

*Bushkevich N.V.*¹, *Kokhanskaya M.V.*², *Boltovsky V.S.*², *Flurik E.A.*²

Using the biochemical potential of blueberries

¹Open Joint-stock Company «Yeast Factory», Minsk, Republic of Belarus

²Belarusian State Technological University, Minsk, Republic of Belarus

Currently, work is underway to find new high-performance plant raw material, which can be used not only for a complex of biologically active, but also individual substances. That's why scientists began to consider an opportunity of usage traditionally used plants to produce new types of products.

At the Department of Biotechnology of the Belarusian State Technological University one of the most studied plant is blueberry. In the Republic of Belarus a great amount of sorts are successfully cultivated, for example, sorts of high-quality blueberry (*Vaccinium corymbosum L.*) – Blyukrop, Elizabeth and others, sorts of semi-high blueberry (*Vaccinium corymbosum L. × Vaccinium angustifolium Ait.*) – Nortkantri and others, sorts of narrow-leaved blueberry (*Vaccinium angustifolium Ait.*) – Polovchanka, Yanka and others, and also a number of hybrid forms not included in the Registry.

Not only fruits and leaves of blueberry were used as objects of study, but also branches. The comparative analyzes of content of biologically active substances were carried out not only on fruits of different sorts of blueberry, but also, for example, in leaves, that were collected in different phases of the growing period. The quantitative content of anthocyanins was determined spectrophotometric method, tannins – with permanganometric method, ascorbic acid – the titrimetric method.

In the course of the research it was found that branches of blueberry after pruning the bushes can be used for creation of additional feeding up of wild animals, in particular, red deer (*Cervus elaphus*), the number of which is currently being successfully recovered in the Republic of Belarus. In the process of developing the composition of feeding up, besides branches of blueberry, to it were added different medical plants, for example, alecost (*Tanacetum vulgare L.*), milfoil (*Achillea millefolium L.*), hypericum wort pierced leaf (*Hypericum perforatum L.*), which significantly increased their biological value as an additional source of biologically active substances.

Alcoholic tinctures of blueberry fruit were used as a dietary supplement in cosmetic emulsions. The effect of consumption of tincture of blueberry fruit on the properties of a cosmetic emulsion that contains seed-oil was investigated. Thanks to the natural antioxidants contained in the tincture stability of cosmetic emulsion was increased. Furthermore, the emulsion acquired a light pinkish shade and pleasant berry aroma which undoubtedly improved the consumer qualities of the product [1].

Water tinctures of blueberry fruit and leaves were used for the development of composition of new herbal shampoo. In the course of the research was

studied the influence of the tincture of blueberry fruit and leaves on properties of water solutions that contain surface active agents (SAA). Established the dependence of the foaming ability of made mixtures on the amount of anionic SAA and tincture. It turned out that according to СТБ 1675-2006 «Cosmetic hygienic cleaning products. General technical conditions» foam number and foam stability of the developed compositions of shampoo are correspond with the established standards.

Thus, based on the results above we can make a conclusion that blueberry has high potential thanks to set of valuable biologically active substances found in all studied terrestrial parts of a plant.

References

1. Flurik, E.A. Getting tincture from tall blueberries and researching its effect on the properties of a cosmetic emulsion / Ye.A. Flurik, J.V. Bondarenko, N.V. Valoven // News of higher educational institutions. Forest Journal. - 2018. - № 6. - p. 160-171.