Khaled A. Osman et al., Metabolomics 2014, 4:2
http://dx.doi.org/10.4172/2153-0769.S1.026

OMICS Group Conferences
Accelerating Scientific Discovery

3rd International Conference and Exhibition on
Metabolomics & Systems Biology
March 24-26, 2014 Hilton San Antonio Airport, San Antonio, USA

Pesticides-induced oxidative damage: Possible *in vitro* protection by antioxidants

Khaled A. Osman[1], **Ahmed K. Salama**[2], and **Omran A. Omran**[2]
[1] Pesticide Chemistry & Technology Department, College of Agriculture, Alexandria University, Egypt
[2] Medical Laboratories Department, Majmaah University, Kingdom of Saudi Arabia

The *in vitro* the effect of selenium (Se) and a combination of vitamin E and vitamin C on some pesticides, viz atrazine, dimethoate, or endosulfan at three different levels of 10, 20, and 30 mM to induced biochemical alterations in rat erythrocytes and hepatocytes of rats was investigated by determining the levels of lipid peroxidation (nmoles MDA/mg protein), glutathione (µmole GSH/mg protein) and glutathione peroxidase (µmoles NADPH/min/mg protein). In comparison with the control, pesticides stimulated thiobarbituric acid reactive substances (TBARS) activity and glutathione peroxidase activity, enhanced the glutathione contents. Treatment with selenium and a combination of vitamin E and/or vitamin C potentially reduced the free radicals in erythrocytes or hepatocytes and ameliorated the oxidative stress induced by such pesticides. The results suggested that pesticides treatment increases *in vitro* lipid peroxidation, glutathione peroxidase level and glutathione content by increasing oxidative stress in erythrocytes and hepatocytes of rats and selenium and a combination of vitamin E and vitamin C can reduce this lipoperoxidative effect.

Key words: Oxidative stress, red blood cells (RBCs), hepatocytes, atrazine, dimethoate, endosulfan, lipid.

kamosman@yahoo.com