

Phytoplankton Seasonality in a Tropical Reservoir: A Four Years Study

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Pampulha Reservoir is a tropical shallow urban reservoir. A four year limnological study was conducted from February 1993 to December 1996 in this reservoir. Water samples for chemical parameters and phytoplankton were collected monthly and from February 1996, every two weeks at one station. Samples were taken at different depths from surface until 6 m (maximum depth at the collect station). Phytoplankton samples were counted using the Utermöhl (1958) technique. Algae were identified at the species level.

Differences were observed in the dominance of phytoplanktonic species along the seasons. Rain was an important factor influencing the seasonal dynamic of the lake. Rainfall is concentrated during just some months of the year (October-March), corresponding to the summer. Winter is extremely dry. Nutrient concentrations and the stability of the water column were affected by precipitation. Temperature also played a role, because of its influence on the water stratification patterns.

Some phytoplanktonic groups occur always in the same period of the year, showing clear seasonal patterns. Cyanobacteria growing season, for instance, occur at end of the dry season or beginning of the rainy season every year. Many Chlorococcales green algae (like *Eutetramorus fottii* and *Crucigenia tetrapedia*) presented two peaks, the first one during the rainy season and the second during the dry season. Desmids (like *Cosmarium polonicum*) grew preferentially during the rainy season. In 1996 desmids practically disappeared from the lake, perhaps as a consequence of the increasing of nutrients in the water caused by the eutrophication progress. Diatoms also presented their maximal concentration during the rainy season.

If the species appeared periodically at the same period of the year, their total biomass however was frequently different from year to year. The cyanobacteria *Microcystis*, for example, showed in 1993 a peak of 1500 $\mu\text{m}^3/\text{ml}$ in September and in 1994, during a strong bloom, a peak of more than 55.000 $\mu\text{m}^3/\text{ml}$. Annual maxima of phytoplanktonic species can be affected by external factors, like higher nutrients input or macrophyte management. Then we can conclude that seasonality exists in Pampulha Reservoir, but anthropogenic effects can modify the total biomass of each species.



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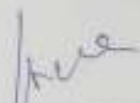
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El presente diploma acredita que Ricardo Pinto Coelho

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