 1961.

Material examined
5.ix.2002, in the campus of Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala, on leaves of *Ichnocarpus frutescense* (L.) R. Br. (Apocynaceae), coll. H. Biju, HCIO 44637, TBGT 919.

Diagnosis
Colonies mostly epiphyllous, subdense, up to 5 mm in diameter. Hyphae straight to flexuous, branching mostly opposite at acute angles, loosely reticulate, cells 19-24 x 4-6µm. Appressoria alternate, antrorse to closely antrorse, 12-18µm long; stalk cells cylindrical to cuneate, 3-7µm long; head cells ovate, globose, slightly attenuated to truncate at the apex, mostly entire, rarely sublobate, 9-12 x 8-10µm. Mycelial setae scattered to mostly grouped around perithecia, simple, straight, curved, acute to obtuse at the apex, up to 600 µm long. Perithecia scattered, globose, often peridial cells projected, up to 125µm in diameter; ascospores oblong to slightly ellipsoidal, 4-septate, slightly constricted, 35-37 x 11-13µm.

Remarks
Meliola ichnocarpi Hansf. & Thirum. and *M. ichnocarpi-volubili* Hansf. are known on the host genus *Ichnocarpus* species. The former species differs from the latter in having longer appressoria 15-30µm (against 12-18µm), mycelial setae up to 1000µm long (against 500 µm) and larger ascospores having 35-41 x 14-17µm (against 30-33 x 13-14µm). The present collection stands in-between these two taxa. However, based on the measurements of appressoria and flexuous and shorter mycelial setae, it has been assigned to the latter species (Hansford, 1961, 1963).

This species is reported here for the first time from India (Hosagoudar, 1996; Bilgrami *et al*., 1991).

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