

Effect of substituting tapioca starch with various high protein legume flours on the physicochemical and sensory properties of keropok lekor (Malaysian fish sausage)

ABSTRACT

Keropok Lekor (Malaysian fish sausage) produced in Kuala Lumpur (KLKL) due to its lower fish content is perceived to have lesser nutritional values especially protein against Keropok Lekor from Terengganu (KLT). This study formulated new Keropok Lekor by substituting tapioca starch with high protein flour, which was chickpea (KLCP), soybean (KLSB), mung bean (KLMB) or kidney bean (KLKB) and evaluated against the KLKL (negative control) and KLT (positive control). All the new formulated Keropok Lekors had higher protein contents ($p < 0.05$) compared to KLKL and not significantly different compared to KLT ($p > 0.05$). The carbohydrate, moisture, fat and ash results were acceptable compared to both controls. Majority of the new formulated Keropok Lekors resulted with higher cooking yield compared to KLT ($p < 0.05$) but not significant against the KLKL ($p > 0.05$). From the sensory evaluation, the colour preference was similar for all Keropok Lekor formulations matching the CIEL*a*b colour values. There was no difference ($p > 0.05$) in aroma preference between all Keropok Lekor formulations. KLKL and KLMB were the highest in chewiness of sensory attribute, relatively to higher chewiness value from Texture Profile Analysis. Juiciness preference favoured KLT, KLKL and KLMB compared to other formulations. Overall, panellists preferred KLCP and KLMB from the new formulations since they are almost similar to KLT and KLKL ($p < 0.05$). This study indicates that legume flours could substitute tapioca starch in Keropok Lekor to improve the nutritional values but retain the quality attributes.

Keyword: Keropok lekor; Malaysian fish sausage; Chickpea flour; Soybean flour; Mung bean flour; Kidney bean flour

