

TOTAL DISSOLVED CARBOHYDRATE IN MAHI RIVER ESTUARY

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ABSTRACT

Total dissolved carbohydrate varied from 4.37-15 mg l⁻¹ and 3.71-15.95 mg l⁻¹ in the surface and bottom samples respectively. Highest concentration of carbohydrate was observed at station 1 which decreased downward upto Station 6 which showed that river is the source of carbohydrate in the estuary.

Key-words : Carbohydrate, Mahi river estuary.

Carbohydrates are known to influence various biogeochemical processes in marine environment; (Williams, 1975). Previous studies have indicated large diel, spatial and temporal carbohydrate fluctuations in estuarine water (Laane, 1982; Kamat, 1976). In the present paper the distribution of total dissolved carbohydrate in Mahi River estuary is reported.

Detailed description of Mahi River estuary and sampling programme is given in earlier communication (Bhosle, Rokade and Zingde, 1985). Water samples were collected during a diel observation from seven stations located along Mahi River estuary (fig. 1). Fresh water was sampled at station 1 (fig. 1). A Niskin sampler was used for collecting sub-surface water samples. Sampling at surface was carried out using clean bucket. The samples were immediately transported to the field laboratory and filtered through Whatman GF/C filter paper and analysed for total dissolved carbohydrate by phenol sulphuric acid method (Dubois, Gilles, Hamilton, Rebers and Smith, 1956).

All along Mahi River estuary pooled dissolved carbohydrate varied from 4.37 — 15 mg l⁻¹ and 3.71 — 15.95 mg l⁻¹ in the surface and bottom water respectively (Table I). These values are little higher than those reported for estuarine and coastal environment. Dissolved carbohydrate ranging from 0.9 mg l⁻¹ and 0.8 mg l⁻¹ in surface and bottom samples have been reported for Mandovi estuary (Kamat, 1976). Whereas, Laane (1982) while working on Ems-Dollart estuary observed that dissolved carbohydrate fluctuated from 0.1-103 mg l⁻¹. Similar values (0.35-8 mg l⁻¹) of dissolved carbohydrate were reported for the coastal region (Burney and Sieburth, 1977). Overall decrease downstream from station 1 to 6 indicate that the river is the main source of carbohydrate in Mahi estuary (Table I). Similar pattern of carbohydrate distribution was observed for Ems-Dollart estuary (Laane, 1982).

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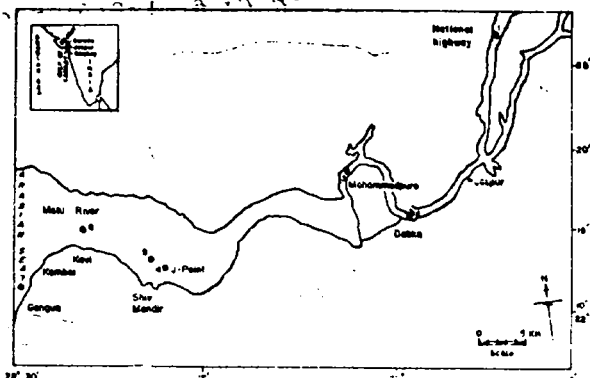


Fig 1. Station locations in Mahi River estuary.

In general surface pooled values are higher than those obtained for bottom in line with the observation in Mandovi estuary (Kamat, 1976). High surface concentrations are probably due to release of these compounds by phytoplankton in surface waters (Ochiai and Hanya, 1980).

There was an increase in the carbohydrate concentration at station 7 (Table I). This could be ascribed to high tidal current which causes the resuspension of bottom sediment containing high amount of organic matter (Anonymous, 1982, Bhosle, Rokade and Zingde, 1985).

Table I. *Pooled dissolved carbohydrate and salinity values in Mahi River estuary.

Station Number	Station	*Dissolved carbohydrate mg-l		
		Salinity ‰	Surface	Bottom
1.	Mahi National Highway	0.12	15.00	NA
2.	Dabka	0.14	9.08	7.97
3.	Mohammadpura	6.07	11.49	NA
4.	J-Point	17.47	10.13	6.3
5.	Shiv Mandir	17.18	9.27	3.71
6.	Kavi	11.76	4.37	7.17
7.	Gangua	15.83	11.25	15.95

NA = Not analysed; *Mean of three to six observations.

The data reveals that high concentration of carbohydrate was observed in Mahi river which decreased in the middle and outer part of the estuary suggesting that the river is the main source of carbohydrate in this estuary.

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