Thesis Title	Development of Vitamin A-Rich Preserved Foods by Using Appropriate Technologies
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ABSTRACT

Six kinds of locally available raw materials in the northeast of Thailand, which were rich in vitamin A, normally consumed, and had a potential of being preserved in the community, were selected for this study. The raw materials including chicken liver, ripe mango (*Mangifera indica L.* : Kaew variety), ripe papaya(*Carica papaya L.*), pumpkin (*Cucurbita moschata*), Pag Sein (*Gynandropsis pentaphylla*), and Chinese green cabbage (*Brassica juncea*) were preserved as chicken liver chip, candied ripe mango, candied ripe papaya, candied pumpkin, pickled Pag Sein, and pickled Chinese green cabbage, respectively. Furthermore, pumpkin as a fresh whole fruit was also studied for its shelf life. Loss in vitamin A activity during the process of making deep-fried chicken liver chip production was 52.5 percent. Vitamin A activity remained in a deep-fried chip was 1212 R.E. per 100 grams. Shelf life of chicken liver chip in deep-fried form was 1 month with 2 percents loss in vitamin A activity, while in dried form was 3 months with 14 percents loss. Vitamin A activity loss during the

processing of candied fruit was 17-18 percents. Vitamin A activities of candied ripe mango, ripe papaya, and pumpkin were 216, 58, and 154 R.E. per 100 grams, respectively. Shelf life of candied ripe mango was 3 months with loss in vitamin A activity of 41 percents. While the shelf lives of both candied ripe papaya and pumpkin were 1 month, with the loss in vitamin A activity of 34 and 17 percents, respectively. As compared with the fresh vegetables, vitamin A activities of pickled Pag Sein and Chinese green cabbage increased 58 and 127 percents, respectively. The vitamin A activities of pickled Pag Sein and Chinese green cabbage were 866 and 220 R.E. per 100 grams, respectively. Shelf lives of both pickled vegetables were 1 month, with 27 and 1.7 percents increase in vitamin A activities for pickled Pag Sein and Chinese green cabbage, respectively. Sensory acceptability tests of the products were performed in preschool and school children of Mookdaharn province in the northeast of Thailand, by using five-point hedonic face scale. All products were rated as good to very good (score 4-5 from 5). Consumable size of deep-fried liver chip were tested in children aged 6-24 months, preschool and school children, while the same test for the other products were performed only in the last two groups of children. The consumable size of deep-fried liver chip, which was taken with normal staple foods, was 5.6 grams in 6-24 months old children, while the consumable size in the other groups of children was 17.3 grams; these amounts could contribute the vitamin A activities of 17.3 and 52.3 percents of RDA, respectively. The consumable size of candied fruits was 75-80 grams. With this consumable size, candied ripe mango, ripe papaya and pumpkin could contribute vitamin A activities of

44.5, 10.7 and 30.4 percents of RDA, respectively. The consumable size of pickled vegetables was about 30 grams, which provided vitamin A activities of 64.9 and 15.5 percents of RDA, for pickled Pag Sein and Chinese green cabbage, respectively. Fresh whole pumpkin could be stored for at least three months. Upon storage, the flesh color became more yellow and darkened, and vitamin A activity also increased drastically. On the third month, the vitamin A activity increased 1260 percents as compared to the activity at the beginning.