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STUDIES ON THE DISTRIBUTION OF MARINE MACROALGAE IN COAST OF KANYAKUMARI

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ABSTRACT

Coastal line of India has luxuriant growth of marine algae in the littoral and sub-littoral rocky areas. Coasts of Kanyakumari has rich vegetation of macroalgaeand shows variation based on seasons therefore the investigator selected the coast for the present study. Algal samples were collected during northeast and post monsoon seasons. The observations revealed that a total of 35 algal species were recorded, among it nine belonged to the division Chlorophyta, nine to Phaeophyta and seventeen belonged Rhodophyta.

Key Words: Marine Macroalgae, Kanyakumari, Chlorophyta, Phaeophyta , Rhodophyta

Introduction

Seaweeds or marine algae are primitive and simplest group of plants. They constitute one of the commercially important marine living resources, grow in the littoral and sub littoral region up to 20 or 25m depth in the sea and also in the estuaries and backwater areas. Seaweeds grow abundantly in South Australia, North - East Pacific, and Mediterranean regions. Among tropical areas rich algal flora occurs in the farwest central Pacific, Caribbean regions and South India. The seaweed resources of the world comprises about 1460 million tonnes (wet weight) of brown algae and 261 million tonnes (wet.wt) of red algae (Michanek 1975). The total annual seaweed production is about 1721 x 10^4 tonnes (wet weight).

Since 1946 onwards survey of seaweed resources in different maritime states, Lakshadweep and Andaman Nicobar islands were carried out from time to time by the Central Marine Fisheries Research Institute (CMFRI). From the seaweed resources survey conducted, it is estimated that the total standing crop of seaweeds in the intertidal and shallow waters is 91.339 tonnes (wet.wt). It is consisting of 6000 tonnes of agar yielding seaweeds, 16,000 tonnes (wet weight) of algin yielding seaweeds and the remaining quantity of edible and other seaweeds. The algal resources of Gulf of Mannar (Tamil Nadu) is estimated as 75373 tonnes wet weight. Kanyakumari has rich vegetation of macroalgae and the reports regarding the vegetation of the coast is scanty and therefore this coast was selected for the present study.

Materials and methods

Kanyakumari is the coast having abundance of marine micro and macro algae. In Kanyakumari the rocks are big, flat or round distributed over a distance of Kilometres and Kilometres. The rocks are exposed during the low tide and submerged during high tide. Wave activity is high. Monthly and seasonal variations with regard to distribution of algae were studied. The study period includes two seasons' viz. north east monsoon (October, November and December,) and post-monsoon season (January and February). Monthly collections of marine algae were made from this coast from October to February. The collected algae were brought to the laboratory in polythene bags, sorted out and studied with the help of dissection microscope.

Observation and Discussion

Indian coasts extend from near equator (about 4^{O} NL) and therefore lie in the northern half of tropical zone. However climatic conditions do show sharp differences between southern and northern shores. These are influenced by atmospheric and sea water temperatures, monsoon pattern and tropical rain fall. A total of 35 algal species were recorded from this coast (Table -1). Among them 9 belonged to the division Chlorophyta, 9 to Phaeophyta and 17 to Rhodophyta. Similarly, the percent species composition was maximum in Rhodophyta (48.5%) and the values were 26.5% for Chlorophyta and Phaeophyta (Fig.4.9). Likewise the percentage generic composition was maximum (48%) in Chodophyta and 28% for Chlorophyta and it was 24% in Phaeophyta. The percent family composition of Rhodophyta recorded was 45% and they were 35 and 20% respectively for Chlorophyta and Phaeophyta.

The algae *Enteromorpha compressa, Ulva fasciata, U.lactuca, Caulerpa scalpelliformis, Valoniopsis pachynema, Sargassum linearifolium, Gracilaria corticata, Spyridia hypnoides, Ceramium sps* occurred throughout the study period. *Bryopsis plumose, Halimeda tuna, Laurencia flagelliformis, Chnoospora minima, Polysiphonia,* showed its appearance only in northeast monsoon season. *Dictyota dichotoma, Spatoglossum asperum, Colpomenia sinuosa, S. tenerrimum, Gelidium pusillum, G. indica, Jania rubens, Gracilaria fergusoni, Hypnea valentiae* were recorded only in the post-monsoon season. *Chaetomorpha antennina, C. racemesa, Padina pavonica, P. tetrastromatica, S. wightii, Amphiroa anceps, A. foliacea, Hypnea musciformis, Acanthophora muscoides,* occurred in most of the month of the study period. The algae *G. pusillum, Rhodymenia palmata* occurred very rarely during the study period.

Table 1. List of marine algae recorded from Kanyakumari coast

Name of the algae	Northeast monsoon			Post monsoon	
	Oct.	**Nov.**	**Dec.**	**Jan.**	**Feb.**
Chlorophyta					
Chlorophyaceae					
Ulvales					
Ulvaceae					
Enteromorpha compressa(Linnaeus)Grev.	+	+	+	+	+
Ulva fasciata Delile.	+	+	+	+	+
U.lactuca Linnaeus.	+	+	+	+	+
Cladophorales					
Cladophoraceae					
Chaetomorpha antennina (Bory) Kuet	+	+	+	+	-
Siphonales					
Bryopsidaceae					
Bryopsis plumosa (Huds)Ag.	+	+	+	-	-
Caulerpaceae					
Caulerpa racemosa (Forssk.)Weber V.Bosse	+	+	+	+	-
C.scalpelliformis(R.Br.) Web.Von Bosse	+	+	+	+	+
Codiaceae					

Halimeda tuna (Ell.et.sol.) Lamour.	+	+	+	-	-
Valoniaceae					
Valoniopsis pachynema (Martens.) Boergs	+	+	+	+	+
Phaeophyta					
Pheophyceae					
Dictyotales					
Dictyotaceae					
Dictyota dichotoma (Huds) Lamouroux	-	-	-	+	+
Padina pavonica (L.) Thivy exTaylor	-	-	+	+	+
P.tetrastromatica Hauck	+	-	+	+	-
Spatoglossum asperum J.Ag.	-	-	-	-	+
Dictyosiphonales					
Punctariaceae					
Colpomenia sinuosa Derb.et.Sol.	-	-	-	+	+
Chnoosporaceae					
Chnoospora minima (Hering) Papenfuss.	+	+	+	-	-
Fucales					
Sargassaceae					
Sargassum linearifolium (Turner) C.Agardh	+	+	+	+	+
S.wightii Greville	+	+	+	+	-
S.tenerrimum J.Ag.	-	-	-	+	+
Rhodophyta					
Rhodophyceae					
Gelidiales					
Gelidiaceae					
Gelidium pusillum(Stackh.Lejolis.)	-	+	-	+	-
Gelidiellaceae					
Gelidiella indica P.S.Rao.	-	-	-	-	+
Corallinaceae					
Amphiroa anceps (Lamk.) Decsne.	+	-	-	+	+
A.foliacea Lamour.	+	-	-	+	+
Jania rubens (L.) Lamouroux.	-	-	-	-	+
Gigartinales					

Gracilariaceae					
Gracilaria corticata var.J.Ag.	+	+	+	+	+
G.fergusoni J.Ag.	-	-	-	+	+
G. edulis (Gmel.)	-	-	+	+	+
Hypneaceae					
Hypnea musciformis (Wulf.) Lamour	+	+	-	+	+
H.valentiae (Turn.) Montagne	-	-	-	-	+

Wet wt. = Wet weight, + indicate presence, - indicate absence

. In India, hydrographic studies along the West coast in Marma Goa Bay (Dehadrai, 1970), Bombay coast (Bhargava *et al*., 1973), Tampa Bay and its adjacent region (Dehadrai, 1970) were made. Muthuswamy (1974) and Panakala Rao and Sastry (1981) studied the hydrography in different regions of the Bay of Bengal. The first detailed survey in Tamil Nadu coast for red algae resource was done by Desai, (1967) in the Gulf of Mannar. Studies were made by several workers on the occurrence of marine algae at different parts of Tamil Nadu Coast. Clarke *et al*., (1955) have reported 1345 algae. Krishnamurthy and Joshi (1970) listed 103 Species from Kurusdai Island. A list of 180 algae collected from Mandapam coast has been published by Umamaheswara Rao (1969). Umamaheswara Rao (1972) studied the coral reef flora of Gulf of Mannar and Palk Bay areas around Mandapam and reported a total number of 61 algal species. Subbramaiah (1974) reported 41 algal species from Mandapam coast. The distribution pattern of marine algae on the shores of Pamban was given by Subbaramaiah *et al*., (1977).

Conclusion

Kanyakumari has rich vegetation of macroalgae and the reports regarding the vegetation of the coast is scanty and therefore this coast was selected for the present study. Thirty five species of algae were recorded. Among them 9 belonged to Chlorophyceae, 9 to Phaeophyceae and 17 to Rhodophyceae. The maximum algal distribution was noted in northeast monsoon season. The generic, species and families composition were maximum in the division Rhodophyta. *Spatoglossum asperum, Gelidiella indica, Jania rubens* and *Laurencia flagelliformis* occurred only once during the study period. *Enteromorpha compressa,Ulva fasciata, Ulva lactuca, Caulerpa scalpelliformis, Valoniopsis pachynema,*

Sargassum linearifolium, *Gracilaria corticata*, *Ceramium sps* and *Spyridia hypnoides* occurred throughout the study period. The red algae are the dominant forms when compared with the green and brown algae.

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