TRANSFER OF PESTICIDE RESIDUES TO MICE OFFSPRING THROUGH PRENATAL AND LACTATION EXPOSURE

By

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B.Sc. Agric. Sci. (Pesticide Chemistry), Alex., University (2003)

M.Sc. Agric. Sci. (Pesticides), Cairo University (2011)

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ABSTRACT

Marwa Farouk Ahmed Mohamed Gad. "Transfer of Pesticide Residues to Mice Offspring through Prenatal and Lactation Exposure". Unpublished Ph.D. Thesis, Department of Plant Protection, Faculty of Agriculture, Ain Shams University, 2018

This study evaluates toxicity of three pesticides [atrazine (A), chlorpyrifos (C) and endosulfan (E)], and tertiary mixture (ACE) which were mixed in the rodent diet at their respective "Acceptable Daily Intake, ADI" (e.g., 31.0, 44.0 and 30.0 mg kg^{-1} /bw/day, respectively**),** in addition to oral administration of vitamin E (α-tocopherol; 100 ul/ mouse). The experimental protocol included treatments during gestation and lactation periods separately. Either during gestation or lactation, the mouse dams were received one of the following treatments: (a) diet free of pesticides; (b) diet enriched with one of the tested pesticides (c) diet free of pesticides + oral vitamin E; and (d) diet enriched with one of the tested pesticides + oral vitamin E. Drinking water was allowed *ad libitum* up to 42 days. After the weaning, pups and dams were killed and selected organs and blood samples were collected for analyses. Compared with the control results either in dams or their pups, the tested pesticides induced high elevation in AST, ALT, ALP, urea and MDA and high decline in BuChE, SOD and CAT. Furthermore, the tested pesticides caused histopathological damage in the internal organs (e.g., liver, kidney, ovary and testis). The ameliorative effect of vitamin E, based on estimating the "Amelioration Index; AI" revealed the powerful effect of this vitamin in alleviating the oxidative stress exerted by the tested pesticides. The findings of this study may support the need to further investigating the adverse effects of exposure to low doses of commonly used pesticides, especially during pregnancy and breast-feeding as well as effects on newborn child.

Keywords: Atrazine; Chlorpyrifos; Endosulfan; Pesticide Mixture; Vitamine E; Pregnant Mice ; Lactating Mice; Offspring; Oxidative Stress

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