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ALKALINE PHOSPHATASE ACTIVITY BLOOD SERUM and its RELATIONSHIP with PHYSICO-CHEMICAL PROPERTIES the YOUNG PIGS MUSCLE TISSUE of the PRODUCTIVITY UNIVERSAL DIRECTION

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The theoretical basis for research is the scientific work of domestic and foreign scientists (Bankovskaya I.B., 2015; Alekseev A.L., Barilo O.R., Barannikov V.A., 2009; Maksimov G.V., 1996; Furata S., Hashimoto T., 1995; Tserenyuk O.M., 2019; Khalak V.I., 2018, 2020; Susol R.L., 2017).

The aim of the study was to investigate the serum alkaline phosphatase activity of young pigs and its association with the physicochemical properties of muscle tissue.

Material and research methods. The research was conducted in agro-formations of Dnipropetrovsk region, research center of biosafety and ecological control of agro-industrial resources of Dnipropetrovsk State Agrarian and Economic University, zoohimanalysis laboratory of the Institute of Pig Breeding and AIP of NAAS of Ukraine and livestock laboratory of the State Institution "Institute of Grain Crops of NAAS of Ukraine".

Physico-chemical properties of muscle tissue were studied by conventional methods (A.M. Polivoda, R.V. Strobykina, M.D. Lyubetsky, 1977), the activity of alkaline phosphatase – by King-Armstrong (V.V. Vlizlo, etc., 2012). Biometric processing of research results was performed according to the methods of G.F. Lakin (1990).

Research results. It was found that the activity of alkaline phosphatase in the serum of the Large Wite breed young pigs at 5 months age is 309.77±14.998 IU/l (Cv=16.77 %) and corresponds to the physiological norm of clinically healthy animals. Analysis of laboratory studies shows that the pH of muscle tissue 24 hours after slaughter in animals of the experimental group (n = 25) is 5.63±0.041 units and acidity, tenderness – 9.43±0.350 s, moisture holding capacity – 60.30±1.096%, color intensity – 74.16 ± 2.784 units. ext.×1000.

The coefficient of these physicochemical properties variability of muscle tissue varies from 2.54 to 15.04 % (Table 1).

Table 1. Mean square deviation and coefficient of variability of physicochemical properties of muscle tissue of young pigs of large white breed, n = 25

Indicator	Biometric Indicators	
	σ±Sσ	Cv±Scv,%
pH, units of acidity	0,14±0,019	2,54±0,359
moisture holding capacity,%	4,90±0,693	8,16±1,154
tenderness, sec	1,41±0,199	15,04±2,127
color intensity, units ext. × 1000	10,73±1,517	14,59±2,063

Laboratory analysis of the experimental group animals tissue samples shows that the number of high quality samples (according to the classification of A.M. Polivoda, 1976) in terms of moisture retention was 5.55%, color intensity – 27.77% and tenderness - 11.11 %.

The pairwise correlation coefficient between the physicochemical properties of the longest back muscle and alkaline phosphatase activity ranges from –0.483 to +0.105 (Table 2).

Table 2. Correlation between physicochemical properties of the longest back muscle and serum alkaline phosphatase activity

Signs		Biometric indicators	
x	*y*	r ± Sr	tr
pH, units of acidity	alkaline phosphatase activity	-0,018±0,2085	0,09
tenderness, sec		+0,105±0,2074	0,51
moisture holding capacity,%		-0,120±0,2070	0,58
color intensity, units ext. × 1000		-0,483±0,1826*	2,65

A reliable relationship was established by the following pair of signs: serum alkaline phosphatase activity × muscle tissue color intensity (–0.483±0.1826; tr=2.65).

Conclusions. It was found that the biochemical parameters of Large White breed young pigs' blood serum (alkaline phosphatase activity,

units / liter) correspond to the clinically healthy animals' physiological norm, and physicochemical properties - the normal quality pork. A significant relationship was established between the activity of serum alkaline phosphatase and the intensity of muscle tissue staining ($r = -0.483 \pm 0.1826$; TR=2.65), which indicates the using effectiveness this indicator for early prediction of quality composition muscle tissue.

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