

Abstract

Iranian Prosopis cineraria, an indigenous species, is a Sahara-Sandy indicator. The purpose of the present study is to investigate the effect of excessive use of underground water on the plant's dryness and soil fertility in Iranshahr rangelands. For this purpose, at first, 11 habitats of the species damaged by overuse of the underground water are selected. Besides these areas, the area where the Iranian *Prosopis cineraria* is available with its suitable crown is considered as the control site. In each study site, there are three pismetrics, each with three 100- meter radial transects. During each transect, ten 10*10 plots are considered, and the vegetation is determined in terms of geographic distribution, long-term desertification, and vegetative form of permanent species. For example, the vegetative status of *Prosopis cineraria* was measured with accompanying species, species diversity, species richness, uniformity, and total crown cover. Moreover, for each transect in each site, soil samples are taken from depths of 0 to 100 m for each transect. Likewise, soil texture factors, acidity, electrical conductivity, organic carbon, total nitrogen, and available phosphorus and lime contents are measured. In order to make a significant difference between the regions and to do statistical analysis of the data with a completely random block design with three replications, the SPSS software is used and comparison of the means is performed by T- TST test. Based on the results, it can be inferred that excessive exploitation of groundwater not only has an adverse effect on the quality and quantity of water, but it also leaves negative effects on the vegetation of *Prosopis cineraria* in areas where there is a higher rate of underground water use than the control area in the city of Iranshahr. In fact, two districts, Shams Abad (50.60) and Azmen Abad (24.82) have the most significant differences. Moreover, in terms of comparing the impact of overuse of the groundwater on soil properties and *Prosopis cineraria* degradation with that of the control area, salinity content in Gaskok district (3.5%), loam in Gaskok region (78.33%), soil organic matter in Sorab (10.59%), sand in Gaskok region (78.33%), N in Sartakhti region (83%), phosphorus in Sarkahoran district (4.96%), lime in Sorab district (14/80%) , and clay in Sarkahoran district (27.66%) have the highest rates of significant difference in the city of Iranshahr. It also indicates the *Prosopis cineraria* degradation and the effect of such factors on the *Prosopis cineraria* cover crown in the studied areas.

Keywords: Water table, Groundwater, Species diversity, Precipitation, Dry rangelands, *Prosopis cineraria*



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**The Effect of wasteful Ground Water Depletion and
Soil Physical and Chemical Properties on Dieback of
Prosopis cineraria in Iranshahr Rangelands.**

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