

Effect of Sago Flour Substitution on Loaf Bread Quality

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Abstract

Sago flour is locally available and reported to have relatively higher fiber and antioxidant contents and lower digestibility than wheat flour. Despite this, sago is still underutilized. This study aimed to compare wheat and sago flours and evaluate the effect of different sago substitution rates (0% to 50%) on bread quality. Physico-chemical properties of the flours were determined together with bread density, texture, color, and consumer preference. Results show that sago flour had significantly higher crude ash, fiber, and amylose contents than wheat flour. It also had higher peak viscosity or water-holding capacity upon heating, but less ability to withstand heating and shear stress. Substitution of wheat flour with sago flour significantly decreased loaf volume (from 615 to 404 mL) and made them denser (from 0.242 to 0.371 g/mL). Except at 10% level of substitution, bread samples with sago flour were significantly firmer than the control. Sago flour is light brown in color; hence, as the substitution level increased, the bread crumb became darker in color. However, this trend was not observed in the color of the bread crust, with the control having a significantly darker crust. Bread samples with more than 10% sago flour had significantly lower preference scores than the control. Using the current formulation for loaf breads, 10% sago substitution is the maximum level before quality significantly decreases. However, future studies can investigate the use of dough improvers with higher substitution rates for bread, as well as trying sago flour on products that do not rely heavily on leavening like crackers or cookies.