FOOD INDUSTRY BY-PRODUCTS APPLIED AS PUMPKIN-BASED FOODSTUFF PRESERVATIVES

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Introduction

Pumpkin is traditionally cultivated and consumed worldwide, being the fruit and its by-products recognized by their nutritional and health benefits. In the current pandemic scenario and towards a circular economy, the development of a healthy and green technological food product was proposed using pumpkin pulp enriched with bioactive compounds obtained from pumpkin by-products.

Rinds

Seeds

Fibrous

Bioactive properties
Lipid peroxidation inhibition capacity (TBARS)

Pulp

Proximate composition
Ash, protein, fat, and carbohydrate contents by AOAC;
Free sugars profiles were obtained by HPLC-RI

Methodology

The seeds, rinds, and fibrous placenta of seventeen different pumpkin genotypes from Greece were assessed for their antioxidant properties (TBARS), while the pulp was evaluated in terms of ash, protein, fat, and carbohydrate contents by AOAC methods[1]. The free sugars profiles were obtained by HPLC-RI.

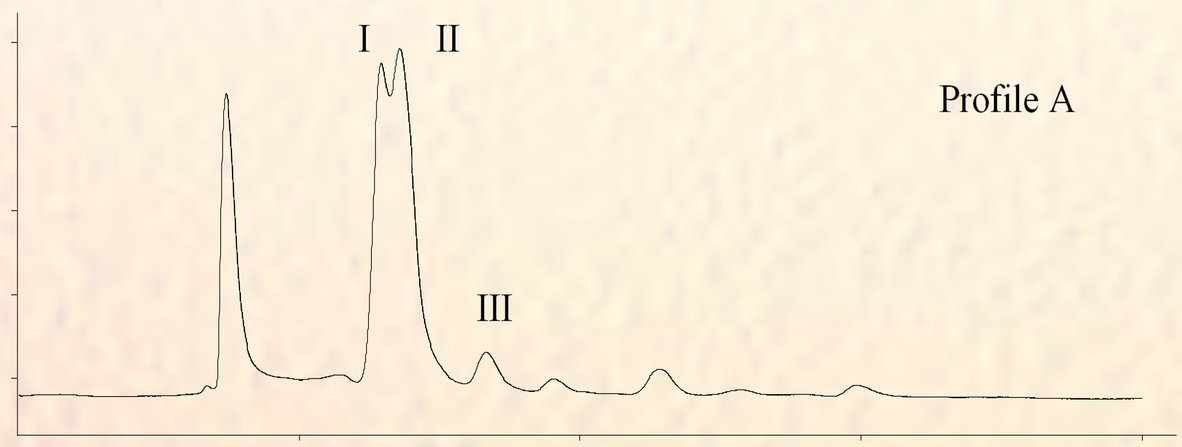
Results

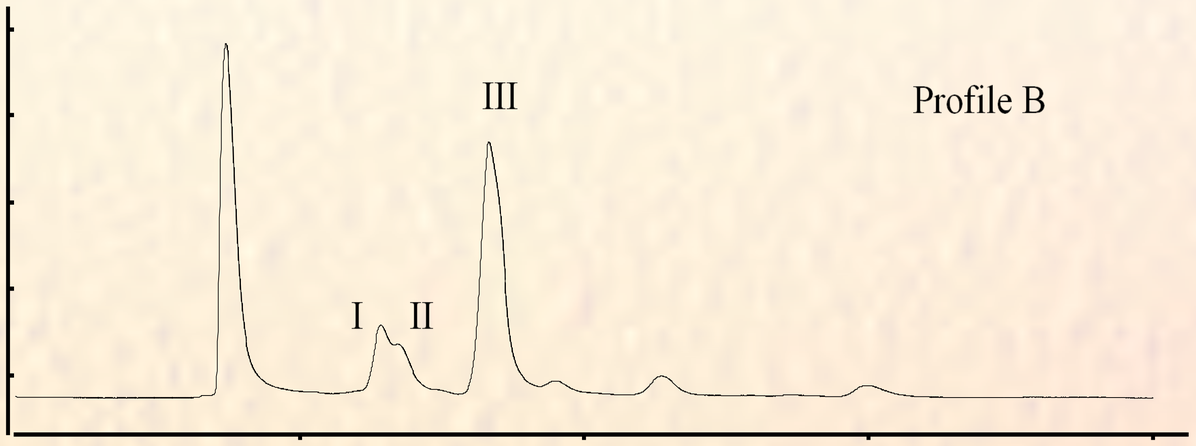
All pumpkin by-products revealed great antioxidant properties, demonstrating their ability to inhibit lipid peroxidation and suggesting their potential application as sources of preservative compounds. All pulp samples recorded carbohydrates as the major compounds, with contents of about 67-86%, followed by protein (about 8-21%) and fat (about 0,4-1,1%). The ash content ranged from about 3,5 to 11%. Regarding free sugars, two predominant profiles were traced: one rich in fructose and glucose and low in sucrose, and another one with opposite prevalence (Figure 1).

Conclusion

These results corroborate the great nutritional value of pumpkin genotypes from Greece and reveal the potential use of pumpkin by-products in the development of preservative solutions to maintain the pulp quality and safety over storage time, through the development of pumpkin-based food products.

Figure 1: Profile A, rich in fructose (I) and glucose (II); Profile B, rich in sucrose (III).





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References

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