

## ABSTRACT

The aim of the work was to evaluate the quality of dried products produced from nine fruit species depending on the applied drying method (air drying or freeze drying) and storage temperature (2°C and 20°C) over four, eight, and twelve months. Fruit subjected to drying included: the pome fruit (apple and pear), stone fruits (plums and cherries) and berries (the northern highbush blueberry, raspberry, blackcurrant, strawberry and blueberry).

The criterion for quality assessment of dried products was the content of selected substances of antioxidant activity, such as the content of vitamins C and E, the content of antioxidants and polyphenols as well as the level of antioxidant activity expressed as  $\mu\text{M}$  Trolox equivalent per gram. Dried products were examined for water content and total acid content that is the determinants affecting shelf life of such products. In addition, rehydration ability was assessed, colour was determined and sensory evaluation was performed on a 5-point scale and by means of a profile method.

Chemical composition was determined in the raw material, in the products immediately after drying and those stored. Instrumental colour analysis was conducted in the raw material, the products freshly dried and after 12 months of storage. Rehydration ability was assessed directly after drying the product and after 1-year storage, while sensory evaluation of dried products was carried out after one year of storage. On the basis of the obtained results, the quality of raw material and dried products obtained by the assumed methods were compared, and the effect of a one-year period of such products' storage and the storage temperature on their quality was assessed at four-month intervals.

Among the examined fresh fruit, berries had the highest level of the tested determinants in 100 g of fresh weight, stone fruit were characterized by the medium level, while the smallest level was determined in pome fruit.

The retention of the examined determinants of chemical composition depended, to a different degree, on the factors examined. The drying method had no effect on total acid content and in most samples, on vitamin E content and the level of polyphenols; however, affected the contents of vitamin C and anthocyanin's, and antioxidant activity. In every of the examined dried products, water content, the level of water activity, total acid content, the level of polyphenols and antioxidant activity remained unchanged during storage; however, there were changes in the content of vitamins C and E and anthocyanin content. Storage temperature had no effect on the examined determinants of chemical composition.

In the case of remaining determinants, drying method and the length of storage affected rehydration ability and total colour difference ( $\Delta E^*$ ). In turn, the temperature of storage did not affect the mentioned determinants, as well as the results of the 5-point scale sensory evaluation of dried products after their one-year storage. The results of profile evaluation showed that in all products dried by means of the air-drying method and in the majority of those freeze-dried, the storage temperature influenced the colour, but had no effect on the consistency and palatability of the products dried by both these methods.

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