



DIVERSITY AND OCCURRENCE OF ZOOSPORIC FUNGI IN YASHWANT SAGAR DAM, INDORE, (M.P.), INDIA

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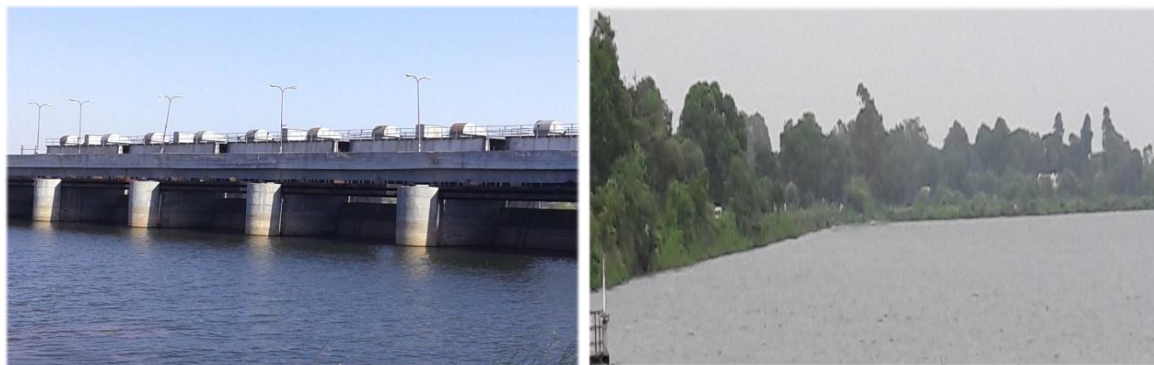
ABSTRACT

The present study was carried out at Yashwant Sagar Dam of Indore between 2014 to 2016. This dam fulfilling the water requirement of the population of the city. During the period of study total of 96 water samples were collected and analyzed by baiting technique for aquatic fungi and 626 CFU observed total of eight different genera consisting of 15 species were recorded for the first time from this dam. The maximum diversity of these fungi were recorded during winter followed by rainy and least in summer.

KEYWORDS: Zoosporic flora, Yashwant Sagar Dam Indore.

INTRODUCTION

The Yashwant Sagar Dam is situated on the Gambhir River, 21 km away from the city, made in 1939 by the former ruler of Indore, Yashwant Rao Holkar. It has water holding capacity 15.9 million^[3], spreading over an area of 2,650 hectares meant the supply water to Indore. Aquatic mycoflora include all the fungi that live entirely in water bodies, have a transient stage on water and the fungi that disperse their spores using water.^[10] Zoosporic fungi survive in extreme conditions of water like high and low temperature, different pH, DO level and play an important ecological role as decomposer of plant litter.^[2,8] Study on zoosporic fungi have been done by researchers.^[3,4,5,11,12] Consequently investigation was conducted and diversity of zoosporic fungi of Yashwant Sagar Dam, recorded maidenly.



Yashwant Sagar Dam Indore, M.P.

MATERIAL AND METHODS

Two hundred ml water sample from the each site of above dam were collected from March 2014 to February 2016 and analyzed in the laboratory for fungal diversity by baiting technique. The Hemp seeds were boiled and cotyledons removed, dried and floated in Petri dish already filled with collected water samples. Termites, black ants, snake skin, mustard seeds, apple seeds, as well soft grass leaves were also used as baits. After their incubation period the plates were examined under stereo binocular and different fungi for generic and their species level were isolated on the basis of sporangial development, shown as following-



Baiting technique for trapping zoosporic fungi.

RESULT AND DISCUSSION

Diversity and occurrence of zoosporic fungi recorded has been shown in table 1 & 2-

1. Occurrence of zoosporic fungi during March 2014 to Feb 2015.

SN	Zoosporic Fungi	Mar	Apr	May	Jun	July	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Total CFU	%
1	<i>Achlya bisexualis</i>	1	1	0	1	2	3	2	1	4	1	2	3	21	6.14%
2	<i>Achlya klebsiana</i>	1	1	0	1	2	2	2	1	3	1	1	2	17	4.97%
3	<i>Allomyces arbuscula</i>	1	0	0	2	2	2	3	0	3	0	1	2	16	4.67%
4	<i>Allomyces anomalus</i>	2	1	2	0	2	3	1	0	2	0	1	1	15	4.38%
5	<i>Aphanomyces laevis</i>	0	0	0	1	3	2	1	4	4	2	2	2	21	6.14%
6	<i>Chytrium appendiculatus</i>	1	1	1	0	2	3	1	0	3	0	2	2	16	4.67%
7	<i>Chytrium hyalinus</i>	1	1	1	1	2	2	1	0	2	0	1	2	14	4.09%
8	<i>Dictyuchus sterile</i>	0	0	0	1	3	1	1	3	4	2	3	4	22	6.43%
9	<i>Gonapodya prolifera</i>	0	0	0	1	2	1	2	2	4	1	2	3	18	5.26%
10	<i>Pythium aphanidermatum</i>	2	2	1	1	2	2	1	0	2	0	1	1	15	4.38%
11	<i>Pythium catenulatum</i>	2	1	2	1	3	1	2	0	2	0	1	2	17	4.97%
12	<i>Pythium middletoni</i>	1	2	1	1	2	2	1	0	1	0	1	2	14	4.09%
13	<i>Saprolegnia ferax</i>	0	1	0	2	1	2	2	4	3	1	4	3	23	6.72%
14	<i>Saprolegnia diclina</i>	2	1	1	0	4	2	1	1	3	1	3	2	21	6.14%
15	<i>Saprolegnia glomerata</i>	1	1	0	1	1	2	4	1	2	0	2	3	18	5.2%
	Total CFU	14	13	9	14	33	30	25	17	42	9	27	34	342	100

2. Occurrence of zoosporic fungi during March 2015 to Feb 2016.

SN	Zoosporic Fungi	Mar	Aprl	May	June	July	Aug	sep	Oct	Nov	Dec	Jan	Feb	Total CFU	%
1	<i>Achlya bisexualis</i>	2	2	0	1	0	1	2	2	2	2	1	1	16	5.63%
2	<i>Achlya klebsiana</i>	2	2	0	1	0	2	1	3	2	1	2	1	17	5.98%
3	<i>Allomyces arbuscula</i>	2	1	1	1	0	0	1	3	3	2	1	1	16	5.63%
4	<i>Allomyces anomalus</i>	1	1	0	1	2	2	1	1	2	2	0	0	13	4.57%
5	<i>Aphanomyces laevis</i>	1	1	0	0	0	0	0	1	3	3	4	1	14	4.92%
6	<i>Chytrium appendiculatus</i>	2	2	1	1	2	2	2	1	2	2	1	0	18	6.33%
7	<i>Chytrium hyalinus</i>	1	1	1	1	2	3	2	1	2	2	1	0	17	5.98%
8	<i>Dictyuchus sterile</i>	1	1	0	0	0	0	0	2	1	3	3	2	13	4.57%
9	<i>Gonapodya prolifera</i>	1	1	0	0	0	0	1	1	2	2	3	1	12	4.22%
10	<i>Pythium aphanidermatum</i>	2	2	4	1	3	3	2	1	3	2	1	0	24	8.45%
11	<i>Pythium catenulatum</i>	1	2	1	1	3	2	1	1	2	2	1	0	17	5.98%
12	<i>Pythium middletoni</i>	1	1	2	1	2	2	1	1	2	1	1	0	15	5.28%
13	<i>Saprolegnia ferax</i>	1	1	0	0	1	1	1	1	1	1	3	2	13	4.57%
14	<i>Saprolegnia diclina</i>	3	3	0	1	0	1	1	1	3	2	2	1	18	6.33%
15	<i>Saprolegnia glomerata</i>	1	1	0	1	0	1	0	2	2	3	1	1	13	4.57%
	Total CFU	22	22	10	11	15	20	16	22	32	30	25	11	284	100%

*CFU-Colony Forming Unit.

In present investigation total 15 zoosporic fungi as *Achlya bisexualis*, *Achlya klebsiana*, *Allomyces arbuscula*, *Allomyces anomalus*, *Aphanomyces laevis*, *Chytriomycetes appendiculatus*, *Chytriomycetes hyalinus*, *Dictyuchus sterile*, *Gonapodya prolifera*, *Pythium aphanidermatum*, *Pythium catenulatum*, *Pythium middletoni*, *Saprolegnia ferax*, *Saprolegnia diclina* and *Saprolegnia glomerata* were recorded 4.09 to 6.72% in 2014-15 and 4.22 to 8.45% during 2015-16 from Yashwant Sagar Dam, Indore.^[3]

The diversity of zoosporic fungi in 2014-15 were included as *Saprolegnia ferax* (6.72%) followed by *Dictyuchus sterile* (6.43), *Saprolegnia diclina*, *Aphanomyces laevis* and *Achlya bisexualis* (6.14%), *Gonapodya prolifera* (5.26%), *Saprolegnia glomerata* (5.2%), *Pythium catenulatum* and *Achlya klebsiana* (4.97%), *Allomyces arbuscula* and *Chytriomycetes appendiculatus* (4.67%), *Allomyces anomalus* and *Pythium aphanidermatum* (4.38%), *Chytriomycetes hyalinus* and *Pythium middletoni* (4.09%).

In 2015-16 diversity were for *Pythium aphanidermatum* (8.45%), *Chytriomycetes appendiculatus* and *Saprolegnia diclina* (6.22%), *Achlya klebsiana*, *Chytriomycetes hyalinus* and *Pythium catenulatum* (5.98%), *Achlya bisexualis* and *Allomyces arbuscula* (5.63%), *Pythium middletoni* (5.28%), *Aphanomyces laevis*(4.92%), *Allomyces anomalus*, *Dictyuchus sterile*, *Saprolegnia glomerata* and *Saprolegnia ferax* (4.57%), *Gonapodya prolifera* (4.22%) recorded.

In present study *Saprolegnia ferax*, *Saprolegnia diclina* and *Aphanomyces laevis*, *Pythium catenulatum*, favorably grew between 27–32°C at Yashwant Sagar Dam of Indore While, *Aphanomyces laevis* found throughout the year having temperature of 16 – 32°C.^[1]

The diversity at low to moderate temperature (16 – 28°C) of *Dictyuchus sterile*, *Gonapodya prolifera*, *Achlya bisexualis*, *Achlya klebsiana*, *Chytriomycetes appendiculatus*, *Chytriomycetes hyalinus*, and *Allomyces anomalus*, *Allomyces arbuscula*, *Pythium middletoni*, *Pythium aphanidermatum*, *Saprolegnia glomerata*.^[6,7, 3]

The result of our investigation indicated that zoosporic fungi showed their maximum diversity at low temperature in Yashwant Sagar Dam under Indore climatic condition and are conformity.^[1,9,11]

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