

The Study of Spray Drying Process for Skimmed Coconut Milk

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Abstract : Coconut (*Cocos nucifera*) belongs to the family *Arecaceae*. Coconut juice and meat are consumed as food and dessert in several regions of the world. Coconut juice contains low proteins, and arginine is the main amino acid content. Coconut meat is the endosperm of coconut that has nutritional value. It composes of carbohydrate, protein and fat. The objective of this study is utilization of by-products from the virgin coconut oil extraction process by using the skimmed coconut milk as a powder. The skimmed coconut milk was separated from the coconut milk in virgin coconut oil extraction process that consists approximately of protein 6.4%, carbohydrate 7.2%, dietary fiber 0.27 %, sugar 6.27%, fat 3.6 % and moisture content of 86.93%. This skimmed coconut milk can be made to powder for value - added product by using spray drying. The factors effect to the yield and properties of dry skimmed coconut milk in spraying process are inlet, outlet air temperature and the maltodextrin concentration. The percentage of maltodextrin content (15, 20%), outlet air temperature (80 °C, 85 °C, 90 °C) and inlet air temperature (190 °C, 200 °C, 210 °C) were conducted to the skimmed coconut milk spray drying process. The spray dryer was kept air flow rate (0.2698 m³ /s). The result that shown 2.22 -3.23% of moisture content, solubility, bulk density (0.4-0.67g/mL), solubility, wettability (4.04 -19.25 min) for solubility in the water, color, particle size were analyzed for the powder samples. The maximum yield (18.00%) of spray dried coconut milk powder was obtained at 210 °C of temperature, 80°C of outlet temperature and 20% maltodextrin for 27.27 second for drying time. For the amino analysis shown that the high amino acids are Glutamine (16.28%), Arginine (10.32%) and Glycerin (9.59%) by using HPLP method (UV detector).

Keywords : skimmed coconut milk, spray drying, virgin coconut oil process (VCO), maltodextrin

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