

Effect of Xanthan gum and Homogenization on the Stability of Palmyrah (*Borassus Flabellifer* L.) Ready to Serve Drink

S. A. Datchian¹, N. Sobini^{2*}, W. A. J. P. Wijesinghe¹, S. Mathumai¹, S. Srivijeindran²

¹Department of Export Agriculture, Uva Wellassa University, Sri Lanka

²Palmyrah Research Institute, Kaithady, Jaffna, Sri Lanka

Abstract

Palmyrah (*Borassus flabellifer* L.) fruit pulp is widely utilized in the production of many value - added products. The problem identified in the production of Palmyrah ready-to-serve drink (RTS) is layer separation and sedimentation during storage. Hence this study was conducted with the intention of producing a customer appealing product with the optimization of stabilizer (xanthan gum) and homogenization process. The concentration of xanthan gum (0.1%, 0.2%, and 0.3%) and application of homogenization (homogenization at 10,000rpm for 3 minutes, without homogenization) were selected as the two factors in the experimental design. The effect of different treatments on the physical properties (sedimentation height, turbidity, viscosity and color) of the RTS was studied with the storage period. The best treatment was selected based on the sensory evaluation. According to the experimental results, sedimentation was not observed during the storage period of 30 days for the homogenized and non-homogenized RTS with xanthan gum (0.3%). Increasing concentration of xanthan gum and the application of homogenization significantly ($p < 0.05$) increased the viscosity (3.55-124.30mm²/s) and turbidity (37.25-778.65NTU) of RTS. Applying xanthan gum decreased the L* value, and slightly increasing the a* value and drastically increasing the b* value. Hence, it can be suggested that adding of xanthan gum helps to maintain the homogeneity and stability of the carotenoid compounds in the RTS. Homogenized RTS with the inclusion of 0.3% xanthan gum was selected with overall acceptability based on the sensory evaluation. In conclusion, the application of xanthan gum and the homogenization process improved the stability of RTS.

Keywords: Homogenization, Palmyrah, Ready to serve drink, Stabilizers, Xanthan gum

*Corresponding author E-mail: sobinithi30@gmail.com