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Corrective Effect of Naked Licorice (*Glycyrrhiza glabra* L.) on Blood Parameter Shifts Under Noise Exposure

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ABSTRACT

One of the common environmental factors that negatively affect the body is noise exposure. Prolonged or intense noise can lead to premature fatigue and, over time, may cause deep and irreversible physiological changes. Among the currently known plant-derived substances with regulatory effects under stress conditions, the root of *Glycyrrhiza glabra* L. (Licorice root, LR) stands out for its high efficacy. Licorice root is known for its wide range of biological activities, including anti-stress, analgesic, adaptogenic, anti-inflammatory, antitoxic, antiallergic, antitumor, hepatoprotective, immunotropic, hypolipidemic, antioxidant, and mineralocorticoid effects. It has been established that 30-day noise exposure leads to a reduction in the total number of erythrocytes, reticulocytes, and hemoglobin content, as well as a significant decrease in the blood's oxygen-carrying capacity in rabbits. In contrast, 20-day administration of Licorice root resulted in a normochromic increase in erythrocyte count, hemoglobin concentration, and reticulocyte levels, reaching their peak on the 20th day. These values exceeded baseline levels by 11.9%, 5.8%, and 36.0%, respectively. Combined 30-day exposure to noise and Licorice root significantly improved blood parameters and activated the body's adaptive mechanisms.

Keywords: blood, noise, stress, licorice root

References:

1. El-Saber Batiha, G.; et al. Traditional Uses, Bioactive Chemical Constituents and Pharmacological and Toxicological Activities of *Glycyrrhiza glabra* L. (Fabaceae). *Biomolecules* **2020,** *10*, 352. DOI:10.3390/biom10030352
2. Kazlauskaite, J.A.; et al. Application of Antiviral, Antioxidant and Antibacterial *Glycyrrhiza glabra* L., *Trifolium pratense* L. Extracts and *Myristica fragrans* Houtt. Essential Oil in Microcapsules. *Pharmaceutics* **2023,** *15*, 464. DOI:10.3390/pharmaceutics15020464

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