CHRONIC TOXICITY SCREENING ASSAY (USING LUMINESCENT *VIBRIO FISCHERI*) FOR THE INSECTICIDE DIBROM IS ~20X MORE SENSITIVE THAN AN ACUTE ASSAY; WE NOTED AN EC50 OF 0.68 PPM FOR DIBROM. Albaro L. Perez, Joshua L. Liebowitz, Gabriela A. Molina, Patricia D. Barreto, Jose C. Barreto Dept. of Chemistry and Mathematics, Green Technology Research Group, Florida Gulf Coast University, Fort Myers, FL 33965

Organophosphate insecticides act by blocking synaptic transmission in the nervous system by binding to the active site of acetylcholinesterase, where they inhibit the breakdown of the neurotransmitter acetylcholine. Dibrom is one such insecticide, commonly used to kill adult mosquitos in the US; with annual uses of one million pounds .This high level of spraying has raised environmental concerns. There is a need to develop a rapid, simple and inexpensive Dibrom toxicity screening assay to monitor the environment. *Vibrio fischeri* are luminescent bacteria that show decreased luminescence upon killing and/or injury. Previously, we developed an acute V.*fischeri* bio-assay with 5 min exposure time, then we hypothesized that a chronic toxicity assay would be more sensitive to Dibrom (~22 hrs of exposure). A well plate reader was utilized to measure bacterial luminescence. An EC_{50} value of 13.40ppm is reported for acute studies, while an EC_{50} value 0.68ppm is reported for chronic studies. The chronic assay is therefore ~20X more sensitive than the acute assay for the detection of Dibrom toxicity.