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In vivo study of meat product for patients suffering from hyperlipidemia

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Meat product for specialized nutrition made of porcine aortas and hearts in ratio 1:3 was tested on thirty male Wistar rats (380 ± 20 g) aged approximately one year, which were randomly divided into three groups: group 1 – negative control ($n=10$); group 2 – positive control ($n=10$) and group 3 – experimental animals ($n=10$). Animals in group 2 and 3 were modeled an alimentary hyperlipidemia by adding cholesterol, fat and vitamin D2 into diet. After modeling, rats in group 2 were fed with standard chow, in group 3 – meat product (8 g/kg b.w.) with standard chow. It was observed that consumption of developed meat product by hyperlipidemic rats during 42 days led to reduction of serum lipids level while compared with positive control group. Serum total cholesterol was decreased by 31.8%, triglycerides – 28.2%, atherogenic fractions of lipoproteins by 2.4 times, atherogenic index by 41.3%. Proteomic study revealed the presence of a number specific proteins in tissues of porcine aorta and heart, such as apolipoprotein A-1, peroxiredoxin-1 (in mixture with transgelin), galectin-1, fatty acid binding protein, a number of heat shock proteins as well as various peptides, which mainly were decomposed after sterilization, presumably, into active peptides with similar biological action. On the other hand, numerous publications also confirmed structural proteins as a good source of bioactive peptides, including peptides with lipid lowering action. Heart tissue is enriched with muscle tissue proteins, while aorta – collagen and elastin, which are a source of Gly-Pro peptides with hypo lipidemic action. Presumably, active peptides could be generated both during meat product processing and digestion processes. Results of both *in vivo* and proteomic studies indicated developed meat product as a perspective diet component for people with a high risk of atherosclerosis. This work was supported by the Russian Science Foundation (project No. 16-16-10073).

Biography

Elena A Kotenkova completed her PhD from V M Gorbato Federal Research Center for Food Systems-RAS. She is the Senior Researcher of experimental - clinical research laboratory of bioactive substances of animal origin. She has published more than 60 papers in reputed journals. Her scientific interests are in the fields of "Medicine, nutrition, agricultural and biological sciences, biochemistry and laboratory animal science".

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