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## **BIOCHEMICAL ASPECTS OF ECOLOGICAL - HYGIENIC CHARACTERISTICS OF THE DOMESTIC PLANT GROWTH REGULATOR "AFALAMIN"**

**M. Boika, V. Stelmakh**

*Belarusian State University, ISEI BSU,  
Minsk, Republic of Belarus  
Marina.lisci@mail.ru*

As a result of the development of protective and stimulating compositions for the treatment of agricultural seeds at the Institute of Bioorganic Chemistry of the National Academy of Sciences established a promising plant growth regulator – hexyl ester of 5-aminolevulinic acid (H-ALA) with a pronounced growth stimulating properties against a number of crops. For safe use of the H-ALA in the agricultural sector must be allowed to complete toxicological and hygienic assessment of the rationale of hygienic standards in the working area, air, water reservoirs, food, as well as to calculate the acceptable daily intake dose in humans. The basis for such studies is the toxicological experiment on warm-blooded animals, which allows you to define the threshold of harmful action of chemical factors.

**Keywords:** hexyl ester of 5-aminolevulinic acid, xenobiotics, cytochrome P450

The research goal of the study of biochemical parameters of white rat's that received perorally an active substance of the new plant growth regulator 5-aminolevulinic acid hexyl ester.

In the context of the thirty-days' experiment the drug showed marked dose-dependent effects of cumulative properties manifestation at the level of lethal outcomes. Intragastric administration of the drug to white rats led to the change in a number of laboratory biochemical parameters of the liver function, which was reflected in an increase of the activity of alanineaminotransferase and dose-dependent increase in the level of bilirubin was also observed.

Among the laboratory parameters is the state of white rats, receiving treatment, he-ALA in the subchronic experiment, we observed a statistically significant increase in the content of the component C3 at 1,5 times of immunoglobulin G by 28 % compared with the control values.

The study of biochemical mechanisms associated with the functioning of microsomal monooxygenases smooth endoplasmic reticulum of the liver, allows to reveal the peculiarities of the damaging effect of the poison, determine the type of its influence on the cytochrome P450 system, and also serves as a basis for prevention and treatment intoxicaci

Study of the detoxification system of xenobiotics produced in rats that received intragastric maximum tolerated dose subchronic exposure 440 mg/kg he-ALA. The initial research phase describes the microsomal fraction of the liver of group IV content cytochromom P450 and P420, and also determined the total protein concentration and activity of P450 reductase.

Introduction 5-aminolevulinic acid hexyl ester was increased to 1,4 times the specific content of cytochrome P450. It was observed increase of level of the specific content of cytochrome P420 3 times relative to the control. P420 cytochrome is a membrane-bound protein and the expression of its activity is possible only in the presence of a phospholipid environment, which stabilizes the enzyme in a functionally active conformation.

As a result of all three experiments revealed changes in biochemical parameters in experimental animals treated with the studied substance in the subchronic experiment. These data are informative to assess the response of the organism to the action of 5-aminolevulinic acid hexyl ester.

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