Analysis of treated wastewater and feasibility for reuse in irrigation: a case study from Chlef, Algeria

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ABSTRACT

A quantitative and qualitative analysis was performed on treated wastewater to see if it can be used for irrigation, using as a case study the effluent from a wastewater treatment plant in Chlef, Algeria. The results showed that the average removal efficiencies of suspended solids (TSS), chemical oxygen demand (COD), and biochemical oxygen demand (BOD5) were 88, 94, and 98%, respectively. The average effluent concentrations ranged from 3 to 29 mg/L for TSS, 30 to 57 mg/L for COD, and 3 to 8.9 mg/L for BOD5. All were within the World Health Organization standards. Furthermore, the total coliform concentration of the treated wastewater was also within the national and international standards. There was an absence of toxic micro-pollutants such as heavy metals, which suggests that treated water can be used as an alternative water resource for irrigation. The reuse of treated wastewater is both a political and socioeconomic challenge. However, this route may help to alleviate water shortages by better conserving natural resources and also contributing to the development of integrated water management systems.

Keywords: Chlef Algeria; Treated wastewater analysis; Wastewater reuse; Irrigation

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