

CHANGES IN EPIPHYTIC DIATOM (BACILLARIOPHYCEAE) COMMUNITY COMPOSITION AND STRUCTURE IN AN EUTROPHIC POND (ALALAY POND, COCHABAMBA, BOLIVIA)

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Alalay Pond is a 230-hectare, shallow aquatic ecosystem located within the city of Cochabamba (17°23'43" S, 66°09'35" W), the third largest city in Bolivia. The pond presents extensive growths of emergent macrophytes, and it is highly eutrophic and contaminated due to direct sewage, clothing and plastic factory discharge, as well as surface runoff carrying garbage. With the aim to determine the suitability of epiphytic diatoms as monitoring tools of the ecological status of this ecosystem, their communities developing on *Schoenoplectus californicus* subsp. *tatora* (Kunth) T. Koyama and *Typha dominguensis* Pers. were sampled 4 times from three stations in the pelagic zone (away from coastal macrophyte growths) in the period March–September, 2011. Submersed stems of each macrophyte were cut and stored in plastic bags. In the laboratory epiphyte diatoms were brushed off and oxidized for light and scanning electron microscopy observations. Shannon–Wiener and Pielou indexes showed changes in community structure and composition overtime at the three sampling stations. Dendrograms based on species abundance show marked differences among sampling stations. Multivariate analyses suggest that changes in community structure were concurrent with changes in alkalinity, COD, sulfates, ammonium–nitrogen, conductivity, and dissolved oxygen. All these abiotic and biotic changes were related to anthropogenic pollution affecting each station. Regarding composition, 39 taxa were identified, of which *Epithemia adnata* var. *proboscidea* (Kützinger) Hendey, *Amphora paraveneta* Lange-Bert. et al., *Gomphonema* sp. 2 ALALAY, *Synedra tabulata* var. *gracillima* Tempère & Peragallo, *Nitzschia* sp. 1 ROCHA, *Lemnicola hungarica* (Grunow) Round & Basson and *Gomphonema* sp. 1 ALALAY were dominant. The remaining 32 taxa had abundances lower than 5%, and, together with the dominant taxa, constantly fluctuated in their relative numbers at each station.