

Comparison of fatty acid and proximate composition between *holothuria edulis* and *holothuria scabra* collected from coastal water of Sabah, Malaysia

Abstract

The nutritional values of different species of sea cucumber are greatly concerned because of their dietary and curative properties. In this study, two species of sea cucumber, *Holothuria edulis*, a low-valued noncommercial species, and *Holothuria scabra*, a high-valued commercial species were selected to compare its proximate composition and fatty acids. *H. edulis* a prevalent species in coastal water of Sabah is not commercially importance like *H. scabra*. Sea cucumbers were captured live from the Sabah marine habitat. All samples were immediately eviscerated, freeze-dried and stored at 4°C in until analyzed. Silylating agent N, O-Bis(trimethylsilyl) trifluoroacetamide (BSTFA) was used to derivitization of fatty acid prior to gas chromatography-mass spectrometry (GC-MS) analysis. Proximate compositions (%), such as moisture, crude protein, crude lipids and ash were carried using standard methods. Major fatty acids in *H. edulis* and *H. scabra* were saturated fatty acid (SFA) accounted for 83.95% and 98.60%, respectively and dominated with Palmitic acids. Polyunsaturated fatty acid (PUFA), arachidonic acid of 16.05% was found only in *H. edulis*, but absent *H. scabra*. Proximate compositions (dry weight) were varied greatly within these two species. Moisture, crude protein, crude lipids and ash of 85.5%, 70.5%, 1.37% and 1.27% respectively were obtained in *H. edulis*. On the other hand 84.5% of moisture, 51.2% of crude protein, 0.27% of crude lipids and 4.44% of ashes were determined in *H. scabra*. Significantly higher protein ($p < 0.05$) content and detection of PUFA in *H. edulis* compare to *H. scabra* could be the choice of option for the utilization of this noncommercial species as nutraceutical industry and also alternatives to reduce the pressure on heavily exploited species of *H. scabra*.