Process development, sensory and nutritional evaluation of honey spread enriched with edible insects flour

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ABSTRACT

The study was aimed at improving existing methods of processing of, commonly consumed insects in Lango sub region of Northern Uganda to enhance consumption and improve the nutrition of the people. Insects (crickets, soldier and winged termites) flour processed by either pan frying or boiling followed by sun drying was substituted into honey. The resulting spreads were evaluated by fifty panelists to screen for acceptability by insect species and their processing methods in stage one. Subsequently, the insect and processing method combination most preferred by panelist for spread enrichment was used to determine; the effect of insect flour inclusion level (8, 16 and 24%) and processing temperature (80, 90 and 100°C) on acceptability and nutritional quality. Data was analyzed using analysis of variance (ANOVA), means were separated using least significant difference test at 5% and results reported as mean ± Standard Deviation (SD). Honey spread enriched with soldier termite flour processed by pan frying was most preferred. Increased substitution level decreased acceptability; nutrient content increased significantly (p<0.05) with increased insect proportion while processing temperature had a significant (P<0.05) effect on the nutritional quality. Protein digestibility decreased with increase in processing temperature from 59.19 to 45.28%, Fe and Zn solubility increased from 14.09 to 42.89%; 3.06 to 27.17% at 80 and 100°C, respectively. Spreads enriched with 8% soldier termite flour processed by pan frying at 100°C had good nutritional and sensory qualities. The study signifies the potential of termite flour in fortifying food products with acceptable sensory and nutritional qualities.