

## STUDY ON THE CONTENT OF POLYPHENOLS AND ANTOCIANS IN THE BILBERRY FRUITS DRIED BY DIFFERENT WAYS

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One of the valuable sources of medicinal and food products is bilberry (*Vaccinium myrtillus* L.) fruits. The variety of pharmacological properties of bilberries is due to the whole complex of polyphenolic compounds, represented by anthocyanins, flavonoids, catechins and polycatechins. Considering the great importance of bilberries for the pharmaceutical and food industries, an urgent task is to study the characteristics of the chemical composition of berries depending on the place of their harvesting, methods of storage and drying.

The aim of our study was to investigate the contents of total soluble polyphenols (TSP) and total monomeric anthocyanins (TMA) in *V. myrtillus* berries dried by different methods. The objects of our research were fully ripe spontaneous *V. myrtillus* berries harvested in August 2018 in Tyachiv district of Zaccarpathian region.

Research of chemical composition was carried out in the laboratory of analytical chemistry of Chemistry department of University of Florence. Bilberries were dried by two different ways: using the method of convective drying at a temperature about 60° C and the method of freeze drying at a temperature - 57° C. The drying time using both methods was about three days. Dried berries and extracts from them were stored in a refrigerator at a temperature -20° C. Bilberries powder was prepared by grinding of each sample with the hand blender in an ice bath. About 125 mg aliquots of dry weight (d.w.) raw material were extracted in a ultrasound water bath within 20 minutes with 5 ml of acetone-water (6:4) mixture. The extract was centrifuged and the supernatant was recovered. This procedure was repeated twice for each extract and the extracts were combined together. TSP content was spectrophotometrically determined at  $\lambda = 740$  nm according to the Folin-Ciocalteu method using (+)-catechin (CAT) as a reference standard. TMA were spectrophotometrically determined with the pH differential method using cyanidine-3-glucoside (CYD-3-GLU) as a reference standard.

According to our research, contents of TSP in convective-dried and freeze-dried bilberries were 4803 mg CAT equiv./100 g d.w. and 5905 mg CAT equiv./100 g d.w., respectively; contents of TMA were 1123 mg CYD-3-GLU equiv./100 g d.w. and 3624 mg CYD-3-GLU equiv./100 g d.w., respectively.

Based on the results of the study, we can conclude that the drying method has a decisive influence on the content of BAS in bilberries. Content of TSP in convective-dried berries was 81,3% of the content in the same freeze-dried sample, whereas content of TMA, known for its thermolability, was only 31%.