retaste

rethink food waste

Athens, 6-8 May, 2021

Hellenic Mediterranean University

The RETASTE Conference was co-organized by Harokopio University

The RETASTE Conference was organized under the auspices of the Green Fund that offers sponsored participation to selected participants.

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VAL: Valorization of Food Processing By-Products

The Food industry is a continuously growing sector due to the increasing population and globalization that create the need of a wide variety of food products. During food processing, many by-products are thrown away and accumulate as an environmental burden. The problem is greater in developing countries, where 40% of food waste is generally generated at post-harvest and processing levels. Valorization of food processing by-products offers sustainability by circumventing landfilling or disposal and aims to recover matter, energy, and biomass in the form of “secondary” products and energy contributing to circular economy.

The RETASTE Session on Valorization of Food Processing By-Products focuses on the significant efforts of the contributors to address these issues in all major food industries: meat, poultry, fish and seafood, fruits and vegetables, dairy, and cereal. Secondary products presented have a vast area of application, from food additives to cosmetic products.

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Prunus Spinosa L. Fruit Epicarp: Extraction of Compounds With Colouring Capacity for Food Application

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Abstract

Prunus spinosa L. is a wild shrub with bitter and astringent fruits, also known as blackthorn. These fruits are commercially underexplored, despite presenting high amounts of anthocyanins, and the epicarp if often discarded in the production of blackthorn jams and jellies. The present study aimed to characterize the fruit epicarp and develop an anthocyanin-based food colorant, predominantly rich in cyanidin 3-rutinoside and peonidin 3-rutinoside. The extract was obtained by ultrasound-assisted extraction, a rapid and low-cost extraction procedure (Leichtweis, 2019), and it was incorporated in a typical Brazilian pastry product named “beijinhos”. The coloured products were monitored and compared to control samples (uncoloured products) in terms of nutritional, chemical, and physical properties, immediately after manufacture and after 24h, according to the typical shelf-life of this product. For that purpose, the colour parameters were evaluated using a portable colorimeter, through the CIELab spherical coordinates (L*, a*, and b*), the nutritional value was assessed following AOAC procedures, the texture was evaluated using a texture analyser, the pH using a portable pH-meter, the phenolic profile was assessed by HPLC-DAD/ESI-MS, the fatty acids composition was assessed by GC-FID, and the free sugars by HPLC-RI. The extract presented a reddish-purple hue and conferred a purple colour to the pastry product. The addition of the colorant extract did not cause changes in pH, fatty acid profile, and nutritional parameters of “beijinhos”, except in the content of free sugars, where the levels of glucose and fructose were higher when compared to the control, reflecting the profile of free sugars of this fruit epicarp. Regarding the rheological parameters, the addition of the colorant extract significantly changed the hardness, cohesiveness, springiness, gumminess, and chewiness of the coloured products, compared to the control ones. The colour analysis was performed with a portable colorimeter and the CIELab spherical coordinates (L*, a*, and b*) were obtained and calculated. The purple colour conferred by the extract has lost some intensity after 24 h, but this observation was also made for the control sample, over the 24-hour period. In general, the obtained colorant revealed a good colouring ability, without causing significant alterations in the nutritional, chemical, and physical characteristics of the food product, corroborating the applicability of this bioresidue for the development of natural additives.

Keywords: Blackthorn bioresidue, anthocyanins, food colorant, pastry product application.

References

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