



EFFECT OF BAKING TIME AND TEMPERATURE ON THE BAKING QUALITY AND SENSORY ATTRIBUTE OF CAKE PRODUCED FROM WHEAT-TIGERNUT POMACE FLOUR BLENDS BY SURFACE METHODOLOGY

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ABSTRACT

This study was carried out to evaluate the effect of baking temperature and baking time on the baking quality and sensory attribute of cake from wheat-tigernut pomace flour blends. Response surface methodology using Box-Behnken design was employed with three independent variables at three levels of variations resulting into 17 experimental runs. The independent variables are baking temperature (160-180 °C), baking time (30-40mins) and level of tigernut pomace flour (5-15%) added to the wheat flour. Cake was baked from wheat and tigernut pomace flour and was analyzed for physical properties, colour attributes and sensory qualities. There was significant effect ($p < 0.05$) in the physical properties of wheat-tigernut pomace cake such as the cake weight and oven spring ranged from 50.75g to 69.80g and 2.3cm to 3.5cm. The crumb and crust colour of cake from wheat-tigernut pomace varied significantly ($p < 0.05$) and ranged from 55.84 to 66.77, 0.16 to 2.54, 24.65 to 31.77 and 36.71 to 86.36, 9.76 to 13.32 and 19.96 to 34.51. The result of the sensory evaluation revealed that cakes from wheat flour with low amount of tigernut pomace and those baked at lower temperature and time were rated alike in almost all the quality attributes. The addition of tigernut pomace into wheat flour for cake baking had a significant effect on the physical and sensory qualities. The resultant effect of the baking temperature, baking time and tigernut pomace significantly affected the cake oven spring and led to decrease in cake weight. The lightness, redness and yellowness of the cake samples varied significantly among different levels of the substitution. However, cake can be baked from wheat-tigernut pomace flour between 160-170°C for 30-35 minutes with inclusion of 10% tigernut pomace flour to yield cake of enhanced qualities