

**RESEARCH WORK**

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**Effect of Bod on Seasonal Distribution of Aquatic Fungi in Kirat Sagar Lake, Mahoba, Uttar Pradesh, India****Dr. Rajesh Kumar Srivastava<sup>1</sup>**<sup>1</sup>Department of Botany, Atarra P. G. College, Atarra (Banda) U.P.

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**Abstract**

In the present study an account has been made to assess the effect of BOD on seasonal distribution of aquatic fungi in Kirat Sagar Lake, Mahoba, Uttar Pradesh, India. The main objective of this study was to confirm that what was the impact of BOD in the seasonal distribution of aquatic moulds in Kirat Sagar, because such fungi are very fascinating group of aquatic biodiversity and are most important and significant member of aquatic ecosystem.

**Key words-** Kirat Sagar Lake, BOD, aquatic fungi

**Introduction**

Kirat Sagar Lake lies to the west of the town, approximately one and a half mile in diameter, founded by Raja Kirti Varman, who reigned from 1060-1100 A.D. Kirti Sagar Lake is situated in Malakpura, district of Mahoba U.P. India. This lake has fine ghats with granite steps. Bundelkhand Kajali Mela is held every year in the month of August. A hill of red earth at the backdrop enhances, it's beauty. Mahoba's global location is 25°01'30"N-25°39'40"N latitude and 79°15'00"E-80°10'30"E longitude. The aquatic environment shows ecological factors contributing to the formation of a very complex system in which the plankton's group plays a significant role. Common vegetation found here are *Ficus bengalensis*, *Tectona grandis*; *Mangifera indica*, *Ficus religiosa*, *Saraca indica* etc.

BOD i.e. Biochemical oxygen demand is the least amount of oxygen which is required to fulfill the physiological need of aquatic fungi. This is the parameter of pollution in aquatic system i.e. high BOD content refers to the more polluted aquatic system and vice-versa.

Aquatic fungi have been found in aquatic habitat has been discussed earlier by Ingold, CT. 1942, Ainsworth and Bisby (1963), Manoharachary (1981, 2008), R.D. Khulbe (1977) etc. These groups of fungi are made up of fascinating fungi showing great diversity in their form and function. They are significant in such a way that they utilize and transform the organic matter's of environment thereby releasing the parent material again back to environment (Sparrow, 1968; Perrott, 1960). Thus they are very important constituent of Biogeochemical cycle as they maintain the energy flow and production system of their existing ecosystem. Since they are major component of decomposers (Cooke, 1962), its physiological activity depends upon the aquatic environmental condition (Khulbe, 1977, 2001).

Thus the BOD factor shows their impact on diversity of the aquatic fungi. Therefore the present investigation undertaken to study the effect of BOD on distribution of aquatic fungi in Kirat Sagar Lake, Mahoba, Uttar Pradesh.

**Materials And Methods**

The water samples were collected from Kirat Sagar Lake, Mahoba for the analysis and culture purposes. The water samples were collected during early hours of the day in a properly cleaned BOD glass bottles (precaution was taken that bubble did not develop inside) and sealed tightly to prevent the entry of air during transportation

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and incubation. In the same time in to the other bottle (with water samples) 2 ml. alkaline Sod. azide reagents (70 gm. KOH + 15 gm. KI in distilled water diluted to 100 ml. + 1.0 gm. Na azide) was added.

The first set of bottles were used for isolation and culture of aquatic fungi and another set of bottles were used for determining BOD value in the laboratory by direct titration method. Isolation of aquatic fungi has been done using baiting technique. BOD was calculated as – BOD (mg./ltr.) = IDOD – DOD

**Results And Discussion**

The study was carried out during July 2023 to June 2024 and the data analysed during the work are shown in table I and II with a diagram-A.

The BOD level of water is higher summer season i.e. 12.15 mg./l., lowest average BOD level was 8.23 mg./l. during winter. (Table I/Diagram-A)

The table II, revealed that the isolated fungi shows maximum concentration during July 2023 to June 2024 in summer season i.e. 52 in number, it shows lower concentration during winter season i.e. 9 in number, the occurrence of fungi from maximum to minimum according to seasons is summer followed by rainy then spring, autumn and winter. Population of *Achlya klebsiana*, *A. cornuta*, *Pythium middletonii* and *Aphanomyces sp.* with *Seprolegnia declina* was found to be maximum during summers season, whereas during winter season *Achlya klebsiana*, *Rhizophyidium coronum* and *Aphanomyces leavis* was found to be absent. It shows that increase in BOD level during summer season is due to reduced water quantity and organic matter getting concentrated. Whereas, low BOD level during winter season correlate with low population of aquatic fungi.

Thus the BOD is a very important factor for the distribution of aquatic moulds.

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**TABLE-I**

**Average monthly/Seasonal record of BOD (mg./l.) in water of Kirat Sagar Lake, Mahoba**  
**(From July 2023 – June 2024)**

Observation Year	Rainy				Autumn			Winter				Spring			Summer		
	July	Aug.	Sept.	Seasonal Mean	Oct.	Nov.	Seasonal Mean	Dec.	Jan.	Feb.	Seasonal Mean	Mar.	Apr.	Seasonal Mean	May	June	Seasonal Mean
2023-24	11.2	11.6	10.9	11.26	10.9	10.4	10.6	9.1	8.4	7.2	8.23	8.9	9.8	9.35	11.8	12.5	12.15

**TABLE-II**

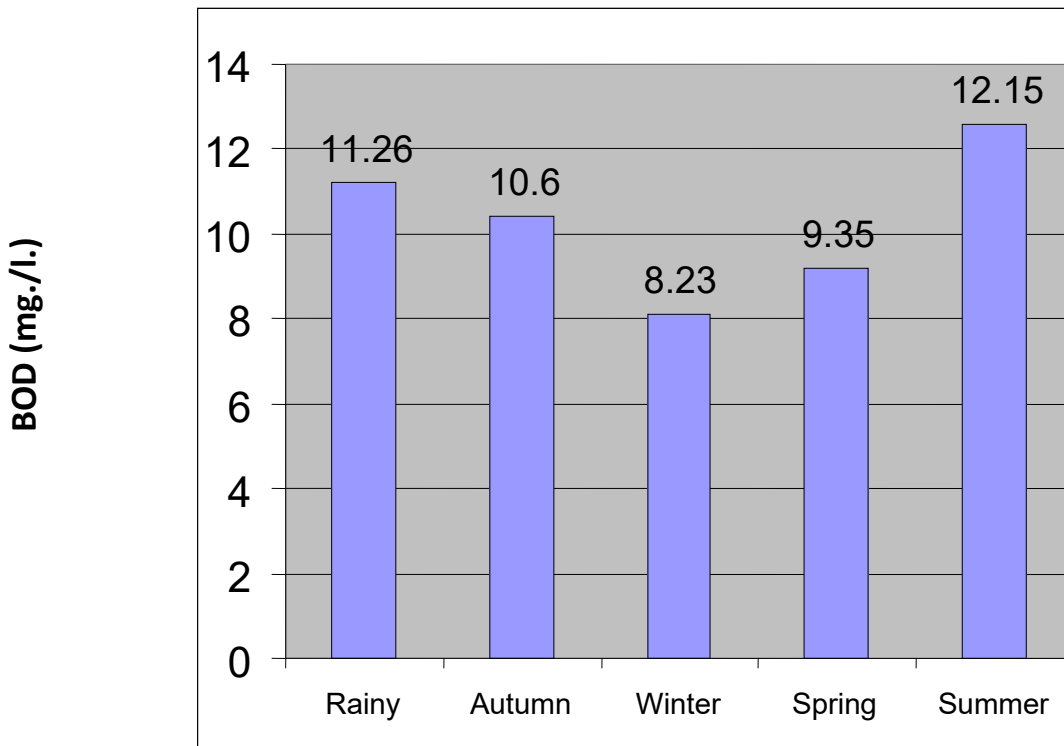
**Seasonal distribution and occurrence of aquatic fungi in Kirat Sagar Lake, Mahoba**  
**(From July 2023– June 2024)**

S.N.	Isolated fungi	Rainy	Autumn	Winter	Spring	Summer
1.	Acklya klebsiana	5	3	-	3	9
2.	Acklya cornuta	6	2	2	3	6
3.	Aphanomyces laevis	3	-	-	1	3
4.	Aphanomyces sp.	6	2	3	2	7
5.	Pythium debaryanum	4	1	1	3	9
6.	P. middletonii	5	2	1	4	5
7.	Rhizophlyctis chitinophila	4	3	1	5	3
8.	R. coronum	3	2	-	1	2
9.	Seprolegnia declina	2	1	1	1	8
	<b>Total-</b>	<b>38</b>	<b>16</b>	<b>09</b>	<b>23</b>	<b>52</b>

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Season Year : 2023-2024

Diagram-A