



## **Short-term effects of treated waste water irrigation on soil. Two years of a study monitoring a Mediterranean calcareous soil**

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Shortage of water and soil degradation are the most important environmental problems in the Mediterranean areas due, in many cases, to inadequate agricultural management of irrigation to which organic matter is not correctly added, and the use of low quality waters for irrigation. For this reason strategies for saving water and for the restoration of the mean properties of soil are necessary. The use of treated waste water for the irrigation of agricultural land is a good solution to these problems, because it reduces the utilization of fresh water and potentially could improve key soil parameters, thus influencing crop production in a positive way by increasing soil nutrients and organic matter content. In this work we are studying the short-term effects of irrigation with waste waters on several soil properties related to fertility, in an agricultural area located at Biar (Alicante, SE of Spain), with a crop of grape (*Vitis labrusca*). Three treatments are being used in the irrigation of the soil: fresh water (control), and treated waste waters from secondary and tertiary treatment. A soil sampling was carried out every four months. We show here the results after two years of irrigation treatments. Results confirm a slight decrease of organic carbon and nitrogen contents in plots irrigated with water from secondary treatment, in these plots an increase of the electrical conductivity (EC) has also been observed. Laboratory analyses also show an increase in P available, pH and Na on plots with waste water application. At the moment, the changes found between treatments do not imply quantitatively great changes in soil properties and negative impacts into the soil with the exception of EC, which must be monitored to control their values. Although we show here partial results of a long-term experiment, the conclusion is positive since treated waste waters are not producing notable changes on soil parameters in comparison with plots treated with fresh water.