

ABSTRACT

Most aquatic herbicides pesticides have undergone some toxicity testing for effects on non-target aquatic organisms. Carbamate insecticides are toxic to insects and mammals by virtue of their ability to inactivate the enzyme acetylcholinesterase. The toxicity of Marshall-20, a Carbosulfan-based pesticide widely used in agriculture, was determined toxicity for the indigenous fish *Aplocheilus parvus*. The aim of the study was to determine the influence of acute toxicity of Carbosulfan for *Aplocheilus parvus* and Carbosulfan concentration corresponding to the 96h LC value for *Aplocheilus parvus* was used to study the effects of Carbosulfan exposures in inducing changes of their behavior.

Aplocheilus parvus were exposed to acute concentrations of Carbosulfan for 96hrs. The lethal concentration LC₅₀ of Carbosulfan was 0.328mg L⁻¹ for 96h of exposure, indicating that this fish is more sensitive to Carbosulfan. The mean mortality percentages were 0, 27.77, 38.88 and 66.66 in the order of concentration of 0, 0.25mg/L, 0.30mg/L and 0.35mg/L respectively.

Behavioral changes occurred predominantly in the 96h exposure. Respiratory stress, erratic swimming and death of fish were observed in exposed fish which varies with the concentration of the toxicant and its showed that mortality increased with increasing in concentration. Carbosulfan is toxic to fish. *Aplocheilus parvus* are more susceptible to pesticide; therefore their use on/near fish farm or in area close to aquatic environment should be discouraged.

Key words: Carbosulfan, *Aplocheilus parvus*, LC 50, Acute toxicity, Behavioral changes