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**PRE-SLAUGHTER STRESS AFFECTS CORTISOL  
AND ADRENOCORTICOTROPIC HORMONE LEVELS  
IN BLOOD PLASMA OF ANIMALS**

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Stress is a multifactorial phenomenon that affects the functioning of organism organs and systems. The human immune system is the most sensitive to the action of stress (Segerstrom S. C., Miller G. E., 2004), which leads to a sharp decrease in the body's resistance to infections and cancer. Stress in livestock and pigs, in particular, leads to economic losses and animal products quality impairment (Dokmanović M. et al., 2014; Kim Y. H. B. et al., 2014; Rocha L. M. et al., 2013). The duration of animals transportation and unloading process caused by damage to the skin ruminants and boars and influenced on biochemical indexes and qualitative characteristics of their meat (Ferguson D. M., Warner R. D., 2008; Wesoly R. et al., 2015).

The information about influence of pre-slaughter stress on animals' metabolic processes and animal body as a whole is not highlighted in the literature sources.

The first experiment was conducted on white mature female Wistar rats. The cortisol level was determined in the rats' blood plasma depending on priority of taking animals from the cage. Only pre-slaughter stress (during 45–60 minutes) was taken into account. The second experiment was conducted on bulls. The experiment lasted for five days during which animals were under pre-slaughter stress. The third experiment was conducted on boars, which were under pre-slaughter stress for five days.

The results of determination of hormonal profile — cortisol content in the laboratory animals' blood, adrenocorticotrophic hormone (ACTH) concentration in the calves blood, cortisol and adrenocorticotrophic hormone content in the boar's blood under pre-slaughter stress are researched and presented in the paper.

The cortisol concentration reliable changes in the rats' blood plasma depending on priority of taking animals from the cage (alternately from the first to the fifth animal) were determined. The cortisol level reliable increased nearly by 1.5 times ( $P < 0.01$ ) in the blood plasma of rats, which were taken from the fourth and the fifth animal from each cage; cortisol level reliable increased nearly by 5 times ( $P < 0.05$ ) in the blood plasma of rats, which were taken from the first and the fifth one that were the last animals from each cage.

It should be noted that the concentration of adrenocorticotrophic hormone before setting on research (preparatory period) was 1.3 times lower ( $P \leq 0.01$ ) compared to the content of the hormone in the calves blood plasma immediately before their transportation.

The investigation of animals' metabolic processes industrial production will improve the adaptation of animals to stress during the pre-slaughter period.

The results obtained in model experiment on laboratory animals can be used in researches of cell immunity indices and stress hormones, such as cortisol, on farm animals for organism resistance increasing and correction their pre-slaughter stress. The results would enable to create a biologically active feed additives and to substantiate the necessity of ecological and safe animal production obtaining for human needs. These research results are perspective.