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Effect of reducing the percentage of brown rice flour in formulation of gluten-free bread on bread properties

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Abstract : The aim of this work was to identify the effect of reducing a percentage of brown rice flour in the formulation of gluten-free brown rice bread by using equal percentages of gram dhal flour and corn flour on bread characteristics and morphological properties of bread crumb. The morphological properties of bread crumb were performed by using Scanning Electron Microscope. The findings of this study were indicated to improving bread characteristics significantly ($p < 0.05$) by reducing brown rice flour percentage to be 60% and 50%. Volume, specific volume and height of slice were increased, while density and hardness were decreased. Moreover, external and internal appearances of the bread were enhanced. However, no significant variations ($p < 0.05$) were observed on baking loss and crumb moisture. Bread crust was darker by reducing brown rice percentage to be 70%-50%. Furthermore, a decrease the percentage of brown rice flour did not have a clear influence on morphological properties of crumb. Consequently, using brown rice flour by 50%-60% in gluten-free bread formula enhanced bread characteristics and improved bread appearance.

Key words : brown rice flour, gluten-free bread.

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