Assessing the Genotoxicity of Atrazine to Anuran Tadpoles. (A05-freeman105849-Poster)

Authors:

- J.L.Freeman* - *University of Illinois*
- A.L.Rayburn - *University of Illinois*

Abstract:

Atrazine is one of the most commonly used agrochemicals in the U.S. Due to high use and high runoff, atrazine contaminates a majority of surface waters in the Midwestern U.S. Recent evidence suggests that atrazine has genotoxic properties to aquatic organisms. Since embryogenesis, organogenesis and metamorphosis of amphibians occurs in the water, any genotoxic compounds in the water could have a negative impact on the survival of these species. Laboratory studies were conducted to evaluate if atrazine at concentrations that are found in the environment are genotoxic to tadpoles. Xenopus laevis tadpoles were chosen as a reference model, while Bufo americanus (American toad) tadpoles were used as a native species. Nuclei were isolated from the tadpoles and analyzed on a flow cytometer to determine the heterogeneity of the nuclear DNA. Genotoxic substances have been reported to increase the heterogeneity of DNA within a nucleus. Xenopus laevis tadpoles exposed to atrazine were observed to have an increase in DNA heterogeneity, while no changes were seen in Bufo americanus. Atrazine appears to cause a differential response in these two species.

Corresponding Author Information:

Jennifer Freeman
University of Illinois
320 ERML, 1201 W. Gregory
Urbana, IL 61801

phone: 217 244-6727
fax: 217 333-4582
e-mail: mcalistr@uiuc.edu

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