

MICROENCAPSULATION OF ANTHOCYANINS BY SPRAY DRYING.

Diana Behnsilian¹, Christian Amthauer², Rodrigo Bórquez²

1 Department of Food Technology and Bioprocess Engineering, Max Rubner-Institut, Karlsruhe, Germany.

2 Department of Chemical Engineering, University of Concepción, P.O. Box 160, Correo 3, Concepción, Chile.

Aronia melanocarpa berries, very rich in polyphenolic compounds, are usually processed to juice. Preliminary studies showed that the anthocyanins contained in the juice present a first order degradation kinetic, with a half-life of 65 days at a storage temperature of 22 °C.

Aiming at an enhanced stabilisation of the anthocyanins, spray drying was used for the microencapsulation of the Aronia berries juice solids (AS).

Maltodextrines (DE 9 – 20) and gum arabic were used as carriers. The feeding solutions ($AS \leq 0.5 \text{ g/g}_{\text{db}}$) were dried with a Mini-Spray dryer B290 (Büchi, Switzerland) using nitrogen as atomisation and drying gas and inlet gas temperatures of 140, 180 and 220 °C. The viscosity of all feeding solutions exhibited a Newtonian behaviour, with values ranging from 4.4 mPa s to 56.0 mPa s.

The dried products were amorphous powders, presenting spherical geometry (SEM) with a mean diameter ranging from 6 to 12 μm (SLS). The particle density (gas pycnometer) showed values ranging from 0.9 to 1.4 g cm^{-3} and the specific surface area (BET) from 0.9 to 1.8 $\text{m}^2 \text{g}^{-1}$. Both parameters exhibit a clear dependency with the drying temperature. No degradation of the anthocyanins was detected during the spray drying, independent of the drying temperature. The microcapsules showed no significant anthocyanin degradation during storage at 22°C even after 17 weeks.

Microencapsulation using spray drying was shown to be a successful process for the stabilisation of the anthocyanins contained in the juice of Aronia berries. The anthocyanins rich microcapsules are intended as food ingredients.



16th IUFoST

World Congress of Food Science and Technology

XVII Latin American Seminar of Food Science and Technology - ALACCTA

Addressing Global Food Security and Wellness through Food Science and Technology

August 5 - 9, 2012 Foz do Iguaçu, Parana State, Brazil

[Homepage](#)

[Book of Abstracts](#)

[Committees](#)

[Sponsors](#)

[Scientific Program](#)

[Speakers and Session Chairs](#)

[Abstract Reviewers](#)

[Young Scientist Awards](#)

[Global Food Industry Awards Panel](#)

[Media Center](#)

[Contact Us](#)

[News](#)

[NanoAgri-Food 2012](#)

[Venue](#)

[About Brazil](#)

[About Foz do Iguaçu](#)

[General Information](#)

[Online Registration](#)

BOOK OF ABSTRACTS

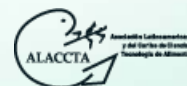


ISSN 2304-7992 World Congress of Food Science and Technology



[Back to Top ↑](#)

Congress Organizers



Support



SCIENTIFIC PROGRAM

Take a look at the program

EXHIBITION AREA

Get in touch with cfacc@ubmbrazil.com.br

IMPORTANT DATES

Verify the important dates

INFORMATION

congress2012news@iufost.org.br