

Sarunya Nisapagon 2011: Quality Improvement and Shelf Life Extension of Seasoned Fried Anchovy Products. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development. Thesis Advisor: Associate Professor Rungnaphar Pongsawatmanit, D.Agr. 91 pages.

The problems of oxidation and loss of crispness in dried seasoned fried anchovy fish found during storage are important in food industry. Maltodextrin (MD) and tocopherols referred vitamin E (Vit E) acting as antioxidants were investigated to solve such problems. Syrups with and without maltodextrin exhibit newtonian behavior. Apparent viscosity of the syrups increased with increasing maltodextrin concentration. The quality of dried seasoned fried anchovy containing 5DE maltodextrin (0-20%) was found that water activity (a_w) were about 0.13-0.15, 1.2-1.42% moisture content and 20.8-21.9 %(db) oil content without significant difference among different MD concentrations ($p>0.05$). The sorption isotherm (20°C) of dried seasoned fried anchovy containing higher MD exhibited the lower moisture content at the same a_w . For the effect of added antioxidant, fried anchovy was seasoned by syrup containing 0, 1000 and 2000 ppm Vit E, dried at 100°C for 3-4 h., then packed in PP plastic bag and kept in storage chamber controlled at 40°C 80%RH to accelerate the deteriorations in the dark for 120 days. The samples then were randomly taken out for measurements of moisture content, a_w , peroxide value (PV) and acid value (AV) at some certain periods of storage time. These values increased with increasing storage time. The PV and AV of products seasoned with syrups containing Vit E were lower than those of products coated with syrup without Vit E during storage indicating the oxidation retardation of Vit E in fried products. The PV and AV also decreased with increasing Vit E concentration. Moisture content and a_w of syrups with and without Vit E were not different ($p>0.05$) at the same storage time. The results imply that addition of Vit E in the seasoning syrup can be used to retard the rancidity in the seasoned fried anchovy during storage. The storage stability of the products containing both maltodextrin (10%) and Vit E (2000 ppm) was tested by packing in laminated film and kept at 5, 20, 30 and 40°C for 2 months. The results revealed that moisture content, a_w , PV, AV and thiobabaturic acid increased with increasing storage time but the degree of increments was lower with decreasing storage temperatures indicating keeping at lower temperature retarded the deterioration of the product.

Student's signature

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