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Two new species of *Acroconidiella* from India

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ABSTRACT

Acroconidiella indica sp. nov. and *A. manoharacharii* sp. nov. are being described and illustrated from Solan and Shimla districts of Himachal Pradesh respectively.

Key Words: Anamorphic fungi, Hyphomycetes, Taxonomy.

INTRODUCTION

Himachal Pradesh is a part of the Indian Himalayas. It extends between 30°22'40" to 33°12'40" north latitudes and 75°45' 55" to 79°04' 20" east longitudes. The entire region of Himachal Pradesh is hilly with the altitude ranging from 350 meters to 7000 meters above sea level. The state encompasses unique vegetative communities and floral assemblages that can be attributed to the wide altitudinal gradient together with the local alterations. Studies on the fungal diversity of North–Western Himalayan ecosystem with particular reference to Himachal Pradesh has been mainly restricted to Myxomycetes (Thind 1977, Lakhanpal & Mukerji 1981), Glomeromycota (Prasher *et al.* 2004) Agaricomycetes (Prasher & Ashok 2013, Ashok & Prasher 2014a, 2014b). There are only few reports of Hyphomycetes from this area (Bilgrami *et al.* 1991, Jamaluddin *et al.* 2004, Prasher & Verma 2012a, b, 2014a, b, Prasher & Singh 2014a, Gautam 2014). The few records of hyphomycetes described from this region pertain primarily to the plant pathogenic fungi affecting the crops (Bilgrami *et al.* 1991, Jamaluddin *et al.* 2004). This communication is in continuation with earlier reports of Hyphomycetes from North India and North- Western Himalayas (Prasher *et al.* 2008, Prasher and Kaur 2014, Prasher and Singh 2012, 2013, 2014b, Prasher and Verma 2014c, 2015a, 2015b, Prasher and Sushma 2014).

MATERIAL AND METHODS

Decaying culms, bark, twigs, fallen leaves and dead wood were collected in ziplock plastic bags and taken to the laboratory. The specimens were mounted in 4% KOH, lactophenol and cotton blue 0.01% in lactophenol (Kirk *et. al* 2008). The drawings of various structures like Conidia and Conidiophores were made with the help of Camera Lucida manufactured by "Irma" from slide mounts. The specimens were deposited in the Herbarium of Department of Botany, Panjab University, Chandigarh, India (PAN).

RESULTS

Taxonomy

Acroconidiella indica I. B. Prasher and R. K. Verma **sp. nov.** **Fig. 1 A-C**

MycoBank **MB812609**

Colonies on natural substratum effuse, superficial on the substratum forming large stromatoid masses, made up of mycelium 3.2-6.4 µm wide, dark brown, thick-walled, slightly roughened, extensively branched (branches close), short celled, bear erect vertical conidiophores. Conidiophores 8-126×3.2-11.2 µm, brown, short or elongate, cylindric, straight or slightly curved, septate, thick-walled, pigmented opaque, with a swollen basal cell, bear conidiogenous cells. Conidiogenous cell is rachiform, pale brown to colorless, straight or flexuous, geniculated, geniculations thickened and minute, few (1-2), poroid. Conidia phaeo, ceteri, phragmosporous, porosporous, acrogenous, 3.2-33.6×1.6-10.3 µm, brown to dark brown, thick walled, oval to elliptical or elongate, cylindrical, straight or slightly curved, dry, (1-6 celled), with transverse septa only, smooth, constricted at the septum: septa thick walled, distinct, apical cell round or sometimes pointed; basal cell more or less triangular and narrowed towards the hilum; hilum protruding, thickened. Germination of the conidia starts in situ or on the substrate (after falling) by short germ tube which bear secondary conidia on them.

Etymology: the epithet refers to the country of origin.

Known distribution: India

Material examined: India, Himachal Pradesh, Solan on dead twigs of unidentified tree, 10 Febuary 2009, I. B. Prasher, PAN 30076 (Holotype).

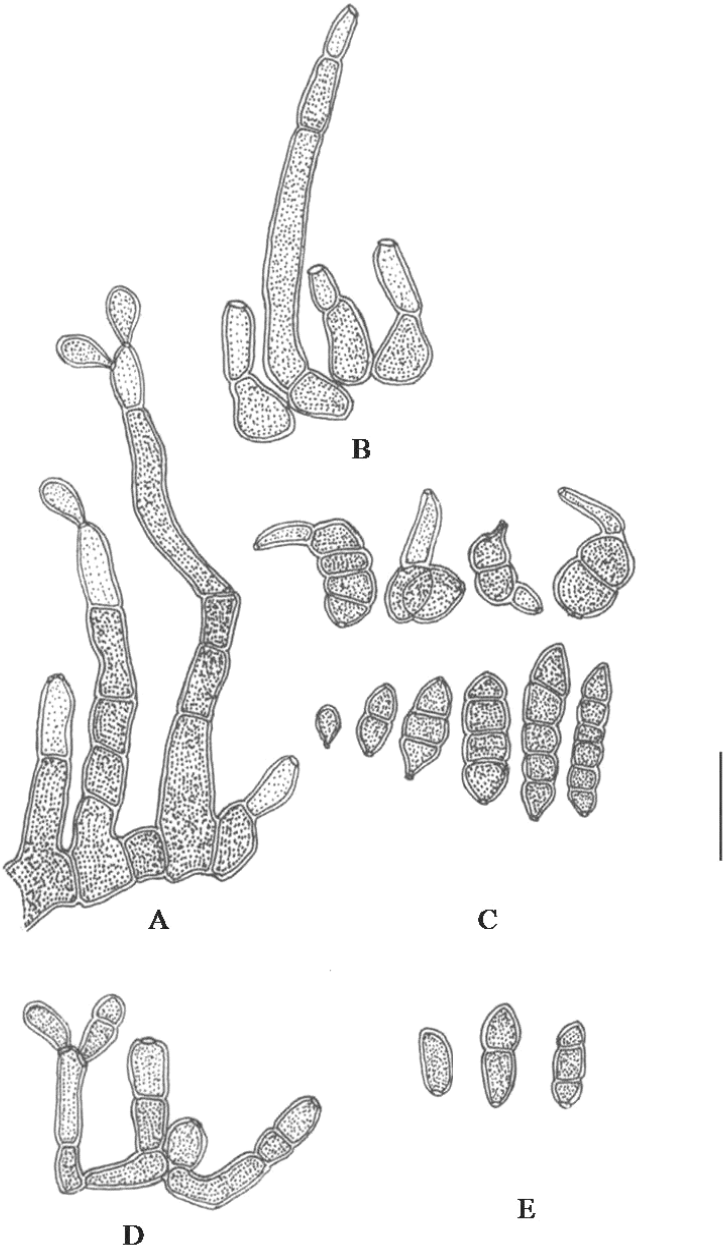

Fig 1. A-C ***Acroconidiella indica*** A Conidiophore, conidiogenous cell and developing conidia B. Conidiophores C. conidia. D, E, ***Acroconidiella manoharacharii*** Conidiophore with conidia E Conidia. Scale bar = 20 µm.

Table 1: Comparison of *Acroconidiella* spp.

Species	Conidiophore [µm]	Conidia Size [µm]	No. of septa	Reference
A. eschscholtziae	Up to 85 long 5-8 thick	28-90×9-18	1-7 transverse septa, 1-2 longitudinal septa	Ellis 1976
A. trisepta	Up to 140 long 4- 4.8 wide	22-27(-33)×8-10(-12)	3 rarely 2 transverse septa	Muchovej 1980
A. tropaeoli	Up to 180 long 5-10 wide	30-50×15-27	1-3 mostly 2 septa	Lindquist and Alippi 1964
A. indicus	8-126×3.2-11.2	3.2-33.6 × 1.6-10.3	0-5 transverse septa	Present study
A. manoharacharii	7.2-51×3.2-9.6	8-20×3.2-8	0-2 transverse septa	Present study

Acroconidiella manoharacharii I. B. Prasher and R. K. Verma **sp. nov**. **Fig. 1 D- E**

MycoBank **MB812610**

Colonies on natural substratum black, minute, velvety, distributed throughout forming a scum. Mycelium immersed in the substratum, composed of branched, septate, brown, smooth-walled hyphae. Conidiophores 7.2-51 × 3.2-9.6 µm, branched, brown, short, cylindric, straight or slightly curved, septate, with a swollen basal cell, pigmented opaque, thick walled, bear an apical conidiogenous cell. Conidiogenous cell is rachiform, pale brown, straight or flexuous, geniculated, geniculations thickened and minute, few (1-2) poroid. Conidia phragmo, ceteri, phaeo, porosporous, borne singly, 8-20 × 3.2-8.0 µm, brown, thick walled, oval to elliptic, straight or slightly curved, dry (1-3 celled) with transverse septa, smooth, constricted at the septum; septa thick walled, distinct; apical cell round or occasionally pointed; basal cell more or less triangular and narrowed towards the hilum; hilum protruding thickened.
Etymology: In honor of Prof. C. Manoharachary who has contributed immensely to the understanding of anamorphic fungi.
Known distribution: India.

Material examined: India, Himachal Pradesh, Shimla, Tara Devi, angiospermous sticks, 23 September 2010, I. B. Prasher, PAN 30077 (Holotype).

DISCUSSION

The genus is characterized by macronematous, mononematous, simple or occasionally branched conidiophores with integrated, terminal, polytretic sympodial conidiogenous cell bearing solitary ellipsoidal, septate echinulated conidia (Ellis 1971). Three species of *Acroconidiella* have been reported till to date (Lindquist and Alippi 1964, Ellis 1971, 1976 and Muchovej 1980). Both of the newly described species viz. *A. indicus* and *A. manoharacharii* differs from previously described species in having non septate to septate conidia. *Acroconidiella manoharacharii* has the smallest conidia of all the species whereas *A indicus* differs from *A. manoharacharii* in having 0-5 septate conidia in comparison to 0-2 septate in the latter (Table 1).

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