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Encapsulation of polyphenols from grape marc extracts using different natural carriers

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Europe is the world leading producer of wine and grape must, representing 60% of the world production. The wine-making process generates large amounts of by-products such as grape seeds and skins which are rich in polyphenols with strong antioxidant properties that are interesting from a chemical, pharmaceutical and biological viewpoint. The incorporation of these natural substances into cosmetics, food, or pharmaceutical products represents an interesting market opportunity for wine producers that could lead to sustainable growth and development of the sector. The Wine Sense project, focused on researching extraction and formulation intensification processes for natural actives of wine, is part of the Marie Curie Industry-Academia Partnerships and Pathways (IAPP) projects granted by the EU to promote partnership and collaboration between business and academia. Part of the WineSense project is to study the most suitable formulation techniques that can be applied to grape polyphenols in order to increase their bioavailability and resistance to degradation. A simple yet efficient method is spray drying, widely used in industry for this type of compounds. In this work, a grape marc extract obtained by traditional solid-liquid extraction was spray dried under different operational conditions (inlet and outlet temperature, carrier-to-solids ratio, atomization pressure) and using three different natural carriers (maltodextrin, whey protein and pea protein). The products obtained have been characterized according to their morphology (particle size), composition (chromatographic analyses, encapsulation efficiency) and activity (antioxidant activity, cytotoxicity, cellular antioxidant activity).

Biography

Teresa Moreno is a Marie Curie Post-Doctoral Fellow at High Pressure Research Group in the Department of Chemical Engineering and Environmental Technology, School of Industrial Engineering, University of Valladolid, Spain

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