ABSTRACT

Rapid determination of total solids in coconut milk prior to standardization of raw materials is important in the aspect of quality control in the manufacturing process of coconut milk powder. As reference methods, standard sand solid method and mojonnier method are used to estimate total solid content in coconut milk. However, both methods are time consuming. HR73 Halogen Moisture Analyzer is a device, which uses the thermogravimetric principle and operates with a halogen dryer unit which ensures fast heating of the sample and guarantees rapid availability of the measured results (Mettler Toledo, 1999). Since this is a novel equipment it is necessary to calibrate and validate it prior to its effective usage. The objective of this study was to find a suitable time and temperature combination to calibrate and to validate Halogen Moisture Analyzer with reference to mojonnier method to estimate total solid content in coconut milk.

One hundred and eighty samples of coconut milk were selected randomly and total solid content of them were analyzed by both mojonnnier method and Halogen Moisture Analyzer. Five time and temperature combinations were selected to calibrate Halogen Moisture Analyzer. The data were recorded and analyzed by linear regression analysis using Ester software.

The obtained correlation coefficient (R) values between total solid content of coconut milk assessed by mojonnier method and Halogen moisture analyzer were 0.9620, 0.9510, 0.9970, 0.8880 and 0.9360 respectively for 130°C/5, 130°C/5.30, 135°C/5, 137°C/5 and 140°C/5minutes combinations. In calibration, use of 135°C/5minutes combination showed the highest correlation coefficient value (0.9970) with 0.1210 residual standard deviation. In validation, the obtained correlation coefficient value and residual standard deviation was 0.9979 and 0.1263 respectively. Calibration and validation of Halogen Moisture Analyzer at 135°C for 5 minutes had obtained the correlation coefficient values and standard deviations which were close to each other.

In conclusion use of 135°C/5 minutes was selected to calibrate Halogen moisture Analyzer to determine total solid content in coconut milk. Also use of Halogen Moisture analyzer is three times faster than mojonnier method.

Key words: Halogen Moisture Analyzer, mojonnier method, calibration, validation