

## ABSTRACT

Baking processes could highly influence the quality of cookies fortification, not only the characteristics and the proximate composition, but the content of the micronutrient as well. Hence, in this study, different baking temperature and time was used to assess the micronutrient stability, physicochemical properties, proximate composition and sensory acceptance on fortified cookies. The cookies with and without premixes were baked in two different baking processes which were 170°C in 15 mins and 190°C in 9 mins. After baking, the vitamin C of the cookies was found unstable compared to iron which was found more stable. The highest spread factor was  $0.93 \pm 0.76$  in unfortified cookie with Baking Treatment (BT) 2, it shown significant different ( $p < 0.05$ ) between concentration and between treatments. Based on instrumental measurement, cookie texture was found significant higher ( $p < 0.05$ ) in cookie with BT1 which were  $652.89 \pm 62.04$  for fortified cookies and  $415.89 \pm 83.85$  compared with BT2. No significant difference detected in  $L^*$  with p value 0.051 between baking treatment and 0.06 between concentration, but in  $a^*$  and  $b^*$  were found to be significant higher ( $p < 0.05$ ) in fortified cookies. While, through sensory evaluation there was significant different between each treatment except color, sweetness, and overall liking, yet it was acceptable for the panelists. The carbohydrate, fat, and protein did not show significant effect ( $p < 0.05$ ), whereas the ash content in fortified cookies was significantly higher ( $p < 0.05$ ) than the unfortified cookies and BT2 was found significant higher ( $p < 0.05$ ) compared with BT1 in the moisture content.

Keywords: *Micronutrient deficiency, Fortified cookies, Micronutrient stability, Physicochemical properties, Proximate composition*