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Landfill Leachate Wastewater Treatment by Fenton Process

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Abstract : The leachate wastewater is high contaminant water; hence it needs to be treated. The objective of this research was to determine the Chemical Oxygen Demand (COD) concentration, Phosphate (PO_4^{3-}), Ammonia (NH_3) and color in leachate wastewater in the landfill area. The experiments were carried out in the optimum condition by pH, the Fenton reagent dosage (concentration of dosing Fe^{2+} and H_2O_2). The optimum pH is 3, the optimum $[Fe^{2+}]/[COD]$ and $[H_2O_2]/[COD_0]$ = 0.03 and 0.03, respectively. The Biochemical Oxygen Demand (BOD_5)/Chemical Oxygen Demand (COD) ratio can be adjusted to 1 for landfill leachate wastewater (BOD_5/COD = 0.11). From the results, the Fenton process shall be investigated further to achieve the removal of phosphates in addition to COD and color.

Keywords : landfill leachate treatment, open dumpsite, Fenton process, wastewater treatment
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