

Abstract

Impact of pollution on the feeding, bioturbation and biomass of *Uca annulipes* in Gazi and Mikindani mangroves, Kenya. *Ocean Life* 1: 61-68. Marine pollution is one of the main anthropogenic factors globally recognized that affect the estuarine and coastal ecosystems. Mangroves received the pollutant since they are intercepting between land and ocean. Despite the utilization of natural mangrove as pollution buffers, how these pollutants might impact the biodiversity of the ecosystems remains a great question. Here, we aimed at determining the impact of pollution on the feeding, bioturbation, and biomass of the fiddler crab *Uca annulipes* in two regions, Gazi and Mikindani, all along the Kenya Coast. The mangroves in Mikindani on Tudor creek represented peri-urban mangroves that are heavily impacted by municipal wastewater. Meanwhile, the mangroves in Gazi Bay in the South Coast of Kenya served mangroves not affected by direct sewage input. Furthermore, Crabs *U. annulipes* are one of the most important groups of mangrove epifauna. We adopted a stratified nested design to investigate the impacts of pollution on the feeding, bioturbation, and biomass of *U. annulipes*. We applied a layered random sampling approach at each site that spanned in 2×2 m² quadrats in desert and *Avicennia* zones during July, August and October 2005. The data collection depended on each full moon springs and new moon springs. Different parameters were measured, chlorophyll a (Chl a) concentrations in the feeding pellets and unprocessed soils, amount of bioturbated clays (expressed as dry weight of excavated material and feeding pellets), and biomass (dry weight) of *U. annulipes*. Four-factor Analysis of Variance (ANOVA) tests were applied to determine whether there was a significant difference in feeding, bioturbation, and biomass of *U. annulipes* within the two sites. Our findings show substantial differences in chlorophyll a concentration in the feeding pellets in the *Avicennia* zone of the peri-urban mangroves. Moreover, chlorophyll a level did not vary between the processed and unprocessed soils in the *Avicennia* zone. In Gazi, a significant difference in the bioturbated material was recorded compared to Mikindani. The results demonstrate a consistent increase in crab biomass at the peri-urban site, then the non-urban mangroves. The *Avicennia* zone of the suburban location had a higher *U. annulipes* biomass compared to the non-urban Gazi. There was no association between the mass of bioturbated material and *Uca* biomass. The results also show that the amount of excavated material did not relate to the *Uca* biomass.