The widespread and growing intake of apples fruits and their rich phytochemical profile suggest their important potential to affect the health of the populations consuming them.

Aim. The aim of our investigation is the study of antioxidant activity of apple polyphenols extract (APE) in rat liver and the activity of hepatospecific enzyme gamma-glutamyl transpeptidase (GGT) in rat serum under experimental IR.

Materials and Methods. The studies were conducted on female rats weighing 190±15 g, kept under standard conditions in the vivarium NUPh. Insulin resistance was modeled by keeping animals on the high-fat diet enriched by fructose for 5 weeks. Polyphenol extract was administered from the 3rd week of the experiment intragastric for 14 days. Rats were decapitated, blood was collected for serum. TBA-reactants and glutathione (GSH) levels were determined in liver GGT activity was measured in rat serum. The data obtained were processed statistically.

Results and discussion. The development of experimental IR was accompanied by an increase in the content of TBA-reactive products in the rat liver in1.83 times. GSH level was also reduced by a factor of 1.69 IR in comparison with intact animals. GGT activity was increased from 0.373±0.024 (intact) to 0.672±0.097 mkat/l (IR). APE administration to rats with IR normalized the GSH level, decreased TBA-reactive products level and GGT activity to 0.563±0.086 mkat/l.

Conclusions. The results indicate that the analyzed polyphenols extract exhibits antioxidant and hepatoprotective activity and can be used for the correction of disturbances in liver insulin resistance and related pathologies

BIOLOGICAL ASPECTS OF BISMUTHUM

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Introduction. Nowadays considerable attention is paid to the study of promising materials containing nanosized particles of Bismuthum and its oxide. Today, Bismuthum is a very important element that is used extensively in medicine and pharmacy.

Aim. The aim is investigation of Bismuthum and determination of the biological role of the element. The biological aspects should be described by studying scientific literature.

Materials and methods. It is an analysis of standard scientific publications, scientific literature and scientific works.

Result and discussion. One of the methods for obtaining nanosized metal particles is the thermal decomposition of the corresponding organic salts. In this regard, the use of precursors of bisulfite formates is relevant. Bismuthum has advantages over ordinary preparations (Bismuthum nitrate, Bismuthum subnitrate, etc.). The toxicity of nano-Bismuthum is several times lower than the toxicity of the corresponding salts. Particles injected into the body show prolonged action. Formation of qualitatively other responses to the introduction of nanoparticles of metals, unlike other chemical forms, is associated with the property of particles affect the cellular level, the level of biosystems (primarily the system of regulation of microelements) and at the molecular level. Bismuthum and its compounds have been used in various fields of science and technology, medicine and everyday life. It is quite promising to use Bismuthum as a part of pharmaceutical preparation. When applied on the skin and mucous membranes Bismuthumh sub-gallate forms a protective skin that protects the ending of sensitive nerves from irritation, which can reduce pain and prevent the edema. Bismuthum subnitrate in the form of ointments and deodorants is used as a protective and anti-inflammatory agent for dermatitis, erosions and ulcers of the skin. Preparations of Bismuthum have antibacterial action. Combined preparations, which include Bismuthum nitrate, have antacid and moderate mitigating effect. Compounds of Bismuthum are used for inflammatory diseases of the stomach and intestines, stomach ulcer and duodenal ulcer, diarrhea of various geneses.

Conclusions. We have described the biological aspects of Bismuthum, by studying scientific books, encyclopedias, websites. The most interesting fact is that Bismuthum is used to treat many diseases, and its compounds have many properties that make it unique (despite its toxicity).