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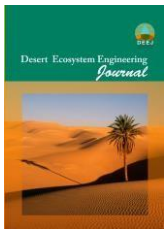

Assessing changes in plant species diversity along the salinity gradient (Case study: Incheh Borun rangelands)

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Abstract

Salinity is one of the environmental parameters that its impact on plant species diversity requires further studies. In this research, change of plant diversity was studied along a salinity gradient that was resulted from proximity of water table to the land surface in Incheh Borun plain due to the altitudinal change in northern part of Aq-Qala city. A transect with the length of 1 km was laid out along one of the hills in the region. Sampling units (plots) with the size of 3×3 m was established at 100 meters intervals along the transect. A floristic list was compiled and plants canopy cover was estimated in each sampling unit in the direction of dominant altitudinal gradient. Shannon-Wiener and Simpson indexes were calculated by using of PAST software. βdiversity was calculated between the sampling units using the Whittaker index. The relationship of salinity changes between sampling units along the altitudinal gradient and Alfa diversity, Simpson and β-diversity were studied using the linear regression. Results showed that there are significant relationships between the altitude, soil salinity and plant diversity indices. Soil salinity increases by decrease of altitude and the biodiversity decreases by increasing of soil salinity. These changes occur due to increasing of salinity.

Keywords: β-diversity, Incheh Borun rangelands, salinity stress, Shannon diversity index, species composition, topography.

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