



Evaluating the efficiency of electrochemical process in removing COD and NH₄-N from landfill leachate

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ABSTRACT

Landfilling leachate contains a high concentration of organic and inorganic pollutants. The present study was aimed to evaluate the efficiency of the electrocoagulation system in removing chemical oxygen demand (COD) and ammonia-nitrogen (NH₄-N) from leachate. The paper investigated the factors affecting removal efficiency such as current density (187.5, 375, and 562.5 A/m²), electrode material (Al and Fe), and electrolysis time and pH of the solution (6.5 ± 0. 2). The results indicated that, in optimum conditions, the highest COD and NH₄-N removal efficiencies were 66 and 63%, respectively. According to the results, performance of the Al electrode was better than that of the Fe electrode in terms of COD and NH₄-N removal. Therefore, the results showed that electrocoagulation can be applied for the leachate pretreatment as a feasible and reliable technique.

Keywords: Electrocoagulation; Landfill leachate; COD; NH₄-N

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