

## Accepted Manuscript

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

Soto-Castro Delia, Gutiérrez Miguel Chávez, M. León-Martínez Frank, Santiago-García Patricia Araceli, Aragón-Lucero Irais, Antonio-Antonio Franco

PII: S0308-8146(18)31471-7  
DOI: <https://doi.org/10.1016/j.foodchem.2018.08.069>  
Reference: FOCH 23410

To appear in: *Food Chemistry*

Received Date: 3 April 2018  
Revised Date: 13 August 2018  
Accepted Date: 16 August 2018

Please cite this article as: Delia, S-C., Chávez, G.M., León-Martínez Frank, M., Araceli, S.P., Irais, A-L., Franco, A-A., Spray drying microencapsulation of betalain rich extracts from *Escontria chiotilla* and *Stenocereus queretaroensis* fruits using cactus mucilage, *Food Chemistry* (2018), doi: <https://doi.org/10.1016/j.foodchem.2018.08.069>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



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

Soto-Castro Delia<sup>\*a</sup>, Gutiérrez Miguel Chávez <sup>\*a</sup>, León-Martínez Frank M.<sup>b</sup>, Santiago-García Patricia Araceli <sup>b</sup>, Aragón-Lucero Irais <sup>b</sup> and Antonio-Antonio Franco<sup>b</sup>

<sup>a</sup> CONACyT-Instituto Politécnico Nacional, CIIDIR Unidad Oaxaca, Hornos 1003, Santa Cruz Xoxocotlán, Oaxaca, C.P. 71230, México.

<sup>b</sup> Instituto Politécnico Nacional, CIIDIR Unidad Oaxaca, Hornos 1003, Santa Cruz Xoxocotlán, Oaxaca, C.P. 71230, México.

\* Corresponding author, e-mail: dsotoca@conacyt.mx, michavezg@ipn.mx

Phone number: +52 951 517 0610 Ext. 82740

**Abstract**

In this work the capacity of *Opuntia 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

Download English Version:

<https://daneshyari.com/en/article/11005658>

Download Persian Version:

<https://daneshyari.com/article/11005658>

[Daneshyari.com](https://daneshyari.com)