

Contribution to the Phytoplankton study in Ionian Sea (Zakynthos Island)

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Abstract. The present study represents an attempt to describe and evaluate qualitatively and quantitatively the phytoplankton population of Zakynthos strait. Sampling in the above mentioned area (Fig. 1) was performed during January and April 1988. Samples were counted in an inverted microscope. Low values of cell concentrations were usually recorded both in January and April. Data from tables 1 and 2 show that the maximum values of phytoplankton concentration were usually recorded at the depth of 40-50m. Dinoflagellates dominated both January and April samples. In January this group was represented by 24 species, while in April 13 species of dinoflagellates were recorded; "naked dinoflagellates", mostly of the genera *Gymnodinium*, *Amphidinium* and *Gyrodinium*, *Gymnodinium simplex*, *Gymnodinium pygmaeum*, and *Amphidinium sp.* were the most abundant among them. In January diatoms were represented by 21 species, 13 species belonged to the "pennatae" group, which are typical in neritic waters (Kimor and Berdugo, 1966). In April, 21 diatom species were recorded, 14 species belonged to the "pennatae" group. *Nitzschia closterium*, *Navicula sp.*, *Thalassiothrix frauenfeldii*, *Skeletonema costatum*, *Rhizosolenia stolterfothii*, *Thalassiosira sp.* were among the dominant diatom species. Coccolithophores, though always present were recorded in very low values; the most common species among them were *Syracosphaera pulchra*, *Calyptrosphaera sphaeroida*, *Calyptrosphaera insignis*, *Calyptrosphaera oblonga*, *Coccolithus sp.*, *Rabdosphaera tubulosa* and *Pontosphaera huxleyi*. Silicoflagellates were rare and were represented mainly by one species, *Dictyocha fibula*. Finally the group "Other groups" which consisted from two phytoflagellates *Rhodomonas sp.* and *Cryptomonas sp.* seemed to play an important role in two stations (St.9 and St.10). The μ -flagellates, though always present in relatively high values, were not included in the evaluation of the total cell concentration, since their contribution to the primary production has not been estimated yet (Smayda 1980).

The low cell concentration of phytoplankton, in combination with the relatively high number of species, confirmed the oligotrophic character of the examined area.

The relatively low values of phytoplankton concentration which were recorded during the April cruise, may reflect a decline of the phytoplankton population after the spring bloom and the beginning of the summer minimum (Rouhiainen & Georgieva, 1982).

The Ionian sea is generally characterized by oligotrophic conditions. The maximum values of cell concentrations were usually recorded at the depth of 50m as well in Central and Southern Aegean (Souchenia, 1961; Rouhiainen & Georgieva, 1982; Pagou and Gotsis-Skretas, 1988).

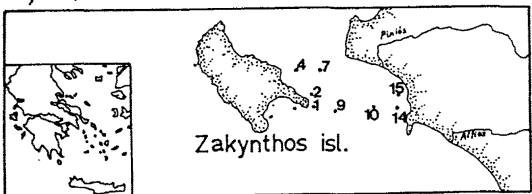


Fig.1 Sampling stations

Table 1. Phytoplankton groups (cells/l) in January 1988.

Taxa	D (n)	St. 1	4	7	10	14	15
Diatoms	0	1000	560	80	800	200	240
	20	1400	720	1120	840	520	600
	40	1240	1120	640	3360	730	680
Dinofl.	0	1240	520	360	800	480	400
	20	1480	1000	680	3720	1480	840
	40	2160	920	1000	1280	2000	800
Coccol.	0	320	360	120	80	80	120
	20	240	240	120	680	360	520
	40	160	720	240	480	440	360
Silic.	0	160	40	40	40	-	-
	20	-	40	120	-	80	40
	40	120	-	-	-	40	-
Other groups	0	-	-	-	960	-	-
	20	-	-	-	800	-	-
	40	-	-	-	1760	-	-
Tot. phyt.	0	2800	1480	600	2680	760	760
	20	3120	2000	2040	6040	2440	2000
	40	3680	2760	1880	6880	3210	1640
μ -flagel.	0	720	160	200	1640	400	240
	20	520	1000	800	2000	760	760
	40	960	560	600	2960	680	880

Table 2. Phytoplankton groups (cells/l) in April 1988.

Taxa	D (n)	0	10	20	30	50
Diatoms	360	720	840	800	1000	
	800	480	1720	1720	3080	
	520	80	560	560	360	
Dinofl.	80	-	40	40	160	
	-	-	-	-	-	
	-	-	-	-	-	
Tot. phyt.	1760	1280	3120	3120	4600	
	800	560	1380	1380	1880	
	-	-	-	-	-	
st.4	0	10	20	27		
	760	1240	1240	640		
	1560	1240	1200	1520		
Coccol.	120	120	360	280		
	80	80	80	-		
	-	-	-	-		
Tot. phyt.	2520	2680	2880	2440		
	2360	1240	1120	1040		
	-	-	-	-		
st.3	0	25	50	75	100	150
	320	400	760	520	400	80
	1200	1440	1720	1840	680	280
Coccol.	400	640	680	520	200	
	80	40	120	400	120	
	1440	1880	1640	360	280	80
Tot. phyt.	3440	4400	4920	3640	1280	440
	8650	5252	4360	2880	2600	2210
	-	-	-	-	-	

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