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AND ABSTRACT BOOK**

CHLORPYRIFOS INDUCED NEPHROTOXIC CHANGES IN WISTAR ALBINO RATS: A POSSIBLE PROTECTIVE ROLE OF *VISCUM ALBUM* L. LEAF EXTRACT

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Organophosphates belong to a wide group of compounds that act as cholinesterase inhibitors. Although the main target for organophosphates is the nervous system, many other organs are affected, and one of the suggested mechanisms is a generation of oxidative stress. The leaves of *Viscum album* L. possess therapeutic effects due to the presence of bioactive compounds. Therefore, this study was designed to determine the phytochemical profile of *Viscum album* extract (VAE) and to investigate the protective effects against nephrotoxicity induced by commonly used organophosphate, chlorpyrifos (CPF). The ultrasound extraction was performed and analysis of the polyphenolic profile showed that VAE is rich in flavonoids and hydroxycinnamic acids. This study was conducted on male rats as follows: group I was orally given a saline solution (NaCl) via gavage; group II was intragastrically administered with CPF (35 mg/kg); group III was supplemented with VAE in higher dose intraperitoneally (VAE1, 350 mg/kg); group IV was treated as group II and was supplemented with VAE1 (350 mg/kg), and group V was cotreated with CPF (as group II) and a lower dose of VAE (VAE2, 175 mg/kg). After 30 days of treatment, the animals were sacrificed, and serum and kidney tissue were collected for the analyses. The impaired kidney function in group II was reflected in increased biochemical parameters (urea and creatinine) and histological changes in the kidney. The occurrence of oxidative stress was confirmed by increased lipide peroxidation (LPO) and glutathione disulfide (GSSG) levels in kidney tissue. The measured activities of superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GSH-Px), and glutathione-S-transferase (GST) were significantly increased, while the activity of glutathione reductase (GR) was decreased. Animals supplemented with CPF and VAE1 or VAE2 showed stabilization of all measured parameters. The obtained results imply that phytoconstituents identified in investigated extract (such as rutin, kaempferol, quercetin, and apigenin) exhibit beneficial effects against kidney damage, and therefore VAE could be useful as therapeutic agent. However, future investigations are needed to clarify the exact mechanisms of VAE action.

Keywords: insecticides, oxidative stress, kidney damage, plant extract, flavonoids