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Separation of heath compounds in Goji (*Lycium barbarum*) aqueous extracts by membrane technology

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In recent years, the recovery of antioxidant compounds from natural sources is a focus of great interest due to their potential use as natural ingredients in food, pharmaceutical and cosmetic formulations or as substitutes of synthetic products in the food industry. Several conventional extraction techniques have been reported for the recovery of target compounds from raw materials, such as solvent extraction, ultrasound-assisted extraction, pressurized-liquid extraction, supercritical fluid extraction and resin-based extraction. These extraction methods are characterized by some drawbacks, including the degradation of the target compounds due to high temperatures and long extraction times (as in solvent extractions) and health related risks. Membrane operations are recognized as powerful tools for the purification and concentration of various solutions (e.g., juices, extracts and whey) and the separation of valuable compounds from different food matrix. This study was aimed at developing a sustainable process for the purification of natural antioxidants from Goji berries and leaves. This process is based on the combination of an aqueous extraction with membrane operations in order to avoid the use of organic solvent or adsorbents. The aqueous extraction was studied in order to obtain the maximum yield of phenolic compounds. At this purpose, different parameters such as the extraction time and temperature, the pH and the solid/liquid ratio, were optimized. Aqueous extracts were processed through membrane operations, such as ultrafiltration (UF) and nanofiltration (NF), in order to evaluate the overall bioactivity of fractionated extracts in comparison with that of the unprocessed extracts.

Biography

Conidi Carmela has completed her PhD from University of Calabria and the Institute on Membrane Technology, ITM-CNR. She has completed her Post-doctoral studies from Instituto de Ingenieria de Alimentos para el Desarrollo, Universitat Politècnica de València, Spain. She is a Post-doctoral Researcher at the Institute of Membrane Technology of CNR, where she is involved in different research activities devoted to the purification and concentration of antioxidant compounds in products and byproducts of food processing. She has published more than 30 papers in international journals.

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