

CHECKLIST OF FRESHWATER ASCOMYCETES AND BASIDIOMYCETES FROM MAHARASHTRA (INDIA)

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ABSTRACT

The present paper deals with distribution and substratum range of 32 species of freshwater Ascomycetes and Basidiomycetes fungi (26 Ascomycetes and 6 Basidiomycetes) reported so far from freshwater habitats of Maharashtra (India). They were found as saprophytes on woody debris and leaf litter submerged in freshwater environment. A checklist of freshwater Ascomycetes and Basidiomycetes fungi recorded from Maharashtra is compiled on the basis of present studies in Maharashtra and previous published literature. The most frequently collected species of the genera are *Aniptodera*, *Annulatascus*, *Savoryella*, and *Zopfiella*. The checklist includes detail of the substrata on which they encountered. This data will be useful in the compilation of freshwater fungal biodiversity of India.

KEYWORDS: *Aniptodera*, *Annulatascus*, *Savoryella*, and *Zopfiella*.

MATERIALS AND METHODS

Samples of submerged woody debris was collected from various streams, rivers and lakes and placed in polythene bags. Samples were transported to the laboratory. Samples contaminated by sediments or fouling organisms were washed with tap water. Samples were observed for sporulating structures (Ascomata). After initial observations, samples were placed in plastic boxes and after two weeks examined for the presence of fungal fruiting bodies. Then samples were incubated in sterile plastic boxes containing layer of sterile sand moistened with sterile freshwater. All samples were examined periodically and remoistened when necessary. Semi permanent slides of fungi isolated were made for further observations.

REMARKS

As aquatic habitats are increasingly altered and degraded, it is imperative that the freshwater fungal species of the remaining high quality aquatic habitats be characterized and isolated. Such baseline information is essential to understand the role of fungi in aquatic habitats and how fungi could be used in the remediation of damaged aquatic habitats. It is clear that those additional collections from worldwide, especially in tropical areas and along altitudinal gradients, are needed to fully characterize the biodiversity, geographical




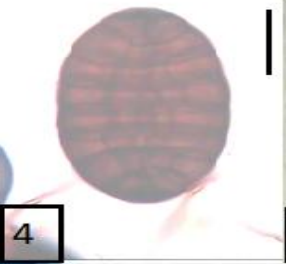

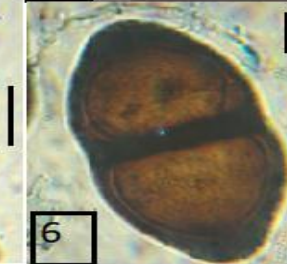





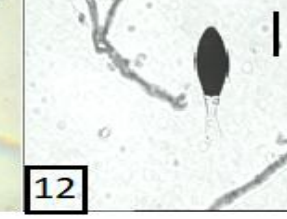
distribution pattern, systematics and evolution of freshwater Ascomycetes and Basidiomycetes. Borse et al. (1917) listed 69 freshwater ascomycetous species from India. The list indicates that the freshwater ascomycetes are a miscellaneous group with representatives from most fungal groups from freshwater habitats. Many genera are represented by only one species, while others have multiple species in freshwater. The most specious genus is *Saoryella* with six species. Various substrates have been searched for ascomycetes in freshwater habitat. They were most abundant on woody substrata compared to herbaceous substrata. Borse et al. (2015a) reviewed freshwater Basidiomycetes of India. In summary, we hope that the information presented herein will prompt future studies to document Freshwater Ascomycetes and Basidiomycetes of India.

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Table 1: Checklist of Freshwater Ascomycetes and Basidiomycetes fungi of Maharashtra.

Sr No	Name of the fungus	Substrate	Reference
	Ascomycetes		
1	<i>Aniptodera chesapeakensis</i> Shearer & M.A. Miller	submerged wood	Patil and Borse, 2012a
2	<i>Aniptodera inflatiascigera</i> K.M. Tsui, K.D. Hyde & Hodgkiss	submerged wood	Borse and Patil, 2015a
3	<i>Aniptodera lignatilis</i> K.D. Hyde	submerged wood	Patil and Borse, 2012a
4	<i>Annulatascus hongkongensis</i> W.H. Ho, Ranghoo, K.D. Hyde & Hodgkiss,	submerged wood	Borse et al, 2014a
5	<i>Annulatascus palmietensis</i> Goh, K.D. Hyde & Steinke	submerged wood	Borse et al, 2014a
6	<i>Ascocaulus heterogattulata</i> (S.W. Wong, K.D. Hyde & E.B.G. Jones) J. Campb., J.L. Anderson & Shearer	submerged wood	Borse and Patil, 2015a
7	<i>Ascohyalinospora aquaticum</i> B.D Borse, S.Y. Patil & N.S. Pawar	submerged wood	Borse et al, 2019
8	<i>Ascomurispora limnetica</i> N.S. Pawar, S.Y. Patil & B.D. Borse	submerged wood	Pawar et al, 2019
9	<i>Caryospora putaminum</i> (Schwein) De Not.,	endocarp of <i>Cocus nucifera</i> L., submerged wood	Zate, 1979
10	<i>Cercophora limneticum</i>	submerged wood	Borse K N et al, 2019a
11	<i>Mycosphaerella limnetica</i>	submerged wood	Borse K N et al, 2019b
12	<i>Natantispora retorquens</i> (Shearer & J.L. Crane) J. Campb., J.L. Anderson & Shearer	submerged wood	Patil and Borse, 2012b
13	<i>Neelakesa lignicola</i> Udaiyan & V.S. Hosag.	submerged wood	Borse et al, 2015b
14	<i>Neomassariosphaeria typhicola</i> (P. Karst.) Yin, Zhang, F. Fourn. & K.D. Hyde	submerged parts of <i>Typha</i> sp	Borse and Patil, 2015a
15	<i>Panorbis viscosus</i> (I. Schmidt) J. Campb., J.L. Anderson & Shearer	submerged wood	Patil and Borse, 2012b
16	<i>Paoayensis aquatica</i> B.D. Borse & N.S. Pawar	submerged wood	Borse and Pawar, 2019
17	<i>Phaeosphaeria typharum</i> (Desm.) L. Holm	On dead parts of <i>Typha</i> sp.	Borse et al, 2015
18	<i>Savoryella aquatica</i> K.D. Hyde	submerged wood	Borse and Pawara, 2007
19	<i>Savoryella fusiformis</i> W.H. Ho, K.D. Hyde & Hodgkiss	submerged wood	Patil and Borse, 2011
20	<i>Savoryella grandispora</i> K.D. Hyde	submerged wood	Patil and Borse, 2011
21	<i>Savoryella lignicola</i> E.B.G. Jones & R.A. Eaton	submerged wood	Borse and Pawara, 2007
22	<i>Savoryella limnetica</i> H.S. Chang & S.Y. Hsieh	submerged wood	Patil and Borse, 2011
23	<i>Savoryella verrucosa</i> Minoura & T. Muroi	submerged wood	Borse and Patil, 2015a
24	<i>Zopfiella karachiensis</i> (S.L. Ahmed & Asad) Guarro	submerged wood	Borse and Patil, 2015a
25	<i>Zopfiella latipes</i> (N. Lundq.) Malloch & Cain	submerged wood	Patil, 2012
26	<i>Zopfiella submersa</i> Guarro, Al-Saadoon, Gene & Abdullah	submerged wood	Patil, 2012
	Basidiomycetes		
28	<i>Dendrosporomyces prolifer</i> Nawawi et al.	Conidia in foam samples	Patil et al., 2011.
29	<i>Doassansioopsis nymphaeae</i> (Syd. & P. Syd.) Thirum.	On leaves of <i>Nymphaea. nouchali</i>	Sydow & P. Sydow, 1912
30	<i>Ingoldiella hamata</i> D.E. Shaw	On leaves	Patil, 1998b
31	<i>Jaculispora submersa</i> H.J. Huds. & Ingold	Conidia in foam samples	Borse and Patil, 2015b
32	<i>Mrakiella aquatica</i> (E.B.G. Jones & Sloof) Margesin & Fell	in foam (as <i>Vanrija aquatic</i>)	Borse and Patil, 2015b
33	<i>Rhampospora nymphaeae</i> D.D. Cunn.	On leaves of <i>Nymphaea. ouchali</i>	Gandhe, 2011

Ascomycetes Photo Plate-I			Illustrations
			1. <i>Aniptodera inflascigera</i> 2. <i>Annulatascus palmetensis</i> 3. <i>Ascohyalinospora aquaticum</i>
			4. <i>Ascomurispora limnetica</i> 5. <i>Cercophora limneticum</i> 6. <i>Caryospora putaminum</i>
			7. <i>Mycosphaerella Limnetica</i> 8. <i>Natantisporea retorquens</i> 9. <i>Neomassariosphaeria typhicola</i>
			10. <i>Paoayensis aquatica</i> 11. <i>Savoryella verrucosa</i> 12. <i>Zopfiella submersa</i>

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