Abstract

Wheat bread is among stable foods that are nutritionally imbalanced, thus enrichment is crucial. We evaluated the nutritional impact of high-valued wheat bread enriched with varying levels of meat powder from hen fed diet with insect (Hermetia illucens)-based meal. Crude protein and ash in bread increased with increasing inclusion of meat powder. Limiting amino acids like lysine and threonine in enriched bread products increased by 3.0–4.5 and 1.8–3.1-folds, respectively. Omega 3 fatty acids were significantly enhanced in bread fortified with meat powder. Vitamins (retinol, nicotinic acid, and pantothenic acid) were significantly increased in supplemented bread products. Iron, zinc, and calcium increased by 1.1, 1.2 and 3.0-folds in enriched bread with 30% meat powder. Colour, flavour and overall acceptability of breads prepared with 25 and 30% meat powder were highly ranked. Our findings demonstrate that meat powder (i.e., from hen fed insect-based diets) enrichment would provide added health and nutritional benefits to bread products without having adverse effects on any functional or sensory properties. Thus, this could be a novel strategy and trend for improving bread products that might generate increasing demand for a healthier consumer-oriented lifestyle.