ABSTRACT

THE EFFECT OF TANNIN AND GALIC ACID COPIGMENTS ON COLOR OF TAMARILLO JUICE (*Cyphomandra betacea* Sendtn)

By

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Tamarillo juice contains anthocyanin of delphinidin-3-rutinosida. Anthocyanins show low stability during thermal processing and storage. Copigmentation has been suggested producing stronger and more stable color. The aim of this research was to determine type and molar ratio of copigments (tannin and galic acid) to anthocyanin which most stabilized the color of tamarillo juice (*Cyphomandra betacea* Sendtn). This research was conducted using Completely Randomized Factorial Design with 2 factors. The first factor was the type of copigments (K); tannin (K1) and galic acid (K2). The second factor was the ratio molar of copigments to anthocyanin (R); Control (R0), 50 (R1), 100 (R2), and 150 (R3). Data obtained were analized using Analysis of Variance (ANOVA) and continued by Least Significant Difference (LSD) at 5% level. The copigmented juice showed that there was no bathochromic effect but showed hyperchromic. Copigmentation with tannin and galic acid was able to maintain the concentration and color retention of anthocyanin, indicated by higher concentration and color retention of anthocyanin of copigmented juice than that of control. However,

concentrations of anthocyanin juice were significantly affected by molar ratio of copigments to anthocyanin. Furthermore, the molar ratio of 100 produced the best color retention (65,70%). Kinetic reaction parameters of copigmented juice indicated that galic acid was a more effective copigment indicated by lower value of kinetic constant (0,055 mM/hour) and longer half time (12,60 hours) at molar ratio of copigment to anthocyanin of 100.

Keywords : copigmentation, anthocyanin, tannin, galic acid, *Cyphomandra betacea* Sendtn