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Abstract

Sustainable Use of Fruit and Vegetable By-Products as New Food Ingredients: The Case of Fortified Cereal-Based Products †

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† Presented at the 2nd International Electronic Conference on Foods—Future Foods and Food Technologies for a Sustainable World, 15–30 October 2021; Available online: https://foods2021.sciforum.net/.

Abstract: In recent years, the issue of sustainability has been widely discussed, being the future challenge for the food sector. Among the various strategies proposed to promote the development of a sustainable food system, the recovery, recycling and valorization of food by-products is one of them. Fruits and vegetables have the greatest amounts of by-products, which are source of bioactive compounds and therefore can be re-utilized as functional ingredients for development of novel foods. In this scenario, the possibility of using by-products of olive oil, tomatoes and wine industry was evaluated. In particular, after an adequate drying and grinding process, the olive paste flour (10% *w*/*w*) was used to enrich bread, while tomato peel flour (10 and 15% *w*/*w*) and red grape marc flour (15 % *w*/*w*) were used to enrich pasta. The sensory quality and the nutritional characteristics (total phenolic compounds, flavonoids and antioxidant activity) of the enriched products were evaluated and compared to control samples. In addition, the bio-accessibility of bioactive components and their effects on the glycemic response were also assessed. In general, results suggest that the proper fortification with by-products improved the nutritional quality and the glycemic response (active samples vs control) without compromising products acceptability. It can be concluded that these examples represent a starting point for exploiting industrial by-products and creating valid food with beneficial properties in a more sustainable perspective.

Keywords: by-product; enriched cereal-based product; sensory quality

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Citation: Lacivita, V.; Conte, A.; Del Nobile, M.A. Sustainable Use of Fruit and Vegetable By-Products as New Food Ingredients: The Case of Fortified Cereal-Based Products. *Biol. Life Sci. Forum* **2021**, *6*, 90. https://doi.org/10.3390/Foods2021-11073

Academic Editor: Antonio Cilla

Published: 14 October 2021

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Supplementary Materials: The following supporting information can be downloaded at: https://www.mdpi.com/article/10.3390/Foods2021-11073/s1.

Author Contributions: Conceptualization, A.C. and M.A.D.N.; methodology, A.C.; formal analysis, V.L.; data curation, M.A.D.N.; writing—original draft preparation, V.L.; writing—review and editing, A.C.; supervision, A.C.; project administration, A.C. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.