



## In Vivo Toxicity Study of Malachite Green In Mice: Estimation of Hepatotoxicity, Oxidative Stress And Genotoxicity

Sohair Kasem<sup>1</sup>, Abdelaziz E. Ibrahim<sup>2,3</sup>, Abdou Rania H<sup>2</sup>,  
and Kawther A. El Hady<sup>2</sup>

<sup>1</sup>Ismailia veterinary directorate, Department of Care and Treatment, Ismailia, 41522, Egypt.

<sup>2</sup>Department of Forensic Medicine and Toxicology, Faculty of Vet. Medicine, Suez Canal University, Ismailia, 41522, Egypt

<sup>3</sup>Laboratory animal resource center, Faculty of medicine, Tsukuba University, Tennodai, Tsukuba city, Ibaraki-305-8577, Japan

**Abstract:** Malachite green (MG) is a green-colored synthetic triphenylmethane dye of industrial and medicinal uses as well as it is used as a food additive. MG enters the food chain and causes several cytotoxic, mutagenic and carcinogenic effects on mammalian body. However, few information are available about the mechanism of these toxic effects. Our study aimed to evaluate the hepato - toxic effects and genotoxicity of MG and to estimate the role of oxidative stress. Serum biochemical and hepatic antioxidant parameters were detected after MG oral administration in mice. Also, comet test and histopathological examinations were carried out on liver tissue. In this study mice were divided into three groups (20 animals/group) , First group was orally administered normal saline and kept as the control, second group was orally administered 2.5 mg/Kg body weight (1/20 LD50), while the third group was orally administered 5 mg/Kg body weight (1/10 LD50). Samples were taken after 14 and 28 consecutive days. The results revealed that MG increased serum liver enzymes and decreased total protein besides DNA damages in hepatic tissue after 28 days. There was hydropic degeneration of hepatocytes, dysplasia, congestion of central vein with focal necrosis. Oxidative stress may have role.

**Keywords:** Malachite green, Hepatotoxicity, Oxidative Stress, Genotoxicity, Mice.