

Mercury Removal Using *Pseudomonas putida* (ATTC 49128): Effect of Acclimatization Time, Speed, and Temperature of Incubator Shaker

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Abstract : Microbes have been used to solve environmental problems for many years. The use microorganism to sequester, precipitate or alter the oxidation state of various heavy metals has been extensively studied. Processes by which microorganism interacts with toxic metal are very diverse. The purpose of this research is to remove the mercury using *Pseudomonas putida*, pure culture ATTC 49128 at optimum growth parameters such as techniques of culture, acclimatization time and speed of incubator shaker. Thus, in this study, the optimum growth parameters of *P.putida* were obtained to achieve the maximum of mercury removal. Based on the optimum parameters of *Pseudomonas putida* for specific growth rate, the removal of two different mercury concentration, 1 ppm and 4 ppm were studied. A mercury-resistant bacterial strain which is able to reduce ionic mercury to metallic mercury was used to reduce ionic mercury from mercury nitrate solution. The overall levels of mercury removal in this study were between 80% and 90%. The information obtained in this study is of fundamental for understanding of the survival of *P.putida* ATTC 49128 in mercury solution. Thus, microbial mercury environmental pollutants removal is a potential biological treatment for waste water treatment especially in petrochemical industries in Malaysia.

Keywords : *Pseudomonas putida*, growth kinetic, biosorption, mercury, petrochemical waste water

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