

Therapeutic potential and nutraceutical profiling of North Bornean seaweeds: A review

ABSTRACT

Malaysia has a long coastline surrounded by various islands, including North Borneo, that provide a suitable environment for the growth of diverse species of seaweeds. Some of the important North Bornean seaweed species are *Kappaphycus alvarezii*, *Eucheuma denticulatum*, *Halymenia durvillaei* (Rhodophyta), *Caulerpa lentillifera*, *Caulerpa racemosa* (Chlorophyta), *Dictyota dichotoma* and *Sargassum polycystum* (Ochrophyta). This review aims to highlight the therapeutic potential of North Bornean seaweeds and their nutraceutical profiling. North Bornean seaweeds have demonstrated anti-inflammatory, antioxidant, antimicrobial, anticancer, cardiovascular protective, neuroprotective, renal protective and hepatic protective potentials. The protective roles of the seaweeds might be due to the presence of a wide variety of nutraceuticals, including phthalic anhydride, 3,4-ethylenedioxythiophene, 2-pentylthiophene, furoic acid (*K. alvarezii*), eicosapentaenoic acid, palmitoleic acid, fucoxanthin, β -carotene (*E. denticulatum*), eucalyptol, oleic acid, dodecanal, pentadecane (*H. durvillaei*), canthaxanthin, oleic acid, pentadecanoic acid, eicosane (*C. lentillifera*), pseudoephedrine, palmitic acid, monocaprin (*C. racemosa*), dictyohydroperoxide, squalene, fucosterol, saringosterol (*D. dichotoma*), and lutein, neophytadiene, cholest-4-en-3-one and cis-vaccenic acid (*S. polycystum*). Extensive studies on the seaweed isolates are highly recommended to understand their bioactivity and mechanisms of action, while highlighting their commercialization potential.