

Effect of *Opuntia ficus-indica* mucilage in the ecological extraction, drying, and storage of eggplant anthocyanins

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First published: 06 September 2017

<https://doi.org/10.1111/jfpp.13439>

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Funding information Consejo Nacional de Ciencia y Tecnología, Grant/Award Number: 251504 and 264110

Abstract

In this study, *Opuntia ficus-indica* mucilage was evaluated as a protecting agent of anthocyanins from *Solanum melongena* L. by spray drying. The performance of mucilage as a protectant was evaluated using the ratio of the percent of Radical Scavenger Activity (RSA) to the concentration of anthocyanin [C]. The results showed that, in presence of mucilage, after 4 months the %RSA/C was preserved in 73% of wet samples and in 64% of spray dried samples, compared to wet samples without mucilage, where %RSA/C preserved was 30%. Additionally, it was found that acidified mucilage (0.4%) could be used as a viable extracting and encapsulating agent, thereby avoiding the use of organic solvents and the generation of associated residues. Also, the acidification modified the rheological behavior of mucilage from non-Newtonian to Newtonian, improving the spray drying process and preserving the %RSA/[C_A] in 96% of samples after drying. Microcapsules observed by SEM showed a worm-like morphology.

Practical application

Acidified mucilage as an ecological extraction medium can be widely recommended due to its dual effect of preserving the antioxidant activity of the anthocyanins present in eggplant