

IDENTIFICATION OF SOLID LOSING POINTS AND QUANTIFICATION OF TOTAL SOLID LOSS

A dissertation submitted to the

Faculty of Animal Science and Export Agriculture

Uva Wellassa University

In partial fulfillment of the requirements for the award of
Bachelor of Science in Palm & Latex Technology and Value Addition

By

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**Palm & Latex Technology and Value Addition Degree
Programme**

Faculty of Animal Science and Export Agriculture

Uva Wellassa University of Sri Lanka

2018

ABSTRACT

Coconut milk powder is a water dispersible solid obtained by drying an aqueous extract of coconut (*Cocos nucifera*) kernel and it is a substitute to coconut milk which makes cooking convenient. A Sri Lankan coconut milk powder production plant equipped with spray drying technique is experiencing a problem of losing solids during its production process. Therefore, this case study was carried out to identify the solid losing points and to quantify solid loss during the manufacture of coconut milk powder. Solid contents in raw materials, intermediates and final product were measured and solid loss from each step was calculated. Daily waste generation was recorded. Accuracy of tote bin scale set point and flow meters was investigated by checking the deviation between set point and actual quantity in several trials. The human errors in total solid analysis, rework bagging and plunging process were identified by monitoring working behavior of employees. Accuracy of total solid, fat and moisture analyzers was determined by analyzing previous calibration data. Number of sample taken and their weights were recorded for a period of three months and sampling loss was estimated. Average total solid loss quantified through this study was 0.52%. In conclusion, waste generation, sampling loss and human errors were identified as the major causes for total solid loss. Standardizing the unloading process using flushing water in a predetermined constant temperature and pressure for a constant time, reducing waste generation and sustaining through attitude development, displaying posters, training on correct methods of rework bagging, plunging and total solid analyzing, standardizing the required sample quantity, defining the sampling points and using instrument calibration data tracking tools can be recommended to reduce solid loss in commercial scale coconut milk powder production processes.

Key words - Coconut milk powder, Spray drying, Total solid loss