



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

S. Y. Patil <sup>a\*</sup> and C. M. Pawara <sup>b</sup>

<sup>a</sup> P. G. Department of Botany, S. S. V. P. S. L. K. Dr. P. R. Ghogrey Science College, Dhule- 424005, Maharashtra, India.

<sup>b</sup> S. P. D. M. College, Shirpur, District Dhule, Maharashtra, India.

## Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

## Article Information

DOI: 10.9734/AJOB/2024/v20i6411

## Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/116311>

Original Research Article

Received: 27/02/2024

Accepted: 02/05/2024

Published: 07/05/2024

## ABSTRACT

Hyphomycetes play significant role in freshwater ecosystem. Dang district is located in the south eastern part Gujarat state of western India. Dang has an area of 1,764 km<sup>2</sup>. Present paper deals with 6 species of submerged freshwater hyphomycetes belonging to 5 genera viz. *Aquapteridospora bambusinum* Bao, *Dictyosporella aquatica* Abdel Aziz, *Pseudoberkleasium changmaiense* Lu and Hyde, *Sporidesmium nujiangense* 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.

\*Corresponding author: E-mail: sambhajip@rediffmail.com;

## 1. INTRODUCTION

The submerged aquatic hyphomycetes firstly reported by Ingold [1], represent “a heterogenous assemblage of fungi growing on submerged decaying plant materials. Generally majority of the species are found on decaying wood in fast-flowing streams or babbling brooks”. “These lignin degradable, or less to extent foliicolous, Hyphomycetes are nearly all dematiaceous (coloured) and produced thick-walled conidiophores and conidia. The conidiophores are distinctly macronematous, frequently with long stipes; however, they may be solitary or synnematous. The conidiogenous structure may be denticulate, cicatrized, tretic or phialidic. Although many species may sporulate under submerged conditions, a vast number sporulate when the substrate are open to air. The conidia are capable of air dispersal or dispersed by some other mechanisms” (Goh and Hyde, 1996).

## 2. MATERIALS AND METHODS

Submerged wood samples were gathered from Pampa Sarovar in Shabari Dham of Dang Forest, sealed in plastic bags, and transported to a lab. These were investigated under a microscope to determine the fruiting structures of fungi. “The fungal structures were mounted in lactophenol and stained with cotton blue and cover glass was sealed with D. P. X”. [17] The fungi were identified with the help of Bao et al. [2], Dong et al. [3]. Indian distribution was confirmed with Kamat et al. (1971), Bhide et al. [4], Mahabale [5], Bilgrami et al. [6,7,8], Sarbhoy et al. [9,10,11], Jamaludden et al. [12], Pande Alka [13], Borse et al. [14] and other relevant literature.

## 3. RESULTS AND DISCUSSION

### 3.1 Taxonomic Account

*Aquapteridospora bambusinum* Bao

Fungal Diversity (2019)

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

Habitat: Shabari Dham

*Dictyospora aquatica* Abdel Aziz

Fungal Diversity (2015)

Saprobic on submerged wood, mycelium superficial, immersed, conidia 12-22  $\mu\text{m}$  in diameter, helicoid when young, globose to subglobose

Habitat: Pampa Sarovar

*Pseudoberkleasium chiangmaiense* Lu and Hyde [15]

Fungal Diversity (2019)

Saprobic on submerged wood, mycelium immersed, hyaline to pale brown, conidiophores mononematous, micronematous, conidia 17-30 x 19-35  $\mu\text{m}$ , solitary, acrogenous, muriform, obovoid to ellipsoidal, dark brown to black, basal cell hyaline.

Habitat: Shabari Dham

*Sporidesmium nujiangense* Bao, Su, Hyde and Luo

Journal of Fungi (2019)

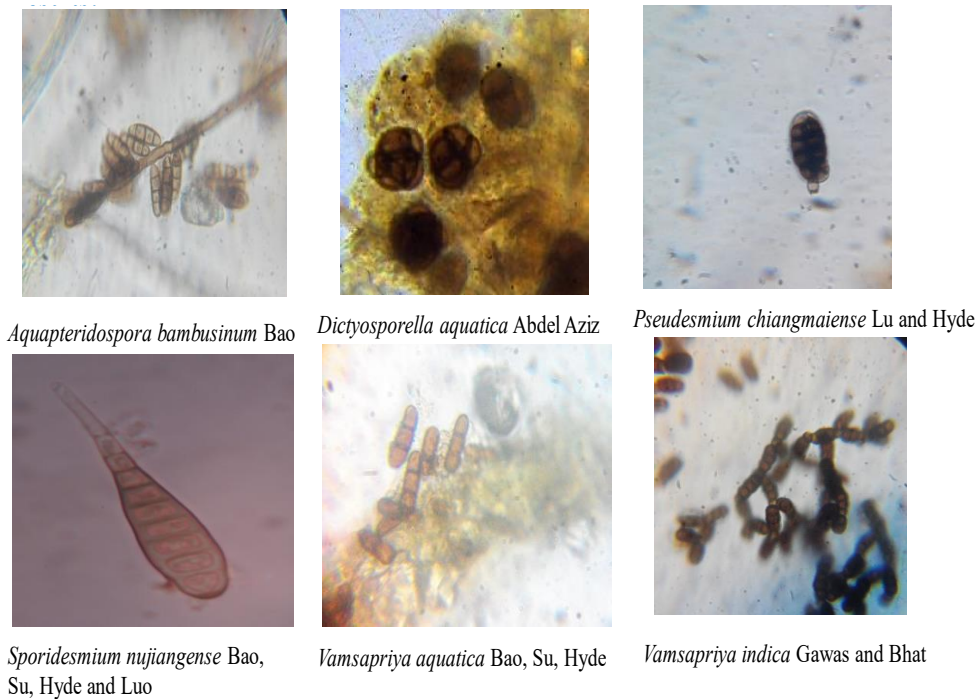
Saprobic on submerged wood, partly immersed, septate, smooth and branched, hyaline to pale brown, conidiophores 30-50 x 4-5  $\mu\text{m}$ , mononematous, macronematous, erect, conidia 54-69 x 10-12  $\mu\text{m}$ , acrogenous, solitary dry, obclavate tapering to the apex brown to greyish brown, slightly 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  $\mu\text{m}$  long, 95-170  $\mu\text{m}$  wide, macronematous, synnematous, branched septate, brown to dark brown, conidiogenous cells 4.5 -6.5 x 1.5-2.5  $\mu\text{m}$ , conidia 16-33 x 5-6  $\mu\text{m}$  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.



**Fig. 1. Microphotographs of different species**

*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 [16,17].

Habitat: Pampa Sarovar

#### 4. CONCLUSIONS

All the six species are being reported for the first time from the Dang forest. While the *Aquapteridospora bambusinum* Bao, *Dictyosporella aquatica* Abdel Aziz, *Pseudesmium chiangmaiense* Lu and Hyde, *Sporidesmium nujiangense* 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.

#### ACKNOWLEDGEMENTS

Author thankful to Head, P. G. Department of Botany, Principal and Management of S. S. V. P.

Sanstha's L. K. Dr. P. R. Ghogrey Science College, Dhule.

#### COMPETING INTERESTS

Authors have declared that no competing interests exist.

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