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To cite this article: Wan Roslina Wan Yusof, Fasihuddin Badruddin Ahmad, Noorasmin Mokhtar Ahmad, Awang Sallehin Awang Husaini & Mummy Swamy (2019): Proximate Composition and Antioxidant Properties of Orange Mud Crab, *Scylla Olivacea*, Journal of Aquatic Food Product Technology

To link to this article: <https://doi.org/10.1080/10498850.2019.1594482>



Published online: 31 Mar 2019.



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Proximate Composition and Antioxidant Properties of Orange Mud Crab, *Scylla Olivacea*

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ABSTRACT

The proximate composition and antioxidant properties of the muscle tissues of *Scylla olivacea* are reported herein. The carbohydrate content was in the range of 1.52% to 3.07%, while protein varied from 13.30% to 17.28%. Meanwhile, the fat content for *S. olivacea* was found to be ranging from 0.20% to 0.57%. The moisture content in *S. olivacea* was 60.00%. Generally, no significant differences were observed in both male and female tissues of *S. olivacea* regarding its total phenolic content, 2,2-Diphenyl-1-(2,4,6-trinitrophenyl) hydrazyl (DPPH) scavenging, and superoxide dismutase activities. However, significant differences were observed for the total flavonoid content and activity of catalase. The present results revealed the nutritional information and enzymatic and nonenzymatic antioxidant status of the tissues of *S. olivacea*.

KEYWORDS

Mud crabs; *Scylla olivacea*; proximate composition; antioxidants; nutrition

Introduction

Mud crab has become a common food among other seafood products and is considered to have a high content value of essential amino acids, minerals, vitamins, and fatty acids. In addition, various biological properties of mud crabs have been revealed to involve antimicrobial peptides and antioxidants activities that can be applied in the food, agriculture, nutraceutical, and pharmaceutical industries (Sperstad et al., 2011; Yusof et al., 2017; Zhao et al., 2015). Numerous studies have been conducted to investigate the proximate composition of different species of crabs around the world. The proximate biochemical analysis provides important information for facilitating the aquaculture industry in different aspects such as farming, fattening, or processing crab products (Baklouti et al., 2013; Gökoolu and Yerlikaya, 2003). In Malaysia, the price of mud crabs tends to differ based on their size and gender, as well as its meat content and unique flavor. In addition, mud crabs are also consumed in Malaysia as traditional remedy for dengue. Mud crabs can be widely obtained in shallow waters, especially in mangrove areas and estuaries. A previous study has classified and described four distinct species of mud crabs, namely *Scylla transquebarica*, *Scylla olivacea*, *Scylla paramamosain*, and *Scylla serrata*, based on their morphological data (Keenan et al., 1998). Meanwhile, a considerable number of studies have been published on the nutritional value of mud crabs, particularly for the two species known as *S. serrata* and *S. paramamosain* (Keenan et al., 1998; Meng et al., 2017; Zafar et al., 2004). Sarower et al. (2013) determined the biochemical composition of *S. serrata*, including protein, fat, ash, and moisture content in different body parts. Various biological activities of crabs, including antimicrobial and antioxidant properties, have been highlighted by the natural product researchers for the past decade (Fu et al., 2012; Jayasankar and Subramoniam, 1999; Rethna et al., 2014). Several studies

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