

Saowakon Chayawiwattanawong 2007: The Production and Shelf-Life Study of Reduced Fat Sweetened Condensed Coconut Milk from By-Products of Virgin Coconut Oil Production. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Associate Professor Sukoncheun Sringam, Ph.D. 99 pages.

The production of virgin coconut oil (VCO) have protein by-products; protein 1 (insoluble protein), protein 2 (soluble protein) and skim milk 2 (supernatant from protein 2 precipitation) which contain 36.95, 9.21 and 0.64% protein, respectively. The mass proportion ratio of protein 1, protein 2 and skim milk 2 is 1: 3.25: 49.62. In this research, suitable formula of ready to eat reduced fat coconut milk and preparation of reduced fat sweetened condensed coconut milk from by-products of virgin coconut oil production were investigated. Mixing all by-products and concentrated coconut milk (17% fat) at different ratios resulted in increased viscosity and lightness with increasing protein content, and increased viscosity but not lightness with increasing concentrated coconut milk content. The overall preference liking score of formula consisting of 3.15% protein 1, 10.25% protein 2, 71.60% skim milk 2, 15% sugar and 0% concentrated coconut milk was closed to moderately like, without significant difference from other formulas. The formula was then used for preparation of reduced fat sweetened condensed coconut milk. From the experiment, it was found that glycerol was the most capable in reducing the a_w of reduced fat sweetened condensed coconut milk followed by sorbitol and glucose. Adding 7% of glycerol and water evaporation reduced a_w from 0.887 to 0.826 closed to a_w of 0.82 of commercial sweetened condensed milk. The overall liking score was slightly like which was not different from the one with no glycerol added. Shelf lives at accelerated temperature of 40 and 50°C were studied using the overall liking score at 6 as an expiration criteria. It was predicted that shelf-life of reduced fat sweetened condensed coconut milk at room temperature (30°C) was 345 days.

Saowakon Chayawiwattanawong
Student's signature

S Sringam
Thesis Advisor's signature

24 / Oct / 2007