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Applications Symbiotic Complex to Correct the Physiological State of the Piglets.

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ABSTRACT

The article substantiates the use of complex symbiotic feeding piglets, including strains of probiotic microorganisms and prebiotic and low-molecular carbohydrates that do not suffer decay in the upper gastrointestinal tract of animals. The effect of the symbiotic on physiological status and productivity of piglets suckling period stunted. Based on scientific and practical experience the technique of cooking and feeding symbiotic' complex.

Keywords: probiotics, prebiotics, digestive disorders, intestinal microflora, soy milk, physiological status.

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INTRODUCTION

In industrial pig, growth and development of young animals have significant fluctuations. In the litters of sows, about 30% of piglets born stunted. With the existing technology of cultivation of such pigs in the first days of life occupy a subordinate position in the technology group; often suffer from chronic diseases, which often leads to their death [1].

Newborns gipotrophy differ low resistance, an increased tendency to diseases of the gastrointestinal tract. Intestinal biocenosis is a set of representatives of both normal and conditionally pathogenic microorganisms. The intestinal microflora of farm animals during the period of weaning lactobacilli and bifidobacteria are about 80%, performing protective and metabolic functions. At the heart of the launch of dysbacterioses is immuno-deficient state of the animal due to the feature of the development and the influence of external stress factors: technological noise, antibiotic therapy, vaccination, lack of protein in the diet and vitamins, etc. [1, 2].

Most of members of the normal intestinal flora (bifidobacteria, lactobacilli, lactic streptococci) saccharolytic refer to microorganisms, that is, their metabolic activity is directed to the consumption of the carbohydrate prebiotics reception promotes microbial populations eating them and increasing their functional activity. Developing their own colonies of microorganisms present, but not foreign to the host microflora, which is able to continue to exist and reproduce in the natural environment for her, working with microorganism and favorably affecting its function [3, 4].

Dietary supplements have the ability to activate intracellular metabolism, metabolism, and increase nonspecific resistance of animals to stimulate the growth and development of animals and improve their productivity.

Thus, the use of multicomponent systems based on probiotic dietary supplements cultured on soymilk used as the edible substrate, the prebiotic may serve as a basis for the development of new approaches to feeding young suckling period in order to improve growth and development in terms of their environmental safety and functional orientation.

MATERIALS AND METHODS

Symbiotic feed concentrate for dairy animals feeding period with a biologically active additive "Acystia" cultivated on soymilk, has several unique advantages over the currently existing analogues.

"Acystia" a culture of acidophilus Lactobacillus Acidophilus (strain 12 b). This bacterial strain is safe, it contains living microorganisms, which "colonize" digestive tract and possess the ability to inhibit the growth of bacteria that cause disorder of the gastrointestinal tract.

The technological process of symbiotic complex, took place in several stages. Soymilk previously heat-treated at a temperature of 95-97 ° C, followed by incubation for 30-40 minutes in the tank. After this heat-treated soybean, milk was cooling to 40 ° C and added to the ferment in an amount of 5% of the total volume of the resulting product. As leaven used bacterial concentrate "Acystia." Preparation of the laboratory ferment (Lactobacillus acidophilus) carried out by introducing the bacterial preparation "Acystia" in a sterile soy milk. These strains Lactobacillus acidophilus were previously adapted and highly acid-forming ability. Cultivation of the starter culture Lactobacillus acidophilus fermenters performed in a vertical type for 5-6 hours until the acidity 70 T °. Serum enzymatically cleaved lactose and proteinaceous materials. It was marking intensive growth of lactic acid bacteria biomass and increasing the amount of metabolites that enhances antagonist activity of the feed additive. Fermented soybean slurry was cooling to 20 ° C and transferred to a tank for storage (3 days) [5, 9].

Soya starter introduced into soybean milk, which is prepared in a ratio of "soybeans - water" - 1: 7. After the obligatory incubation at 39 ° C is mixed with animal feedstuffs Prestarter starter and as a percentage of "soy milk: feed the PC 51-4" - 17:83.

Research and production experiments to study the effect of symbiotic complex physiological condition of piglets suckling period and productivity of pigs stunted carried out in the workplace.

The material for the study were purebred uterus and boars of large white breed live weight of 185 - 200 kg. Feeding pigs carried out in accordance with the age and physiological condition of the animals, they were providing with free access to water [10].

From the resultant progeny formed by three groups of 60 piglets in each head. The first control group consisted of pigs with normal development and body weight. The second control included pigs, lagging behind in growth and development. The criterion for classifying a group of pigs, "stunted", was adopted their body weight at birth. When the piglets were live weight of 20% less than 1.2 kg, they were referring to gipotrophy. Piglets-gipotrophy first experimental group as the factor of feeding with 15 days of age until weaning at 45 days were feding to fodder symbiotic complex, prepared by the above procedure [6, 7].

The physiological condition of the animals was determined 2 and 6 months of age on the hematological and biochemical parameters of blood.

The morphological structure of blood gives an indication of the level of metabolism, which causes productivity of animals. The blood was determining by the amount of hemoglobin, white blood cells, and red blood cells. The biochemical composition of the blood of experimental animals were evaluating on the following parameters: the content of aspartate (ALT) and alanine aminotransferase (AST) in communication between the protein, carbohydrate and fat metabolism, and lactate dehydrogenase (LDH) [8, 11].

RESULTS AND DISCUSSION

In comparing the activity of enzymes reamination piglets in two months of age found that administration of the test drugs experimental animals leads to a change in their activity, compared with young control group-gipotrophy (Table 1).

Table 1: Performance of serum enzyme activity (t = 60)

Indicators	Group		
	I	II	III
at 2 months of age			
ALT mkkat / l	0,437±0,030	0,365±0,021	0,477±0,025
AST, mkkat / l	0,350±0,020	0,290±0,017	0,366±0,021
LDH mkkat / l	15,05±0,34	14,24±0,19	15,54±0,16
at 6 months of age			
ALT mkkat / l	0,470±0,026	0,410±0,018	0,525±0,029
AST, mkkat / l	0,385±0,023	0,330±0,012	0,409±0,023
LDH mkkat / l	15,15±0,34	14,24±0,19	15,64±0,19

Therefore, the animals of the experimental group surpassed in ALT, AST and LDH all experimental groups, including the normal development of young animals of control.

By 6 months of age, there was a further increase in the activity of enzymes reamination pigs of the experimental group compared to all other experimental groups.

Analysis of the data showed that the introduction of the symbiotic complex in the diet of pigs suckling period increases the activity of enzymes transamination, which indicates the intensification of metabolic processes in the body at the same time strengthens the Xia redox reactions by increasing the activity of oxidoreductases (LDH). This is proof of the physiological stress, and possibly due to the activation of compensatory reactions of the organism.

Piglets- gipotrophy experimental group in 2 months surpassed all hematological parameters of analog control and slightly inferior to the normal development of piglets. The best results in comparison groups' gipotrophy piglets had been observe in young animals of the experimental group who received in their diets symbiotic complex.

At 6 months of age in animals, no changes were observing. The best indicators among gipotrophy were observing in the experimental group, which, in turn, is still inferior to normotrofikam (Table 2).

Table 2: Hematologic parameters of blood of pigs (m = 60)

Indicators	Group		
	I	II	III
at 2 months of age			
Red blood cells, one million cells / mm	6,76±0,15	6,08±0,10	6,62±0,13
Hemoglobin, g / l	102,04±0,89	89,40±1,03	96,20±2,35
White blood cells, thousand cells / mm	9,96±0,15	8,70±0,14	9,16±0,16
at 6 months of age			
Red blood cells, one million cells / mm	6,98±0,09	6,38±0,06	6,74±0,13
Hemoglobin, g / l	104,72±1,36	92,20±1,65	99,80±2,11
White blood cells, thousand cells / mm	10,20±0,17	8,96±0,16	9,72±0,12

Gipotrophy, which is used for growing nutraceuticals composed symbiotic' complex, due to the better development of weaning, and further significantly superior piglets gipotrophy grown by traditional technology. At 2 months of age difference was 2,81-3,23 kg, for slaughter, she has already made 29,72-31,90 kg.

The most intense growth and development of animals of the experimental group had gipotrophy, which affected dietary supplements. In all periods of their life, they were marked by high levels of development, which peaks at the age of 4 months. Since then, the observed alignment parameters of the experimental group gipotrophy to normotrofikami with the control group.

On the average daily weight gain of the experimental group in young fattening period and reached a level normotrofikov significantly superior to that of the control gipotrophy (to 86.0 g or 15.8%).

Tension growth of the internal organs of piglets fed as forage factor nutraceuticals composed symbiotic complex, weight of internal organs, especially the digestive organs and their linear measurements were significantly greater than peer control group' gipotrophy: mass lung difference was within 11 0 - 11.6%; Heart - 12,3-14,0%; liver - 11,0-13,5%; Kidney - 6,7-8,7%; spleen - 10,8-16,4%; stomach - 14,3-17,5%. These morphological and biochemical blood tests confirm that the oxidative processes in the body they are more intense, and this causes considerable tension in the internal organs.

High content of red blood cells, white blood cells, hemoglobin, higher levels of total protein and protein fractions, transamination enzyme activity in all age periods differed young gipotrophy experimental group, which indicates the intensification of metabolic processes in response to the probiotic preparation "Acystia." The body increases the redox reaction by increasing the activity of oxidoreductases (LDH), which serves as evidence of physiological stress the body. This is due to the activation of compensatory reactions of the organism. As a result, young experimental group for all hematologic indices reached and significantly exceeded normotrofikov to gipotrophy' control.

CONCLUSION

The results from the inclusion in the diet of piglets suckling period growing symbiotic feeding complex with 15-day-old to 45 days of age show a positive impact on the physiological condition of the young. This is particularly marked in the application of this development piglet at birth lagging in growth and development.

A positive result obtained by increasing the enzymatic activity of the gastrointestinal tract of pigs and feed conversion. Achieved using the original component composition and the ratio of biologically active probiotic feed additive, comprising acidogenes factor - Lactobacillus acidophilus Lactobacillus (Lb. Acidophilus), cultivated on the food substrate - soymilk, has the function of a prebiotic and a high content of protein and fat.

In the course of work was an increase in feeding qualities of young receives the symbiotic complex in comparison with their peers, were growing by traditional technology, to 86.0 g or 15.8% while reducing the cost of feed by 0.54 feed units or 9.9%.



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