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In vitro study of the effect of organophosphorus pesticide malathion in antioxidant enzymes activity in human erythrocytes from inhabitants of Northern of Sinaloa State, in Mexico

Xiomara Patricia Perea-Domínguez, Maribel Valdez-Morales and Sergio Medina-Godoy National Polytechnic Institute, Mexico

Organophosphorus (OP) compounds are the most widely used class of pesticides for agricultural and landscape pest control. OP insecticides may induce oxidative stress leading to the generation of free radicals and alteration in the antioxidant system. Malathion is one of the most commonly used OP pesticide in the environment for agricultural and domestic purposes and oxidative stress has been reported as a possible mechanism of malathion toxicity. In this work, we studied the malathion effect in two of the main antioxidant enzymes (SOD and GPx) in human erythrocytes isolated from inhabitants of Northern of Sinaloa State, in Mexico. Results showed that high purity malathion at concentrations tested did not show an inductive effect of oxidative stress related to SOD and GPx activity. The oxidative effects observed for malathion in literature, at least in part, might arise from impurities, in the technical or commercial grade mixtures, therefore we consider necessary evaluation of oxidative stress induced by individual degradation products of malathion. Besides, the results obtained in this study may provide information of a change in the oxidative response of the inhabitants of the Northern of Sinaloa State compared with others regions, taking into consideration that it is a region with intensive use of wide range of pesticides.

Biography

Xiomara Patricia Perea-Domínguez has completed her Master's in Science from National Polytechnic Institute in Mexico. She is a PhD student at the National Polytechnic Institute in Mexico and has worked in the development of research projects in Environmental Toxicology.

patricia_34@hotmail.com

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