



Surrogate Biomarkers of Pesticide Toxicity Among Pesticide Handlers

Prabha Moirangthem ^{1*}, Dipanker Dey ², Harminder Pal Singh ³, Daizy R. Batish ³

¹ Division of Natural Resource Management, ICAR-RC (NEH), Barapani, Umiam, Meghalaya, India

² Division of Medical Affairs, Gulf Pharmaceutical Industries (Julphar), Ras Al Khaimah, UAE

³ Department of Environmental Studies, Faculty of Science, Punjab University, Chandigarh, India

Address for Correspondence: Prabha Moirangthem; prabsmoirang@gmail.com

ABSTRACT: Biochemical responses to xenobiotic compound including pesticides provide a measure of toxic effect as they serve as useful tools for the measurement and estimation of biologically active/passive exposure through environmental monitoring using biological samples or human tissues and body fluids like serum, fat, urine, blood, or breast milk by the usual analytical techniques. The present paper reviews and discusses the recent findings on these biomarkers in relation to the current and future use in environmental and occupational human health monitoring. The objective of this review is to highlight the importance of biomarkers of oxidative stress as surrogate markers of pesticide toxicity among the pesticide handlers like the chemical industry producing pesticides, people spraying pesticides and people dedicated to agricultural works. This study is done by reviewing previous epidemiologic studies that have evaluated and discussed methods to characterize the biomarkers of pesticide exposure. Most studies describe techniques for biomonitoring effects which may detect early changes induced by many pesticides and which have the potential to accelerate data gathering. Significant changes in the levels of biomarkers as well as the activities of antioxidant enzymes in pesticide-exposed individuals were observed in most of the studies reviewed. Biomarkers will have a major impact on the study of environmental risk factors. Researcher sought to focus on characterization of the nature of the biomarkers and determination of the consequences of physiological and genetic changes or variations, with the ultimate purpose of predicting or preventing disease. Expanding the knowledge of the already identified markers and its employment in the research study will provide vital purpose in ensuring design, formulation and safety of pesticides. The incorporation of *in vitro*, animal, and human data will give a clear picture of a marker's performance. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.

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