

Biotoxic and Cytotoxic Effects of Occupational Pesticide in the Buccal cells of Sudanese Farmers

Yousra Ali¹, Hidaya Mohammed -Ali ¹, Alrufaai Aldekhery¹, Hanan Abdelrahman ¹, Samah Batran¹, and Yosef Zakout¹

¹University of Khartoum

January 27, 2023

Abstract

Farmers are at high risk for developing adverse health problems due to occupational pesticide exposure. we aimed to compare the frequency of the micronuclear (MN) cellular changes, g binucleated cells (BN), karyorrhexis (KR) and karyolysis (KL) in pesticide exposed farmers and non-exposed individuals. Also, to correlate between the frequency of MN cellular changes and the other nuclear abnormalities with farmers' age, their use of personal protective equipment (PPE) and the duration of pesticides exposure. A total of 92 buccal smears were collected from Sudanese farmers (cases: n=50, exposed to pesticides) and non-farm workers (controls: n=42, non-exposed to pesticides). The smears were fixed with 95% ethanol and stained following the standard Feulgen technique., A structured questionnaire was designed to collect demographic data and pesticide exposure related information. 39 (78%) farmers do not use PPE. In addition, there was a significant difference ($P < 0.05$) in the frequency of Micronucleated cells (MN), Total Micronuclei (TMN), Binucleated cells (BN), Karyorehxis (KH), and Karyolysis (KL) in the buccal cells of cases and control. The application of pesticide without adopting standard protective measures caused genotoxic and cytotoxic effects in farmers' buccal cells.

Hosted file

Manuscript.docx available at <https://authorea.com/users/580375/articles/621465-biotoxic-and-cytotoxic-effects-of-occupational-pesticide-in-the-buccal-cells-of-sudanese-farmers>



