IMMUNE SYSTEM CORRECTION IN YOUNG CATTLE BY A TISSUE BIOSTIMULATOR

B. A. Kaxorov
G. S. Jumaqulova
S.L. Rasulova
National University of Uzbekistan named after Mirzo Ulugbek

Abstract
The article reports the research in the field of studying the mechanism of action of bio stimulators is currently quite relevant. A significant increase in B-lymphocytes in the blood of animals when using tissue bio preparations may indicate the activation and proliferation of cells in the humoral arm of the immune system in the experimental groups of animals.

Keywords: experimental groups, mechanism of action, bio stimulators, significant differences, animals.

The problem of receiving and growing healthy animals in the conditions of industrial dairy cattle breeding is getting worse every year. The purpose of the study is to research the effect of a tissue bio stimulant on the immune system of young cattle. The objectives of the study are: To reveal the relative and absolute number of subpopulations of T- and B-lymphocytes in the blood of calves, depending on the doses of the used tissue bio stimulator. At selecting animals, age (1 month) and live weight (51.0 kg) were considered. During the experiment, the animals of the control and experimental groups received the same diet, balanced for all normalized nutrients. An experimental batch of tissue bio stimulator was made from offal and slaughterhouse waste of antler deer using a patented technology. The conducted research revealed that the tissue bio stimulator administered to young cattle contributes to the activation and proliferation of cells within the humoral component of the immune system in animals, particularly at the optimal dosage of 3 ml per head. The scientific novelty of the study lies in the authors' demonstration, for the first time, that the bio stimulator exerts a stimulating effect on both the T- and B-cell immunity systems.
Research results of study on the effect of a new tissue bio stimulator on the relative content of T- and B-lymphocytes in the blood of replacement young animals are presented. From the analysis of the data presented. It follows that before the administration of the drug, significant differences in the content of heifers in the blood, the studied subpopulations of T- and B-lymphocytes were not found. After injections of the tissue bio stimulator to young animals of I, II and III experimental groups, an increase in the number of total te-ROK lymphocytes by 1.5 was noted; 2.5 ($p \leq 0.05$) and 4.1% ($p \leq 0.05$) compared to control. Compared with the beginning of the experiment, the number of TE-ROK in the blood of heifers of II and III

experimental groups increased by 3.1 and 1.3%, respectively. In animals in the control and experimental group I, the considered indicator became less by 1.1 and 4.3%, respectively. Total lymphocytes, being immunological memory cells, carry out "supervision" of the penetration of foreign agents into the body. The proliferative activity of the bF-ROK subpopulation of "activated lymphocytes" in the blood of the replacement young animals of the II experimental group was more active - by 1.5% ($p \leq 0.05$) than in the control. The analogues of I and III experimental groups also exceeded the control by 0.6 ($p \leq 0.05$) and 1.0%, respectively, in this indicator. When comparing the amount of β-ROK in the blood of animals in the control, II and III experimental groups with the beginning of the experiment, an increase was revealed in the considered subpopulation of T-lymphocytes by 0.1–0.9%.In experimental group I, the number of β-ROK in the blood decreased by 1.1%. In comparison with the initial values, the number of pE-ROK subpopulation in the blood of heifers of the control, II and III experimental groups increased by 0.2: 0.8 and 2.1%, respectively. In the first experimental group, this indicator decreased by 1.9%.The number of "killer-suppressors" in E-ROK in the blood of heifers of I, II and III experimental groups is less by 1.6 ($p \leq 0.05$); 2.6 ($p \leq 0.05$) and 2.4% ($p \leq 0.05$) compared to control. In comparison with the beginning of the experiment, the prophylactic activity of "killer-suppressors" in the blood of young animals of the control group increased by 0.7%, while in the blood of heifers of the experimental groups, this indicator decreased by 3.0-4.5%. The established fact indicates the intensity of immunity in the body of heifers of the control group, associated with the destruction of infections or other foreign agents.

B-lymphocytes level EM-ROK in the blood of young animals of the III experimental group was the highest and exceeded by 2.3% ($p \leq 0.05$) the same indicator in the control, respectively, in heifers of I and II experimental groups - by 1.5 ($p \leq 0.05$) and 1.7% ($p \leq 0.05$). In comparison with the beginning of the experiment, the amount of EM-ROK in the blood of heifers of the experimental groups increased by 1.2–2.2% ($p \leq 0.05$), in the control the same indicator decreased by 0.2%.

Conclusion. The tissue bio stimulant, administered to young cattle in different doses, had a stimulating effect on the T- and B-systems of the animals' immunity. The optimal dose of the study drug should be considered 3 ml/head, which contributes to the greatest increase in the relative amount: n-ROK - by 1.5% ($p < 0.05$); pE-ROK - by 1.8 ($p < 0.05$); EM-ROK - by 1.7 ($p < 0.05$); the absolute number of be-ROK - by 48.1 ($p < 0.05$) and EM-ROK by 46.4% ($p < 0.05$). The bE-ROK subpopulation is an activated lymphocyte with a variety of functions. They can synthesize cytokine molecules in the case when they play the role of T-helpers or lysis of affected cells in the case of T-killers, and some of the activated lymphocytes are converted into T-memory cells. The number of "helper inducers" pE-ROK in the blood of heifers of II and III experimental groups exceeded by 1.5 ($p \leq 0.05$) and 0.5% the same indicator in the control, which indicates the stimulation of the immune response. In young animals of the I

experimental group, the considered indicator was practically on the same level with the control, with a slight discrepancy of 0.1%. A significant increase in B-lymphocytes in the blood of animals when using tissue bio preparations may indicate the activation and proliferation of cells in the humoral arm of the immune system in the experimental groups of animals. Thus, research in the field of studying the mechanism of action of bio stimulators is currently quite relevant.

References:

1. S.Yu. Smolentsev, E.K. Papunidi, Veterinary Physician 3, 21-25 (2017)
2. V.A. Tereshchenko, E.A. Ivanov, O.V. Ivanova, Bulletin of the Ulyanovsk State Agricultural Academy 4 (42), 210-215 (2018)
3. E.V. Krapivina, D.V. Ivanov, A.I. Feskov, et al., Agroconsultant 6, 25-35 (2012)
4. E.A. Reutova, L.I. Drozdova, Bulletin of KrasGAU 1, 50-55 (2018)
5. S.V. Moryakina, Animal Husbandry 2, 16-18 (2008)
6. A.I. Kononsky. Animal biochemistry (Moscow: Kolos, 1992).
7. Mirzaev, U. N., Kuchboev, A. E., Mavlyanov, O., Amirov, O. O., & Narzullayev, S. B. (2024). Morphological and molecular characterization of root-knot nematodes from Uzbekistan. Biosystems Diversity, 32(1), 135-141.
8. Yarkinboeva, M. R., & Kahorov, B. A. (2024). SPECIFIC CHARACTERISTICS OF THE DETERMINATION OF BIOLOGICAL TRACES OF CRIME. Spectrum Journal of Innovation, Reforms and Development, 28, 32-33.
9. Kakhorov, B. A., Rasulova, S. L., Zhumakulova, G. S., & Shavkatova, H. R. (2024). COMPLEX EVALUATION OF BIOSTIMULANTS FOR PREVENTION OF IMMUNE SYSTEM DISORDERS AND HIGHLY PRODUCTIVE COWS AND IMPROVEMENT OF MILK QUALITY. American Journal Of Biomedical Science & Pharmaceutical Innovation, 4(01), 39-45.
10. Kahorov, B. A., & Rasulova, S. L. (2023). INFLUENCE OF MODIFIED PEPTIDES FROM THE FETAL THYMUS ON THE ACTIVITY OF T-LYMPHOCYTES AND NATURAL KILLERS IN EXPERIMENTAL VIRAL HEPATITIS. American Journal Of Biomedical Science & Pharmaceutical Innovation, 3(12), 48-55.
11. GARIB, F. Y., KAKHOROV, B. A., KHUZHAMKULOVA, M. Z., & KUCHBOEV, A. E. (2021). Effect of modified peptides from fetal thymus on the activity of T-lymphocytes and natural killers and interferonindual activity of sanogen and betaleukin. International Journal of Pharmaceutical Research (09752366), 13(3).
12. Kayumov, K., Kuchkarova, L., & Kakhorov, B. (2021). Etiology of Pancreatitis and Rutin Treatment of the Disease. Annals of the Romanian Society for Cell Biology, 585-589.

13. Адилбеков, Т. Т., & Кахаров, Б. А. (2021). СПОРТЧИЛАРНИНГ ЖИСМОНИЙ ТАЙЁРГАРЛИК ЖАРАЁНИНИНГ ФАРМАКОЛОГИК ТАЪМИНОТИ. Academic research in educational sciences, 2(2), 1128-1133.
14. ЗАЙНИТДИНОВА, Д., & ХЎЖАМҚУЛОВА, М. Болта КАХОРОВ. МУТАЦИОННАЯ ИЗМЕНЧИВОСТЬ ЯЧМЕНЯ В РАЗЛИЧНЫХ ВЫСОТНЫХ ЗОНАХ.