## Effect of Fiddler Crab Burrows on Bacterial Communities of Mangrove Sediments

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**Abstract :** Bacteria communities as mediators of the biogeochemical process are the main component of the mangrove ecosystems. Crab burrows by increasing oxic-anoxic interfaces and facilitating the flux rate between sediment and tidal water affect biogeochemical properties of sediments. The effect of fiddler crab burrows on the density and diversity of bacteria were investigated to elucidate the effect of burrow on bacterial distribution. Samples collected from the burrow walls of three species of fiddler crabs including Uca paradussumieri, Uca rosea, and Uca forcipata. Sediment properties including grain size, temperature, Redox potential, pH, chlorophyll, water and organic content were measured from the burrow walls to assess the correlation between environmental variables and bacterial communities. Bacteria were enumerated with epifluorescence microscopy after staining with SYBR green. Bacterial DNA extracted from sediment samples and the community profiles of bacteria were determined with Terminal Restriction Fragment Length Polymorphism (T-RFLP). High endemism was observed among bacterial communities. Among the 152 observed OTU's, 22 were found only in crab burrows. The highest bacterial density and diversity were recorded in burrow wall. The results of ANOSIM indicated a significant difference between the bacterial communities from the three species of fiddler crab burrows. Only 3% of explained bacteria variability in the constrained ordination model of CCA was contributed to depth, while much of the bacteria's variability was attributed to coarse sand, pH, and chlorophyll content induce significant effects on the bacterial communities.

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Keywords : bioturbation, canonical corresponding analysis, fiddler crab, microbial ecology

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