Rhizophora Mangle as a Marker of the Contamination of an Estuary System

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Estuaries are partially enclosed bodies of coastal water where fresh water from river runoffs mixes with the saltwater from the ocean. Estuaries provide a nutrient rich and safe ecosystem. The Rhizophora mangle is a tree that strives in tropical estuaries. Little is known of the degree of contamination of the flora that inhabits the estuary and serves as shelter and food to many species of animals. Determining the degree of contamination of the Rhizophora mangle will give an idea on how is the flora affected by contaminated sediment. The purpose of this study is to compare the degree of contamination in samples of benthic zone sediment and leafs from the Rhizophora mangle tree in an estuary system and determine if these contaminants are absorbed by the roots and deposited in the leafs thus affecting the health of the tree and the entire food chain. Samples from five sites of the San Juan Estuary System and analyzed for total petroleum hydrocarbons and ten trace metals. The findings of this study point to the fact that benthic zone sediment generally has a much higher concentration of trace metals than the Rhizophora mangle leafs but the concentration of total petroleum hydrocarbons is essentially the same. Not all trace metals are absorbed and deposited at the same concentrations. This research project partially support the hypothesis that benthic zone sediment contamination correlates with the degree of some contaminants deposited in the Rhizophora mangle leafs.

Awards Won:
Fourth Award of $500