Nutritional properties, antioxidant potential and antibacterial activity of two edible seaweeds, Kappaphycus alvarezii and Eucheuma denticulatum (Gigartinales, Rhodophyta)

Abstract

Proximate compositions, amino acids, fatty acids, minerals, antioxidant potential and antibacterial activity against food-borne pathogens, of Kappaphycus alvarezii and Eucheuma denticulatum were studied to evaluate their suitability as seaweed salad. Kappaphycus alvarezii had relatively higher moisture and ash contents, while E. denticulatum showed higher total lipid, sulphate, total dietary fiber and protein contents. Total dietary fibers were identified as kappa-carrageenan and iota-carrageenan, in K. alvarezii and E. denticulatum, respectively. Protein derived amino acids showed marginal differences between K. alvarezii and E. denticulatum, 232.28 ± 5.17 µmolg-1 and 249.37 ± 7.30 µmolg-1, however, free amino acids were 320% higher in E. denticulatum. Total fatty acids for K. alvarezii were 118.80 ± 4.25 µgg-1, whereas E. denticulatum contained twice the amount, 241.15 ± 7.92 µgg-1. Heavy metals were lower in concentration than the maximum permissible level recommended by FAO/WHO. Total phenolic content, antioxidant and antibacterial activities were significantly higher in extracts of E. denticulatum as compared to K. alvarezii. Findings from this investigation indicated that E. denticulatum has the ideal qualities as an organic marine salad.