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Seasonal seawater temperature as the major determinant for populations of culturable bacteria in the sediments of an intact mangrove in an arid region

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Mangroves are highly productive marine ecosystems where bacteria (culturable and nonculturable) actively participate in biomineralization of organic matter and biotransformation of minerals. This study explores spatial and seasonal fluctuations of culturable heterotrophic bacteria and *Vibrio* spp. in the sediments of an intact mangrove ecosystem and determines the dominant environmental factors that govern these fluctuations. Sediment samples were collected monthly from three stations in the mangroves of Laguna de Balandra, Baja California Sur, Mexico, through an annual cycle. Physicochemical parameters included seawater temperature, salinity, and concentration of dissolved oxygen. Viable counts of culturable heterotrophic bacteria and *Vibrio* spp. were made. In one sample (March 2003), nutrient concentrations (ammonium, nitrites, nitrates, and phosphates), organic matter, pH and sediment texture were also determined. General cluster analyses, analysis of variance of specific variables, and several principal component analyses demonstrated that seawater temperature is the principal determinant of seasonal distribution of culturable heterotrophic bacteria and *Vibrio* spp. in mangrove sediments. Soil texture, concentration of nutrients, and organic matter concentration contribute to heterogeneity to a lesser extent. A large spatial variation in bacterial populations was observed over short distances (

Palabras clave: Tendencias espaciales, Vibrionaceae, Bacteria, Principal component analysis, Temperature, sediments, Environmental factor, United State, Samplings, Soils, Oxygen, California, Environment, Biotransformation, Marine environment

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