

Pasinpong Sowaphan 2012: Development of Canned Germinated Glutinous Brown Rice with Coconut Milk. Master of Science (Agro-Industrial Product Development), Major Field: Agro-Industrial Product Development, Department of Product Development. Thesis Advisor: Associate Professor Kamolwan Jangchud, Ph.D. 117 pages.

Glutinous rice with coconut milk is a popular Thai dessert containing glutinous rice as a major ingredient. It can be enhanced nutrition by using germinated glutinous brown rice. Therefore, this research aimed to develop canned germinated glutinous brown rice with coconut milk to be more nutritious and acceptable to the consumers. The 4x5 factorial arrangement in a completely randomized design was used to study the effects of soaking times and solutions on the qualities of germinated glutinous brown rice (GGBR). The result showed that as soaking time increased, reducing sugar and GABA increased with reduced-peak viscosity and setback. Soaking in citrate buffer pH 3 for 48 h was found to provide the highest gamma amino butyric acid (GABA) and soaking in 0.5% chitosan in citrate buffer pH 3 for 48 h provided the highest reducing sugar. Although soaking in citrate buffer pH 3 for 48 h was established to yield the highest GABA content, such a practice was found not to be suitable to prepare germinated glutinous brown rice with coconut milk because of the poor taste of the GGBR. The GGBR soaked in citrate buffer pH 5 for 48 h was revealed to be to attain a GABA content of 21.66 mg/ 100 g GGBR (dry basis). The effect of GGBR to water (g/g) ratio for cooking (600:1200, 600:1800 and 600:2400) on properties of canned germinated glutinous brown rice with coconut milk was studied. The result showed that as water content increased, consistency and index of viscosity of the product significantly decrease. The optimal ratio was established to be 600 g to 1200 g, which yielded the product with a moderate liking score. As for the study of the optimal sterilization condition (F_0) for canned germinated glutinous brown rice with coconut milk, three levels of F_0 (5, 8 and 11 min.) were conducted. The results from texture measurement and sensory evaluation showed the optimal F_0 to be 5 minutes. The developed product was found to contain a GABA content of 14.16 mg/ 100 g sample (dry basis) and a consistency and index of viscosity of 15.11 and 2.06 N·sec, respectively. The consumer acceptance test revealed that the developed product attained a moderate liking score with a consumer acceptance of 96%. The changes in quality of the developed product during storage at 30 ± 2 °C for 6 weeks revealed an extended storage time to increase the consistency and index of viscosity

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