

Kittiya Chiewcherngka 2007: Modified Leuang 11 Rice Flour to Develop Pasturized Kanomjeen Namyapa in Pouches. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Professor Onanong Naivikul, Ph.D. 197 pages.

'Kanomjeen' is a popular type of noodle in Thailand, but fresh kanomjeen has a short shelf life of around two to five days. Pasteurization is chosen to extend this period. However, the quality of kanomjeen is changed by pasteurization. Substitution of annealed Leuang 11 rice flour in Kanomjeen formulation should overcome this problem. Therefore this research has determined the properties of annealed rice flour to develop pasteurized kanomjeen namyapa in pouches. The results of testing annealed Leuang 11 rice flour indicated that the annealed samples prepared by heating rice flour at a ratio of flour to water of 1:2 (w/w), at 55°C in a water bath for 24 hr suited to the production of pasteurized products. The Differential Scanning Calorimeter (DSC) results of the sample annealed for 24 hr showed significantly increased ($p \leq 0.05$) in onset temperature (T_o), peak temperature (T_p), conclusion temperature (T_c) and gelatinization enthalpy to 73.26, 77.44, 81.61°C and 12.03 J/g, respectively. The annealed samples achieved significantly higher ($p \leq 0.05$) pasting temperature and holding viscosity of 82.67 °C and 180.47 RVU, respectively, and significantly lower ($p \leq 0.05$) peak viscosity, final viscosity, breakdown and setback to 298.95, 342.34, 118.98 and 162.37 RVU, respectively which determined by Rapid Visco Analyzer (RVA). The swelling power decreased to 2.54, 7.12, 7.72 and 8.77 g/g dry flour at 65, 75, 85 and 95 °C. The gel properties showed significantly increased ($p \leq 0.05$) in gel hardness to 460.93 g. The physical properties showed higher %crytrallinity (17.28) but had an A-type patterns, granule size of 3-5 µm. and polyglonal shape were not significant for both the sample annealed for 24 hours and the native sample. Substitution of 4% of the annealed sample (ratio 1:2, 24 hr) is the best formulation (fermented rice flour: pregelatinizat on fermented rice flour: annealed rice flour = 78.5:17.5:4) of pasteurized kanomjeen at 65°C for 30 mins. The firmness values (94.62 g) were not significantly different ($p > 0.05$) from fresh kanomjeen (98.22 g). It had the highest sensory attribution (11.44) from the 12 taste panels (score 1-15). Namyapa powder was added (14 g) in a pouches and then pasteurized at 65°C for 30 mins to make pasteurized kanomjeen namyapa which was able to be preserved for 13 and 5 days at 35 and 45°C, respectively. Sensory evaluation showed significantly lower ($p \leq 0.05$) in flavor to 5.01 and 5.57, respectively and higher ($p \leq 0.05$) in sour taste to 13.60 and 12.95, respectively. The results of the Q10 calculation to predict the storage time of products was about 251 days or 8 months at 4°C .

Student's signature

Thesis Advisor's signature

