

ABSTRACT

During certain seasons fairly large quantities of seaweeds are found in the coastal areas of Jaffna peninsula. In order to make the best use of them, a study of the mineral, protein, vitamin and fibre contents of 25 species of seaweeds found in Northern Sri Lanka was carried out.

Species such as Centroceras clavulatum (25.13%), Ulva lactuca (19.81%), Acanthophora deleili (16.81%) and Gracilaria edulis (14.25%) are found to have high protein content. Algae such as Gracilaria edulis, Laurencia obtusa, Sargassum polycystem, Sargassum tennerimum, Ulva lactuca, Gracilaria crassa and Thalasia hemprichi (sea angiosperm) have fairly large amounts of nitrogen, phosphorus and potassium and hence could be used as fertilizers. Of the species analysed Gracilaria opuntia (1277 ppm), Gracilaria crassa (889 ppm) and Turbinaria ornata (810 ppm) have relatively high iodine content. The iodine content of Gracilaria opuntia is comparable with the amounts of iodine present in Caliche deposits in northern Chile which is the principal source of iodine.

Seaweeds are found to accumulate trace elements from sea water. Manganese and titanium are accumulated by the seaweeds to a very large extent. However, no detectable amounts of cobalt or chromium was found in any of these

species. Some of the seaweeds for example Struvea anastomans, Jania natalensis, Padina pavonina and Hypnea musciformis are found to have toxic elements above the recommended limits and hence care should be taken when they are used as nutrients or fertilizers.

In this study a reliable titrimetric method for the accurate and convenient determination of bromide ions in the presence of small amounts of iodide and large amounts of chloride, was developed. In this method calculated amount of standard KIO_3 solution is used to oxidise all the iodide present to iodine and the iodine liberated is removed by extraction with CCl_4 . Then excess of standard KBrO_3 solution is added to oxidise bromide to bromine, the bromine is removed by boiling and the unreacted KBrO_3 is estimated by the usual iodometric method. Laurencia obtusa (4566 ppm), Hypnea musciformis (3456 ppm), Centroceras clavulatum (2373 ppm), Gracilaria crassa (2348 ppm) and Dictyota dichotoma (3727 ppm) contain greater than 2000 ppm of bromide. The bromide content of these species are comparable or even somewhat greater than that found in canalyte (2500 ppm) from which commercial bromine is normally obtained.

Seasonal variation in the chemical constituents of seaweeds has also been studied and our results indicate that the amounts of inorganic elements present in the seaweeds depend on place and month of collection.