

RESEARCHES ON UPPER INFRA-LITTORAL ALGAE SOUTH OF GOKOVA SPECIALLY PROTECTED AREA

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Abstract

In the present study the species composition and biomass of upper infralittoral macroalgal communities in the south part of Gokova Specially Protected Area, were studied. Thirty macroalgal species were identified in the study area. The mean biomass per station was $2641,65 \pm 2023,30$ gram/m².

Keywords : *Algae, Biomass, Aegean Sea.*

Introduction

Marine macroalgae, better known as seaweeds, are classified according to their pigmentation into brown (Heterokontophyta), red (Rhodophyta), and green (Chlorophyta) seaweeds. They are widely used as food, as ingredients in cosmetics and fertilizers, and in hydrocolloid production (e.g. agar and alginate). Seaweeds are of ecological importance because they assist in supplying oxygen to the sea and act as one of the primary producers in the marine food chain. Some seaweeds have the capacity to remove heavy metals from the water and can potentially be used in biomonitoring and in the bioremediation of such pollutants. Seaweeds also possess excellent survival strategies to withstand the many environmental stresses that they are exposed to. For all these reasons, together with their unique life-cycle and physiology, seaweeds are interesting study subjects [1].

Material and Method

The study was carried out in the south of the Gokova Bay (Aegean Sea, Turkey). Sampling was done randomly at 24 stations in 20 June - 5 July 2005. Samples were collected at upper infralittoral zone (0,3-0,5m) by scraping off all attached vegetation within 25x25 cm quadrat. At each station two quadrates were taken. Samples, fixed in 4% formaldehyde seawater solutions, were sorted in laboratory for both taxa identification and biomass determinations. Wet weight of each macroalgal species was calculated.

Results and Discussion

A total of 30 taxa were identified including 14 Rhodophyta (*Florideophyceae*), 11 Heterokontophyta (*Phaeophyceae*) and 5 Chlorophyta (*Ulvothyceae*) (Table 1).

Tab. 1. List of species, their mean biomass \pm standard deviation (expressed as wet weight).

Species	Biomass (gram/m ²)	
	Mean	SD
Chlorophyta		
<i>Acetabularia acetabulum</i> (Linnaeus) P.C. Silva	62,11	304,05
<i>Anadyomene stellata</i> (Wulfen) C. Agardh	10,12	18,22
<i>Cladophora coelothrix</i> Kützting	4,85	23,76
<i>Dasycladus vermicularis</i> (Scopoli) Krasser	36,74	180,00
<i>Valonia utricularis</i> (Roth) C. Agardh	24,32	70,47
Heterokontophyta		
<i>Dictyota dichotoma</i> (Hudson) J.V. Lamouroux	12,01	48,63
<i>Dictyota fasciola</i> (Roth) J.V. Lamouroux	3,66	8,73
<i>Dictyota spiralis</i> Montagne	7,00	34,29
<i>Cystoseira amentacea</i> var. <i>stricta</i> Montagne	309,16	637,61
<i>Cystoseira barbata</i> (Stackhouse) C. Agardh	39,29	114,61
<i>Cystoseira compressa</i> (Esper) Gerloff & Nizamuddin	2,75	8,10
<i>Cystoseira corniculata</i> (Turner) Zanardini	1473,98	2237,42
<i>Cystoseira elegans</i> Sauvageau	373,93	723,80
<i>Padina pavonica</i> (Linnaeus) Thivy	26,86	70,10
<i>Sargassum vulgare</i> C. Agardh	1,38	6,78
<i>Sphacelaria cirrosa</i> (Roth) C. Agardh	1,36	3,00
Rhodophyta		
<i>Amphiroa rigida</i> J.V. Lamouroux	9,07	26,66
<i>Callithamnion corymbosum</i> (J.E. Smith) Lyngbye	0,01	0,05
<i>Chondria capillaris</i> (Hudson) M.J. Wynne	0,07	0,35
<i>Dasya rigidula</i> (Kützting) Ardissonne	1,24	3,68
<i>Falkenbergia hillebrandii</i> (Bornet) Falkenberg	0,03	0,12
<i>Ganonema farinosum</i> (J.V. Lamouroux) K.C. Fan & Y.C. Wang	3,01	14,73
<i>Gelidium spinosum</i> (S.G. Gmelin) P.C. Silva var. <i>hystrix</i> (J. Agardh) Furnari	0,91	4,47
<i>Halpiltilon virgatum</i> (Zanardini) Garbary & H.W. Johansen	22,27	103,10
<i>Herposiphonia secunda</i> (C. Agardh) Ambronn	0,00	0,01
<i>Jania longifurca</i> Zanardini	17,13	78,36
<i>Laurencia obtusa</i> (Hudson) J.V. Lamouroux	148,96	372,42
<i>Liagora viscida</i> (Forsskål) C. Agardh	47,29	231,46
<i>Lomentaria clavellosa</i> (Turner) Gaillon	1,34	3,12
<i>Wrangelia penicillata</i> (C. Agardh) C. Agardh	0,80	3,90

Cystoseira and *Dictyota* were the genera with the highest number of taxa. Among these species, three brown algal species (*Cystoseira corniculata* (Turner) Zanardini, *Cystoseira elegans* Sauvageau and *Cystoseira amentacea* var. *stricta* Montagne) exhibited the highest mean biomass values. The mean number of species per stations was $6 \pm 3,8$.

In the upper infralittoral zone (0-1m depth) of the Mediterranean coasts, the species of the genus *Cystoseira* are usually the dominant element of the benthic vegetation on unpolluted hard substratum [2]. In this study, it's clear that *Cystoseira* spp. communities have a significant distribution in the Gokova Specially Protected Area and they support a rich associated flora on hard substrata. Among the 30 species *Cystoseira amentacea* var. *stricta* Montagne (Figure 1) has been listed as a protected species in "Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean" and this has a great importance for protection and conservation of natural habitats in Gokova Specially Protected Area.

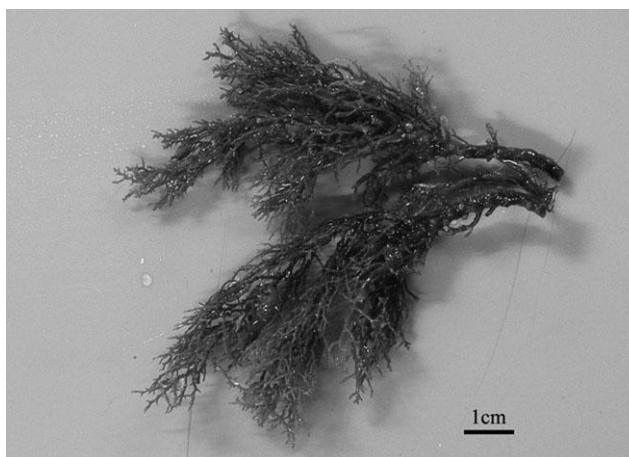


Fig. 1. *Cystoseira amentacea* var. *stricta* Montagne.

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References

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