ALTERNARIA AND SAPROLEGNIA: FIRSTLY REPORTED FROM LOTIC WATER BODIES OF PACHMARHI BIOSPHERE RESERVE (M.P. INDIA).

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ABSTRACT
A total of 8 species of fungi were identified among them four species of Saprolegnia viz. S. bhargavii, S. ferax, S. glomerata & S. irregularis belonging to order Saprolegniales, family Saprolegniaceae and four species of Curvularia viz. C. borreriae, C. lunata, C. robusta, C. verruculosa belonging to the order Moniliales, family Pleosporaceae were isolated during the investigation period (2014-2015) from the water bodies of Pachmarhi district Hoshangabad (M.P.) India.

KEYWORDS: New record, Pachmarhi, Lotic water, Aquatic fungi, Taxonomy.

INTRODUCTION
Pachmarhi is a hill station in Madhya Pradesh state of central India, situated at a height of 1100 m in a valley of the Satpura Range in district Hoshangabad. It was established by the Indian government and EPCO as a biosphere on March 3rd, 1999. It is located at latitude 22° 11’ to 22° 50’N and longitude 77° 47’ to 78° 52’E.

The fungi include nucleated spore and bearing achlorophyllous organism that generally reproduce asexually, sexually and whose filamentous branched somatic structures are typically surrounded by cell walls containing cellulose or chitin or both. Fungi are plant like organisms that lack chlorophyll. Present study deals with the 4 species of Saprolegnia viz. S. bhargavii, S. ferax, S. irregularis & S. glomerata belonging to order Saprolegniales, family Saprolegniaceae and 4 species of Curvularia viz. C. borreriae, C. lunata, C. robusta and C.
verruculosa belonging to the order Moniliales, family Pleosporaceae which were isolated during the investigation period (2014-2015) from the water bodies of Pachmarhi district Hoshangabad (M.P.) and they were identified on the basis of their life cycles using various taxonomic keys and other relevant literature.

MATERIALS AND METHODS

- **COLLECTION**
  Water samples including scum, foam, decaying leaves etc were collected monthly in the open bottles or plastic canes.

- **ISOLATION**
  Various baiting materials previously sterilized by autoclaving are added in the petridishes, are incubated. A pinch of antibiotic is added to petridishes, to prevent from bacterial contamination. After 3 to 4 days, bait infected with the desired fungi are observed under the compound microscope.

- **IDENTIFICATION**

- **PRESERVATION**
  Preservation of fungal culture was done in the 1:1:1 ratio of formalin, alcohol, acetic acid.

RESULTS AND DISCUSSION

1. *Saprolegnia bhargavii* Khulbe and Verma (Fig.1)
  Mycelium branched, 17.18-25µm in diameter at the base; zoosporangia long, filiform, 156-593.75µm long, and 18.75-31.25µm in diameter, internal proliferation absent; gemmae abundant, 50-62.5µm in diameter, sometimes in chain, oogonia many, mainly lateral, 50-68.75µm in diameter, wall smooth and pitted; antheridia monoclinous and diclinous, oospores centric, 2-5 per oogonium, 20.31-26.56µm in diameter.
2. *Saprolegnia ferax* (Gruith) Thuret (Fig. 2)
Hyphae stout, branched, 15.62-75µm thick, zoosporangium abundant, cylindrical or filamentous, 125-475µm long by 23.4-53.12µm in diameter, encysted zoospores 9.37-12.5µm in diameter, gemmae few, spherical, pyriform, cylindrical, irregular, oogonia abundant, spherical or cylindrical, 40.62-78.12µm in diameter, oogonial wall smooth with many conspicuous pits, antheridia present on few oogonia only, diclinous, oospores spherical, centric, 3-21 in number, 10.93-25µm in diameter.

3. *Saprolegnia glomerata* (Tiesenhousen) Lund (Fig. 3).
Hyphae stout, branched, 15.62-25 µm thick, zoosporangia abundant, 340.62-515.62µm long and 46.87-67.18µm in diameter, zoospores discharge saprolegnoid, gemmae few clavate, rod shaped, oogonia many, spherical, pyriform, 46.87-59.37µm in diameter, oogonial wall smooth with conspicuous pitts, oogonial stalks longer than the diameter of the oogonium, straight, androgynous antheridia on all oogonia, oospores spherical, centric 3-6 in number, 12.5-25µm in diameter.

4. *Saprolegnia irregularis* Johnson and Seymour (Fig. 4)
Colony compact, dense, hyphae slender, branched, gemmae abundant, irregular in shape and size, sparingly branched, terminal, intercalary, germinating to form hyphae or converting into oogonia; sporangia rarely present, 303.12-406.25 × 31.25-45.31µm, renewed by internal proliferation, encysted spores 9.37-12.5µm, oogonia abundant, variable in shape and size, 109.37-278.12µm long, 62.5-125µm in diameter, antheridia not seen; oospores many, 15-50, 12.5-23.43µm in diameter, centric.

5. *Curvularia boreriae* (Viegas) M. B. Ellis 1966 (Fig. 5)
Conidia usually symmetrical. 20- 32µm long and 8-15µm wide.

6. *Curvularia lunata* var. aeria (Fig. 6)
Conidia elliptic. Curved, 2–3 septa. 18-32µm long, 8- 16µm thick.

7. *Curvularia robusta* Kilpatrick & Luttrell (Fig. 7)
Conidia not uncinate. over 45µm long and over 20 µm thick.

8. *Curvularia verruculosa* Tandon & Bilgrami ex M.B. Ellis. (Fig. 8)
Conidia 25 – 32µm long and 12 – 14µm wide.
CONCLUSION

Very little work is being done on Taxonomy of aquatic fungi particularly in India therefore the authors tried to explore some aquatic fungi from the Pachmarhi Biosphere Madhya Pradesh first time and reported total 8 species of fungi belonging to the *Alternaria* and *Saprolegnia*. The maximum occurrence among these fungi were of *Curvularia robusta* and *Saprolegnia bhargavii* both of which were found 10 times and the lowest occurrence was of *Curvularia verruculosa* which was found only four times during the investigation period. From this study we are concluding that there are large numbers of fungi which are yet to be explored from many places particularly in India.

REFERENCES


