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High pressure extraction of Astaxanthin from shrimp (*Lysmata wurdemanni*) waste with ethanol solvent as antioxidant supplement

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Introduction & Aim: The need of the domestic drug almost 90% comes from domestic products, but 96% raw materials are imported from China, India and Europe. One marine product which can potentially be used as raw material is astaxanthin contained in shrimp. The cheapest raw material to produce astaxanthin from shrimp wastes which can be obtained in large quantities in Indonesia. Waste of shrimp exported abroad back to Indonesia in the form of raw materials that have higher economic value. The aim of this study is to find an astaxanthin extraction method that is efficient and effective and can be applied in Indonesia.

Method: A method of extraction of astaxanthin from shrimp wastes is high pressure extraction with ethanol solvent. Method of extraction is carried out with the variation of pressure (0.1-600 MPa) and variations of time 1-20 minutes as well as solvent ratio of 10-50 mL/g. Advantages this method are higher extraction yield, required shorter extraction times, and better antioxidant activity. Stages of purification is done by the use of short chain alcohols, solvents evaporate, then wash the precipitate with short chain alcohols, solvent hydrocarbons or a combination of both.

Conclusion: The community is expected to use the astaxanthin products from the original raw material Indonesia as a supplement and antioxidant that are affordable and have the competitiveness. This will implies the improvement of autonomy in the provision of drug raw materials to face the ASEAN Economic Community (AEC).

Discussion: Astaxanthin is the most carotenoid in shrimp with a level between 39.5-92.2% of total carotenoids. Astaxanthin is a powerful antioxidant that can improves the function of vision, improves cardiovascular function, and can be used as cosmetics to slow down the aging process.

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Endemic plants from Mauritius islands as potential phytomedicines

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Mauritius island is endowed with a rich and diverse endemic flora comprising 315 endemic plant species most of which are known in the traditional pharmacopoeia. Although, the endemic floristic wealth of Mauritius represents a reservoir of new biologically active ingredients; most species have not been scientifically validated for their bioactivities. *Sideroxylon* species and *Diospyros* species have been traditionally used for the treatment of microbial infections and minor ailments. The present study describes the phytomedicinal profile of these species and their bioactivity is unveiled through their antioxidant and antibacterial assays. *Diospyros chrysophyllos* exhibited the highest amount of phenolics (221 mg gallic acid equivalent/g and *Diospyros boutoniana* exhibited strong reducing power (946.22 mmol Fe2+/g extract). Promising antibacterial activity was noted with *Sideroxylon* puberulum and D. *boutoniana* (minimum inhibitory concentration of 39.06 and 78.125mg/ml) respectively. These results endorse the phytochemical and bioactive richness of *Diospyros* species endemic to Mauritius and reveal their potential for pharmacological exploitation. The genetic diversity of selected *Sideroxylon* species is also described to endorse their uniqueness as Mauritian endemic bioresources, as result we noted that the Mauritian endemic *Sideroxylon* species are genetically related to Argan oil tree.

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