STUDIES ON FOLIICOLOUS FUNGI - XXIV: NEW SPECIES AND NEW RECORDS

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Abstract

This paper gives an account of four new species. Asterina adeniicola *Hosagoudar et. Kamarudeen, sp. nov. differs from its allied species,* A. adeniae *in having opposite appressoria and shorter ascospores;* Asterina girardiniae *Hosagoudar, Biju et Manojkumar, sp. nov. differs from its allied species in having 10% opposite appressoria;* Asterina sarcandrae *Hosagoudar et. Kamarudeen, sp. nov. differs from* A. chloranthi *in having very thin hypophyllous colonies;* Sarcinella glochidii *Hosagoudar, Biju et Manojkumar, sp. nov. is proposed here as a new species since it is known for the first time on the host genus* Glochidion. Asterina diplocarpa *and* Sarcinella raimundi *are the new records to India. All these taxa are described and illustrated in detail.*

Keywords

Asterina adeniicola *sp. nov.,* Asterina girardiniae *sp. nov.,* Asterina sarcandrae *sp. nov., foliicolous fungi,* Sarcinella glochidii *sp. nov., India, new records, new species*

Abbreviations

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

Asterina adeniicola
V.B. Hosagoudar et M. Kamarudeen, sp. nov.
(Figure 1)

Material examined

Holotype: 17.xii.2002, on leaves of *Adenia hondala* (Gaertn.) Wilde (Passifloraceae), Wyanad-Periya, Kerala, coll. M. Kamarudeen, HCIO 44792.
Isotype: TBGT 1029.

Diagnosis

Coloniae epiphyllae, densae, crustosae, ad 1mm diam., confluentes. Hyphae fortiter flexuosae vel raro anfractuae, alternatae vel irregulariter acuteque vel laxe ramosae, laxe vel arte reticulatae, cellulae 11-15 x 4-7µm. Appressoria alternata, ad 3% opposita, unicellula, globosa, ovata, sessilia vel leniter stipitata, plerumque 2-3-lobata, saepe angularis vel raro integra, 6-9 x 6-8µm. Thyriothecia laxe dispersa vel connata ad coloniis centralis, orbicularis, stellato dehiscentes ad centro, ad 75µm diam., margine crenatae; asci pauci, globosi, octospori, ad 30µm diam.; ascosporae oblongae, conglobatae, uniseptatae, leniter constrictae, cellulae inferiorae leniter magniorae, 14-16 x 6-8µm, parietus glabrus.

Colonies epiphyllous, dense, crustose, up to 1mm in diameter, confluent. Hyphae strongly flexuous to rarely crooked, branching alternate to irregular at acute to wide angles, loosely to closely reticulate, cells 11-15 x 4-7µm. Appressoria alternate, about 3% opposite, unicellular, globose, ovate, sessile to slightly stipitate, mostly 2-3-lobate, often angular to rarely entire, 6-9 x 6-8µm. Thyriothecia loosely scattered to connate at the centre of the colonies, orbicular, stellately dehisced at the centre, up to 75µm in diameter, margin crenate; asci few, globose, octosporous, up to 30µm in diameter; ascospores oblong, conglobate, uniseptate, slightly constricted at the septum, lower cell slightly larger, 14-16 x 6-8µm, wall smooth.

Remarks

The released ascospores readily germinated and formed colonies. *Asterina adeniae* Hansf. is known on *Adenia lobata*

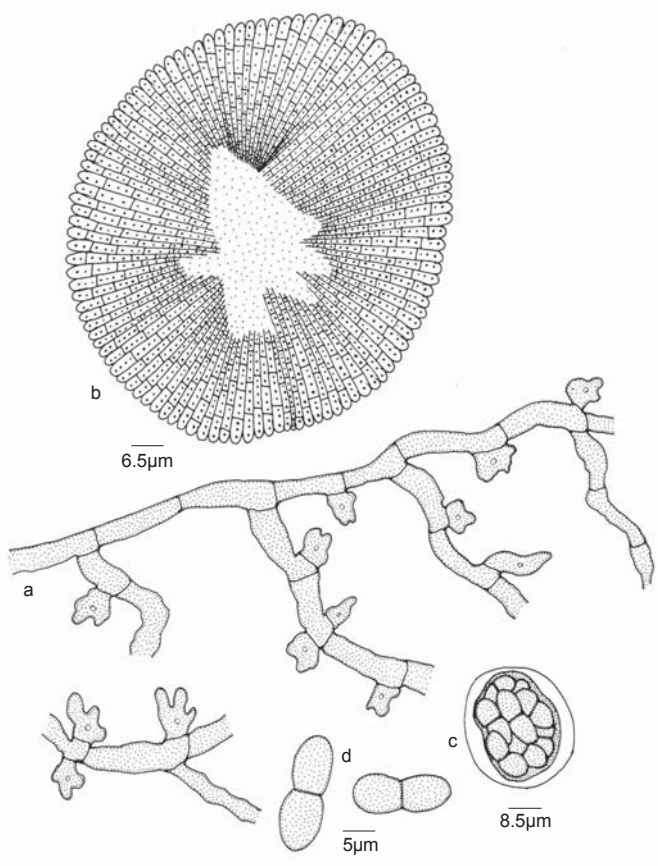

Figure 1. **Asterina adeniicola** ***sp. nov.***
a - Appressoriate mycelium; b - Thyriothecium; c - Ascus; d - Ascospores

Manuscript 1495; Received 02 January 2006; Finally accepted 25 May 2006; Date of publication 21 June 2006

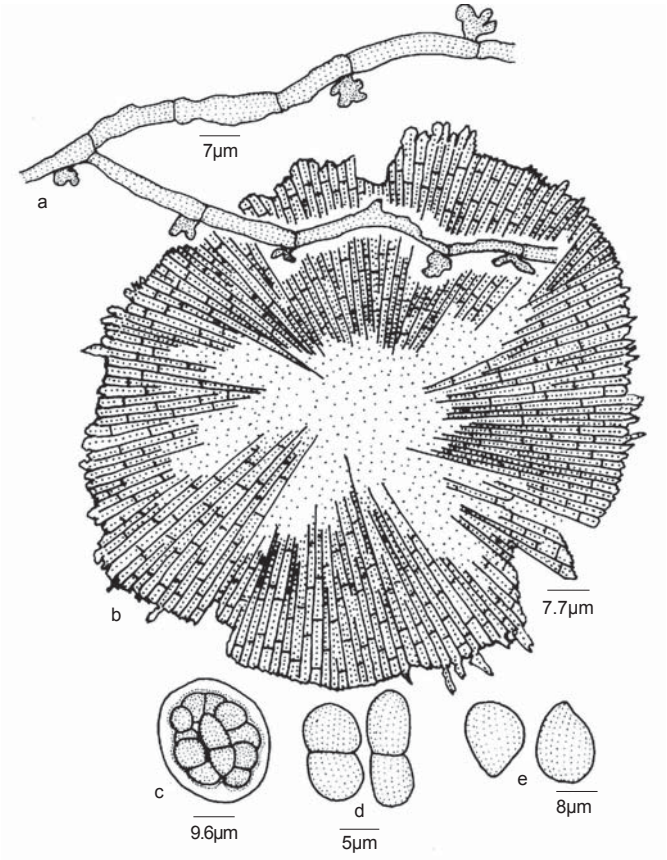

Figure 2. **Asterina diplocarpa Cooke**
a - Appressoriate mycelium; b - Thyriothecium; c - Ascus; d - Ascospores; e - Pycnothyriospores

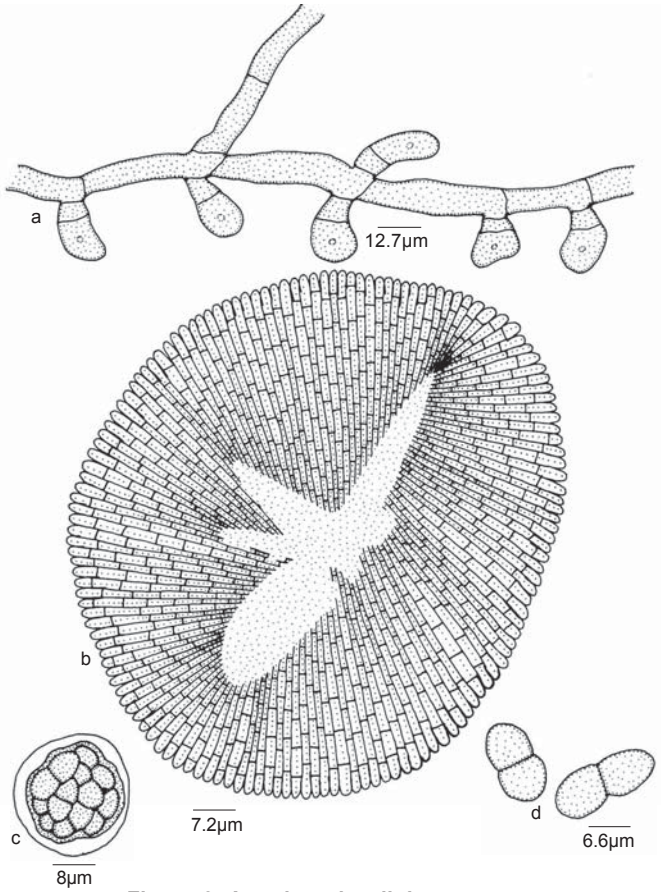

Figure 3. **Asterina girardiniae *sp. nov.***
a - Appressoriate mycelium; b - Thyriothecium; c - Ascus; d - Ascospores

from Uganda (Hansford, 1945). However, *Asterina adeniicola* differs from it in having dense and crustose colonies, 3% opposite and shorter appressoria, smaller thyriothecia and shorter ascospores.

***Asterina diplocarpa* Cooke**
Grevillea 10: 129, 1882; Doidge, Bothalia 4: 305, 1942.
Asterina similes Cooke, Grevillea 10: 130, 1882.
Seynesia balansae Speg. var. *africana* Sacc., Hedwigia 38: 133, 1899.
Asterina balansae (Speg.) Theiss. var. *africana* (Sacc.) Theiss., Die Gattung *Asterina*, p. 88, 1913.
(Figure 2)

Material examined
16.xi.2001, on leaves of *Sida cordata* (Burm. f.) Borssum. (Malvaceae), in the forest near Kushavoor, Palode, Thiruvananthapuram, Kerala, coll. Manoj Kumar, HCIO 44689, TBGT 970.

Diagnosis
Colonies amphigenous, mostly epiphyllous, subdense, up to 3mm in diameter, confluent. Hyphae crooked, branching irregular at acute to wide angles, loosely to closely reticulate, cells 18-22 x 3-4µm. Appressoria scattered, alternate to unilateral, antrorse to retrorse, unicellular, broad based to slightly stipitate, ovate to globose, angular, sublobate to deeply lobate, bisect, mostly irregularly trilobate, 6-10 x 7-9µm. Thyriothecia scattered to grouped, orbicular, up to 120µm in diameter, margin crenate, stellately dehisced at the centre; asci globose, octosporous, 30-32µm in diameter; ascospores brown, conglobate, uniseptate, constricted at the septum, 14-16 x 7-9µm, wall slightly crenulate. Pycnothyria many, similar to thyriothecia, smaller; pycnothyriospores pyriform, 11-16 x 9-12µm.

Remarks
This species was known from South Africa and is known here for the first time from India (Doidge, 1942; Bilgrimi *et al*., 1991).

Asterina girardiniae
V.B. Hosagoudar, H. Biju et A. Manojkumar, sp. nov.
(Figure 3)

Material examined
Holotype: 23.i.2003, on leaves of *Girardinia diversifolia* (Link) Friis (Urticaceae), Bendhar, Munnar, Idukki, Kerala, India, coll. A. Manoj Kumar & H. Biju, HCIO 44865.
Isotype: TBGT 1093.

Diagnosis

Coloniae epiphyllae, tenues, ad 2mm diam., raro confluentes. Hyphae flexuosae, alternate vel irregulariter acuteque vel laxe ramosae, laxe reticulatae, cellulae 24-28 x 3-4µm. Appressoria alternata, ad 10% opposita, antrorsa, subantrorsa vel retrorsa, recta vel curvula, plerumque bi-cellula, raro cellulae basalis septatis, 9-16(-24)µm longa; cellulae basilares cylindraceae vel cuneatae, 3-7(-16)µm longae; cellulae apicales ovatae, oblongae vel globosae, integrae, angularis, raro sublobatae vel lobatae, ad apicem late rotundatae vel truncatae, 6-7x4-7µm. Thyriothecia dispersa vel connata, orbicularis, ad 112µm diam., margine crenatae, stellato dehiscentes ad centro; asci globosi, octospori, ad 30µm diam.; ascosporae conglobatae, oblongae, uniseptatae, constrictae, pallid brunneae vel fortiter brunneae, 27-30 x 13-15µm.

Colonies epiphyllous, thin, up to 2mm in diameter, rarely confluent. Hyphae flexuous, branching alternate to irregular at acute to wide angles, loosely reticulate, cells 24-28x3-4µm. Appressoria alternate, about 10% opposite, antrorse, subantrorse to retrorse, straight to curved, mostly 2-celled, rarely basal cell septate, 9-16(-24)µm long; stalk cells cylindrical to cuneate, mostly straight, flexuous when it was septate, 3-7(-16)µm long; head cells ovate, oblong to globose, entire, angular, rarely sublobate to lobate, broadly rounded to truncate at the apex, 6-7 x 4-7µm. Thyriothecia scattered to connate, orbicular, up to 112µm in diameter, crenate at the margin, stellately dehisced at the centre; asci globose, octosporous, up to 30µm in diameter; ascospores conglobate, oblong, uniseptate, constricted at the septum, pale brown to deep brown, 16-18x7-9µm, wall smooth.

Remarks

This species differs from other *Asterina* species known on the members of the family Urticaceae in having two celled and 10% opposite appressoria. This forms the first report of the genus *Asterina* on the genus *Girardinia* (Hosagoudar & Abraham, 2000).

Asterina sarcandrae

V.B. Hosagoudar et M. Kamarudeen, sp. nov.

(Figure 4)

Material examined

Holotype: 26.xii.2002, on leaves of *Sarcandra chloranthoides* Gard. (Chloranthaceae), Wyanad-Periya, Kerala, coll. M. Kamarudeen, HCIO 44794.

Isotype: TBGT 1031.

Diagnosis

Coloniae hypophyllae, pertenuis, ad 5mm diam. Hyphae flexuosae, irregulariter acuteque vel laxe ramosae, formans circulatim angularis et irregulariter rete, cellulae 16-21x4-7µm. Appressoria dispersa, alternata vel irregulariter posita, bi-cellula, antrorsa, retrorsa, patentia, recta vel curvula, 12-32µm longa; cellulae basilares cylindraceae vel cuneatae, 3-7µm longae; cellulae apicales ovatae, oblongae, plerumque curvulae, hamatae, streptatae, raro rectae, integrae, angularis vel raro sublobatae, 10-26x6-10µm. Thyriothecia dispersa, orbicularis, stellato dehiscentes ad centro, ad 104µm diam., margine crenatae; asci pauci, globosi, octospori, ad 30µm diam.; ascosporae conglobatae, uniseptatae, fortiter constrictae, 20-22 x 7-9µm.

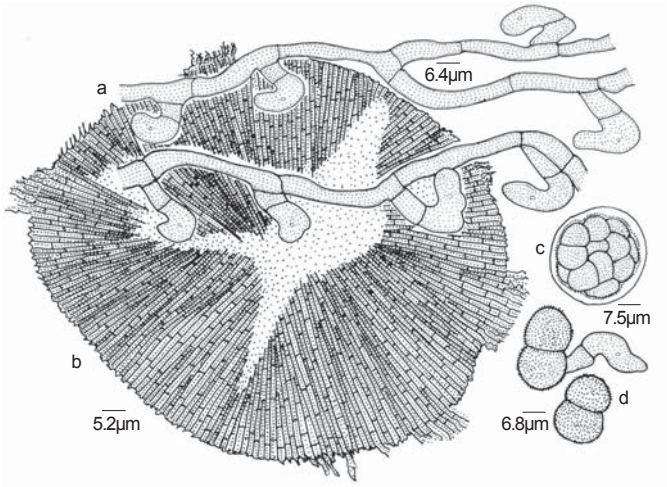

Figure 4. **Asterina sarcandrae** ***sp. nov.***
a - Appressoriate mycelium; b - Thyriothecium; c - Ascus; d - Ascospores

Colonies hypophyllous, very thin, up to 5mm in diameter. Hyphae flexuous, branching irregular at acute to wide angles, form a circularly angular and irregular net, cells 16-21 x 4-7µm. Appressoria scattered, alternate to irregular, two celled, antrorse, retrorse, spreading, straight to curved, 12-32µm long; stalk cells cylindrical to cuneate, 3-7µm long; head cells ovate, oblong, mostly curved, hamate, twisted, rarely straight, entire, angular to rarely sublobate, 10-26x6-10µm. Thyriothecia scattered, orbicular, stellately dehisced at the centre, up to 104µm in diameter, margin crenate; asci few, globose, octosporous, up to 30µm in diameter; ascospores conglobate, uniseptate, strongly constricted at the septum, 20-22x7-9µm, wall echinulate.

Remarks

Asterina chloranthi Sydow is known on *Chloranthus officinalis* from Philippines (Sydow and Petrak, 1931; Hosagoudar and Abraham, 2000). However, *Asterina sarcandrae* differs from it in having very thin hypophyllous colonies, net forming mycelia and longer appressoria.

Sarcinella glochidii

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

(Figure 5)

Material examined

Type: 23.x.2002, on leaves of *Glochidion* sp. (Euphorbiaceae), Peringol Koothu dam site, Vazhachal, Trissur, Kerala, coll. A. Manoj Kumar & H. Biju, HCIO 44670.

Isotype: TBGT 951.

Diagnosis

Coloniae epiphyllae, densae, ad 2mm diam., raro confluentes.

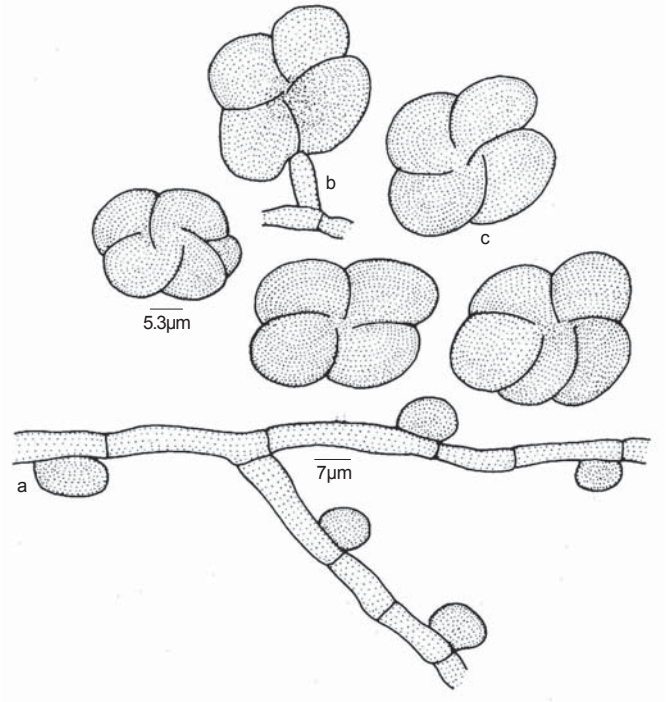

Figure 5. **Sarcinella glochidii** ***sp. nov.***
a - Appressoriate mycelium; b - Conidiophore;
c - Sarciniform conidia

Hyphae rectae, subrectae vel flexuosae, alternatae vel irregulariter acuteque ramosae, laxe vel dense reticulatae, formans laxus rete, cellulae 24-32 x 5-7µm. Appressoria dispersa, alternata vel unilateralis, unicellula, globosa, crassa posita, integra, 5-8 x 10-12µm. Conidiophora micronemata, mononemata, simplices, plerumque unicellula, plerumque recta, 10-13 x 3-4µm; cellulae conidiogenae integratae, terminalis, monoblasticae, determinatae, cylindraceae. Conidia simplices, solitaria, sicca, acrogena, ovata, subglobosa vel globosa, 4-8 cellula, constricta ad septata, anthracina, sarciniformes, 25-32µm diam.

Colonies epiphyllous, dense, up to 2mm in diameter, rarely confluent. Hyphae straight, substraight to flexuous, branching alternate to irregular at acute angles, loosely to closely reticulate, form a loose net, cells 24-32 x 5-7µm. Appressoria scattered, alternate to unilateral, unicellular, globose, broad based, entire, 5-8 x 10-12µm. Conidiophores micronematous, mononematous, simple, mostly unicellular, mostly straight, 10-13x3-4µm; conidiogenous cells integrated, terminal, monoblastic, determinate, cylindrical. Conidia simple, solitary, dry, acrogenous, ovate, subglobose to globose, 4-8-celled, constricted at the septa, charcoal black, sarciniform, 25-32µm in diameter.

Remarks
Chandra *et al*. (1991) have described *Sarcinella indica* on *Sepium insigne* from Gorakhpur (Hosagoudar, 2003). However, based on the host specificity, the present species has been accommodated in a new species.

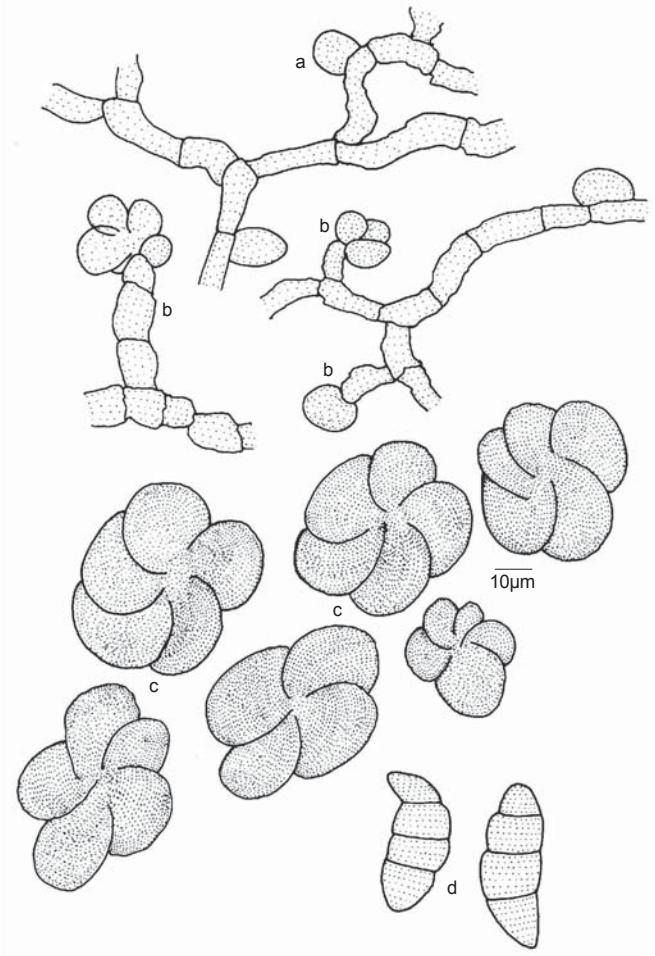

Figure 6. **Sarcinella raimundi Sacc.**
a - Appressoriate mycelium; b - Developing conidiophores and conidia; c - Sarciniform conidia;
d - **Questieriella** ***form of conidia***

Sarcinella raimundi **Sacc.**
Ann. Mycol. 12: 282-314, 1914.
(Figure 6)

Material examined
22.x.2002, on leaves of *Solanum* sp. (Solanaceae), Chettikulam, Chalakudy, Ernakulam, Kerala, coll. H. Biju and A. Manoj Kumar, HCIO 44704, TBGT 985.

Diagnosis
Colonies epiphyllous, dense, crustose, up to 0.5mm in diameter, confluent and uniformly scattered on the leaves. Hyphae crooked, zig-zag, branching irregular at acute to wide angles, loosely to closely reticulate, form a loose hyphal net, cells 16-24x5-7µm. Appressoria scattered, globose, mammiform, entire, 6-8x9-11µm. The conidiophores of *Sarcinella* form were micronematous, simple, rarely branched, straight to flexuous, 1-3-celled, 16-25x7-9µm; conidiogenous cells integrated, terminal, monoblastic, determinate, cylindrical. Conidia simple, solitary, dry, acrogenous, ovate, subglobose to globose, 4-9 celled, constricted at the septa, charcoal black, sarciniform, 32-

40x24-28µm. Several conidia of *Questieriella* form were detached, scattered in the colonies and were germinating. Conidia slightly curved, pale brown, falcate, 3-septate, slightly constricted at the septa, end cells attenuated, 25-32µm long, 9-12µm broad at the middle.

Remarks

This species was reported from Philippines (Kranz, 1966) and is reported here for the first time from India (Bilgrami *et al*., 1991; Hosagoudar, 2003).

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Acknowledgement

Thanks are due to Dr. S. Ganeshan, Director, TBGRI, Palode for the facilities; to Mr. B.V. Shetty for critically reviewing the manuscript.

NOTE **ZOOS' PRINT JOURNAL 21(7): 2307**

REPLACEMENT NAME FOR *AMAUROBIUS INDICUS* BASTAWADE AND ITS TRANSFER TO FAMILY CORINNIDAE (ARACHNIDA: ARANEAE)

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Amaurobius indicus Bastawade was described as a new species under the family Amaurobiidae (Bastawade, 2002). Siliwal *et al*. (2005: see II.a.2) referred to this species as 'misplaced' on the figures and characters given by the author. In his World Catalog of Spiders, Platnick (2006) remarked the species to be 'misplaced' following Siliwal *et al.* (2005). Literature search for the characters for the placement of this species suggested that this species should be placed under the family Corinnidae. This Note is in keeping with the recommendations by the two sources in standardizing arachnid taxonomy.

The family Corinnidae is represented by 35 known species under nine genera and, out of these, six genera and 25 species are endemic to the Indian mainland (Siliwal *et al.,* 2005). The genus *Oedignatha* Thorell 1881, presently includes 13 species from India. Majumder and Tikader (1991) and Reddy and Patel (1993) had placed the genus *Oedignatha* Thorell, 1881 under the Family Clubionidae but it has now been transferred to the Family Corinnidae (Platnick, 2006).

The studies of diagnostic characters of the Family Corinnidae and of the genus *Oedignatha* suggest that the previously described *Amaurobius indicus* Bastawade should be transferred to family Corinnidae and the genus *Oedignatha.*

This species was described by me (Bastawade, 2002) based on *Amaurobius andamanensis* Tikader, 1977 and had provided a key to distinguish the two. However, Deeleman-Reinhold (2001) transferred *A. andamanensis* to genus *Oedignatha* (IX.g.2 in Siliwal *et al*., 2005). Since *A. indicus* Bastawade, 2002 meets the characters of genus *Oedignatha* like *O. andamanensis*, I propose the transfer of *A. indicus* to genus *Oedignatha*. Since, *Oedignatha indica* Reddy & Patel, 1993 is preoccupied (see # IX.g.7 in Siliwal *et al*., 2005), I propose a replacement name *Oedignatha raigadensis* nom. nov., as per Article No. 60 of the ICZN (1999). The proposed name is after the district in which the type locality Khalapur occurs.

The type material are preserved in 70% alcohol and currently deposited at ZSI, WRS, Pune with the following registration numbers: I/1104 (holotype female), I/1105 (paratype male), I/1106a & b (paratype females).

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Manuscript 1577; Received 12 June 2006; Finally accepted 13 June 2006; Date of publication 21 June 2006