Polyphenolic compounds and antioxidant capacity of fruits of sweet pepper

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Introduction

Sweet pepper (*Capsicum annuum*, L.) is one of the most grown vegetable in the world because of its nutritional contribution, therapeutic and pharmaceutical value. Its significance in nutrition is due to high content of natural bioactive compounds such as phenols, flavonoids, carotenoids, capsaicinoids as well as vitamin A, E and C.
The goal of this study was to determine content of total polyphenols, flavonoids and potential antioxidant activity of different sweet pepper cultivars.

Experimental

The plant material for this trial was methanol extracts of three different types of sweet pepper fruit: bell pepper, kapia type and tomato-pepper type (one cultivar of each fruit type). The fruits were collected at technological maturity. Determination of total phenolic content (TP) was estimated using Folin-Ciocalteu method. The total flavonoids content (TF) was carried out using a procedure based on the flavonoid characteristics to build metal-complexes with aluminium chloride ($AlCl_3$). Antioxidant capacity of methanol extracts was measured by 2,2'-azinobis-(3-ethylbenzothiazoline-6-sulphonic acid (ABTS) assay and ferric reducing antioxidant power (FRAP).

Results and discussion

In *Figures 1-4* are presented the content of total polyphenol, flavonoid and antioxidant activity of methanol extracts of sweet pepper fruits measured by ABTS and FRAP tests.
The type of sweet pepper with the highest content of TP was tomato-pepper. Bell pepper showed higher content of TF in comparison with tomato-pepper and kapia type fruits. Concentration of phenolic compounds in bell pepper fruits was higher than content in pepper with elongated fruits but lower than values in tomato-pepper.
According to ABTS and FRAP antioxidant assays, tested tomato-pepper type exhibited higher antioxidant activity than the other two pepper cultivars analysed in this paper probably due to the highest level of TP.

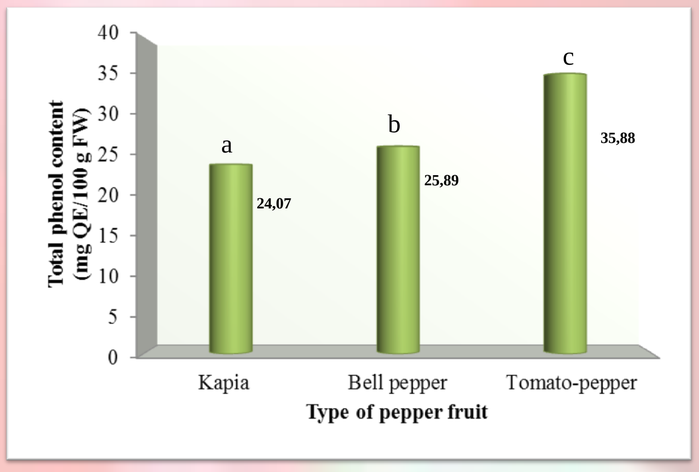

Figure 1. Total polyphenol content TP (mg QE/100 g FW)

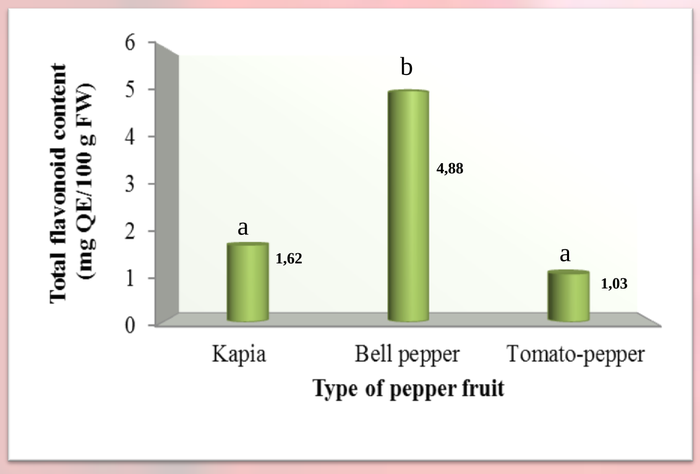

Figure 2. Total flavonoid content TF (mg QE/ 100 g FW)

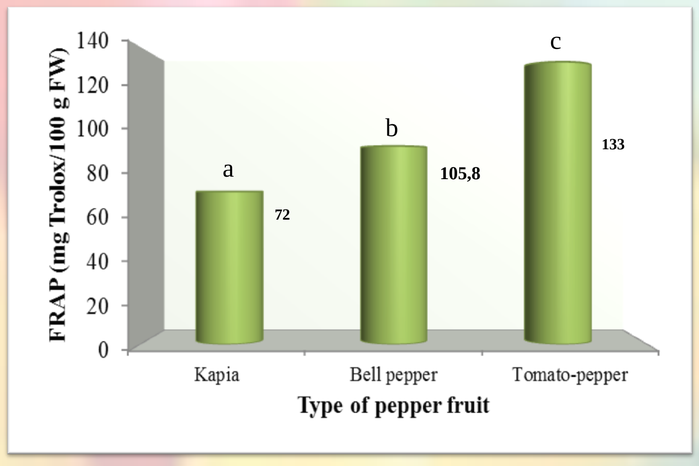

Figure 3. FRAP (mg Trolox/100 g FW)

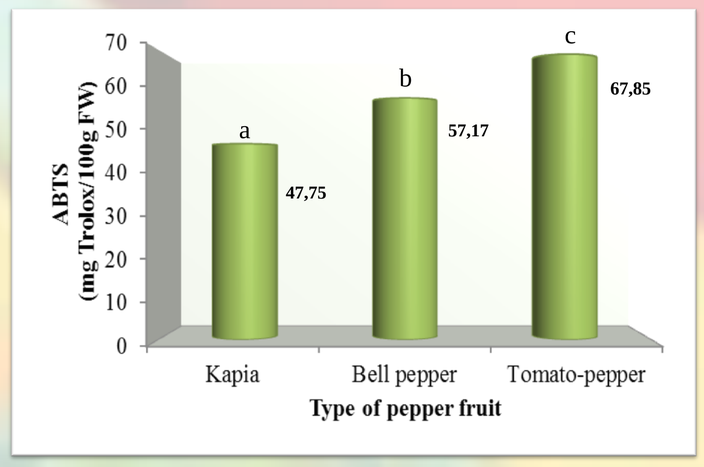

Figure 4. ABTS (mg Trolox/100g FW)

Conclusion

This result suggests that phenolic compounds can make a significant contribution to antioxidant capacity of sweet pepper fruit.

Acknowledgements

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