

## The study of morphometry and soil parameters of Hara ecosystem (*Avicennia marina*) in Tiyab area

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Received date: 2021.12.06

Reception date: 2022.01.20

### Abstract

The southern coast of Iran, has rich natural resources, including mangrove forests. In this study, with the aim of investigating the morphometric and sedimentary parameters of the mangrove ecosystem in Tiyab region, as part of Iranian mangroves during the first six months of 2020, which was the tree reproduction period, the relationship between mangrove parameters and sedimentary ecosystem characteristics was identified. To determine the structure of the sampling site by linear transect method using square parts with random distribution for vegetative parameters of trees and one square meter quadrats were used to determine the statistics of seedlings, aerial roots and fallen leaves. In order to determine the grain size of sediments and the percentage of total organic matter in the three stations at the beginning, middle and end of the estuary the samples were collected. Water parameters including EC, pH and Salinity were examined. Results of statistical studies in this habitat showed that the average tree height, canopy diameter, trunk diameter are 335, 436.2 and 26.2 cm, respectively. The aerial roots of the trees were measured at an average of 119.7 per square meter and their height was 10.21 cm. The average number of leaves shed in the habitat was 13.6 per square meter and their average area was 52.72 square centimeters and the average number of seedlings located in the habitat was 3.86 plants per square meter. Positive correlation coefficient was observed between height and diameter of tree trunk ( $r = 0.59$ ), between height and canopy diameter ( $r = 0.78$ ) and between trunk diameter and canopy diameter ( $r = 0.81$ ). Analysis of total bed sediments in this area showed that sand, silt and clay particles were calculated to be 20, 50 and 30 percents, respectively. The average of salinity in this area was  $37.3 \pm 1.5$  g/l and the average electrical conductivity was determined to be  $64 \pm 0.1$  ds/m and the average pH was  $7.92 \pm 0.2$ . The morphometric results of the reproductive period of the tree showed well that the flowers of mangrove trees flowered in mid-April, and this trend continues until June. In July, a large number of flowers dried, and in mid-summer, the seeds were well visible at the top of the branches. In August, seeds fall were observed and in late summer, the fall trend were increasing and many seeds were observed in the Tiyab area.

**Keyword:** Mangrove, Sediment, Total Organic Matter, Diameter of tree.