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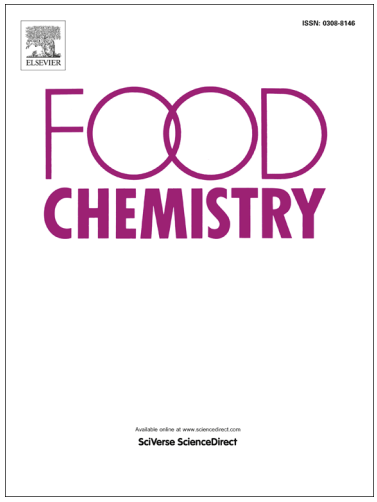

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Spray drying microencapsulation of betalain rich extracts from *Escontria chiotilla* and *Stenocereus queretaroensis* fruits using cactus mucilage

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Abstract

In this work the capacity of O*puntia ficus indica* mucilage as a wall agent in the microencapsulation of *Escontria chiotilla* and *Stenocereus queretaroensis* pulp and skin pigments through a spray drying process was studied. The acidified mucilage was used as an extracting medium for betalains present in the skin of these fruits. The shear-thinning behavior of the mucilage-betalain solutions was suitable for spray drying, wherein microcapsules with smooth and spherical morphologies were observed by SEM and characterized by FTIR. Additionally, microcapsules of mucilage achieved the retention of betalains at more than 90 % after three months of storage. The colors obtained from the redissolution of the powders from skin and pulp samples do not present significant differences; therefore, the use of skin fruits can be a source of colorants, taking advantage of waste from other processes, promoting a culture of the use of environmentally-friendly technologies.

Keywords: jiotilla (*Escontria chiotilla*), pitaya (*Stenocereus queretaroensis*), mucilage, spray drying, microencapsulation, betalains