

Temporal variation of phytoplankton biomass and functional groups in oligotrophic, mesotrophic and eutrophic reservoirs

Lucineide Maria Santana⁽¹⁾ & Carla Ferragut⁽¹⁾

⁽¹⁾ Núcleo de Pesquisa em Ecologia, Instituto de Botânica, São Paulo, SP.
Email para contato: lucineidemsantana@yahoo.com.br

Phytoplankton functional groups have been a good tool to understand the variations in this community related to environmental changes, such as increased nutrient availability and climate. This study aimed to analyze the biomass and functional groups of the phytoplankton community regarding mixture regime and resources availability (light and nutrients) in two climatic periods in reservoirs with different trophic status. The water sampling to determine the physical, chemical and phytoplankton variables was performed in different depths and sites in the central body of the oligotrophic (Ribeirão do Campo and Ponte Nova), mesotrophic (Paraitinga) and eutrophic (Tiaçupeba) reservoirs in rainy and dry seasons (2010). Phytoplankton was analyzed by chlorophyll-*a*, species composition, algal biomass and functional groups (*sensu* Reynolds). The first PCA axis represented the trophic status of the reservoirs and the second represented the seasonality. The vertical profile of the biomass was heterogeneous in all reservoirs in both seasons, except in the Ribeirão do Campo reservoir in the dry season. According to the CCA, different functional groups were associated with the season and the different trophic status of the reservoirs: **E, F, K, Sn** and **X1** in rainy-oligotrophic; **A, S1, T** and **Y** in dry-oligotrophic; **J** in rainy-mesotrophic; **B, H1** and **W1** in rainy-eutrophic; and **C** in dry-eutrophic. In the dry season (mixture period), the species that presented more biomass in the shallow site was also predominant in the deep site (*Cryptomonas* sp.- oligotrophic reservoir Ribeirão do Campo, *Peridinium umbonatum* - mesotrophic and *Radiococcus planktonicus* - eutrophic), except in Ponte Nova reservoir, whereas in the rainy season the species were different in each site. In general, it was concluded that the biomass and chlorophyll-*a* responded primarily to changes in trophic status, whereas functional groups responded primarily to temporal variations in temperature, depth of mixture zone and light availability.

Keywords: phytoplankton, functional groups, reservoirs, trophic status

Financial support: Fundação de Amparo à Pesquisa do Estado de São Paulo (FAPESP - Process n° 2011/24000-4 and n° 2009/53898-9)