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EFFECTIVENESS OF PROBIOTICS IN PREVENTING DISORDERS OF CALCIUM-PHOSPHORUS METABOLISM IN RABBITS

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Аннотация:
В данной статье описаны результаты экспериментов по изучению эффективности пробиотиков в профилактике нарушений фосфорно-кальциевого обмена у кроликов. Определено влияние ПЗ-пробиотика, примененного к экспериментальным кроликам, на их организм, клинические признаки, гематологические показатели и массу тела. Применение рз-Пробиотика кроликам опытной группы обеспечивает улучшение минерального обмена в их организме, масса тела их новорожденных в среднем на 21,9 гр выше по сравнению с контрольной группой.

Abstract
This article describes the results of experiments on the effectiveness of probiotics in preventing calcium-phosphorus metabolism disorders in rabbits. The effect of pz-probiotic applied to experimental rabbits on their organism, clinical signs, hematological parameters and body weight was determined. Application of pz-probiotic to rabbits in the experimental group ensures the improvement of mineral exchange in their body, the body weight of their newborns is 21,9 gr higher on average compared to the control group.

Ключевые слова: кролики, минеральный обмен, кальций, фосфор, костная ткань, анемия, гемоглобин, глюкоза, общий белок, ПЗ-пробиотик.

Keywords: rabbits, mineral metabolism, calcium, phosphorus, bone tissue, anemia, hemoglobin, glucose, total protein, pz-probiotic

Relevance of the Topic

Rabbit breeding is an important branch of animal husbandry and provides meat and valuable fur for humans. Rabbit meat is not inferior to poultry in terms of quick digestion, softness and taste, and in terms of digestibility it is recommended as a diet food for people suffering from blood pressure, liver and stomach diseases. Along with rabbit meat products, they also provide light industry with fur. Therefore, it is important to develop and implement methods for early diagnosis and prevention of mineral metabolism disorders in rabbits.

Calcium and phosphorus are important in the rabbit's body, and 65-70% are accumulated in the bones. Vitamin D is necessary for good absorption of calcium and phosphorus in the body, and its deficiency causes stunted growth and stillbirth in rabbits [1,3,5]

Vetom 3.0 probiotic preparation for young rabbits at the rate of 50 mg/kg of live weight is highly effective, has an antagonistic effect on pathogenic and conditionally pathogenic microbes, increases resistance, improves digestion, and reduces mortality in young rabbits. Increases the average daily growth by 15.34% compared to the control group. It has been proven in experiments that the quality and organoleptic parameters of rabbit meat products are higher than the control group [2,4,6].

Hypothropic children born from minks with calcium-phosphorus metabolism disorder (rickets) have stunted growth (deafness), anemia of mucous membranes, frequent morbidity and mortality. Disturbance of calcium-phosphorus ratio, metabolic acidosis, decrease of alkaline reserve in blood, increase of activity of alkaline phosphates enzyme were observed in the body of such animals. In order to prevent disorders of minerals metabolism of mink children, when succinic acid is used in their diet at a dose of 1.0-5.0-10.0 mg/kg, it is possible to normalize the metabolism of mineral substances, increase body weight, and improve the quality of fur [6,7,8,10].

According to the experimental results of the use of probiotics in rabbits, complex probiotic preparations based on Vetom 3.0, Vetom 1.1 at the rate of 70 mg/kg of body weight have been found to have a positive effect on cells and tissues of internal organs when used in rabbits (in the meat sector). It can be concluded that these complex drugs improve metabolism in the body of rabbits and prevent dystrophic processes in organs [9].

Place, Object and Methods of Research

The experimental part of the research was conducted at the rabbit breeding farm "Tarnov - sabzavotlari" in the Okdarya district of the Samarkand region. Twenty 6-month old artificially inseminated strait rabbits belonging to the breed were divided into four groups.

The first experimental group was given granulated mixed feed (enriched with Bactovit prebiotic, the second experimental group was given granulated feed enriched with vitamin-mineral premixes, the third group received farm ration (granulated feed)+ probiotic-PZ with 0.5ml/l water, the control group was fed on a ration (pellet feed). Clinical and hematological tests were performed on experimental rabbits. By clinical examination of mother rabbits with generally accepted clinical examination methods, general condition, appetite, degree of obesity, response to external influences, mucous membranes, skin coating, condition of skin and movement organs, body temperature, pulse and breath per minute were determined. The body weight of their children was determined at birth,10 days,20 days and 30 days. The experiments lasted 30 days. The received digital data was processed biometrically. The obtained results were compared with standard indicators. Laboratory tests on blood samples taken from rabbits in the "OPTA-TECH" interdepartmental laboratory of the "Poultry, fish, bee and fur animal diseases" department of Samarkand state university of veterinary medicine livestock and biotechnologies and some biochemical indicators of blood in the city polyclinic № 2 in the express method on the "Genru GS300 Plus va CYANSmart" devices were determined.

Analysis of the Obtained Results

According to the results of clinical examinations conducted every 10 days from the 20th day of the experimental rabbits, the body temperature of the rabbits in all experimental groups was within the limits of physiological norms at the beginning of the experiments, decreased appetite, paleness of mucous membranes, obesity level o Below average, in rabbits there was a decrease in the response to external influences, a decrease in the skin coating, and a decrease in gloss. During the experiments, positive changes were noted in the experimental groups, while in the control group, the symptoms detected at the beginning of the experiment were repeated. As it can be seen, with the end of the period of obesity in rabbits, it was observed that the disorders of mineral metabolism deepened in them.

The study of the clinical parameters of the rabbits in the experiment showed that the number of pulses in 1 minute in 1 group was 130±4.5 times at the beginning of the experiment (on average 120-200 times in 1 minute), 128±4 in the middle of the experiment. 2 and at the end it was 124±1.2 times. Accordingly, in group 2, 128±3.1 and 120±4.7 times, in group 3 on average 128±4.3, 120±4.8 and 115±4.9 times, in the control group 115±4, 9 was 119±4.8 and 124±3.9 times. It was found that the number of pulses in experimental group 3 was better compared to other groups.

The number of breaths in 1 minute (the norm is 50-60 times in 1 minute) in group 1 averaged 55±0.4 breaths at the beginning of the experiment, 53±0.2 breaths in the middle, and 51±0.3 breaths at the end. In the 2nd group, the average was 58±0.10, 57±0.09, and 54±0.03, and in the 3rd group, the average was 55±0.6, 54±0.05, and 53±0.04. times, averaged 52±0.05, 50±0.06 and 51±0.02 times in the control group. Hematological parameters of the experimental rabbits reached an average of 12.2±3.1g/% in experimental group 1 by the end of the experiment. In the 2nd group up to 11.8±3.3g/%, in the 3rd experimental group the amount of hemoglobin at the beginning of the experiments was on average up to 11.5±3.6g/%, and by the end of the experiment it was on average 12.8±4,1 increased to 1g/%, was characterized by a decrease from 11.4±3.1g/% to 11.8±2.2 g/% in the control group.

The amount of total protein in the blood serum at the beginning of the experiments was 52.71±1.85g/l on average in the 1st experimental group, and 64.20±1.50g/l on average at the end of the experiments, while in the 2nd experiment correspondingly, in group 53.84±1.92 g/l and up to 62.6±1.48 g/l, in experimental group 3 from 52.18±1.74 g/l to 66, It was found that it increased to 24±1.58 g/l, in the control group it was found that this indicator decreased from 54.26±1.96 g/l to 53.86±1.68 g/l by the end of the experiments. According to the analysis of the blood glucose of the rabbits in the experiment, the average of 3.26±0.561mmol/l at the beginning of the experiment in the 1st experimental group, and 3.58±0.622mmol/l at the end of the experiment, corresponding to the 2nd experiment in group 3 from 3.28±0.542 mmol/l to 3.76±0.422 mmol/l, in experimental group 3 the average increased from 3.30±0.544 mmol/l to 3.98±0.020 mmol/l, in the control group an average decrease from 3.24±0.574 mmol/l to 2.98±0.502 mmol/l was observed.

The study of the body weight of the female rabbits in the experiment showed that there was no significant difference in the live weight of the rabbits at the beginning of the experiment, but by the 20-day period, the average body weight of the rabbits in group 3 was 5.16±1.76 kg., was found to be superior to other groups. This

indicator averaged 4.72±0.76 kg in group 1, 4.74±0.82 kg in group 2, and 4.65±0.42 kg in the control group (Table 1).

1-Table Changes in the body weight of female rabbits in the experiment (kg)

Groups of the experiment	At the beginning of the experiment	20th day of the experiment
1 - experiment	4,10±0,62	4,72±0,76
2 - experiment	4,05±0,69	4,74±0,82
3 - experiment	4,04±1,12	5,16±1,76
control	4,12±0,53	4,65±0,42

As can be seen from table 3, the body weight of the children born from the rabbits of the Khikol breed in the experiment, the average weight of the rabbits in the 1st experimental group is 55.6 ± 10, with the normal live weight at birth being 40-90 g. 2 grams, the average in group 2 was 56.8±12.2, the average in group 3 was 78.4±15.4, and the average was 56.5±12.8 in the control group. The birth weight of rabbits born from rabbits in the 3rd experimental group was higher than that of other groups. In 10 days (130-260 gr according to the norm) the average of the groups was 190.8±18.5, 182.4±22.4, 206.8±16.6 and 178, It was 7±15.7 grams, and here too, the superiority of the body weight of group 3 rabbits is evident. In 20 days (standard 250-500 gr) on average 275.7±25.4, 288.5±22.8, 450.2±35.4 and 250.3±22.4 grams, 30 per day (the norm is 400-900 g) averaged 450.6±35.5, 460.8±28.9, 650.4±38.2 and 392.6±26.8 grams. PZ – The live weight of rabbits born from the 3rd experimental group given the probiotic increased.

2-Table Body weight of children born from experimental rabbits (n=20)

Groups of the experiment	Body weight at birth, g	10 daily, g	20 daily, g	30 daily, g
In norm	40-90	130-260	250-500	400-900
1 experiment	55,6±10,2	190,8±18,5	275,7±25,4	450,6±35,5
2 experiment	56,8±12,2	182,4±22,4	288,5±22,8	460,8±28,9
3 experiment	78,4±15,4	206,8±16,6	450,2±35,4	650,4±38,2
Control	56,5±12,8	178,7±15,7	250,3±22,4	392,6±26,8

Summary

In preventing metabolic disorders in rabbits, the effectiveness of using PZ-probiotic in the period from the 20th day of gestation to the 10th day after birth is high, it improves the metabolism in rabbits, clinical and hematological parameters are at the standard level improvement ensures that the birth weight of their children is 21.9 g higher than at the control of the group.

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