

MELIOLACEAE OF KERALA, INDIA – XIX TWO NEW SPECIES AND THREE NEW RECORDS

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Abstract

This paper gives an account of five Meliolaceae members -- *Asteridiella strebli* and *Meliola bauhiniae-phoeniceae* are the new species, and, *Asteridiella tremae*, *Meliola aethiops* and *Meliola palawanensis* are new records to India.

Keywords

Asteridiella, India, Kerala, *Meliola*, new records, new species

Abbreviations

HCIO - Herbarium Cryptogamae Indiae Orientalis, New Delhi

TBGT - Tropical Botanic Garden, Thiruvananthapuram

***Asteridiella strebli* V.B. Hosagoudar, H. Biju et A.
Manojkumar, sp. nov.**
(Fig. 1)

35-42 x 18-22µm.

Materials examined

Type: 22.x.2002, Pullumudi, Chalakudy, Thrissur, coll. H. Biju and A. Manojkumar, on leaves of *Streblus asper* Lour. (Moraceae), HCIO 44662.

Isotype: 22.x.2002, Pullumudi, Chalakudy, Thrissur, coll. H. Biju and A. Manojkumar, on leaves of *Streblus asper* Lour. (Moraceae), TBGT 944.

Diagnostic features

Coloniae epiphyllae, tenues, ad 3mm diam., confluentes. *Hyphae* rectae vel flexuosae, oppositae vel irregulariter acuteque vel laxae ramosae, laxae vel arte reticulatae, cellulae 24-28 x 8-12µm. *Appressoria* alternata, antrorsa vel subantrorsa, 25-31µm longa; cellulae basillares cylindraceae vel cuneatae, 9-13µm longae; cellulae apicales ovatae vel globosae, crenato lobatis vel sellato, irregulariter et praealte lobatae, 12-20 x 11-19µm. *Phialides* numerosae, mixtus appressoriis, plerumque oppositae, alternatae vel solitariae, 17-24 x 6-8µm. *Perithecia* dispersa vel laxae aggregata, ad 180µm diam.; cellulae peritheciales conoideae vel mammiformes, rectae vel curvulae, ad 16µm longae; ascospores oblongae, 4-septatae, constrictae,

Colonies epiphyllous, thin, up to 3mm in diameter, confluent. Hyphae straight to flexuous, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 24-28 x 8-12µm. Appressoria alternate, antrorse to subantrorse, 25-31µm long; stalk cells cylindrical to cuneate, 9-13µm long; head cells ovate to globose, crenately lobate to stellately, irregularly and deeply lobate, 12-20 x 11-19µm. Phialides numerous, mixed with appressoria, mostly opposite, often alternate to solitary, 17-24 x 6-8µm. Perithecia scattered to loosely grouped, up to 180µm in diameter; perithecial cells conoid to mammiform, straight to curved, up to 16µm long; ascospores oblong, 4-septate, constricted at the septa, 35-42 x 18-22µm.

Remarks

Based on the Beeli formula 3101. 42(3)20, the present collection is close to *Asteridiella ugandensis* Hansf., *A. reticulata* (K. & C.) Hansf., *A. umirayensis* (Yates) Hansf. and *A. cecropiicola* Hansf. Based on the morphology of the head cells as crenate to lobate, this collection is close to *A. umirayensis* (Yates) Hansf. However, *A. strebli* differs from it in having shorter and deeply lobate head cells and with distinctly broader ascospores (Hansford, 1961).

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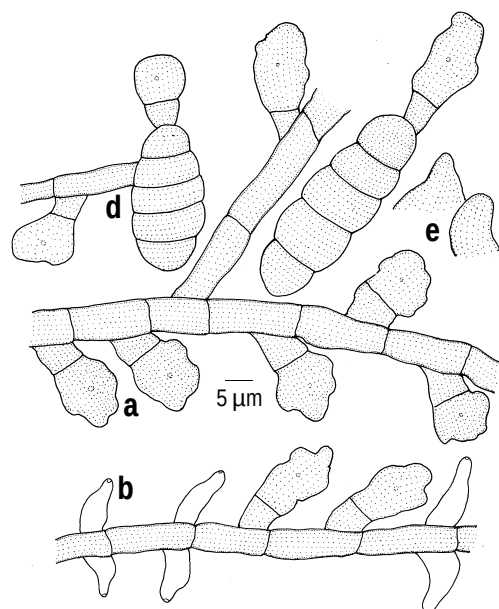


Figure 1. *Asteridiella strebli* V.B. Hosagoudar, H. Biju et A. Manojkumar, sp. nov.
a - Appressorium; b - Phialide; d - Ascospore;
e - Perithecial wall cells

Meliola bauhinae-phoeniceae

V.B. Hosagoudar, H. Biju et A. Manojkumar, sp. nov.

(Fig. 4)

Materials examined

Holotype: 22.x.2002, Pullumudi, Chalakudy, Thrissur, Kerala, coll. H. Biju and A. Manojkumar, on leaves of *Bauhinia phoenicea* Wight & Arn. (Caesalpinaceae), HCIO 44667.

Isotype: 22.x.2002, Pullumudi, Chalakudy, Thrissur, Kerala, coll. H. Biju and A. Manojkumar, on leaves of *Bauhinia phoenicea* Wight & Arn. (Caesalpinaceae), TBGT 949.

Diagnostic features

Coloniae amphigenae, densae, velutinae, ad 2mm diam., confluentes. Hyphae rectae, subrectae vel flexuosae, irregulariter acuteque vel laxe ramosae, laxe vel dense reticulatae, cellulae 24-37 x 7-9µm. Appressoria alternata, antrorsa vel subantrorsa, 24-32µm longa; cellulae basillares cylindratae vel cuneatae, 9-11µm longae; cellulae apicales ovatae, clavatae, globosae, cylindratae, leniter vel praealte et irregulariter lobatae, 14-20 x 14-18µm. Phialides mixtus appressoriiis, alternatae vel oppositae, ampulliformes, 16-30 x 8-10µm. Setae myceliales plerumque juxta perithecia aggregatae, simplices, rectae, uncinatae vel varie circinatae ad portio superiorae, obtusae ad apicem, ad 200µm longae.

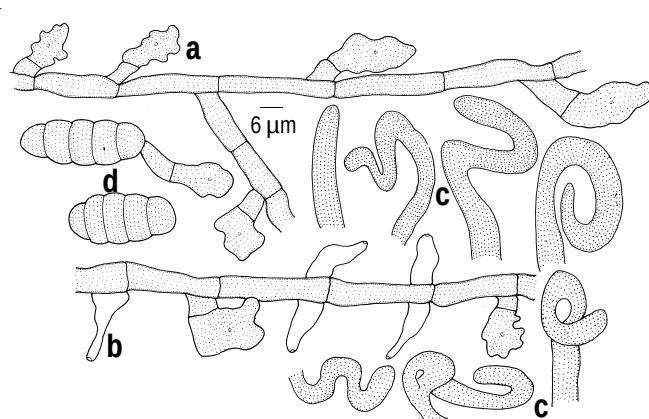


Figure 2. *Meliola bauhinae-phoeniceae* V.B. Hosagoudar, H. Biju et A. Manojkumar, sp. nov.
a - Appressorium; b - Phialide; c - Mycelial setae;
d - Ascospore

Perithecia dispersa vel aggregata ad coloniis centralis, ad 200µm diam.; ascosporae oblongae vel leniter ellipsoideae, 4-septatae, constrictae, 33-37 x 12-15µm.

Colonies amphigenous, dense, velvety, up to 2mm in diameter, confluent. Hyphae straight, substraight to flexuous, branching irregular at acute to wide angles, loosely to closely reticulate, cells 24-37 x 7-9µm. Appressoria alternate, antrorse to subantrorse, 24-32µm long; stalk cells cylindrical to cuneate, 9-11µm long; head cells ovate, clavate, globose, cylindrical, slightly to deeply and irregularly lobate, 14-20 x 14-18µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 16-30 x 8-10µm. Mycelial setae mostly grouped around perithecia, simple, straight, uncinata to variously coiled at the upper portion, obtuse at the tip, up to 200µm long. Perithecia scattered to grouped at the centre of the colony, up to 200µm in diameter; ascospores oblong to slightly ellipsoidal, 4-septate, constricted, 33-37 x 12-15µm.

Remarks

Based on the coiled mycelial setae and having sublobate to lobate head cells of the appressoria, the present new species can be compared with *Meliola pазschkeana* Gaill. and *M. pазschkeana* Gaill. var. *macropoda* Hansf. However, *Meliola bauhinae-phoeniceae* differs from the former species in having lobate head cells of the appressoria and from the latter taxon in having shorter appressoria and smaller ascospores (Hansford, 1961).

Asteridiella tremae

(Speg.) Hansf., Sydowia 10: 50, 1957;

(Fig. 2)

Hansf., Sydowia Beih. 2: 316, 1961; Patil & Mahamulkar, Indian Phytopathol. 52: 246, 1999.

Meliola tremae Speg., Ann. Mus. Nac. Buenos Aires 23: 45, 1912.*Irenina tremae* (Speg.) Stev., Ann. Mycol. 25: 457, 1927.**Materials examined**18.xii.2001, in the campus of Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram, Kerala, coll. H. Biju, on leaves of *Trema orientalis* (L.) Blume (Ulmaceae), HCIO 44490, TBGT 780.**Diagnostic features**

Colonies epiphyllous, thin to subdense, up to 2mm in diameter, rarely confluent. Hyphae straight to flexuous, branching alternate, opposite to irregular at acute to wide angles, loosely reticulate, cells 30-45 x 4-6µm. Appressoria alternate, often distantly placed, antrorse, rarely recurved, 16-24µm long; stalk cells cylindrical to cuneate, 3-11µm long; head cells ovate to globose, entire, truncate at the apex, rarely sublobate, 12-14 x 9-11µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 15-18 x 6-8µm. Perithecia scattered, up to 150µm in diam.; perithecial wall cells conoid to mammiform, up to 14µm long; ascospores oblong, 4-septate, constricted, 35-38 x 14-16µm.

Remarks

The present collection has shorter appressoria and smaller ascospores (Hansford, 1961). Patil & Mahamulkar (1999) have reported this species from the Western Ghats but did not provide the line drawings and the detailed description.

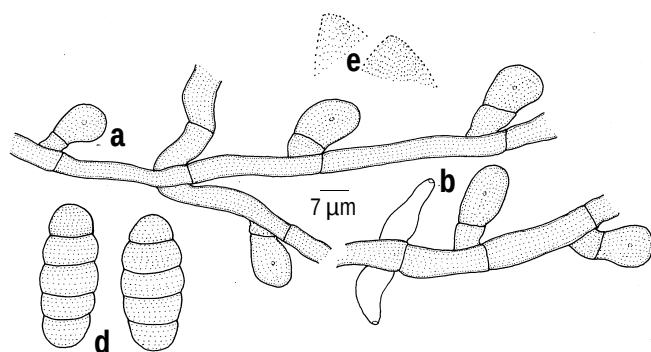


Fig. 3. *Asteridiella tremae* (Speg.) Hansf.
a - Appressorium; b - Phialide; d - Ascospore;
e - Perithecial wall cells

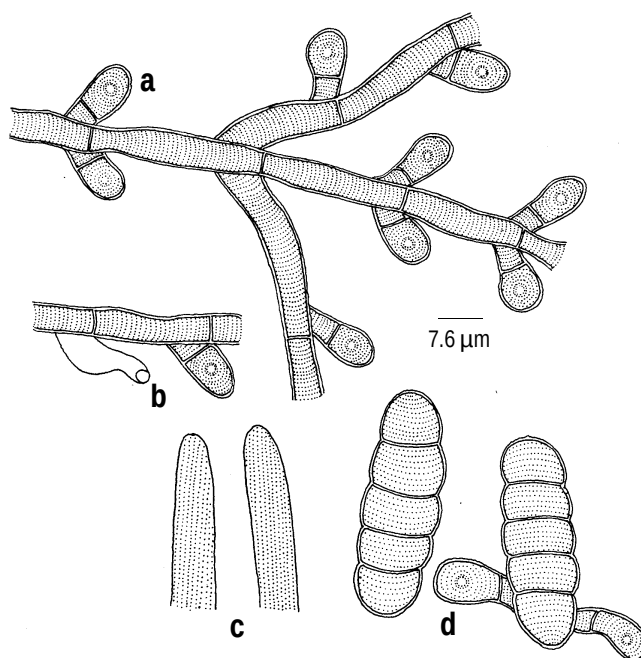


Fig. 4. *Meliola aethiops* Sacc
a - Appressorium; b - Phialide; c - Mycelial setae;
d - Ascospore

Meliola aethiops

Sacc., Biol. Orto Bot. Napoli 6: 41, 1921.

(Fig. 3)

Hansf., Sydowia Beih. 2: 252, 1961.

Meliola javanica Cif., Mycopathologia 6: 19, 1951.**Materials examined**

15.i.2001, Eanikara, Karakulam, Thiruvananthapuram, Kerala, coll. Mrs. H.V. Sharada, HCIO 43742, TBGT 385; 4.x.2002, Karikulam, Ranni, Pathanamthitta, Kerala, coll. A. Manojkumar, on leaves of *Cassia fistula* L. (Caesalpiniaceae), HCIO 44617, TBGT 899.

Diagnostic features

Colonies amphigenous, subdense to dense, up to 2mm in diameter, confluent and cover larger area on the lower surface. Hyphae straight to substraight, branching opposite at acute to wide angles, loosely to closely reticulate, cells 16-24 x 4-6µm. Appressoria opposite, about 10% alternate, antrorse to subantrorse, 8-16µm long; stalk cells cylindrical to cuneate, 3-5µm long; head cells ovate, entire, 4-11 x 7-9µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 17-21 x 6-8µm. Mycelial setae scattered to mostly grouped around perithecia, simple, straight, obtuse at the tip, up to 250µm long. Perithecia loosely grouped, up to 175µm in diameter; ascospores cylindrical to ellipsoidal, 4-septate, constricted at the septa, 35-40 x 14-16µm.

Remarks

This species was known on *Cassia* spp. from Sumatra, Java and Sierra Leone (Hosagoudar, 1996), and is reported here for the first time from India. Ascospores were shorter in the present collections.

Meliola palawanensis

Sydow, Leaflet Philippine Bot. 5: 1539, 1912;

(Fig. 5)

Hansf., Sydow Beih. 2: 611, 1961.

Materials examined

3.x.2002, Vanadanam Sacred Grove, Alapuzha, Kerala, coll. A. Manojkumar, on leaves of *Morinda umbellata* L. (Rubiaceae), HCIO 44667, TBGT 943.

Diagnostic features

Colonies amphigenous, dense, up to 2mm in diameter, rarely confluent. Hyphae substraight, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 25-32 x 5-7µm. Appressoria alternate to unilateral, antrorse, subantrorse to spreading, 19-28µm long; stalk cells cylindrical to cuneate, 4-11µm long; head cells ovate to globose, entire to mostly angular to slightly lobate, 14-16 x 11-13µm. Phialides borne on a separate mycelial branch, alternate, opposite, unilateral, ampulliform, 11-20 x 6-8µm. Mycelial setae numerous, closely scattered, simple, straight, mostly curved, acute at the tip, up to 300µm long. Perithecia scattered, globose, up to 150µm in diameter; ascospores oblong to cylindrical, 4-septate, slightly constricted at the septa, 30-38 x 12-16µm.

Remark

This species was known on *Morinda bartlingii* from Philippines (Hansford, 1961; Hosagoudar, 1996) and is reported here for the first time from India on a hitherto unrecorded host species.

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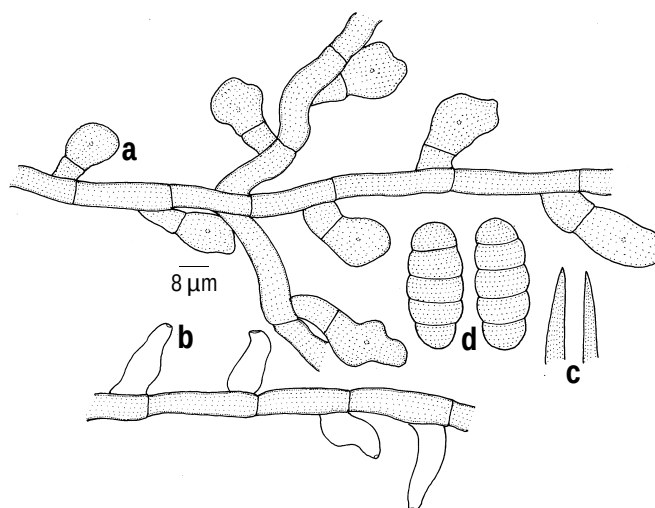


Figure 5. *Meliola palawanensis* Sydow
a - Appressorium; b - Phialide; c - Mycelial setae;
d - Ascospore