evaluated by oral glucose tolerance test (OGTT). On the 14th day the fasting blood glucose level (FBG) was determined in all groups of animals. Then animals were intragastrically loaded glucose solution in dose 3 mg/kg bw. Glucose concentration was determined in blood samples from gingival vein using glucometer "One Touch Select" (LifeScan, USA) in 15, 30, 60, 120 min after loading.

Results and discussion. Glucose loading caused significant increase in blood glucose level in IA and DM groups compared with FBG, put particular maximum was reached after 1 h (in 2.2 and 2.5 times respectively). Glucose concentration in animals, which were administered PE and "Arfazetin", also was highest at 1 h, but less than in DM animals by 23.4% and 21.1% respectively. However, it was staying significantly lower compared with DM group under all control measurements. By the end of the second hour glucose level decreased and practically reached the FBG in all groups except for DM. The revealed hypoglycemic action may be mediated by quercetin – the main component of PE, which, presumably, improves cell insulin sensitivity by adiponectin synthesis stimulation.

Conclusions. Summarizing up the obtained results we can make a conclusion that PE administration caused hypoglycemic effect under DM2 in rats comparable with registered in Ukraine herbal decoction "Arfazetin".

APPLE POLYPHENOLS IMPROVE GLUTATHIONE METABOLISM IN THE RAT LIVER UNDER EXPERIMENTAL INSULIN RESISTANCE

Amhal Nour Eddine
Scientific supervisor: ass.prof. Krasilnikova O.A.
National University of Pharmacy, Kharkiv, Ukraine
noureddineamhal@gmail.com

Introduction. Glutathione is a tripeptide composed of glutamic acid, cysteine and glycine. The reduced glutathione (GSH) is the main component of the body's antioxidant system. Glutathione protective properties manifestation is associated with its oxidation. Glutathione reduction in cells occurs with the participation of glutathione reductase. Insulin resistance and its complications development is accompanied by hyperglycemia, oxidative stress and lipid peroxidation. Oxidative stress and activation of lipid peroxidation lead to the cell antioxidant system depletion. The use of plant polyphenols, which exhibit antioxidant properties is a promising direction in the treatment of insulin resistance.

Aim. The aim of the work was to investigate the apple polyphenol extract effect on the GSH level and glutathione reductase activity in the liver of rats under experimental insulin resistance.

Materials and methods. The experimental study was conducted on 180±20 g rats from vivarium NUPh. Animals were kept on a high-fructose diet during 5 weeks to induce experimental IR. Apple polyphenol extract (APE) was administered during two weeks in dose 9 mg polyphenols/kg. The animals were decapitated under chloralose-urethane anesthesia. The liver was perfused with cold physiological solution and homogenized. In the liver, GSH level and glutathione reductase activity were determined with Ellman's reagent. The protein level was determined by the Lowry method. The data obtained were processed statistically.

Results and discussion. It was shown that glutathione reductase activity was reduced from 1.64±0.10 (intact) to 1.12±0.04 nmol NADPH/min/mg protein (group IR) in rat liver. GSH level was also reduced from 8.03±0.25 (intact) to 4.96±0.11 4.96±0.11 μg/mg protein (group IR). GSH level is decrease due to an inhibition of the glutathione reductase activity and the enhancement of free radical oxidation under these conditions. APE administration increased glutathione reductase activity up to 1,37±0,04 nmol NADPH/min/mg protein and the GSH level up to 6,85±0,19 μg/mg protein times the liver of rats under experimental insulin resistance.

Conclusions. Thus, apple polyphenols improve antioxidant system activity in rat liver under experimental insulin resistance. Apple fruit polyphenols applying is promising in the treatment of insulin resistance, diabetes and its complications.