

Mayurachat Natvaratat 2007: Development of Supplementary Protein Milk Tablet for Rural School Children. Doctor of Philosophy (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development. Thesis Advisor: Associate Professor Penkwan Chompreeda, Ph.D. 143 pages.

Milk tablet is product of Royal Chitralada Projects aimed to encourage more dairy consumption by Thai children. This study was conducted to developed milk tablet with high nutritive value from milk and egg for rural school children under Her Royal Highness Princess Maha Chakri Sirindhorn's Project. Consumer surveys were conducted to investigate attitudes of school children toward milk products and flavoring using star picture 9-point hedonic scale. Results showed that school children preferred milk tablet and strawberry flavor. Therefore, milk tablet with strawberry flavor was chosen for prototype product. Dried egg yolk (DEY) composed of 35% rice flour and 65% egg yolk was used in formulation to obtain specified nutritive values of the tablet. Mixture design and linear programming were employed to formulate product to obtain maximize protein and energy, minimize sugar and cost. The formulation must accept by school children and compatible with processing facilities at the Royal Chitralada Projects. Main ingredients for the tablet consist of whole milk powder, dried egg yolk powder (DEY) and sugar. The optimum formula consists of 25%DEY, 55% milk powder, 15% sugar, 0.4% cab-o-sil, 1% talcum, 3.5% comprecel and 0.1% strawberry flavor. One serving of the high nutritive value milk tablet contained 20 tablets which provide energy of 100 kilocalories, 3 g protein and 4.5g of fat which higher than the regular formulation. Consumer test was conducted with 50 school children at Nan Province using star picture 9-point hedonic scale. Result revealed that the product was accepted by those school children. They rated overall liking as "like very much" (8.8 score from 9). Shelf-life study of the high nutritive value milk tablet indicated that the tablet packed in aluminum foil laminated bag (PET/AL/LLDPE) can keep at room temperature for 6 months without adverse effect to product quality.

Student's signature

Thesis Advisor's signature

____ / ____ / ____