



ORIGINAL RESEARCH PAPER

Botany

A STUDY ON VARIATION IN BIOMASS CONTENT OF MARINE ALGAE OF KANYAKUMARI

KEY WORDS: Seasonal biomass, total biomass, Algae

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ABSTRACT The rich distribution of seaweed resources are seen at different localities of Kanyakumari. The coast region of Tamil Nadu is highly resourceful and contains vast amount of economically important algae. Marine algae are also utilized in different parts of the world as feed for poultry and cattle and as fertilizer for many land crops

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. Rocks, stones, pebbles, corals and other substrate which are used as the substratum for their attachment. Seaweeds come under the division thallophyta of the plant kingdom, belong to four groups of algae namely chlorophyceae (green algae), phaeophyceae (brown algae), rhodophyceae (red algae) and cyanophyceae (blue-green algae) based upon their pigmentation and other morphological and anatomical characters. Seaweeds contain protein, carbohydrate, vitamin, iodine, bromine, minerals etc. They are the only source for the production of phytochemicals such as agar, carrageenan and algin. The phytochemicals extracted from alga are used in food, confectionary, pharmaceutical, dairy, paper, paint and varnish industries. Marine algae are also utilised in different parts of the world as feed for poultry and cattle and as fertilizer for many land crops (Chennubhotla *et al.*, 1981 and 1987 Kaliaperumal, 1993).

MATERIALS AND METHODS

A quadrat of 0.5m² was constructed at random at 10 places and all the species of the algae available within the quadrat were harvested. They were placed in separate polythene bags and were brought to the laboratory, sorted out, washed with fresh water and the epiphytes were removed with blotting paper. The weights of each species from all the quadrats were taken separately. The mean weight of each species was obtained and the average biomass per square meter was calculated.

$$\text{Biomass} = \frac{\text{Average wet weight of a species obtained from 10 quadrates}}{0.5 \text{ m}^2} \times 1 \text{ m}^2$$

Biomass was expressed in g. wet wt. m⁻²

OBSERVATION

The algae showed their maximum biomass during the northeast monsoon season are *Gracilaria corticata* (1957 g. wet wt.m⁻²) *Caulerpa racemosa* (1845 g. wet wt.m⁻²); *Sargassum wightii* (1307 g. wet wt.m⁻²) *Sargassum linearifolium* (1275 g. wet wt.m⁻²); *Valoniopsis pachynema* (935 g. wet wt.m⁻²) and maximum biomass during the post-monsoon season were recorded in *Amphiroa anceps* (1032 g.wetwt.m⁻²) *Amphiroa foliacea* (1160 g.wetwt.m⁻²)

DISCUSSION

Wolf and Herlin (1988) have studied the distribution and seasonality of seaweeds of Rhode Island, U.S.A. Distribution and phenology of Karnataka coast was studied by Untawale *et al.*, 1989. Vertical distribution of marine algae of Tiruchendur (Krishnamurthy and Balasundaram, 1990) and seasonal variations of the seaweed resources of the northern Tamil Nadu coast (Rajendran *et al.*, 1990) were studied. Distribution of seaweed flora in the Southern Ocean was studied by John *et al.*, (1994). The effect of temperature on algal biomass was studied by Bridger *et al.*, (1982). A comparative study on the distribution of marine

macroalgae in Idinthakarai and Vizhinjam coasts was recorded by Devi *et al.*, (2004). Marine algal flora from some localities of Southeast coast of TamilNadu was reported by Edwin James *et al* (2004). Marine green algal flora of Kollam Coast, Kerala was reported by Sulekha and Panikkar (2006).

TABLE SEASONAL AND TOTAL BIOMASS (G.WET.WT.M⁻²) OF MARINE ALGAE

Name of the algae	Seasonal Biomass		Total Biomass (g.wet,wt.m ⁻²)
	North east monsoon	Post monsoon	
<i>Enteromorpha compressa</i>	201	80	281
<i>Ulva fasciata</i>	471	105	576
<i>U.lactuca</i>	367	155	522
<i>Chaetomorpha antennina</i>	700	285	985
<i>Bryopsis plumosa</i>	219	-	219
<i>Caulerpa racemosa</i>	1845	125	1966
<i>C.scapelliformis</i>	468	145	613
<i>Halimeda tuna</i>	490	-	490
<i>Valoniopsis pachynema</i>	935	213	1148
<i>Dictyota dichotoma</i>	-	110	110
<i>Padina pavonica</i>	75	113	188
<i>P.tetrasomatica</i>	275	148	423
<i>Spatoglossum asperum</i>	-	25	25
<i>Colpomenia sinuosa</i>	-	242	242
<i>Chnoospora minima</i>	270	-	270
<i>Sargassum linearifolium</i>	1275	475	1750
<i>S.wightii</i>	1307	120	1427
<i>S.tenerrimum</i>	-	175	175
<i>Gelidium pusillum</i>	39	24	63
<i>Geildiella indica</i>	-	45	45
<i>Amphiroa anceps</i>	75	1032	1107
<i>A.foliacea</i>	50	1160	1210
<i>Jania rubens</i>	-	34	34
<i>Gracilara corticata</i>	1957	1555	3510
<i>G.fergusoni</i>	-	269	269
<i>G.edulis</i>	112	262	374
<i>Hypnea musciformis</i>	175	162	337
<i>H.valentiae</i>	-	75	75
<i>Rhodomenia palmata</i>	25	39	64
<i>Ceramium sps</i>	224	165	389
<i>Spyridia hypnoides</i>	449	364	813
<i>Acanthophora muscoides</i>	180	55	235
<i>Laurencia papillosa</i>	750	700	1450
<i>L.flagelliformis</i>	150	-	150
<i>Polysiphonia sp.</i>	250	-	250

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