

**ORL-EB&C-08****Algal Diversity and Water Quality of Mai Pokhari, Ilam, Eastern Nepal**

Rashmi Shrestha\*, Pushpa Poudel, and Shiva Kumar Rai

Phycology Research Lab, Department of Botany  
Degree Campus, Tribhuvan University  
Biratnagar, Nepal  
rashmeeshrestha565@gmail.com

Algae are the photosynthetic organisms forming a primary food chain and food source for aquatic organisms. The study deals with the seasonal algal diversity, distribution and physicochemical parameters of water of Mai Pokhari, Ilam, Nepal conducted in 2021. Algae and water samples were collected during 3 seasons (summer, rainy and winter) from the periphery of Lake. In total 77 species of phytoplankton belonging to 55 genera and 11 classes were recorded throughout the study period.

Bacillariophyta was the largest phylum consisting of 36% of algal taxa, followed by Chlorophyta (20%), Charophyta (18%), Euglenozoa (10%), Cyanobacteria (9%), Miozoa (4%), and Ochrophyta (3%)(fig1). Among all genera, *Pinnularia* had the highest number of species (6), followed by *Cosmarium* and *Eunotia* (4), *Trachelomonas* and *Staurastrum* (3), *Neidium*, *Cymbella*, *Hantzschia*, *Gomphonema*, *Desmodesmus*, *Monoraphidium*, *Euglena*, and *Parvodinium* (2).

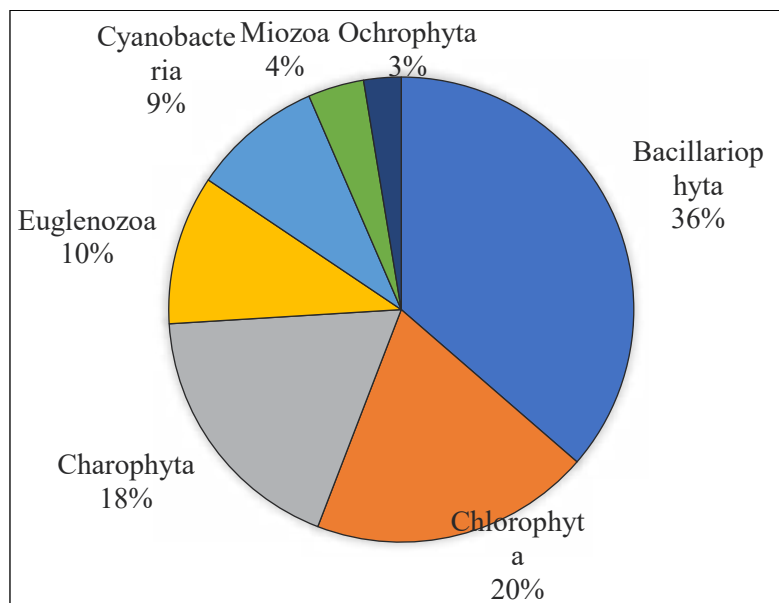


Figure: Phylum-wise percentage of algae in Mai Pokhari.

Algal diversity was found highest in the summer season (41 genera) followed by the rainy season (35 genera) and winter season (32 algal genera). The mean value of pH, conductivity, CO<sub>2</sub>, TDS were higher during the winter season while the highest value for hardness, Phosphorus, Alkalinity was observed during the summer season. Shannon-Weiner Diversity Index value was higher during the summer season with more evenly distributed algal taxa than in winter and rainy seasons. Algal diversity increased with an increase in temperature, DO, and decreased with an increase in pH, phosphorus, conductivity, free CO<sub>2</sub>, TDS, and hardness. Regression graph showed that algal diversity increased with increasing temperature, DO and decreasing free CO<sub>2</sub>. RDA analysis showed the seasonal changes in physical and chemical water variables are responsible for the variation of phytoplankton communities.