



XXIV CONGRESSO BRASILEIRO DE CIÊNCIA E TECNOLOGIA DE ALIMENTOS



XXIV CONGRESSO DO INSTITUTO NACIONAL DE
CIÊNCIA E TECNOLOGIA DE FRUTOS TROPICAIS

25 a 29 de setembro de 2014 - Centro de Convenções - Aracaju - SE - www.xxivcbcta.com.br

Extraction and evaluation of stabilizing on color property of betalin beet for use as a natural food coloring

Carlos Ruan Vieira de Sousa¹, Roselyne Ferro Furtado², Sarah Maria Frota Silva¹, Camila Mota Martins¹, Maria do Socorro Rocha Bastos² and Selene Dalila Benevides^{2*}

¹Universidade Federal do Ceará/Engenharia de Alimentos
60020-181-Fortaleza-CE, Brazil

²Laboratório de Embalagens de Alimentos/Embrapa Agroindústria Tropical
60511-110-Fortaleza-CE, Brazil

selene.benevides@embrapa.br

Abstract

Color is one of the quality attributes that attracts the consumer. The betalains are pigments found in the tissues of the beet family of Chenopodiaceae, and has no toxic effect on the human body, it becomes a natural and safe alternative to replace synthetic dyes. The betalains are natural antioxidants responsible for the red color beet and include two classes of pigments: the betacyanins and betaxantins. In the present study, we evaluated the aqueous extraction Betalin pigment and the stabilizing influence of citric acid on the property of changing color inherent in the betalains against pH changes. The concentration of betalin extract was obtained by spectroscopy at wavelengths of 476 nm and 538 nm, corresponding to betaxantin and betacyanin, respectively. The extract was divided into two groups, without and with citric acid at 400 mg/L. Then the samples were lyophilized and stored at room temperature in a desiccator. In order to evaluate the property of color changing of betalains after 60 days, the lyophilized pigment was diluted with water at a ratio of 0.03% (w/v) and the solutions adjusted to pH 2.5, 6.6 and 9.6 (with citric acid 1M and NaOH 1M). Subsequently, the solutions were analyzed on a Minolta Hunter Lab colorimeter. The concentration average of betalin obtained by aqueous extraction was 0.45 ± 0.06 mg/g. At alkaline pH it was observed that the addition of citric acid attributed to the greater stability betacyanin pigment evidenced by the value of the color parameter a*, in contrast was found in the acid pH. Already in pH 6.6 the acid addition showed no difference in the color of the solution indicating no change in the stability of the pigment. The influence of the stabilizer on the red color betalin was positive only in pH of the alkaline solution.

Keywords: Pigment, citric acid, stability