

Children in Kenya are at risk of undernutrition. Milk powder is the ‘golden standard’ in products to prevent undernutrition but is expensive and cannot be produced locally. House crickets (*Acheta domesticus*) are rich in nutrients important for growth and development. The cricket biscuit contains protein, unsaturated fatty acids, vitamin A and B12, iron, and zinc. Furthermore, cricket powder can be an economically better substitute for milk powder and can create revenue for the local population. Including crickets in products for school feeding could optimise growth and learning. The objective of the study was to develop a recipe for cricket biscuits suitable for school feeding programmes and test acceptability of the biscuits in Kenyan schoolchildren, in comparison with a similar biscuit with milk. The study was randomized and parallel. Fifty-four children aged 5-10 years were served 100 g (range 98-102 g) biscuits containing either 10% cricket powder or 10% milk powder during school days for four weeks. At baseline anthropometry (weight, height, mid upper arm circumference) was measured and information on insect consumption and allergies collected. Daily, weight of biscuits eaten and hesitation and refusal to eat were noted. Weekly, hedonic ratings were performed. Consumption was 96.9% and 94.2% for cricket and milk biscuits ( $P=0.14$ ), respectively. Hedonic ratings were significantly lower in cricket biscuits for looks ( $P=0.006$ ), smell ( $P=0.04$ ), texture ( $P=0.02$ ), and overall ( $P=0.01$ ) compared to milk biscuits, but all ratings were above average (2.5). The biscuits contribute with macro- and micronutrients important for a child in Western Kenya. The acceptability of the cricket biscuits was high and long-term based on set criteria (>75% eaten >75% of the study days). Organoleptic properties were rated above average for cricket biscuits but lower than milk biscuits in most aspects.