Proceedings International
Platinum Open Access Journal (ISSN 2668-6384)

Proceedings, Abstract
Volume 3, Issue 6, 2021, 10
https://doi.org/10.33263/Proceedings36.010

Hepatotoxicity by Acute Exposure of Thiamethoxam in Male Swiss Albino Mice †

Leena Khurana [1,*], Payal Chaturvedi [1,*], Charu Sharma [1], Nidhi Gupta [1], Pradeep Bhatnagar [1]

[1] Department of Biotechnology, IIS (Deemed to be University), Jaipur, Rajasthan, 302020, India; leenakhu93@gmail.com (L.K.); payalmehtanichaturvedi@gmail.com (P.C.);
* Correspondence: leenakhu93@gmail.com (L.K.);
† Presented at Environmental Toxicology: Impact on Human Health (Environ Tox 2021)

Received: 5.11.2021; Revised: 18.11.2021; Accepted: 20.11.2021; Published: 30.11.2021

Abstract: Thiamethoxam belonging to the subclass thianicotinyl is a second-generation neonicotinoid insecticide. It is a neurotoxicant and binds to the insect nicotinic acetylcholine receptor, selectively disrupting the nervous transmission in the central nervous system of pests. In this study, various biochemical parameters, oxidative markers, and histopathological effects were observed for liver toxicity in male Swiss albino mice. 15 adult male mice were divided into 5 groups with 3 animals in each for a 24 h acute study. One group served as the control group whereas the other 4 groups were tests groups in which mice were exposed to LD50 of thiamethoxam and were sacrificed at intervals of 3, 5, 9, and 24 h. After 24 h of exposure, a significant increase was observed in levels of glutamic oxaloacetic transaminase (GOT), glutamic pyruvate kinase (GPT), reduced glutathione (GSH), and superoxide dismutase (SOD). Also, cholesterol levels were elevated after 24 h of exposure. Histology of liver showed mild cell necrosis after 24 h. The results of the present study demonstrated significant effects on liver functions at the LD50 of thiamethoxam (871mg/kg bw) in mice.

Keywords: biochemistry; histopathology; liver; neonicotinoids; oxidative stress; thiamethoxam.

Funding

This research received no external funding.

Acknowledgments

This research has no acknowledgment.

Conflicts of Interest

The authors declare no conflict of interest.