The study of pectin substances of plum-leaved apple fruits and leaves

Olena Novosel *, Oksana Osolinska, Oleksandra Kyslychenko, Viktoriia Kyslychenko
National University of Pharmacy, Kharkiv, Ukraine
**Corresponding author e-mail: lenanovosel1@ukr.net*

Introduction.
Pectin substances are biopolymers of polyuronide nature, which are vital for the normal functioning of the human body. They deserve special attention due to their ability to have a detoxifying effect, non-toxicity and significant complexing ability. Pectins have a wide range of pharmacological activity. They increase the body's resistance to adverse environmental factors; remove toxic substances from the body, as well as heavy metal ions and their radionuclides; improve gastrointestinal motility, changing the nature of nutrient absorption, and thus strengthen the normalization of metabolism; reduce blood cholesterol levels by improving its metabolism in the liver, etc. [2, 3]. Therefore, the search for new plant sources of pectin is relevant. A promising object may be *Malus prunifolia* Borkh., which is cultivated in Ukraine as an agricultural and ornamental plant. Its fruits are used as an antisclerotic, antioxidant, antitumor agent, they normalize blood pressure [1]. Still, the information on the chemical composition of the plant, in particular pectin, is lacking, which is the basis for further phytochemical studies.
Materials and methods. The presence of pectin substances in plum-leaved apple fruits and leaves was confirmed by the reaction with a carbazole solution after acid hydrolysis with concentrated sulfuric acid [4].
The determination of the pectin substances content in the studied plant raw material was performed by spectrophotometric method. The extraction of this class of compounds was carried out with a 2% solution of sodium carbonate with sodium hydroxide when heated in a water bath for 20 minutes. The obtained extract was subjected to acid hydrolysis, followed by a reaction with a carbazole solution. The optical density of the obtained colored solution was measured at a wavelength of 520 nm on "Optizen" spectrophotometer [4].
Results and discussion. As a result of a chemical reaction with a carbazole solution, a raspberry color was observed, which indicated the presence of pectin in plum-leaved apple fruits and leaves. The intensity of color in the fruit extract was greater than in the leaves extract.
The content of pectin substances in plum-leaved apple fruits was 17.25 ± 0.69%, in the leaves – 12.44 ± 0.50% respectively.
Conclusions The study of pectin substances of plum-leaved apple fruits and leaves was carried out for the first time. Experimental data show that the content of this group of compounds in fruits was higher than in leaves. The obtained results indicate that the plant raw material of plum-leaved apple is a promising source for the pectin production, and can be used to the plant raw material standardization and the development of the appropriate sections of quality control for plum-leaved apple fruits and leaves.

References

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