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Chemical Characterization of Some Low Quality Water (Sewage Effluent) Used for Irrigation in Egypt: Case Study

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Abstract : Two low quality sewage effluents monthly collected during January 2012 to July 2012from Abu-Rawash and Zenine sewer plants were chemically analyzed and compared with Nile river water to evaluate their irrigation suitability. Sewage effluent samples were characterized for their pH, electrical conductivity (EC), sodium adsorption ratio (SAR) as well as their soluble cations and potential toxic elements (PTE's). Results pointed to significant variations in the chemical characters of sewage effluent samples and Nile water, as well as between the two sewage effluent samples. Significant increases in EC, pH and SAR in both sewage effluent were recorded compared to Nile water as well as to the save levels of irrigation water given by FAO. Results confirmed that all over the year the contents of Cd^{2+}, Cu^{2+}, Mn^{2+} far exceeded the safe levels. The case was somewhat different for Zn^{2+} where its content exceeded the safe level only during some months of the year. According to Doneen parameter for water quality, both sewage effluent samples are not safes to irrigate edible crops.

Key words: sewage effluent, chemical characters, PTE's, Abu-Rawash, Motamadia, Doneen parameter.

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