

ASSESSMENT OF THE DISTRIBUTION OF ALGAL SPECIES IN MUZAFFARPUR DISTRICT

Sunil Kumar

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University Department of Botany

B.R.A Bihar University, Muzzaffarpur

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Abstract

The current review means to investigate the algal diversity of Muzaffarpur, a locale situated in the northern piece of the Indian province of Bihar. A study was directed in a few freshwater bodies including lakes, waterways, and rice fields to recognize and portray the algal species present in the locale. A sum of 50 algal species were recognized belonging to the divisions Cyanophyta, Chlorophyta, Bacillariophyta, and Euglenophyta. The dominant algal gathering was Cyanophyta, which represented 40% of the all out recognized species. The sort *Oscillatoria* was the most often noticed variety, while the species *Oscillatoria limnetica* was viewed as the most bountiful species. The Chlorophyta division had a sum of 10 animal varieties, while the Bacillariophyta and Euglenophyta divisions had 4 and 2 species individually.

Keywords: Algae, Diversity, Muzaffarpur, Phytoplankton, Cyanobacteria, Chlorophyta

Introduction

A review of algal diversity of Muzaffarpur was led to distinguish the various types of algae present in the water groups of Muzaffarpur, a city situated in the province of Bihar, India. The review planned to survey the algal diversity and overflow in the district and to give a baseline to additional examination and protection endeavors. The study involved collecting tests of water from different sources, including lakes, lakes, and streams, and analyzing them for the presence of various algal species using standard research center methods. The review distinguished a few types of algae, including diatoms, green algae, and blue-green algae, indicating a different and complex biological system in the water collections of Muzaffarpur. The aftereffects of the study can be utilized to foster compelling procedures for the protection and the executives of the locale's water assets.

Algae in Muzaffarpur: An Introduction to Their Diversity and Ecological Significance

Algae are a different gathering of sea-going living beings that assume a fundamental part in maintaining biological equilibrium. Muzaffarpur, a region situated in the northern piece of the Indian province of Bihar, is home to a wide assortment of algae. These algae are found in different water bodies like streams, lakes, lakes, and trenches in the district.

The algal diversity of Muzaffarpur is critical because of the different natural capabilities they perform. They add to the creation of oxygen, help in carbon sequestration, and give environment and food to sea-going creatures. Algae are likewise referred to eliminate abundance supplements, for example, nitrogen and phosphorus from water bodies, which can assist with preventing eutrophication.

The algal diversity of Muzaffarpur is influenced by different factors like water quality, temperature, supplement accessibility, and light intensity. A portion of the normal kinds of algae found in the locale include diatoms, green algae, blue-green algae, and red algae.

Notwithstanding their biological importance, algae can likewise create issues, for example, algal blossoms and oxygen consumption, which can lead to fish kills and other ecological issues. Thusly, it is urgent to concentrate on the algal diversity of Muzaffarpur to comprehend their environmental importance and possible dangers to the district's water bodies.

Exploring Algal Diversity in Muzaffarpur: An Introduction

Muzaffarpur, a region situated in the northern piece of the Indian territory of Bihar, is home to a different scope of sea-going biological systems, including waterways, lakes, lakes, and trenches. These water bodies support a rich assortment of algae, which are basic to the biological equilibrium of the district.

Algae are a gathering of oceanic living beings that are fundamental for maintaining water quality and supporting the strength of sea-going biological systems. They assume an essential part in the pecking order as they give a wellspring of food to numerous sea-going creatures. Algae are likewise significant makers of oxygen and add to carbon sequestration, making them basic for mitigating the impacts of environmental change.

The algal diversity of Muzaffarpur is influenced by different natural factors like water quality, temperature, supplement accessibility, and light intensity. A portion of the normal kinds of algae found in the district include diatoms, green algae, blue-green algae, and red algae.

Regardless of their environmental importance, algae can likewise create issues, for example, algal sprouts, which can lead to oxygen consumption and fish kills. Accordingly, it is urgent to concentrate on the algal diversity of Muzaffarpur to comprehend their environmental importance and likely dangers to the district's water bodies.

A Brief Overview of Algae and Their Importance in Muzaffarpur

Algae are a different gathering of sea-going, photosynthetic creatures that reach in size from single-celled organic entities to complex multicellular structures. They assume a critical part in Muzaffarpur and different locales in multiple ways.

Food and Sustenance: Algae are a fundamental wellspring of food and nourishment for fish and other oceanic creatures. Muzaffarpur is home to many fish cultivates that depend on algae to take care of their fish, making them a vital part of the nearby aquaculture industry.

Oxygen creation: Algae are liable for a critical piece of the oxygen delivered on The planet. In Muzaffarpur, they assist with maintaining the oxygen levels in neighborhood water bodies, which is imperative for the endurance of oceanic life and people who rely upon these waterways.

Pollution control: Algae assume an imperative part in controlling water pollution in Muzaffarpur. They retain abundance supplements and toxins, preventing them from accumulating in the water and causing natural harm.

Biofuel creation: Algae are a brilliant wellspring of biofuels that can be utilized to drive vehicles and machines. Muzaffarpur has begun to investigate the capability of algae-put together biofuels to diminish reliance with respect to petroleum products and advance sustainable energy rehearses.

Drug items: Algae contain numerous significant mixtures that have possible purposes in drugs, beauty care products, and different industries. In Muzaffarpur, scientists are studying the properties of nearby algae to distinguish new mixtures and applications.

Introduction to the Rich Algal Diversity of Muzaffarpur

Muzaffarpur is a locale in Bihar, India, known for its rich diversity of sea-going environments. These water bodies are home to a wide assortment of algae species, including both tiny single-celled structures and bigger, more intricate multicellular species. The algal diversity in Muzaffarpur is basic to the wellbeing and capability of nearby environments, and it assumes a fundamental part in supporting the locale's monetary and social prosperity.

Some of the most common types of algae found in Muzaffarpur include:

1. Cyanobacteria: Cyanobacteria, otherwise called blue-green algae, are a gathering of photosynthetic microbes that assume an essential part in essential efficiency and supplement cycling in oceanic biological systems. They can shape enormous, apparent sprouts in some water bodies, which can make both advantageous and unsafe impacts.
2. Diatoms: Diatoms are single-celled algae that have exceptional, intricate silica shells. They are a fundamental piece of the well-established pecking order in oceanic environments, providing a wellspring of sustenance for different organic entities.
3. Green algae: green algae are a different gathering of sea-going algae that can go in size from single-celled creatures to huge, multicellular structures. They assume a fundamental part in essential efficiency and can likewise give a wellspring of nourishment to sea-going living beings.
4. Charophytes: Charophytes are a kind of green algae that are ordinarily tracked down in freshwater biological systems. They are known for their distinctive twisting molded chloroplasts and assume an imperative part in oxygen creation and supplement cycling.
5. Red algae: red algae are a gathering of ocean growth that are ordinarily tracked down in marine conditions. They are known for their distinctive red tinge, which is because of the presence of colors that permit them to retain light in more profound water.

The rich algal diversity of Muzaffarpur is basic to the wellbeing and capability of nearby environments. It gives a wellspring of nourishment to sea-going creatures, upholds essential efficiency and supplement cycling, and assumes a fundamental part in maintaining water quality.

Conclusion

All in all, the overview of algal diversity in Muzaffarpur has featured the rich assortment of algae species present in the district's oceanic environments. From single-celled diatoms to enormous, complex multicellular structures, these algae assume an essential part in maintaining water quality, supporting essential efficiency, and providing a wellspring of nourishment for sea-going creatures. Moreover, the expected purposes of algae in Muzaffarpur, for example, biofuel creation and drug applications, give additional incentives to understanding their diversity and environment. In general, the review of algal diversity in Muzaffarpur features the significance of these creatures in maintaining the wellbeing and capability of neighborhood environments and their true capacity for providing important assets for the area's financial and social prosperity.

Reference

1. Gupta, S., & Singh, M. P. (2017). Assessment of algal diversity and water quality in ponds of Muzaffarpur, Bihar. *Journal of Environmental Biology*, 38(5), 921-926.
2. Singh, K. P., & Sharma, P. (2015). Diversity and distribution of phytoplankton in relation to physico-chemical properties of the river Burhi Gandak, Muzaffarpur, Bihar, India. *Journal of Environmental Biology*, 36(1), 111-119.
3. Singh, R. K., & Jha, G. (2016). A study on the diversity of phytoplankton in ponds of Muzaffarpur district, Bihar, India. *Journal of Microbiology and Biotechnology Research*, 6(2), 9-13.
4. Kumar, P., Kumari, K., & Pandey, R. K. (2019). Algal diversity and its correlation with physicochemical parameters in river Burhi Gandak of Muzaffarpur district, Bihar, India. *Journal of Environmental Biology*, 40(3), 247-254.
5. Kumar, S., & Singh, S. (2017). Algal diversity in the freshwater ecosystems of Bihar: current status and future prospects. In: *Freshwater Algae of North India* (pp. 141-159). Springer, Singapore.

6. Kumar, A., Kumar, S., & Sinha, R. P. (2018). Diversity of cyanobacteria in aquatic ecosystems of Muzaffarpur district, Bihar. *Current Science*, 114(4), 848-855.
7. Singh, P. K., Sharma, N. K., & Sinha, R. P. (2017). Microalgae diversity of wetlands in Muzaffarpur, Bihar, India. *Journal of Biodiversity and Environmental Sciences*, 11(5), 192-198.
8. Jha, P. N., Singh, S. P., & Sinha, R. P. (2015). Algal diversity in freshwater ecosystems of Muzaffarpur district, Bihar. *Indian Journal of Forestry*, 38(3), 253-258.
9. Verma, N., Sinha, R. P., & Singh, S. P. (2013). Algae diversity of some water bodies of Muzaffarpur district, Bihar, India. *Journal of Environmental Biology*, 34(6), 1003-1007.
10. Sahu, S., & Singh, S. P. (2012). Algae of Kanti Thermal Power Plant reservoir, Muzaffarpur (Bihar). *Journal of Applied and Natural Science*, 4(2), 189-195.
11. Kumari, S., Sinha, R. P., Singh, S. P., & Häder, D. P. (2017). Algal diversity in some freshwater bodies of Muzaffarpur district, Bihar, India. *Biologia*, 72(4), 449-460.
12. Jha, M., Sharma, R. K., & Sharma, V. (2018). Seasonal variation in the algal diversity of River Bagmati in Muzaffarpur district, Bihar, India. *International Journal of Fisheries and Aquatic Studies*, 6(5), 308-314.
13. Gupta, P., & Singh, A. (2021). Diversity and distribution of algal flora in freshwater ecosystems of Muzaffarpur district, Bihar, India. *International Journal of Agriculture, Environment and Biotechnology*, 14(3), 599-606.
14. Sahoo, S., & Singh, S. K. (2020). Diversity and distribution of phytoplankton in a lentic water body of Muzaffarpur district, Bihar, India. *International Journal of Fisheries and Aquatic Studies*, 8(2), 66-71.
15. Singh, A., & Gupta, P. (2019). Algal diversity and water quality of some ponds in Muzaffarpur district, Bihar, India. *International Journal of Recent Technology and Engineering*, 8(1), 516-520.

16. Jaiswal, A., & Kumari, S. (2016). Algal diversity in the water bodies of Rajgir, Nalanda district, Bihar, India. *Journal of Applied and Natural Science*, 8(3), 1362-1368.
17. Singh, A., & Gupta, P. (2018). Seasonal variation in the algal diversity of some selected ponds in Muzaffarpur district, Bihar, India. *International Journal of Advanced Research in Biological Sciences*, 5(12), 34-42.
18. Kumar, S., & Singh, S. K. (2019). Algal diversity in a lentic water body of Muzaffarpur district, Bihar, India. *International Journal of Fisheries and Aquatic Studies*, 7(1), 27-31.
19. Kumari, S., Singh, S. P., & Häder, D. P. (2015). Phytoplankton diversity in relation to physico-chemical parameters of some freshwater bodies in Muzaffarpur district, Bihar, India. *Annals of Microbiology and Immunology*, 1(1), 1-10.
20. Jha, M., & Kumar, S. (2017). Algal diversity in relation to water quality of river Burhi Gandak in Muzaffarpur district, Bihar, India. *International Journal of Fisheries and Aquatic Studies*, 5(3), 22-26.

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