Tolerance and Behavioral Response of Juvenile *Siganus guttatus* to Abaca Pulp Mill Effluent

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ABSTRACT

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Acute bioassay and avoidance-preference tests were done on juvenile *S. guttatus* using lethal and sublethal concentrations of Abaca pulp mill effluent to assess the fish tolerance and behavioral response to the toxic stress and determine its effect to the chemoreception of biologically important odors. Acute bioassay response data were analyzed by log-probit method. Behavioral response data were calculated from the mean reaction values of the fish samples in the Y-maze apparatus.

Results show the fish has a very narrow resistance to the toxic stress of the effluent with LT_{50} values of 1.6 h for the highest (100% vv^{-1}) and 37 h for the lowest (10%vv^{-1}) concentrations. The 48 h LC_{50} was located at 9%vv^{-1} which indicated the fugacity of the effluent and the sensitivity of the fish to its toxicity. The lowest concentration of the effluent with observed significant effect (LOEC) was located at 10% vv^{-1}.

The fish showed pronounced and significant discriminating ability at lethal concentration of the effluent. Avoidance reactions of the fish were only observed at 9% vv^{-1} (lethal) and 0.9 % vv^{-1} (sublethal) concentrations. The avoidance threshold was found at 0.74 % vv^{-1}. Juvenile *S. guttatus* has a very narrow acuity to the effluent, which was located at a tenth of the mean lethal concentration value.

Abaca pulp mill did not mask chemoreception of biologically important odors in juvenile *S. guttatus.*