

Studies on Foliicolous fungi—XX. Microfungi of Coorg, Karnataka

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Coorg or Kodagu is the second smallest district, located in the southern part of Karnataka. Coffee is the main plantation crop. This district has a luxuriant vegetation of shola forests. To understand the fungal wealth of this area, a reconnaissance tour was conducted to this area during the month of November, 2003 and the study resulted in recording 87 fungal species. Of which, 14 are new species : *Asteridiella acanthacearum*, *A. capparidigena*, *Asterina aglaiae*, *A. canthii-dicocci*, *A. hyptidicola*, *A. madikeriensis*, *A. parsonsiae*, *A. talacauveriana*, *Asterolibertia vateriae*, *Asterostomella elaeocarpiserrati*, *Meliola parsonsiicola*, *Sarcinella pouzolziae*, *S. allophyli* and *Schiffnerula glochidii*. *Asterina piperina* Sydow, *Schiffnerula pulchra* (Sacc.) Petrak and *Schiffnerula ricini* Hansf. are new recorded to India, while, *Armatella cinnamomi* Hansf. & Thirum. is relocated after the lapse of half a century.

Key words : Mycotaxonomy, microfungi, leaf parasites, Coorg, Karnataka

Kodagu or Coorg is located in the south-western corner of Karnataka State, bounded with Mysore and Hassan districts in the east, Dakshina Kannada in the West and Kerala State in the western side (Fig. 1). It is the second smallest district in Karnataka State, with an area of 4120 sq km having least population of 4,85,299. This is the first and the largest coffee producing place in India (*Arabica*—24,000 MT and *Robusta* 69,000 MT). located at an altitude of about 750-1100 m, having an rainfall 1000-2500 mm annually, with the temperature ranging from 19-33° C. This region harbours the shola vegetation. Muthappa (1965a, b, c ; 1966 ; 1967a, b, c, d, e ; 1969, 1973, 1976), Muthappa and Krishna (1978), Muthappa *et al.* (1976) and Anahosur (1967, 1969, 1970a, b, c ; 1976) have collected foliicolous fungi of this region. A reconnaissance collection trip to this area during the month of November, 2004 has been conducted and results are presented here.

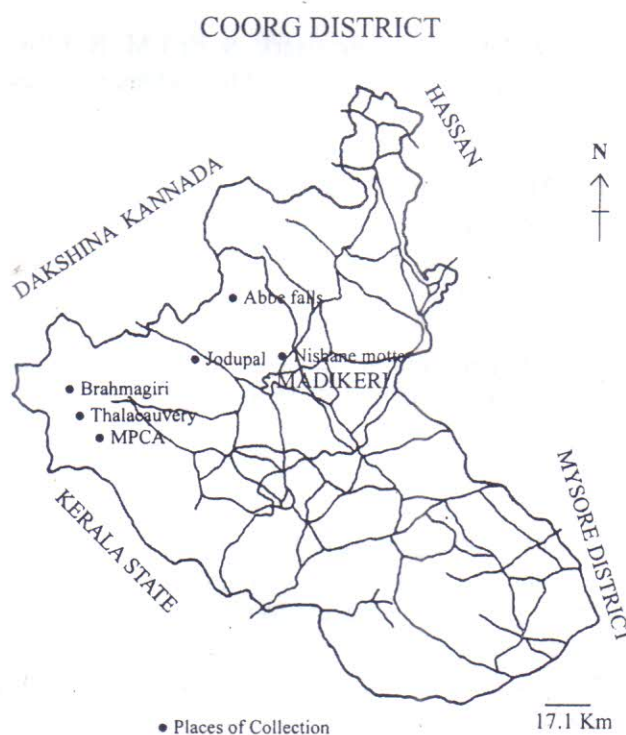


Fig. 1 : Map of Coorg district showing places of collection.

Enumeration of the species

Acremoniula sarcinellae (Pat. & Har.) Arn. ex Deight., Mycol. Pap. 118 : 3, 1969; Hosag, Biju, C. K. & Abraham, J. Econ. Taxon. Bot. 25 : 283, 2001. ≡ *Acremoniula sarcinellae* Pat. & Har., J. Bot. Paris 14 : 245, 1900.

≡ *Acremoniula sarcinellae* (Pat. & Har.) Arnaud, Bull. Trimest. Soc. Mycol. France 69 : 268, 1954.

≡ *Dicoccum pulchrum* Thumen, Revu Mycol. 1 : 11, 1879.

≡ *Domingoella pycnopeltarum* Batista, Anais IV Congr. Bot. Brasil : 77, 1953.

Material examined : On the colonies of *Sarcinella tectonae* infected the leaves of *Tectona grandis*, Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45613, TBGT 1356; HClO 45632, TBGT 1376; on the colonies of *Sarcinella lagerstroemiae* infected the leaves of *Lagerstroemia* sp., Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45626, TBGT 1369.

This is a common hyper parasite on this fungus.

Acroconidiellina arecae (Berk. & Br.) M. B. Ellis, Mycol. Pap. 125 : 26, 1971; More Dematiaceous Hyphomycetes, p. 411, 1976.

Material examined : On leaves of *Areca catechu* L. (Arecaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45640, TBGT 1386.

Armatella cinnamomi Hansf. & Thirum., Farlowia 3 : 286, 1948; Hosag., J. Econ. Taxon. Bot. 15 : 197, 1991. (Fig.-2)

Colonies hypophyllous, thin to dense, up to 5 mm in diameter. Hyphae substraight to crooked, branching irregular at acute to wide angles, loosely to rarely closely reticulate, cells 17-19 × 4-5 μm. Appressoria alternate, mostly perpendicular to the hyphae, often antrorse to retrorse, 11-16 μm long; stalk cells cylindrical to cuneate, 3-7 μm long; head cells globose, often ovate, straight to curved, entire.

angular, crenately lobate to few deeply lobate, 8-10 × 6-10 μm. Perithecia scattered, globose, up to 144 μm in diam.; perithecial wall cells conoid, straight to curved, obtuse at the tip, up to 16 μm long; asci not seen; ascospores conglobate, brown, uniseptate, slightly constricted at the septum, 20-22 × 10-12 μm, wall smooth.

Material examined : On leaves of *Cinnamomum* sp. (Lauraceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45815, TBGT 1672.

This species was collected in the year 1945 by M. J. Thirumalachar from Balehonnur, Karnataka, on April 27, 1945 (Hansford & Thirumalachar, 1948) and is relocated here after its type collection. Except for the shorter appressoria, this collection matches well with the assigned species.

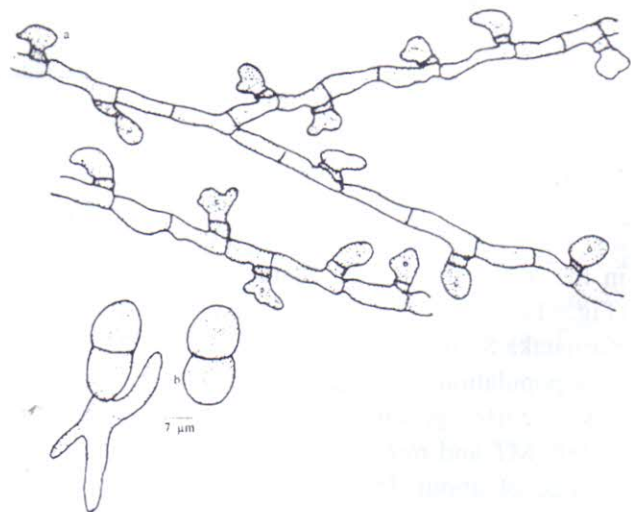


Fig. 2 : *Armatella cinnamomi* Hansf. & Thirum.
a - Appressorium, b - Ascospores (one germinating)

Asperisporium caricae (Speg.) Maubl., Lavoura 16 : 212, 1913; Hosag., Bull. Bot. Surv. India 35 : 118, 1993.

Material examined : On leaves of *Carica papaya* L. (Caricaceae), Nishane motta, Nov. 14, 2003, V. B. Hosagoudar & al. HClO 45636, TBGT 1380; HClO 45677, TBGT 1424.

Asteridiella acanthacearum V. B. Hosagoudar, sp. nov.

(Fig.-3)

Coloniae epiphyllae, tenues vel subdensae, ad 2 mm diam., confluentes. Hyphae rectae vel subrectae, irregulariter acuteque ramosae, laxe reticulatae, cellulae 19-24 × 6-8 μm. Appressoria alternata vel unilateralia, antrorsa vel subantrorsa, recta vel curvula, 16-23 μm longa; cellulae basillares cylindratae vel cuneatae, 3-7 μm longae; cellulae apicales ovatae, globosae, integrae, angularis vel 2-3 sublobatae, 12-16 × 9-11 μm. Phialides appressorii mixtus, alternatae vel oppositae, ampullaceus, 14-20 × 5-7 μm. Perithecia dispersa vel laxe aggregata, ad 150 μm diam; cellulae peridiales conoideae vel mammiformes, ad 15 μm longae; ascospores oblongae, cylindratae, rectae vel leniter curvulae, 4-septatae, constrictae ad septatae, 32-38 × 10-12 μm.

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching irregular at acute angles, loosely reticulate, cells 19-24 × 6-8 μm. Appressoria alternate to unilateral, antrorse to subantrorse, straight to curved, 16-23 μm long; stalk cells cylindrical to cuneate, 3-7 μm long; head cells ovate, globose, entire, angular to 2-3 times sublobate, 11-16 × 9-11 μm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 14-20 × 5-7 μm. Perithecia scattered, to loosely grouped, up to 150 μm in diameter; perithecial wall cells conoid to mammiform, up to 15 μm long; ascospores oblong, cylindrical, straight to slightly curved, 4-septate, constricted at the septa, 32-38 × 10-12 μm.

Material examined : On leaves of Acanthaceae member, Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45765 (type), TBGT 1385 (isotype); *Lepidagathis* sp. (Acanthaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45722, TBGT 1471.

Based on the Beeli formula, *A. acanthacearum* is similar to *A. anastomosana* Wint. var. *macilenta* (Wint.) Hansf. known on *Brillantaisia patula* from

San Thome but differs from it in having entire to sublobate head cells of appressoria. It also differs from *A. thunbergiae-chrysopes* (Hansf. & Deight.) Hansf. known on *Thunbergia chrysopes* from Sierra Leone in having shorter appressoria with entire to sublobate head cells (Hansford, 1961).

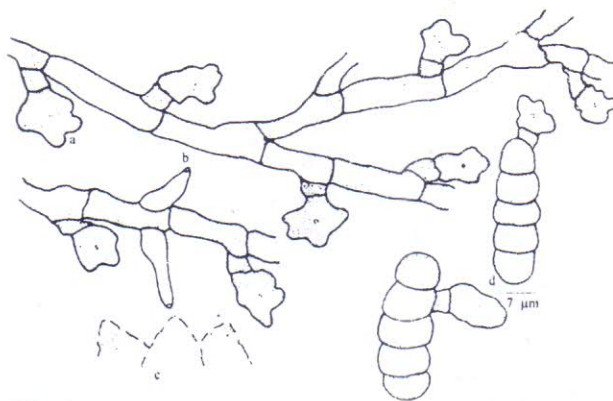


Fig. 3 : *Asteridiella acanthacearum* sp. nov.
a – Appressorium, b – phialide,
c – Perithecial wall cells, d – Ascospores

Asteridiella callista (Rehm) Hansf., Sydowia 10 : 47, 1957; Sydowia Beih. 2 : 687, 1961; Hosag. & Abrham, Indian Phytopathol. 51 : 301, 1998.

Meliola callista Rehm, Leafl. Philippine Bot. 6 : 2191, 1914.

Irenina callista (Rehm) Hansf., Proc. Linn. Soc. London 157 : 169, 1946.

Material examined : On leaves of *Stachytarpheta jamaicensis* (L.) Vahl (Verbenaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45610, TBGT 1353; Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45801, TBGT 1550.

Asteridiella capparidigena V. B. Hosagoudar, sp. nov.

(Fig.-4)

Coloniae amphigenae, plerumque epiphyllae, densae, minutae, ad 1 mm diam. Hyphae rectae vel undulatae, alternata vel opposite laxe ramosae, laxe vel arcte reticulatae, cellulae 18-32 × 6-8 μm. Appressoria alternate, non densae posita, antrorsa vel subantrorsa. 19-24 μm long; cellulae basillares cylindratae, vel cuneatae, 4-6 μm longae; cellulae

apicales ovatae, oblongae vel cylindratae, plerumque integrae, raro angularis vel sublobatae, $14-20 \times 9-12 \mu\text{m}$. Phialides mixtus appressoriis, alternatae vel oppositae, ampulliformes, $14-18 \times 8-10 \mu\text{m}$. Perithecia dispersa vel aggregata, ad $160 \mu\text{m}$ diam.; cellulae peritheciales mammiformes, ad $20 \mu\text{m}$ longae; ascosporae oblongae, cylindratae, 4-septatae, leniter constrictae, $30-37 \times 12-16 \mu\text{m}$.

Colonies amphigenous, mostly epiphyllous, dense, minute, up to 1 mm in diameter. Hyphae straight to undulate, branching alternate to opposite at wide angles, loosely to closely reticulate, cells $28-32 \times 6-8 \mu\text{m}$. Appressoria alternate, not crowded, antrorse to subantrorse, $19-24 \mu\text{m}$ long; stalk cells cylindrical to cuneate, $4-6 \mu\text{m}$ long; head cells ovate, oblong to cylindrical, mostly entire, rarely angular to sublobate, $14-20 \times 9-12 \mu\text{m}$. Phialides mixed with appressoria, alternate to opposite, ampulliform; $14-18 \times 8-10 \mu\text{m}$. Perithecia scattered to grouped, up to $160 \mu\text{m}$ in diameter; perithecial wall cells mammiform, up to $20 \mu\text{m}$ long; ascospores oblong, cylindrical, 4-septate, slightly constricted at the septa, $30-37 \times 12-16 \mu\text{m}$.

Material examined : On leaves of Capparaceae member, Nishanemotta, Madikeri, Kodagu (Coorg), Karnataka, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45637 (type), TBGT 1381 (isotype).

There is no report of the genus *Asteridiella* on the members of the family Capparaceae (Hansford, 1961; Hosagoudar, 1996; Hosagoudar *et al.* 1997). Hence, it is proposed here as a new species.

Asteridiella combreti (Stev.) Hansf., var. *leonensis* Hansf., Sydowia Beih. 20 : 160, 1961; Hosag. & Goos, Mycotaxon 36 : 238, 1989; Hosag., Meliolales of India, p. 83, 1996.

Material examined : On leaves of *Calycopteris florubunda* Lam. (Combretaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45672, TBGT 1419.

Asteridiella elaeocarpi-tuberculati Hosag., Crypt. Bot. 2/3 : 183, 1987, Hosag., Meliolales of India, p87, 1996.

Material examined : On leaves of *Elaeocarpus tuberculatus* Roxb. (Elaeocarpaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45779, TBGT 1528.

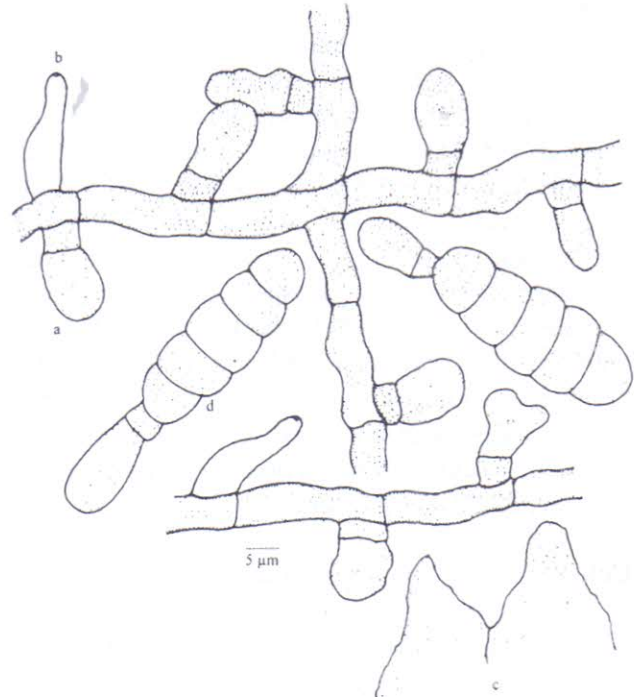


Fig. 4 : *Asteridiella capparidigena* sp. nov.
a - Appressorium, b - phialide,
c - Perithecial wall cells, d - Ascospores

These colonies were associated with the colonies of *Asterina elaeocarpi* Sydow var. *ovalis* Kar & Maity.

Asteridiella formosensis (Yamam.) Hansf., Sydowia 10 : 48, 1957; Sydowia Beih. 2 : 686, 1961; Hosag. & Goos, Mycotaxon 36 : 240, 1989; 42 : 128, 1991; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51 : 109, 1994; Hosag., Meliolales of India, p 90, 1996.

Irene formosensis Yamam., Trans. Nat. Hist. Soc. Taiwan 31 : 15, 1941.

Meliola formosensis (Yamam.) Cif., Mycopathologia 7 : 87, 1954 (*non* Yamam., 1941).

Material examined : On leaves of *Callicarpa* sp. (Verbenaceae), Nishanemotta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45788, TBGT 1537.

Asteridiella scolopiae Hosag., Meliolales of India, p. 104, 1996.

Material examined : On leaves of *Scolopia crenata* (Wight & Arn.) Clos (Flacourtiaceae), MPCA, Brahmagiri, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45745, TBGT 1494; *Scolopia* sp., HCIO 45700, TBGT 1448; HCIO 45813, TBGT 1563.

This species was collected from Kakachi forest in Tirunelveli district of Tamil Nadu and was also known only from the type. The present collection reveals its extended distribution.

These colonies were associated with the colonies of *Asterina talacauveriana* sp. nov. and *Asterostomella scolopiae-crenatae* Hosag. & Abraham.

Asterina acronychiae Hosag. & Goos, Mycotaxon 59 : 150, 1996.

Material examined : On leaves of *Acronychia* sp. (Rutaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45729, TBGT 1478.

This species was known on *Acronychia pedunculata* from Kakachi forest in Tirunelveli district in Tamil Nadu and the present collection revealed its extended distribution.

Asterina aglaiae V. B. Hosagoudar, sp. nov. (Fig.-5)

Coloniae epiphyllae, tenues vel subdensae, ad 3 mm diam., raro confluentes. Hyphae rectae vel leniter anfractuae, irregulariter acuteque vel laxe ramosae, laxae vel dense reticulatae, cellulae 16-23 × 4-6 μm. Appressoria alternata, opposita vel subopposita, unicellularis, ovata, conoidea, ampulliformes, antrorsa, subantrorsa vel retrorsa, recta vel curvula, integra vel raro angularis vel sublobata, 8-13 × 5-7 μm. Thyriothecia dispersa, orbicularis, ad 120 μm diam., stellatim dehiscentes ad centro, margine crenatae vel fimbriatae, hyphae fringiorum paucae, anfractuae; asci globosi, octospori, ad 30 μm diam.; ascosporae conglobatae, oblongae, brunneae,

uniseptatae, fortiter constrictae, 20-28 × 11-12 μm, parietus glabrus.

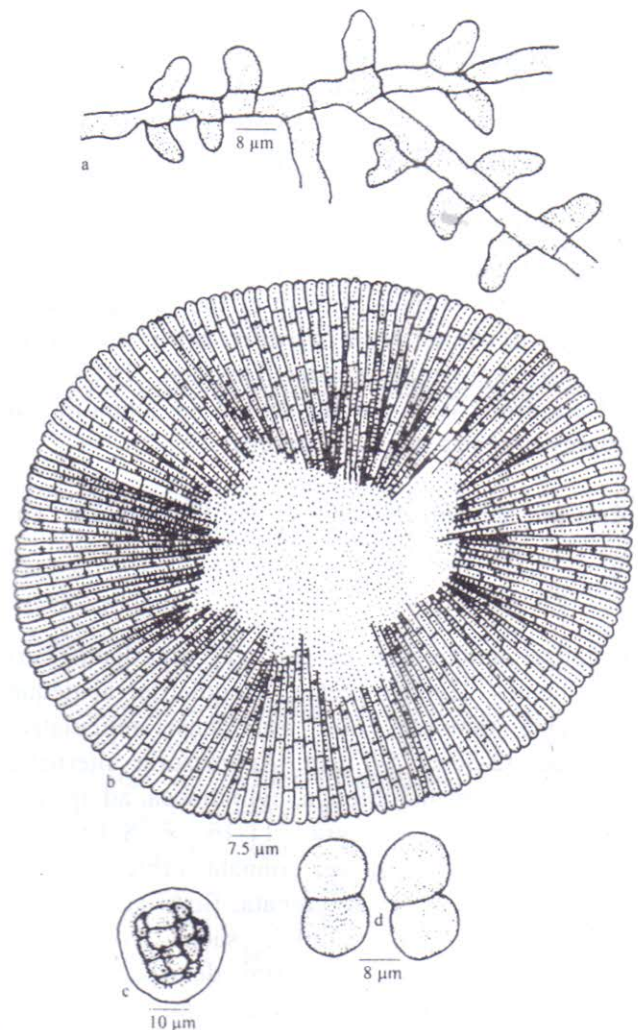


Fig. 5 : *Asterina aglaiae* sp. nov.

a - Appressariate mycelium, b - Thyriothecium, c - Ascus, d - Ascospores

Coloniae epiphyllous, thin to subdense, up to 3 mm in diameter, rarely confluent. Hyphae straight to slightly crooked, branching irregular at acute to wide angles, loosely to closely reticulate, cells 16-23 × 4-6 μm. Appressoria alternate, opposite to subopposite, unicellular, ovate, conoid, ampulliform, antrorse, subantrorse to retrorse, straight to curved, entire to rarely angular to sublobate, 8-13 × 5-15 μm. Thyriothecia scattered, orbicular, up to 120 μm in diam., stellately dehisced at the centre, margin crenate to fimbriate, fringed hyphae few, crooked; asci globose, octosporous, up

to 30 μm in diam.; ascospores conglobate, oblong, brown, uniseptate, deeply constricted at the septum, 20-28 \times 11-13 μm , wall smooth.

Material examined : On leaves of *Aglaia* sp. (Meliaceae), Jodupal, Madikeri, Kodagu (Coorg), Karnataka, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45756 (type), TBGT 1505 (isotype).

Based on the morphology and arrangement of the appressoria and measurement of the ascospores, *A. aglaiae* is similar to *A. silvatica* Speg. known on *Trichilia* sp. from Brazil (Theissen, 1913) but differs from it in having ovoid to ampulliform appressoria and large ascospores.

Asterina canthii-dicocci V. B. Hosagoudar, sp. nov.
(Fig.-6)

Coloniae amphigenae, densae, ad 2 mm diam., raro confluentes. Hyphae rectae, irregulariter acuteque vel laxe ramosae, laxe vel dense reticulatae, cellulae 32-36 \times 5-7 μm . Appressoria alternata, unilateralia, ovata, oblonga, cylindracea, ad apicem saepe attenuata, integra, 11-16 \times 8-10 μm . Thyriothechia dispersa vel connata, orbicularis, ad 160 μm diam., margine crenata, fimbriata, hyphae fringiorum rectae, parallel, saepe compactae, perithecia ad centro stellatim dehiscentes; asci globosi, octospori, ad 35 μm diam.; ascosporeae oblongae, conglobatae, uniseptatae, constrictae, 20-22 \times 11-13 μm .

Colonies amphigenous, dense, up to 2 mm in diameter. rarely confluent. Hyphae straight, branching irregular at acute to wide angles, loosely to closely reticulate, cells 32-36 \times 5-7 μm . Appressoria alternate, unilateral, ovate, oblong, cylindrical, often attenuated at the apex, entire, 11-16 \times 8-10 μm . Thyriothechia scattered to connate, orbicular, up to 160 μm in diameter, margin crenate to fimbriate, fringed hyphae straight, parallel, often compact, thyriothechia stellately dehisced at the centre; asci globose, octosporous, up to 35 μm diam.; ascospores oblong, conglobate, uniseptate, constricted at the septum, 20-22 \times 11-13 μm , wall smooth.

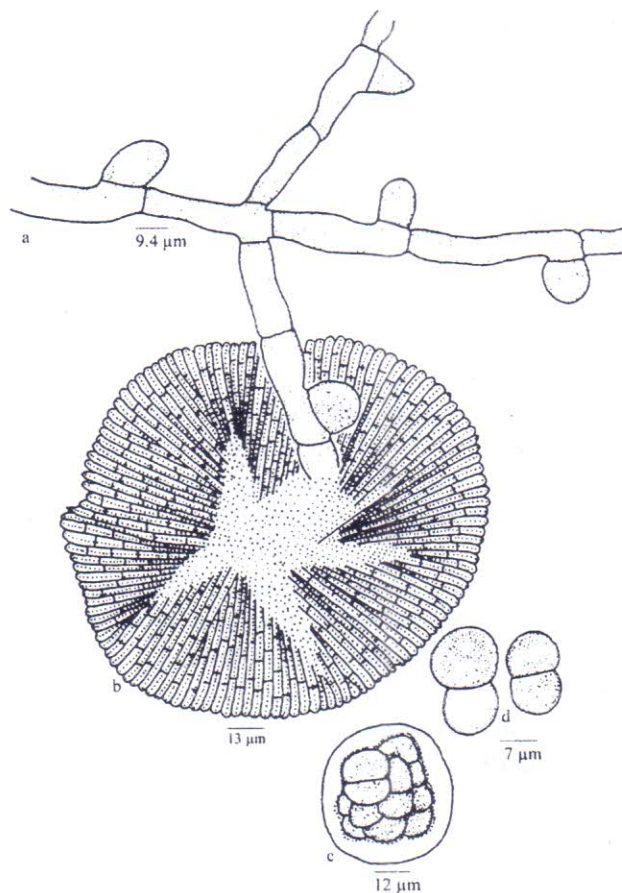


Fig. 6 : *Asterina canthii-dicocci* sp. nov.
a - Appressoriatae mycelium, b - Thyriothecium,
c - Ascus, d - Ascospores

Material examined : On leaves of *Canthium dicoccum* (Gaertn.) Teijsm. & Binn. (Rubiaceae), Nishanemotta, Madikeri, Kodagu (Coorg), Karnataka, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45762 (type), TBGT 1511 (isotype).

Asterina canthii-dicocci differs from *A. canthii* in absence of apposite appressoria and having larger ascospores. It differs from *A. knysnae* Doidge known on *Canthium* sp. from South Africa in having smaller ascospores against (30-35 \times 16-20 μm). Hence, it is proposed here as a new species (Stevens & Ryan, 1939 ; Doidge, 1942).

Asterina cipadessae Yates, Philippine J. Sci. 12 : 371, 1917. Hosag., Balakr. & Goos, Mycotaxon 60 : 172, 1996.

\equiv *Parasterina cipadessae* (Yates) Mendoza, Philippine J. Sci. 49 : 446, 1932.

Material examined : On leaves of *Cipadessa baccifera* (Roth.) Miq. (Meliaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45649, TBGT 1395.

Asterina elaeocarpi Sydow var. *ovalis* Kar & Maity, Indian Phytopathol. 39 : 218, 1986; Hosag., Balakr. & Goos, Mycotaxon 60 : 175, 1996.

Material examined : On leaves of *Elaeocarpus tuberculatus* Roxb. (Elaeocarpaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45750, TBGT 1499; HCIO 45670, TBGT 1417.

This fungus is common throughout the southern Western Ghats.

Asterina elaeocarpicola Hansf., Reinwardia 3 : 131, 1954; Hosag. & Goos, Mycotaxon 60 : 154, 1996.

Material examined : On leaves of *Elaeocarpus* sp. (Elaeocarpaceae), MPCA, Brahmagiri, Talacauveri, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45614, TBGT 1357; Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45679, TBGT 1426.

This species shows its extended distribution.

Asterina erysiphoides Kalch. & Cooke, Grevillea 9 : 32, 1880; Hansf. & Thirum., Farlowia 3 : 306, 1948; Hosag., Balakr. & Goos, Mycotaxon 59 : 175, 1996.

Material examined : On leaves of *Jasminum* sp. (Oleaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45631, TBGT 1375; HCIO 45634, TBGT 1378; Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45630, TBGT 1373; HCIO 45780, TBGT 1529; HCIO 45796, TBGT 1545; HCIO 45645, TBGT 1391; HCIO 45795, TBGT 1544; HCIO 45796, TBGT 1545; HCIO 45797, TBGT 1546.

These colonies were associated with the colonies of

Meliola gemellipoda Doidge and *Meliola jasminii* Hansf. & Stev.

Asterina escharoides Sydow, Abh. K. K. Zool. Bot. Ges. 7 : 101, 1913; Hosag., Indian J. Forestry 18 : 274, 1995.

Material examined : On leaves of *Quisqualis indica* L. (Combretaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45648, TBGT 1394; Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45669, TBGT 1416.

Asterina hyptidicola V. B. Hosagoudar, sp. nov. (Fig.-7)

Coloniae epiphyllae, minutae, densae, ad 1 mm diam., confluentes. Hyphae flexuosae, irregulariter acuteque vel laxe ramosae, laxe reticulatae, formis laxe reticulatae, cellulae 19-43 × 3-5 µm. Appressoria valde dissitus posita, bicellula, recta vel curvula, 9-16 µm longa; cellulae basiales cylindratae vel cuneatae, 3-5 µm longae; cellulae apicales ovatae, globosae, curvulae, integrae, sublobatae vel fortiter lobatae, 6-12 × 8-10 µm. Thyriothecia dispersa vel connata, orbicularis, ad 100 µm diam., stellato dehiscentes ad centre, margine crenatae; asci globosi, octospori, ad 30 µm diam.; ascosporae conglobatae, oblongae, brunneae, uniseptatae, 12-16 × 6-8 µm; Pycnothyria thyriotheciis mixtus, similes thyriotheciis, breviter; pycnothyriosporae ovatae, pyriformis, unicellularis, brunneae, 13-16 × 7-9 µm.

Colonies epiphyllous, minute, dense, up to 1 mm in diameter, confluent. Hyphae flexuous, branching irregular at acute to wide angles, loosely reticulate, form loose net, cells 19-43 × 3-5 µm. Appressoria very much distantly placed, bicellular, straight to curved, 9-16 µm long; stalk cells cylindrical to cuneate, 3-5 µm long; head cells ovate, globose, curved, entire, sublobate to deeply lobate, 6-12 × 8-10 µm. Thyriothecia scattered to connate, orbicular, up to 100 µm in diameter, stellately dehisced at the centre, margin crenate; asci globose, octosporous, up to 30 µm in diameter; ascospores conglobate, oblong, brown, uniseptate, 12-16 × 6-8 µm; pycnothyria mixed with thyriothecia, similar to

thyriothechia but smaller; pycnothyriospores oval, pyriform, unicellular, brown, $13-16 \times 7-9 \mu\text{m}$.

Material examined : On leaves of *Hyptis suaveolense* (L.) Poit. (Lamiaceae), Nishanemotta, Madikeri, Kodagu (Coorg), Karnataka, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45656 (type), TBGT 1402 (isotype).

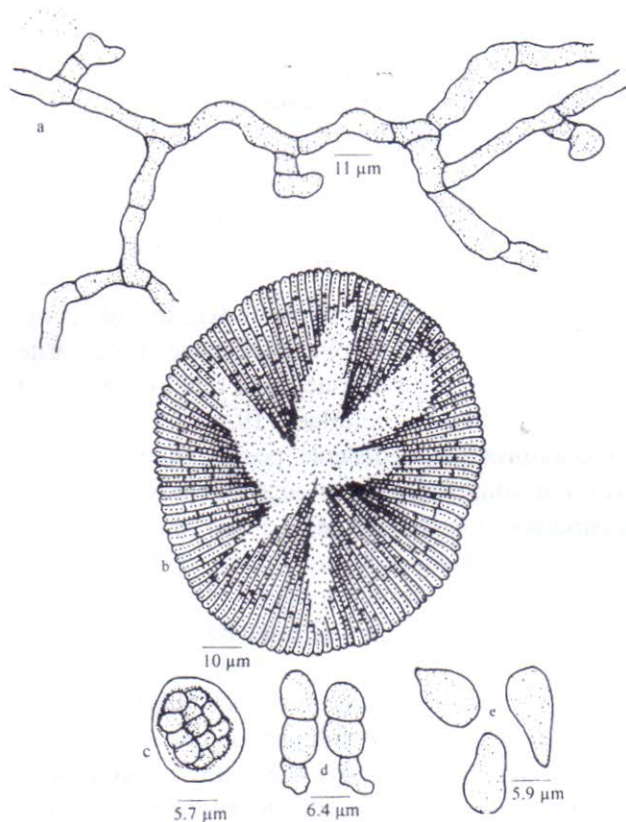


Fig. 7 : *Asterina hyptidicola* sp. nov.
a – Appressoriate mycelium, b – Thyriothecium,
c – Ascus, d – Ascospores

Asterina acanthopoda Speg. var. *hyptidis* Rehm was known on *Hyptis* sp. but was made synonymous to *Asterina carbonacea* Cooke (Stevens & Ryan, 1939). Later, Hosagoudar & Abraham (2000) gave a species status to it. However, *Asterina hyptidis* (Rehm) Hosag. & Abraham differs from it in having distinctly smaller thyriothechia, asci and ascospores.

Asterina indica Sydow in Sydow & Butler, Ann. Mycol. 9 : 390, 1911 ; Patil & Thite, J. Shivaji Univ. 17 : 152, 1977.

Material Examined : On leaves of *Symplocos* sp. (Symplocaceae), MPCA, Brahmagiri, Talacauvery, Nov.13, 2003, V. B. Hosagoudar & al. HCIO 45689, TBGT 1436; TBGT 1447, HCIO 45711, TBGT 1460; HCIO 45717, TBGT 1466; HCIO 45736, TBGT 1485; HCIO 45738, TBGT 1487; Nishanemotta, Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45662, TBGT 1408.

Asterina lawsoniae Henn. & Nyn., Monsumia 1 : 159, 1899; Hansf., Proc. Linn. Soc. London 160 : 145, 1947-48 ; Patil & Thite, J. Shivaji Univ. 17 : 152, 1977.

Material Examined : On leaves of *Lawsonia inermis* L. (Lythraceae), Jodupal, Nov.21, 2003, V. B. Hosagoudar & al. HCIO 45807, TBGT 1556.

Asterina lepianthedis (Hosag., Balakr. & Goos) Hosag., Indian Phytopathol. 55 : 498, 2002.
Anamorph : *Asterostomella lepianthedis* Hosag., Balakr. & Goos, Mycotaxon 58 : 492, 1996.

Material Examined : On leaves of *Lepianthes umbellata* (L.) Raf. (Menispermaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45686, TBGT 1433; Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45802, TBGT 1551.

Asterina madikeriensis V. B. Hosagoudar, sp. nov. (Fig.-8)

Coloniae epiphyllae, densae, minutae vel ad 3 mm diam., confluentes. Hyphae rectae, alternata vel opposita acuteque vel laxe ramosae, laxe vel densae reticulatae, cellulae $17-24 \times 4-6 \mu\text{m}$. Appressoria opposita, raro solitaria vel alternata, ovata, integra, ad apicem attenuata vel late rotundata, $8-10 \times 6-8 \mu\text{m}$. Thyriothechia orbicularis, dispersa, ad $170 \mu\text{m}$ diam., stellatim dehiscentes ad centro, margine fimbriatae vel crenatae, hyphae fringiorum rectae vel flexuosae, compactae; asci globosi, octospori, ad $30 \mu\text{m}$ diam.; ascospores oblongae, conglobatae, brunneae, uniseptatae, constrictae, $22-25 \times 8-11 \mu\text{m}$; parietus tuberculatus.

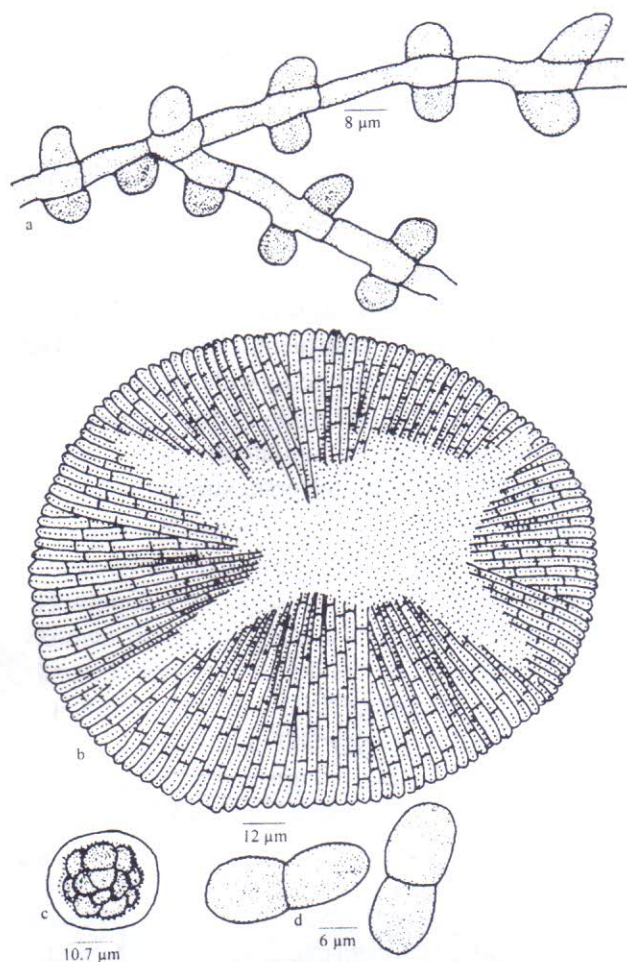


Fig. 8 : *Asterina madikeriensis* sp. nov.

a - Appressoriolate mycelium, b - Thyriothecium,
c - Ascus, d - Ascospores

Colonies epiphyllous, dense, minute to 3 mm in diameter, confluent. Hyphae straight, branching alternate to opposite, at acute wide angles, loosely to closely reticulate, cells $17-24 \times 4-6 \mu\text{m}$. Appressoria opposite, rarely solitary or attenuate, ovate, entire, attenuated to broadly rounded at the apex, $8-10 \times 6-8 \mu\text{m}$. Thyriothechia orbicular, scattered, up to $170 \mu\text{m}$ in diam.; stellately dehiscent at the centre, margin fimbriate to crenate, fringed hyphae straight to flexuous, compact; asci globose, octosporous, up to $30 \mu\text{m}$ in diam.; ascospores oblong, conglobate, brown, uniseptate, constricted at the septum, $22-25 \times 8-11 \mu\text{m}$; tubercled.

Material examined : On leaves of *Memecylon* sp. (Melastomataceae), Nishanemotta, Madikeri, Kodagu (Coorg), Karnataka, Nov. 12, 2003, V. B. Hosagoudar & al. TBGT 1455 (type).

Asterina memecylonis Ryan is the only species known on the genus *Memecylon* from Karwar, Karnataka (Ryan, 1928, Hosagoudar & Abraham, 2000). Recently, it was relocated from Kerala (Hosagoudar, 2003). However, *A. madikeriensis* differs from it in having regularly opposite and densely placed appressoria.

The colonies were associated with *Meliola memecyli* Syd. var. *microspora* Hosag. et al.

Asterina melicopecola Hosag. & Abraham, Indian Phytopathol. 50 : 216, 1997.

Material examined : On leaves of *Melicope lunuankenda* (Gaertn.) T. G. Hartley (Rutaceae), Nishanemotta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45607, TBGT 1350.

This species was known only from the type collected from Agastyar hills in Kerala state and the present collection shows its extended distribution.

Asterina parsoniae V. B. Hosagoudar, sp. nov. (Fig.-9)

Coloniae amphigenae, plerumque hypophyllae, subdense, vel dense, ad 5 mm diam., confluentes. Hyphae undulatae, irregulariter arcte vel laxe ramosae, laxe reticulatae et formis laxe rete, cellulae $16-24 \times 3-5 \mu\text{m}$. Appressoria alternata vel unilateralis, mammiformes, crassa posita, crenato vel irregulariter lobata, $7-9 \times 11-14 \mu\text{m}$. Thyriothechia dispersa vel connata, orbicularis, ad $130 \mu\text{m}$ diam., stellatim dehiscentes ad centre, margine crenatae; asci globosi, octospori, ad $30 \mu\text{m}$ diam.; ascospores oblongae, conglobatae, uniseptatae, leniter constrictae, brunneae, $14-18 \times 7-9 \mu\text{m}$.

Colonies amphigenous, mostly hypophyllous, subdense to dense, up to 5 mm in diameter, confluent. Hyphae undulate, branching irregular at acute to wide angles, loosely reticulate and form a loose net, cells $16-24 \times 3-5 \mu\text{m}$. Appressoria alternate to unilateral, mammiform, broad based, crenately to irregularly lobate, $7-9 \times 11-14 \mu\text{m}$. Thyriothechia scattered to connate, orbicular, up to $130 \mu\text{m}$ in diameter, stellately dehiscent at the

centre, margin crenate; asci globose, octosporous, up to 30 µm in diameter; ascospores oblong, conglobate, uniseptate, slightly constricted, brown. 14-18 × 7-9 µm, wall smooth.

ssoria (Sydow & Petrak, 1931).

Asterina piperina Sydow, Ann. Mycol. 15 : 243, 1917.

Asterina piperis Yates, Philippine J. Sci. 13 : 374, 1918.

(Fig.-10)

Colonies amphigenous, thin to dense, up to 1 mm in diameter, rarely confluent. Hyphae crooked, branching irregular at acute to wide angles, loosely to closely reticulate, cells 19-24 µm. Appressoria scattered, alternate to unilateral, very closely antrorse, subantrorse to retrorse, straight to curved.

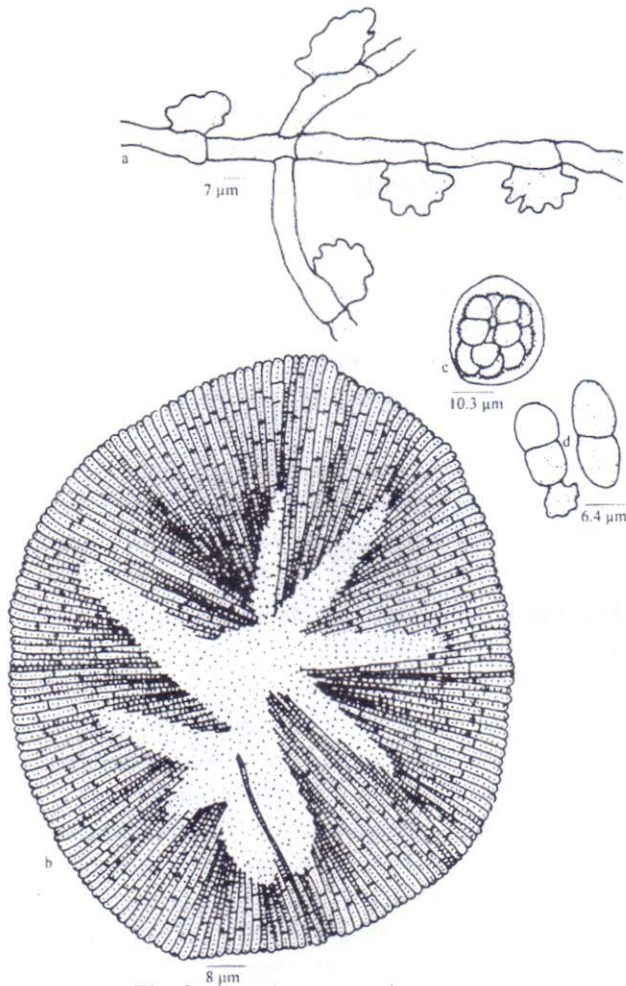


Fig. 9 : *Asterina parsonsiae* sp. nov.
a - Appressariate mycelium, b - Thyriothecium,
c - Ascus, d -Ascospores

Material examined : On leaves of *Parsonsia alboflavescens* (Dennst.) Mabberley (Apocynaceae), Medicinal Plant Conservation Area, Brahmagiri, Talacauvery, Madikeri, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45657 (type), TBGT 1403 (isotype).

Based on the morphology and measurements of the ascospores and appressoria, *Asterina parsonsiae* is similar to *A. aganosmae* Sydow but differs from it having mammiform and crenately lobate appre-

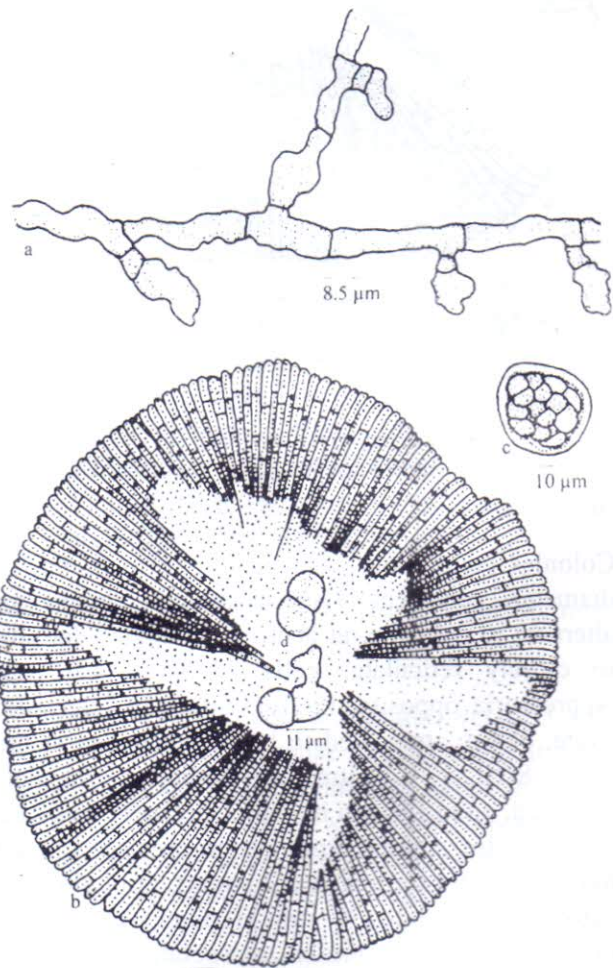


Fig. 10 : *Asterina piperina* Sydow
a - Appressariate mycelium, b - Thyriothecium,
c - Ascus, d -Ascospores

12-20 µm long ; stalk cells cylindrical to cuneate, 3-7 µm long; head cells ovate, globose, oblong, straight to curved, entire, angular, crenately lobate

to deeply lobate, $9-13 \times 9-11 \mu\text{m}$. Thyriothecia scattered to rarely connate, orbicular, up to $120 \mu\text{m}$ in diameter, stellately dehisced at the centre, margin crenate to slightly fimbriate, fringed hyphae very small; asci globose, octosporous, up to $28 \mu\text{m}$ in diameter; ascospores conglobate, brown, uniseptate, constricted, $14-21 \times 6-11 \mu\text{m}$, wall smooth.

Material examined : On leaves of *Piper* sp. (Piperaceae), Jodupal, Madikeri, Coorg, Karnataka, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45685, TBGT 1432.

Asterina elachista Sydow, *A. piperina* Sydow and *A. piperis* Yates are known on the host genus *Piper* (Sydow & Sydow, 1917, 1938; Yates, 1918; Hosagoudar & Abraham, 2001). The former species known from Uganda and the latter two species are known from Philippines. *A. piperis* Yates is identical with that of *A. piperina* in having two celled appressoria. The present collection matches well with the assigned species except having slightly longer appressoria and larger ascospores.

Asterina talacauveriana V. B. Hosagoudar, sp. nov.

(Fig.-11)

Coloniae hypophyllae, densae, ad 2 mm diam., confluentes. Hyphae rectae vel subrectae, plerumque opposite acuteque vel laxe ramosae, laxe vel arcte reticulatae, cellulae $20-24 \times 3-5 \mu\text{m}$. Appressoria opposite, 2% solitaria et subopposita, antrorsa, subantrorsa vel raro retrorsa, bicellula, $10-16 \mu\text{m}$ longa; cellulae basiales cylindratae vel cuneatae, $3-5 \mu\text{m}$ longae; cellulae apicales ovatae, globosae, oblongae, vadosim et irregulariter lobata, $9-11 \times 6-10 \mu\text{m}$. Thyriothecia dispersa vel connata, orbicularis, stellatim dehiscentes ad centre, ad $130 \mu\text{m}$ diam., margine crenatae vel fimbriatae, hyphae fringiorum breviter; asci globosi, octospori, ad $30 \mu\text{m}$ diam.; ascosporae brunneae, conglobatae, uniseptatae, constrictae, $19-21 \times 8-10 \mu\text{m}$, parietus glabrus. Pycnothyria thyriotheciis mixtus, similes vel breviter; pycnothyriosporae ovatae, pyriformes, brunneae, $13-15 \times 11-13 \mu\text{m}$.

Colonies hypophyllous, dense, up to 2 mm in diameter, confluent. Hyphae straight to substraight, branching mostly opposite at acute to wide angles,

loosely to closely reticulate, cells $20-24 \times 3-5 \mu\text{m}$. Appressoria opposite, 2% solitary and subopposite, antrorse, subantrorse to rarely retrorse, two celled, $10-16 \mu\text{m}$ long; stalk cells cylindrical to cuneate, $3-5 \mu\text{m}$ long; head cells ovate, globose, oblong, shallowly and irregularly lobate, $9-11 \times 6-10 \mu\text{m}$. Thyriothecia scattered to connate, orbicular, stellately dehisced at the centre, up to $130 \mu\text{m}$ diameter, margin crenate vel fimbriate, fringed hyphae very small; asci globose, octosporous, up to $30 \mu\text{m}$ in diameter; ascospores brown, conglobate, uniseptate, constricted, $19-21 \times 8-10 \mu\text{m}$, wall smooth. Pycnothyria mixed with thyriothecia, similar and smaller; pycnothyriospores oval, pyriform., brown, $13-15 \times 11-13 \mu\text{m}$.

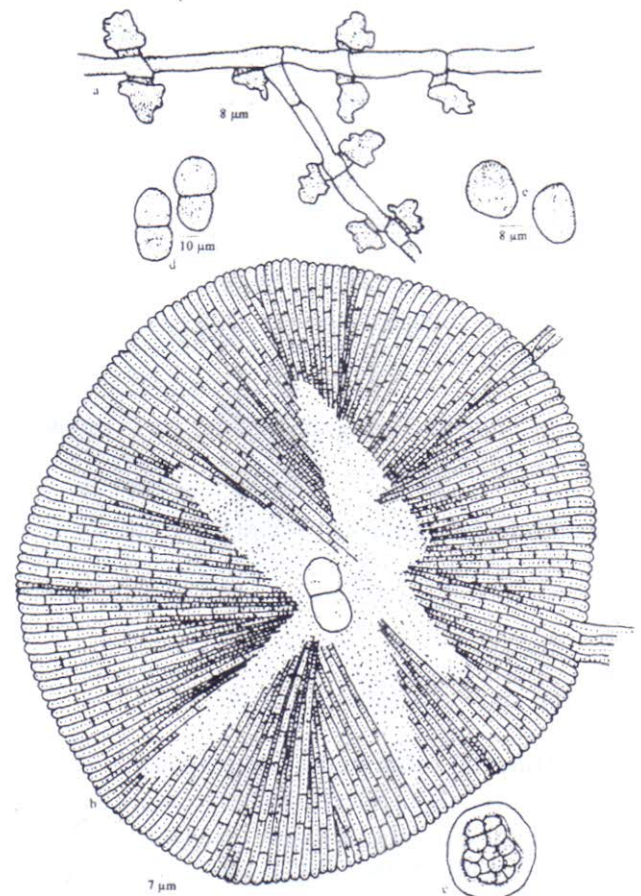


Fig. 11 : *Asterina talacauveriana* sp. nov.
a - Appressoriolate mycelium, b - Thyriothecium,
c - Ascus, d - Ascospores

Material examined : On leaves of *Scolopia* sp. (Flacourtiaceae), Medicinal Plant Conservation Area, Brahmagiri, Talacauvery, Madikeri, Kodagu (Coorg), Karnataka, Nov.

13, 2003, V. B. Hosagoudar & al. HCIO 45700 (type), TBGT 1448 (isotype).

This species is close to *Asterina cylindrophora* Sydow and *A. flacourtiiae* Petrak in having opposite appressoria. However, differs from both in having lobate head cells of the appressoria and smaller ascospores (Sydow & Sydow, 1917; Petrak & Sydow, 1931).

Asterina tertia Racib. in Theiss. Abh. K. K. Zool. Bot. Ges. 7 : 103, 1913.

Material examined : On leaves of *Asystasia chelanoide* Nees (Acanthaceae), Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45644, TBGT 1390; *Adathoda vasica* Nees (Acanthaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45611, TBGT 1354; HCIO 45671, TBGT 1418; *Justicia betonica* L. (Acanthaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45732, TBGT 1481; *Barleria* sp. (Acanthaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45734, TBGT 1483; *Crossandra* sp. (Acanthaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. TBGT 1558;

Asterina thotteae Hosag. & Hanlin, New Botanist 22 : 188, 1995.

Material examined : On leaves of *Thottea* sp. (Acanthaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45627, TBGT 1370.

Asterina sp.

Material examined : On leaves of *Syzygium cumini* (L.) Skeels (Myrtaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45704, TBGT 1452; *Syzygium* sp., Nishane motta, Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45609, TBGT 1352; HCIO 45621, TBGT 1364; on the way to Abbe falls, Madikeri, Coorg, Karnataka, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45659, TBGT 1405, Abbe falls, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45629, TBGT 1372; MPCA, Brahmagiri, Talacau-

very, Madikeri, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45676, TBGT 1423.

This is a complex species. Hence, further study is needed to confirm the identity of the individual collections.

Asterolibertia vateriae V. B. Hosagoudar, sp. nov. (Fig.-12)

Coloniae amphigenae, plerumque epiphyllae, densae, crustosae, congruens portio folia opposita aqua medius, ad 10 mm diam., confluentes. Hyphae subrectae vel anfractuae, opposite vel irregulariter acuteque vel laxe ramosae, laxe vel densae reticulatae cellulae 12-21 × 11-13 μm. Appressoria intercalaria, ovata vel oblonga, in cellulae centralis notata, 10-15 × 12-14 μm. Thyriothecia dispersa, orbicularis, ad initio, ellipsoideus at maturitatus, 300-400 × 150-200 μm, dehiscentes verticalis vel irregulariter ad centro, saepe portio ad centralis dissolutus, margine crenatae vel fimbriatae, hyphae fringiorum flexuosae vel compactae; asci globosi, ovati, octospori, ad 35 μm diam.; ascosporae, conglobatae, brunneae, uniseptatae, constrictae, 36-39 × 21-23 μm, parietus glabrus.

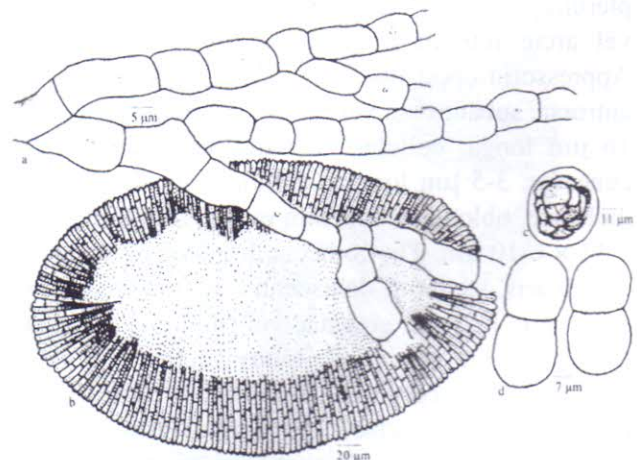


Fig. 12 : *Asterolibertia vateriae* sp. nov.
a - Mycelium with intercalary appressoria,
b - Thyriothecium, c - Ascus, d - Ascospores

Colonies amphigenous, mostly epiphyllous, dense crustose, cause water soaked lesions on the corresponding opposite surface of the leaves, up to

10 mm in diameter, confluent. Hyphae substraight to crooked, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells $12-21 \times 11-13 \mu\text{m}$. Appressoria intercalary, ovate to oblong, located in the cell with a central marking, $10-15 \times 2-14 \mu\text{m}$. Thyriothecia scattered, initially orbicular, later ellipsoidal, $300-400 \times 150-250 \mu\text{m}$, vertically to irregularly dehisced at the centre, often central portion dissolved, margin crenate to fimbriate, fringed hyphae flexuous, compact; asci globose, ovate, octosporous, up to $35 \mu\text{m}$ diameter; ascospores, conglobate, brown, uniseptate, constricted at the septum, $36-39 \times 21-23 \mu\text{m}$, wall smooth.

Material examined : On leaves of *Vateria indica* L. (Dipterocarpaceae) Jodupal, Madikeri, Kodagu (Coorg), Karnataka, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45752 (type), TBGT 1501 (isotype).

Asterolibertia anisopterae (Sydow) Hansf. and *A. flabellariae* (Sydow) Hansf. are known on *Anisoptera thursifera* and *Flabelliferia paniculata* from Philippines and Sierra Leone, respectively. *A. vateriae* differs from *A. anisopterae* in not forming polygonal meshes of hyphae, having smaller thyriothecia and in causing pathogenic effect on the host. It differs from *A. flabelliferae* in having distinctly larger ascospores (Hansford, 1947, 1949). Ascospores are smaller than *A. hydnocarpi* Hosag. & Abraham (Hosagoudar & Abraham, 1997).

The colonies were hyper parasitized by *Hansfordiellina asterinarum* Hughes.

Key to the species of the genus *Asterolibertia* on the members of Dipterocarpaceae

1. Ascospores more than $30 \mu\text{m}$ long ...2
1. Ascospores less than $30 \mu\text{m}$ long ... *flabelliferae*
2. Colonies scarcely visible, from polygonal meshes of hyphae ... *anisopterae*
2. Colonies dense and distinctly visible ...3
3. Colonies crustose, cause pathogenic effect on the host, ascospores $36-39 \mu\text{m}$ long, on *Vateria* ... *vateriae*

3. Colonies not so, ascospores

$49-52 \mu\text{m}$ long, on *Hydnocarpus ... hydnocarpi*

Asterostomella elaeocarpi-serrati V. B. Hosagoudar, sp. nov.
(Fig.-13)

Coloniae amphigenae, densae, ad 1 mm diam., raro confluentes. Hyphae rectae vel flexuosae, plerumque opposite acuteque ramosae, laxe vel densae reticulatae, cellulae $8-24 \times 5-7 \mu\text{m}$. Appressoria alternata, ad 30% opposita, unicellularis, conoidea, ovata, integra, racta, ad apicem attenuata vel late rotundata, $8-13 \times 6-8 \mu\text{m}$. Pycnothyria dispersa, orbicularis, ad $258 \mu\text{m}$ diam., ad centro stellatim dehiscentes, margine crenatae; pycnothyriosporae pyriformes, brunneae, $20-26 \times 19-21 \mu\text{m}$, parietus glabrus.

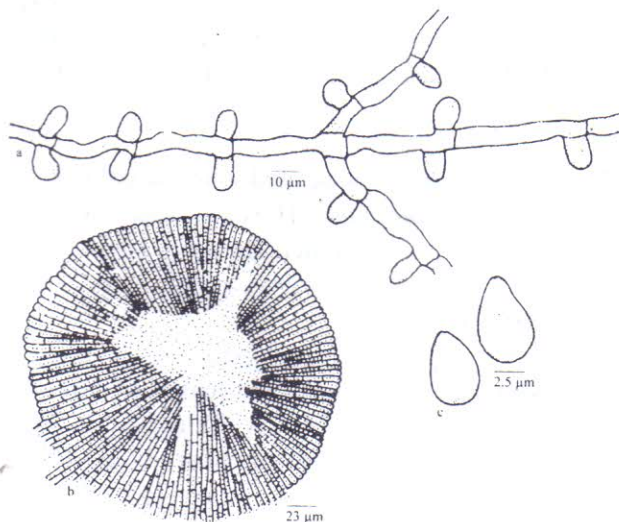


Fig. 13 : *Asterostomella elaeocarpi-serrati* sp. nov.
a - Appressariate mycelium, b - Pycnothyrium,
c - Pycnothyriospores

Colonies amphigenous, dense, up to 1 mm in diameter, rarely confluent. Hyphae straight to flexuous, branching mostly opposite at acute angles, loosely to closely reticulate, cells $8-24 \times 5-7 \mu\text{m}$. Appressoria alternate, about 30% opposite, unicellular, conoid, ovate, entire, straight, attenuated and broadly rounded at the apex, $8-13 \times 6-8 \mu\text{m}$. Thyriothecia scattered, orbicular, up to $258 \mu\text{m}$ in diam., stellately dehisced at the centre, margin crenate; pycnothyriospores pyriform, brown, $20-26 \times 19-21 \mu\text{m}$, wall smooth.

Material examined : On leaves of *Elaeocarpus serratus* L. (Elaeocarpaceae), Abbe falls, Madikeri, Coorg, Karnataka, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45817 (type), TBGT 1567 (isotype).

This is an anamorph of the genus *Asterina* and is close to *A. borneensis* Hansf. in having smaller and alternate to opposite appressoria. However, differs from it in having conoid but 30% opposite appressoria (Hansford, 1954).

Asterostomella scolopiae-crenatae Hosag. & Abraham, New Botanist 24 : 111, 1997.

Material examined : On leaves of *Scolopia crenata* (Wight & Arn.) Clos (Flacourtiaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45793, TBGT 1542. *Scolopia* sp., Nishane motta, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45813, TBGT 1563.

These colonies were associated with the colonies of *Asteridiella scolopiae* Hosag. and *Meliola scolopiae* Doidge var. *indica* Hosag.

***Curvularia* sp.**

Material examined : On leaves of *Fagraea* sp. (Potaliaceae), MPCA, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45606, TBGT 1349.

Endophyllum kaernbachi Stev. & Mendiola, Philippine Agric. 20 : 7, 1931; Hiratsika *et al.* The Rust Flora of Japan, p. 1021, 1992.

Aecidium kaernbachi Henn., 1892, Ann. Mycol. 10 : 273, 1912.

Material examined : On leaves of *Merremia* sp. (Convolvulaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45666, TBGT 1413.

Exobasidium vexans Masee in Mann, Indian Tea Ass. Bull. 3 : 1, 1906.

Material examined : On leaves of *Thea*

sinensis (L.) Kuntze (Theaceae), Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45803, TBGT 1552.

Hemeilea vastatrix Berk. & Br., Gdner's Chron. P. 1157, 1869.

Material examined : On leaves of *Coffea arabica* L. (Rubiaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45789, TBGT 1538. *Coffea* sp., Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45695, TBGT 1442.

Irenopsis benguetensis Stev. & Rold. Ex Hansf., Sydowia 26 : 311, 1963; Hosag. & Goos, Mycotaxon 36 : 242, 1989; Hosag., Meliolales of India, p. 107, 1996.

Irenopsis benguetensis Stev. & Rold. Philippine J. Sci. 56 : 49, 1935; Hansf., Sydowia Beih. 20 : 321, 1961.

Meliola benguetensis (Stev. & Rold.) Cif., Mycopathologia 7 : 87, 1954 (*non* Stev. & Rold., 1935).

Material examined : On leaves of *Ficus* sp. (Moraceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45658, TBGT 1404.

Irenopsis triumfettae (Stev.) Hansf. & Deight. var. *indica* Hosag. & Abraham, J. Mycopathol. Res. 36 : 98, 1998.

Material examined : On leaves of *Triumfetta* sp. (Tiliaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45798, TBGT 1547.

Meliola butleri Sydow, Ann. Mycol. 9 : 379, 1911; Hansf., Sydowia Beih. 2 : 382, 1961; Srinivasulu, Nova Hedwigia Beih. 47 : 423, 1974; Hosag., J. Econ. Taxon. Bot. 9 : 375, 1987; Hosag., Meliolales of India, p. 148, 1996.

Amazonia butleri Stev., Ann. Mycol. 25 : 415, 1927.

Material examined : On leaves of *Citrus* sp. (Rutaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45667, TBGT 1414.

This species was associated with *Meliola citricola* Sydow & Sydow.

Meliola canthii Hansf., Proc. Linn. Soc. London 157 : 22, 1945; Sydowia Beih. 2 : 604, 1961; Kapoor, Indian Phytopathol. 20 : 152, 1967; Hosag., Meliolales of India, p. 153, 1996.

Material examined : On leaves of *Canthium* sp. (Rubiaceae), MPCA, Brahmagiri, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45733, TBGT 1482.

Colonies were hyperparasitized by *Isthmospora* sp.

Meliola capensis (Kalch. & Cooke) Theiss, var. *malayensis* Hansf., Sydowia 10 : 67, 1951; Sydowia Beih. 2 : 439, 1961; Hansf., & Goos, Mycotaxon 37 : 224, 1990; Hosag., Meliolales of India, p. 156, 1996.

Material examined : On leaves of *Nephelium longan* (Lam.), Camb. (Sapindaceae), Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45628, TBGT 1371; *Nephelium* sp., Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45781, TBGT 1530.

Meliola chandrasekharanii Hosag. in Hosag. & Goos, Mycotaxon 37 : 225, 1990; 42 : 133, 1991; Hosag., Meliolales of India, p. 164, 1996.

Material examined : On leaves of *Nothopodytes nimmoniana* (Graham) Mabblerley (Icacinaceae), MPCA, Brahmagiri, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45725, TBGT 1474; HClO 45726, TBGT 1474; *Apodytes* sp. (Icacinaceae), Abbe falls, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45635, TBGT 1379; HClO 45809, TBGT 1559; MPCA, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45641, TBGT 1387; Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45791, TBGT 1540; Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45792, TBGT 1541.

Meliola citricola Sydow & Sydow, Ann. Mycol. 15 : 183, 1917; Hansf. Sydowia Beih. 2 : 246, 1961; Kar & Maity, Norw. J. Bot. 19 : 246, 1972; Hosag. & Goos, Mycotaxon 37 : 326, 1990; 42 : 133, 1991; Hosag., Meliolales of India, p. 167, 1996.

Material examined : On leaves of *Citrus* sp. (Rutaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45667, TBGT 1414.

This species was associated with *Meliola butleri* Sydow.

Meliola clerodendricola Henn., Hedwigia 37 : 288, 1895; Hansf. Sydowia Beih. 2 : 694, 1961; Hosag. & Goos, Mycotaxon 37 : 226, 1990; Hosag., Kaveriappa, Raghu & Goos, Mycotaxon 51 : 111, 1994; Hosag., Meliolales of India, p. 169, 1996. *Meliola sakawensis* Henn. Var. *longispora* Beeli, Bull. Jard.; Bot. Etat. 7 : 98, 1920. *Meliola sakawensis* P. Henn., Hedwigia 43 : 141, 1904; Stev., Ann. Mycol. 26 : 248, 1928.

Material examined : On leaves of *Clerodendrum viscosum* Vent (Verbenaceae), Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45652, TBGT 1398.

Meliola gemellipoda Doidge, Bothalia 1 : 80, 1920; Stev., Ann. Mycol. 26 : 229, 1928; Hansford, Sydowia Beih. 2 : 530, 1961; Hosag. & Goos, Mycotaxon 37 : 232, 1990; Hosag., Meliolales of India, p. 204, 1996.

Meliola busogensis Hansf. J. Linn. Soc. Bot. 51 : 538, 1938.

Material examined : On leaves of *Jasminum* sp. (Oleaceae), Nishane motta, Madikeri, Coorg, Karnataka, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45631, TBGT 1375; HClO 45780, TBGT 1529; HClO 45796, TBGT 1545; HClO 45645, TBGT 1391.

Meliola gneti Hansf., Reinwardtia 3 : 85, 1954; Sydowia Beih. 2 : 751, 1961; Thite & Kulkarni, J. Shivaji Univ. (Sci.) 18 : 211, 1978; Hosag. & Goos, Mycotaxon 37 : 234, 1990; 42 : 135, 1991; Hosag., Meliolales of India, p. 207, 1996.

Material examined : On leaves of *Gnetum ula* Brongn. (Gnetaceae), MPCA, Brahmagiri, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45688, TBGT 1435; HCIO 45737, TBGT 1486.

Meliola groteana Sydow & Sydow, Ann. Mycol. 11 : 402, 1913; Hansf., Sydowia Beih. 2 : 511, 1961; Thite & Patil, Kavaka 10 : 30, 1982; Hosag. & Goos, Mycotaxon 37 : 234, 1990; 42 : 135, 1991; Hosag., Meliolales of India, p. 211, 1996.

Meliola maesae Rehm, Philippine J. Sci. 8 : 392, 1913.

Material examined : On leaves of *Maesa indica* (Roxb.) DC. (Myrsinaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45730; Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45668; TBGT 1415; Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45739, TBGT 1488.

Meliola holigarnae Stev., Mem. Dept. Agric. India, Bot. Ser. 15 : 108, 1928; Hansf., Sydowia Beih. 2 : 468, 1961; Thite & Kulkarni, J. Shivaji Univ. (Sci.) 6 : 162, 1973; Hosag., J. Econ. Tax. Bot. 7 : 45, 1985; Hosag. & Goos, Mycotaxon 37 : 234, 1990; 42 : 135, 1991; Hosag. Dayal & Goos, Mycotaxon 46 : 204, 1993; Hosag., Raghu & Pillai, Nova Hedwigia 58 : 529, 1994; Hosag., Meliolales of India, p. 217, 1996.

Material examined : On leaves of *Holigarna* sp. (Anacardiaceae), Nishane motta, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45623, TBGT 1366; Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45712; TBGT 1461.

Meliola jasmini Hansf. & Stev., J. Linn Soc. London 5 : 273, 1937; Hansf., Sydowia Beih. 2 : 235, 1961; Hosag., Indian J. Bot. 11 : 185, 1988; Hosag. & Raghu, New Botanist 20 : 70, 1993; Hosag., Meliolales of India, p. 226, 1996.

Material examined : On leaves of *Jasminum* sp. (Oleaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45645, TBGT 1391; HCIO 45660, TBGT 1406; MPCA, Brahmagiri, Talacauvery, Nov. 11,

2003, V. B. Hosagoudar & al. HCIO 45674, TBGT 1412.

Colonies were associated with *M. gemellipoda* Doidge, *Asterina erysiphoides* Kalch. & Cooke.

Meliola ligustri Hosag. in Hosag. & Goos, Mycotaxon 37 : 236, 1990; Hosag., Meliolales of India, p. 236, 1996.

Material examined : On leaves of *Ligustrum* sp. (Oleaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45655, TBGT 1401; HCIO 45643, TBGT 1389; Nov. 12, 2003, HCIO 45799, TBGT 1548; Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45808; TBGT 1557; MPCA, Brahmagiri, Talacauvery, Madikeri, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45678; TBGT 1425; HCIO 45702; TBGT 1450; HCIO 45741; TBGT 1490; HCIO 45810; TBGT 1560.

The colonies were hyperparasitized by *Ishtmospora* sp.

Meliola malacotricha Speg. var. *major* Beeli, Bull. Jard. Bot. Etat. 7 : 89, 1920; Hansf., Sydowia Beih. 2 : 649, 1961; Hosag. & Goos, Mycotaxon 37 : 240, 1990; 42 : 137, 1991; Hosag., Crypt. Bot. 2/3 : 186, 1991; Hosag., Raghu & Pillai, Nova Hedwigia 58 : 540, 1994; Hosag., Meliolales of India, p. 249, 1996.

Material examined : On leaves of *Argyrea* sp. (Convolvulaceae), Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45675, TBGT 1422; MPCA, Brahmagiri, Talacauvery, Madikeri, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45697; TBGT 1444; HCIO 45728, TBGT 1477; Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45699; TBGT 1446; HCIO 45806, TBGT 1555.

Meliola mangiferae Earle, Bull. New York Bot. Gard. 3 : 307, 1905; Hansford, Sydowia Beih. 2 : 464, 1961; Hansf., & Thirum., Farlowia 3 : 296, 1948; Hansford, Sydowia Beih. 2 : 464, 1961; Hosag. & Goos, Mycotaxon 37 : 240, 1990; Hosag., Crypt. Bot. 2/3 : 186, 1991; Hosag., & Ansari, J.

Andaman Sci. Assoc. 7 : 89, 1991; Hosag., Meliolales of India, p. 250, 1996.

Material examined : On leaves of *Mangifera indica* L. (Anacardiaceae), Jodupal, Madikeri, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45615, TBGT 1358.

Meliola mannavanansis Hosag., C. K. Biju, Abraham & Crane, Mycotaxon 76 : 302, 2000.

Material examined : On leaves of *Litsea* sp. (Lauraceae), Jodupal, Madikeri, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45701, TBGT 1449.

This species shows an extended distribution.

Meliola mayapiicola Stev. var. *indica* Hosag., Nova Hedwigia 47 : 541, 1988; Hosag., Meliolales of India, p. 253, 1996.

Material examined : On leaves of *Linoceira malabarica*, (Oleaceae) Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45812; Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45654, TBGT 1400.

Meliola melanoxylonis Hosag. & Pillai in Hosag., Raghu & Pillai, Nova Hedwigia 58 : 540, 1994; Hosag., Meliolales of India, p. 255, 1996.

Material examined : On leaves of *Acacia mangium* Willd. (Mimosaceae), Abbe falls, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45651, TBGT 1397; MPCA, Brahmagiri, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45680; TBGT 1427; *Acacia auriculiformis* A. Cunn. ex Benth., Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45696; TBGT 1443.

Meliola memecyli Syd. var. *microspora* Hosag. et al. (in ed.)

Material examined : On leaves of *Memecylon* sp. (Melastomataceae), Nishane motta, Nov. 14, 2003, V. B. Hosagoudar & al. HClO 45740; TBGT 1489.

Meliola oleacearum Hosag., Sydowia 54 : 55, 2002.

Material examined : On leaves of *Olea dioica* Roxb. (Oleaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45605; TBGT 1348.

Meliola parsonsiicola V. B. Hosagoudar, sp. nov. (Fig.-14)

Coloniae amphigenae, plerumque hypophyllae, caulicolae, subdensae, vel densae, confluentes. Hyphae rectae vel subrectae, irregulariter acuteque vel laxe ramosae, laxe vel arcte reticulatae, cellulae 28-32 × 6-8 μm. Appressoria alternata, antrorsa, arcte antrorsa vel raro retrorsa, 17-24 μm longa; cellulae basilares cylindratae vel cuneatae, 4-8 μm longae; cellulae apicales ovatae, integrae vel raro angularis vel leniter lobatae, ad apicem attenuatae et late rotundatae vel truncatae, 12-16 × 11-13 μm. Phialides appressorii mixtus, alternatae vel oppositae, ampulliformes, 16-20 × 6-8 μm. Setae myceliales dispersae, simplices, rectae vel curvulae, non-consistentes uncinatae, sursum acutae, ad 600 μm longae. Perithecia dispersa, globosa, ad 140 μm diam.; ascospores, oblongae vel cylindratae, 4-septatae, constrictae, 27-32 × 12-13 μm.

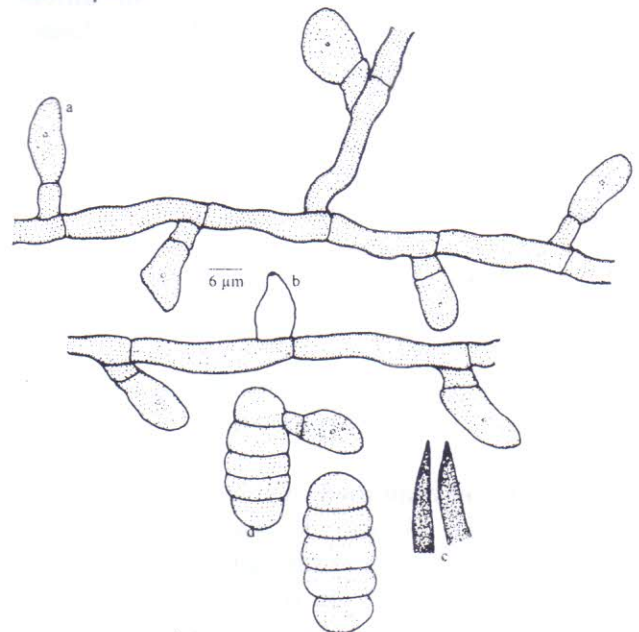


Fig. 14 : *Meliola parsonsiicola* sp. nov. a - Appressorium, b - Phialide, c - Apical portion of the Mycelial setae, d - Ascospores

Colonies amphigenous, mostly hypophyllous, caulicolous, subdense to dense, confluent. Hyphae straight to substraight, branching irregular at acute to wide angles, loosely to closely reticulate, cells 28-32 × 6-8 µm. Appressoria alternate, antrorse, closely antrorse to rarely retrorse, 17-24 µm long; stalk cells cylindrical to cuneate, 4-8 µm long; head cells ovate, entire, rarely angular to slightly lobate, attenuated and broadly rounded to truncate at the apex, 12-16 × 11-13 µm. Phialides mixed with appressoria, alternate to opposite, ampulliform, 16-20 × 6-8 µm. Mycelial setae scattered, simple, straight to curved, not constantly uncinuate, acute at the tip, up to 600 µm long. Perithecia scattered, globose, up to 140 µm in diameter; ascospores, oblong to cylindrical, 4-septate, constricted at the septa, 27-32 × 12-13 µm.

Material examined : On leaves of *Parsonia alboflavescens* (Dennst.) Mabblerley (Apo-cynaceae), Medicinal Plant Conservation Area, Brahmagiri, Talacauvery, Madikeri, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar HCIO 45657 (type), TBGT 1403 (isotype).

Meliola carissae Doidge var. *parsonsiiae* Hansf. is reported on *Parsonia straminea* from Queensland (Hansford, 1961). *Meliola parsonsiicola* differs from it in having mostly antrorse and shorter appressoria with mostly entire head cells and smaller ascospores.

The colonies were associated with the colonies of *Asterina parsonsiiae* sp. nov.

Meliola plectroniae Hansf., Sydowia 9 : 72, 1955; Beih. 2 : 702, 1961; Hosag., Meliolales of India, p. 284, 1996.

Meliola coilocosa Nair & Kaul, Sydowia 36 : 204, 1983; Hosag. & Goos, Mycotaxon 37 : 228, 1990.

Material examined : On leaves of *Canthium dicoccum* (Gaertn.) Teijsm. & Binn. (Rubiaceae), MPCA, Brahmagiri, Talacauvery, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45687, TBGT 1434; Nishane motta, adikeri, Coorg, Karnataka, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45762, TBGT 1511.

Colonies were associated with the colonies of *Asterina canthii-dicocci* sp. nov.

Meliola quadrispina Racib., Parasit. Algen and Pilze Java's 3 : 33, 1900; Hansf., Sydowia Beih. 2 : 646, 1961; Thite & Patil, Kavaka 10 : 30, 1982; Hosag. & Goos, Mycotaxon 37 : 244, 1990; Hosag., Meliolales of India, p. 293, 1996.

Meliola quadrifurcata Rehm, Philippine J. Sci. 8 : 181, 1913; Leaflet. Philippine Bot. 6 : 2194, 1914.

Material examined : On leaves of *Argyrea* sp. (Convolvulaceae), Nishane motta, Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45617, TBGT 1360; on leaves of *Merremia* sp. (Convolvulaceae), Nishane motta, Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45710, TBGT 1459.

The colonies were associated with the colonies of *Meliola malacotricha* Speg. var. *major* Beeli

Meliola scolopiae Diodge var. *indica* Hosag., Meliolales of India, p. 307, 1996.

Material examined : On leaves of *Scolopia* sp. (Flacourtiaceae), Nishane motta, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45813, TBGT 1563.

Meliola stenospora Wint., Hedwigia 25 : 97, 1886; Hansf., Sydowia Beih. 2 : 75, 1961; Hosag. & Raghu, New Botanist 20 : 72, 1993; Hosag., Meliolales of India, p. 314, 1996.

Material examined : On leaves of *Piper* sp. Jodupal, Madikeri, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45685, TBGT 1432.

Colonies were associated with the colonies of *Asterina piperina* Sydow.

Meliola toxocarpi Hosag. & Antony, J. Swamy Bot. Club 5 : 75, 1988; Hosag., Meliolales of India, p. 333, 1996.

Material examined : On leaves of *Toxocarpus* sp. Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45735, TBGT 1484.

Meliola wendlandiae Hosag. in Hosag. & Goos, Mycotaxon 37 : 251, 1990; Hosag., Meliolales of India, p. 340, 1996.

Material examined : On leaves of *Wendlandia thyrsoides* (Schultes) Steud. (Rubiaceae), Brahmagiri, Talacauvery, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45612, TBGT 1355; Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45624, TBGT 1367; MPCA, Talacauvery, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar & al. HCIO 45811, TBGT 1561.

Meliola zizyphi Hansf. & Thirum., Farlowia 3 : 299, 1948; Hansf., Sydowia Beih. 2 : 368, 1961; Thite & Kulkarni, J. Shivaji Univ. 6 : 163, 1972; Hosag. & Goos, Mycotaxon 37 : 251, 1990; Hosag., Crupt. Bot. 2/3 : 187, 1991; Hosag., Meliolales of India, p. 342, 1996.

Material examined : On leaves of *Ziziphus* sp. (Rhamnaceae), Abbe falls, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45650, TBGT 1396.

Mycosphaerella sp.

Material examined : On leaves of *Rubus* sp. (Rosaceae), Nishane motta, Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45664, TBGT 1411.

Oidium peltophori var. *indica* Hosag., Vijayanthi, Udaiyan & Manian, Indian J. Forestry 15 : 161, 1992; Bappammal, Hosag. & Udaiyan, New Botanist 22 : 141, 1995.

Material examined : On leaves of *Peltophorum pterocarpum* (DC.) Backer ex Heyne (Caesalpiniaceae), Senior College campus, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45693, TBGT 1440.

Phakopsora apoda (Pat. & Har.) Mains, Mycologia 30 : 45, 1938.

Material examined : On leaves of *Pennisetum polystachyon* (L.), Schultes

(Poaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45692, TBGT 1439.

Phyllachora microcenta (Berk. & Br.) Sacc., Syll. Fung. 2 : 595, 1883.

Dothidea microcenta Berk. Br., J. Linn. Soc. London 14 : 134, 1875.

Catacauma microcenta (Berk. & Br.) Theiss & Syd., Ann. Mycol. 13 : 384, 1915.

Material examined : On leaves of *Artocarpus* sp. (Moraceae), Jodupal, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45616, TBGT 1359; Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45690, TBGT 1437; HCIO 45744, TBGT 1493.

Phyllachora scolopiae Ramakr. & Sund., Ramakr. & Sund., Indian Phytopathol. 6 : 27-38, 1953; Kamat, Seshadri & Pande, Monographic study of Indian species of *Phyllachora*, p. 73, 1978.

Material examined : On leaves of *Scolopia* sp. (Flacourtiaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45703, TBGT 1451.

Phyllachora sp.

Material examined : On leaves of *Ficus virens* Ait. var. *lambertiana* (Miq.) Raizada (*F. infectoria* Roxb.) (Moraceae), Abbe falls, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45691, TBGT 1438.

Phyllostictina musarum (Cooke) Petrak, Ann. Mycol. 29 : 268, 1931.

Material examined : On leaves of *Musa paradisiaca* L. (Musaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45653, TBGT 1399.

Puccinia solmsii P. Henn., Syll. Fung. 14 : 357, 1899; Thirum., Mycologia 37 : 307, 1945.

Material examined : On leaves of *Polygonum chinense* L. (Polygonaceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45638, TBGT 1383; Nishane motta,

Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45694, TBGT 1441.

Ravenelia hobsonii Cooke, J. Royal Micr. Soc. 3 : 386, 1880; Sydow, Monograph Ured. 3 : 287, 1914; Hiratsuka, Bot. Mag. Tokyo 55 : 269, 1941.

Material examined : On leaves of *Pongamia pinnata* (L.) Pierre (Fabaceae), Senior College campus, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45790, TBGT 1539.

Sarcinella allophyli V. B. Hosagoudar, sp. nov. (Fig.-15)

Coloniae amphigenae, plerumque hypophyllae, densae, patentiae, ad 3 mm diam. Hyphae rectae vel flexuosae, pallide brunneae, acuteque vel laxe irregulariter ramosae, laxe reticulatae, cellulae 17-24 × 3-5 μm. Appressoria dispersa, alternata, unilateralia, raro opposita, ovata, plerumque globosa, integra, 7-9 × 6-11 μm. Conidiophora lateralis, simplices, ramosa, recta vel flexuosa, micronemata vel semi-macronemata, 9-32 × 4-6 μm; cellulae conidiogena terminalis vel intercalaria, monoblasticae, integratae, determinatae, cylindraceae. Conidia sarciniiformes, solitaria, sicca, simplices, subspherica vel ovalis, 2-10 cellula, brunnea vel nigra, muriformes, constricta ad septata, 24-32 μm diam., parietus glabrus.

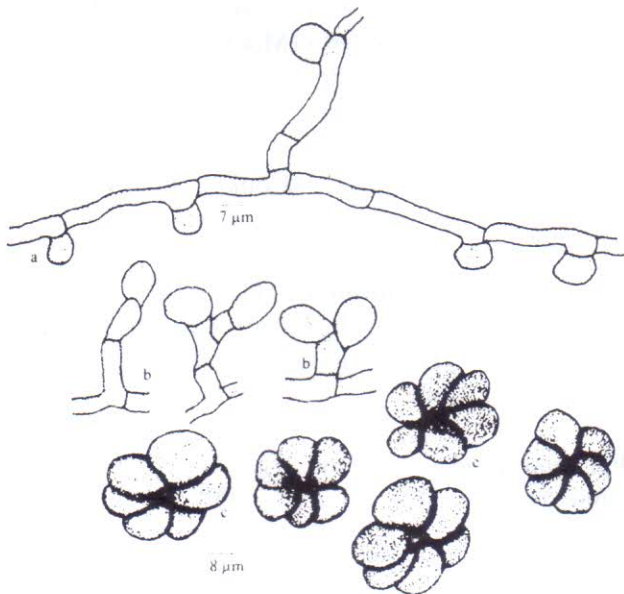


Fig. 15 : *Sarcinella allophyli* sp. nov.
a -- Appressoriolate mycelium, b -- Developing conidiophore and conidia. c -- Sarciniiform conidia

Colonies amphigenous, mostly hypophyllous, dense, spreading, up to 3 mm in diameter. Hyphae straight to flexuous, pale brown, branching irregular at acute to wide angles, loosely reticulate, cells 17-24 × 3-5 μm. Appressoria scattered, alternate, unilateral, rarely opposite, ovata to mostly globose, entire, 7-9 × 6-11 μm. Conidiophores produced lateral to the hyphae, simple, branched, straight to flexuous, micronematous to semi-macronematous, 9-32 × 4-6 μm. Conidiogenous cells terminal, intercalary, monoblastic, integrated, determinate, cylindrical. Sarciniiform conidia solitary, dry, simple, subspherical to oval, 2-10 celled, brown to charcoal black, muriform, constricted at the septa, 24-32 μm diameter. wall smooth.

Material examined : On leaves of *Allophylus cobbe* (L.) Raensch. (Sapindaceae), Jodupal, Madikeri, Coorg, Karnataka, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45814 (type), TBGT 1562 (isotype).

This collection persisted only with the *Sarcinella* state, which is the synanamorph of the genus *Schiffnerula*. *Schiffnerula allophyli* Hansf. is known only with its teleomorph (Hansford, 1946; Hosagoudar, 2003). In absence of the teleomorph, the present anamorph state cannot be linked to *S. allophyli* Hansf. and hence, it has been accommodated in the new species.

Sarcinella lagerstroemiae Hosag. & Mohanan, New Botanist 22 : 31, 1995.

Material examined : On leaves of *Lagerstroemia* sp. (Lythraceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45622, TBGT 1365; HCIO 45626, TBGT 1369.

Colonies were associated with the colonies of *Acremoniula sarcinellae* (Pat. & Har.) Arn. ex Deight.

Sarcinella pouzolziae V. B. Hosagoudar, sp. nov. (Fig.-16)

Coloniae epiphyllae, tenues vel subdensae, ad 2 mm diam., raro confluentes. Hyphae flexuosae, irregulariter acuteque vel laxe ramosae, laxe

reticulatae, cellulae $12-18 \times 4-6 \mu\text{m}$. Appressoria alternata, unilateralia, pluris dispersa, spherica, integra, concolora, $9-11 \times 6-8 \mu\text{m}$. *Questieriella* tantum conidia visa, conidia dispersa, non affixa, pallide brunnea, fusiformes, curvula, 3-septata, constricta, attenuatus ambabus extremum, $30-34 \times 8-10 \mu\text{m}$. *Sarcinella* – conidiophora micronemata, concolora, plerumque simplices, raro ramosa, recta vel flexuosa, pallide brunnea, 0-2-septata, glabra, $25-35 \times 5-7 \mu\text{m}$; cellulae conidiogena monoblasticae, integratae, plerumque terminalis, determinatae, cylindratae; conidia solitaria, sicca, acrogena, simplices, subspherica, sarciniformes, brunnea ad initio, nigra ad maturitatus, sarcinatim septata, constricta, glabra, $16-20 \mu\text{m}$.

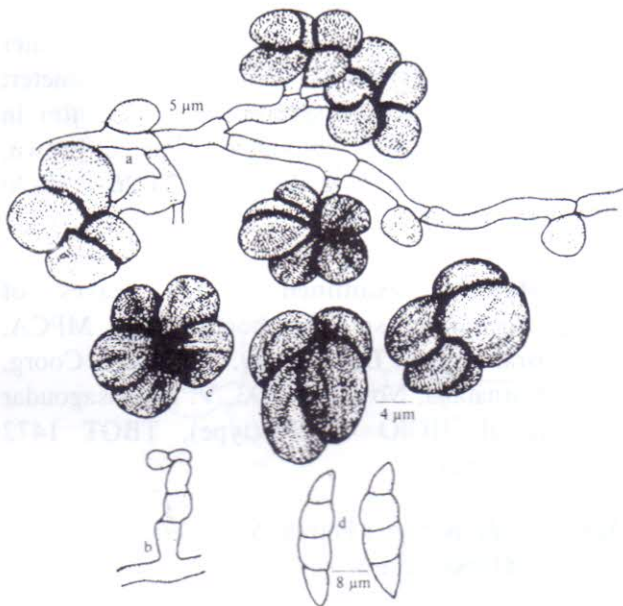


Fig. 16 : *Sarcinella pouzolziae* sp. nov.

- a – Appressoriate mycelium with the conidia borne on conidiophores, b – Developing conidiophore with conidium initial, c – Sarciniform conidia, d – *Questieriella* conidia

Colonies epiphyllous, thin to subdense, up to 2 mm in diameter, rarely confluent. Hyphae flexuous, branching irregular at acute to wide angles, loosely reticulate, cells $12-18 \times 4-6 \mu\text{m}$. Appressoria alternate, unilateral, more scattered, spherical, entire, concolorous, $9-11 \times 6-8 \mu\text{m}$. Conidia of *Questieriella* type were scattered, not attached, pale brown, fusiform, curved, 3-septate, constricted at the septa, taper towards both ends, $30-34 \times 8-10 \mu\text{m}$. *Sarcinella* – Conidiophores micronematous, concolorous, mostly simple, rarely branched,

straight to flexuous, pale brown, 0-2-septate, smooth, $25-35 \times 5-7 \mu\text{m}$; conidiogenous cells monoblastic, integrated, mostly terminal, determinate, cylindrical; conidia solitary, dry, acrogenous, simple, subspherical, sarciniform, brown when young, charcoal black at maturity, sarcinately septate, constricted at the septa, smooth, $16-20 \mu\text{m}$ in diameter.

Material examined : On leaves of *Pouzolzia* sp. (Urticaceae), Nishane motta, Madikeri, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45816 (type), TBGT 1566 (isotype).

This forms the first report of the Schiffnerulaceous fungi on the members of the family Urticaceae (Hosagoudar, 2003).

Sarcinella tectonae Hosag. & Manoj., Zoos' Print J. 19 : 1389, 2004.

Material examined : On leaves of *Tectona grandis*, Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HClO 45613, TBGT 1356; HClO 45625, TBGT 1368; HClO 45632, TBGT 1376; Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45633, TBGT 1377.

Colonies were hyperparasitized by *Acremoniula sarcinellae* (Pat. & Har.) Arn. ex Deight.

Schiffnerula glochidii V. B. Hosagoudar, sp. nov. (Fig.-17)

Coloniae epiphyllae, subdensae vel densae, ad 2 mm diam., raro confluentes, Hyphae subrectae vel flexuosae, opposita vel irregulariter acuteque vel laxe ramosae, laxae vel densae reticulatae, cellulae $11-32 \times 3-5 \mu\text{m}$. Appressoria alternata vel unilateralia, globosa, crassa posita, integra, $10-12 \times 7-9 \mu\text{m}$. *Questieriella* – conidiophora in hyphis lateralis oriunda, micromemata, mononemata, 0-2-septata, simplices, recta, $20-26 \times 5-7 \mu\text{m}$. cellulae conidiogena terminalis, raro lateralis, integratae; conidia solitaria, simplices, sicca, fusiformes, pallide brunneae vel brunneae, 3-septatae, cellulae terminalis ad apicem acutae vel subacutae, $32-37 \times 7-9 \mu\text{m}$. *Sarcinella* – conidiophora in hyphis lateralis

oriunda, simplices, micronemata, macronemata, 3-5 μm longa, conidia initialis longa, 0-2-septate; cellulae conidiogena integratae, monoblasticae, terminalis; conidia solitaria, sicca, acrogena, simplices, globosa, sarciniformes, 2-8-cellula, nigra, constricta ad septata, 24-40 μm diam., parietus glabrus. Teleomorph – thyriothecia pauca, orbicularis, radiantibus ad initio, dissolutus centralis ad maturitatus, ad 72 μm diam.; asci pauci, globosi, octospori, ad 32 μm diam.; ascospores bolongae, conglobatae, brunneae, uniseptatae, constrictae, 24-26 \times 18-20 μm .

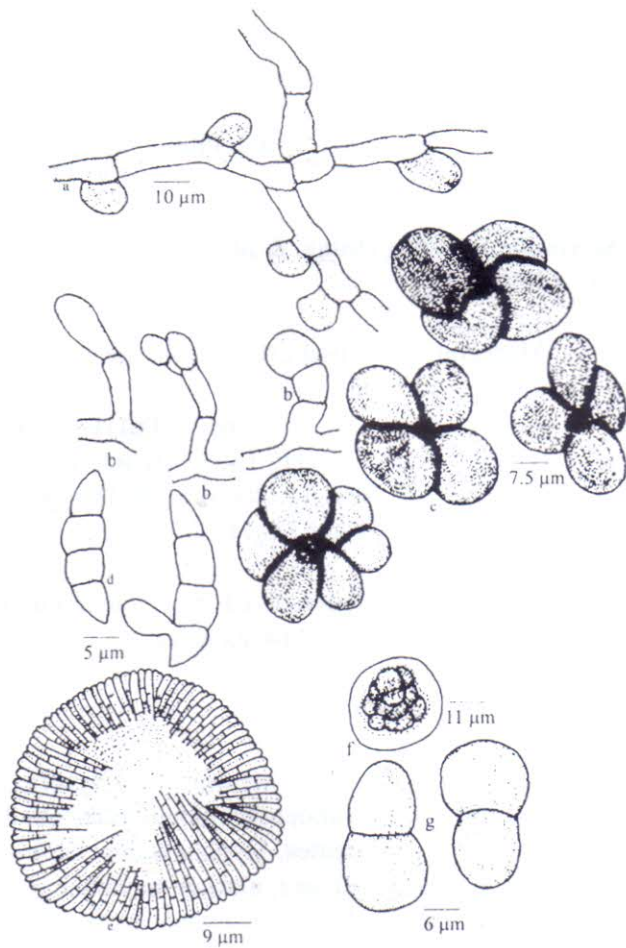


Fig. 17 : *Sarciella glochidii* sp. nov.

a - Appressariate mycelium, b - Developing conidia on conidiophores, c - Sarciniform conidia, d - Conidia of *Questieriella*, e - Thyriothecium, f - Ascus, g - Ascospores

Colonies epiphyllous, subdense to dense, up to 2 mm in diameter, rarely confluent. Hyphae substraight to flexuous, branching opposite to irregular at acute to wide angles, loosely to closely reticulate, cells 11-32 \times 3-5 μm . Appressoria alternate to

unilateral, globose, broad based, entire, 10-12 \times 7-9 μm . *Questieriella* – conidiophores produced lateral to the hyphae, micromematous, mononematous, 0-2-septate, simple, straight, 20-26 \times 5-7 μm . Conidiogenous cells terminal, rarely lateral, integrated; conidia solitary, simple, dry, fusiform, pale brown to brown, 3-septate, terminal cells acute to subacute at the tip, 32-37 \times 7-9 μm . *Sarciella* – conidiophores borne lateral to the hyphae, simple, micronematous, macronematous, 3-5 μm long, in the same conidium initials have long, 0-2-septate conidiophores; conidiogenous cells integrated, monoblastic, terminal; conidia solitary, dry, acrogenous, simple, globose, sarciniform, 2-8-cellula, carbonaceous black, constricted at the septa, 24-40 μm diameter, wall smooth. Teleomorph – thyriothecia few, orbicular, initially radiating, later central portion dissolved, up to 72 μm diameter; asci few, globose, octosporous, up to 32 μm in diameter; ascospores oblong, conglobate, brown, uniseptate, constricted at the septa, 24-26 \times 18-20 μm , wall smooth.

Material examined : On leaves of *Glochidion* sp. (Euphorbiaceae), MPCA, Brahmagiri, Talacauvery, Madikeri, Coorg, Karnataka, Nov. 13, 2003, V. B. Hosagoudar & al. HClO 45723 (type), TBGT 1472 (isotype).

Schiffnerula ambigua Petrak, *S. brideliae* Hansf., *S. crotonis* Hansf. and *S. ricini* Hansf. are known on the members of the family Euphorbiaceae (Hosagoudar, 2003). Based on the host specificity, the present fungus has been placed under the new species.

Schiffnerula mirabilis Hohn., Sitz. K. Akad. Wiss. Wien., math.-nat. kl. I Abt. 118 : 867, 1909.

= *Schiffnerula pitteriana* Sydow, Ann. Mycol. 28 : 161, 1930.

= *Schiffnerula malabarensis* Ramakr. & Sund., Proc. Indian Acad. Sci. 38 : 188, 1953.

Stat. *Questieriella*

Material examined : On leaves of *Passiflora foetida*, (Passifloraceae) Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HClO 45731, Nov. 14, 2003, V. B. Hosagoudar & al. HClO 45620, TBGT 1363.

Schiffnerula pulchra (Sacc.) Petrak, Ann. Mycol. 26 : 397, 1928; Hughes, Can. J. Bot. 61 : 1738, 1983.

= *Apiosporium pulchrum* Sacc., Thumen, Mycotheca Universalis No. 52, 1875.

≡ *Dimerosporium pulchrum* Sacc., Nuovo G. Bot. Ital. 7 : 299, 1875.

≡ *Dimerina pulchra* (Sacc.) Theiss., Bot. Centralbl. Beih. 29 : 64, 1912.

≡ *Questiera pulchra* (Sacc.) Arnaud, Les Asterinees, p. 187, 1918.

Synanamorph : *Sarcinella heterospora* Sacc., Fungi Italici no. 126, 1877.

Stat.-*Sarcinella*
(Fig.-18)

Colonies epiphyllous, dense, velvety, up to 2 mm in diameter, rarely confluent. Hyphae straight to

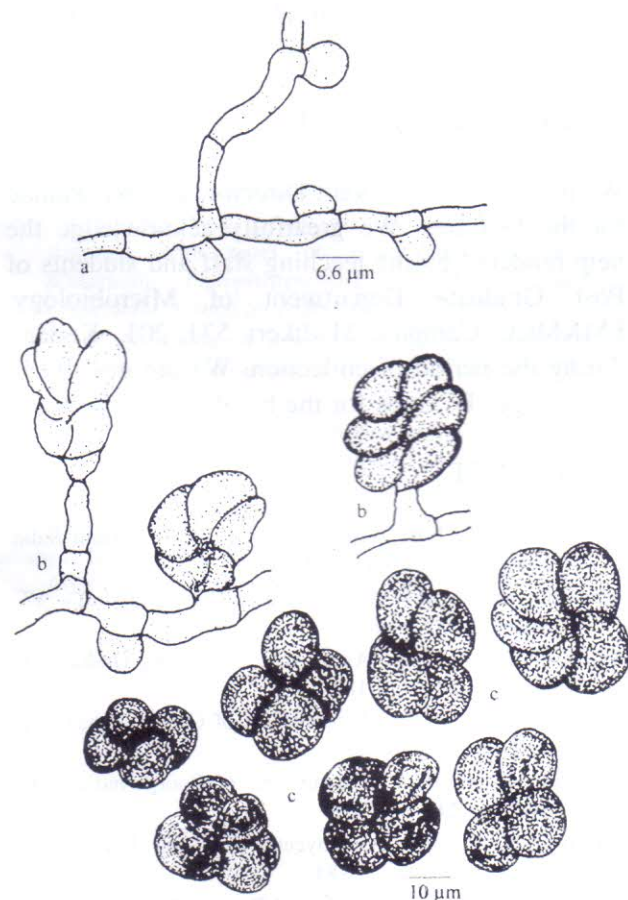


Fig. 18 : *Schiffnerula pulchra* (Sacc.) Petrak
a – Appressoriolate mycelium, b – Developing conidia on conidiophores, c – Sarciniform conidia

flexuous, branching irregular at acute angles, loosely reticulate, cells 12-16 × 4-6 µm. Appressoria alternate to unilateral, globose, broad based, entire, 8-11 × 6-8 µm. Conidiophores micronematous, mononematous, simple, straight to slightly flexuous, aseptate to 1-2-septate, 12-22 × 4-6 µm; conidiogenous cells monoblastic, integrated, determinate, cylindrical. Conidia solitary, dry, acrogenous, simple, oval, spherical, charcoal black, sarciniform, 2-5-septate, constricted at the septa, 19-32 µm in diameter, wall smooth.

Material examined : On leaves of *Ligustrum* sp. (Oleaceae), Nishane motta, Madikeri, Nov. 11, 2003, V. B. Hosagoudar HClO 45794, TBGT 1543.

This is the only species known on this host genus from Europe and America and is known here for the first time from India (Hughes, 1983, Bilgrami *et al.* 1991; Jamaluddin *et al.* 2004).

Schiffnerula ricini Hansf., Proc. Linn. Soc. London 160 : 117, 1947-48.

Stat : *Sarcinella* and *Questieriella*
(Fig.-19)

Colonies amphigenous, mostly epiphyllous, dense, up to 2 mm in diameter, confluent. Hyphae substraight to flexuous, branching irregular at acute to wide angles, loosely to closely reticulate, cells 16-21 × 5-7 µm. Appressoria scattered, alternate to unilateral, oval, globose, entire, 8-10 × 8-9 µm. Conidiophores of *Questieriella* are repent, micronematous to macronematous, mononematous, mostly unicellular, brown, simple, 8-12 × 6-8 µm; conidiogenous cells polyblastic, sympodial, proliferate percurrently, often monoblastic, integrated, sessile, terminal to intercalary, cylindrical to obclavate, scattered; conidia solitary, dry, broadly ellipsoidal, straight to mostly curved, pale brown, 3-septate, constricted, 28-30 × 9-11 µm, Conidiophores of *Sarcinella* are micronematous to macronematous, simple, straight, slightly brown, unicellular to septate, 9-21 × 4-7 µm; conidiogenous cells monoblastic, integrated, terminal to intercalary, determinate, cylindrical; conidia solitary, dry, acrogenous, simple, subspherical to sarciniform, dark brown to charcoal black, smooth, 3-12-septate, constricted at the septa,

24-31 μm in diameter. Few fruiting bodies were seen but were without asci and ascospores.

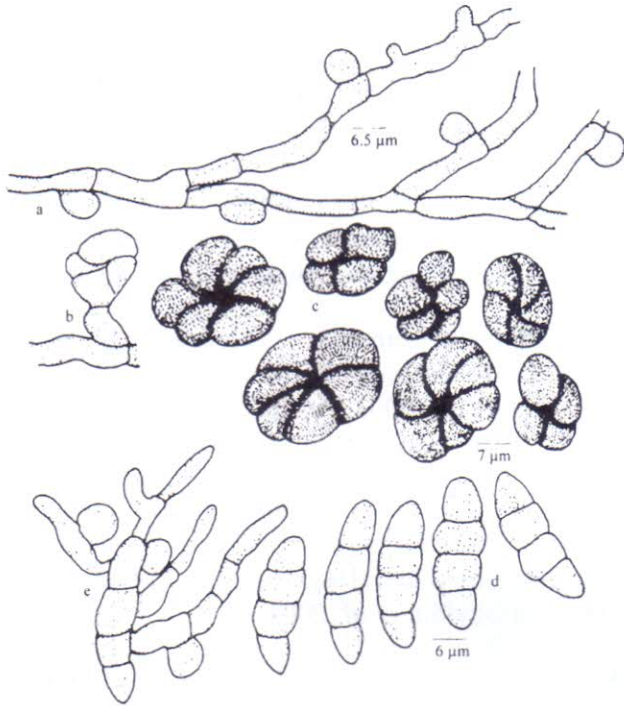


Fig. 19 : *Schiffnerula ricini* Hansf.

a – Appressorial mycelium, b – Developing sarciniform conidium on conidiophore, c – Sarciniform conidia, d – Conidia of *Questieriella*, e – Germinating conidia of *Questieriella*

Material examined : On leaves of *Ricinus communis* L. (Euphorbiaceae), Nishane motta, Nov. 14, 2003, V. B. Hosagoudar HCIO 45663, TBGT 1410.

This is the only species of the genus *Schiffnerula* known on the host genus *Ricinus* (Hansford, 1948). However, the ascomata were without asci and ascospores.

This forms a new record to India

Shivamyces ligustri Hosag. & Kumar., J. Econ. Taxon. Bot. 28 : 193, 2004.

Material examined : On leaves of *Ligustrum* sp. (Oleaceae), Nishane motta, Nov. 11, 2003, V. B. Hosagoudar & al. HCIO 45655, TBGT 1401; HCIO 45643, TBGT 1389.

Sirosporium mori (Syd. & Syd.) Ellis, Mycol. Pap.

87 : 7-8, 1963; Ellis, Dematiaceous Hyphomycetes, p. 290, 1971.

Material examined : On leaves of *Ficus* sp. (Moraceae), Near Senior College campus, Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45618, TBGT 1361; HCIO 45661, TBGT 1407.

Uredo sp.

Material examined : On leaves of *Ficus* sp. (Moraceae), Jodupal, Nov. 12, 2003, V. B. Hosagoudar & al. HCIO 45665, TBGT 1412.

Zaghouania olea (Butler) Cummins, Bull. Torrey Bot. Club 87 : 45, 1960.

Material examined : On leaves of *Olea dioica* Roxb. (Oleaceae), Nishane motta, Nov. 14, 2003, V. B. Hosagoudar & al. HCIO 45683, TBGT 1430.

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