

Sasikarn Kithikorn 2009: Formation of Solid Foam Structure and Oil Absorption of Fried Snacks from Rice Flour Composites. Master of Science (Food Science), Major Field: Food Science, Department of Food Science and Technology. Thesis Advisor: Associate Professor Parichat Hongprabhas, Ph.D. 83 pages.

This study investigated the influences of flour composition, protein content and ratios of rice flour to waxy rice flour (at 1.0:0.0, 0.9:0.1, 0.8:0.2 and 0.7:0.3, respectively), types of hydrocolloids (sodium alginate and methylcellulose) and application methods (mixing vs. coating), on solid foam structure and oil absorption of fried rice cracker. De-proteinization of rice flours by bromelain altered the MWs of proteins towards the lower ones and reduced the protein content from 7% to 3% ( $p < 0.05$ ). These alterations increased peak viscosity but decreased final viscosity of rice flour slurries ( $p < 0.05$ ). In rice cracker, air cells with larger size were obtained in crackers with low protein content and those with high ratio of waxy rice flour. However, these large air cells in low protein cracker did not affect oil absorption ( $p \geq 0.05$ ). In contrast, rice cracker with higher ratio of waxy rice flour containing air cell size of more than 1200  $\mu\text{m}$  in diameter increased oil absorption ( $p < 0.05$ ) compared with rice flour cracker. Coating rice sheet with 1% (w/v) methylcellulose before frying could effectively reduce the air cell diameter in the range of 1-900  $\mu\text{m}$  and oil absorption ( $p < 0.05$ ) compared with the non-coated ones. The understandings on the roles of size distribution of air cells on oil absorption may help formulating the low-fat fried products.

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