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Effect of treated wastewater on characteristics of Zoysiagrass species in different soil textures

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In this research, the effects of advanced treated wastewater (TW) of Shahinshahr Wastewater Treatment Plant was studied with different percentages of water and TW (100% water, 75% water and 25% TW, 50% water and 50% TW and 100% TW) in three soil textures (sandy loam, loam and clay loam) on five varieties of zoysiagrass (three varieties of zoysia matrella and two varieties of zoysia japonica). A factorial experiment was carried out using a completely randomized block design with three replications. The results indicated that using TW for irrigating turfgrass increased its color, height and yield. Maximum color and height was obtained by using the mixture of 75% TW and 25% water, and maximum yield was obtained in irrigation with 100% TW. The turfgrass varieties had higher color and yield in loamy soil, but plant height was not affected by soil texture. The highest color scale was associated with DALZM3 variety, and DALZJ1 variety had the maximum height and yield. Interaction of percentages of TW and soil texture indicated that turf color in loam texture was higher than other textures. Soil texture and turf variety interaction was not significant. Interaction of percentages of TW and turf variety indicated that highest color scale was obtained in DALZM3 variety using 75% TW and 25% water, and DALZJ1 variety had the highest height and yield using 100%TW. Hence, using TW had no negative effects on turfgrass characteristics.

Keywords: Treated wastewater, Zoysiagrass, Turfgrass characteristics

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