

Chuleekorn Wadchararat 2006: Frozen Ready to Eat Rice Noodle Products.

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To increase the utilization of rice flours in Thailand and enhance nutritional value of products, frozen ready to eat rice noodle products have been developed. The objectives of this research were to develop rice-alkaline noodles from rice flour and physically modified rice starch by pregelatinization (pregel) and heat moisture treatment (HMT). Three rice flour varieties were chosen based on their amylose content, as followed Chai Nat 1 containing high amylose content (28.72% db), Khao Dawk Mali 105 with medium amylose content (16.46% db) and RD6 (5.54% amylose, db). After pregelatinization, the pasting properties of modified rice flours were different from native flour significantly ($p \leq 0.05$). The results showed that the pasting temperature of Chai Nat 1 pregel (51.47°C), Khao Dawk Mali 105 pregel (49.90°C) and RD6 pregel (50.05°C), peak viscosity of Chai Nat 1 pregel (198.41 RVU), Khao Dawk Mali 105 pregel (257.53 RVU) and RD6 pregel (281.42 RVU) and the setback of Chai Nat 1 pregel (133.21 RVU), Khao Dawk Mali 105 pregel (105.83 RVU) and RD6 pregel (51.00 RVU) decreased significantly different ($p \leq 0.05$). When compared with native flours, the freeze thaw stability of pregel flours; Chai Nat 1 pregel (15.76-47.65%), Khao Dawk Mali 105 pregel (10.48-42.29%) and RD6 pregel (1.06-6.81%) decreased significantly ($p \leq 0.05$). On the other hand, when rice flours were heat moisture treated, the pasting properties of native and HMT flours were significantly different ($p \leq 0.05$). The pasting temperature of Chai Nat 1 HMT (88.64°C), Khao Dawk Mali 105 HMT (87.10°C) and RD6 HMT (80.18°C) and the setback of Chai Nat 1 HMT (59.14 RVU), Khao Dawk Mali 105 HMT (114.00 RVU) and RD 6 HMT (21.78 RVU) increased; however, the peak viscosity of Chai Nat 1 HMT (154.81 RVU), Khao Dawk Mali 105 HMT (167.17 RVU) and RD6 HMT (95.59 RVU) decreased significantly different ($p \leq 0.05$). Besides, the freeze-thaw stability of HMT flours; Chai Nat 1 HMT (3.21-37.36%), Khao Dawk Mali 105 HMT (0.11-17.55%) and RD6 HMT (0.61-0.77%) increased significantly different ($p \leq 0.05$). After modification, the color of modified rice flours (pregel and HMT) had changed (L^* -value (brightness) decreased; while, b^* -value (yellowish) increased). The native and modified (both pregel and HMT) rice flours had been used for noodle making. It was found that the ratio of Chai Nat 1: Chai Nat 1 pregel: RD 6 HMT (30:30:40 respectively) could make noodles with lower water absorption (118.75%) and cooking loss (8.61%) but higher cooking time (8.55 mins). The texture of this formula could still be maintained after 2 freeze-thaw cycles. Furthermore, the sensory evaluation had shown that the overall acceptance is insignificantly different ($p > 0.05$) from control.

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