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MICROBIOLOGY

AQUATIC FUNGI FROM NASIK DISTRICT-I

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Abstract
The paper deals with five species of aquatic fungi belonging to five genera of freshwater hyphomycetes found in foam samples collected from Trambkeshwar stream of Nasik District. The foam spora of this region represents mixture of both tropical and temperate species. Brief notes and illustration are given for each taxon. Geographical distribution of each species in India is also provided.

Keywords: Aquatic hyphomycetes, India, Water- born fungi

Introduction
The occurrence of water-borne hyphomycetes has been reported from various parts of Europe, America, Asia and Australia (Ingold, 1975; Subramanian, 1971; Marvanova, 1997; Iracema Helena and Elaine Malosso, 2007). To India, the aquatic hyphomycetes were studied by Ingold and Webster (1973), Shridhar *et al.* (1992), Galiah and Manoharachary (1987), Agrawal *et al.* (1990), Sati and Tiwari (1997), Sati *et al.* (2002), Rajshekhar and Kaveriappa (2003) . In Maharashtra, these fungi were reported by Thakur (1977), Patil and Kapadnis (1980), Talde (1981), Borse and Patil (2006), Borse and Patil (2007). Patil (2009), Wagh *et.al.* (2009), Nemade *et.al.* (2009), Pawara *et.al.* and Patil *et.al.* (2010). In the present investigation five species of aquatic hyphomycetes were studied from foam samples.

Materials and Methods
The foam samples were collected from stream of Trambkeshwar of Nasik District (Maharashtra) during July 2009- June 2010. Soon after collection in small plastic vials, the foam was fixed by adding a few drops of formalin- acetic acid- alcohol (FAA) mixture. They were latter scanned under microscope in the laboratory for the presence of conidia. The encountered fungal species were identified with the help of Ingold (1975), Marvanova (1997). The distribution of these fungi were confirmed with the help of Kamat *et al.* (1971), Bhide *et al.* (1987), Bilgrami *et al.* (1991), Sarbhay *et al.* (1986,1996), Shridhar *et al.*(1992),Jamaluddin *et al.*(2004) and relevant literature. 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.

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Taxonomic account

1) *Alatospora acuminata* Ingold (Plate 1, Fig. 1)
Conidia: typically tetra radiate, axis long-fusoid, arcute or bent at branch insertion or nearly straight, 30-70 X 1.0-2.5 µm. With up to six septa; branches 12-35 X 1.0-2.2 µm, base decurrent to narrow, inserted near the middle or in the lower half of the axis; with up to four septa.
Habitat: Conidia in foam sample.
Distribution In India: Kerala (Sridhar and Kaveriappa, 1985); Karnataka (Sridhar and Kaveriappa, 1982, 1986, 1989); Kumaun Himalaya (Sati and Tiwari, 1990); Maharashtra (Borse and Patil, 2006).
Remark: It has being reported for the first time from Nasik District

2) *Anguillospora longissima* (Sacc. and Sydow) Ingold (Plate-1, Fig.2)
Conidia: unbranched, elongated, 8- 12 septate, sigmoid with curvature in more than one plane, 200- 280 X 2.5- 3.5 µm.
Habitat: Conidia in foam samples.
Distribution in India: Maharashtra (Thakur, 1977, Talde, 1983); Kerla (Sridhar and Kaveriappa, 1985); Karnataka (Sridhar and Kaveriappa, 1982, 1988; Ramesh and Vijaykumar 2000).
Remark: It has being reported for the first time from Nasik District.

3) *Beltrania rhombica* Penzig (Plate 1, Fig.3)
Conidia: 15- 30 X 7- 14 µm, appendages 3- 20 µm long, 2 µm wide at the base, tapering to a point.
Habitat: Conidia in foam samples.

Distribution in India: Maharashtra (Patil, 1965; Pawar and Kulkarni, 1974), Kerala (Ponappa, 1970; Sharma, 1973), Karnataka (Sridhar and Kaveriappa, 1982; Ramesh and Vijaykumar 2000).

Remark: It has been reported for the first time from Nasik District.

4) *Flabellospora verticillata* Alasoadura (Plate 1, fig. 4)

Conidia: multi-radiate, consisting of a main axis and 5 - 10 radiating arms. Main axis 14- 30 X 1.5- 2 µm, 2- 5 septate, with terminal cell obclavate, each arm 8- 14 septate, 50- 90 X 4.5- 5 µm.

Habitat: Conidia in foam samples.

Distribution in India: Maharashtra (Patil and Kapadnis, 1980) Kerala (Sridhar and Kaveriappa, 1985) Karnataka (Sridhar and Kaveriappa, 1984, 1986, 1989; Ramesh and Vijaykumar 2000).

Remark: The measurements and descriptions of conidia are completely agree with that of *Flabellospora verticillata* Alasoadura (1968).Therefore, it is assigned to that species. It is being reported for the first time from Nasik district.

5) *Lateriramulosa aniflata* Matsushima (Plate 1 Fig.5)

Condia: hyaline, appears as small triangles, consist of one axis, 9- 11 X 2.5- 8 µm, three branches are composed of swollen basal part and a spike like septa. The upper arm has only one-half of its base swollen.

Habitat: Conidia in foam samples.

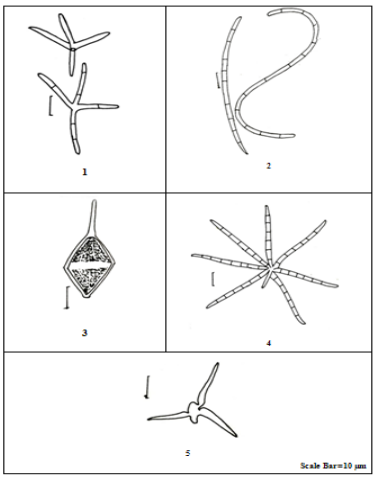
Distribution in India: Maharashtra (Patil and Kapadnis, 1980, Borse and Patil, 2006); Karnataka (Sridhar and Kaveriappa, 1984, 1986, 1989, Ramesh and Vijaykumar 2000), Western Ghat, (Rajashekhar and Kaveriappa, 2003).

Remark: It is reported for the first time Nasik district.

In all five species of water borne hyphomycetes belonging to five genera were recorded. Brief notes and details of distribution in India are given for each taxon.

Conidia of *Anguillospora longissima* and *Beltrania rhombic* Penzig were observed in most of the samples. Conidia of *Alataspora acuminata* Ingold, *Flabellospora verticillata* Alasodura and *Lateriamulosa aniflata* Mastushima were rarely observed.

Plate 1- Fig. 1) *Alatospora aacuminata* Ingold, fig. 2) *Anuillospora longissima* (Sacc.&Sydo) Ingold, 3) *Beltrania rhombica* Penzig , 4) *Flabellospora verticillata* Alasodura and fig 5) *Lateriamulosa aniflata* Mastushima



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