

## **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*.