Effect of salinity and ionic composition on biological diversity in tropical volcanic lakes, Mexico

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Six lakes are among a series of maar, athalassohaline lakes that are located in the Trans Volcanic Belt in central Mexico. They are between 2,300 and 2,510 m a.s.l., and have a warm monomictic thermal regime with mixing during the cold-dry period (December-March). By being in an endorheic basin these lakes are in a process of increasing their salinity and changing ionic specific composition. In addition, the extraction of groundwater that feeds these aquatic ecosystems with deep wells has increased the process of salinization. These chemical parameters have an important influence in certain limnological processes such as the whiting event and the formation of microbialites which are mainly associated with changes in the water alkalinity. The whiting event is a process in which small particles of calcium carbonate are precipitated by changes in different concentrations of forms of carbon which in turn are produced to bacterial activity. Microbialites are organosedimentary deposits product of the biomineralization processes induced by microorganisms and the formation of extracellular matrix. In this seminar, the specific taxonomic composition of bacteria in the whiting event and the diatoms richness of the microbialites in subsaline and hyposaline lakes will be shown. In addition, the experimental ecophysiological response to changes in ionic composition and salinity of the copepod Leptodiaptomus cf. sicilis from one of the hyposaline lakes will be shown.