

Establishment of *Poecilia reticulata* (guppy) as a model toxicokinetic system using parental to offspring effects of Chlorpyrifos (Lorsban)

Toxic effects of Chlorpyrifos on reproduction of fish are little known. In present study Guppy, a viviparous fish with a short reproductive period was selected to investigate guppy as a suitable laboratory model for toxicity tests and to understand reproductive effects of Lorsban (chlorpyrifos) on this fish. Male and female guppy were selected with proven fertility from our own colony and the groups of fish (n=12x6groups) were exposed to pre-determined concentrations of Chlorpyrifos (2 µg/L, 0.002 µg/L) for 14 days based on the 96 h LC50 (7.17 µg/L) for guppy. Mating behaviour of pairs was recorded on the 2nd day of exposure. Offspring were counted and survival recorded on the 14th day. Results showed that number of gonopodial thrusts by male was significantly decreased with the increasing concentrations of Chlorpyrifos in comparison to controls. Gonopodial thrusts /15 minutes: 4, 8 and 11 in fish exposed to 2 µg/L, 0.002 µg/L and control respectively. Live birth reduced significantly to 8/female in fish exposed to 2 µg/L compared to 27/female in the control group. Survival of offspring at the 14 days was reduced to 66% in fish exposed to 2 µg/L of Chlorpyrifos. Results revealed that low concentrations of Chlorpyrifos could impair reproductive behaviour and capabilities of guppy to a significant and reduce their survival. Our study confirmed that Chlorpyrifos could potentially alter mating behaviour, live birth and F₁ survival of

guppy. Guppy is a suitable laboratory model for toxicity tests and could be used for further toxicokinetic studies.