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Does irrigation with treated waste water degrade the soil? A one year study monitoring a Mediterranean calcareous soil

A. Morugan, F. García-Orenes, J. Mataix-Solera, I. Gómez, C. Guerrero, V. Arcenegui, R. Zornoza, P. Ballester

GEA (Grupo de Edafología Ambiental). Departamento de Agroquímica y Medio Ambiente, Universidad Miguel Hernández, Avenida de la Universidad s/n, 03202-Elche, Alicante, Spain. jorge.mataix@umh.es

The 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 in which organic matter is not correctly added and the use of low quality waters for the irrigation. For this reason strategies for saving water and restoring the means properties of soil are necessary. The use of treated waste waters for the irrigation of agricultural land is a good solution to these problems, because it reduces the utilization of fresh water and can 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 effects of irrigation with waste waters on soil physical, chemical and microbiological properties, in an agricultural area located at Biar (Alicante, Spain), with a crop of grape (*Vitis labrusca*). Three treatments are being applied 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 1 year of irrigation treatments. Laboratory analyses confirm that at the moment only a few statistical differences have been found between treatments, and in no case do they imply a negative impact on the soil. 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 compared with plots treated with fresh water.

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