

An experiment was carried out on the SSF experimental training farm «Tulinskoye» of Novosibirsk State Agrarian University. Large White and Kemerovo pigs were the objects to examine. The animals were selected for the principle of analogues. Blood was taken from aural vein. The content of cystin in blood serum and that of hemoglobin in blood were identified in the pigs. Blood biochemical indexes were examined in the pigs aged 6 months. The content of SH-groups was examined in mitochondria and supernatant of liver in the pigs. Tissue samples were taken from 6 animals of each group during control slaughtering. Mitochondria were isolated out of 10% homogenate in the 0,25 M solution of sucrose with the method of differential centrifuging. The mitochondrial fraction purity was tested by contrasting phases. To analyze, there was taken the number of mitochondria corresponding to 0,1–0,2 mg of mitochondrial protein. The protein was determined with bull serum albumin as a standard.

Statistical processing of the data was done with the package of applied software Statistica 6 and Excel.

The experiment identified that the concentration of general SH-groups in the liver mitochondria of Kemerovo breed increased by 12,77% ($p < 0,01$) and that of hemoglobin went up as well in comparison with the gilts of Large White breed. This testifies to the protecting effect of the sulfhydryl groups.

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THE CONTENT OF THIOLIC GROUPS IN MITOCHONDRIA OF DIFFERENT PIG ORGANS

Dementyeva T.A.

*Novosibirsk State Agrarian University, Novosibirsk,
e-mail: ademo@list.ru*

The concentration of sulfhydryl groups in blood and tissues reflects the intensity of metabolism. The involvement of thiolic groups in the processes of cell division and growth is identified. The SH-groups manifest their very good ability to enter into reactions. Thiols have hydrophilic properties. The thiols become localized in an aqueous phase of a cell where they protect a great many biologically important molecules from oxidative damages.

An experiment was carried out on the SSF experimental training farm «Tulinskoye» of Novosibirsk State Agrarian University. Kemerovo pigs were the objects to examine. The animals were selected for the principle of analogues. Biochemical indexes of the blood of 6-month pigs were examined. The content of SH-groups was examined in mitochondria, liver and heart supernatant in the pigs. Tissue samples were taken from 6 animals of each group during control slaughtering. Mitochondria

were isolated out of 10% homogenate in the 0,25 M solution of sucrose with the method of differential centrifuging. The mitochondrial fraction purity was tested by contrasting phases. To analyze, there was taken the number of mitochondria corresponding to 0,1–0,2 mg of mitochondrial protein. The protein was determined with bull serum albumin as a standard.

Statistical processing of the data was done with the package of applied software Statistica 6 and Excel.

The examinations showed that the concentration of general SH-groups in mitochondria of pig liver was twice as much as pig heart of both Large White and Kemerovo breeds. Regarding the supernatant, the differences were somewhat less. The experiment identified the increased concentration of the general SH-groups in liver mitochondria in Kemerovo gilts (0,01) versus Large Whites. The same age Kemerovo pigs exceeded Large Whites by 10,98% (0,05) for the level of thiols titer in heart mitochondrial fraction. The experimental data allow to suggest high anti-oxidative activity of thiol groups in mitochondria of different organs in Kemerovo breed.

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AMINOTRANSFERASE ACTIVITY OF BLOOD IN PIGS FATTENING

Dementyeva T.A.

*Novosibirsk State Agrarian University, Novosibirsk,
e-mail: ademo@list.ru*

One of the major problems of modern pig-breeding is searching for interior estimates to select pigs for productivity.

In this respect, enzymes are of interest, particularly aminotransferases that are involved in transamination of amino acids. It was proved experimentally that transamination reactions yield enzyme substrate complexes and dissociate a hydrogen atom attached to the carbon atom of amino acids. Composite relationship between aminotransferases activity and protein synthesis accounts for great importance of transamination in the process of vital activities of the organism. During postnatal development, transamination reactions and amino acid synthesis change identically.

Aspartate-aminotransferase-L-aspartate: 2-oxoglutarate-aminotransferase [C.F. 2.6.1.1] is an indicator-enzyme as the functional status of different organs (liver, heart) can be evaluated by increased activity of the enzyme in blood serum. It refers to the class of oxidoreductases, catalyzes the reverse reaction of an amino group transfer from L-aspartic acid to α -ketoglutaric acid. In terms of chemical composition, aspartate-aminotransferase is a composite protein, the co-enzyme of which is pyridoxalphosphatum, it localizes in all organs and tissues.

The examination aims to study the transaminase activity in the blood of pigs different in breeds when fattened to different live weights.

The examinations were carried out on the experimental training farm «Tulinskoye» under Novosibirsk State Agrarian University. Large White, Landrace and Kemerovo pigs were the objects to examine. The animals were selected by the principle of analogues with regard to origin, breed, productivity and live weight. The pigs were divided into three groups and kept following the technology for complexes and farms. The animals were fattened to 100, 120 and 140 kg. The blood to examine was taken from aural vein. The aspartate-aminotransferase activity was determined in the blood serum of the pigs.

The data obtained were processed statistically with the package of applied software Statistica 6 and Excel.

The experiment identified the differences among the breeds for the activity of aspartate-aminotransferase in the blood serum of the animals. When fattened to 100 kg live weight, the activity of the serum aspartate-aminotransferase was found to increase by 27,27% ($p < 0,001$) in the Kemerovo pigs versus the Large Whites. The experimental data testify to the enzyme activity decreased with the animals fattened to 120 and 140 kg.

Based on the data of the examinations carried out, it can be concluded that the activity of aspartate-aminotransferase may be employed in the evaluation of pigs' productivity.

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PHOSPHATASE ACTIVITY OF BLOOD IN PIGS FATTENED TO DIFFERENT LIVE WEIGHTS

Dementyeva T.A.

*Novosibirsk State Agrarian University, Novosibirsk,
e-mail: ademo@list.ru*

The improvement of breeding methods is based not only on the investigations of economic traits of animals, but on the study of biochemical indexes that determine the formation of productivity.

Enzymes are highly specialized proteins that are used by living organisms to run a great many interrelated reactions. Phosphatases are enzymes referred to esterases. One can discern alkali and acid phosphatases. Esterases catalyze numerous processes in the organism.

Alkaline phosphatase (phosphohydrolase of monoesters orthophosphate, C.F. 3.1.3.2). Molecular weight of the one is confined to 80–200 thousand Daltons. Alkaline phosphatase is metal-containing enzyme referred to non-specific phosphatases hydrolyzing phosphoester bonds.

Catalytic effect of the enzyme on lipid and carbohydrate metabolism is shown. This enzyme is involved in the processes of carbohydrates and lipids resorption in small intestines. It activates adsorption of glucose by kidney nephrons. The effect of alkaline phosphatase on the reactions of synthesis of fructose out of glucose is identified. The enzyme is involved in the reactions of phosphoric acid docking and splitting off in nucleic acids, carbohydrates, esters, etc.

The investigation aimed to study the activity of alkaline phosphates in pigs of different breeds under fattening to 100, 120, and 140 kg.

The experiment was carried out on the experimental training farm «Tulinskoye» under Novosibirsk State Agrarian University. Large White, Landrace and Kemerovo pigs were the objects to examine. The animals were selected by the principle of analogues with regard to origin, breed, productivity and live weight. The pigs were divided into three groups and kept following the technology for complexes and farms. The animals were fattened to 100, 120 and 140 kg. The blood to examine was taken from aural vein. The activity of alkaline phosphatase in the blood serum of the pigs was determined [4]. Statistical processing of the data obtained was done with the package of software MS Excel and Statistica 6.

The data of the experiment identified interbreed differences for the activity of alkaline phosphatase in the blood serum of the pigs. It was marked that the Kemerovo breed surpassed the Large White by 22,42% ($p < 0,001$) for the activity of the enzyme studied in blood when the gilts fattened to 100 kg. The Landrace occupied an intermediary position between the Large White and Kemerovo breeds. The enzyme activity of blood was determined to decrease with fattening to different live weights.

The data obtained allow to apply the phosphatase test to the estimation of productive traits of pigs.

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THE CONTENT OF GENERAL LIPIDS IN BLOOD OF GENOTYPICALLY DIFFERENT PIGS

Lazareva L.V.

*Novosibirsk State Agrarian University, Novosibirsk,
e-mail: ademo@list.ru*

Nowadays, lipidology is a rapidly advancing branch of biochemistry. Achievements of the branch are widely applied to biology, medicine and livestock-breeding. Most lipids are several molecules bound with each other and not referred to highly polymeric substances.