International Conference of Sustainable Environmental Technology 2019

(ISET2019)

Effect of pH of Wastewater on Turbidity Reduction using Jackfruit Peel (Artocarpus heterophyllus) Coagulant

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Abstract

Presently, wastewater treatment using chemical coagulants has been major concern due to production of sludge in large volume, high costs and health effects. Thus, the use of plant-based coagulants has attracted researchers to overcome these problems. This study describes the effect of pH on coagulation process by using of jackfruit (Artocarpus heterophyllus) peel as coagulant. The coagulant from jackfruit peel was prepared by extraction method using distilled water. Synthetic sewage was used in this study to imitate medium strength domestic wastewater. Jar test experiment was carried out and the pH of wastewater was varied using hydrochloric acid and sodium hydroxide. After treated, the turbidity of the wastewater was measured to determine the percentage of reduction. The coagulant extracts were characterized using FTIR and zeta potential. It was observed that the jackfruit peel extract works the best as a coagulant at pH 2. Jackfruit peel coagulant can be used as primary treatment of the wastewater and believed to be an environmental friendly alternative.

Keywords*: jackfruit; peel; turbidity; pH; wastewater; Artocarpus heterophyllus*

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