iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** I **Month of publication:** January 2018

DOI: http://doi.org/10.22214/ijraset.2018.1103

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor :6.887
Volume 6 Issue I, January 2018- Available at www.ijraset.com

Soil Fungal Diversity from Surrounding Area of Lower Lake, Bhopal.

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Abstract: ***The soil fungal diversity from surrounding area of Lower Lake of Bhopal was studied at species level by using different isolation techniques. Soil samples were collected randomly from surrounding area of Lower Lake during the course of study period. A total of 90 species which belongs to 51 genera and 4 groups were isolated.***
Keywords: Soil fungi/Diversity/lower Lake Bhopal.

I. INTRODUCTION

The lower lake, which is locally known as chottatalab or small lake is situated towards the eastern end of upper lake. It is positioned in the heart of the city. This lake was created in 1794 by Nawab Chhote Khan, Minister of Nawab Hayat Mohammad Khan to add to beauty of the city. It has small catchment of 9.60 km^2 and water spread area of 1.29 km^2. The lower lake is located between 77° 24'-77° 26 'E longitude and between 23° 14' 33"-23° 15' 30" N latitude in the city of Bhopal, Madhya Pradesh. Its shore line is 6.15 km in length. Maximum depth of the lake is 9.4 m and elevation of waste weir is 499.88m above mean sea level, which is also its water lavel. The catchment area activities are divided in three sectors namely the urban, semi urban and rural. The fringe area is mainly occupied under the urban and semi urban which is adjacent to the lake. Lake is surrounded by the busy congested localities of the city on all sides. Surrounding areas of lower lake which are rich in soil portions were used as sampling stations for present study. This includes front of rajbhawan, fish aquarium, back side of Motilal Vigyan Mahavidyalaya, PHQ, neelampark . All the above sites occupy the eastern portion of lower lake. Numbers of soil samples were collected randomely during study period from 5-10 meter far from bank. Soil samples were collected monthly from different sites of each station. Western part is occupied by professor colony and north part by kali mandir which do not provide soil area for work.

II. CLIMATE OF BHOPAL

Bhopal has a humid subtropical climate with mild dry winter, a hot summer and a humid monsoon season. The climatatic condition affect the fungal flora of habitate. The hot summer season starts in late March and goes on till mid June. The average temperature is around 30°c with the peak of summer in May when the highs can exceed 40^0c.

The monsoon starts in late June and ends in late September. These months see about 40 inches (1020 mm) of precipitation, frequent thunderstorms and flooding. The average temperature is around 25 and the humidity is quite high. Temperature rises again up to late October when winter starts, which lasts up to early March.

Winter in Bhopal is mild, sunny and dry with average temperature around18^0c, with little or no rain. The winter peaks in January when temperature may drop close to freezing point on some nights.

The climate of the area may be categorized as-

Winter season- November to February
Summer season- March to June.
Monsoon season- July to October

1) *Winds:* Winds are generally light except in late summer and early part of the monsoon season. During south west monsoon season wind velocity is mostly mild and variable in direction. In winter season winds are mostly north- easterly to easterly. During January westerly or north westerly. Winds appear and by summer these winds predominate both in the morning and afternoon.

III. METHADOLOGY-

During the study period soil samples were collected randomly from surrounding area of lower lake by scraping a layer of soil upto 5-10 cm depth. The suspension of the soil sample was made by serial dilution method Waksman[9].The fungal colonies were grown on PDA at 35c° for 6-10 days. These isolated fungal form were identified up to species level with the help of monographs, manuals and relavent research papers and publications of some eminent scientist like Barnet and Hunter[1],Ellis[3],vascantRao*et.al*[], Nagmani[6], Domesh et.al[2]. Gilman[5], Ramesh[7], Rane and Gandhi[8].

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IV. RESULT AND DISCUSSION-

In group Mastigomycotina, 4 fungal species were isolated, 2 species of which belong to order Saproleginales and 2 to order Peronosporales.

In group Zygomycotina , 3 species were isolated which belong to order Mucorales. In group Ascomycotina, 2 species were isolated, which belong to order Sphaeriales. In group Deuteromycotina,81 fungal species were isolated, 6 species of which belong to order Sphaeropsidales, 2 to order Melanconiales and 73 to order Moniliales. Order Moniliales was dominant over the rest of the others, the second dominant order was Sphaeropsidales and the third order was Mucorales and sphaeriales.

Table-1 Classification Based Data Of Soil Fungi From Surrounding Area Of Lower Lake.

Group	Order	Genera	Species
Mastigomycotina	Saprolegniales Paronosporales	2 2	2 2
Zygomycotina	Mucorales	2	3
Ascomycotina	Sphaeriales	1	2
Deuteromycotina	Sphaeropsidales Melanconiales Moniliales	5 2 37	6 2 73
Total		51	90

Present investigation tends to the knowledge of soil fungal diversity from surrounding area of Lopwer Lake, Bhopal. The occurrence of large variety of soil fungi were recorded from surrounding area of the lake. This indicates a dynamic and diverse fungal community of soil fungi isolated from surrounding area of Lower Lake. The majority of species identified is well adapted for survival in this environment.

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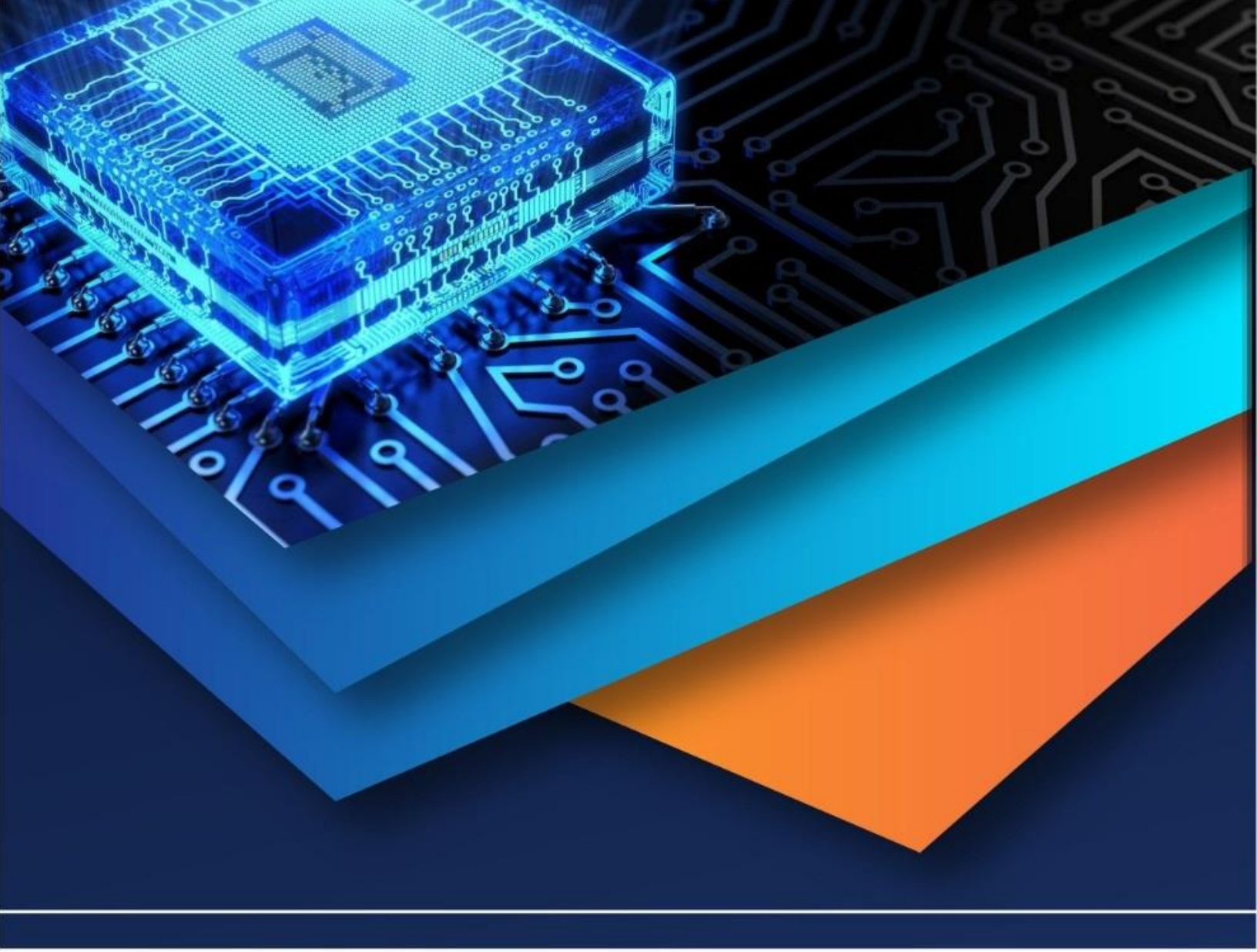

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