This paper gives an account of seven taxa of the family Meliolaceae. Of these, Asteridiella phaulopsidis, Meliola allophyligena, Meliola crotonis-malabarici, Meliola kulathupuzhaensis, Meliola peringamalaensis and Meliola smilacacearum are new species, while Meliola diospyricola is reported for the first time from India.

KEYWORDS
India, Meliolaceae, New taxa

ABSTRACT
This paper gives an account of seven taxa of the family Meliolaceae. Of these, Asteridiella phaulopsidis, Meliola allophyligena, Meliola crotonis-malabarici, Meliola kulathupuzhaensis, Meliola peringamalaensis and Meliola smilacacearum are new species, while Meliola diospyricola is reported for the first time from India.

ABBREVIATIONS
HCIO - Herbarium Cryptogamae Indiae Orientalis; TBGT - Tropical Botanic Garden, Thiruvananthapuram

Asteridiella phaulopsidis sp. nov. (Fig. 1a-e)

Material examined
Type: 27.xii.2001, on leaves of Phaulopsis imbricata (Forssk.) Sweet (Acanthaceae), Sankili forest, Shendurney Wildlife Sanctuary, Kollam, Kerala, India, V.B. Hosagoudar, HCIO 44283. Isotype: TBGT 672

Diagnosis
Coloniae epiphyllae, densae, ad 1mm diam., confluentes. Hyphae subrectae vel flexuosae, alternate vel irregulariter acutae ramosae, laxe vel dense reticulatae, cellulae 16-25 x 5-7μm. Appressoria alternata, antrorsa vel arte antrorsa, 16-20μm longa; cellulae basilares cylindraceae vel cuneatae, 3-10μm longae; cellulae apicales ovatae vel globosae, integrae, angularis vel stellatim lobatae, 9-12 x 9-11μm. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 16-19 x 5-7μm. Perithecia dispersa vel laxe aggregata, globosa, ad 125μm diam.; cellulae peritheciales conoidae, protrudae, ad 13μm altae; ascosporae oblongae vel ellipsoideae, 4-septatae, leniter constrictae, 30-36 x 11-13μm.

Colonies epiphyllous, dense, up to 1mm in diameter, often confluent. Hyphae substraight to flexuous, branching alternate to irregular at acute angles, loosely to closely reticulate, cells 16-25 x 5-7μm. Appressoria alternate, antrorse to closely antrorse, 16-20μm long; stalk cells cylindrical to cuneate, 3-10μm long; head cells ovate to globose, entire, angular to stellately lobate, 9-12 x 9-11μm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 16-19 x 5-7μm. Perithecia scattered to loosely grouped, globose, up to 125μm in diameter; perithecial wall cells conoid, protruded, up to 13μm long; ascospores oblong to ellipsoidal, 4-septate, slightly constricted at the septa, 30-36 x 11-13μm.

Meliola allophyligena sp. nov. (Fig. 2a-d)

Material examined
Type: 27.xii.2001, on leaves of Allophylus serrulatus Radlk. (Sapindaceae), Sankili forest, Shendurney Wildlife Sanctuary, Kollam, Kerala, India, V.B. Hosagoudar, HCIO 44330. Isotype: TBGT 726

Diagnosis
Coloniae epiphyllae, densae, ad 2mm diam., confluentes. Hyphae rectae, opposite vel irregulariter acutae ramosae, laxe vel dense reticulatae, cellulae 14-20 x 6-8μm. Appressoria alternata, ad 40% opposita, antrorsa vel arte antrorsa, recta vel curvula, 16-21μm longa; cellulae basilares cylindraceae vel cuneatae, 5-7μm longae; cellulae apicales ovatae vel globosae, integrae, angularis et stellatim lobatae, 11-15 x 11-13μm. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 14-20 x 6-8μm. Perithecia dispersa vel laxe aggregata, globosa, ad 125μm diam.; cellulae peritheciales conoidae, protrudae, ad 13μm altae; ascosporae oblongae vel ellipsoideae, 4-septatae, leniter constrictae, 30-36 x 11-13μm.

Remarks
Based on the Beeli formula 3101. 3220, Asteridiella phaulopsidis can be compared with A. thumbergiae-chrysopsidis (Hansf. & Deight.) Hansf. known on Thunbergia chrysops from Sierra Leone but differs from it in having shorter appressoria with stellately lobate head cells and perithecial wall cells are conoid in contrast to mammiform (Hansford, 1961).

Meliola allophyligena sp. nov. (Fig. 2a-d)

Material examined
Type: 27.xii.2001, on leaves of Allophylus serrulatus Radlk. (Sapindaceae), Sankili forest, Shendurney Wildlife Sanctuary, Kollam, Kerala, India, V.B. Hosagoudar, HCIO 44330. Isotype: TBGT 726

Diagnosis
Coloniae epiphyllae, densae, ad 2mm diam., confluentes. Hyphae rectae, opposite vel irregulariter acutae ramosae, laxe vel dense reticulatae, cellulae 14-20 x 6-8μm. Appressoria alternata, ad 40% opposita, antrorsa vel arte antrorsa, recta vel curvula, 16-21μm longa; cellulae basilares cylindraceae vel cuneatae, 5-7μm longae; cellulae apicales ovatae vel globosae, integrae, angularis et stellatim lobatae, 11-15 x 11-13μm. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 14-20 x 6-8μm. Perithecia dispersa vel laxe aggregata, globosa, ad 125μm diam.; cellulae peritheciales conoidae, protrudae, ad 13μm altae; ascosporae oblongae vel ellipsoideae, 4-septatae, leniter constrictae, 30-36 x 11-13μm.

Remarks
Based on the Beeli formula 3101. 3220, Asteridiella phaulopsidis can be compared with A. thumbergiae-chrysopsidis (Hansf. & Deight.) Hansf. known on Thunbergia chrysops from Sierra Leone but differs from it in having shorter appressoria with stellately lobate head cells and perithecial wall cells are conoid in contrast to mammiform (Hansford, 1961).
Colonies epiphyllous, dense, up to 2mm in diameter, confluent. Hyphae straight, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 14-20 x 6-8µm. Appressoria alternate, about 40% opposite, antorse to closely antorse, straight to curved, 16-21µm long; stalk cells cylindrical to cuneate, 5-7µm long; head cells ovate, globose, clavate, entire, 11-15 x 11-13µm. Phialides numerous, mixed with appressoria, alternate to opposite, ampulliform, 14-20 x 6-8µm. Mycelial setae scattered to mostly grouped around perithecia, simple, straight, rarely about 1% curved, obtuse at the apex, about 1% dentate at the tip, up to 245µm long. Perithecia scattered to loosely grouped, up to 125µm in diameter; ascospores broadly ellipsoidal, 4-septate, constricted at the septa, 32-36 x 12-16µm.

Remarks
Typical obtuse and 1% dentate mycelial setae distinguishes this taxon from rest of the *Meliola* species known on the members of the family Sapindaceae (Hansford, 1961; Hosagoudar, 1996; Hu et al., 1996, 1999; Mibey & Hawksworth, 1997). Hosagoudar and Goos (1990) had assigned this taxon to *Meliola nepheli* Sacc. var. *singalensis* Hansf.

**Meliola crotonis-malabarici** sp. nov.

(Fig. 3a-d)

**Material examined**

**Type:** 27.xii.2001, on leaves of *Croton malabaricus* Bedd. (Euphorbiaceae), Sankili forest, Shendurney Wildlife Sanctuary, Kollam, Kerala, India, V.B. Hosagoudar, HCIO 44354.

**Isotype:** TBGT 722

**Diagnosis**

Coloniae epiphyllae, densae, crustosae, raro velutinae, ad 2mm diam., raro confluentes. Hyphae rectae vel flexuosae, opposite acutaeque ramosae, laxe vel dense reticulatae, cellulae 16-28 x 5-7µm. Appressoria alternata, antorsea, valde antorsea vel subantrorsa, 14-21µm longa; cellulae basilares cylindraceae vel cuneatae, 3-7µm longae; cellulae apicales ovatae, clavatae, globose, integrae, 11-15 x 9-11µm. Phialides numerosae, appressorii intermixtae, alternatae vel oppositae, ampulliformes, 14-16 x 8-10µm. Setae myceliales plerumque circa perithecia, simplices, rectae, flexuosae, curvulae et raro uncinatae, obtusae ad apicem, ad 250µm longae. Perithecia dispersa vel laxe aggregata, globosa, ad 140µm diam.; ascosporae oblongae vel cylindraceae, 4-septatae, constrictae, 32-36 x 12-16µm.

Colonies epiphyllous, dense, crustose, rarely velvety, up to 2mm in diameter, rarely confluent. Hyphae straight to flexuous, branching opposite at acute angles, loosely to closely reticulate, cells 16-28 x 5-7µm. Appressoria alternate, antorse, closely antorse to subantrorse, 14-21µm long; stalk cells cylindrical to cuneate, 3-7µm long; head cells ovate, clavate, globose, entire, 11-15 x 9-11µm. Phialides numerous, mixed with appressoria, alternate to opposite, ampulliform, 14-16 x 8-10µm. Mycelial setae mostly grouped around perithecia, simple, straight, flexuous, curved to rarely uncinate, obtuse at the tip, up to 250µm long. Perithecia scattered to loosely grouped, globose, up to 140µm in diameter; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 32-36 x 12-16µm.

**Remarks**

Based on the dense colonies and obtuse mycelial setae, *Meliola crotonis-malabarici* is similar to *M. gymnanthicola* Stev. known on *Gymnanthus lucida* from Porto Rico (Hansford, 1961). However, differs from it in having straight and antorse appressoria; straight to curved mycelial setae and smaller ascospores.
**Meliola diospyricola** Hansf., Proc. Linn. Soc. New South Wales 78: 55, 1953; Sydowia Beih. 2: 498, 1961. (Fig. 4a-d)

**Material examined**
11.iii.1997, on leaves of *Diospyros* sp. (Ebenaceae), Chemunji, Thiruvananthapuram, Kerala, India, V.B. Hosagoudar, HCIO 44355, TBGT 589.

**Diagnosis**
Colonies hypophyllous, dense, up to 3mm in diameter, confluent. Hyphae straight, straight to crooked, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 22-35 x 5-7µm. Appressoria alternate, about 2-3% opposite, antrorse, subantrorse, closely antrorse to retrorse, straight to curved, 22-26µm long; stalk cells cylindrical to cuneate, 6-8µm long; head cells ovate, oblong to cylindrical, entire to rarely angular, 16-18 x 9-11µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 24-28 x 4-7µm. Mycelial setae closely scattered, simple, straight, acute at the tip, up to 882µm long. Perithecia scattered to loosely grouped, verrucose, up to 250µm in diameter; ascospores oblong to cylindrical, 4-septate, middle cell slightly larger, constricted at the septa, 42-45 x 15-17µm.

**Remarks**
This species was reported from Australia, Philippines and China (Hansford, 1961; Hu et al., 1999) and is reported here for the first time from India.

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**Meliola kulathupuzhaensis** V.B. Hosagoudar et S. Justin P. Jacob, sp. nov. (Fig. 5a-d)

**Material examined**
Type: 4.xii.2001, on leaves of *Bauhinia* sp. (Ceasalpiniaceae), Kulathupuzha, Kollam, Kerala, India, Justin P. Jacob, HCIO 44370.
Isotype: TBGT 613.

**Diagnosis**
Colonies epiphyllous, thin to subdense, up to 3mm in diameter, often confluent. Hyphae flexuous to crooked, branching opposite at wide angles, loosely to moderately closely reticulate, cells 24-32 x 4-5µm. Appressoria alternate, about 10% opposite, subantrorse to retrorsa, 10-13µm long; stalk cells basilares cylinderaceae vel cuneatae, 2-3µm longae; cellulae apicales ovatae, clavatae, globosae, plerumque integrae, raro angularis, 8-10 x 7-10µm. Phialides appressoriis intermixtae, alternatae vel oppositae, ampulliformes, 14-21 x 8-10µm. Setae myceliales non numerosae, dispersae vel circa perithecia aggregatae, simplices, rectae, curvulae, uncinatae, raro geniculatim uncinatae, acutae vel ad apicem obtusae, ad 240µm longae. Perithecia dispersa, globosa, ad 150µm diam.; ascosporae oblongae vel cylindraceae, 4-septatae, constrictae, 27-37 x 9-15µm.

**Remarks**
Based on the uncinate mycelial setae, *Meliola kulathupuzhaensis* can be compared with *M. curviseta* Racib., *M. pazschkeana* Gaill., *M. pazschkeana* Gaill. var. macropoda Hansf. and *M. cubitella* (Stev. & Tehon) Ciferri but differs from all in having alternate and opposite appressoria; straight, curved and geniculately curved mycelial setae (Hansford, 1961).
**Meliola peringamalaensis** V.B. Hosagoudar et M. Kamarudeen, sp. nov. 
(FIG. 6. a-d)

**Material examined**

**Type:** 24.xi.2001, Peringamala, Palode, Thiruvananthapuram, Kerala, India, on leaves of *Alstonia scholaris* (L.) R. Br. (Apocynaceae), M. Kamarudeen HClO 44379.

**Isotype:** TBGT 677.

**Diagnosis**

Colonies epiphyllous, dense, velvety, up to 3mm in diameter, confluent. Hyphae straight to subrectangular, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 22-28 x 4-7µm. Appressoria alternate, less than 1% opposite, antrorsa ve subantrorsa, 11-21µm long; cells stalked cylindrical to cuneate, 2-6µm long; head cells ovate, clavate, cylindrical, entire to angular, mostly straight, rarely curved, 9-16 x 8-10µm. Phialides mixed with appressoria, alternatae vel oppositae, ampulliformes, 12-20 x 6-8µm. Setae myceliales biformes: setae myceliales simplices, rectae, flexuosae, geniculatae, raro curvulæ, ad apicem acutæ vel obtusæ, ad 150µm longæ. Perithecia dispersa, globosa, ad 150µm diam.; ascosporae oblongae vel cylindraceae, 4-septata, constrictæ, 30-32 x 11-13µm.

**Remarks**

*Meliola alstoniae* Koord. and *M. hendrickxii* Hansf. are known on the host genus *Alstonia* (Hansford, 1961; Hosagoudar, 1996; Hu et al., 1996, 1999; Mibey & Hawksworth, 1997). *Meliola peringamalaensis* differs from the former species in absence of solid plate forming mycelia and having numerous mycelial setae; differs from the latter species in having flexuous, longer setae and phialides mixed with appressoria. It also differs from *M. alstoniae-comptonii* Huguenin in having epiphyllous round colonies, with longer and flexuous mycelial setae and smaller ascospores (Huguenin, 1969; Hosagoudar et al., 1997).

**Meliola smilacacearum** sp. nov. 
(FIG. 7. a-d)

**Material examined**

**Type:** 27. xii.2001, on leaves of *Smilax* sp. (Smilacaceae), Sankili forest, Shendurney Wildlife Sanctuary, Kollam, Kerala, India, V.B. Hosagoudar HClO 44384.

**Isotype:** TBGT 694.

**Diagnosis**

Colonies epiphyllae, densae, ad 2mm diam. Hyphae rectae vel subrectae, opposite vel irregulariter acutæ vel rectæ, laxæ vel dense reticulatæ, cellulae 16-20 x 6-8µm. Phialoides alternata, ad 2% opposita, antrorsa vel subantrorsa, 16-21µm longa; cellulae basiales cylindraceae vel cuneatae, 3-7µm longae; cellulae apicales ovatae, clavatae, globosae, integrae, 12-14 x 11-13µm. Phialides appressorii alternatae vel oppositae, ampulliformes, 16-20 x 8-10µm. Setae myceliales paucæ vel numerosæ, simplices, rectæ, ad 2% curvulæ vel uncinatae, acutæ, dentatae vel cristatae ad apicem, ad 600µm longæ. Perithecia dispersa vel laxæ curved, acute to obtuse at the tip, up to 735µm long; setae around perithecia were simple, incurved, acute to obtuse at the tip, up to 150µm long. Perithecia scattered, globose, up to 150µm in diameter; ascospores oblong to cylindrical, 4-septate, constricted at the septa, 30-32 x 11-13µm.
Colonies epiphyllous, dense, up to 2 mm in diameter. Hyphae straight to substraight, branching opposite to irregular at acute angles, loosely to closely reticulate, cells 16-20 x 6-8µm. Appressoria alternate, about 2% opposite, antrorse to subantrorse, 16-21µm long; stalk cells cylindrical to cuneate, 3-7µm long; head cells ovate, clavate, globose, entire, 12-14 x 11-13µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 16-20 x 8-10µm. Mycelial setae few to numerous, simple, straight, about 2% curved to uncinate, acute, dentate to cristate at the apex, up to 600µm long. Perithecia scattered to loosely grouped, globose, up to 215µm in diameter; ascospores oblong to ellipsoidal, 4-septate, constricted at the septa, rarely central cell larger, 41-45 x 18-21µm.

Remarks
Having acute to dentate mycelial setae, M. smilacacearum can be compared with M. smilacis Stev. known on Smilax spp. from Porto Rico, Honduras and Taiwan (Hansford, 1961) but differs from it in having only epiphyllous colonies, longer, straight but few uncinate mycelial setae and smaller ascospores.

References

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