

## Determination of Proximate Composition of Malaysian Horseshoe Crab (*Tachypleus gigas*)

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**Abstract.** This study was conducted to investigate proximate content of horseshoe crab (*Tachypleus gigas*) in Malaysia. To date, there has been little agreement on what the nutrition value of horseshoe crab is and how it will benefit the consumers. The samples were divided by two parts, which are roe and muscle. The *Tachypleus gigas* was cleaned of foreign materials and impurities manually by human hand. The samples were ground into flour and sieved through 50 µm sieve and were packaged in airtight plastic bags prior to analyses. The horseshoe crab was analyzed for its proximate composition of different body parts. The results showed that the roe and muscle of *Tachypleus gigas* contained moisture (50.45 % and 73.67 %), ash (0.41 % and 2.72 %), crude proteins (38.24 % and 14.62 %), crude fats (9.30 % and 8.09 %), carbohydrates (1.67 % and 0.91 %) and energy (241.42 Kcal/100 g and 134.43 Kcal/100 g), respectively. This shows that roe has better nutrition content since it has higher protein, fat and carbohydrate content, which are the main energy-providing nutrient. Overall, the proximate content of *Tachypleus gigas* was nearer to the shellfish rather than the finfish and can be considered as a good nutrition source.

### Introduction

Horseshoe crabs are marine arthropods of the family *Limulidae*, suborder *Xiphosurida*, and order *Xiphosura*. Horseshoe crabs superficially resemble crustaceans but belong to a separate subphylum, *Chelicerata*, and are closely related to arachnids. The earliest horseshoe crab fossils are found in strata from the late Ordovician period, roughly 450 million years ago. The *Limulidae* are the only recent family of the order *Xiphosura*, and contains all four living species of horseshoe crabs. Out of four extant species of horseshoe crabs, *Tachypleus tridentatus*, *Tachypleus gigas* and *Carcinoscorpius rotundicauda* inhabit Malaysian coast while the distribution of *T. tridentatus* is restricted to East Malaysia [1–3].

Even though the horseshoe crab has a hard shell and numerous appendages with claws, it is not really a crab. Horseshoe crabs belong to the arthropod phylum along with crabs, insects and other invertebrates with jointed legs, however, their closest living relatives are spiders and scorpions. True crabs have two pairs of antennae and a pair of mandibles, or jaws; horseshoe crabs lack these structures [4]. Further, comparing the legs of a true crab with the legs of a horseshoe crab reveals