

# The Distribution of Biochemical Parameters in the Blood of Sur Karakol Lambs in Different Natural Ecological Regions of Samarkand and Kashkadarya to Productivity and Vitality

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**Abstract** In this article, the productivity and viability of the Sur Karakol lambs biochemical parameters (total protein, albumin, globulin, calcium, magnesium) in the mountain-mountainous medical ecological region of Samarkand region and the desert-steppe medical ecological region of Kashkadarya region information about the connection with.

**Keywords** Calcium, Magnesium, Albumin, Globulin, Desert-steppe, Mountain-mountain, Sur Karakoli, Mass spectrometry, Photometric

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## 1. Introduction

The most accurate indicators of metabolic processes in sheep's body are biochemical indicators, which are determined in blood serum. It is in the blood that the most important biologically active substances for life move and participate in various physiological processes. Vital functions in blood serum depend on metabolic processes, protein and biochemical substances in blood. Blood proteins perform various vital functions and are indicators of growth, viability, productivity of animals. In his research, F. Gaurovits notes that there are no homogenous proteins in blood serum, each protein molecule is unique in its composition. However, in turn, protein substances can always exchange places with each other. [1]

The total concentration of proteins in blood serum is determined by the concept of "total protein". The total protein, including albumins and globulins, plays an important role in terms of functional importance. Albumins regulate the osmotic pressure of the blood and are reserve proteins for the growing organism, as they are used for plastic processes. The globulin fraction of proteins is of great importance for the body's immune processes. Unlike albumins, they contain less cystine and more glycine. Globulins are actively involved in oxidation-reduction metabolic processes and have antigenic properties. Creatinine is directly involved in the energy metabolism of muscles and other tissues, so its

content in the blood depends on the size of the animal's muscle mass. In the process of urea synthesis, the body neutralizes the toxic substance - ammonia.

## 2. Literature Analysis

It is important to determine the amount of macroelements such as calcium, magnesium and potassium in the study of mineral exchange in the animal body. They are the main components of bone tissue and participate in almost all life processes (ossification, normal functioning of the heart, sexual activity). About 99% of calcium is in bone tissue, the rest is in the blood plasma, where it participates in the regulation of water-salt exchange, maintains a constant blood pH level and is necessary for a growing organism. It has been proven by many scientific studies that bone ash contains 38% calcium, 17% phosphorus and 1% magnesium. The composition of the bones is not the same, but it depends on the amount of mineral substances in the body, as well as vitamin D and Ca. If there is a lack of calcium, phosphorus or vitamin D in a young organism, ossification does not go well, rickets occurs; bones become crooked, joints become larger; In adult animals, the phenomenon of bone softening is observed. A source of calcium is legumes and animal foods rich in bones - fish, bone, meat-and-bone meal, and milk. In practice, farm animals are given chalk, crushed limestone, and dicalcium phosphate as mineral food supplements.

Magnesium is one of the important biogenic elements and is a cofactor of many enzymatic reactions. Magnesium

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is necessary for the conversion of creatine phosphate into ATF-nucleotide, which is considered the universal supplier of energy in living cells of the body. Magnesium participates in all stages of protein synthesis, normal functioning of the nervous system and heart muscles. Lack of magnesium in the body of sheep can manifest itself in different ways: insomnia, chronic weakness, osteoporosis, arthritis, constipation. Most magnesium is found in wheat bran, pumpkin seeds, and cocoa powder. Most magnesium is found in bone tissue. In blood plasma, erythrocytes and soft tissue, this element is mainly found in ionized form. Also, most of it is bound to proteins, especially enzyme proteins. If animals are fed food without magnesium salts, their heart function will be disturbed, that is, they will die from heart disease. When a large amount of magnesium salts are injected into the blood, lambs become dizzy and walk around, this condition is called magnesium narcosis. Magnesium dilates blood vessels, stimulates intestinal peristalsis, and increases bile secretion. Magnesium compounds - magnesium sulfate, magnesium carbonate, magnesium thiosulfate, etc. are used as medicine.

### 3. Research Methodology

Experiments during the years 2022-2023, in the "Turon Karakolchilik" LLC, which is located in the desert-steppe area of the Koson district of the Kashkadarya region, and in the mountainous area of the Nurabad district of the Samarkand region, the biochemical composition of the venous blood and the age relative productivity. work was carried out. Mass spectrometry of calcium and magnesium content in venous blood. and magnesium photometric analysis. method was determined in the analyzers of the Finnish company Perken Elmer. The obtained data were processed by generally accepted biometric methods.

### 4. Results

The amount of total protein, K, Mg, Ca in the blood of Sur Karakol lambs living in different regions can also differ from each other, can change (decrease or increase) with age, and these parameters affect productivity, the dependence on viability is presented in the table below.

According to our research, the total protein content was 61.7g/l in the mountain-mountain region, and 65.1g/l in Karakol lambs in the desert-steppe region. (the difference is 3.4g/l) and it can be seen that it is 5.5% more. By region, it was observed that globulin and albumin were always slightly higher in the blood serum of lambs from the mountainous region than their peers from the desert region, and this was due to the increase in the rate of protein metabolism in the body of lambs, relative nutritional conditions. may be related to improvement. As lambs age, ALT and ACT levels increased in an age-appropriate manner in both regions: These parameters were similar in regions to alanine aminotransferase activity in lambs from the desert region compared to lambs from the mountain region. 3.6% and 2.4% more, respectively. Similar

changes were observed with aspartate aminotransferase: 0.75% (difference 0.6mmol/g) higher in desert lambs at both ages.

**Table 1.** Biochemical parameters of Sur breed lambs living in different ecological regions (n=5)

Vital signs	Day, age	Mountain - mountainous region M±m	Desert-steppe region M±m
Total protein, g/l	30 Day	61,7±1,8	65,1±1,3
	120-135 Day	70,0±0,5	73,0±1,9
Albumin, g/l	30 Day	27,4±1,7	26,6±2,2
	120-135 Day	32,3±2,8	31,3±2,5
Globulin, g/l	30 Day	35,1±3,5	35,2±3,1
	120-135 Day	39,0±2,6	39,0±3,4
ALT, g/l	30 Day	22,1±2,0	22,9±1,3
	120-135 Day	28,4±2,0	29,1±2,6
AST, g/l	30 Day	80,0±5,2	80,6±6,2
	120-135 Day	86,5±5,9	87,1±6,2
Calcium, mmol/l	30 Day	2,1±0,06	2,4±0,2
	120-135 Day	2,15±0,14	2,4±0,07
Magnesium, mmol/l	30 Day	0,80±0,08	0,84±0,07
	120-135 Day	0,81±0,06	0,70±0,01

### 5. Discussion

The amount of calcium in the blood of lambs in the mountainous region is 14.3% (difference 0.3 mmol/l) in 30 days from the amount of calcium in the blood of Sur Karakol lambs living in the desert-steppe region, and in 120-135 days It was observed that it was less than 11.6% (0.25 mmol/l). It follows from this that the above biochemical indicators in the blood of lambs in the desert region are higher than those of lambs raised in the mountainous region, they have a faster metabolism, vitality, and disease resistance. it is possible to do.

As for the amount of magnesium, it was 0.84 and 0.80 mmol/l in one month, respectively, while in 120 days this indicator was 0.81 mmol/g in the mountainous area and 0.70 mmol/g in the desert area. organized l. It can be seen that the amount of magnesium in the blood of Sur Karakol lambs in the desert region is 13.5% less than that of their counterparts in the mountain region.

### 6. Conclusions

Experiments have shown that the blood magnesium content of the sur Karakol lambs in the natural mountain-steppe region is 13.5% higher than that of the sur Karakol lambs in the steppe-steppe ecological region, while the calcium content of the Lambs in the Mountain-Mountain region is 14.3% (difference 0.3 mmol/l) at 30kun, 11.6% at 120-135 days (0.25 mmol/l) less it was observed to be.

## REFERENCES

- [1] Plokhinsky N.A. Guide to biometrics for animal technicians. Moscow. 1969. -256 p.
- [2] Ismoilov Komiljon Tuygunovich, Aliev Dilmurod Davronovich, Matkarimova Gulnoz Maksudzhanovna, Rajabov Jasur Pardaboevich - Ecological Bases of Productivity of Flow-Colored Sheep. Jundishapur Journal of Microbiology Research Article Published online 2022 April. Vol. 15, No.1 (2022).
- [3] Ismoilov K. T., Aliyev D. D. The connection of the potassium content in the blood with the physiology of reproduction of Sur Karakul Sheep //scientific journal of Agrobiotechnology and veterinary medicine. – 2022. – p. 642-645.
- [4] Ismailov K.T., Aliyev D.D & Mukhitdinov Sh.M. The chemical composition and age-related productivity of the meat of Sur karakul lambs and sheep in the desert-steppe and mountain-mountainous region. Veterinary Medicine. Popular Science Journal Special Issue 3. October 2023 yil, 102-104 bet. Ismoilov K.T., & Muxitdinov Sh.M, Mamurova G.N., Interrelation of viability and productivity indicators with Etological characteristics in the growth and development of sur Karakol lambs. CENTRAL ASIAN JOURNAL OF MEDICAL AND NATURAL SCIENCES VOLUME; 04 Issue: 02 Mart-apr 2023 ISSN: 2660-4159. 219-223.
- [5] Mukhitdinov, S., Aliyev, D., Ismoilov, K., & Mamurova, G. (2020). The Role Of Biologically Active Substances In The Blood In Increasing The Productivity Of Sheep. European Journal of Molecular & Clinical Medicine, 7(03), 2020.