

INCORPORATION OF PUMPKIN PEEL EXTRACT INTO A PUMPKIN PULP FORMULATION AS A NATURAL PRESERVATIVE

Maria G., Leichtweis^{1,2,3}; Adriana K., Molina^{1,2}; Spyridon A., Petropoulos⁴; Alexandre Gonçalves⁵, Tânia C. S. P., Pires^{1,2}; M. Beatriz P. P., Oliveira⁴; Lillian, Barros^{1,2}; Carla, Pereira^{1,2,*}

¹ Centro de Investigação de Montanha (CIMO), Instituto Politécnico de Bragança, Campus de Santa Apolónia, 5300-253 Bragança, Portugal

² Laboratório Associado para a Sustentabilidade e Tecnologia em Regiões de Montanha (SusTEC), Instituto Politécnico de Bragança, C. de Santa Apolónia, 5300-253 Bragança, Portugal

³ REQUIMTE—Science Chemical Department, Faculty of Pharmacy, University of Porto, Rua Jorge Viterbo Ferreira no. 228, 4050-313 Porto, Portugal

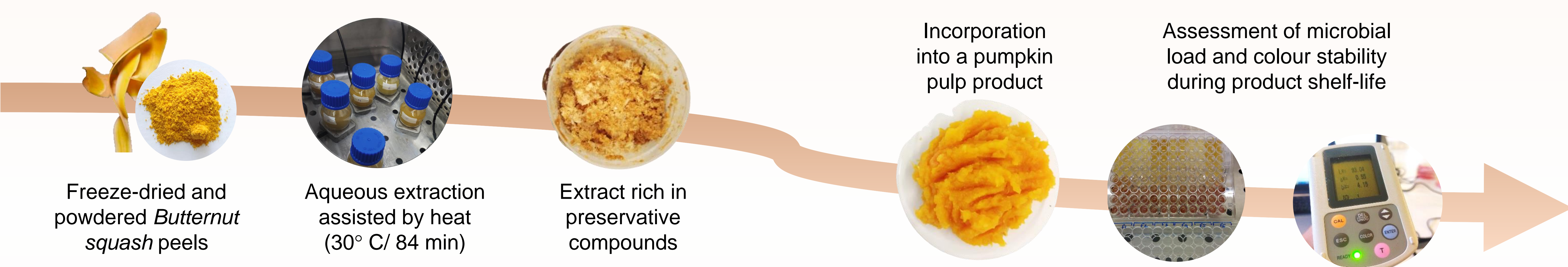
⁴ Department of Agriculture Crop Production and Rural Environment, University of Thessaly, 38446 Volos, Greece

⁵ Collaborative Laboratory Mountains of Research (MORE), Brigantia Ecopark, 5300-358, Bragança, Portugal/

*carlap@ipb.pt

Purpose

An extract rich in preservative compounds was obtained from pumpkin peels by heat-assisted extraction, with water as solvent. This extract was incorporated into a ready-to-use pumpkin pulp product, in a concentration of 5g/kg, in order to replace the use of potassium sorbate (control).



Methodology

The product shelf-life was evaluated in terms of microbial load and colour stability considering the best before date of the commercial product (30 days). For that purpose, the samples were stored at room temperature and evaluated on the day of production and after 7, 14, 21, 30, and 45 days of storage. Microbial load, it was evaluated in terms of aerobic plate count (total viable count; ISO 4833-2:2013), coliforms (and *E. coli*; ISO 4832:2006), and yeasts and moulds (ISO 21527-1/2:2008). For the physicochemical parameters, the colour was assessed by chromatic analysis in the CIELAB colour space, measuring L^* (lightness), a^* (redness), and b^* (yellowness) to obtain the palette of tones and the chroma values of the pulp formulations.

Results

In both pulp products, with the addition of extract and control, no microbial growth was evidenced up to the 45th days of storage. This result demonstrates the great efficiency of using the natural extract to replace potassium sorbate, which is a traditional but artificial preservative widely used in the food industry. Meanwhile, despite the satisfactory result obtained in terms of antimicrobial protection, the colour was clearly affected. Through both the RGB and L^* , a^* , and b^* parameters it was possible to verify the loss of colour of the pulp formulation containing the natural extract during the storage days, while in the control formulation it was less noticeable.



Conclusion

Considering the preservative potential of the extract, new formulations will be tested with different concentrations, aiming a healthier pulp product and promoting circular economy.

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