ENERGY SAVING TECHNOLOGY FOR FEED CONCENTRATES OF VITAMIN B12 USING METHODS OF DISCRETE-PULSE INPUT ENERGY (DPIE)

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Studied the possibility of using discrete pulse input of energy (DPIE) in the technology of feed concentrate vitamin B12. It was established that the use of this method will reduce the duration of the fermentation process from 72 to 48 hours and increase the concentration of B12 in vita mute methane brazhtsi from 800 to 880 mg/l compared with the classical method of fermentation.

Methane fermentation, feed concentrate vitamin Vi2, the method of discrete input pulse energy, pulse rotary machine.

Today the need of the domestic pig and poultry for vitamin B12 is 1460 kg per year [1]. The most important condition of livestock is to create a strong fodder. From this depends directly on the possibility of increasing livestock productivity and growth, increase yields improve its quality and reduce costs. For decades, forage remained in the country and remains a bottleneck in the development of animal husbandry. The main reason for this situation is the supply of animal feed from abroad, which in turn does not guarantee the absence of modified organisms.

So, now requires the development and implementation of measures for intensification of production of feed and feed concentrates for s / farm animals using new methods.

The purpose of research - to improve technology for feed concentrate vitamin B12 by accelerating the process of methane fermentation method bards discrete input pulse energy (DPIE) and consequently to reduce energy consumption.

Among the biologically active substances that increase the nutritional value of diets of animals and birds are important vitamins. They are actively involved in a

number of enzymatic transformations occurring in the cycle Citric acid, such as decomposition of pyruvic acid to carbon dioxide and water.

Results. In a complex network of metabolic reactions vitamins affect various physiological processes. For the normal functioning of animals and birds should include the essential vitamins A, D3, K3, B1, B2, B3, B4, B5, B6, B12, C and others.

Vitamin B12 (tsiankobalamin) is absent in plant feed and yeast, and animal feed containing it in small quantities. Lack of vitamin B12 in feed rations leads to disease and reduced productivity of animals. Vitamin B12 is due to the ability to increase the assimilation of protein from vegetable and feed closer to their nutritional value to animal protein is considered as the main component of the so-called "animal protein factor."

Vitamin B12 is also involved in the dissimilation excess of essential amino acids such as methionine, valine, threonine, isoleucine, decay which occurs through the creation and metylmalonovoy propionic acid. In practical terms there is always an imbalance of one or another or even several amino acids.

Today known way to get vitamin B12 in industrial conditions by thermophilic digestion bards - withdrawal of alcohol production.

The staff of the Institute of Engineering Thermophysics NAS of Ukraine and the National University of Life and Environmental Sciences of Ukraine proposed a way to get vitamin B12 by accelerating the process of methane fermentation method bards discrete input pulse energy (DPIE).

The method consists in that environment that is exposed to processed Pulse influence complex hydrodynamic phenomena: the action of high speeds and accelerations, dynamic growth and collapse steam bubbles collapse of thin films of liquid, creating cavitation cavities and powerful turbulence on interphase. These processes occur in the processing environments rotary pulsation apparatus (RPA). Structurally rotary-pulsation apparatus (RPA) consists of a bunker, rotorno- pulsating hub, pump, motor, casing and piping for recycling the finished product. The main working body of the device is rotary - pulsation unit, which includes installed on drive motor shaft with blades - a kind of centrifugal pump impeller and two stator between which the rotor. As the rotor rotates shrinkage occurs alternate grooves of

the rotor and stator, causing significant alternating pressure differences, vysokohradiyentni flow in gaps and large shear stress gradients. There are local shear flow of processed medium (50 to 500) • 103 1 / s and pulse frequency of 3 to 30 kHz [2].

As a result of experimental studies found that vitamin fodder concentrate B12 reaches maximum concentration of 880 mg / l for 48 hours. Thus it is proved that the process to continue fermentation does not make sense, because it only leads to additional costs of electricity.

Conclusions

According to experimental research conducted and the results we can conclude that the use of discrete input pulse energy (DPIE) technology feed concentrate production of vitamin B12 would reduce the duration of the fermentation process from 42 to 48 hours. It was also shown that the concentration of vitamin B12 concentrate feed in methane brazhtsi increased by 10% compared to the classical method of methane fermentation and consequently reduced energy consumption indicators to 9.10%.