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Comparative Analysis of Minerals from Some Green and Red Seaweeds along Sindhudurg District of Maharashtra

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ABSTRACT

Seaweed is a popular edible source and contain maximum amount of minerals. The current research aims to provide information about mineral composition of ten seaweeds belongs to class Chlorophyceae and Rhodophyceae from Sindhudurg district of Maharashtra, India. In present study maximum content of calcium and potassium was observed in *Chaetomorpha antennina, Chaetomorpha linum* and *Porphyra vietnamensis Chaetomorpha linum* was rich in calcium and cobalt. Calcium content was appreciable in *Chaetomorpha linum*, *Acanthophora spicifera* and *Gelidiella acerosa* and ranged from 709-3628mg/100g in present study. *Acanthophora spicifera* and *Gelidiella acerosa* were rich in iron and copper. Sodium and Nickel content was scored in highest in *Enteromorpha intestinalis*. Pottasium and magnesium content was maximum in *Porphyra vietnamensis. Ulva fasciata* was a rich source of zinc. Maximum sodium (Na) content was recorded in green alga *Enteromorpha intestinalis* (3020mg/100g) while minimum was observed in *Ulva fasciata* (780mg/100g).

Keywords: Green seaweeds, Red seaweeds, Minerals, Maharashtra

INTRODUCTION

Seaweeds are the macroalgae and are considered as one of the important marine, living resources in the world providing food, feed and medicine since ancient times (Arasaki and Arasaki, 1983). A broad range of biological activities, such as antibacterial (Oranday *et al*., 2004) antiviral, antitumor and anticoagulant (Athukorala *et al.,* 2006) have been reported in compounds derived from macroalgae. According to Gonzalezdel val *et al*. (2001) seaweeds exhibit antimicrobial activities due to their capacity to synthesize bioactive secondary metabolites. Sulfated polysaccharides from algae have been demonstrated to possess important pharmacological activities that include anticoagulant, antioxidant, antiinflammatory, antiviral, antibacterial, antiproliferative, antitumor, anticomplementary and antiadhesive properties (Anand *et al.,* 2010).

Seaweeds contain a high concentration of minerals such as magnesium, calcium, phosphorous, potassium and iodine (Jimenez and Sanchez, 2000). Burtin (2003) found that seaweeds are one of the most important source of calcium and their content may be as high as 34 % dry weight. Soja (2006) stated that some variety of seaweeds is even richer in calcium than milk and the human body can utilize nutrients from algae. Shep (2001) reported that sea vegetables are a good source of magnesium which help to reduce high blood pressure and chances of heart attack.

Proteins are important and essential factor establishing the nutritional value of food. Their biological value is based on the adequate amount of essential amino acids. Seaweeds are known to possess a significant amounts of these nitrogenous compounds. They also contain a small amount of non-protein nitrogen which is the source of some compounds such as free amino acids, chlorophylls, nitrate and nitrite nitrogen, ammonium ions and nucleic acids (Lourenco *et al*., 2002). In the green seaweeds, the level of glutamic acid and aspartic acid can represent up to 26 and 32% of the total amino acids of the *Ulva* species (Fleurence *et al*., 1999).

Materials and Methods

Fresh and mature thalli of green and red seaweeds were collected during low tide from Kunakeshwar and Malvan in Sindhudurg districts of Maharashtra. Algal material was washed thoroughly with tap water to remove epiphytes and other contamination and then dried in shade at room temperature for seven days. Then it was ground to a fine powder and stored in air tight container in dark, away from moisture and used for analysis. Green and red seaweed species worked out in the present study are listed below.