Salt-making in mangroves, an economic activity that influences genetic diversity and structure of the fiddler crab *Uca annulipes* (H. Milne Edwards 1837)

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The fiddler crab *Uca annulipes* is a dominant species in mangrove forests along the East African coast. It enhances soil aeration and, through its engineering activities, makes otherwise-inaccessible food available for other marine organisms. Despite its importance, the habitat of *Uca annulipes* is threatened by human activities. Clearing themangroves for salt farming and selective logging of mangroves trees continue to jeopardise mangrove ecosystems in the Western Indian Ocean. This study aims to use partial mitochondrial COI gene sequences and nuclear microsatellites to determine whether salt farming activities in mangroves have impacts on the genetic diversity and structure of *Uca annulipes* collected along the Tanzania coast. The level of genetic diversities for both mitochondrial DNA and nuclear microsatellites are relatively lower in samples from salt ponds compared to natural mangrove sites. Analysis of molecular variance (AMOVA) among all populations showed low but significant differentiation (CO1: F_{st} = 0.022, P < 0.05; microsatellites: F_{st} = 0.022, P < 0.001). An hierarchical AMOVA indicates genetic differentiations between populations from salt ponds and natural mangroves sites (COI: F_{ct} = 0.033, P <0.05; microsatellites: F_{ct} = 0.018, P = < 0.01). These results indicate that salt farming has a significant impact on the genetic population structure of *U. annulipes*. Since higher genetic diversity and genetic connectivity contribute to a stable population, restoring the cleared habitats may be the most effective measures for the conservation of genetic diversity and hence adaptive potential to environmental change in this species.

Keywords: solar salt production; mangal forest; fiddler crabs: genetic variations; West Indian Ocean