

The lipids peroxidation processes run at a maximal rate in animals during the first days of their life. The transition of organism to the aerobic type of respiration encourages oxygenation of tissues. Proviso, the increased generation of oxygenic metabolites results from adaptive reactions and this activates the processes of the peroxide oxidation of lipids.

Investigations were carried out at Closed Joint Stock «Landrace» in Novosibirsk region. Landrace pigs were the objects of the investigations. The animals were selected and grouped by the principle of analogues with regard to origin, breed, productivity, age and live weight. The pigs were kept following the technology for complexes and farms. The blood to examine was taken from aural vein. The content of free fatty acids was examined in the blood serum of the pigs aged 1, 2, 3, 4, 5 months. Statistical processing of the data was done with the package of applied software Statistica 6 and Excel.

The maximal content of free fatty acids was found in the blood serum of one month piglets (59,66%, $p < 0,001$) that testifies to lipolysis present in the pigs in early postnatal development.

The work was submitted to international scientific conference «Fundamental research», Israel (Tel Aviv), 16–23 October, 2011, came to the editorial office on 19.10.2011.

AGE CHANGES OF LIPIDS METABOLISM INDEXES IN PIG BLOOD

Dementyev A.V.

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

To study the characteristics of lipid exchange at early stages of pigs' postnatal development is crucial and timely for pig-breeding.

The content of lipids and their fractions in blood depends upon genetic factors, physiological status, feeding and age of pigs.

Lipids perform various functions in vital activity of the organism, structural and energetic functions being the basic.

Lipids are not only the source of power; they influence the reproductive function and productivity.

Lipids are part of cell membranes; they form ultrastructure of biological membranes and ensure their specificity. Main functions of the biological membranes are those of recognizing, transporting, fermentative and others. These functions depend upon different structural lipids available in the membranes.

Lipids are differentiated into two main groups: structural and reserve. Cholesterol is a structural lipid.

Cholesterol is referred to sterols, derivatives of cyclopentanhydrophenanthrene. As an intermediary compound, it is involved in the synthesis of bile acids, vitamins of group D and sex hormones. It is a structural component of biological membranes. Cholesterol and its esters with long-chained fatty

acids are important components of plasma lipoproteins and outer membrane of a cell.

In membranes, cholesterol together with glycolic lipids and phospholipids form complexes. Membranes of some species are distinguished by the presence of different classes of lipids and their quantitative content which depends upon genetic factors. A great amount of cholesterol is found in the membranes of erythrocytes of myelinic fibers, less cholesterol is in mitochondrial membranes. Permeability of a certain type of membranes goes down with the growing concentration of cholesterol in the lipid bilayer.

Cholesterol is found in the organism both in free and etherified forms. Lipoproteids combined with cholesterol in complexes are of great value when cholesterol transported.

Investigations were carried out at Closed Joint Stock «Landrace» in Novosibirsk region. Landrace pigs of different genotypes were the objects to investigate. The animals were selected and grouped by the principle of analogues with regard to breed, productivity, live weight and age. The pigs were kept following the technology for complexes and farms. The blood to examine was taken from aural vein. The content of cholesterol was determined in the blood serum of the pigs aged 1 month. The data obtained were processed statistically with the package of applied software Statistica 6 and Excel. According to the data of the investigations, it was identified that in List 217 progenies aged 1 month, the amount of cholesterol made up 15,18% ($p < 0,001$) against minimal values.

The experimental data confirm the possibility to employ the lipids metabolism indexes to forecast economic traits of pigs at early age.

The work was submitted to the international scientific conference «Problems of agroindustrial complex», Thailand (Bangkok–Pattaya), December, 20–30, 2011, came to the editorial office on 23.11.2011.

EXAMINATION OF THE LEVEL OF SULFHYDRYL GROUPS IN PIG LIVER MITOCHONDRIAL FRACTION

Dementyeva T.A.

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

The pigs of industrial complexes are affected by many artificial stress-factors caused by man. The stressors give rise to peroxide oxidation of lipids, its level being determined by the formation of radicals, destruction of membrane and mitochondrial structures and condition of anti-oxidant defense. Thiols are referred to anti-oxidants as they possess anti-radical and anti-peroxide properties. Some sulfur containing low molecular compounds contain SH-groups, cystin being referred to the compounds.