

ASSESSMENT OF THE TOXICITY OF CHLORPYRIFOS, AN ORGANOPHOSPHATE INSECTICIDE USED IN AGRICULTURAL PEST MANAGEMENT TO *Puntius cuningii* AND *Puntius bimaculatus*, TWO FRESHWATER FISH SPECIES IN SRI LANKA

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Susceptibility of *Puntius cuningii*, an endemic fish species and *Puntius bimaculatus* an indigenous fish species to chlorpyrifos, an organophosphate insecticide commonly used in agricultural pest management in Sri Lanka was investigated under laboratory conditions. The 48 hours LC50 values of chlorpyrifos to *P. cuningii* and *P. bimaculatus* were 0.405 mg l⁻¹ and 0.159 mg l⁻¹ respectively. Exposure of fish for 48 hours to a series of concentrations of chlorpyrifos (0.105 mg l⁻¹ - 0.42 mg l⁻¹) induced prominent behavioural changes, high gill ventilation rates and drastic inhibition in brain acetylcholinesterase activity (66% - 98%) in both species of fish. Upon transfer of the exposed fish to insecticide free water, the gill ventilation rates returned to normal levels by 3 - 4 days, whereas the insecticide induced behavioural changes and brain acetylcholinesterase inhibition were not restored even after 7 days of post exposure. This study revealed that populations of *P. bimaculatus* and *P. cuningii* could be seriously affected by the use of chlorpyrifos for agricultural pest management. Of the two species tested, *P. bimaculatus* was more sensitive to chlorpyrifos than *P. cuningii*.