



[HOME](#) [SCHEDULE](#) [AUTHOR INDEX](#) [SUBJECT INDEX](#) [SEARCH](#)

 PARENT SESSION

1C Ecologically relevant and cost-effective toxicity test designs

9:00 AM to 7:00 PM, Monday, 07 May 2001

(M/EH008) Can environmentally available pesticide concentrations affect frog larvae? A study with JUDO 50 (Chlorpyrifos) .

Samayawardhena, Lionel¹, Chandana, Saman. E¹, Peiris, Dinithi.L.D², Dharmasiri, H.^{1, 1}
2

ABSTRACT- There is a common agreement that amphibian population is in danger due to environmental pollutants. However, pollutant effects on amphibian populations are not complete. Chlorpyrifos is toxic to many aquatic organisms but limited information is available on amphibian species. We assessed the susceptibility of JUDO50 (Chlorpyrifos) to *Rana* spp. early tadpole stages and eggs. Main aim was to determine LC50 value for tadpoles and to investigate effects of various sub lethal concentrations on hatching rate. Several concentrations of JUDO 50 (commercial name for Chlorpyrifos) ranging 10-30 ppm were used in the pilot study revealed that below 5ppm of Chlorpyrifos can be lethal to early stages of tadpoles. Therefore, this experiment used sub lethal concentrations. LC50 values of JUDO50 were 2.4-2.6 ppm at 24 hours and 2.0-2.3 ppm at 48 hours. Hatching rate significantly decreased (Control; 90%, 0.01 ppm; 62%, 0.03 ppm; 19%; and 0.05 ppm; 8%; $P < 0.05$) with the concentration of Chlorpyrifos. Dead embryos showed arrested development. Delay in hatching as well as decreased percentage of hatching during the experimental period showed toxic effects of low concentrations of JUDO50 to fertilized eggs of the species studied. This is really important due to obligatory aquatic tendency of many amphibians during breeding. In most cases tadpoles stay in the water body for longer periods. Therefore, decrease in hatching percentage can affect on population size. The study confirms that tadpoles can be used as a potential species in toxicology studies. Effects on hatching rate and survival rates confirm that tadpoles may face risk due to pollutants, such as Chlorpyrifos in the field.

Key words: Amphibians, Toxicity, Hatching rate, Chlorpyrifos