



Assessment of zeolite application on soil water content in the condition of leachate reuse of Isfahan compost company

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Today more than 150 synthesized Zeolite types and 48 natural Zeolite have been distinguished. Zeolite is an Alumino-Silicates containing alkali cations in its compounds. Some researches show that Zeolite could increase soil water capacity; therefore increase crop yield and decrease amount of irrigation water and fertilizer loss. The main objective of this research was to evaluate and monitor Zeolite application for increasing soil water absorption capacity in a sandy clay loam texture when it was irrigated by leachate from Isfahan compost factory. This study was conducted with 4 treatments and 5 replications in 20 columns, in summer 2006. The treatments were as the follow: T1: soil of Isfahan compost factory plus irrigation with fresh water, (as control), T2: soil of Isfahan compost factory plus irrigation with 100% leachate, T3: Soil of Isfahan compost factory with 5% Zeolite (Semnan mine) plus irrigation with 100% leachate, T4: Soil from Isfahan compost factory with 10% the Zeolite plus irrigated with 100% leachate. Irrigation water depth was 20 mm and irrigation interval was three days for a 12 times irrigation period. Soil water adsorption capacity was measured in the 12 irrigation events. The results show that irrigation with the leachate has significantly decreased soil water adsorption capacity. However application of the zeolite caused T4 to adsorb significantly more water in comparison to T2 and T3. According to this research soil water adsorption capacity were 74.3, 60.8, 65.7 and 92.7 in T1, T2, T3 and T4, respectively. In conclusion application of zeolite could improve soil water capacity in the case of leachate application.

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