

Freshwater Ascomycetes from Pachmarhi Biosphere reserve (M.P., India)-I**Patil, V.R.¹ Chaudhari, S.A.²**

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ABSTRACT

The present paper deals with 6 species of freshwater Ascomycetes from Pachmarhi Biosphere reserve (M.P.). These include viz. *Aniptodera chesapeakensis*, *A. inflatiscigera*, *A. lignicola*, *Annulatascus hongkongensis*, *A. palmietensis*, *Ascosacculus heterogattul*, These fungi were encountered on decaying submerged wood samples. Some of these Ascomycetes are being recorded for the first time from Madhya Pradesh. The data provide information on the distribution of these fungi in India, apart from description and illustrations. The taxonomy, morphology and ecology of these fungi are discussed.

Keywords: Freshwater Ascomycetes, submerged wood, *Aniptodera*, *Savoryella*

INTRODUCTION

Freshwater Ascomycetes are defined as Ascomycetes which have been recorded in freshwater habitats and which complete part, or the whole of their lifecycle within freshwater environments (Wong et al. 1998). Lignicolous freshwater Ascomycetes inhabit submerged woody material in lentic (lakes, ponds) and lotic (rivers, streams) habitats, playing an important role in recycling organic matter in the aquatic ecosystem. They comprise a diverse taxonomic assemblage of about 622 species (Cai et al. 2014; Shearer et al. 2014). These fungi are mostly saprobic on submerged woody and herbaceous debris and are important in aquatic food webs as decomposers and as a food source to invertebrate grazers (Simonis et al. 2008).

Freshwater Ascomycetes from India were compiled by Borse et al. (2014, 2016) and from Madhya Pradesh were studied by Agrawal et al. (1991) and Upadhyaya et al. (2012). Recently, Singh et al. (2014), Patil et al. (2014a, b) and Chaudhari et al. (2016) recorded some freshwater Hyphomycetes from Madhya Pradesh.

In the present studies 18 species of freshwater Ascomycetes from Pachmarhi Biosphere reserve (M.P.) were encountered on decaying submerged woody debris samples. The data provide information on the distribution of these fungi from Madhya Pradesh and India, apart from description and illustrations.

MATERIALS AND METHODS

Sample of submerged decaying woody debris were collected from various localities along major streams and water reservoirs from PBR. The survey was undertaken for two years during 2014-2016. The sample analysis was done by the following method:

Monthly random collections of fifty submerged; partially decomposed woody debris (twigs or branches, 1-5 cm diam. and 30 cm length) were made from selected study sites along rivers and reservoirs from PBS (MP). The samples were returned to the laboratory keeping in plastic bags in the field and immediately examined with a dissecting microscope to locate fungal fruiting bodies. After the first observation, samples were incubated for three months on a moist paper towels in sterile plastic boxes at ambient temp. of 25⁰-30⁰ C to stimulate fungal development. Incubated samples were examined on day 15 and then over three months under a dissecting microscope for fungal fruiting bodies. The fungal taxa present on the wood samples were identified with the help of Borse et al. (2016) and relevant literature.

The slides were made permanent by using double cover glass method (Volkmann-Kohlmeyer and Kohlmeyer, 1996). The measurement of various parts like ascocarps, asci, ascospores etc. were taken and used in the identification of different species. Reports of fungi from India and M.P. state were confirmed with the help of Bilgrami et al. (1979, 1981, 1991), Sarbhoy et al. (1975, 1986, 1996), Jamaluddin et al. (2004), Borse et al. (2016) and other relevant literature.

TAXONOMIC ACCOUNT

1. *Aniptodera chesapeakensis* Shearer & M.A. Miller

Mycologia, **69**: 894 (1977).

Ascospores: 21-37 x 7-15 µm, 2-3-seriate, ellipsoidal or fusiform, 1-euseptate, not constricted at the septum, hyaline, smooth, thick-walled, guttulate, with or without polar appendages; appendages filamentous, unfurling in water, long or short.

Habitat: On submerged wood, Pachmarhi, 11 Nove., 2015; leg. S.A. Chaudhari

Distribution in India: *Marine Habitats:* West Coast: Maharashtra, Goa, Karnataka, Pondecherry (Mahe); *East Coast:* Tamil. Nadu, Andhra. Pradesh, West Bengal, Andaman and Nikobar Islands (see Borse et al. 2012, 2013); *Freshwater Habitats:* Karnataka, Maharashtra (see Borse et al. 2016); **Madhya Pradesh: Present study.**

2. *Aniptodera inflatiascigera* K.M. Tsui, K.D. Hyde & Hodgkiss

Sydowia, **49**: 187-192 (1997).

Ascospores: 32-45 x 15-22 µm, hyaline, ellipsoidal, bicelled, not constricted at the septum, relatively thick-walled (2-3 µm thick), with or without polar appendages; delicate, released from the pores at the ascospore tips.

Habitat: On submerged wood, Pachmarhi, 11 Nove., 2015; leg. S.A. Chaudhari environment.

Distribution in India: Maharashtra (see Borse et al. 2016); **Madhya Pradesh: Present study.**

3. *Aniptodera lignicola* K.D. Hyde, W.H. Ho & K.M. Tsui

Mycoscience, **40**: 171 (1999).

Ascospores: 16-21.5 (-26) x 6.5- 7.5 (-8) μ m, hyaline, ellipsoidal, bicelled, not constricted at the septum, relatively thin-walled (< μ m 1 thick).

Habitat: On submerged wood, Pachmarhi, 11 Nove., 2015; leg. S.A. Chaudhari

Distribution in India: *Marine Habitats*: East Coast: Tamil Nadu (Borse et al. 2012, 2013); *Freshwater Habitats*: Maharashtra (see Borse et al. 2016); **Madhya Pradesh: Present study.**

4. *Annulatascus hongkongensis* W.H. Ho, Ranghoo, K.D. Hyde & Hodgkiss
Mycologia, **91**: 886 (1999).

Ascospores: 35-37.5 x 12.5-15.0 μ m, uniseriate or overlapping uniseriate, hyaline, ellipsoidal, 3-septate, guttulate, smooth, thin-walled with thick mucilaginous sheath (6-8 μ m thick).

Habitat: On submerged wood, Pachmarhi, 11 Nove., 2015; leg. S.A. Chaudhari

Distribution in India: Maharashtra (see Borse et al. 2016); **Madhya Pradesh: Present study.**

5. *Annulatascus palmietensis* Goh, K.D. Hyde & Steinke
In: Hyde et al., *S. Afr. J. Bot.*, **64**: 151, 1998.

Ascospores: 20-25 x 6-7 μ m, 1-2 seriate, short fusiform, ends blunt, 3- septate in mature specimens, hyaline, appearing smooth-walled.

Habitat: On submerged wood.

Distribution in India: Maharashtra (see Borse et al. 2016); **Madhya Pradesh: Present study.**

6. *Ascosacculus heterogattulata* (S.W. Wong et al.) J. Campb. et al.
Mycologia, **95**: 545 (2003).

Ascospores: 27-37 x 9-17.5 μ m, ellipsoidal, hyaline, 1-septate, equally two-celled, apical cell with one or two large lipid gattule (s), basal cell with numerous small gattules, with bipolar, hamate, and highly coiled filamentous appendages that unferl in water to form long strands.

Habitat: On submerged wood, Pachmarhi, 11 Nove., 2015; leg. S.A. Chaudhari

Distribution in India: Karnataka, Maharashtra (see Borse et al. 2016); **Madhya Pradesh: Present study.**

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Photographs Ascospore(s)

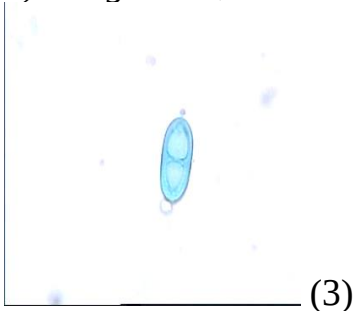
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2) *A. inflatiascigera*,



3) *A. lignicola*,

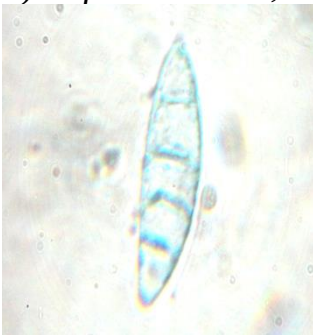


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(4)

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(5)

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