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Effects of initial turbidity and myco-coagulant dose on the effectiveness of the coagulation process in water treatment (2024) *Applied Chemical Engineering*, 7 (2), art. no. ACE-1546, .

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Abstract

High turbidity is a pollutant that requires coagulants to be removed from treated water and wastewater. This study was conducted to characterize and analyze the potential of myco-coagulant-producing fungus isolated from the moist area of a kitchen. Myco-coagulant production was carried out using solid-state fermentation using coco peat as a substrate. One factor-at-a-time analysis (OFAT) was carried out to assess the capacity of the produced myco-coagulant in various initial turbidities and myco-coagulant doses. The potential of myco-coagulant was tested using turbid synthetic water with different turbidity levels (50, 100, 150, 200, 250 and 300 NTU). The results showed that turbidity removal by the myco-coagulant was influenced by the initial turbidity. The coagulant was less efficient at low turbidity levels, which was approximately 5% for 50 NTU, while the highest was 52% for 300 NTU water. Furthermore, the results demonstrated that myco-coagulant could remove the highest possible turbidities on day 6 with all initial turbidity values studied in this work. Different myco-coagulant doses ranging from 1 to 10% (v/v) were also used to determine the optimum dose for effective flocculation. The highest turbidity removal of 57% could be obtained at an optimum coagulant dose of 4% (v/v). Like any other commercial coagulant, the residual turbidity value increased at a coagulant dose higher than the optimum dose of 4% (v/v). © 2024 by author(s).

Author Keywords

coco peat substrate; myco-coagulant; turbidity; turbidity removal

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