

# Public Health study of Algal Allergens in Makerera Lake near Beawar

**Dr. (Mrs.) Nisha Sharma**

Department of Botany, S.D. Govt College, Beawar, Ajmer, Rajasthan, India

## ABSTRACT

There wouldn't be life if there wasn't water. The demand on water resources as a result of our pursuit of a better living is unparalleled. As a result, the quality of the water is crucial to their existence. Due to household, domestic waste, and rotting human, animal, and plant materials being introduced, Indian lakes and rivers are becoming more and more polluted.

Makerera lake in Beawar was chosen to represent every body of water to its flora and animals. The lake is located in Rajasthan's Ajmer district, which is semi-arid.

The Chlorophyceae, Bacillariophyceae, Eugleniophyceae, and Cyanophyceae families of algae were represented in the three lake sites where they were collected and recorded during the current inquiry. An investigation into the presence of allergenic algae in drinking water was done. illnesses induced by allergies to eutrophic water's algae allergens.

## INTRODUCTION

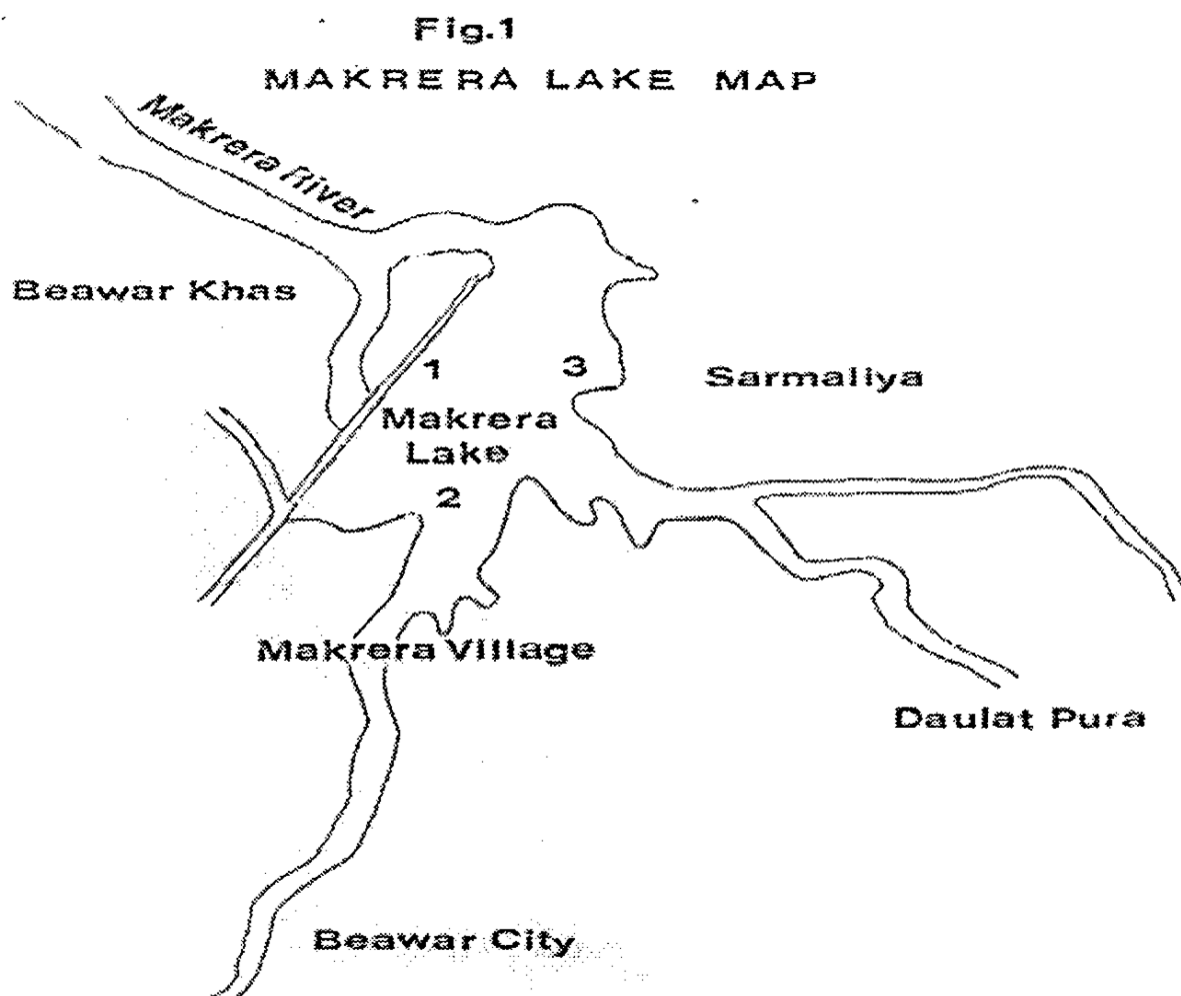
Without water, both the emergence of human civilization and the evolution of life on earth would not have been possible. The successful pollution of the earth's water resources as a result of rapid industrialization and urbanisation has had a tremendous impact on the aquatic ecosystem, vegetation, and animal life.

In the centre of the state of Rajasthan is Ajmer. Beawar Town is located 58 kilometres from Ajmer on the southern section of National Highway No. 8. Six kilometres separate Beawar City from Makerera Lake, a freshwater natural lake. Three locations were chosen at random, each with unique characteristics based on different anthropological activities, such as the entry of home effluents and sewage from washing, irrigation, and migratory bird perching for the purpose of collecting water samples. Locals use the lake water extensively for a variety of uses. The primary use of the lake is for irrigation, and livestock also drink from it.

Pollutants of many kinds, including those from radioactive sources, pesticides, industrial waste, and home trash, reach water supplies. Water contaminants contaminate aquatic fish and other plants. Man uses these resources for food purposes. Pollutants invade our bodies and cause allergies, illnesses, and even death. This disparity could be the result of different climatic circumstances and geographic separation, both of which have a significant impact on the algal population.

## MATERIAL AND METHODS

At monthly intervals between 6 am and 11 am, surface composite water samples were taken from three sites (Fig. 1) of the lake in appropriately sterilized and labelled polythene bags or bottles.



The three selected sites are:-

**Site-I:-**The site is located in the western part of the lake and is close to earthen bandh (Dam). No human or animal activity was seen when the lake was flooded.

**Site-II:-**This site is located in the southern part of the lake and is an entry point for sewage and other effluents from washing place for cattle.

**Site III:** This site is located in the eastern part of the lake and is surrounded by agriculture fields.

After collection the samples were preserved in 5% formalin (FAA)

and were identified using the keys provided by Desikachary, 1959<sup>1</sup>, Philipose (1967)<sup>2</sup>; Prescott, (1969)<sup>3</sup>; Gonzalves, (1981)<sup>4</sup>; Tripathi and Pandey, (1989)<sup>5</sup>.

## RESULTS AND DISCUSSIONS

Chlorophyceae, Bacillariophyceae, Eugleniophyceae, and Cyanophyceae were among the algae groups that were gathered and noted during the current inquiry from several lakeside locations. From the lake water, a total of 196 species from 57 taxa were collected and identified.

Few people are aware of the problems caused by some allergenic algae in drinking water, maybe because they have only ever been linked to a small number of issues that directly impact people. Algae, however, have recently displaced other problematic creatures in eutrophic water.

Chlorophyceae and Cyanophyceae algae allergins have caused an increase in the incidence of allergic disorders, which has created severe public health issues. At all three locations, the density of algae increased quantitatively at the highest and lowest rates during the monsoon. In contrast, Philipose (1959)<sup>6</sup> found that the amount of algae peaked in the summer and decreased in the winter. Maximum algal populations were recorded by Tripathi and Pandey (1989)<sup>5</sup> during the winter and monsoon.

This disparity can be the result of different climatic conditions and geographic separation, both of which have a significant impact on algal population.

Rhinitis, bronchial asthma, hypersensitivity, pneumonites, bronchial provocations, mortality in fish, cattle, and animals, along with symptoms of partial paralysis, loss of balance, hard stools, decreased milk yield, general weakness, and photosensitizations of skin, are allergenic issues brought on by such algae.

Although no studies were performed on allergenic nature of algae. 10 species of allergenic algae we observed in the lake include *Chlorococcum humicola*, *C. infusiomum*, *Chlorella vulgaris*, *Scenedesmus dimorphus*, *S. obliquus*, *S. quadricauda*, *Anabaena iyengarii*, *Microcystis aeruginosa*, *Oscillatoria formosa*, *O. princeps* and *O. subbresvis*.

According to Ingram and Prescott (1954)<sup>7</sup> and Gorham (1964)<sup>8</sup>, a few tropical inland water algae have been shown to create harmful compounds in the water, killing or infecting fish, livestock, and even people with diseases.

The amazing ability for self-purification is possessed by the bacteria and other species that inhabit freshwater settings. These procedures clean up water bodies of contaminants. Bacteria and fungus play a crucial part in the self-purification of water bodies. They are able to completely mineralize many organic molecules by breaking down complex chemical compounds into simplex forms, which in turn are used by phytoplanktons.

Sewage and other pollutants are continuously flowing into Makerera Lake, and the pollution level is rising quickly. Even while there is a self-purification process, it is not entirely clear from the results at hand.

Man may not be concerned about his environment, but nature has given us the ability to purify ourselves and recycle nutrients in order to lessen the dangerous consequences of pollution on humans.

## REFERENCES

1. Desikachary, T.Y. 1959. Cyanophyta I.C.A.R., New-Delhi: 1-686.
2. Philipose, M. T. 1967, Chlorococcales.I.C.A.R., New Delhi,:365.
3. Prescott, G. W. 1956, Algae of Western great lake areas Pub.Cranbook Institute of Science Bulletin No. 30: 1-496.
4. Gonzalves, E.A. 1981, Oedogoliales I.C.A.R., New Delhi, pp757.

5. Tripathi, A. K. and Pandey, S. N. 1989, Studies on algae of polluted ponds of Kanpur (India) Eutrophication in Chandari Pond. Poll Res. 8:7-10.
6. Philipose, M. T. 1959. Fresh water Phytoplankton of inland fisheries. Proc. Symp. Algal I.C.A.R., New-Delhi, :272-292.
7. Ingram, W.M. and Prescott, G.W. 1954. Toxic fresh water algae, Amer. Midl. Nat 52:75-87.
8. Gorham, P.R. 1964. Toxic algae. In Algae and Man (ed. D.F. Jackson), Plenum Press, New York: 307-366.