

## Three new *Asterina* species from Kodaikanal hills in Tamil Nadu

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### Abstract

This paper gives an account of three new *Asterina* species collected from the hills of Kodaikanal, Tamil Nadu, namely, *Asterina dhivaharanii* on *Impatiens viscida*, *A. polygalae* on *Polygala arillata* and *A. viburni* on *Viburnum cylindricum*. All these species are described and illustrated in detail.

**Keywords:** *Asterina*, India, Kodaikanal, New species.

### Taxonomy

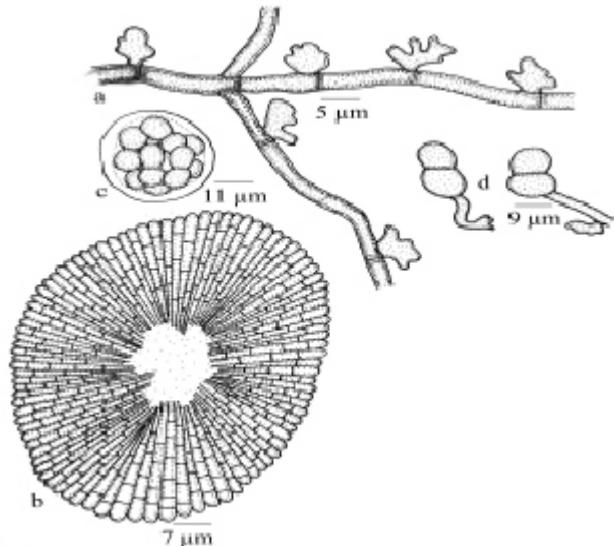
*Asterina dhivaharanii* V. B Hosagoudar et R. Nithyatharani, sp. nov. (Fig-1)

**Etymology:** This species is named in honour of Dr. V. Dhivaharan for his devoted service to women's education.

Coloniae epiphyllae, tenues, ad 2 mm diam., confluentes. Hyphae subrectae vel flexuosae, opposite vel alternatim acuteque vel laxe ramosae, laxe reticulatae, cellulæ 10-12 x 8-12 µm. Appressoria alternata, unicellularis, integra, pyriformes, globosa, cylindracea, stellatim lobata, saepe bifida, 10-12 x 8-12 µm. Thyrothecia dispersa vel connata, orbicularis, ad 96 µm diam., stellatim dehiscentis ad center, margine crenatae; asci numerosi, globosi, octospori, 32-35 µm diam.; ascospores conglobatae, 1-septatae, leniter constrictus ad septatae, 16-19 x 7-9 µm, parietus glabrus.

Colonies epiphyllous, thin, up to 2 mm in diameter, confluent. Hyphae substraight to flexuous, branching opposite to alternate at acute to wide angle, loosely reticulate, cells 10-12 x 8-12 µm. Appressoria alternate, unicellular, entire, pyriform, globose, cylindrical, stellately lobate, often bifid, 10-12 x 8-12 µm. Thyrothecia scattered to connate, orbicular, up to 96 µm in diameter, dehisced stellately at the center, margin crenate; asci many, globose, eight spored, 32-35 µm in diameter; ascospores conglobate, 1-septate, slightly constricted at the septum, 16-19 x 7-9 µm, wall smooth.

**Material examined:** On leaves of *Impatiens viscida* Wight (Balsaminaceae), Kukkal shola forest, Kodaikanal, Tamil Nadu, India, Aug. 6, 2007, R. Nithyatharani TBGT 4261 (holotype).



**Figure 1.** *Asterina dhivaharanii* sp. nov.

a. Appressoriate mycelium, b. Thyrothecium, c. Ascus  
d. Ascospores

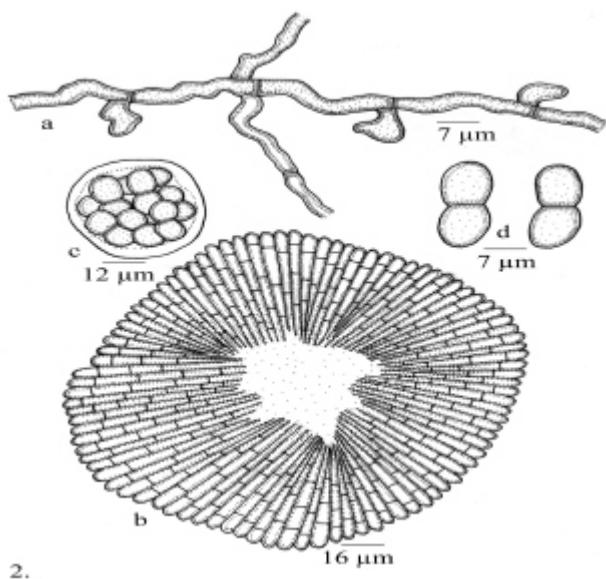
This is the first species of the genus *Asterina* known here on the members of the family Balsaminaceae (Dodge, 9142; Hosagoudar & Abraham, 2000; Stevens & Ryan, 1939).

*Asterina polygalae* V. B. Hosagoudar, V. Dhivaharan et R. Nithyatharani, sp. nov. (Fig. 2)

**Etymology:** This species is named after the host genus.

Coloniae amphigenae, subdensae, ad 2 mm diam., confluentes. Hyphae anfractuae, opposite laxe ramosae, laxe reticulatae, cellulæ 17- 20 x 6-7 µm. Appressoria alternata, unilateralis, pyriformes, globosa, ovata, angularis vel sublobata, 7-12 x 7-10 µm. Thyrothecia aggregata, orbicularis, ad 165 µm diam., dehiscentes ad centre, margine fimbriatae; asci numerosi, globosi, octospori, 30-35 µm diam.; ascospores conglobatae,

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**Figure 2.** *Asterina polygalae* sp. nov.

a. Appressoriate mycelium, b. Thyrothecium, c. Ascus,  
d. Ascospores

uniseptatae, leniter constrictus ad septatae,  
20-22 x 7-10 µm, parietus glabrus.

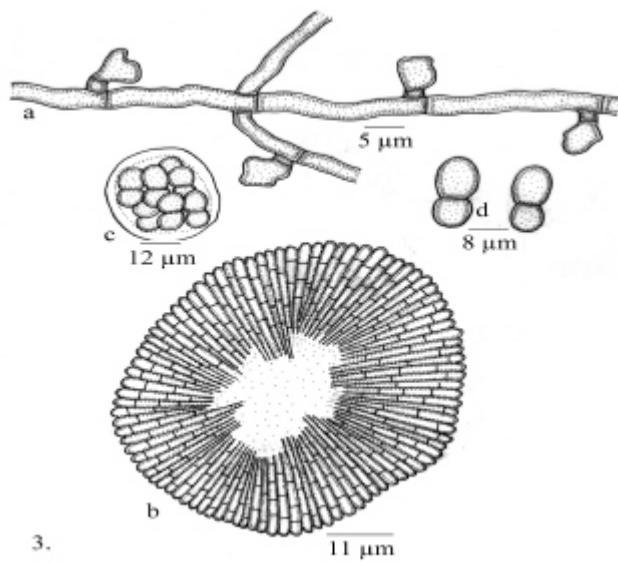
Colonies amphigenous, subdense, up to 2 mm in diameter, confluent. Hyphae crooked, branching opposite at wide angle, loosely reticulate, cells 17-20 x 6-7 µm. Appressoria alternate, unilateral, pyriform, globose, ovate, angular to sublobate, 7-12 x 7-10 µm. Thyrothecia grouped, orbicular, up to 165 µm in diameter, dehiscing stellately at the center, margin fimbriate; asci many, globose, eight spored, 30-35 µm in diameter; ascospores conglobate, 1-septate, slightly constricted at the septum, 20-22 x 7-10 µm, wall smooth.

**Material examined:** On leaves of *Polygala arillata* Buch.-Ham. ex D. Don (Polygalaceae), Kukkal shola forest, Kodaikanal, Tamil Nadu, India, Nov. 2, 2007, R. Nithyatharani TBGT 4262a (holotype).

*Asterina bredmeyerae* Rehm on *Bredmeyera* sp. and *A. purchella* Petrak on *Seridaca* sp. are known on the members of the family Polygalaceae (Hosagoudar & Abraham, 2000). However, *A. polygalae* differs from the former species in having crooked hyphae with angular to sublobate cells of appressoria (Theissen, 1913); it also differs from *A. purchella* Petrak in having smaller thyrothecia, asci and ascospores (Stevens & Ryan, 1939).

***Asterina viburnii*** V. B. Hosagoudar, V. Dhivaharan et R. Nithyatharani, sp. nov. (Fig.-3)

**Etymology:** This species is named after the host genus.

**Figure 3.** *Asterina viburnii* sp. nov.

a. Appressoriate mycelium, b. Thyrothecium,  
c. Ascus, d. Ascospores

Coloniae amphigenae, plerumque epiphyllae, densae, dispersae vel confluentes, 2-5 mm diam. Hyphae flexuosa, opposite acuteque ramosae, laxe reticulatae, cellulae 15-25 x 5-7 µm. Appressoria alternata, bicellula, antrorsa vel retrorsa, recta vel curvula, 17-20 µm longa; cellulae basilares cylindraceae vel cuneatae, 7-10 µm longae; cellulae apicales cylindraceae, leniter angularis vel sublobatae, 7-10 x 5-10 µm. Thyrothecia aggregata, orbicularis, ad 95 µm diam., stellatim dehiscentes ad center, margine crenatae; asci globosi, octospori, 32-35 µm diam.; ascosporeae conglobatae, uniseptatae, leniter constrictus ad septatae, 17-20 x 17-10 µm, parietus glabrus.

Colonies amphigenous, mostly epiphyllous, dense, scattered to confluent, 2-5 mm in diameter. Hyphae flexuous, branching opposite at acute angle, loosely reticulate, cells 15-25 x 5-7 µm. Appressoria alternate, two celled, antorse to retrorse, straight to curved, 17-20 µm long; stalk cells cylindrical to cuneate, 7-10 µm long; head cells cylindrical, slightly angular to sublobate, 7-10 x 5-10 µm. Thyrothecia grouped at the centre of the colony, orbicular, up to 95 µm in diameter, dehisce stellately at the center, margin crenate; asci, globose, eight spored, 32-35 µm in diameter; ascospores conglobate, 1-septate, slightly constricted at the septum, 17-20 x 7-10 µm, wall smooth.

**Materials examined:** On leaves of *Viburnum cylindricum* Buch.-Ham. ex D. Don (Caprifoliaceae), Kukkal shola forest, Kodaikanal, Tamil Nadu, India, Dec. 4, 2007, R. Nithyatharani TBGT 4263 (holotype).

This is the only species of the genus *Asterina* known on the members of the family Caprifoliaceae (Hosagoudar & Abraham, 2000; Stevens & Ryan, 1939; Katumoto, 1975; Yamamoto, W. 1957).

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