

EXPLORATION OF ANTIOXIDANT ACTIVITY OF EXTRACTS FROM VITIS VINIFERA

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Introduction. It was shown that grape products (raisins, wine, etc) are very important dietary compounds. In certain populations it has been observed that grape products consumption decrease risks of cardiovascular diseases and increase the lifespan. Grape polyphenols possess many biological activities, such as antioxidant, cardioprotective, anticancer, anti-inflammation, antiaging properties.

Aim. Considering the role of free radical oxidation in the pathogenesis of diabetes, atherosclerosis, the aim of our work was study the antioxidant activity of pulp, peel and grape seeds polyphenols.

Materials and methods. The antioxidant activity of polyphenolic extracts was studied in vitro to determine the content of TBA-reactive substances of peroxidation lipids of liver in rats. Experiments were performed on female rats weighing 180 ± 15 g, which were kept in vivarium of NUPh. The animals were decapitated under chloralose urethane anesthesia. The liver was perfused with cold 0.9% NaCl. A 10% homogenate was prepared on 0.05M tris-HCl buffer (pH 7.4). Extracts of fruit polyphenols from seeds, skins and pulp containing 50 or 100 μ M polyphenols were added to the sample. Samples were incubated for 15 minutes at 37 °C. The level of lipid peroxidation was evaluated by TBARS products determined with thiobarbituric acid. Protein content samples was detected using the Lowry method.

Results and discussion. It was found that the introduction of grape polyphenols, obtained from skins, seeds and pulp of fruits, reduced the content of TBARS levels in samples. It should be also noted that the peel extract was most effective. It reduced the content of TBARS by 23.6% and 31.4%, in dose 50 μ M and 100 μ M polyphenols, respectively. Polyphenolic extract from seeds decreased TBARS level to 20.6% and 27.2% at a dose of 50 μ M and 100 μ M, respectively. The smallest activity was observed affect adding pulp polyphenol extract to the homogenate: 4.6% and 18.5%, respectively. The results obtained may be explained taking the fact that the content of different polyphenols varies depending on the part of the grape; for example: phenolic acids are mainly present in pulp, anthocyanins and stilbenes – in skins, catechins, proanthocyanidins and flavonols – in skins and seeds.

Conclusions. The dose-dependent antioxidant effect of polyphenols from all parts of fruit has been investigated. Most significant antioxidant effect has been revealed for polyphenols of the skin.