

BIOCHEMICAL PROFILE OF PIGS MEAT AFTER USING GM SOYBEAN IN THEIR DIET

S. G. Zinoviev, A. M. Shostia

Institute of Pig Breeding and Agro-Industrial Production of NAAS
1, Shvedska Mogila str., Poltava, 36013, Ukraine

Recently the scope of genetic engineering has increased in the field of creating new types of agricultural plants with characteristics, which don't exist among known crops. The total sown area is occupied by GM crops, it takes part more than 20% of agricultural land. In the United States and Brazil over 85% of the corn crop has transgenic nature. For this reason, in assessing the risks those can arise while using GM feed, particularly soy as the main protein feed, should take into account the individual characteristics of agriculture in each country where there are factors, which play a role in particular environment, with different levels of exposure.

The aim of work is to investigate the prolonged impact of the identified lines of extruded GM soybeans feed rations composed on the biochemical composition of pork.

Researches were conducted in conditions of SE "Experimental basis "Nadiya" in the Institute for pig breeding and agricultural production in NAAS. For setting the scientific and economic experiment under the current methodology two groups of animals were performed, on 19 goals each, comprised of pigs, hogs and boars - by species belonging counterparts and body weight.

Pigs of control group as their parents during the period of growing were fed with complete feed one of the ingredients of which was full-fat extruded soybean sort of "Vorskla" (without GMO) (5% by weight) and full-fat extruded GM soy (RR, GTS 40.3.2). For the achievement of slaughter animals the live weight of each group 3 heads were selected and slautered. Then the samples were selected and performed biochemical longest back muscle. Statistical analysis of the data was performed using the programs Microsoft Excel 2012 and Statistica 10.0.

It is established that the fractional composition of proteins in pork (sarcoplasmic, stromal and myofibrillar proteins), creatinine, histidine-containing dipeptides and activity of cytochrome at the use of GM soybeans have undergone significant changes. However, in experimental group in the meat of pigs significantly concentration of cholesterol had increased in 27.03% ($p = 0.017$), malondialdehyde at 35.27% ($p = 0.032$) and oxidative modification of proteins to 21.42% ($p = 0.013$) comparing to control animals treated with conventional soy feed. The changes in biochemical

composition of longissimus muscle of pigs treated with GTS 40.3.2 soybeans indicate a possible effect of diets containing genetically modified soy on metabolism in pigs.

Keywords: PIGS, MEAT, SOYBEAN, GMOS FRACTIONAL COMPOSITION OF PROTEINS, CREATININE, HISTIDINE-CONTAINING DIPEPTIDE, CHOLESTEROL, CYTOCHROME OXIDASE, MALONDIALDEHYDE, OXIDATIVE MODIFICATION OF PROTEINS.