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## **BIOCHEMICAL PARAMETERS OF THE RATS WITH ESOPHAGEUS BURN TREATED WITH AQUESOUS EXTRACT OF PHASEOLUS VULGARIS PODS**

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Chemical burns (CB) remain the most common pathology of the esophagus in children<sup>[1,2,3]</sup>. The burn disease and metabolic disorders, which are associated with CB, are still considered as actual medical problem. Optimisation of the approaches to the correction of such metabolic disorders, shortening of the period of burn wounds healing and preventing of the post-burn complications is perceived to be important<sup>[4,5]</sup>. Changes in biochemical parameters are an important marker of metabolic disorders<sup>[1,2]</sup>. Extract of common beans husk (*Phaseolus vulgaris*) shows a positive effect on control of appetite and bodyweight and belongs to the toxicity class IV - low toxicity substances, according to the classification of Sidorov<sup>[6,7]</sup>. The aqueous solution of husk dried extract from *P. vulgaris* is characterized by a wide range of biological activity and can be effective in treating of the injuries of the gastrointestinal tract, including esophagus burns<sup>[8,9]</sup>. The purpose of this work was to evaluate the state of protein and nitrogen metabolism and the activity of enzymes in the blood of rats with second-degree esophagus burn, which were treated by the preparation of an aqueous extract from *Phaseolus vulgaris* pods.

**Materials and Methods.** Research was carried out due to the general ethical principles of experiments on animals, approved by the First Ukrainian National Congress on bioeth-

ics (September 2001), other international agreements and national legislation in this area. Experiments were conducted on white non-strain sexually immature rats (1 month), which had weight 90-100 g. The second-degree burn was modeled using 20% NaOH solution <sup>[1, 2]</sup>. Freshly prepared aqueous solutions of dried extract were used for research<sup>[8]</sup>. The test preparation was injected since day 1 and every other day in dose 200 mg / kg / day for 30 days. The serum for the research was taken at day 7, 15, 21 and 30. Biochemical parameters of blood, such as level of urea, creatinine, albumin, enzymatic activities of aspartate aminotransferase and alanine aminotransferase were measured using the biochemical analyzer Humalyser 3000 due to the standard methods. Statistical analyzing of the data was carried out using measure of variation in Excel computer program. Student's t-test was applied to determine the validity of the differences between two samples. As reliable considered differences  $p < 0,05$ .

**Results.** Concentration of urea and creatinine increased under conditions of burn. After injection of the test preparation levels of these compounds were decreased in comparison to one, caused by chemical burn of esophagus. Levels of albumin and total protein were increased as a result of burns and normalized in the groups of animals treated by the preparation. Activity of liver aminotransferases increased after second-degree burn, and decreased in the groups treated by the preparation. Thus, there was a disorder of nitrogen and protein metabolism and a change in the activity of aminotransferases in rats with second-degree esophagus burn. We proved the normalization of parameters in the groups of animals treated by the test preparation, which shows the therapeutic effect of the aqueous extract of *Phaseolus vulgaris* pods.

Future studies might include the research of the molecular mechanisms of positive effect of the extract on the

## correction of metabolic parameters under the conditions of the esophagus burn.

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