

Janchay Amornyingcharoen 2007: Reduced-Calorie Biscuit from Hairy Basil Seeds Mucilage Powder. Master of Home Economics, Major Field: Home Economics, Department of Home Economics. Thesis Advisor: Assistant Professor Kanidta Poonpolkul, M.S. 160 pages.

Hairy Basil seeds are a good source of dietary fiber that can be used in reduced-calorie food products as new choice for the consumer, 80% of the total dietary fiber content is of which, comes from dried hairy basil seeds. Therefore, this research studied the process of hairy basil seeds mucilage powder, to produce reduced-calorie biscuit. From dried hairy basil seeds we get 29.6% by wt of the hairy basil seeds mucilage powder. The water absorption value is 80.10 ml/g. The nutritional value of 100 g of the mucilage powder is as follows: 217 kcal of energy, 79.86 g of dietary fiber, 35.42 g of crude fiber, 48.46 g of carbohydrate, 3.05 g of protein, 1.26 g of Fat, 5.85 g ash, and 5.96 g of moisture. The values of L^* , a^* and b^* were 60.92, 3.97 and 13.98 respectively and a_w value was 0.45.

The basic formula biscuit was substituted with 20% mucilage powder by wt of wheat flour and 30% of the total weight of fat with maltodextrin. The nutritional value of 100 g of the biscuit composed of 355 kcal of energy, 14.85 g of dietary fiber, 9.42 g of crude fiber, 66.60 g of carbohydrate, 9.43 g of protein, 5.62 g of fat, 3.97 g of ash and 4.96 g of moisture. The value of L^* , a^* and b^* were 54.24, 10.99 and 26.27 respectively and the hardness was 5.58 N. The comparison of energy between the basic formula biscuit and the new formula found that the new formula can reduced energy 25.24% and the cost of the new formula biscuit is 0.27 Baht/1 piece(5 g) which is a higher than the basic formula which was 0.07 Baht. The sensory acceptant testing of the 150 consumer was in the range of very like to medium like and the water absorption was 23.08 ml/g(25^o C)

Shelf life study of the reduced-calorie biscuit for 2 months, quality was checked every 2 weeks it was found that the hardness value was in range 3.83-5.58 N, a_w value was in range 0.51-0.66, L^* , a^* and b^* value were in range 46.28-52.16, 8.70-9.53, 24.33-27.33 respectively, TBA value was 3.83 mEq/kg which could be accepted, Microbiologic testing was found the total amount of microbes was $< 10^4$ CFU/g, while yeast and mold were < 10 CFU/g. Biscuits could be kept for 2 month. The sensory acceptant testing was in range of not tell as acceptant or not acceptant up to much acceptant. The biscuit had rancid smell when kept for a longer time, sweet taste and crispness of product were reduced with shelf life.

Student's signature

Thesis Advisor's signature

