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## Comparison Between High-Pressure Processing and Chemical Extraction : Astaxanthin Yield From Six Species of Shrimp Carapace (Article)

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### Abstract

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Astaxanthin is one of the main carotenoid pigments. It has beneficial effects on the immune system of the human body due to its powerful antioxidant properties. The application of this bioactive compound can be found to be significant in the food, pharmaceutical, and cosmetics industries. The aim of this research was to investigate astaxanthin yield from six species of Malaysian shrimp carapace. Six types of shrimp species — *Parapenaeopsis sculptili*, *Metapenaeus lysianassa*, *Macrobrachium rosenbergii*, *Metapenaeopsis hardwickii*, *Penaeus merguensis*, and *Penaeus monodon*—were used to investigate total carotenoid content and astaxanthin yield. The investigation was carried out using chemical extraction and high-pressure processing (HPP) methods at 210 MPa, for a period of 10 min with a solvent mixture of acetone and methanol (7:3, v/v). HPP was proven to have a significant impact in increasing the total carotenoid content and astaxanthin yield. The highest total carotenoid content and astaxanthin yield is shown to be contained in the *Penaeus monodon* species. Total carotenoid was increased from 46.95 µg/ml using chemical extraction to 68.26 µg/ml using HPP; yield of astaxanthin was increased from 29.44 µg/gdw using chemical extraction to 59.9744 µg/gdw using HPP. Therefore, comparison between the HPP and chemical extraction methods showed that HPP is more advantageous with higher astaxanthin yield, higher quality, and shorter extraction time. © 2018, © 2018 Taylor & Francis Group, LLC.

### SciVal Topic Prominence ⓘ

Topic: astaxanthin | Xanthophylls | astaxanthin accumulation

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### Reaxys Database Information

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astaxanthin carotenoid high-pressure processing shrimp

### Indexed keywords

EMTREE drug terms: acetone astaxanthin carotenoid methanol solvent xanthophyll

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## Chemicals and CAS Registry Numbers:

acetone, 67-64-1; astaxanthin, 472-61-7; methanol, 67-56-1; xanthophyll, 127-40-2, 52842-48-5;

Acetone; astaxanthine; Carotenoids; Methanol; Solvents; Xanthophylls

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