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DISTRIBUTION OF PHAEOPIGMENTS IN THE ARABIAN SEA OFF MANGALORE*

K. MANJAPPA AND T.R.C. GUPTA**

Regional Research Station
University of Agricultural Sciences
Mudigere 577132

ABSTRACT

Seasonal and temporal variations in the concentration of phaeopigments at 100 and 10% light depth at six selected stations in the Arabian Sea off Mangalore (West Coast of India) have been studied. The phaeopigments ranged between traces and 29.8 mg/m^3. Fairly high concentrations of this pigment was encountered at 100 and 10% light depths during a major part of investigation. These values coincided with the variations of other chlorophyll pigments like Chl. a, b, c and carotenoids.

Key-words: Phaeopigments, Mangalore, Arabian Sea.

Varying quantities of degradation products of plant pigments are associated with plant populations. Documented evidence on the distribution of phaeopigments in Indian waters is rather meagre. Gupta (1975) estimated different chlorophylls and phaeopigments from different light depths near Fairway Buoy off Cochin. Radhakrishna, Bhattathiri and Devassy (1982) reported for the first time the concentration and distribution of phaeophytin in the Bay of Bengal. Other works of interest are those of Bhattathiri, Devassy and Radhakrishna (1980), Bhattathiri and Devassy (1981), Devassy and Bhattathiri (1981).

The present study was carried out in the Arabian Sea off Mangalore (Fig.1). Two areas were selected, one off Thannirbhavi which receives effluents of Mangalore Chemicals and Fertilizers Limited and the other north of New Mangalore Port (Panambur) not receiving any discharge of effluents. Samples were collected from 5 m depth contour upto a depth contour of 20 m along the line of effluent discharge pipeline and at Panambur region from 5 to 10 m depth contour at intervals of 5 m.

Secchi disc was used to determine the penetration of light in the vertical column of water and the depth of 100 and 10% were computed (Nair, Samuel, Joseph and Balachandran, 1968). Water samples were collected from surface and subsurface with polythene bucket and a Nansen bottle

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** College of Fisheries, Mangalore 575002.

Table I – Distribution of phaeopigments (mg/m^3) in the Arabian Sea off Mangalore.

Stations		1985 Mar	Apr	May	Jun	Aug	Sept	Oct	Nov	Dec	1986 Jan	Feb	Mar
1	S	T	29.80	4.30	0.28	8.97	1.66	4.53	0.32	1.21	3.36	T	0.17
	SS	T	6.80	16.59	NC	NC	14.10	3.39	1.16	1. 28	0.03	T	T
	S	T	12.35	21.10	T	2.24	2.00	2.85	2.40	T	0.25	T	3.40
2	SS	T	8.20	11.27	NC	NC	T	2.30	17.77	2.29	0.64	T	6.08
	S	T	10.54	4.07			4.82	0.98	1.41	1.45	T	T	T
3	SS	T	T	5.64	NC	NC	21.34	4.26	1.86	0.26	2.15	T	T
	S	T	6.60	T			2.79	1.88	1.83	0.59	2.76	T	1.15
4	SS	T	4.84	T	NC	NC	3.03	2.85	5.23	0.60	T	T	T
	S	T	3.62	T			2.99	1.70	T	0.22	4.77	T	T
5	SS	1.53	0.99	T	NC	NC	1.60	1.15	T	0.28	0.16	T	T
	S	T	0.60	6.02			2.24	4.10	1.66	0.22	0.99	T	T
6	SS	T	4.49	T	NC	NC	2.24	5.34	2.30	0.22	1.15	4.93	T

S – Surface water, SS – Subsurface water, NC – No collection, T – Traces.

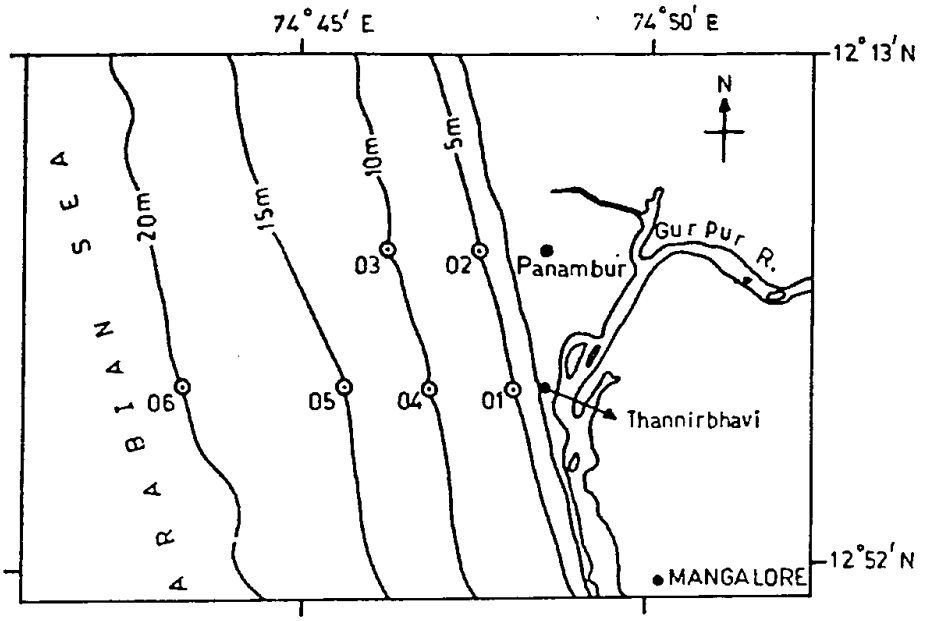

Fig.1. Location of the sampling stations.

respectively. Phaeopigments were estimated following Strickland and Parsons (1972) using a digital spectrophotometer (EC-GS: 5700).

Phaeopigments in the surface fluctuated between traces and 29.8 mg/m^3 and at 10% light depth from traces to 21.34 mg/m^3. A greater quantum of these pigments was observed in April (29.80 mg/m^3). Trace values were recorded during March 1985, Feb. 1986 and at some stations during March 1986.

Gupta (1975) recorded peak value for phaeopigments during May and traces during September at 100, 10 and 1% light depth in the waters off Cochin. Bhattathiri and Devassy (1979) recorded values ranging from 1.16 to 17.2 mg/m^3 in the Laccadive Sea, while Devassy and Bhattathiri (1981) observed the range from 0.017 to 0.068 mg/m^3 around Little Andamans Islands. The increasing concentration of these pigments with depth was noted by Radhakrishna, Bhattathiri and Devassy (1982) in the North Western Bay of Bengal. The present study reveales the availability of a substantial quantity of the pigments during April, May, September and November.

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