

Genetic Analysis of the Endangered Mangrove Species *Avicennia Marina* in Qatar Detected by Inter-Simple Sequence Repeat DNA Markers

Authors : Talaat Ahmed, Amna Babssail

Abstract : Mangroves are evergreen trees and grow along the coastal areas of Qatar. The largest and oldest area of mangroves can be found around Al-Thakhira and Al-Khor. Other mangrove areas originate from fairly recent plantings by the government, although unfortunately the picturesque mangrove lake in Al-Wakra has now been uprooted. *Avicennia marina* is the predominant mangrove species found in the region. Mangroves protect and stabilize low lying coastal land, and provide protection and food sources for estuarine and coastal fishery food chains. They also serve as feeding, breeding and nursery grounds for a variety of fish, crustaceans, reptiles, birds and other wildlife. A total of 21 individuals of *A. marina*, representing seven diverse Natural and artificial populations, were sampled throughout its range in Qatar. Leaves from 2-3 randomly selected trees at each location were collected. The locations are as follows: Al-Rawis, Ras-Madpak, Fuwairt, Summaseima, Al-khour, AL-Mafjar and Zekreet. Total genomic DNA was extracted using commercial DNeasy Plant System (Qiagen, Inc., Valencia, CA) kit to be used for genetic diversity analysis. Total of 12 (Inter-Simple Sequence Repeat) ISSR primers were used to amplify DNA fragments using genomic DNA. The 12 ISSR primers amplified polymorphic bands among mangrove samples in different areas as well as within each area indicating the existing of variation within each area and among the different areas of mangrove in Qatar. The results could characterize *Avicennia marina* populations exist in different areas of Qatar and establish DNA fingerprint documentations for mangrove population to be used in further studies. Moreover, existing of genetic variation within and among *Avicennia marina* populations is a strong indication for the ability of such populations to adapt different environmental conditions in Qatar. This study could be a warning to save mangrove in Qatar and save the environment as well.

Keywords : DNA fingerprint, *Avicennia marina*, genetic analysis, Qatar

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