Hindawi
Journal of Food Quality
Volume 2019, Article ID 6213792, 2 pages
https://doi.org/10.1155/2019/6213792

Editorial

Bioactive Compounds from Food Byproducts

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Received 24 October 2018; Accepted 5 December 2018; Published 14 January 2019

Food industry generates large amounts of byproducts that could be considered a source of several bioactive compounds that could be used for technological and nutritional scope. Among others, antioxidants extracted from food byproducts show various technological advantages such as controlling heat-induced contaminant formation, limiting the lipid oxidation, and presenting antimicrobial activity. Moreover, they are used for the formulation of functional foods and nutraceuticals. Thus, the aim of this special issue was to publish research papers as well as review articles addressing recent advances in food science and technology in general and with a deeper insight into food chemistry.

Briefly, several manuscripts have been evaluated in this special issue, and five of them have been published.

G. Gustinelli and coworkers established a new green extraction method based on the use of supercritical fluid extraction (SFE) for the recovery of seed oils enriched with antioxidant compounds. The oils from the seeds of cloudberries, blackcurrants, and bilberries were extracted by SFE at different temperatures and compared with oils that were obtained from the same seeds using conventional solvent extraction with hexane. The obtained oils are a source of PUFAs, and the major fatty acids are linoleic and linolenic acids. They concluded that conventional extraction allows higher yields of oil compared to SFE extraction. Moreover, the oils obtained by SFE reported lower amounts of carotenoids than the other ones obtained by solvent extraction; however, higher values of vitamin E were noticed in the SFE extracts (for blackcurrant and bilberry seed oils). The content of vitamin E was likely correlated with a high antioxidant activity of the obtained oils.

C. Y. Huang et al. carried out studies on the effect of compressional-puffing pretreatment of mango peels on the extraction of bioactive compounds by water (WE) and ethanol (EE); moreover, they compared the results with the same extracts obtained without the compressional-puffed pretreatment. The authors extract the bioactive compounds from six Taiwanese mango peels and demonstrate that the compressional-puffing process increases the extraction yields and polyphenol contents of peel extracts; moreover, ethanol was more effective in the extraction of phenolic compounds than water. The free radical-scavenging, anti-inflammatory, and antibacterial activities of mango peel extracts were also evaluated. The authors reported a positive correlation between polyphenol contents and the free radical-scavenging activities of extracts. Among the analysed samples, the ethanolic extract of TN1 sample exhibited the most antioxidant, anti-inflammatory, and antibacterial properties.

Z. Y. Chen et al. investigated the chemical composition and antioxidant activities of umezu from different factories in South and East China. Umezu is the pickling liquid of *Prunus mume*, and it represents a byproduct that contributes to the environment pollution. However, in order to revalorise this byproduct, the authors studied several chemical constituents, including the content and proportion of organic acids and phenolic acids, and antioxidant activities of different samples collected in two China regions. The results showed that citric acid and malic acid were the main organic acids. About phenolic composition, the authors noticed that neochlorogenic acid, chlorogenic acid, and cryptochlorogenic acid were the predominant phenolic acids. The

phenolic content was correlated with the antioxidant activity of the extracts measured by FRAP and ORAC methods.

In another study, H. Chen and coworkers explored the suitability of extracts of defatted seeds of *Camellia oleifera* as antioxidant ingredients. Briefly, they extracted these byproducts using different solvents demonstrating that isopropanolic extract exhibited the highest yield of total phenolic compounds. Epicatechin, naringenin, and catechin were reported to be the main phenolic compounds. The antioxidant properties of the extracts were tested measuring the antioxidant capacity on the corn oil lipid oxidation. The results underlined that the isopropanolic extract was the best one in terms of peroxide value, anisidine value, conjugated dienes, and thiobarbituric acid reactive substances (TBARS) decrease. These results confirmed that *Camellia* seed byproducts are an useful source of antioxidants for the stabilization of corn oil.

Finally, Jiang et al. investigated the effects of 1-methylcyclopropene (1-MCP) treatment on physicochemical characteristics of yardlong beans during cold storage. They showed the positive effects of 1-MCP treatments on the physicochemical quality of yardlong bean during cold storage. In fact, the application of 1-MCP suppressed the change in skin color and the decrease in firmness,reduced the increase in weight loss, and inhibited the degradation of chlorophyll. In addition, 1-MCP improved activities of antioxidant enzymes, such as SOD and POD, and reduced the accumulation of malondialdehyde (MDA) content.

In conclusion, this special issue offers new information to the readers on the recent advancements in technological approaches for the extraction and preservation of bioactive compounds. The antioxidant, anti-inflammatory, and antimicrobial activity of natural extracts obtained from food byproducts or underutilized crops could be of interest for the development of specific ingredients for food and/or pharmaceutical industry.

Conflicts of Interest

The editors declare that they have no conflicts of interest regarding the publication of this special issue.

Acknowledgments

We would like to thank all the authors, reviewers, and the editorial team for their great support and contribution in making this special issue possible.

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