VARIABILITY OF MICRONUTRIENT CONTENT IN SWEET CORN HYBRIDS AFTER BOILING

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Sweet corn is a highly consumed in many parts of the world and can serve as source of nutrition as well as phytochemical compounds. Before consuming, the sweet corn is thermally processed, whether in fresh or frozen form. Different processing methods result in changes of the nutritional profile of sweet corn, which vary by nutrient content and genotypes. The effects of boiling on carotenoid and tocopherol content of twelve sweet corn (three commercial ZP504su, ZP 355su, ZP 347su, and nine experimental ZP 471/2su (500), ZP 475/2su (500), ZP477/2su (600), ZP481/1su (500), ZP482/1su (600), ZP483/1su (400), ZP484/1su (500), ZP485/1su (500), ZP486/1su (600)) were investigated. β-carotene, lutein+zeaxanthin and tocopherols (δ-T, β-y-T, a-T) content was determined by HPLC.

After boiling an increase in the total carotenoid and lutein+zeaxanthin content was observed in all hybrids. The largest increase in the total content of carotenoids was recorded in hybrids ZP 355su and ZP485/1su. Content of lutein + zeaxanthin ranged from 12.72 (ZP 355su) to 27.02 µg/g (ZP486/1su), and β-carotene 0.25 (ZP355su) to 1.13 µg/g (ZP482/1su). Hybrids ZP 471/2su and ZP482/1su have high content of lutein+zeaxanthin (23.88 µg/g and 23.75 µg/g, respectively) before boiling as well as hybrid ZP 471/2su high content of β carotene (1.12 µg/g). After boiling hybrids ZP 471/2su, ZP482/1su have high content of lutein+zeaxanthin 41.46 µg/g and 41.35 µg/g, respectively and hybrid ZP482/1su (1.59 µg/g) had the highest content of β carotene.

The highest content of a tocopherol had hybrid ZP486/1su and ZP484/1su had high content. After boiling same hybrids kept high content of a tocopherol. The highest content of β-y- tocopherol have ZP504su in kernel before and after boiling.

The boiling resulted in a significant increase in the concentration of carotenoids and tocopherols for all hybrids, except hybrid ZP504su for β-carotene, as well as hybrids ZP481/1su, ZP486/1su and ZP477/2su in which content of a-tocopherol decreased after boiling.

The results show that the trend of increasing of micronutrient content depends on the genotype of sweet corn. This study confirmed that boiling enriches nutrition’s in sweet corn and gives it an added value in terms of functional foods. The results of this study may also be useful to breeders to improve the nutritional characteristics of genotypes of sweet corn.