



HYDROXYCINNAMIC ACIDS OF Highbush BLUEBERRY – THE POTENTIAL OF APPLICATION

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Introduction

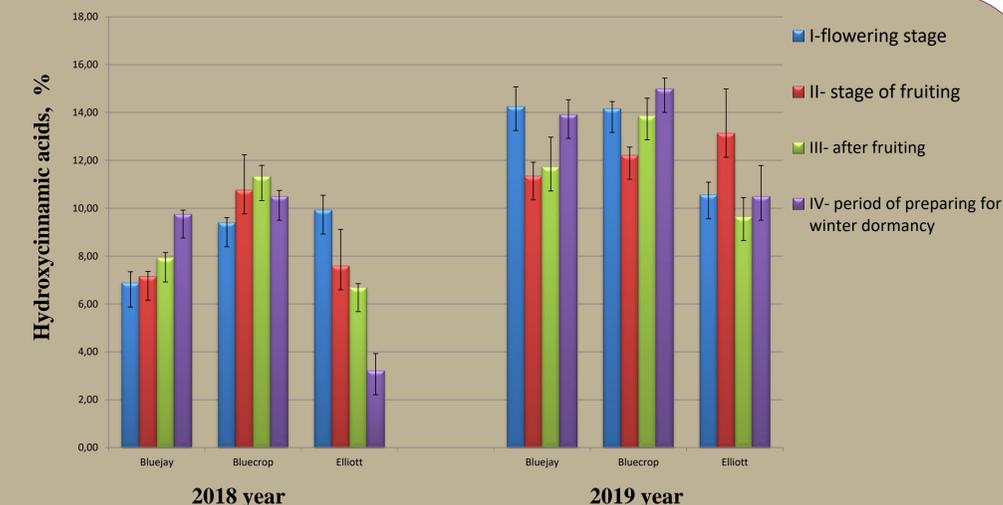
- The quality of human food and the quality of animal feed are factors in human and animal health and well-being. Contaminated food and feed, in particular by mycotoxins are factors that can cause immunosuppression, leading to reduced resistance to infectious diseases, even in vaccinated organisms.
- There are reports of high efficacy of hydroxycinnamic acids to reduce the expression of enniatin biosynthesis genes, and thus - inhibition of enniatin production in *Fuzarium avenaceum*. Herbal preparations rich in hydroxycinnamic acids can also have antiaflatoxic properties.
- The aim of our study was to determine the content of hydroxycinnamic acids in highbush blueberry (*Vaccinium corymbosum*) shoots.

Material & Methods

Samples of shoots of *V. corymbosum* L. variety Bluecrop, Bluejay and Elliott were collected directly from the manufacturer LLC "Berry Partner" at the experimental exhibition site in the Lviv region, Ukraine during 2017-2020, in various phenological stages: during flowering, fruiting, after fruiting, the period of preparing (which precedes) for winter dormancy. Shoots were dried in the shade at room temperature (22-24° C) and crushed in a knife mill. Aqueous extracts of shoots were performed by suspended of material in distilled water (1:10/m:V) under reflux conditions in a boiling water bath for 30 minutes according to State Pharmacopoea of Ukraine. Subsequently, these crude extracts were subjected to quantitative content of the hydroxycinnamic acids (HCA) by spectrophotometric method (according to State Pharmacopoea of Ukraine). The content of the HCA in percent (%) was calculated in terms of caffeic or chlorogenic acid and dry raw materials.

Results

It was found that the content of HCA in the variety Bluejay ranges from 6.87 -14.25 % ($p < 0.05$); in the Bluecrop variety - in the range of 9.39–15.0 % ($p < 0.05$); in the variety Elliott - in the range of 2.75–10.56% ($p < 0.05$) depending on the year and phase of development in which the plant material was selected. The levels of HCA content in the shoots of all studied highbush blueberries varieties indicate their potential biological activity when consumed orally or percutaneously.



Bluejay



Bluecrop



Elliott



Conclusions

Highbush blueberry shoots in the wild are a component of the feed of wild animals and birds. In our opinion, the evaluation of blueberry shoots as feed, taking into account the content of HCA, which can mitigate the adverse effects of mycotoxins, has prospects.