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STUDY OF VITAMINS IN SELECTED SEAWEEDS OF KARACHI COAST

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Eight different species of seaweeds belonging to Rhodophytes and Phaeophytes family - *Tetra sporangia* (Padina), *Botryocladia microphysa*, *Carpogonia florideae*, *Dictyota dichotoma*, *Iyengaria stellata*, *Samia indica*, *Hypnea musciformis* and *Sargassum vulgare* were studied for their contents of vitamins.

Keywords: Vitamins, Seaweeds

Introduction

Most edible seaweeds contain amino acids, carbohydrates, fats, proteins, vitamins, trace elements and an appreciable amount of iodine [1]. Seaweeds synthesize and accumulate vitamins for their growth and development. Different species of seaweeds require varying amount of vitamins according to season and their environments.

The variability in vitamin requirements of isolets of the same species was first noted by Lewin and Lewin [2]. However, variation in vitamin B₁ content may sometimes be due to non-biological destruction of thiamine, as demonstrated by Gold *et. al.* [3]. Several green, brown and red seaweeds are particularly appreciated as a human food [4].

While the nutritional value of seaweeds lies at present primarily in their vitamins [5], proteins and mineral contents, future technical innovations might permit a better utilization of the world's seaweeds resources for human nutrition [6].

Hart *et. al.* [7,8] carried out work of similar nature on the basis of seaweeds potential for consumption, which promoted us to investigate the presence of vitamins in seaweeds available on Karachi coasts.

Materials and Methods

To carry out the estimation of vitamins in eight different species belonging to Phaeophytes and Rhodophytes family in the subtidal region, these were collected in December 1987, from the Manora sea side at Karachi. All the fresh samples were thoroughly washed with tap water then washed again with distilled water and stored at 4°. All species were extracted with distilled water, alcohol and pet. ether after one week.

For the analysis of vitamins USP (United State Pharmacopoeia) and BP (British Pharmacopoeia) procedures were followed. For vitamin B₁, nicotinamide, folic acid, vitamin K and cynocobalamine (vitamin B₁₂) USP was followed whereas for vitamin A, vitamin B₂, vitamin B₆ and vitamin C (B.P) was used.

Extracts were analyzed with photic-100 spectrophotometer (Erma Co., Tokyo) against a standard

solution and the following wavelengths as indicated: vitamin B₁, 370nm; nicotinamide, 450nm; vitamin B₆, 650nm; vitamin B₂, 445nm; vitamin K, 380nm; vitamin A, 360nm; folic acid, 361nm. Vitamin C was titrated against the M/100 iodine solution (Table 1) whereas vitamin B₁₂ (cynocobalamine) were tested as a microbiological assay against the standard solution (which has strength of 0.01ppm) (Fig 1). The aqueous extracts of seaweeds were taken at 80° for 30 minutes.

For the microbiological assay [9], all the eight samples were plotted against the time period alongwith standard solution, shown in Fig. 1 which helped to calculate the value

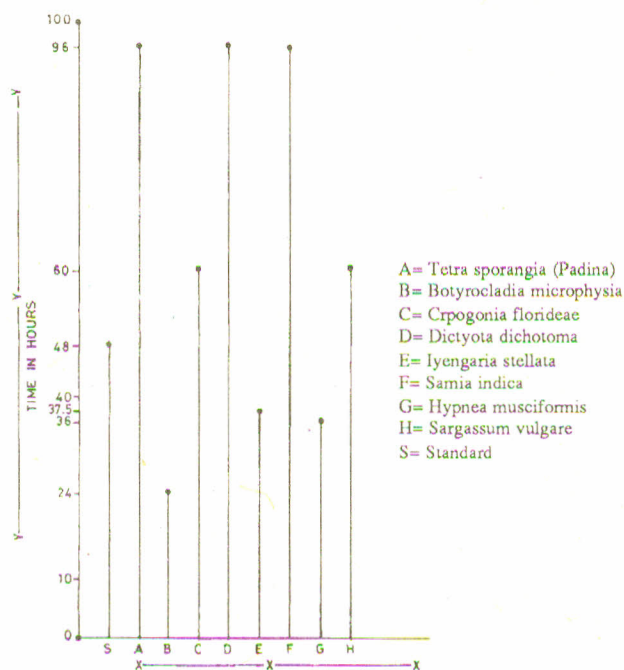


Fig 1. Samples with standard (Standard = 0.01 ppm of vitamin B₁₂) cynocobalamine

of vitamin B₁₂. All The values are calculated in parts per million for these vitamins as given in Table 1 and Fig. 1.

Results and Discussions

The Table 1 and Fig.1 shows that all the samples were high in vitamin C followed by vitamin B₂ with the exception

