Diversity of Dematiaceous Freshwater Hyphomycetes from Dang Forest of Gujrat, India

Abstract:

Hyphomycetes paly significant role in freshwater ecosystem. Dang is a district in the southeastern part of the state of Gujarat in western India.Dang has an area of 1,764 km². Present paper deals with 6 species of submerged freshwater hyphomycetes belonging to 5 genera viz.*Aquapteridosporabambusinum* Bao, *Dictyosporella aquatica* Abdel Aziz, *Pseudoberkleasmiumchiangmaiense* Lu and Hyde, *Sporidesmiumnujiangense* Bao, Su, Hyde and Luo, *Vamsapriya aquatica* Bao, Su, Hyde and Luo and *Vamsapriya indica* Gawas and Bhat. The survey was conducted in winter season of 2019.

Keywords: Dematiaceous hyphomycetes, *Vamsapriya*, Dang-forest

Introduction:

The submerged aquatic hyphomycetes first addressed by Ingold (1975), represent a heterogenous assemblage of fungi growing on submerged decaying plant materials. Most of the species are found on wood litter blocked in fast-flowing streams or babbling brooks. These lignicolous, or to a lesser extent foliicolous, Hyphomycetes are nearly all dematiaceous and produced relatively thick-walled conidiophores and/or conidia. The conidiophores are distinctly macronematous, frequently in the form of long stipes; however, they may be solitary or synnematous. The conidiogenous loci may be denticulate, cicatrized, tretic or phialidic. Although some species may sporulate under submerged conditions, a vast number sporulate when the substrate are no longer under water. Incubation of such woody substrates in moist chambers yields a great number of different species. The conidia are capable of air dispersal or dispersed by some other mechanisms (Goh and Hyde, 1996).

Materials and Methods:

Samples of submerged woods were collected from Pampa Sarovar, Shabari Dham of Dangforest, kept in polythene bags and brought in laboratory. Those were examined under microscope to find out fungal fruiting structures. The fungal structures were mounted in lactophenol and stained with cotton blue and cover glass was sealed with D. P. X. The fungi

were identified with the help of Bao et al (2021), Dong et al (2021). Indian distribution was confirmed with Kamat et al (1971), Bhide et al. (1987), Mahabale (1987), Bilgrami et al (1979, 1981, 1991), Sarbhoy et al (1975, 1986, 1996), Jamaludden et al. (2004), Pande Alka (2009), Borse et al. (2016,2017) and other relevant literature.

Taxonomic Account:

Aquapteridosporabambusinum Bao

Fungal Diversity (2019)

Saprobic, mycelium partly immersed, partly superficial, conidiophores superficial having 125-215 µm, macronematous, mononematous, erect, subcylindrical, septate, unbranched, dark brown to black, thin walled, smooth, conidia 19-27 x 5-7 µm, solitary dry, thin walled smooth fusiform, slightly tapering towards the ape, 3 septate, slightly constricted at the septa, cells unequally coloured.

Habitat: Shabari Dham

Dictyosporella aquatica Abdel Aziz

Fungal Diversity (2015)

Saprobic on submerged wood, mycelium superficial, immersed, conidia 12-22 µm in diameter, helicoid when young, globose to subglobose

Habitat: Pampa Sarovar

Pseudoberkleasmiumchiangmaiense Lu and Hyde

Fungal Diversity (2019)

Saprobic on submerged wood, mycelium immersed, hyaline to pale brown, conidiophores mononematous, micronematous, conidia 17-30 x 19-35 µm, solitary, acrogenous, muriform, obovoid to ellipsoidal, dark brown to black, basal cell hyaline.

Habitat: Shabari Dham

Sporidesmiumnujiangense Bao, Su, Hyde and Luo

Journal of Fungi (2019)

Saprobic on submerged wood, partly immersed, septate, smooth and branched, hyaline to pale brown, conidiophores 30-50 x 4-5 µm, mononematous, macronematous, erect, conidia 54-69 x 10-12 µm, acrogenous, solitary dry, obclavate tapering to the apex brown to greyish brown, slightly curved 10-14 septate.

Habitat: Pampa Sarovar

Vamsapriya aquatica Bao, Su, Hyde and Luo

Journal of Fungi (2019)

Saprobic on submerged wood, mycelium immersed, conidiophores 450-900 µm long, 95-170 µm wide, macronematous, synnematous, branched septate, brown to dark brown, conidiogenous cells 4.5 -6.5 x 1.5-2.5 µm, conidia16-33 x 5-6 µm catenate, pale brown to dark brown, minutely verrucose, cylindrical to obclavate, rounded at the apex, straight or slightly curved, 2-4 septate, constricted at the septa.

Vamsapriya indica Gawas and Bhat

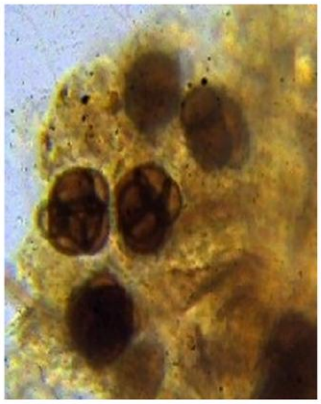
Mycotaxon (2005)

Mycelium immersed, conidiophores macronematous, synnematous, dark brown, conidia dry catenate, acrogenous, brown, smooth, simple, cylindrical, vermiform, 2-12 septate, constricted at the septa, 10-80 x 4-6 µm, developing in acropetal chains, terminal conidia rounded at the apex, slightly truncate at the base, other conidia truncate at both ends.

Habitat: Pampa Sarovar

Results:

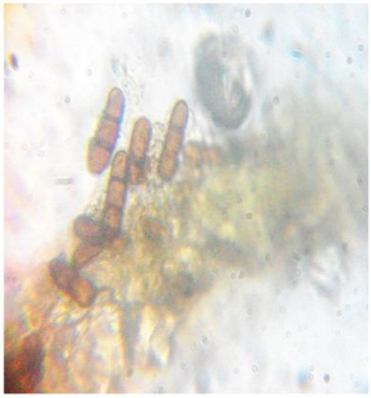
Aquapteridospora bambusinum Bao



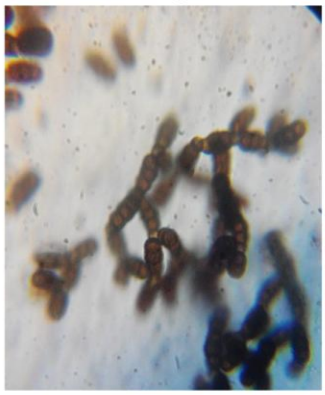
Dictyosporella aquatica Abdel Aziz

Pseudesmium chiangmaiense Lu and Hyde

Sporidesmium nujiangense Bao, Su, Hyde and Luo



Vamsapriya aquatica Bao, Su, Hyde



Vamsapriya indica Gawas and Bhat

Fig 1. Microphotographs of different species

Conclusions:

All the six species are being reported for the first time from the Dang forest. While the *Aquapteridosporabambusinum* Bao, *Dictyosporella aquatica* Abdel Aziz, *Pseudesmiumchiangmaiense* Lu and Hyde, *Sporidesmiumnujiangense* Bao, Su, Hyde and Luo, *Vamsapriya aquatica* Bao, Su, Hyde are being reported for the first time from India. Occurrence of these fungi was rare, found in winter season.

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