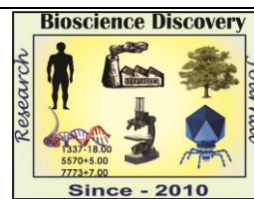


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Research Article



Some fresh water Ascomycetes from Nagpur district of Maharashtra, India

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Abstract

Present study deals with the fresh water fungi from Nagpur district of Maharashtra. Four species were found to occur on submerged wood sample collected from various water bodies of Nagpur district. This includes *Neomasserosphera typhicola*, *Savoryella limnetica*, *Savoryella lignicola* and *Savoryella fusiformis*. All these fungi are reported for the first time from Nagpur district. All the fungi observed are described and illustrated in this paper.

INTRODUCTION

The fresh water Ascomycetes are an ecological group of fungi that occur on submerged or partially submerged plant substrate in aquatic habitats (Shearer, 1993, 2001; Vijaykrishna *et al.*, 2006). Fresh water Ascomycetes plays an important role in freshwater ecosystem as decomposers of woody and herbaceous material in lentic and lotic habitats (Shearer, 1992; Gesner and Chauvet, 1994; Wong M. K. M. *et al.*, 1998, Simonis *et al.*, 2008). Branches and twigs of the plants provides habitat for a variety of organisms like fungi, insects and fishes. (Triska and Cromack 1980; MS Massoud, 2012). Woody debris deposited into stream ecosystems affects hydraulic conditions, defines channel morphology and provide habitats for various aquatic organisms (Keller and Swanson, 1979; Mosley, 1981; Harmon *et al.*, 1986; Sedell *et al.*, 1988). Shearer (1993) listed 288 species. Manoharachary and Ramarao (1972), Udaiyan (1989), Ramesh and Vijaykumar (2000), Borse *et al.*, (2014), Borse *et al.*, (2016), Tuwar *et al.*,

(2016), Borade *et al.*, (2016) have reported Ascomycetes from India.

During a survey of fresh water fungi from various water bodies of Nagpur District in Maharashtra, five Ascomycetes fungi were reported and briefly described with illustrations.

MATERIALS AND METHODS

Submerged woody debris and decaying leaves was collected at random from various freshwater habitats in Nagpur region (21° 09' N and 79° 09' E). Samples were placed in double seal plastic bags and then brought to laboratory. In the laboratory, samples were placed in moist chambers (sealable plastic boxes lined with moist paper towels) and incubated at room temperature (~25°C) and 12/12 hr light/dark conditions. Within one week of arrival at the laboratory and periodically thereafter for 6–12 months samples were examined for fungal reproductive structures. The fungal taxa present on the wood samples were recorded, identified and isolated.

The slides were made permanent according to Volkmann-Kohlmeyer and Kohlmeyer (1996). Voucher slides of the fungi reported were deposited in the mycology herbarium, P. G. Department of Botany, S.S.V.P. Sanstha's L. K. Dr. P. R. Ghogrey Science College, Dhule, and M.S.

RESULTS AND DISCUSSION

Neomasseriosphera typhicola (P.Karst.) Yin, Zhang, F.Fourn. & K.D.Hyde

In: Zhang et al., *Studies Mycology*, 64:96 (2009).

Ascomata 180 µm -220 µm high, 190 µm - 410 µm diam, immersed or erumpent, sub globose to depressed-ellipsoidal, Ostiolate, epapillate or with short papillae dark brown, solitary or gregarious. Peridium 10 µm -20 µm thick, composed of 3 -5 layers of large thin walled cells with large lumina, forming a textura angularis. Asci 102 -119 µm × 13.6- 20. 4 µm, 8 spored cylindrical to clavate, short pedunculate, bitunicate thin walled. Ascospore 33.2-36.5 µm × 8.3-9.9 µm, bi or tri-seriate in the upper part of the ascus, uni-seriate below, fusiform, 7-11 septate, slightly constricted at the septa around the thickest cell, straight or curved, at first hyaline, becoming light brown, surrounded by a gelatinous sheath.

Habitat: On submerged decaying leaves of *Typha angustata* Bory and Chaub. Zilpi lake, 12 June 2015; Leg., R.T. Jadhav

Savoryella limnetica H.S.Chang & S.Y.Hsieh *Mycol. Res.*, 102:715(1998).

Ascomata 190-250µm long, 90-130 µm diameter, immersed, semi immersed, or superficial, pyriform brown or black, ostiolate. Neck short, up to 65 µm diameter, hyaline bending up towards light. A few paraphysis. Asci 105-135×26-35 µm; 8 spored, clavate, thin walled apically thickened with a ring

and pore. Ascospore 24.9-26.5×8.3-9.9 µm, ellipsoidal, 3-septate, non constricted, central cell brown, end cells small and hyaline to sub hyaline.

Habitat: On submerged wood, Zilpi lake, 12 June 2015; Leg., R.T. Jadhav

Distribution in India: Maharashtra (Patil and Borse, 2011).

Savoryella lignicola E.B.G. Jones & R.A. Eaton *Trans. Br. Mycol. Soc.*, 52-162(1969).

Ascomata 170-350 µm high× 120-250 µm in diameter, globose or sub globose immersed or partly immersed in the substratum, pale to dark brown with a short neck 70-110 µm× 40-65 µm. Asci long cylindrical, unitunicated and having a short stalk 29-45µm× 10-16 µm, 8 spored.

Ascospore 26.5-28.2 µm ×11-13 µm three septate Central cell brown and the end cells hyaline.

Habitat: On submerged wood, Makardhokada lake, 13 June 2015; Leg., R.T. Jadhav

Distribution in India: Tamil Nadu: (Udaiyan, 1989); Karnataka: (Ramesh and Vijaykumar, 2000); Maharashtra: (Borse and Pawara, 2007)

Savoryella fusiformis W.H Ho, K.D.Hyde *Mycol. Res.*, 101: 804 (1997).

Ascomata 130-180 µm×75-90 µm immersed or superficial, pyriform dark brown, solitary or gregarious. Paraphysis present in young ascomata, wide and septate. Asci 80-110 µm × 10-14 µm, 8 spored, unitunicated, cylindrical or clavate thin walled, with a non amyloid apical ring. Ascospores 25-28 µm × 8-10 µm, biseriata, fusiform, 3- septate, slightly constricted at the septa, thin walled, central cell brown apical cell hyaline.

Habitat: On submerged wood, Makardhokada lake, 13 June 2015; Leg., R.T. Jadhav

Distribution in India: Maharashtra (Patil and Borse, 2011).

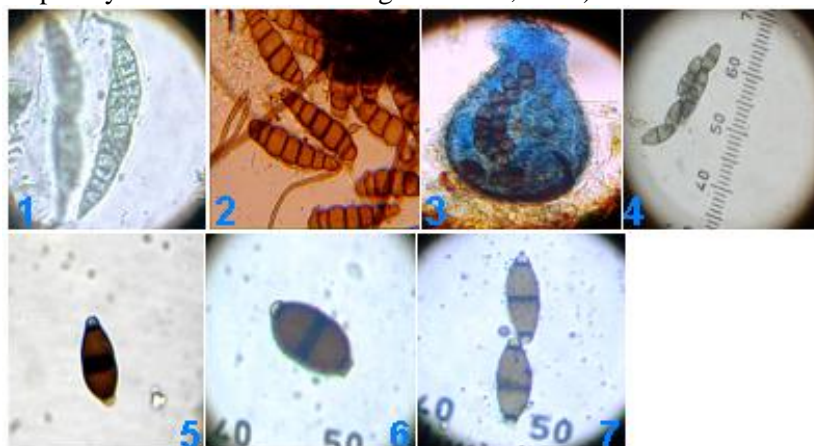


Fig.1: *Neomasseriosphera typhicola* - Asci, **Fig.2:** *Neomasseriosphera typhicola* - Ascospore **Fig.3:** *Savoryella limnetica*- Ascomata, **Fig.4:** *Savoryella limnetica* -Asci, **Fig. 5:** *Savoryella limnetica*- Ascospores, **Fig. 6:** *Savoryella lignicola*- Ascospores, **Fig. 7:** *Savoryella fusiformis* - Ascospores

Savoryella is the most commonly occurring genera from aquatic habitats in India with 11 species, of which six species were found in freshwater habitats and four species in marine habitats. *S.lignicola* was found in both marine and freshwater habitats (Borse *et al.*, 2016). In present studies three species of Savoryella occurs on submerged wood. One species of *Neomasserosphaera* occurs on submerged decaying leaves of *Typha angustata* Bory. and Chaub. Which showing host specific similarity reported by Borade *et al.*, (2016). Due to increasing civilization aquatic habitats are continuously altered and degraded. Aquatic Ascomycetes plays an important role for ecosystem as decomposers. Decaying substrata of the plants provides habitat for a variety of organisms like fungi, insects and fishes.

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