

Title Partial substitution of rice flour with root and tuber flours and its effect on pasting behavior and quality of rice noodle

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Abstract

Effect of flour type and substitution level on pasting behavior of rice flour and quality of rice noodle was investigated in this study. Partial substitution of rice flour with cassava flour, East Indian arrowroot (*Tao Yai Mom*) flour, glutinous rice flour and potato starch was done at rice flour-to-substituting flour ratios of 90:10, 80:20, 70:30 and 60:40 by weight. Pasting behavior, as monitored using a Rapid Visco Analyzer, revealed that among the five types of flour studied, rice flour exhibited the highest pasting temperature, final viscosity and setback viscosity. The lowest peak viscosity was evidenced in rice flour paste while the highest peak viscosity belonged to that of potato starch. Paste of glutinous rice flour possessed the lowest final viscosity and setback viscosity. Upon replacing different flours to rice flour, a decrease in pasting temperature was obtained. Increased peak viscosity was demonstrated in those samples with either cassava flour or potato starch replacement. An increased setback viscosity was shown in the samples with lower levels of potato starch substitution (90:10 and 80:20). Flour substitution also posed a significant effect on textural property of rice noodle ($p \leq 0.05$). Noodle made from rice flour only (control) had a firmness of 1091.70 g_f. Upon adding East Indian arrowroot flour or glutinous rice flour, noodle firmness became decreasing with increasing substitution level. As compared to the control, a firmer noodle was obtained at lower substitution levels (90:10 and 80:20) of cassava flour or potato starch. However, with increasing ratio of cassava flour or potato starch (70:30 and 60:40), the noodle firmness became decreased.