Case Report

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Genotoxicity in non-traditional animal models

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Abstract

P esticides are ubiquitous on the planet and are employed to governor or eliminate a variability of agricultural and household pests which can damage crops and livestock and reduce productivity. Anthropogenic activities are continuously introducing extensive amounts of these compounds into the environment regardless of their persistence, bioaccumulation and toxicity. Despite the many benefits of the use of pesticides in crop production and their significant contribution to the lifestyles we have come to expect, pesticides can also be hazardous if not used appropriately and many of them may represent potential hazards due to the contamination of food, water and air. Though, it is well known that indiscriminate use of pesticides can produce pest resistance, the emergence of new pest species, environmental pollution, toxic effects, genetic alterations on target and non target creatures including humans and biodiversity loss among other side effects. Pesticides may be introduced into the aquatic environment since they are applied directly on surface water to control aquatic weeds or via air onto crop fields. Indirect entrance into the freshwater environment is associated with runoff, erosion and lixiviation events resulting from terrestrial application. Furthermore, they may provoke harmful effects on the fish population and other aquatic organisms e.g., amphibians, contributing to long-term effects in the environment. One of the main purpose of our research lab is to estimate the genotoxic and cytotoxic effects employed by several agrochemicals and their technical formulations on endemic vertebrate neotropical species namely Cnesterodon decemmaculatus (Actinopterygii, Poeciliidae) and Rhinella arenarum (Amphibia, Bufonidae) employing several end-points for geno and cytotoxicity. Among them are listed the herbicides dicamba, flurochloridone, glyphosate and 2, 4-D.

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