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Occurrence and distribution of aquatic hyphomycetes in Chhatarpur: *Flabellospora*

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Abstract

Three species of aquatic hyphomycetes belonging to the genus *Flabellospora* (*F. acuminata*, *F. crassa* and *F. verticillata*) collected from different submerged leaf litter and water foam accumulated in fast flowing fresh water bodies of Chhatarpur, (India) are described. The taxonomic description, occurrence and distribution in India of each recorded species along with a simplified key are also provided.

Keywords: freshwater fungi – water foam – submerged leaf litter – taxonomy

Introduction

In the present study three species of aquatic hyphomycetes belonging to the genus *Flabellospora* from Chhatarpur, India are described with their taxonomic details and distribution in India. *Flabellospora* genus first erected by Alasoadura (1968) from Nigeria based on the specimen colonized abundantly on decaying leaves of a dichotyledonous plant with type species *F. crassa*. The genus is characterized by having simple conidiophores but occasionally branched and septate. Conidia terminal, typically with more than 3 usually 4 divergent star like arms borne on a cellular central base or primordium, arms hyaline, smooth and septate.

Materials & Methods

For the present study, samples of dark decaying submerged plant material especially leaf litter and water foam accumulated at the barrier of fast flowing fresh water bodies were collected in sterile polythene bags and plastic vials from different fresh water bodies viz, Urmil river and Ken river of Chhatarpur (India) time to time. The collected leaf litter was washed thoroughly under running tap water for 4–5 hours to remove planktons, soil particles and other extraneous material. The leaf litter was then cut into small pieces (4–5 cm) and placed into pre sterilized Petri dishes containing 20 ml of sterile water for incubation at $15\pm 2^\circ\text{C}$. After 2–3 days the incubated leaves were periodically examined under the microscope to detect the conidia of aquatic hyphomycetes. The observations of morphological characters of conidia present were recorded and identification was made with the help of available literature.

The collected water foam samples were fixed in 5% FAA on the spot to avoid conidial germination and examined directly under the microscope by placing drop by drop on a glass slide. Semi-permanent slides of these conidial fungi have been deposited in the Department of Botany, Career College Bhopal.

Results

A number of conidia were found growing on submerged leaf litter and foam collected from water bodies of Chhatarpur, India. Some of the conidia were typically phialidic and tetra-radiate which were identified as the species of *Flabellospora*. Altogether three species of *Flabellospora* (*F. acuminata*, *F. crassa* and *F. verticillata*) have been recorded. It is interesting to note that Chhatarpur, India represent nearly 70% of the world known species of *Flabellospora*. Detailed taxonomic description and distribution in India of each recorded species along with a simplified key is provided.

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Genus *Flabellospora* Alasoadura

Nova Hedwigia, 15: 415-18 (1968)

Key to species

1. Conidia with four to five arms
- *F. crassa* Alasoadura
2. Conidia with eight arms
- *F. octacladia* Saikia and Sarbhoy
3. Conidia with seven arms
- *F. verticillata* Alasoadura
4. Conidia with four to seven arms
- *F. acuminata* Descals and Webster
5. Conidia with nine to twenty arms, 90-140 µm long and 10-18 septate
- *F. multiradiata* Nawawi
6. Conidia apical with five to seven arms, septate, synchronous, one arm apical and rest of the arms radiating antrosely straight or slightly curved
- *F. amphibian* Descals Comb. Nov.

a) *Flabellospora acuminata* Descals and Webster

Trans. Br. Mycol. Soc., 78: 405-437 (1982)

Conidia apical with four to eight arms, 5-7- septate, synchronous, 41-95 x 6-14 µm, one arm apical and rest of the arms radiating, slightly retrorsely straight. Conidia collected in foam samples from Urmil river during October, 2016.

Distribution in India

Pawara (2007) and Patil *et al.*, (2012) ^[3] reported it from Maharashtra.

b) *Flabellospora crassa* Alasoadura

Nova Hedwigia, 15: 415-18 (1968)

Conidia hyaline with 4-5 arms, 40-60 µm long, 3.5-4.5 µm wide at the attachment, diameter increase to 4.5-6.0 µm at the broadest part, gradually tapering upto 2.5 µm at the apex. Conidia collected on submerged decaying leave of *Mangifera indica* L. from Urmil river during October, 2016.

Distribution in India

Patil and Kapadnis (1980) ^[4], Pawara (2007) and Jadhav *et al.*, (2011) ^[1] and Patil *et al.*, (2012) ^[3] reported it from Maharashtra. Pande (1997) ^[2] also reported it from Jabalpur.

c) *Flabellospora verticillata* Alasoadura

Nova Hedwigia, 15: 419-21 (1968)

Conidia multi-radiated, consisting of a main axis and 5 - 7 radiating arms. Each arm, 60- 85 µm long and 4.5- 5 µm wide and 5-7 septate. Conidia collected in foam samples from Ken river during October, 2009 and from Urmil river during September, 2016.

Distribution in India

Patil and Kapadnis (1980) ^[4], Pawara (2007) and Jadhav *et al.*, (2011) ^[1] reported it from Maharashtra. Other reports include Sridhar and Kaveriappa, (1985) ^[8] from Kerala; Sridhar and Kaveriappa (1984, 1986, 1989) ^[6, 7, 6], Ramesh and Vijaykumar (2000) ^[5] and Suresha *et al.*, (2013) ^[10] from Karnataka, Pande (1997) ^[2] from Jabalpur.

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Conflict of Interest

Authors would hereby like to declare that there is no conflict of interests that could possibly arise.

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