



2nd International Symposium on Aquatic Products Processing and Health
ISAPPROSH 2015

Nutritional Value of Sea Cucumber
[*Paracaudina australis* (Semper, 1868)]

Widianingsih^{a*}, Muhammad Zaenuri^b, Sutrisno Anggoro^b,
Hermin Panca Sakti Kusumaningrum^c

^aStudent of Programme Doctorate of Management Coastal Resources, Diponegoro University

^bFaculty of Fisheries and Marine Sciences, Diponegoro University

^cFaculty of Matematic and Sciences, Diponegoro University

Jln. Prof Soedarto, SH, Kampus UNDIP Tembalang Semarang 50275 Indonesia

Abstract

Sea cucumber *Paracaudina australis* has high value of nutrition and high potential economically for increasing trading of others fish productions. This research has purpose to study of proximate content, profile of amino acid and profile of fatty acids. The samples of *P. australis* were taken from Kenjeran Waters, Eastern Part of Surabaya. The result showed that *P. australis* had contain high protein (20.22 %), very low contain carbohydrate (0.86 %), ash (2.58 %), total fat (1.42 %) crude fiber (0.51 %) and very high percentage of moisture (74.92 %). The profile of amino acid was dominated non essential amino acid such as glutamine acid ($1.06 \text{ g} \cdot (100 \text{ g})^{-1}$), glycine acid ($0.85 \text{ g} \cdot (100 \text{ g})^{-1}$), aspartic acid ($0.60 \text{ g} \cdot (100 \text{ g})^{-1}$). Sea cucumber *P. australis* had contain some essential amino acid such as leucine, histidine, lysine, threonine, arginine, valine and isoleucine. There were very few percentage of fatty acid, Oleat acid C 18:1 omega 9 (0.0537 %). The profile of fatty acid from *P. australis* were dominated by oleat acid C18:1 and palmitate acid C 16:0.

© 2016 The Authors. Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of the science and editorial board of ISAPPROSH 2015

Keywords: Amino acid; fatty acid; *Paracaudina australis* (Semper, 1868), proximate

* Corresponding author. Tel.: +62 813 2558 1564.
E-mail address: widia2506@gmail.com.

1. Introduction

Sea cucumber is a marine benthic organisms which can be found in various ecosystems such as seagrass ecosystem, coral reef ecosystem, mangrove ecosystem, and mud flat ecosystem. Sea cucumber is known as “trepang” (Malaysia), “beche de-mer” (French), “namako” (Japan), “plingkao” (Thailand), “haishen” (Cina) and “teripang” (Indonesia). According to international market, sea cucumber has name *sandfish*. *Paracaudina australis* is belong to family Caudinidae, ordo Molpadida and Class Holothuroidea (Pawson, 1970; 2007; O’Loughlin et al., 2011). *P. australis* is a white sea cucumber. The body size is a small to medium has length body 70 mm to 125 mm. The body shape of *P. australis* is cylindrical spesies. The body is thin, soft and the tegument is smooth. This spesies was found burried in soft intertidal sediment.

Most of the sea cucumbers have high value of nutrition. Various sea cucumbers have long been used for traditional food, medicine and functional food. Recently, a lot of study about nutritional value, fatty acid profile, asam amino profile and mineral contain in various sea cucumbers (Bordbar et al., 2011; Omran 2013; Ridzwan et al., 2014; Haider et al., 2015). The research about sea cucumbers have functional as pharmacological activities such as anticancer, anti inflammatory, anticoagulant, anti-hypertension, etc have been described (Bordbar et al., 2011).

Recently, a lot of studies have been done on the fatty acid, amino acid profile, and proximate composition of some sea cucumbers such as *Holothuria scabra*, *Actinopyga mauritiana*, *Bohadschia marmorata*, *Holothuria leucospilota*, *Holothuria alata*, *Stichopus horrens* (Ridzwan et al., 2014; Haider et al., 2015; Wen et al., 2010; Mehmet et al., 2011). Additionally, many researchers have been conducted on the fatty acid composition (Haider et al., 2015; Yahyavi et al., 2012), amino acid analysis and proximate composition of sea cucumbers (Haider et al., 2015; Wen et al., 2010; Salarzadeh et al., 2012). Contrastly, even though sea cucumber *P. australis* has good economically and one of the fisheries products which has highest price in the traditional food store and market, the study about nutritional value of *P. australis* is very few and rare. *P. australis* is known as sea cucumber crackers from East Java. This research has purpose to study fatty acid and amino acid profile and proximate composition of *P. australis*.

2. Material and methods

Samples sea cucumber *P. australis* were collected from Coastal of Kenjeran, Surabaya, Indonesia. Collecting samples was conducted on 6 to 8 November 2014. There were 57 samples of *P. australis* (average weight 56.15 g \pm 17.64 g). Before extration, fresh samples had been keep below -20°C .

The analyzing of Proximate composition was conducted at LPPT UGM (Intergrated Testing and Research Laboratory, Gajah Mada University). Gravimetry method was used to analyze moisture, ash, fiber crude and lipid. Macro-Kjeldhal method was used to determine protein. Analyzing of fatty acid and amino acid profile were conducted at PT. Saraswanti Indo Genetech, Bogor. Amino acids were determined by UPLC Method and fatty acids were determined by GC Method.

3. Results and discussion

3.1. Proximate composition

According the research result, high percentage of moisture (74.92 % \pm 0.25 %), of low percentage of fiber crude (0.51 % \pm 0.03 %). *P. australis* has contain protein 20.22 % \pm 0.01 %, ash 2.58 % \pm 0.03 %, total lipid 1.42 % \pm 0.04 % and total carbohydrate 0.86 % \pm 0.03 %. This fits with researches by Haider et al. (2015) and Omran (2013) showed that moisture of *A. mauritiana* (84.71 % \pm 0.7 %), *H. scabra* (85.76 % \pm 0.3 %), *B. marmorata* (83.17 % \pm 0.2 %), *H. leucospilota* (81.41 % \pm 0.6 %), *H. arenicola* (72.12 % \pm 0.25 %). Generally, most of sea cucumber and others marine species contain higher moisture and lower protein content⁸. Proximate composition from one spesies may differ from one place to the other places and every species has differ composition of proximate (Wange et al., 2009).

Furthermore, Sea cucumber *P. australis* has enough protein content (20.22 % \pm 0.01 %). As we know, the protein has important roles in the human body, including regulation cell division, providing structure, strength to cell

Download English Version:

<https://daneshyari.com/en/article/4383620>

Download Persian Version:

<https://daneshyari.com/article/4383620>

[Daneshyari.com](https://daneshyari.com)