

Phenolic Profile Of Several Fruit Industry By products Determined By HPLC-DAD-MS/MS

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Abstract

Fruit sector produces large amounts of wastes during juice extraction by pressing. These by-products are an important source of high amounts of dietary polyphenols recognized by their antioxidant properties and so their potential health benefits. Therefore, the bioconversion of fruit by-products into new functional and clean label ingredients/additives represents a sustainable approach with great potential of application for food, pharmaceutical and cosmetic sectors. The aim of this work was the exhaustive characterization of different extracts yielded from three fruit by-products by the identification and quantification of the polyphenols using liquid chromatography. Ethanol extracts yielded from apple, lemon and orange by-products containing polyphenols were analyzed by LCMS operated in negative ESI mode. Separation was performed on a Kinetex® EVO C18 100 Å (150 x 3mm, 5µm size of particle) column using water and acetonitrile acidified with 0.1% formic acid as mobile phase. More than 30 compounds were tentatively identified with different distribution among the extracts. Orange by-product was that with high number of polyphenols, while lemon extract was that with high concentrations of these molecules. The main compounds present in orange by-product were Naringenin-7-O-rutinoside, Hesperetin-7-O-rutinoside, Isosakuranetin-7-O-rutinoside.

Lemon extract was characterized by the presence of Naringenin-7-O-rutinoside, Hesperetin-7-O-rutinoside. On the other hand, apple by-product showed a different phenolic profile compared to the citric extracts and also in lower concentrations. The results highlight that the origin of the extract affects its composition and therefore the characterization of these profiles is mandatory for food application. These fruits by-products may be a low-cost source of polyphenols that can be used as food ingredients/additives minimizing their environmental impact.

Santiago de Compostela. Her expertise is focused in new approaches for the recovery, characterization and application of plant-based bioactive compounds as food ingredients/additives, development of new healthier food products using low-cost functional ingredients, development of functional foods with health benefits to provide the consumers healthy food choices and find new applications of bioactive in the health sector as nutraceuticals.

Speaker Publications:

1. Gómez-Mejía, E., Rosales-Conrado, N., León-González, M. E., & Madrid, Y. (2019). Citrus peels waste as a source of value-added compounds: Extraction and quantification of bioactive polyphenols. *Food chemistry*, 295, 289-299.
2. Zhang, Z., Poojary, M. M., (2018). Comparison of selected clean and green extraction technologies for biomolecules from apple pomace. *Electrophoresis*, 39(15), 1934-1945.
3. Molina-Calle, M., Priego-Capote, F., & de Castro, M. D. L. (2015). Development and application of a quantitative method for determination of flavonoids in orange peel: Influence of sample pretreatment on composition. *Talanta*, 144, 349-355.
4. Mcharek, N., & Hanchi, B. (2017). Maturation effects on phenolic constituents, antioxidant activities and LC-MS/MS profiles of lemon (*Citrus limon*) peels. *J Appl Bot Food Qual*, 90, 1-9.

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Biography:

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