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ASSESSMENT OF POWDER MYCO-COAGULANT EXTRACTED FROM PHANEROCHAETE CONCRESCENS FOR WATER TREATMENT

(2025) *ASEAN Engineering Journal*, 15 (1), pp. 57-63.

DOI: 10.11113/aej.v15.21469

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Abstract

Bio-coagulants are attracting current research interest because they are more environmentally friendly and safer than traditional chemical coagulants. However, the main challenge for bio-coagulants is the production in bulk quantities at a reasonable cost. The main purpose of this study was to investigate the ability of *Phanerochaete concrescens* to produce an effective bio-coagulant in powder form. The one-factor-at-a-time approach (OFAT) was performed to evaluate the capacity of the powdered myco-coagulant for various initial turbidities and coagulant doses. The morphological structure, functional groups and crystallinity of the bio-coagulant were evaluated using scanning electron microscope (SEM), Fourier transform infrared (FTIR) and X-ray diffractometry (XRD), respectively. The addition of 0.09-0.11 g of powder myco-coagulant led to the maximum elimination of turbidity from synthetic kaolin wastewater, which was 80 % from an initial turbidity value of 750±10 NTU. SEM revealed that the fungus that produced the coagulant has a filamentous and linked network structure. FTIR illustrated the presence of hydroxyl, carbonyl, carboxyl, methoxyl and amino groups. The XRD analysis revealed the bio-coagulant to have smaller particle sizes with wider peaks. Based on the findings, *Phanerochaete concrescens* may find use in industry as a producer of powder bio-coagulants.(Figure presented) © 2025 Penerbit UTM Press. All rights reserved.

Author Keywords

Phanerochaete concrescens; Powder Myco-Coagulant; Solid-State Fermentation; Turbidity removal

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Publisher: Penerbit UTM Press

ISSN: 25869159

Language of Original Document: English

Abbreviated Source Title: ASEAN Eng. J.

2-s2.0-105000125767

Document Type: Article

Publication Stage: Final

Source: Scopus

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