



## Some Aquatic Hyphomycetes from Khandwa District of MP, India

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### Abstract

During the preliminary investigation of aquatic hyphomycetes from Khandwa district of Madhya Pradesh the five species of aquatic Hyphomycetes encountered in foam samples collected from the different streams and rivers. These fungi namely viz., *Flabellospora crassa* Alasoadura, *Flabellospora verticillata* Alasoadura, *Flabellospora acuminata* Descals & Webster, *Helicomycetes torquitus* Lane and Shearer and *Isthmotricladia gombakiensis* Nawawi, are being reported for the first time in freshwater habitats from Madhya Pradesh. Brief notes and illustrations are also provided along with geographical distributions of these fungi in India.

**Keywords:** Aquatic habitats, hyphomycetes, Khandwa district.

### Introduction

The innovative work on Freshwater hyphomycetes was started from the work of C.T. Ingold. He named them as 'Aquatic Hyphomycetes'<sup>1</sup>. Nilsson, Webster and Descals described them as "Freshwater Hyphomycetes"<sup>2-3</sup>. About more than 500 species of hyphomycetes are known from freshwater habitats. Most of the species are described from temperate regions and are Ingoldian fungi, while there is little information on tropical species. In India the Khandwa District of Madhya Pradesh is rich in biodiversity. However, scanty work has been done on freshwater hyphomycetes in Madhya Pradesh. Therefore, the present exploration was carried out.

### Material and Methods

The foam samples were collected from the different streams and rivers of Khandwa District of Madhya Pradesh from both the lentic and the lotic habitats.

**Foam analysis:** The foam is formed by the movement of the water against natural obstacles like stones, twigs and logs, especially in lotic systems, constitutes a natural trap for the conidia of aquatic hypomycetes. Foam samples were collected at morning and evening time. Samples were made with a scoop and placed in clean wide mouthed plastic bottles and kept for 24 hours to enable the foam to dissolve. Then the foam was preserved by adding FAA. Then the foam samples were returned to the laboratory and observed under research microscope for the presence of conidia of hyphomycetes.

The preparation of permanent slides were done as suggested by Volkmann Kohlmeyer and Kohlmeyer<sup>4</sup>. The measurement and microphotographs of fresh water hypohmycetes were taken. Vaucher slides of the fungi reported were deposited in the

Mycology Herbarium, P. G. Dept. of Botany, S. S. V. P. Sanstha's Late Karmaveer Dr. P. R Ghogrey Science College, Dhule (M. S.), India. Identification of the freshwater hyphomycetes were confirmed with the help of Nilsson, Ingold and Marvonova and other relevant literature<sup>5-6</sup>. Reports of fungi from India and Madhya Pradesh were confirmed with the help of Kamat *et al.*, Bhide *et al.*, Mahabale, Bilgrami *et al.*, Sridhar *et al.*, Sarbhoy *et al.*, Jamaluddin *et al.* and other relevant literature<sup>7-16</sup>. Voucher slides of the fungi reported were deposited in the Mycology Herbarium, P. G. Dept. of Botany, S. S. V. P. Sanstha's Late Karmaveer Dr. P. R Ghogrey Science College, Dhule (M.S.), India.

### Result and Discussion

*Flabellospora acuminata* Descals and Webster

**Conidia:** acrogenous, main body clavate, apex capitate 4-6  $\mu\text{m}$  diameter, base pedunculate, 5-10  $\mu\text{m}$  long branches 4-6 synchronous, 40-100x7-15  $\mu\text{m}$ , one branch apical, the rest radiating, slightly retrorsely straight, fusiform, apex greatly extended, cells 3-10.

**Habitat:** Conidia in foam samples, Narmada River, 04 Aug. 2011.

**Leg.** D. K. P.

**Remark:** The present fungus is common in occurrence. The measurements and descriptions of conidia are completely agreed with that of *Flabellospora acuminata* Descals and Webster (1982)<sup>17</sup>. Therefore, it is assigned to that species. It has been reported for the first time from Khandwa District of Madhya Pradesh.

*Flabellospora crassa* Alasoadura

**Conidia:** hyaline with four to five arms, 37- 56  $\mu\text{m}$  long, 3.5- 4  $\mu\text{m}$  wide at the attachment, increase in diameter to 5.5- 7.5  $\mu\text{m}$  at the widest part and again narrows gradually towards the tip

which is about 3  $\mu\text{m}$  wide, 3- 5 septa, presence of very small central stalk.

**Habitat:** Conidia in foam samples, Narmada River, 04 Aug. 2011.

**Leg.** D. K. P.

**Distribution in India:** Karnataka (Sridhar and Kaveriappa, Himalaya<sup>18-20</sup>).

**Remark:** The present fungus is occasional in occurrence. The measurements and descriptions of conidia are completely agreed with that of *Flabellospora crassa* Alasoadura<sup>21</sup>. Therefore, it is assigned to that species. It has been reported for the first time from Khandwa District of Madhya Pradesh.

*Flabellospora verticillata* Alasoadura

**Conidia:** multi-radiate, consisting of a main axis and 5 - 10 radiating arms. Main axis 14- 30 X 1.5- 2  $\mu\text{m}$ , 2- 5 septate, with terminal cell obclavate, each arm 8- 14 septate, 50- 90 X 4.5- 5  $\mu\text{m}$ .

**Habitat:** Conidia in foam samples, Narmada River, 04 Aug. 2011.

**Leg.** D. K. P.

**Distribution in India:** Maharashtra (Patil and Kapadnis, 1980) Western Ghats (Subramanian and Bhatt, 1981) Kerala (Sridhar and Kaveriappa, 1985), Karnataka (Sridhar and Kaveriappa, 1984, 1986, 1989; Ramesh and Vijaykumar 2000)<sup>22-28</sup>.

**Remark:** The present fungus is common in occurrence. The measurements and descriptions of conidia are completely agreed with that of *Flabellospora verticillata* Alasoadura<sup>29</sup>. Therefore, it is assigned to that species. It has been reported for the first time from Khandwa District of Madhya Pradesh.

*Helicomyces torquatus* Lane & Shearer

**Conidia:** hyaline, dry, solitary, attached eccentrically and seceding schizolytically, 52-130  $\mu\text{m}$ . in diameter. **Conidial filament:** 4.8 - 7.2  $\mu\text{m}$ . in diameter, multiseptate, coiled 1  $\frac{1}{2}$  - 3 times, the basal cell bearing a flattened attachment scar.

**Habitat:** Conidia in foam samples, Narmada River, 04 Aug. 2011.

**Leg.** D. K. P.

**Remark:** The measurements and descriptions of conidia are completely agreed with that of *Helicomyces torquatus* Lane & Shearer (1984)<sup>30</sup>. Therefore, it is assigned to that species. It has been reported for the first time from Khandwa District of Madhya Pradesh.

*Isthmotricladia gombakiensis* Nawawi Trans. Br. Mycol. Soc, 64: 243-246, 1975

**Conidia:** hyaline, main axis 20- 27 X 2- 3  $\mu\text{m}$ , 1-3 septate, mature conidia consisting of four to six arms, the arms are fusiform, 74- 102  $\mu\text{m}$  long, 4- 5.5  $\mu\text{m}$  wide, 9- 15 septate, tapering to 1- 1.5  $\mu\text{m}$  at the apex by very narrow isthmus, 2- 4.5  $\mu\text{m}$  long, 1- 1.5  $\mu\text{m}$  wide.

**Habitat:** Conidia in foam samples, Narmada River, 04 Aug. 2011.

**Leg.** D. K. P.

**Distribution in India:** Karnataka (Sridhar and Kaveriappa, 1984 ; Ramesh and Vijaykumar, 2000), Andhra Pradesh (Sarma and Manoharachary, 1989), Maharashtra (Borse and Patil, 2006)<sup>31-32</sup>.

**Remark:** The present fungus is frequent in occurrence (8.4%). The measurements and descriptions of conidia are completely agreed with that of *Isthmotricladia gombakiensis* Nawawi (1975)<sup>33</sup>. It has been reported for the first time from Khandwa District of Madhya Pradesh.

## Conclusion

Frequency occurrence of fungi found is not similar. *Flabellospora acuminata* and *Flabellospora verticillata* are common in occurrence, *Flabellospora crassa* and *Helicomyces torquatus* are occasional in occurrence, *Isthmotricladia gombakiensis* Nawawi is frequent in occurrence.



Figure-1

1. *Flabellospora acuminata* Descals & Webster, 2. *Flabellospora crassa* Alasoadura, 3. *Flabellospora verticillata* Alasoadura, 4. *Helicomyces torquatus* Lane & Shearer 5. *Isthmotricladia gombakiensis* Nawawi,

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