Study Growth Indicators of Mangrove *Avicennia marina* (Forsk.) Vierh. Cultivated on the Coast of Khor Al-Zubair Oil Port, South of Basrah - Iraq

Jihad M. Al-Zewar[1], Taha Y. Al-Edany[2] and Jabbar D. Naema[3]

[1]Marine Science Centre, University of Basrah, Basrah, Iraq.
[2]Collage of Agriculture, University of Basrah, Basrah, Iraq.
[3]Collage of Science, University of Basrah, Basrah, Iraq.

[1]E-mail: jihad.majeed@uobasrah.edu.iq
[2]E-mail: jihad84alzwar@gmail.com

Abstract. A study was conducted to assess the growth indicators of mangroves *Avicennia marina* cultivated in the intertidal zone at the Khor Al-Zubair oil port site for the period from May 2020 to May 2021. The study showed high growth indicators. Recorded the highest averages indicators to the total height of the plant and the number of lateral branches were 113.4 cm and 30.4 branches. Plant^{-1} after 12 months from the date of planting in the site, while the highest average to indicators of the total number of leaves in the plant, the total leaf area, and the total leaf content of chlorophyll reached 176 leaves.plant^{-1}, 3511 cm^2.plant^{-1}, and 52.7 µg.cm^{-2} were after 9 months of cultivation in the field, respectively. While the plants achieved survival rates of 78% at the end of the experiment. The results were compared according to the Least Significant Difference (L.S.D.) test at a probability level of 0.05.

Keywords. Mangrove, acidic soils, Oil Port.

1. Introduction

Mangroves grow on land that is periodically flooded with seawater and in anaerobic and acidic soils [1], and cover about 137,760 square kilometers in 118 countries in the tropics and subtropics [2]. They constitute a productive ecosystem, from providing economic and ecological value to protecting beaches from storm surges, erosion, and sedimentation [3] and serving as intense carbon sinks [4]. Mangrove forests are unique ecosystems of great social, economic, and vital importance. So, it is one of the most productive ecosystems in the world because it provides important ecosystem supplies and services to human society as well as coastal and marine systems [5-7]. These habitats interact with a wide variety of aquatic and terrestrial plants and animals, enabling them to grow and thrive. Also, mangrove forests reduce the power of waves significantly and protect the coast from erosion, and therefore coastal forests such as mangrove forests and salt marshes can act as a coastal defense system as they grow in balance with erosion and accumulation processes resulting from waves, winds, and other natural phenomena [8,9].

Mangrove habitats in the Arabian Gulf support a variety of important species of fish, shrimp, turtles, and birds, and contribute significantly to coastal productivity [10]. Studies in Kuwait have shown significant positive impacts of mangrove plantations on the coastal environment, including water

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