

Thailand has been facing the aging society since 2005 and the size of the aging population, 70-79 years, tends to increase. A need for developing healthful foods to serve Thai elderly, as well as a growing market of aged population is taking place. This project was conducted to develop foods for 3 elderly groups: 1) with chewing difficulty, 2) with metabolic syndrome and 3) with hypertension, hyperlipidemia, diabetes and early stages of chronic kidney disease. For difficulty chewing elderly, reformed food ingredients were developed using mix hydrocolloids to provide dense and soft texture but easy to breakdown. And the reformed ingredients would remain in piece after cooking heat process. Four dishes applied the reformed ingredients were accomplished. Six ready-meal food products for metabolic syndrome were formulated and processed under sterilization and freezing. For elderly with hypertension, hyperlipidemia, diabetes and early stages of chronic kidney disease, 2 process foods were developed. All foods were evaluated on sensory and analyzed on nutrient composition.

Ten reformed food ingredients were pea eggplant, Chinese chives, baby corn, shitake, kale, stink bean, water mimosa, mushroom stem, cucumber and squid. Four dishes made from those reformed foods were Kale stir fry with oyster sauce, Squid stir fry with holy basil, Stir fry chive and ground pork and Stir fry stink bean and ground pork. The foods were accepted of scores as like and like very much. For nutritive values of one serving size, it was found that they provided 72 to 108 kcal of energy, 2 to 4 g of sugar, 0.8 to 9.6 g of protein, 3 to 5.2 g. of fat, 3.3 to 4.5 g. of dietary fiber, 425 to 1087 mg. of sodium, 48 to 202  $\mu$ g. of vitamin A, 77 to 171 mg. of calcium, 147 to 161  $\mu$ g. of folate and 0.2 to 0.4  $\mu$ g. of vitamin B12. Costs of material for Kale stir fry with oyster sauce (80 g.), Squid stir fry with holy basil (100 g.), Stir fry chive and ground pork (100 g.) and Stir fry stink bean and ground pork (100 g.) were 4.37, 12.16, 5.66 and 8.50 baht, respectively.

Ready-meal food products for elderly with metabolic syndrome were rice porridge with fish ball, tuna in sugarcane sauce, spinach omelette, chicken stew with green pea, sweet and sour vegetables and mustard green soup with pork. The preference scores indicated good acceptance in both processed foods. For nutritional determination, it was found that one serving of the products contained 80 to 160 kcal of energy, 9 to 18 g of protein, 1 to 8 g of fat, 0.26 to 3.23 g of dietary fiber, 1 to 10 g of total sugars and 210 to 450 mg of sodium. The *in vitro* bioaccessibility of proteins of the products processed through freezing and retort sterilization were in a range of 77.3-85.8% and 80.0-89.7%, respectively. The content of total carotenoids and % *in vitro* bioaccessibility of carotenoids in the ready meal processed by sterilizing were closed to or greater than the frozen ones. Costs of material for rice porridge with fish ball (200 g.), spinach omelette (145 g.), tuna in sugarcane sauce (120 g.), chicken stew with green pea (200 g.), sweet and sour vegetables (200 g.) and mustard green soup with pork (200 g.) were 21.23, 7.31, 10.80, 21.00, 12.00 and 10.00 baht, respectively.

Other two retort sterilized foods for elderly with hypertension, hyperlipidemia, diabetes and early stages of chronic kidney disease were steamed obtuse barracuda with soy sauce and Mali-ong banana in coconut milk. Both ready-meal products were accepted by elderly panelists. One serving size of steamed fish provided 90 kcal, 20 g protein, 1.5 g fat and 340 mg sodium. And one serving size of banana in coconut milk provided 110 kcal, 2 g dietary fiber, 14 g sugar and 2.5 g fat. Costs of material for steamed obtuse barracuda with soy sauce (100 g.) and Mali-ong banana in coconut milk (100 g.) were 9.52 and 2.70 baht, respectively.

Outputs of this project are reformed food ingredients and ready-meal products made to suit elderly with some health problems. These products have potential to be commercialized. And they are product protocol for food industry to provide convenient and healthful foods for elderly or mealtime helpers.

**Keywords:** elderly, reformed vegetable, texture, chronic disease, ready-meal product, nutrition, retort, steamed fish, banana, coconut milk