

Stability in betalains from tuna pulp (*Opuntia boldinghii* Br. et R.) submitted to a lyophilization process

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Abstract

In this research, the chemical stability of betalainic pigments present in the lyophilized pulp obtained from *Opuntia boldinghii* Br. et R fruits was evaluated. Fruits harvested in Montalbán, Carabobo state, Venezuela (July 1999), were sampled according to the following criteria: consumption maturity, homogeneous red color, absence of deterioration traits. 100.0 ± 0.1 of pulp were lyophilized in a MLW LGA-05 lypholizer under the following experimental conditions: time process 12 h, manometric pressure 9331 N/m^2 , chamber temperature $-20 \text{ }^\circ\text{C}$ and plate temperature $20 \text{ }^\circ\text{C}$. A totally random design with three repetitions was applied. Visible absorption spectrum evaluations (400-580 nm) and determination of betacyanin ($E^{1\text{cm}} 1\%: 1120 \text{ L mol}^{-1} \text{ cm}^{-1}$) pigment at 30, 60 y 90 days were effectuated. The pulp characteristics were: °Brix 10.0, pH 4.93 and acidity 0.038 g of citric acid /100 g of pulp. The lypholized pulp showed maximum absorbance at 537 nm. Bactochromic shift was not observed. The changes in betacyanin concentration (0.05 - 0.08 g/L) were not significant ($P < 0.05$). The betalains useful life time was improved with the lyophilizing process applied to the pulp, and it was greater to 90 days.

Key words: *Opuntia*, betalains, lyophilization, tuna, pigments.

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