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IUM Engineering Journal
Volume 18, Issue 2, 2017, Pages 63-70

Optimization of flocculation process by microbial coagulant for removal of turbidity in river water (Article)

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Abstract

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The existing process of coagulation and flocculation is using chemicals that known as the cationic coagulant such as alum, ferric sulfate, calcium oxide, and organic polymers. Thus, this study focuses on optimizing of the flocculation process by microbial coagulant in river water. Turbidity and suspended solids are the main constraints of river water quality in Malaysia since they may reduce the dissolved oxygen in the water and affects the aquatic life. Hence, a study is conducted to produce microbial coagulants isolated locally for river water treatment. The chosen microbe used as the bioflocculant producer is *Aspergillus niger*. The parameters optimized in the flocculation process were pH, bioflocculant dosage and effluent concentration. The research was done in the jar test process and the process parameters for maximum turbidity removal was validated. The highest flocculating activity was obtained on day seven of cultivation in the supernatant. The optimum pH and bioflocculant dosage for an effective flocculation process were between 4-5 and 2-3 ml for 0.2 g/l of effluent concentration, respectively. The model was validated by using a river water sample from Sungai Pusu (Pusu river) and the result showed that the model was acceptable to evaluate the bioflocculation process.

Author keywords

Bioflocculant Microbial River water

Funding details

Funding number	Funding sponsor	Acronym
	Ministry of Education	MOE

Funding text

The authors like to express their thanks to Ministry of Education (MOE) for granting a Fundamental Research Grant Scheme (FRGS), project no. FRGS-14-109-0350 for the financial support. Special thanks as well to the Department of Biotechnology Engineering, Faculty of Engineering, International Islamic University Malaysia for providing the equipment, chemicals and instruments for this research.

ISSN: 1511788X

Source Type: Journal

Original language: English

Document Type: Article

Publisher: International Islamic University Malaysia-IUM

References (26)

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- 1 Adlan, N.U., Asif, A., Hamidi, A., Hasan, R.
(2009) The Effects of Raw Water Turbidity in Water Treatment Process at Sg. Kempar Treatment Plant
Universiti Sains Malaysia

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