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Impact of Atrazine on Chlorpyrifos Toxicity to Four Aquatic Vertebrates

Previously, atrazine has been shown to potentiate chlorpyrifos toxicity in invertebrates. This study examined possible mixture interactions of atrazine and chlorpyrifos on four aquatic vertebrates. Organisms were subjected to toxicity bioassays with binary mixtures of atrazine and chlorpyrifos. Cholinesterase (ChE) activity and uptake kinetics for chlorpyrifos in the presence of atrazine were also examined. Atrazine alone did not cause any visible effects on organisms at concentrations up to 5000 µg/L; however, the presence of atrazine at 1000 µg/L did cause a significant increase in the acute toxicity of chlorpyrifos in Xenopus laevis. Mixed results were encountered with Pimephales promelas; some bioassays showed greater than additive toxicity, while others showed an additive response. There was no effect of atrazine on chlorpyrifos toxicity in Lepomis macrochirus and Rana clamitans. Atrazine did not alter ChE inhibition or chlorpyrifos uptake rates. Based on the results of this study, the risk of atrazine exposure on the species tested is probably low.

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