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Treatability of organized industrial district (OID) effluent for reuse in agriculture

Seval Kutlu Akal Solmaz[a]*, Gökhan Ekrem Üstün[a], Fehiman Çiner[b]

[a]*Department of Environmental Engineering, Faculty of Engineering and Architecture, Uludag University, 16059 Gorukle, Bursa, Turkey*
Tel. +90 (224) 2942106; Fax + 90 (224) 4429148; email: akal@uludag.edu.tr
[b]*Department of Environmental Engineering, Faculty of Engineering, Pamukkale University, 20070 Kinikli, Denizli, Turkey*

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ABSTRACT

In this study, a combination of chemical precipitation, neutralization and ion exchange processes for an Organized Industrial District (OID) wastewater reclamation for reuse in agriculture was investigated. The parameters analyzed after treatment stages are agricultural irrigation standards. Optimum removal efficiencies for SS, COD, and fecal coliform bacteria were obtained as 96%, 31%, and 87%, respectively, when the pH value was adjusted to 11 in the chemical precipitation process. The average removal efficiency obtained for conductivity parameter was 90%, and the removal efficiencies for SO_4^{2-} and Cl– were 71% and 96%, respectively, when the resin with 20 mL H-type/20 mL OH-type ratio was used in the ion exchange process. As a result of the study, the quality of the water treated by using chemical precipitation and ion exchange processes was enough to be reused in agriculture.

Keywords: Chemical precipitation; Ion exchange; Organized industrial district; Agricultural irrigation; Reuse

* Corresponding author.