Mucous filaments development under controlled conditions : ultrastructure observations

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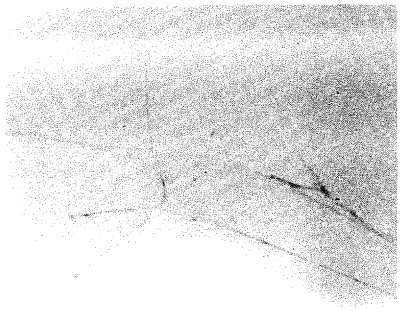
Sea water, collected in the Gulf of Trieste on July 1991, was placed in 10 liters plastic tanks.
After eight days in controlled conditions some mucous filaments occurred.
For thin sectioning the filaments were fixed in glutaraldeyde 2.5 % and postfixed for 4 h in 2.5 % OsO_4.
After washing the filaments were dehydrated in alcohol series and embedded in Spurr's medium. The thin sections were cut with glass knives and stained with uranyl acetate and lead citrate. A Philips 201 microscope was used for examination.



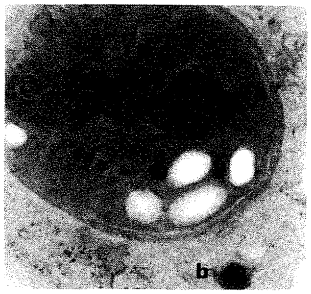
Mucous filaments developed in the tanks.

(——— = 6 cm)

Nitzschia closterium (Ehr.) W. Sm. and marine batecria were the most representative organisms found into mucous filaments.

Electron micrograph of *Nitzchia closterium* apex.

(——— = 0.3 µm)

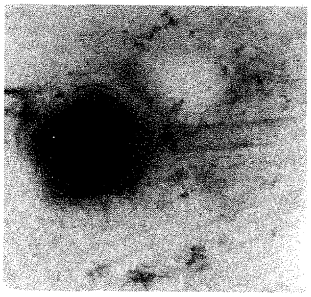


Electron micrograph of a bacterium and bacteriophage.

a. particle classified as bacteriophage according to size and morphology.

b. bacteriophage.

(——— = 0.35 µm)



Electron micrograph of a bacteriophage showing head and tail component.

(——— = 0.1 µm)

Hydrological features and phytoplankton distribution in the Gulf of Trieste (Northern Adriatic) in July 1990 and 1991

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The hydrological features and phytoplankton distribution recorded (AA1, AA2, AA3 and A17) in the Gulf of Trieste are compared (fig. 1).

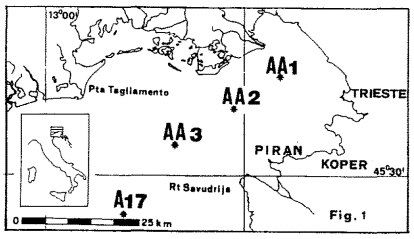

Fig. 1

The data refer to July 1990 and July 1991 when a wide range of mucous aggregates was observed in the Adriatic Sea.

Measurements of salinity, temperature and oxygen were carried out using a CTD Idronaut mod. 401 multiparameter probe. Chlorophyll *a* and phytoplankton samples were collected with a 5 liter Niskin bottle at 0m, 5m, 10m, 15m and deepest water layers.

In July 1990 the values of temperature and salinity were homogeneous along the whole water column. On the contrary, in July 1991 a well defined pycnocline extended over most of the water column (3-12 m). This different situation probably depends on either the absence (1990) and or presence (1991) of fluvial inputs in the spring and at the beginning of the summer.

During July 1990 oxygen distribution was rather homogeneous. The oxygen content generally showed oversaturation conditions over most of the water column except for the deep layer of st. AA1 where undersaturation was noticed (fig. 2). The Chl *a* concentration showed a decrease from the coastal area (st. AA1 to the outer part (st. A17). At st. AA1 and st. AA2 an increase in the deeper layers was noticed (fig. 2). In general this trend was followed by the phytoplankton distribution (fig. 2). In July 1991 oxygen distribution was heterogeneous with the highest values in the intermediate layers (8-12 m) and undersaturation values were presented at the deep layers of all the stations (fig. 3). Chl. *a* had a homogeneous distribution and values lower than in 1990. Also in this case the phytoplankton distribution followed the Chl. *a* concentration (fig. 3). The phytoplankton population consisted mainly of microflagellates, diatoms and dinoflagellates. Microflagellates were the quantitatively predominant phytoplankton component in both years. In July 1990 diatoms prevailed over dinoflagellates while in July 1991 the trend between diatoms and dinoflagellates was the opposite.

In conclusion there was phytoplankton abundance mainly in July 1990. The high values of oxygen found in the intermediate layers in July 1991 were not supported by high values of phytoplankton biomass, particularly microflagellates, on the water column but probably by the phytoplankton present inside the mucous aggregates.

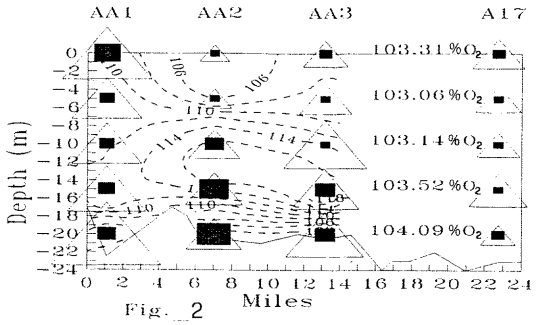

Fig. 2

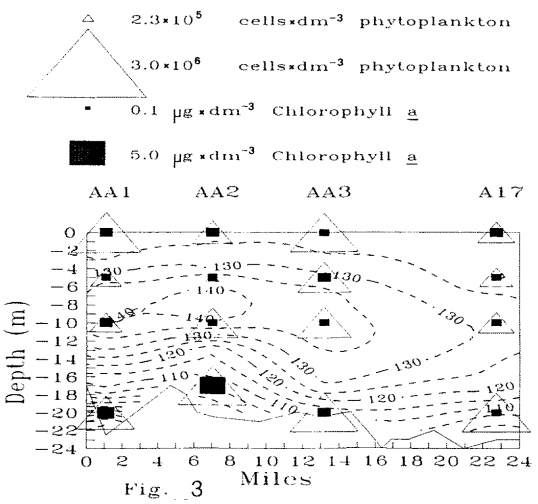

Fig. 3

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