

INTRODUCTION

The shelf life of pumpkin pulp can be extended by convective hot-air drying, which allows pumpkin powder to be used as an excellent colour- and nutrient-rich ingredient in the preparation of various foods. The simultaneous separation of pumpkin pulp for drying results in a large amount of waste fractions, i.e. peel and seeds. Since these fractions are usually discarded, their reuse would be interesting from a nutritional point of view.

Aim of the work

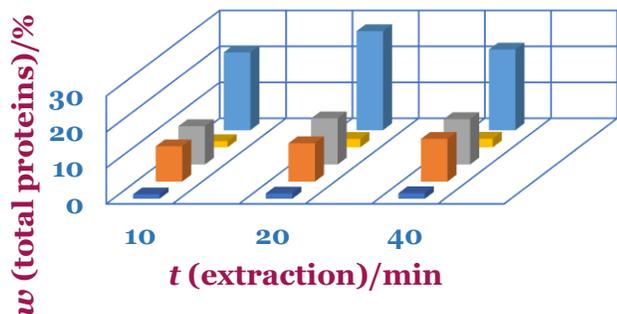
- ✓ Comparison of nutrient content, i.e. proteins and sugars, of dried pumpkin pulp and by-products (peels and seeds).
- ✓ Verify the efficiency of pumpkin drying by comparing the protein and sugar content with that of fresh pulp.
- ✓ Maximize the recovery of these two nutrients from pumpkin samples by ultrasound-assisted extraction (UAE).
- ✓ Verification of the efficiency of UAE with reflux extraction (RE)



MATERIALS AND METHODS

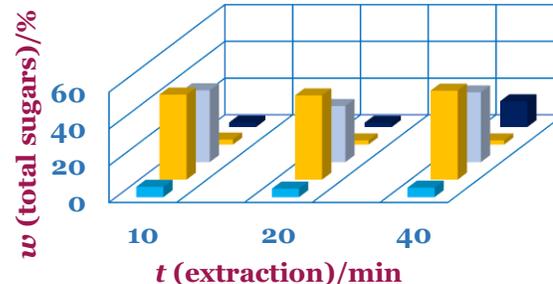
In *Curcubita moschata* pumpkin (Exotic king, Šulog, Bistra, Croatia), the peels and seeds were separated from the pulp and the pulp was subjected to convective hot-air drying at temperatures of 50 and 60 °C and air velocity of 1.0 m/s. For extraction of proteins and sugars, UAE was performed at a frequency of 37 kHz and a temperature of 50 °C for 10, 20 and 40 min. The RE was performed for 20 and 40 minutes.

RESULTS AND DISCUSSION



■ Raw ■ 50 °C, 1.0 m/s ■ 60 °C, 1.0 m/s ■ Peel ■ Seed

Fig. 1. Total protein contents in pumpkin samples extracted by UAE.



■ Raw ■ 50 °C, 1.0 m/s ■ 60 °C, 1.0 m/s ■ Peel ■ Seed

Fig. 2. Total sugar contents in pumpkin samples extracted by UAE.

CONCLUSION

- ✓ All dried pumpkin pulp samples extracted using UAE contained significantly higher amounts of proteins (9.82-12.83%) and sugars (30.55-48.48%) than raw pulp, making them a potential source of nutrients (Figs. 1 and 2).
- ✓ The optimal time for the extraction of protein and sugar with ultrasound was set at 20 and 40 min, respectively.
- ✓ The protein and sugar content is also high in the samples obtained with RE. For example, the dried pumpkin pulp contains 10.66% and 56.14% of proteins and sugars, respectively, which again emphasises the importance of the drying process.
- ✓ The protein and sugar content is also higher in the pumpkin by-products than in the raw pulp, making them an alternative sustainable food ingredient.

ACKNOWLEDGEMENT

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