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Long-term impact of irrigation with municipal wastewater of Tehran on physico-chemical characteristics of soil under afforestation (*pinus eldarica* Medw.)

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Increasing urbanization and industrialization in major cities lead to an increase in availability and volume of waste water. One of possible mechanisms that can be used to reduce the pressure on fresh water resources is recycling of waste waters for irrigation. In this study, some characteristics of Tehran municipal wastewater and its irrigation effect on soil physico-chemical characteristics were investigated in two areas under afforestation of eldar pine(*Pinus eldarica* Medw.) trees irrigated by municipal sewage and well water in southern Tehran. For this purpose, four sample plots (30 m × 30 m) were randomly chosen in either of both areas. In each plot, four profiles were dug and soil samples from depths of 0-15, 15-30, 30-60 cm were taken. The soil samples of each depth in each plate were mixed for decreasing the number of samples. Studied properties of water indicated that municipal sewage contained higher amount of nutrient NPK, pH and EC compared to well water. the results of soil samples showed that pH, EC, SOC, N, P and K of soil were significantly greater in area irrigated with municipal sewage than with well water. It might be concluded that the municipal sewage could be utilized for trees irrigation at afforestation sites.

Keywords: Afforestation, Irrigation, Municipal sewage, Nutrient elements, Soil

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