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Prevalence of Aquatic Fungi in Various Aquatic and Terrestrial Habitats of Bareilly

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ABSTRACT

Aquatic fungi are usually found in water bodies and colonize diversified substrates. Around 1600 such fungi are reported from different parts of the world. These fungi are predominant and prevalent in ponds, lakes, bogs, rivers, and marginal and strictly terrestrial habitats. The present study was undertaken to find out the prevalence of aquatic fungi in various aquatic and strictly terrestrial habitats of Bareilly. A total of 15 species belonging to 8 genera of phycomycetes were recorded from different soil samples.

Keywords : Aquatic Fungi, Semi-Aquatic, Terrestrial Habitats.

I. INTRODUCTION

Aquatic fungi are usually found in water bodies and colonize diversified substrates. Around 1600 such fungi are reported from different parts of the world. Watermolds have water as the medium of life and are adapted to this environment. These fungi are predominant and prevalent in ponds, lakes bogs, rivers, streams, and marshes and marginal and strictly terrestrial habitats. The majority of these fungi live as saprobes while a few are parasites on fish, fish eggs, protozoa, fungi, algae, plants, and others.

MATERIALS AND METHODS

Soil samples from cultivated and uncultivated fields, gardens, orchards, forests, and the banks of ponds, canals, and rivers were collected between October to March. A total of 80 soil samples (10 samples from each site) were collected for the present study. Samples were brought to the laboratory and equal amounts of soil from each sample were mixed in sterilized distilled water separately. Samples were then baited with boiled hemp seed halves, snake skin, flies, nails, and grass blades for the isolation of fungal forms. Regular observations were made and colonized baits were transferred in Petri dishes containing sterilized distilled water. Isolates were identified with the help of relevant literature and a checklist along with the total number of occurrences in each sample was prepared.

RESULTS AND DISCUSSION

The results are presented in Table 1. A total of 15 species belonging to 8 genera of lower phycomycetes were recorded from a total of 80 soil samples. These were Rozella allomycis Foust, Allomyces arbuscula Butler, Achlya diffusa Harvey, Achlya prolifera Nees, A. klebsiana Pieter. Aphanomyces levis De Bary, Dictyuchus

monosporus Leitgeb, Saprolegnia subterranea Seymour, Olpidiopsis saprolegniae Var. levis Coker, Pythium afertile, P. debaryanum Heese, P. moospermum Pringsheim, P. spinosum Sawada, P. ultimum Trow and P. echinulatum Mathews.

Table : 1. Showing the distribution of aquatic fungi in various types of soil

Sl.	Name of Species	Cultivated Soil	Uncultivated Soil	Garden Soil	Orchard Soil	Forest Soil	Pond bank Soil	Canal bank Soil	River bank Soil	Total samples
	Chytridiales									
1.	*Rozella allomycis*	-	-	-	1	-	-	-	-	1
	Blastocladiales									
2.	*Allonyces arbuscula*	-	1	-	2	-	-	-	-	3
	Saprolegniales									
3.	*Achlya diffusa*	-	-	-	-	2	4	2	-	8
4.	*Achlya prolifera*	1	-	-	-	-	3	-	-	4
5.	*Achlya klebsiana*	-	-	-	-	-	-	-	1	1
6.	*Aphanomyces levis*	4	2	1	-	2	6	2	4	21
7.	*Dictyuchus monosporus*	1	-	-	-	1	2	-	1	5
8.	*Saprolegnia subterranea*	-	-	-	-	-	2	-	-	2
	Legenidiales									
9.	*Olpidiopsis saprolegniae Var. levis*	-	-	-	-	-	1	-	-	1
10.	*Pythium afertile*	5	4	3	5	3	5	4	3	32
11.	*Pythum debaryanum*	3	4	3	1	2	2	-	1	16
12.	*Pythium monospermum*	8	-	3	4	3	-	2	1	21
13.	*Pythium spinosum*	1	-	-	-	1	-	-	-	2
14.	*Pythitam ultimum*	-	1	-	-	-	-	-	-	1
15.	*Pythium ultimum*	-	-	-	-	1	-	-	-	1
	Total no. of Species	**7**	**5**	**4**	**5**	**8**	**8**	**4**	**6**	**-**

Qualitatively Pythium represented by six species was the most dominant genus followed by Achlya which was represented by three species. Pythium afertile isolated from 32 soil samples was the most dominant and constant species followed by the Pythium monospermum which was present in 21 soil samples. Aphanomyces levis. Pythium debaryanum and Pythium monospermum present in more than 6 types of soil were regarded as frequent species, while Achlya diffusa, Dictyuchus monosporus present in 3 to 4 types of soils were treated as moderately occurring species. Rozella allomycis, Allomyces arbuscula, Achlya prolifera, A. klebsiana, Saprolegnia subterranea, Olpidiopsis saprolegniae, Pythium spinosum, P. ultimum, and P. echinulatum being present in 1 to 2 types of soil have been considered as rare species.

1. Constant species- Pythium afertile.
2. Frequent species- Aphanomyces levis, Pythium debaryanum, and P. monospermum.

3. Moderate species- Achlya diffusa, and Dictyuchus monosporus.
4. Rare species- Rozella allomycis, Allomyces arbuscula, Achlya prolifera, A. klebsiana, Saprolegina subterranea, Olpidiopsis saprolegniae, Pythium spinosum, P. ultimum, and P. echinulatum.

The study also revealed that the species viz., Rozella allomycis, Allomyces arbuscula, Pythium spinosum, P. ultimum, and P. echinulatum were present only in terrestrial samples, whereas the species like Achlya kelbsiana, Saprolegnia subterranea, and Olpidiopsis saprolegniae were present only in semi-aquatic habitats. The remaining species recorded from both terrestrial and semi-aquatic habitats can be regarded as amphibious species.

The present studies follow the findings of Sridhar and Kaverippa (1982), and Khulbe and Sati (1983), Ramarao & Manoharachary (1990), Khulbe (1991), Manoharachary and Kunwar (2001), who also reported most of the aquatic fungi, isolated in the present work, from various semi-aquatic and terrestrial habitats. But the constancy of Pythium afertile, high frequency of Aphanomyces levis, Pythium debaryanum. P. monospermum and the presence of three species of Achlya, a typical watermold in various soils is a new finding from this region. Also, the presence of two mycoparasites viz. Rozella allomycis and Olpidiopsis saprolegnaiae in various soils are also rare findings.

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