TECHNICAL EVALUATION AND STANDARDIZATION OF COCONUT WINE PRODUCTION

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ABSTRACT

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Coconut wine is an alcoholic beverage known for its potency (80 or 90 proof variations) that rises up out of the sap of the unopened "flower" of the coconut.The coconut wine industry has been present for a long time, but technical evaluation and standardization has not been incorporated in their processes. Therefore, the study aimed to conduct a technical evaluation on coconut wine production and recommend proposals for standardization. The study utilized the experimental method of research. Define-Measure-Analyze-Improve-Control (DMAIC) methodology was used to explain the step by step procedures performed to propose a standard process for coconut wine production.

The study covered five coconut wine distilleries in Liliw, Laguna. Most of these distilleries are in the business for about four decades.Based on the distillery owner's years of experience and on the technical evaluation made during the coconut wine production processing, the fermentation days of coconut sap usually ranges from 3 to 5 days, the hours of cooking at from 7 to 9 hours, and the cooking temperature from 200-300°C to 400-500°C. Fermentation days of coconut sap, cooking hours, and cooking temperature served to be the experimental factors of the study.

The design was laid in a 3 x 3 x 3 factorial experiment using a complete randomized design with the aid of the Design of Experiment (DoE). The computer software generated the random sequence of 27 experimental run, performed with 3

replicates per factor combination. Each experimental runs was tested in terms of the quality parameters pH level, Total Soluble Solids (TSS), and Titratable Acidity (TA) as it can be used as basic quality specifications related to coconut wine.

The researchers used two-way ANOVA to determine whether each main effect and the interaction are statistically significant to the given parameters.Test of between-subject and effects table shows that the three experimental factors significantly affect (p-value < 0.000) the pH level, TSS, and TA of the coconut wine.

The recommended value of each factors were identified using model graph of significant effects. The results show that 3 days of fermentation of coconut sap, eight hours of cooking, with a temperature of 300-400°C, are the recommended values for each experimental factor that produces a good quality of coconut wine (80-90 proof).

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