

Piyarat Poolpun 2014: The Study of Quality Improvement of Coconut Sap.
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Coconut sap is obtained by tapping the inflorescences of the coconut palm. It is an important raw material for coconut sugar that has been used in Thai foods, desserts and beverages. Hence, this research studies and analyzes the supply chain of coconut sap production of a case study using SCOR Model. The result shows that the quality of coconut sap is deteriorated during harvest and delivery to the factory. Hence, we study the factors affect the quality of coconut sap. First, we study the relationship of total plate count, pH and total soluble solid so that we can reduce the cost and time to measure the total plate count. Second, we implement the Taguchi method to screen the factors and the appropriate level affecting the coconut sap quality. Then, we design $L_9(3^3)$ Orthogonal Array which consists of three factors of three levels i.e. temperature during handing, types of washing water for a sap container and types of preservative. Next, we measure pH and total soluble solid at 4 and 8 hours after harvest. We found that levels of factors can be reduced to two to reduce cost and time. Next, we implement 2^3 Factorial design and measure physical and chemical properties by the quantity of bubbles, pH and total soluble solid at different time intervals. The result after 10 hours measurement shows that the temperature and type of preservatives significantly affect the pH whereas the three factors do not significantly affect the total soluble solid of coconut sap. Then, we propose the best practices for farmers and the manufacturer. If the pickup schedule is more than 4 hours, then the farmers should handle coconut sap below 10°C and used Payom woodship as a preservative. Otherwise, the pickup schedule should be done within 4 hours after harvest.

Student's signature

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