

EVALUATION OF THE QUALITY OF WASTEWATER TREATED FOR IRRIGATION IN THE VALLE ALTO OF THE CITY OF COCHABAMBA**Ivette Echeverría, Gabriel Aliaga, Oliver Saavedra****ABSTRACT**

The present study focuses on analyzing the physicochemical quality of the effluents generated by a group of Wastewater Treatment Plants (WWTPs) located in the Valle Alto of Cochabamba to determine their suitability for agricultural reuse. The main parameters analyzed were $(\text{SO}_4)^{-2}$, $(\text{Cl})^{-1}$, $(\text{Na})^{+1}$, $(\text{Ca})^{+2}$, $(\text{Mg})^{+2}$, $(\text{HCO}_3)^{-1}$ y $(\text{NO}_3)^{-1}$. Additionally, the Sodium Adsorption Ratio (SAR) and exchangeable sodium percentage (PSI) were estimated. The evaluated effluents showed the following concentrations: 132.00 - 252.00 mg/L of $(\text{SO}_4)^{-2}$; 3.02 - 9.48 meq/L of $(\text{Cl})^{-1}$; 11.79 - 17.59 meq/L of $(\text{Na})^{+1}$; 40.00 - 100.00 mg/L of $(\text{Ca})^{+2}$; 75.39 - 92.42 mg/L of $(\text{Mg})^{+2}$; 153.72 - 473.36 mg/L of $(\text{HCO}_3)^{-1}$; and 17.80 - 37.80 mg/L of $(\text{NO}_3)^{-1}$. The SAR values of the effluents ranged from 5.41 to 8.01. On the other hand, the PSI values ranged from 6.29 to 9.55. Due to their moderate concentrations and based on the classification of the effluents as C3-S2 according to the Riverside classification, the effluents could be used for irrigating soils with adequate drainage. Since none of the treatment plants perform disinfection processes, it is recommended to limit the application of the effluents to crops that are not consumed raw, tall-stem, forage crops, and those with moderate salt tolerance. It is also recommended to apply irrigation techniques that alternate the use of wastewater with other water supply sources to reduce the risks associated with salinity.

Keywords: Wastewater, Effluent Quality, Irrigation, SAR, PSI.

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