

Abstract

Municipal wastewater reclamation and reuse provides a valid and effective way to face water crisis in many countries around the world. In this paper, a performance survey on the urban wastewater treatment plant (UWWTP) of the city of Boumerdes has been conducted in order to assess the potential of reuse of its treated waters. The study reveals that the plant is operated efficiently and complies with the related discharge standards in terms of organic matter and heavy metals. Three vegetable species (potato, tomato and cucumber) were planted and irrigated with treated waters issued from Boumerdes plant and subsequently analyzed for the purpose of assessing their heavy metals content. The concentrations of Cu, Zn, Pb and Cr were observed in range of 2.5-3.0, 0.5-0.6, 1.8-12.5 and 0.9-6.2 mg/kg (dry wt.), respectively. The survey showed, paradoxically, that all vegetables irrigated with reclaimed waters are much less contaminated with metals than similar vegetables purchased in different Algerian markets. Furthermore, the assessing of the potential health risk for consumers has showed that irrigation with treated waters can reduce the estimated daily intake (EDI) and the target hazard quotient (THQ) for all metals by more than 85%. This study reveals that no adverse effects on resident's health could be expected from consumption of vegetables irrigated with treated wastewaters