ABSTRACT

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COPIGMENTATION OF ANTHOCYANIN FROM BUTTERFLY PEA (*Clitoria ternatea* L.) USING CHITOSAN AND XANTHAN GUM
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Butterfly pea (*Clitoria ternatea* L.) is a natural source of anthocyanin pigment, which has the potential to be utilized as natural food colorants. The utilization was still limited and not widely used due to the instability of the anthocyanins at improper storage condition, such as certain pH and temperature. The aim of this research was to determine the best type of copigments (xanthan gum, chitosan, and combination of xanthan gum and chitosan) and ratio of copigment (1:50 and 1:100), and to determine the effect of pH and temperature on the stability of butterfly pea anthocyanin extract. Xanthan gum with the ratio of 1:100 was selected as the best copigment treatment by the increase of color intensity with an absorbance value of 2.202 ± 0.03, lightness (L*) value of 43.67, chroma (C*) value of 11.65, purple colored, total anthocyanin content of 1.67 ± 0.06 mg/g extract, and antioxidant activity of 16.88 ± 1.08 mg AAE/g extract. Thin layer chromatography showed that the copigmented extract contained cyanidin-3-glucoside and delphinidin-3-glucoside. The copigmented extract was tested for its stability at pH of 2, 4, 6, and 8, and at temperature of 25ºC, 40ºC, 55ºC, 70ºC, and 85ºC. At various pH conditions, xanthan gum (1:100) was able to stabilize anthocyanin pigments up to pH 4, with color intensity (1.238 ± 0.03), total anthocyanin content (2.08 ± 0.07 mg/g extract), and antioxidant activity (6.76 mg AAE/g extract). At various temperature, xanthan gum (1:100) able to withstand the temperature of 55ºC, with color intensity (2.184 ± 0.01), total anthocyanin content (1.65 ± 0.05 mg/g extract), and antioxidant activity (8.42 mg AAE/g extract).

Keywords: anthocyanin, butterfly pea, copigmentation, xanthan gum, chitosan
Reference: 74 (2005-2023)