

**NATURAL STIMULATOR OF THE PRODUCTIVITY AND REPRODUCTIVE ABILITY PIGS**

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**ABSTRACT**

The feeding of Vitaton<sup>tm</sup> promoted the output of piglingst a separation, reduced age of piglings a separation on three days, and decreased the amount of weak and dead piglings at birth by comparison to analogical information for animals which contained on a basic ration.

**Keywords:** pigs, natural stimulators, biomasses, amino acid, fat acids, vitamins

**INTRODUCTION**

Intensive technologies of production goods the pig breeding foresee providing animals the high-quality mixed fodders, balanced not only on nourishing but also bioactive matters: trace elements, enzymes preparations, antioxidants, dyes, organic acids, toxicbinder, vitamins and carotenes.

About 600 carotenes is presently known, but only insignificant part from them possesses provitamin activity, including  $\beta$ -carotene. The basic source  $\beta$ -carotene for agricultural animals there is green forage; however used they little are in feeding of pigs on industrial complexes in connection with the dry type of feeding. Their requirement in  $\beta$ -carotene provided mainly due to a synthetic analogue, or rations of feeding only on the retinol (Плященко, 1990, Асано І., 1997, Moxler et al., 2000).

Availability of retinol and  $\beta$ -carotene synthetic origin for the organism animals low. In addition, at their overdose can be allergic reactions for animals.

**MATERIAL AND METHODOLOGY**

Total fatty acids in the biomass were determined after saponification and hexane extraction. The obtained methyl esters analyzed by gas chromatography-mass spectrometry Agilent Technologies 6890N/5973 N, chromatographic column DB-5MS; L = 30m; Id = 0,25 mm, catalog № 122-5532 Agilent Technologies, F: Im = 0,25 mm, carrier gas - helium.

Vitamin B (B<sub>1</sub>, B<sub>2</sub>, B<sub>3</sub>, B<sub>5</sub>, B<sub>6</sub> and B<sub>9</sub>) was measured in the extraction of biomass mushroom Bl. trispora by liquid chromatography with buffer solution.

Contents amino acid in the biomass studied in the chromatograph Waters 486 (detector) column Nova Pak G 8 (150x3, 9 mm) Waters 600 (pump).

**RESULTS AND DISCUSION**

The perspective source of natural  $\beta$ -carotene for pigs there is biomasses of mushroom Bl. trispora, which get deep cultivation of mushroom on a nourishing environment. Feed addition of Vitaton<sup>tm</sup>, contains 7-8% a trans- $\beta$ -carotene in a dry matter produced on LTD. «NPP «VITAN» (Dnepropetrovsk area, Ukraine). Vitaton<sup>tm</sup> is friable powder of orange-red color which well interfuses with the mixed fodders, not changing their physical properties.

Vitaton<sup>tm</sup> contains the row of amino acid among which basic are glutamine (8,1-18,4%) and leucine (10,0-10,5%) (table 1).

**Table 1. Contents of amino acid in Vitaton<sup>tm</sup>, g/kg**

Amino acid	Contents	Amino acid	Contents
Ala	4,07±0,46	His	4,05±0,34
Arg	2,60±0,08	Ile	3,65±0,22
Asp A	5,05±0,25	Leu	6,45±0,29
Glu A	11,35±0,46	Lys	3,70±0,13
Gly	3,55±0,12	Thr	3,55±0,12
Pro	6,20±0,34	Val	4,65±0,18
Ser	3,40±0,19		

The contents of other amino acid hesitates from 2,6 to 6,2% general amount.

Vitaton<sup>tm</sup> contains the many lipids the level of which averages 53,4% .Also basic fat acids of biomass are such unsaturated acids, linolic and olein, a few less than contained palmitic and linolenic, maintenance of which is 92,8-96,2% from the general amount lipids biomass (table 2).

**Table 2. Contents of fat acids in Vitaton<sup>tm</sup>, g/kg**

Fat acid	Contents	Fat acid	Contents
Palmitic	10,00±0,57	Linolenic	5,60±0,42
7-geksadecenova	1,15±0,07	$\gamma$ -linolenic	0,45±0,06
9-palmitoleinova	0,15±0,05	Eykozanova	0,15±0,07
Stearin	0,95±0,07	Eykozadienova	0,15±0,08
Olein	22,00±1,13	Lignoceric	0,15±0,07
Linolic	56,90±0,28	Unknown acids	2,20±1,98

The higt content of linolic and linolenic acids in biomass, at feeding animal instrumental in the improvement of regenerative ability of epithelial fabrics, first of all it is a digestive system and urinary system, that provides effective use liposouble vitamins and  $\beta$ -carotene in the organism of animals.

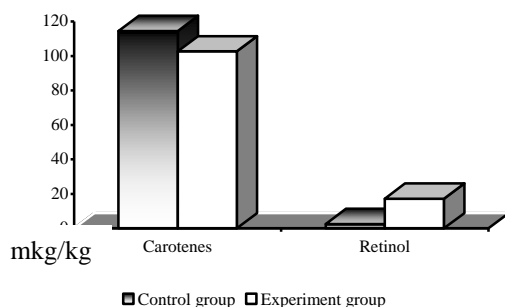
Vitaton<sup>tm</sup> contains vitamins, which dissolve in water and fats (table 3).

**Table 3. Contents of vitamins in Vitaton<sup>tm</sup>, mg/kg**

Vitamin	Contents	Vitamin	Contents
Thiamin	0,69±0,44	Folacin	0,49±0,08
Riboflavin	8,90±1,41	$\alpha$ -DL-tokoferol	30,00±11,31
Nicotine acid and nicotinamid	28,50±4,95	$\beta$ -DL-tokoferol	25,00±7,07

Pantothen	32,50±14,85	γ-DL-tokoferol	1550,00±212,13
Pyridoxin	5,70±0,42	δ-DL-tokoferol	990,00±155,56

The feeding the hogs-producers of Vitaton<sup>tm</sup> in amount 0,05% from mass of the standard fullration mixed fodder that allowed to promote intensity of transformation β-carotene in fabrics and accumulation of vitamin in sperm.



**Fig. 1. Contents carotenes and retinol in sperm of male hogs.**

Apparently on a Fig.1 general maintenance of carotenes in sperm of male hogs slightly lower, but the concentration of retinol was here increased almost in 7 times as compared to animals not getting this addition.

Application in feeding of hogs-producers of Vitaton<sup>tm</sup> as a source of natural β-carotene in amount 0,05% from mass of the fullration mixed fodder during all period of exploitation instrumental in the increase termoresistant sperm in undilute sperm on 19-28% during at 9 o'clock of incubation temperature 38°C, that comports with the increase of maintenance retinol in sperm of male hogs.

The increase duration of survival sperm was instrumental in the increase of their impregnating ability on the average on 7%.

It is set, the feeding sows during all period exploitation Vitaton<sup>tm</sup> at insemination of male hogs, getting this preparation their sperm, instrumental in the increase of amount piglings

In the separation piglings the increase of amount animals is set on a sow for births – on the average 0,5-0,7 heads.

The feeding of of Vitaton<sup>tm</sup> promoted the output of piglings at a separation, reduced age of piglings at a separation on three days, and decreased the amount of weak and dead piglings at birth by comparison to analogical information for animals which contained on a basic ration.

The use Vitaton<sup>tm</sup> in feeding of hogs-producers and sows on industrial enterprises on the production of pork is covered a cost on the average in 5,0-5,5 time.

## CONCLUSIONS

The feeding of hogs-producers and to the sows Vitaton<sup>tm</sup> as a source β-carotene in a dose 0,05% from mass of the fullration mixed fodder during all period of exploitation promotes their reproductive ability, and also safety and productivity of piglings.

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