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AN INTEGRATED APPROACH FOR WALNUTS INDUSTRIAL PROCESSING

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Abstract: Walnut is a crop of a high economic interest for the food industry. Their major constituents are triglycerides, in which monounsaturated (oleic acid mainly) and polyunsaturated fatty acids (linoleic and α -linolenic acids) are present in high amounts. The content of other bioactive components, such as proteins, tocopherols and phytosterols, has been also documented. Walnut kernel is appreciated as specialty nut also because of its characteristic flavor, aroma and health benefits. Walnut kernels are consumed fresh or toasted, alone or in other edible products. A major goal in walnut industry is to develop an integrated approach for walnuts processing to obtain large range of high quality food products. In this contribution, the development and characterisation of vegetable milk, oil and bioactive compounds derived from walnuts and their by-products is studied. Potentially walnuts were used to obtain these foods, not only able to exert health benefits, but also as an alternative to other food products. Processing steps and conditions to ensure chemical composition, quality properties, structure and rheological behavior of walnut based food products were analysed. These studies showed high potential and positive view on walnut industrial processing, in agreement with the current demand of healthy products. These results offer new interesting expectations to continue with this research line and demand the application of advanced technologies to provide better quality of the walnut products.

Keywords: Walnut, processing, high quality food

REFERENCES

Baerle, A., Popovici, C., Radu, O., Tatarov, P. (2016). Effect of synthetic antioxidants on the oxidative stability of cold pressed walnut oil. *Journal of Food and Packaging Science, Technique and Technologies*, Year V, № 9, 19-24.

Gao, P., Liu, R., Jin, Q., Wang, X. (2020). Effects of processing methods on the chemical composition and antioxidant capacity of walnut (*Juglans regia* L.) oil. *LWT – Food Science and Technology*, 135, 109958.

Popovici, C., Alexe, P., Gitin, L. (2015). *Characterization of bioactive compounds and antioxidant activity of extracts from walnut by-products Juglans regia L. obtained by different extraction methods*. International conference "Detection, control and processing of anthropogenic pollutants of environmental protection of administrative region", 25-26 October 2015, Armenia, 18-19.

Popovici, C., Baerle, A., Tatarov, P. (2016). *Innovation strategies to walnut milk production*. Proceedings of the 3^d International Conference "Modern Technologies in the Food Industry", 20-22 September 2016, Republic of Moldova, 256-261.