

Biodecolorization of azo dyes by microorganisms isolated from Serdang and Merambong soils

ABSTRACT

Several local microorganisms were isolated and screened for their capabilities to decolorize selected azo dyes. Two isolates, NHG and NH2 have shown their capabilities to decolorize azo dyes i.e. Reactive Black 5 (RB5, diazo) and Metanil Yellow (monoazo), respectively, under agitated condition at room temperature. Isolate NHG was capable to decolorize RB5 99.2% under shaking condition and only 43.88% under static condition in 24 hours. The use of glucose and yeast extract as carbon and nitrogen sources, respectively, has provided optimal decolorization of RB5 by isolate NHG. Isolate NH2, which was isolated from Merambong shoal soil sample, can decolorize 93.3% of Metanil Yellow in 24 hours. Crocein Orange G and Orange II, both have exactly the same molecular weights, were 25.9% and 47.8% decolorized, respectively by the same isolate under agitated conditions. No correlation between degradation rate and molecular weight, number of azo bonds or presence of aromatic molecules has been observed.

Keyword: Merambong shoal; Biodecolorization; Metanil Yellow; Reactive Black 5