

Characterization of chromate reducing *Pseudomonas aeruginosa* strain Mie3 isolated from Juru River sludge and its potential on Azo dye decolorization

ABSTRACT

Chromate and azo dyes are common compounds used in the industrial applications and released into the environments. Therefore studies of bioremediation treatment methods should involve the removal of both pollutants. In this study, we report, a novel chromate reducing bacteria with the capability to decolorize 4 type of dye namely Amaranth Dye, Biebrich Scarlet, Direct Blue 71 and Methanil Yellow under aerobic conditions. The isolate identified as *Pseudomonas Aeruginosa* strain MIE3 and reduced 52% of 150 ppm potassium dichromate (Cr(VI)) in the nutrient broth after 24 hours incubation under shaking condition at 150 rpm. Optimization using one factor at a time (OFAT) showed the optimal conditions for chromate reduction include nutrient broth concentration was 8 g/L, temperature between 30 and 35°C, and pH was 7.8. The ability of this bacterium to detoxify these toxicants make the bacterium a valuable tool for future wastewater and soil bioremediation.

Keyword: Chromate; Azo dye; Reduction; Decolorization