
***Biligiriella indica* gen. et sp. nov.- a new hyaline synnematosus fungus from hills of Biligiri Rangaswamy Temple Wildlife Sanctuary, Karnataka, India**

SHREYA SENGUPTA* AND RASHMI DUBEY

Botanical Survey of India, Western Regional Centre, 7 Koregaon Road, Pune- 411001

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A new genus and species *Biligiriella indica* was collected from the dead and decayed unidentified wood litter from forest areas of the Biligiri Rangaswamy Temple Wildlife Sanctuary, Karnataka, India. The new genus is a non-melanized synnematosus fungi can be differentiated from allied genera such as, *Akanthomyces*, *Hymenosilbe*. The new genus is unique in having its acapitate, white coloured synnemata, monoblastic conidiogenous cells, cylindrical phialides and bearing solitary globose conidia.

Key words : Hyaline, litter, species, wildlife

INTRODUCTION

India is endowed with two biodiversity hotspots-Eastern Himalayas and Western Ghats. The southern part of the country is bordered by two ranges of mountain Eastern and Western Ghats. At the confluence of the Eastern and Western Ghats, BiligiriRangaswamy Wildlife Sanctuary (BRT WLS) is situated. The wildlife sanctuary is enriched with mosaics of heterogeneous forest types. The Sanctuary is located in the Chamrajnagar district of south eastern Karnataka and having an altitude which ranges between 800 to 1600 m asL. BRT Wildlife Sanctuary was declared as a tiger reserve in 2011. These forests were initially declared as a protected area in 1974 with an area of 324.4 sq. km, and additional areas were added in 1987 (Kumara and Rathnakumar, 2010). During microfungus exploration tour in the sanctuary a very unique white thread like fungi were found on a dead, fallen stem litter samples. In naked eye, white thread like fungus resembles with the synnematosus fungi viz. *Akanthomyces*, *Hymenostilbe*. Both the fungi are entomogenous. The synnemata is characterized

by acapitate, covered with hymenium like layer of conidiogenous cells. The present study depicts, describes and illustrates the unique and rare synnematosus fungus collected from the BRT Wildlife Sanctuary. Citations are listed in chronological order.

MATERIALS AND METHODS

Samples of dead, dried stem were placed in brown paper bags, taken to the laboratory and prepared according to Castaneda-Ruiz (2005). Mounts were prepared in Lacto phenol (lactic acid, and phenol). Photomicrographs were taken using an Olympus compound microscope model CX -41 connected to a DP22 and DP27 camera, Japan. Scanning electron microscopic images were captured using a Zeiss scanning electron microscope (Model EVO 18-12-97). The type specimen is deposited in Botanical Survey of India, Western Regional Centre, India, Pune.

RESULTS AND DISCUSSIONS

Biligiriella gen nov.S. Sengupta Chatterjee and Rashmi Dubey Figs. 1, 2.MB828737

Colonies growing as thread like projections on the substratum. *Synnemata* cylindrical, rope like

structure, acapitate, superficial, without any definite shape, variable in size, visible with naked eye, branched, composed of numerous loosely aggregated whitish cream, smooth, parallel hyphae. The synnemata covered by a loose layer of monoblastic, simple, smooth walled, straight or cylindrical, white phialides. *Phialides* bearing solitary, globose to subglobose, aseptate, smooth walled, white conidia.

Material examined – India, Karnataka, Biligiri Rangaswamy Temple Wildlife Sanctuary, on dried leaves of palm (Holotype), 09 September 2015, Shreya Sengupta Chatterjee, Accession No. BSI (WC) 202199.

Biligiriella indica S. Sengupta Chatterjee and Rashmi Dubey sp.nov Figs. 1, 2. MB828737

Etymology – species named after the place of collection (BiligiriRangaswamy Temple Wildlife Sanctuary, Karnataka, India).

Colonies growing as thread like projections on the substratum. Synnemata cylindrical, rope like structure, acapitate, superficial, without any with naked eye, branched, composed of numerous loosely aggregated whitish cream, smooth, parallel hyphae having 0.1-0.2 µm thickness. The synnemata covered by a loose layer of phialides. Phialides monoblastic, simple, smooth walled, straight or cylindrical, white, 10-18 x 2-3µm. Conidia solitary, globose to sub-globose, aseptate, smooth walled, white, 5-7 µm in diameter.

Teleomorph – unknown.

Known distribution – BiligiriRangaswamy Temple Wildlife Sanctuary, Karnataka, India.

Notes – First time reported to science.

Key to the Genus

- 1. Synnemata white in colour, acapitate, covered by a layer of conidiogenous cells, and phialides bearing solitary conidia 3
- 2. Synnemata white in colour, acapitate, covered by a layer of conidiogenous cells, and phialides bearing conidia in basipetal chains
.....*Akanthomyces*

3a. The conidiogenous cells are monoblastic and bearing solitary globose conidia on simple, cylindrical phialides.....*Biligiriella*

3b. The conidiogenous cells are polyblastic, and bearing solitary conidia on short denticles of phialides.....*Hymenostilbe*

Detailed studies on synnematosus fungi revealed that the white to light coloured (non-melanized) synnematosus fungi can be categorized in two major heads viz. capitate (with proper head like structure) and acapitate (without proper head like structure)

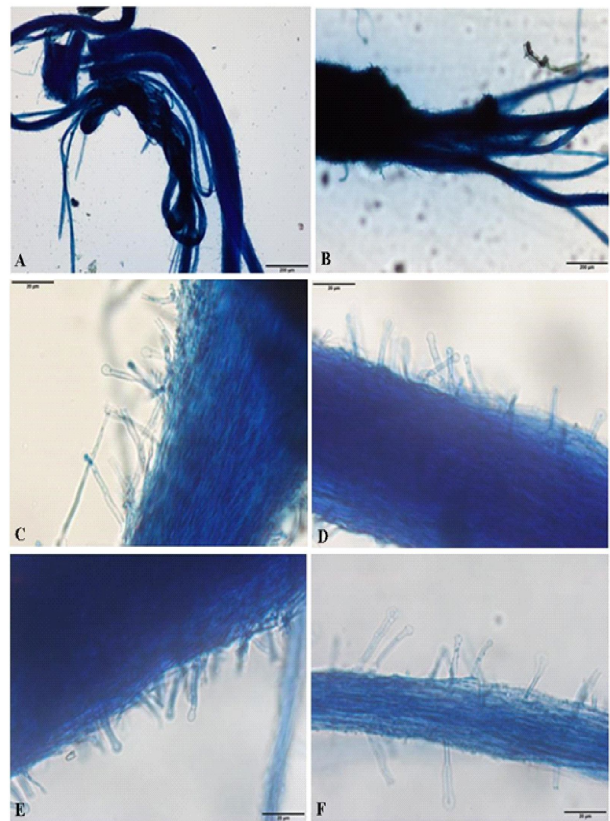


Fig. 1 : *Biligiriella indica* gen et sp. nov. A: Synnemata growing as thread like projections on the substratum. B: Acapitate synnemata composed of numerous loosely aggregated whitish phialides. Bars: A 200 µm; B 50 µm; C-F 20µm

synnematosus fungi. Only two genera *Akanthomyces* Lebert 1858, and *Hymenostilbe* Petch 1931 falls in the category of acapitate white to light coloured (non-melanized) synnematosus fungi. The genus *Biligiriella* can be compared with the *Akanthomyces* and *Hymenostilbe* in having more or less cylindrical acapitate synnemata, covered by hymenium like layer of conidiogenous cells. But the genus *Biligiriella* differs from *Akanthomyces* as the conidia of *Akanthomyces* are formed in chains on phialides, while the conidia of *Biligiriella* are

solitary and monoblastic, besides this the layer covering the synnemata is loose. The conidia of *Hymenostilbe* are solitary, polyblastic and form on a crowned denticles present on apical side of phialides while the conidia of *Biligiriella* are solitary

synnematous hyphomycetous fungus - *Bhadradiella* gen. nov. from India.

The newly reported genus *Biligiriella* also differs from all white to light coloured, capitate, synnematous fungi viz. *Antromycopsis* Pat. & Trab., *Bhadradiella* Nagaraju et al. 2011, *Cheirospora* Moug. and Fr., *Dendrostilbella* HOhn., *Didymostilbe* Bres. and Sacc., *Graphilbum*. Upadhyay and Kendr., *Stachycoremium* Seifert, *Stilbella* Lindau and *Tilachidiopsis* Keissl. (Kifferand Morelet 2000) in having is acapitate and cylindrical synnematous structure.

Therefore, on comparing with capitate and acapitate light coloured synnematous fungi *Biligiriella* is found to differ from others in having white, cylindrical, acapitate, synnemata with loosely hyaline conidiophores bearing loose layer of simple, smooth walled, straight or cylindrical, solitary and monoblastic phialides which forms solitary, 1 celled, globose conidia. Therefore, its erection as a new genus with *Biligiriella indica* as the type and also as new species is justified.

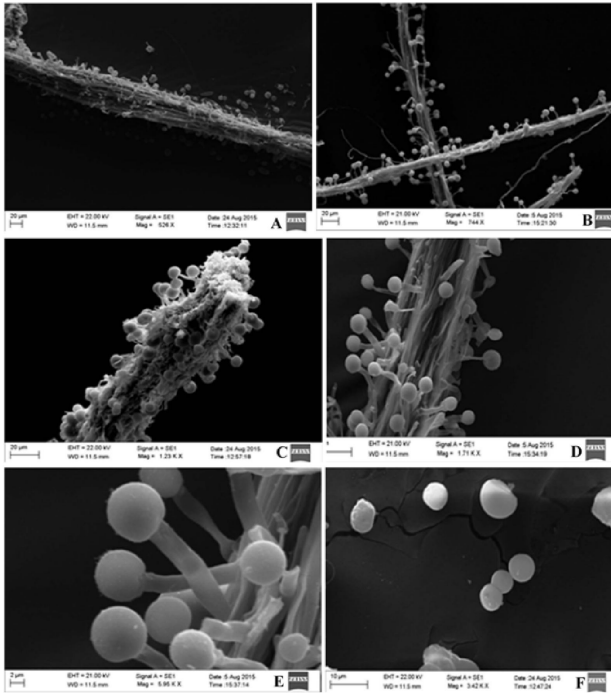


Fig. 2 : Scanning electron microscopic images of *Biligiriella indica* gen. et sp. nov. A-B. Cylindrical synnemata composed of numerous loosely aggregated whitish cream, smooth, parallel hyphae. C-E. Acapitate synnemata showing monoblastic phialides and solitary conidia borne at the terminal part F. Globose to sub-globose, aseptate smooth walled conidia. Scale Bars : A, B-D 20 mm; E 2 mm; F 10 mm.

and monoblastic and are formed on simple cylindrical phialides and not on denticulate Phialides. Besides this the *Akanthomyces* and *Hymenostilbe* are entomogenous in origin and *Biligiriella* is found to be associated with plant tissues. Therefore, it is evident the newly reported fungi totally differs from the *Akanthomyces* and *Hymenostilbe*. Nagaraju et al. (2011) reported a new

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