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Evaluation of Treated Municipal Wastewater Quality for Irrigation

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ABSTRACT

Wastewater reuse is a useful tool in minimizing the amount of wastewater in the environment. Therefore, evaluation of the suitability of Al-Rustamiyah WWTP municipal treated wastewater for irrigation was made according to its composition and the international irrigation water quality standards. In addition, to classify water quality and to evaluate its suitability for irrigation purposes, Sodium Adsorption Ratio (SAR), Soluble Sodium Percentage (SSP) and Residual Sodium Carbonate (RSC) were calculated following standard equations and found experimentally as (2.11), (35.67) and (– 12.75) respectively. Plotting the values of conductivity (EC) and sodium absorption ratio (SAR) on the US salinity diagram illustrated that most of the samples fall in the field of C3-S1, indicating high salinity and low sodium water which can be used for irrigation on almost all types of soil without danger of exchangeable sodium. Furthermore, the data indicate slight to moderate degree of restriction on the use of this treated wastewater in irrigation due to chloride hazard. RSC value is negative at all sampling sites, indicating that there is no complete precipitation of calcium and magnesium. Overall, the treated wastewater can be classified with few exceptions as suitable for irrigation use.

KEYWORDS

Wastewater Reuse, Irrigation, Sodium Adsorption Ratio (SAR), Residual Sodium Carbonate (RSC), Soluble Sodium Percentage (SSP)

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