

REGIONAL VARIATION OF DIATOM ASSEMBLAGES IN COLOMBIAN RIVERS: A FIRST APPROACH

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In tropical areas, knowledge about the autecology of diatoms and spacial variations along environmental gradients of diatom assemblages are scarce. Recent studies held in different regions of Colombia evidenced a high diatom diversity, comprising undescribed species, that made it difficult establishing the distribution patterns and their use in bioindication. In the country a descriptive framework was proposed to establish rivers typology, but more biological descriptors are still necessary to sustain it.

The aim of this study is to describe diatom assemblages at a regional scale in relation to the principal environmental factors based on the Colombian river typology mentioned above. As part of a research project about bioindication and water quality held by the Instituto Colombiano del Petróleo- Ecopetrol, studies were performed in a wide region of the country, analysing first macroinvertebrates. Based on these results and considering the hydrogeomorphological heterogeneity of each region, 200 sampling sites were selected. At each station, samples for physicochemical and periphyton analyses were collected. Diatoms were studied with light and scanning electron microscope. In order to establish distributional patterns of the assemblages, a NMDS and an Anosim have been applied to evaluate if there were important differences in richness and composition.

Although up to now only 100 samples were analysed, 1237 subgeneric taxa were identified from which only 22.5% could be identified. Eunotiaceae were frequent and dominant in high plain rivers and Achnanthaceae at the eastern cordillera. At the former sites prevail adnate species while at the latter prevail pioneer species. Higher values of richness and diversity were registered at interandean valleys and at foothills basins. The Anosim shows that assemblages are similar among interandean valleys and foothills, while rivers of the “Catatumbo basin” and high plains were more dissimilar. The PCA showed a group of variables that are clearly associated to geographical characteristics, independent of those variables related to nutrients and also to those related to industrial activities.