

## **ABSTRACT**

This research aimed to study the effect of red kidney bean flour particle size and level of substitution (concentration) on white bread physical characteristics. To do this, normal white bread and white bread containing red kidney bean flour with three different particle sizes (moderately coarse/MC, moderately fine/MF, and standard/ST) and two concentrations (15% and 20%) were compared in terms of their physical characteristics: oven spring, baking loss, loaf specific volume, mean crumb cell area, crumb cell density, crumb and crust moisture over storage time. It was found that addition of red kidney bean flour impaired oven spring and loaf specific volume, although this effect was not found to be statistically significant. Addition of red kidney bean flour slightly improved bread moisture retention. Red kidney bean flour was found to significantly influence mean crumb cell area and crumb cell density, with particle size reduction significantly improved the cell area and density. Red kidney bean flour concentration was not found to significantly influence the bread physical characteristics. The result of this research might lay foundation on similar research and provide interesting information which supports the development of healthier bread using red kidney bean flour.