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Influence of algae on fur growth, development, physiological condition and fur quality

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Abstract: It is known that microscopic algae contain a variety of valuable substances, such as protein, carbohydrates, fats, vitamins, minerals. Especially in the use of algae as a nutrient, the protein in it plays an important role, in which it is important to preserve all amino acids, including non-exchangeable amino acids. With this in mind, algae have been used in various fields. In our study, the biomass of chlorella and chlamydomonas in fur-bearing animals was previously tested as a biostimulator, and it was found that mink had a positive effect on the growth and development of nutria animals and the quality of their fur.

Keywords: Furry animals, Nutria, Chlorella, Chlamydomonas, algae, algae cultivation, Physiological properties of animals.

Introduction

It is known that microscopic algae contain a variety of valuable substances, such as protein, carbohydrates, fats, vitamins and minerals. Especially in the use of algae as a nutrient, its protein plays an important role, as it preserves all amino acids, including non-exchangeable amino acids [10]. In addition, algae are a source of various vitamins. In particular, algae are higher in carotene (provitamin A) than other plants. Algae are also known to store large amounts of fat and unsaturated and polyunsaturated fatty acids. [12]

With this in mind, algae has been used in various sectors of the economy. It is used in agriculture, animal husbandry, poultry, pig farming, fishing, silkworm rearing, cotton growing and various biological wastewater treatment. In our study, algae suspension was tested in nutria, paste in mink feeding. Experiments have shown that algae have a positive effect on the growth and development of fur animals and the quality of fur. [7]

In this study, we studied the use of algae biomass (paste) by substituting a certain amount (10%, 20%) of animal protein (meat and fish products) in mink feed.

Object and methods of research

For the experiment, we selected algae species - Chlorella vulgaris YA – 1-6 and Chamydommonus reinhardii-449 (from the collection of the Institute of Botany of the Uzbek Academy of Sciences) to obtain a mass of algae biomass of 1000 liters and 5000 liters. grown on the device for seven days and separated their biomass using a separator. To conduct the experiments, 12 mink were selected for each variant from a fur mink breeding farm in Angren, Tashkent region. The age and origin of the isolated animals were taken into account. Option I was controlled with standard feed, variants II-III were fed with standard feed, and in addition to water, algae-growing medium (II) and chlamydomonas suspension (III) were given. In variant V, the feed was replaced with 10% (IV) and 20% (V) chlorella algae. In Option VI, the feed was replaced with 20% chlamydomonas algae paste. During the experiment, the height, weight and total protein in the blood (by refractometer), protein fractions (by electrophoresis), cholesterol (by Ilka method) and glucose (by orthotoluidine reagent method) were determined monthly [9]. The results were statistically processed by the Ivanter method [8].

The results obtained and their discussion

Experiments have shown that replacing a portion of mink feed (10%, 20%) with algae biomass did not have a negative effect on the animal's body, but rather increased the animals' appetite and accelerated their growth and development. For example, two months after the experiment, the length of male mink increased by

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9.4%, and that of female mink increased by 11.7% compared to the control variant (Table 1).

Table 1

The change in body length of mink over time when fed with algae (sm)

Groups	emale				lale			
	Before th experiment	After month.	After nonths	Growth relative control.	Before th experimer	After month.	After nonths	Growth relative control.
Group 1 (control)	29,1±0,12	32,4±0,2	36,0±0,2	100,0	37,2±0,2	41,0±0,3	46,5±0,3	100,0
Group 2 (addir nutrient medium algae).	28,9±0,10	33,0±0,2	36,3±0,2	100,0	36,4±0,2	41,6±0,3	45,0±0,3	98,0
Group 3 (addir chlamydomonas suspension to algae).	32,0±0,15	34,8±0,2	37,6±0,2	104,4	36,6±0,2	42,5±0,2	47,8±0,3	102,8
Group 4 (replaceme of 10% chlorella pas in the feed).	29,6±0,14	34,2±0,2	39,3±0,2	109,1	37,8±0,2	44,3±0,3	49,8±0,3	107,0
Group 5 (replaceme of 20% chlorella pas in the feed.	30,2±0,20	36,6±0,2	38,5±0,3	107,0	38,1±0,2	45,2±0,3	48,7±0,3	104,7
Group 6 (replaceme of paste in feed 20% chlamydomonas).	29,0±0,18	34,8±0,2	40,3±0,3	111,7	37,0±0,2	43,5±0,3	50,9±0,3	109,4

In addition, the animals were found to have increased total protein and fractions in the serum, as well as glucose and cholesterol. The increase in these rates varied depending on the type and amount of algae in the animal's diet. For example, chlorella contains 10% -20% of algae in the blood, total protein albumin and g-globulin secretions, and glucose 8 and 15.8% of female mink; 9.4 and 12.4%; 2.8 and 5.1%; 0.7 and 9.2%; can be observed to increase accordingly. In animals receiving 20% chlamydomonas, these values were found to be higher than those of chlorella algae (18.1; 15.0; 8.5; 13.0%, respectively). The content of α-globulan, b-globulan and cholesterol in the blood of animals was observed to decrease by 40,10,18% (when taken with chlamydomonas) in the variant mink, respectively. This indicates an increase in the body's ability to protect animals. The results show that chlamydomonas has a higher positive effect on the physiological state of animals than chlorella algae, due to the thinness of the cell membrane of chlamydomonas and the fact that chlamydomonas It can lead to the absorption of large amounts of biological substances. In the variants in which the above algae suspension was given to the animals instead of water, there were also positive changes in the physiological state of the mink, but the variant in which the paste was administered was much lower than in the animals. Animals given algae in a nutrient medium had adverse changes, with very low growth and development, and even disease in their bodies.

During the experiment, we also measured the weight of mink per month, with chlamydomonas increasing by 18.8% in females receiving algae paste and 16.8% in males receiving chlorella paste. the figures are 15.0 and 12.3%, respectively. In general, algae papules are more effective in females than in males (Table 2).

Table 2

Changes in the live weight of mink during algae feeding

(gr / mm)

Groups	emale				lale			
	Before the experimer	After month.	Before th experimen	After month.	Before th experimen	After month.	Before the experime	After month.

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Group 1 (control)	635±15,5	750±16	856±18,8	00,0	800±19,8	1246±30	1570±38	100,0
Group 2 (adding nutrie medium to algae).	623±13,1	809±16	838±19,0	8,0	820±17,2	1258±33	396±35,1	88,9
Group 3 (addir chlamydomonas suspensic to algae).	631±14,	77±19,2	957±20,4	09,5	813±19,6	350±36,7	563±41,2	108,0
Group 4 (replacement 10% chlorella paste in th feed).	620±13,	01±17,0	893±21,3	15,0	830±22,0	426±35,5	767±37,4	112,5
Group 5 (replacement 20% chlorella paste in th feed.	642±16,	29±16,5	930±22,0	08,5	806±16,8	322±37,3	590±33,4	102,0
Group 6 (replacement paste in feed 20% chlamydomonas).	630±15,2	94±17,6	1017±24,	18,8	814±18,5	515±40,0	830±42,6	116,5

This is due to the fact that in females the metabolic process is faster, that is, they give birth to offspring, and they have the ability to absorb more biologically active substances in the algae biomass.

The results of a production experiment to replace 20% of mink feed with chlamydomonas algae paste showed that the size of fur increased by 15 and 17% after 3 months (male and female). respectively) fur quality was 83% in experimental animals and 62% in control options (Table 3).

Table 3

Description of mink fur after slaughter and primary processing.

№	**Indicators**	**Control**	**An experimental option in whic 20% of the feed was replaced wi chlamydomonas paste**
1	Weight, g	126,8	138,5
2	Length, sm	64,7	69,4
3	width, sm	15,1	15,8
4	Total area, sm	976,8±21,2	1009,6±35,3
5	Quality Index, %	62,8	83,0
6	In relation to control, %	100	118

Conclusion

The results of an experiment conducted at a fur farm in Angren, Tashkent region, showed that animal feed was 10; Replacement of up to 20% with seaweed paste does not adversely affect the physiological state of mink, but increases their body length, total protein, albumin and g-globulin levels in the blood, a, b-globulins and glucose, cholesterol As a result, they will be able to improve the quality of fur by 18.8% by weight and save 1 ton of meat, fish and other products on the farm.

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