ABSTRACT

Acute toxicity of some selected detergents on the freshwater fish, Puntius gonionotus (Bleeker), were determined by static bioassay. The fingerling stages of the fish were exposed to various detergent concentrations. Four types of packaged household synthetic detergent, from local market, (FAB, Breeze, Sample A, Sample B) and the surfactant (Tetrapropylenebenzenesulfonate) were used in this study. The toxicities of detergent were expressed as mg/l product and the surfactant was also reported as mg/l MBAS by using methylene blue method.

FAB was found to be the most toxic packaged household synthetic detergent with 12, 24, 48, 72 and 96-hour LC$_{50}$ of 19.019, 18.332, 18.273, 18.203 and 18.123 mg/l product or 6.086, 5.866, 5.846, 5.825 and 5.799 mg/l MBAS respectively, followed by Breeze, Sample A and Sample B. The 12, 24, 48, 72 and 96-hour LC$_{50}$ values exposed to Breeze were 21.983, 20.627, 20.555, 20.527 and 20.181 mg/l product or 7.145, 6.704, 6.680, 6.671 and 6.559 mg/l MBAS respectively. The 12, 24, 48, 72 and 96 hour-LC$_{50}$ values exposed to Sample A were 29.774, 28.125, 28.003, 27.395 and 27.794 mg/l product or 7.164, 6.750, 6.721 and 6.670 mg/l MBAS respectively, whereas Sample B was found to be the least toxic detergent to P. gonionotus with the 12, 24, 48, 72 and 96 hour-LC$_{50}$ values of 172.453, 160.177, 152.240, 142.646 and 131.102 mg/l product or 42.107, 33.637, 31.971, 29.956 and 27.586 mg/l MBAS respectively.
Concerning the surfactant, the LC$_{50}$ values of _P. gonionotus_ exposed to tetrapropylenebenzenesulfonate (ABS) at the same exposure times were 18.835, 18.478, 18.3, 18.056 and 17.92 mg/l MBAS respectively. Otherwise, it was found that the surfactant in product was more toxic than the surfactant. This may be owing to its synergistic effect with other substances in the product. The estimated safe concentration of detergent for _P. gonionotus_ should not be more than 0.29 mg/l MBAS.
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