

Mechanisms of Indigosol Blue O4B batik dye wastewater degradation by *Aspergillus* sp. 3 and its product analysis

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First Author	
Last Author	
Authors	Dewi, RS; Kasiamdari, RS; Martani, E; Purwestri, YA;
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Abstract	<p>a:2:{i:0;s:828:"The role of fungi in the treatment of dye wastewater has been widely investigated, but not many have reported in full that about the mechanisms and degradation products. The purpose of this study was to determine the mechanism that occurs when microscopic isolate of <i>Aspergillus</i> sp. 3 was isolated from the disposal of batik industrial waste in degrading the Indigosol Blue O4B (IB) batik dye wastewater and deciding the degradation products that were formed. The ligninolytic test using tannic acid was carried out for qualitative tests. To prove the mechanism of degradation of IB batik wastewater, the biosorption mechanism assay was carried out (with changes in the color of mycelium formed and measurement of adsorption %) and the biodegradation mechanism assays of both crude and purified enzymes (Lakase, MnP, LiP enzyme).";i:1;s:799:"The products of degradation were identified using UV-Vis spectrophotometer and FTIR absorption measurements. The isolate produced clear zones on agar media with addition of tannic acid. The isolate mechanism was superior in degrading batik IB wastewater by biosorption (adsorption percentage of 33.39%; 50.49%; 68.55% at 24, 48, 72 hours) and enzymatic degradation (laccase enzyme specific activity, MnP, LiP in the amount of 75.087 U/mg; 49.665 U/mg and 129.347 U/mg). The product of degradation was identified as a simple compound which was an aliphatic compound containing C=C, C-O and -OH bonds, so that it was predicted as a group of aliphatic alcohol compounds. This isolate can be used for further development of applications for environmentally friendly dye wastewater processing technology.";}</p>
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Author	Dr RATNA STIA DEWI, S.Si, M.Sc.