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Effects of treated wastewater on adsorption of nutrients by turfgrass in different soil textures

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The increasing water shortage in the arid and semiarid areas requires use of recycled wastewater when possible. In the near future, wastewater will become gradually a common water source for irrigating urban landscapes. Irrigation with wastewater changes soil properties. Hence, a case study was undertaken to assess the effect of sewage irrigation on nutrient uptake by a turf cover (DALZJ1 variety). 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, 50% water and 50% TW and finally 100% TW) in three soil textures (sandy loam, loam and clay loam) for a period of 10 months. The experiment was a completely randomized block design with factorial arrangement, with three replications. The results indicated that using TW for irrigating turfgrass increased plant uptake of N. Maximum absorbed K was in 50% TW treatment. Also, absorption of P and Fe was not affected by TW. Analysis of variance showed that there were no significant differences between soil treatments in plant uptake of NPK and Fe. Interaction effects of soil texture and TW was discussed. Although soil texture did not affect N uptake by this turfgrass, but interaction of TW percentage and soil texture was significant ($P<0.01$). Variation of uptake with increasing of TW amount in irrigation water was not linear and soil texture did not affect plant uptake of nutrients in DALZJ1 variety.

Keywords: Wastewater, Plant uptake of nutrients, Zoysia grass

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