Exploring the nutritional composition of cultured horseshoe crab (Tachypleus gigas): A study of proximate composition, minerals, amino acids, and fatty acids

ABSTRACT

This study was done to determine the proximate composition, mineral content, amino acid and fatty acid composition of Tachypleus gigas. T. gigas were collected at the Horseshoe Crab Hatchery and Breeding Centre, Malaysia. The samples were analyzed for its proximate composition of different body parts, roe and muscle. The mineral analysis was determined using Inductively Coupled Plasma mass spectrometer. The amino acids were analysed using High-Performance Liquid Chromatography and the fatty acids were analysed using Gas Chromatography-Flame Ionization Detector. The results showed that the roe of T. gigas contained higher crude proteins, crude fats and carbohydrates compared with muscle. Minerals content (K, Ca, and Na) were the most abundant in roe samples. The roe samples had higher concentrations of amino acids compared to the muscle samples, with the highest being 7.20 ± 0.66 g/100 g of leucine. The fatty acid composition showed that roe samples had higher concentrations of palmitic acid, stearic acid and oleic acid, contributing 21.0 ± 1.05%, 19.5 ± 1.60% and 32.4 ± 1.8%, respectively. These nutrients are important for human health and could help address nutrient malnutrition.