

Patcharee Kittimaitri 2012: Development of Reduced Cholesterol Chiffon Cake with High Gamma-Oryzanol Rice Bran Oil. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development. Thesis Advisor: Associate Professor Hathairat Rimkeeree, Ph.D. 181 pages.

In this research, a reduced cholesterol chiffon cake with high gamma-oryzanol rice bran oil was developed. The market surveys provided that almost all of chiffon cakes in the market had a pandan flavor and no identification of vegetable oil and no chiffon cake selling in the health shops. The data of the focus group and survey of behavior and needs can be concluded that the product concept was pandan flavor, good aroma, smooth and soft texture, less cholesterol, and containing high gamma-oryzanol rice bran oil. The net weight was 100 g. The cake would be cut into rectangular pieces and packed in a plastic box with a transparent lid and a base with labeled product details. The price was 30 baht and it was suitable for consumers in the age range of 25–50 years old or health-caring consumers. The studies performed by increasing the rice bran oil and reducing the egg yolk showed that cakes obtained from the ratio of rice bran oil to egg yolk 70:30, 80:20 and 90:10 (The summation of the rice bran oil and the egg yolk was 21% of the entire recipe) had the same firmness as the control (60:40) but that of the 100:0 formula was higher. All of the chiffon cakes were subjected to the affective test. The results showed the optimum formula was 80:20. The color was light green. L* a* b* values were 71.57, -6.63 and 35.33, respectively. The specific volume was 3.19 cm³/g. The firmness was 1.32 N. The 100 g chiffon cake contained 23.89 mg of cholesterol and 170 mg of gamma-oryzanol (measured by spectrophotometer technique) and the shelf-life was 2 days. The test for *Aspergillus flavus* inhibition of rice bran oil and soy bean oil containing at least gamma-oryzanol 8,000 ppm by contact assay method showed no inhibition. Finally, the acceptability test of 200 consumers indicated that target consumes liked the developed chiffon cake at the level of liked moderately to liked very much. The consumers accepted and would have been willing to buy the product at 96% and 76.5%, respectively.

Student's signature

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