Bulletin of Pure and Applied Sciences
Zoology (Animal Science), Vol.42A, No.1,
January-June 2023: P.157-162

Print version ISSN 0970 0765
Online version ISSN 2320 3188
DOI: 10.48165/bpas.2023.42A.1.14

Original Research Article *Content Available online at: https://www.bpasjournals.com/zoology*

Study of the Influence of the Inclusion of Additives in the Food of Karakol Sheep on the Composition of Blood Plasma Proteins and Amino Acids

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Article Info:
Received on 26.02.2023
Revised on 08.05.2023
Approved on 17.05.2023
Accepted on 29.05.2023
Published on 16.06.2023

ABSTRACT:
The productivity of natural pastures, which are the main source of food for Karakol sheep, and the botanical and chemical composition of food undergo serious changes under the influence of climatic and seasonal factors. The productivity of pastures undergoes significant changes in years with favorable, moderately favorable and unfavorable climatic conditions, respectively. In accordance with the seasons, the consumption of food by cold animals, the supply of nutrients to their body varies significantly. Due to the insufficient supply of nutrients to the animal's body in the autumn-winter and early spring months, wool productivity and live weight decrease, as well as the deterioration of reproduction characteristics are observed. When the Karakol deer are fed with natural plants without additional nutrients throughout the year, the digestive processes in the large stomach undergo serious changes depending on the seasons or the physical conditions of the food consumed. The amount of food consumed by the karakol in the natural pasture feed, the digestibility coefficient of the nutrients in their content changed according to the level of nutrition and the amount of nutrients in the ration according to the seasons of the year. The coefficient of digestibility of nutrients, depending on the physical state of nutrients, was observed to be high in spring and summer and lowest in autumn and winter. The addition of additional nutrients to replace the missing nutrients in the feed ration of sheep allows increasing the digestibility of the nutritional components of the ration.

Keywords: Black Sheep, Feed Ration, Additional Feed, Methionine, Free Amino Acids, Intestinal Microflora, Protein Deficiency, Wool Quality, Strait Mother Sheep, Total Nitrogen, Protein.

How to cite this article: Bazarov B.M. (2023). Study of the Influence of the Inclusion of Additives in the Food of Karakol Sheep on the Composition of Blood Plasma Proteins and Amino Acids. *Bulletin of Pure and Applied Sciences-Zoology*, 42A (1), 157-162.

INTRODUCTION

As a result of rearing Karakol ewes in natural pastures without additional feeding during the year, their organism's needs for nutrients were not met, the living mass and wool productivity of ewes decreased, reproductive functions were impaired, and the natural resistance of mother ewes and lambs to various diseases decreased (Aliev, 2021; Tojiboyev, 2017; Yakhyaev, 2022). In the winter season, the lack of nutritious substances in the diet of the strait is replaced by additional nutrients, and it moderates the metabolism in the body of the sardines. It ensures an increase in the number of

microorganisms and their populations in the pre-gastric compartments activates microbiological processes and improves synthetic functions (Aripov, 2019). As a result, the physical and chemical properties of the milk of the sows will be at the standard level, the amount of secreted milk will increase, the growth and development of the suckling lambs will be improved, the live weight of the lambs at the time of separation from the mother will be much higher efficiency. In the winter and early spring seasons, the replacement of insufficient nutrients in the rations of feeding with pasture foods, filling with additional nutrients (at the expense of organizing feeding on the basis of the norm) increases the economic efficiency of pasture cattle breeding by 1.5-2.0 times.

MATERIALS AND METHODS

Scientific and production experiments carried out to evaluate the effect of standard feeding of sheep during the estrus period on the consumption of nutrients in the ration, the levels of digestibility of nutrients in the food, digestive processes in the large stomach, and biochemical and microbiological parameters in accordance with the physiological conditions of animals (estrus and lactation periods) In 2020-2023, in the conditions of the farm "Tutli Karakol Zamini" belonging to Nurabad District, Samarkand Region, and in the years 2020-2023, "Nurota Breeding" in Nurota District, Navoi Region, was carried out based on the following methodology. In order to carry out inspection measures, 3 groups were selected on the farm, similar in terms of live weight, gender, breed, and age. In each group, 30 young sheep were selected, their live weight was 32.7 ± 1.12 kg on average. While the 1st control group was fed on pasture without additional feed, for the 2nd and 3rd experimental groups, rations were formulated based on the norm (norm) recommended by A.N. Kalashnikov et al. Sulfur salt of cobalt was added to the ration. The experimental animals of all three groups were constantly kept in separate groups from November 1 to March 25 of the year of the experiment. The differences between the control and experimental groups in the experiments were determined in terms of the feeding method of the animals and the nutrients they consumed and their biological values. As a result of the conducted research, blood analyzes were checked on Mindray-BC-5000 hematological analyzer.

Drawing of experiments

Groups Number of heads Feeding conditions	Groups Number of heads Feeding conditions	Groups Number of heads Feeding conditions
Control group	30	Raised on pasture
1 experimentalgroup	30	moderate ration + synthetic methionine
2experimentalgroup	30	moderate ration + sulfur salt of cobalt

RESULTS AND DISCUSSION

Addition of methionine to the rations of the molluscs was accompanied by significant levels of nutrient loss in their gastrointestinal tracts. The concentration of methionine in the blood plasma of control and experimental group II animals was on average 0.15 mg% in each group, while the level of methionine in the blood of animals of experimental group III was 0.28%, which is 2 times higher than shows. In addition, the amount of protein in the blood of the animals of this group reliably increased.

Table 1: The level of free amino acids in the blood plasma of calves fed with various supplements

Aminoacids	**Groups**		
	I-control	II-control	III-experience
Lysine	1.62	1.68	1.76
Gistidine	0.52	0.54	0.59
Arginine	1.46	1.48	1.50
Aspararagin	0.36	0.37	0.51
Threonine	0.42	0.40	0.59
Cool	1.08	1.06	1.10
Glutamine	1.29	1.31	1.49
Proline	0.44	0.46	0.54
Glycine	2.20	2.26	2.45
Alanine	1.18	1.17	1.71
Cystine	0.21	0.23	0.36
Valin	1.97	1.81	2.24
Methionine	0.15	0.17	0.28
Isolate	0.81	0.83	1.39
Leucine	0.87	0.84	1.10
Tyrosine	0.52	0.53	0.68
Phenylalanine	0.51	0.53	0.57
Tryptophan	-	-	-
Total:	15.58	15.64	18.56

Depending on the types of additional nutrients included in the ration of sows, there were also changes in the intermediate exchange of total nitrogen and its distribution into protein and residual nitrogen fractions (Table 2).

Table 2: Amount of total nitrogen and its fractions in blood plasma of Karakol sheep

Indicators	**Groups**		
	I-control	II-control	III-experience
Totalnitrogen, mg%	1150±15.17	1212±13.14	1511±11.39
Proteinnitrogen, mg%	1076±13.02	1096±14.15	1216±10.11
Protein-freenitrogen, mg%	84±1.36	116±1.96	295±1.46
Ammonianitrogen, mg%	51.1±1.91	73±0.98	108±1.26
Urea, mg%	9.01±0.56	10.28±0.69	15.21±1.07

It was found that the amount of total nitrogen in blood plasma of subjects of the III-experimental group was the highest -1511±11.39 mg% and was 23.9% higher than the control group and 19.8% more than the subjects of the II-experimental group. Analogous data were obtained for protein and residual nitrogen. The control group was distinguished by the fact that the amount of nitrogen in the blood plasma was significantly lower than that of the experimental group. It was observed that the amount of ammonia nitrogen in blood plasma of II-experimental group was 1.43 times higher than that of the control group, while it was 2.11 times higher in blood plasma of III-experimental group. In accordance with the above data, it was observed that the concentration of urea in the blood plasma was higher in the children of the experimental group than in the children of the control group.The concentration of free amino acids in the blood plasma was also higher in the experimental groups than in the control group.The amount of four amino acids: serine, alanine, valine, and leucine in the blood plasma of the volunteers of the II experimental group did not increase compared to the blood of the

volunteers of the control group. The amount of other amino acids in the blood plasma was observed to increase in both experimental groups compared to control group.The amount of total protein in the blood plasma was 60.8±0.58 g% in the control group, while it was found to be 14.80% higher and 69.8±29 g% in the control group. formed It was found that addition of cobalt chloride salt to the ration of sardines increased the amount of total protein in the blood plasma by 12.83% compared to the sardines of the control group, but it was 2% less than that of the sardines in the methionine group. The amount of albumin in the blood plasma was higher in the control group chicks, while it was found to be the lowest in the cobalt chloride-fed chicks (Table 3).

Table 3: Amount of total protein and its fractions in blood serum of Karakol sheep, g/l

Indicators	Types of additional food		
	I-control	II-Chloride salt of cobalt	III-synthetic methionine
Total protein	60.8±0.58	68.6±1.32	68.8
Albumins	32.44±0.19	24.17±2.01	30.82±1.26
Fractions of globulin			
α	6.91±0.67	6.56±0.82	6.56±0.62
β	7.35±1.04	10.15±1.11	11.16±1.13
γ	14.12±1.73	27.63±1.70	21.23±2.12
Globulins: total	28.35±0.93	44.35±1.14	38.97±1.03
Coefficient of albumins and globulins	1.16±0.11	0.54±0.11	0.78±0.11

Although the amount of α- and β-globulins in the blood plasma was found to be almost the same in all three compared groups, it did not change significantly during the periods of the experiments and ranged from 2.53% to 3.34%, respectively; It was found to vary from 3.32 to 3.22% and from 7.35% to 11.16 g%.

The level of gamma globulins in the blood plasma of the control group was 14.12±1.73 g%. It was 27.63±1.70 g% in the blood of colds who received chlorinated cobalt salt. An intermediate state between these was found in the blood of groups that consumed synthetic methionine and, accordingly, it was 21.23±2.12 g%. Analogous results were also obtained for the total amount of globulins in the blood plasma. The protein coefficient in the control group was 1.16±0.11%. It decreased by 13.0% in the mice receiving methionine, and by 53.45% in the mice receiving the chloride cobalt salt.We explain the main reason for the difference in the protein coefficient between the groups being compared with the fact that the amount of albumin and globulins was the same as a result of the sufficient amount of protein in the food consumed by the animals during grazing.Addition of synthetic methionine to the diet of ewes reduced serum albumin and increased globulin. The increase in total globulins in the blood serum of both experimental groups occurred due to the increase in the amount of beta- and gamma globulins. Addition of synthetic methionine and cobalt chloride to the diet of pasture-raised cows increased the natural resistance of the cow's body and accelerated metabolism, that is, the amount of gamma globulins in the cow's blood serum increased. In the spring, the amount of total protein in the blood serum of the sows increased, but a sharp increase was observed in the concentration of albumins. It was found that after the addition of these additives to the rations of the sows, they do not have a negative effect on the morphological composition and functional capabilities of the blood of the sows.Addition of cobalt chloride salt and synthetic methionine to the winter ration was found to have a positive effect on erythropoiesis processes, and this was explained by the acceleration of the formation of erythrocytes in the red marrow. The amount of erythrocytes in the blood serum of the control group was 13.62±0.16 million, while the amount of

erythrocytes in the blood serum of the II-experimental group was -15.31±1.13, and it was 14.36±0.17 million in the III-experimental group. was found to be 16.39 and 4.36% higher, respectively, compared to the control group. The addition of cobalt chloride ensured that the blood was saturated with oxygen-carrying hemoglobin. The highest concentration of hemoglobin in the blood plasma was observed in the children of the II-experimental group and it was 11.13±0.28 g%, which is 12.05% compared to the control group and 16.28% compared to the children of the III-experimental group. shows that it is high. The amount of leukocytes in the blood plasma, as well as body temperature, pulse frequency, and the number of respiratory movements were within the physiological norm in the experimental animals.It was noted that the amount of total protein in the blood plasma of the volunteers of the II- and III- experimental groups was high, which indicates that the synthetic processes in their body prevailed over the breakdown of protein compounds. No differences were found between the compared groups in terms of the amount of inorganic phosphorus and other indicators, and they were found to be within the physiological norm.

CONCLUSIONS

The addition of supplements to the daily rations of the sows had a positive effect on the change of the live mass of the sows. At the beginning of the experiment, the live weight of the calves was 36.6 kg on average, while in the control group, which consumed the farm ration, the average daily growth was 17.9 g, the same indicator was in the calves of the II - experimental group - 23.4 g and It was 31.8 g in the snacks of the III-experimental group. The data obtained on the change in the live weight of chickens during the experiments show that the addition of 1.61 mg of cobalt chloride and 2 g of synthetic methionine to the farm rations increased the appetite of chickens, improved food consumption and utilization of nutrients, and finally, the chickens ensured that the daily growth of the mass was carried out at the standard level. So, in a word, the addition of synthetic methionine to the autumn and winter rations of the mother Karakol sheep provides an opportunity to save farms from excessive expenses while improving the general exchange in the body of sheep.

REFERENCES

1. Aliev D.D. (2021) Physiological aspects of increasing the productivity of Surkhandarya sur Karakol sheep. Samarkand, p. 26.
2. Antsibor T.A. (2006). Influence of full and inadequate feeding of mother cows on the immune status of newborn calves. Saratov, p. 20.
3. Aripov U.Kh., Aliev D.D. (2019). Correlation of biologically active substances and potassium content in blood with reproductive physiology of Karakol sheep. Samarkand, pp. 40-43.
4. Bazarov B.M., Rajamuradov Z.T. (2014). The influence of factors of external environment and biochemical indicators of blood ovets. *Journal "Infection, immunity and pharmacology" Tashkent,* pp. 59-62.
5. Ermakova N.V. (2001). Ecological - physiological characteristics of the adaptive reaction of the organism in different climates - geographical regions. / / Ekologo-physiologicheskie problemy adaptatsii:. - Materialy X international symposium.pp. 186 -187.
6. Hayitov D.G`. (2022). The Effect of External Environmental Variables on Blood Protein Indications of Rabbits. *Bulletin of Pure and Applied Sciences- Zoology,* 41A(2), 222-226.
7. Ismayilova M.A. (2022). Study of the Effect of Hypothyroidism and Thyrotoxicosis on the Proliferative Activity of the Red Bone Marrow in Experimental Animals with an Implanted Akatol Tumor. *Bulletin of Pure and Applied Sciences Zoology (Animal Science),* 41A(1),120-124
8. Le Houerou H.H. (2005). Ecological management of arid grazing land ecosystem. IUCN, P. 45-49.
9. Tarakanov B.V. (2006). Methods for studying the microflora of the digestive tract of agricultural animals and birds. Scientific world. pp.188
10. Tojiboyev B.M., Noshimov I.E. (2017). Feeding of agricultural livestock. pp. 319.
11. Viktorov P.I. (1991). Methodology and organization zootechnicheskix opytov / Menkin V.K. pp. 38-65.

12. Yakhaev B. S. (2022). The effect of complex feed additives on dynamic feed and feed processing in the performance of baranchikov Karakul production. *Scientific Journal of Agrobiotechnology and Veterinary Medicine*. P.945-948.

13. Zhang K, Zhao K. (2011). Afforestation for sand fixation in China. *J. of arid environment.* 16(1), 3-10.