
Fresh Water fungi from Nagpur District of Maharashtra, India

R.T.Jadhav¹, K.N.Borse²

¹ S.S.V.P.S's Arts, Commerce and Science College Shindkheda Dist. Dhule, M.S, INDIA

² P.G.Dept. of Botany S.S.V.P.S's L.K. Dr. P.R. Ghogrey Science College, Dist. Dhule, M.S, INDIA

Abstract

Present study deals with the fresh water fungi from Nagpur district of Maharashtra. Six species were found to occur in foam and submerged wood sample collected from various water bodies of Nagpur district. These six species are namely *Tetraploa aristata*, *Torula herbarum*, *Diplocladiella scleroides*, *Beltrania rhombica*, *Helicomyces lilliputeus* and *Ellisembia adscendens*. All these fungi are reported for the first time from Nagpur district. All the fungi observed are described and illustrated in this paper.

Key Words: Freshwater fungi, Nagpur, submerged wood, Foam

Introduction

Submerged decaying wood plays an important role in aquatic ecosystem. Branches and twigs provides habitat and food for the organisms living in the water body, like fungi, insects and fishes (Triska and Cromack 1980). Physical and biological factors determine the rate of wood decay, which is important in nutrient cycling (Harmon et.al. 1986). The fresh water fungi produce enzymes that break down lignocelluloses (Wong et.al 1998). The nutrients formed by the decaying of wood are used by the organisms of higher trophic levels (Graca 1993).

During a survey of fresh water fungi from various water bodies of Nagpur District in Maharashtra, six species of mitosporic fungi were reported.

Material and Method

Submerged woody debris was collected at random from various freshwater habitats in Nagpur region. 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 foam samples were collected from the different streams and rivers of Nagpur District. The foam is formed by the movement of the water against natural barriers like stones, twigs and logs. Foam constitutes a natural trap for the conidia of aquatic hyphomycetes. The ability of conidia to get trapped varies with their shape, the tetra radiate shape being captured most readily by the bubbles, Iqbal and Webster (1973). The foam was collected in plastic bottles and kept for 24 hours to enable the foam to dissolve. It was preserved by adding FAA. The foam samples were returned to the laboratory. They were observed under high and low power of research microscope for the presence of conidia of freshwater Hyphomycetes. 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, M. S.

Result and Discussion

Tetraploa aristata Berk. & Br.

Conidia: Mostly with 4 cells to each column, 27-39× 15-25 μm, with septate appendages 12-70 μm long, 5-7 μm thick at the base, 2-4 μm at the apex.

Habitat: Conidia in foam samples Vena Dam Nagpur 13 June 2015, Leg R.T.Jadhav

Distribution in India:

Maharashtra: Conidia in foam samples (Patil, 2003a),

Karnataka: On submerged leaves and conidia in foam samples (Sridhar and Kaveriappa, 1982, 1989b);

Madhya Pradesh: Conidia in foam samples (Upadhyaya *et al.*, 2012); TamilNadu: On wood blocks submerged in cooling tower water System (Udaiyan and Manian, 1991b).

Beltrania rhombica Penzing

Conidia: 15- 30 × 7- 14 μm, appendages 3- 20 μm long, 2 μm wide at the base, tapering to a point.

Habitat: Conidia in foam samples. Vena Dam Nagpur 13 June 2015, Leg R.T.Jadhav

Distribution in India: Western Ghats Subramanian and Bhat (1981), Maharashtra (Patil, 1966); (Sharma, 1973), Karnataka (Sridhar and Kaveriappa, 1982; Ramesh and Vijaykumar 2000).

Diplocladiella scleroides Arnaud, ex Matsushima.(1975).

Conidia: The conidium is two armed. Conidium is 15- 40 μm wide and basal cell 2-4× 2-3 μm. Five of its cells are brown, but the basal cell is colorless and each arm is terminated by an unpigmented hair like cell.

Habitat: Conidia in foam samples. Nagpur 13 June 2015, Leg R.T.Jadhav

Distribution in India: Western Ghats: Subramanian and Bhat (1981): Karnataka: Sridhar and Kaveriappa (1989). Maharashtra: Borse B.D and Patil R.S (2007).

Torula herbarum (Pers) Link.

The colonies are different in size from few mm in diameter to several cm. The colony is olive when young and at maturity it turns black and velvety (Ramanuj Patel et.al 2013.)

Conidiophores straight flexuous 4.3× 6- 4 μm thick, Conidia straight or slightly curved more or less cylindrical in shape pale olive to brown, mostly 4-5 septate constricted at the septa 12.9 -17.3×4.3-6.4 μm in size.

Habitat: Conidia in foam samples. Vena Dam Nagpur 13 June 2015, Leg R.T.Jadhav

Distribution in India: Rajasthan (Agarwal and Sarbhoy 1984); Kerala (Rao and Verghese 1980).

Helicomyces lilliputeus R.T.Moore, Mycologia, 49: 583, 1957.

Conidia: Hyaline to subhyaline 12.5-20 μm, in diameter, conidial filaments multiseptate, 1.5-2.5 μm thick, hygroscopic, coiled 2-3¼ times, growing on dead wood and bamboo.

Habitat: Conidia on bamboo Vena Dam Nagpur 13 June 2015, Leg R.T.Jadhav

Ellisembia adscendens (Berk.) Subram., Proceedings of the Indian National Science Academy B58,4:183(1992).

Conidia: Conidia flexuous, cylindrical, obclavate, elongate, pseudoseptate, broadly rounded at the apex, obconically truncate at the base, medium to dark reddish brown, smooth, 140-200×14-16µm.

Habitat: Conidia in foam samples Vena Dam Nagpur 13 June 2015, Leg R.T.Jadhav

Distribution: Hong Kong: Fungi on submerged wood and bamboo in the Plover Cove Reservoir, Hong Kong. Fungal Diversity 3:57-85.Goh, T.K. and Hyde, K.D. (1999).



Fig.1



Fig.2

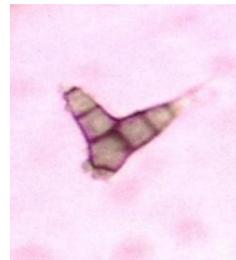


Fig.3

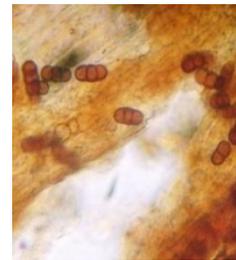


Fig.4



Fig.5



Fig.6

- 1) *Tetraploa aristata* Berk. & Br
- 2) *Beltrania rhombica* Penzing
- 3) *Diplocladiella*
- 4) *Torula herbarum*
- 5) *Helicomyces*
- 6) *Ellisembia adscendens* (Berk.) Subram.,



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