

## The Potential of Luminescent Bacteria '*Photobacterium leiognathi*' as a Biosensor for the Detection of Aquatic Toxicity

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### Abstract

Evaluation of environmental aquatic toxicity is a convenient way for environmental pollution management before any detailed chemical pollutant analysis is performed. In this study, the luminescent bacteria *Photobacterium leiognathi* was used to evaluate the toxicity polychlorinated biphenyl (PCB) and lead (Pb). PCB at 2 ppm to 10 ppm and Pb, 0.001 ppm to 100 ppm were exposed to bacteria and the resulting bioluminescence was measured spectrophotomatically at 484.74 nm. There were consistent decreases in bioluminescence with increased toxicity of Pb. However, the bioluminescence was inhibited and did not show consistent decrease with increasing concentration of PCB. *Photobacterium leiognathi* appear to be selectively responding to toxicants at certain level of concentration. *Photobacterium leiognathi* bacterium is potentially useful as biosensors especially for Pb but not for the PCB. However, more work needed to be carried out to determine the detail responses pattern and the threshold value for *Photobacterium leiognathi* in respond to Pb.

*Key Words:* Bacteria/ Bioluminescence/ Luminescent/ *Photobacterium leiognathi*/ Toxicity

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