THE EFFECT OF THE CHLORELLA PLANT ON THE ANIMAL ORGANISM

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One of the most important tasks of the agro-industrial complex of our country is to provide the population with high-quality and biologically valuable food products. In solving this problem, poultry farming, in particular goose breeding, plays an important role. The successful development of goose breeding largely depends on the production of compound feed, balanced in terms of the complex of nutrient, mineral and biologically active substances. The balance of compound feeds and their good quality are determined by the quality of the constituent components, which are characterized by a wide range of indicators. One of the indicators is the presence of anti-nutrients, which are usually not taken into account in the calculations. The anti-nutritional effect has a significant impact on the quality of feed, its digestibility and availability, and, as a result, on productivity.

In most cases, to improve the quality of compound feeds, enzyme preparations are used that break down nutrients of a high molecular nature into easily digestible forms, and thereby, increasing their availability and digestibility. The use of specific enzyme complexes for each feed component that breaks down non-starchy polysaccharides can significantly increase the absorption of nutrients in the diet. As a result, the level of metabolic energy, assimilable protein and amino acids, carbohydrates significantly increase. This translates into improved feed conversion, increased safety and live weight, which in general leads to lower unit costs.

A promising direction at present is the study of the possibility of using chlorella as a vitamin-feed additive, a prophylactic agent and against diseases of the biomass of chlorella. Its introduction in the form of a suspension into the ration of livestock and poultry makes it possible to largely replace expensive vitamins and medicines.

Relatively simple organization, high reproduction rate, the possibility of cultivation under fully controlled conditions, high plasticity of metabolism have long made chlorella a classic object of industrial cultivation with the aim of creating on this basis a new technology for obtaining drugs for fine chemistry, medicine, perfumery, agriculture, as well as enzymes and other biologically active substances for scientific purposes.

In recent decades, work on the mass cultivation of chlorella in a number of countries has intensified, and the data of physiological and biochemical studies indicate that it is promising as a producer of valuable natural compounds. Compared to conventional agricultural plants, chlorella has a higher efficiency of assimilation of solar energy, is capable of a mixotrophic (mixed) type of nutrition and efficient utilization of low intensity light.

Many scientists and specialists () argue that the production of chlorella biomass is economically more profitable than obtaining protein by microbiological means, and the cost of mineral salts used for the preparation of nutrient media can be reduced using conventional mineral fertilizers or waste from various industrial industries.

Photosynthesizing unicellular microorganisms - microalgae are assigned a certain role in solving protein problems, and, to a greater extent, as unconventional sources of biologically active substances. Of the huge number of unicellular algae, green protococcal algae of the genus Chlorella, Scenedesmus, as well as the blue-green spiral algae - Spirulina platensis, are more suitable for mass cultivation. In many countries of the world, including Russia, algae are widely used in poultry feeding.

Currently, there is a certain experience in the use of algae in the diets of birds, however, the volume of inclusion, the technology of their watering, as well as the effect on the productive and reproductive indices of geese have not been investigated.

In this regard, the study of this issue is of scientific and practical importance.

Based on the above, the goal of this work is to improve the productive qualities of geese when a representative of green algae, chlorella, is included in the diet.

Based on this goal, the objectives of the research were:

- determination of the optimal volume of chlorella algae input into the diet;
- study of the effect of chlorella on the productive and reproductive qualities of geese;
-Study of natural resistance and morphobiochemical parameters of the blood of geese using different doses of chlorella;
- study of the effect of different doses of chlorella on the digestibility and use of nutrients in feed;
-Calculate the efficiency of using chlorella when feeding geese.

Literature review

Recently, in agriculture, the problem of the need to introduce resource-saving technologies for keeping and feeding animals has increasingly arisen [1]. One of them is the use as a vitamin feed supplement and a prophylactic agent against diseases of the biomass of chlorella. Its introduction in the form of a suspension into the ration of livestock and poultry makes it possible to largely replace expensive vitamins and medicines.

According to S. Averitsev, O.N. Novikov. and other most of the irreplaceable substances are able to maintain their high biological activity only in the composition of "living" plants, they are easily destroyed during conservation and long-term storage of feed. At the same time, their addition to feed radically affects productivity, immunity, safety, reproduction and other main indicators of animal husbandry, like no other feed additives. Being the primary link in the trophic food chain, and in fact the basis of all life on Earth, microalgae contain in their composition all vital elements in high concentration and easily digestible for animals, far exceeding all higher plants in such indicators. Photosynthesizing unicellular microorganisms - microalgae play a certain role in solving protein problems, and to a greater extent, as non-traditional sources of biologically active substances. Of the huge number of unicellular algae, green protococcal algae of the genus Chlorella, Scenedesmus, as well as the blue-green spiral algae - Spirulina platensis, are more suitable for mass cultivation. In many countries of the world, including Russia, algae are widely used in poultry feeding. The widespread use of various kinds of chemicals, antibiotics, stimulants in poultry feeding in recent years, allowing to achieve high weight gain, has a sharp negative effect on the quality of products.

The inclusion of the required amount of a living natural plant of high biological value in feeding remains today a huge reserve of poultry farming. It can not only significantly improve the consumer quality of products, but also increase profitability, for example, in broiler poultry farming, up to two times. The way out is to give the bird a living plant in terms of its composition and concentration of biologically valuable substances in it, significantly superior to traditional green feed. And if this cannot be done by including such a plant in dry feed, it can be given to the bird separately from the feed through the drinking system. Thus, the drinking system here plays an additional role as a mechanism that will provide the bird with a living natural plant. Relatively simple organization, high reproduction rate, the possibility of cultivation under completely controlled conditions, high plasticity of metabolism have long made chlorella a classic object of industrial cultivation with the aim of creating on this basis a new technology for obtaining drugs for fine chemistry, medicine, perfumery, agriculture, as well as enzymes and other biologically active substances for scientific purposes ().

The bio-workshop of chlorella is a separate room, where it is obtained in special installations and then transported to the workshops in the required volume. You can install cultivators and get chlorella in a utility room directly on the poultry house, in this case there is no need for a separate room and transportation of the finished suspension. The cost of the installations fully pays for itself in just one period of broiler feeding, while we get ecologically clean poultry meat with high taste. ... One broiler workshop of 30 thousand heads will require three installations for a total of about 600 thousand rubles. Maintenance of these cultivators will take no more than 1.5 hours per day by one person. The cost of the resulting suspension is within 50 kopecks

per liter, while one ruble invested in the cultivation of chlorella yields up to 30 rubles of net profit as a result of feeding.

The required amount of chlorella suspension can be obtained every 22 days in a bioreactor or pool with a volume of 2 m3. Such an installation is not a technically complex structure; for algae, a temperature of 20-22 ° C and an illumination of 4-5 klx are sufficient, created by economical new-generation Philips fluorescent lamps or arc sodium or mercury lamps. During the year, for the operation of such a plant, only about 100-150 kg of salts and mineral fertilizers, 1200 kW / h of electricity, 50 m3 of water and 1 worker for maintenance are required.

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