



Testing a *Pseudomonas putida* strain for 4-chlorophenol degradation in the presence of glucose

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ABSTRACT

One of the most studied process for the decomposition of phenolic compounds involves the use of different microbial species or consortia. The main drawback of biological methods is the possible inhibitory effect of high concentrations of phenolic compounds impacting on the microorganisms. To overcome these difficulty bacteria can be acclimated to higher concentrations of phenols and the use of supplemental carbon sources. In this work a *Pseudomonas putida* strain isolated from a waste treatment plant receiving phenolic waste was tested for 4-chlorophenol removal using 1% (w/v) glucose as a co-substrate. Total removal of 4-chlorophenol concentrations of 50, 150 and 200 mg l⁻¹ were obtained in approximately 27, 53 and 93 h respectively. For a higher 4-chlorophenol concentration of 250 mg l⁻¹, only 22% of degradation was obtained suggesting that at this high concentration, the 4-chlorophenol exerts an inhibitory effect on the bacteria.

Keywords: 4-Chlorophenol; *Pseudomonas putida*; Wastewater; Biodegradation; Acclimation; Glucose

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