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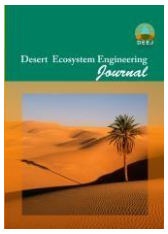

Investigation on the response of *Frankenia hirsuta* species to some environmental gradients using HOF function in the saline rangelands of Inchehbrun, Golestan province

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Abstract

Frankenia hirsuta is a perennial halophyte species playing an important role in forage production in Incheboron, Golestan Province. Examining the ecological niche of this species in rangeland ecosystems of Incheboron can predict their response to environmental factors and the effective management. The objective of this study was to investigate the response of *Frankenia hirsuta* species to some environmental gradients in the saline rangelands of Inchehbrun using HOF function. For this purpose, 400- 4m^{2}quadrates were laid out as randomized-systematic along water point distance. Within each quadrat, presence of *Frankenia hirsuta* species was recorded. Soil samples were taken from 0-20 cm in each quadrate for analyzing bulk density, soil moisture, pH, N, EC, P, organic carbon, the percentage of sand, silt and clay. In order to study the shape of response curve in relation to the above-mentioned variables, HOF function was used with binomial distribution function. The data were analysed by R ver.3.0.2 statistical software. The results showed that the ecological amplitude and optimum along water point distance gradient for *Frankenia hirsuta* species has been estimated 200 – 1000 m and 825 m, respectively. The response curve of *Frankenia hirsuta* species to the water point distance gradient was also monotonically increasing. The behavior of *Frankenia hirsuta* species to organic carbon, N, sand and soil moisture increased monotonically. Overall, in saline rangelands of Golestan Province, this species has been distributed as patches in low lands and the places with suitable moisture and relatively less salinity. It is suggested that heavy grazing is prevented in the area for protection and sustainable utilization of this species.

Keywords: Response curve, *Frankenia hirsuta*, Environmental gradients, Function HOF.

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