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Characterization of the bioactive properties of natural extracts containing betalains

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The search for food ingredients that achieve the dual objective of providing optimal organoleptic characteristics and recognized health properties has become a priority for the food industry. A family of compounds that meets this duality is the betalains, water soluble pigments belonging to plants of the order Caryophyllales. They can be classified as either betacyanins or betaxanthins. Betacyanins contain cyclo-DOPA (usually glycosylated) and exhibit a violet coloration and betaxanthins contain different amino acid or amine side chains and exhibit yellow coloration. Betalains give color to flowers of a great variety of plant genera and they are also present in edible sources like beet root (*Beta vulgaris*) and cactus pear (*Opuntia*). Recently, strong bioactive properties have been described for betalains. These include a high antioxidant and free radical scavenging activities that support their chemopreventive potential against different types of cancer. Despite all these advantages, the use of betalains as food additives with high functional capacity has not been extensively considered by the food industry. This is in part due to their instability and to the limited number of studies dedicated to their purification. This work describes the extraction and purification of betanidin (betacyanin) from violet flowers of *Lampranthus productus*. The pigment exhibits high free radical scavenging and antioxidant activities. These bioactive properties were retained when betanidin was encapsulated in maltodextrin by using an appropriate spray drying procedure. Betanidin stability was followed by HPLC and it was highly promoted by encapsulation with limited pigment loss after six months' storage.

Biography

Mercedes Jimenez-Atienzar was trained as a Biochemist at the Department of Biochemistry and Molecular Biology of the University of Murcia, Spain. She has completed her PhD in 1983 and since then she has been working in Plant Biochemistry and has publications in national and international journals. Currently, her research project combines different approaches and multiple techniques to study the functional capacity of a family of bioactive plant compounds; the betalains.

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