

Arissara Phosanam 2006: Factors Affecting Texture of Imitation Cheese from Rice Flour.

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Rice is an important commercial crop in many countries. Excessive production causes oversupply in the market and low price. Rice product development can add rice value. Thus, this research aimed to produce imitation cheese from rice by replacing caseinate with rice flour in standard imitation cheese (SIC) formula. Mixture was prepared by mixing fat phase and water phase ingredients at 85°C. The fat phase composed of fat, caseinate [Sodium (Na) caseinate: Calcium (Ca) caseinate at 1:4] and gum [Guar : Xanthan gum at 1:1] at 36, 11, and 0.2%, respectively. The water phase contained water, emulsifier [Disodium phosphate: Sodium tripolyphosphate: Sodium citrate at 1:1:1], salt, and potassium sorbate at 51%, 0.6%, 0.75%, and 0.1%, respectively. After mixing, it was homogenized and 0.35% lactic acid was then added. The product was packed and stored at 4°C. The finished product was semi-soft and well accepted by consumers. It's chemical composition, i.e., protein, fat, fiber, and ash contents were 35.95%, 10.55%, 0.09%, and 0.49% respectively. Replacing caseinate in SIC by rice flours from Pathum Thani 1 (RP) and Khao Tah Hang 17 (RT) at 10, 15, and 20%, the compositions of rice flour imitation cheese (RIC) is slightly different. Moisture, fat, and ash did not differ significantly ( $p \geq 0.05$ ), protein was lower, fiber was higher significantly ( $p < 0.05$ ) than those of SIC. Water and fat contents affected the melting and texture characteristics of the product. Increase water quantity and decrease fat quantity caused higher firmness and melting properties significantly ( $p < 0.05$ ). Ratios of the Na and Ca caseinates (1:3 and 1:4) did not result in different firmness and melting properties, significantly ( $p \geq 0.05$ ). Replacing caseinates with higher quantity of rice flour (RP20 and RT20) yielded less firmness (16.0 and 16.8 kPa) and melting (15.41 and 14.72 mm), significantly ( $p < 0.05$ ). At 10% replacement of RP and RT, firmness and melting properties were similar to SIC. Microstructure study of IC showed that lower water with higher fat contents gave large fat globules dispersing in the protein matrix. While, IC with rice flour's microstructure yielded rice flour granules embedded in the protein matrix causing decrease in firmness and melting qualities comparing to SIC.

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