

A NOTE ON THE OCCURRENCE OF PORPHYRA KANYAKUMARIENSIS (BANGIALES: RHODOPHYTA) ALONG THE KERALA COAST

V.S.K. Chennubotla, Susan Mathew and Imelda Joseph

Central Marine Fisheries Research Institute, Cochin - 682 031.

Abstract

Four species of Porphyra, P. vietnamensis, P. suborbiculata, P. indica and P. kanyakumariensis have been reported definitely from the Indian coast. Porphyra kanyakumariensis is now reported at a number of stations along the Kerala coast. In addition, the protein, lipid and carbohydrate content of the species and hydrological parameters of the ambient waters are also given.

Introduction

The alga was collected from the rocky boulders at Calicut, Cannanore, Varkala and Mullur coasts of Kerala during the south west monsoon, July to September 1988. They were found to grow abundantly in the upper littoral region that is continually exposed to tidal action. Associated algae on this coast are: Ulva fasciata, U. lactuca, Chaetomorpha antennina, Enteromorpha compressa, Chnoospora minima, Sargassum wightii, Grateloupia lithophila, Gracilaria corticata, Spyridia filamentosa, Centroceras clavulatum.

Material and Methods

The alga was collected in polythene bags. Its morphology was studied from formalin preserved material. For chemical analysis, the material was cleaned of epiphytes and epifauna, washed in fresh water followed by distilled water, dried in an oven at 55°C till constant weight was obtained, and then pulverised. Protein was analysed by the method suggested by Lowry et al (1951), carbohydrate by sulphuric acid phenol method and lipid by sulpho-vanillin method. The environmental parameters of the site of collection, temperature, dissolved oxygen, salinity, nitrate and phosphate content were studied using standard methods. The biomass was estimated as g/m².

Results and discussion

Plants were upto 20.24 cm in length and upto 9 cm in breadth, thallus lanceolate to ovate (Fig.1) monostromatic, with marginal single celled spinulose processes, 40 - 50 μm thick in vegetative portions and 61 - 76 μm thick in reproductive portions. Plastid single with stellate arms extending to the periphery of the cytoplasm. Thallus monoecious, spermatangia and carposporangia mixed, marginal in position (Krishnamurthy and Baluswami, 1984).

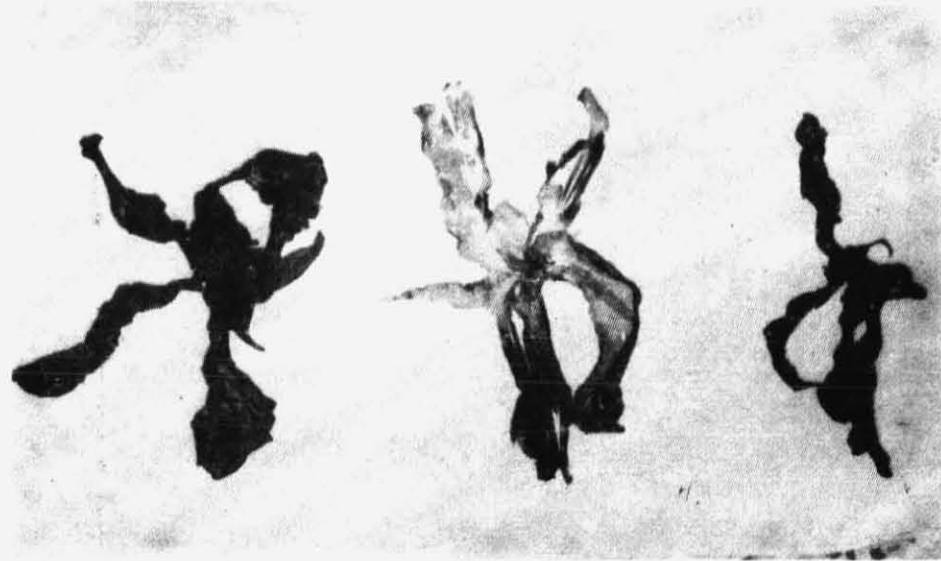


Fig. 1. *Porphyra kanyakumariensis* Three specimens collected from Calicut, Cannanore and Varkala, on the Kerala coast (nat. size).

The alga was found growing luxuriantly on the rocky boulders of Varkala with a biomass of about 1600 g/m² in July and about 200 g/m² in August. In Mullur also it was growing on the rocky shores where there was continuous wave action, but the biomass was only 75 g/m². At Calicut and Cannanore, this alga was found during the monsoon months with a biomass of about 350 g/m².

The hydrological conditions prevailing in the sites of occurrence of the alga are given in Table I below.

Place	Month	Temp		Do ml/l	Salinity %	Nitrate µg at/l	Phosphate µg at/l
		AT	SWT				
Varkala	July	27°C	26°C	4.9	34	25	1.4
Mullur	July	27°C	25°C	4.9	34.2	21.5	1.2
Calicut	August	28°C	27.5°C	5.2	24	25	3.4

An estimation of protein, lipid and carbohydrate contents of the alga collected along the Kerala coast was carried out and the mean values are given below:

Constituents	Value as % dry weight
Protein	18.3
Lipids	29.0
Carbohydrates	1.33

Krishnamurthy and Baluswami (1984) have given an account of four species of Porphyra occurring in India and the species described in this paper conforms to their description of Porphyra kanyakumariensis Krish. et Balus. This paper extends the distribution of this species to a number of stations on the west coast of India. Thus the genus Porphyra has a distribution along the west coast from Kanyakumari to Gujarat and on the east coast, at Visakhapatnam. (Umamaheswara Rao & Sreeramulu, 1963).

It is reported that a combination of low winter temperature and the nutrients carried by streams to the sea during this season stimulate the growth of this alga (Iverson, 1976). The present study confirms this observation for the species occurring in India.

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