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MARKERS OF LIPID PEROXIDATION IN ANIMALS WITH ACETAMINOPHEN-INDUCED TOXICITY FOLLOWING ADMINISTRATION OF *HERICIUM FLAGELLUM* EXTRACT

Aim. To investigate the intensity of hydroxyl radical generation and lipid peroxidation (LPO) markers in rats under conditions of acetaminophen-induced hepatotoxicity following the preventive administration of *Herichium flagellum* extract. **Methods.** Rats were divided into four groups ($n = 6$): C – control; AII – acetaminophen per os (1250 mg/kg, 2 days); EHF – *Herichium flagellum* extract per os (200 mg/kg, 10 days); EHF+AII – *Herichium flagellum* extract administered prior to modeling toxic damage. All animal procedures complied with the European Convention for the Protection of Vertebrate Animals Used for Experimental and Other Scientific Purposes (Strasbourg, 1986) and the ethical principles of the National Congress on Bioethics. The ethanolic extract of the mushroom fruiting bodies was obtained via liquid extraction; mitochondria were isolated by differential centrifugation. The rate of hydroxyl radical ($\text{HO}^\cdot$) generation and the levels of TBARS, conjugated dienes, and Schiff bases were measured spectrophotometrically. The data were analyzed via Student's t-test using Microsoft Excel, with statistically significant differences determined at $P \leq 0.05$. **Results.** Toxic doses of acetaminophen induced mitochondrial oxidative stress, evidenced by a significant elevation in pro-oxidant markers compared to the control: $\text{HO}^\cdot$ generation increased over 2.8-fold, TBARS by nearly 2.5-fold, conjugated dienes by 1.5-fold, and Schiff bases by over 1.6-fold. *Herichium flagellum* extract alone caused no statistically significant alterations, confirming its safety profile. Prophylactic administration of the extract prior to acetaminophen induction significantly mitigated oxidative damage, reducing $\text{HO}^\cdot$ generation 1.7-fold, TBARS by 28%, and conjugated dienes by 22% compared to the untreated AII group. However, the extract did not significantly affect Schiff base levels. Thus, the ethanolic extract of *Herichium flagellum* exhibits potential protective properties by suppressing mitochondrial lipid peroxidation in the liver. **Conclusions.** Preventive administration of *Herichium flagellum* extract exerts a protective effect by significantly reducing hydroxyl radical formation and the accumulation of primary and secondary LPO products. These findings suggest that *Herichium flagellum* is a promising candidate for the prophylaxis of acetaminophen-induced oxidative injury; nonetheless, further research is required to identify the specific antioxidant compounds within its composition.

Keywords: *Herichium flagellum*, acetaminophen, liver, mitochondria, lipid peroxidation.

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