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ASSESSMENT OF ELECTROCOAGULATION PROCESS FOR DRINKING WATER TREATMENT

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Abstract

In this study, the electrocoagulation process using aluminium anodes was tested as alternative for coagulation process for the drinking water treatment using two types of real groundwater sources, characterized by low turbidity, moderate and high organic load, and nitrite and ammonium species for one of them. The optimum operating conditions determined to be pH 6.5, current density (i) 25A/m² at 30 min resulted in removal efficiency of over 70 % for total organic carbon (TOC) parameter and 40 % for total nitrogen (TN) parameter. A protocol named adapted electrocoagulation consisted of I of 100 A/m² for 5 min followed by 25 A/m² for 10 min led to the same process efficiency for TOC and TN removal avoiding residual aluminium presence in the treated water. The electrocoagulation process integration within drinking water treatment flow was proposed.

Key words: aluminium anodes, drinking water treatment, electrocoagulation process, groundwater

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