



Effect of the irrigation with waste water on two different mediterranean soils under greenhouse conditions

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The semi-arid zones as the Mediterranean coast are densely populated and their aquifers are being hardly exploited. The use of waste water for irrigation is an alternative for the water shortage. Consequently, it is considered necessary to improve the efforts to investigate changes of soil properties. The main objective of this work was to compare the short-term effects of irrigation with waste water on two different Mediterranean soils. It was used flowerpots with loquat (*Eriobotrya japonica* Lindl) under greenhouse conditions. Two different Mediterranean soils were selected from Alicante, SE of Spain, one gypsiferous soil and one calcareous soil with similar texture, to evaluate the different behaviour against waste water irrigation. The flowerpots were irrigated with two different treatments: fresh water (control) and treated waste water from secondary treatment. The experience lasted twelve months, the first six to adapt the plants into the greenhouse and then the soils were irrigated twice a week. Two soil sampling were taking in the beginning and in the end of the experiment to determinate EC, Na, P, OC and N. In both soils our results show a slight increase in electrical conductivity, being deeper in the calcareous soil as it is easier to drain. However it was found a higher increase of sodium concentrations in the gypsiferous soil. Fertility analysis in the secondary treatment of both soils presented an improvement in potassium and available phosphorus levels. In the other hand, organic carbon and nitrogen do not seem to change; the reason could be an enhancement in biological activity caused by irrigation. This biological activity and greenhouse conditions speed up organic matter mineralization. According to the short-term results in the soils studied parameters, except for electrical conductivity and sodium content, there is not a notable negative impact. Nevertheless, it must be necessary to extend the experience for long-term conclusions.