

## The winter Phytoplankton of the North Suez Canal, January 1990

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Phytoplankton as well as other organisms of the Suez Canal in general and Port Said in particular, is attractive to the marine biologists. The importance of Port Said area comes from being the northern entrance of the Suez Canal, the biota of which is affected by the northward current passing the Canal from October to July and reaching its maximum in winter (MORCOS, 1967). Such current carries the plankton organisms from the Indo-pacific Red Sea habitat to the Atlanto-Mediterranean habitat, and though facilitates the immigration of species between the two habitats.

During January 1990, samples were collected from 7 stations distributed inside the Canal, in the Harbour and outside the Harbour. Qualitative samples were collected by oblique hauling of a fine net with 55  $\mu\text{m}$  mesh size, and the quantitative samples (one litre each) were collected from the surface water by Niskin bottle.

The winter (January) phytoplankton of Port Said was composed of 73 taxa of diatoms and 64 taxa of dinoflagellates. Remarkable number were neritic or littoral. The phytoplankton community was dominated by the diatoms: Nitzschia delicatissima, Lithodesmium undulatum, Chaetoceros curvisetum, Ch. decipiens, Leptocylindrus danicus, Rhizosolenia stouterfothii, Thalassiothrix frauenfeldii, Coscinodiscus gigas and Cyclotella meneghiniana. Some of dinoflagellates were common such as Ceratium furca, C. lineatum, C. egyptiacum and Protoperidinium cerasus. Several brackish and fresh water forms were observed in the area possibly transferred from the adjacent Lake Manzalah. The distribution pattern of phytoplankton species in Port Said showed obvious homogeneity among the stations, but with different abundances. Such homogeneity is attributed to the current regime in the Canal during winter (DOWIDAR, 1976).

In the water samples, the standing crop varied between 30636 cells  $\text{l}^{-1}$  and 890000 cells  $\text{l}^{-1}$  with an average of 349275 cells  $\text{l}^{-1}$ . The lowest crop was observed at the proper Mediterranean stations, while the highest crop was found near the inlet of the brackish water to the Canal. The leading species of the standing crop were Nitzschia delicatissima forming 36-71% of the total crop, Skeletonema costatum (5-25%), Cyclotella meneghiniana (18-19%) and Leptocylindrus danicus (5-7%).

The species composition and the standing crop of phytoplankton in Port Said varied significantly from those recorded by DORGHAM (1974) and DOWIDAR (1976). These variations are related to changes in factors acting in the Canal during the past two decades, such as increase of oil pollution and water disturbance due to the ship movements in the Canal and the widening processes of the Canal.

The most characteristic feature of the winter phytoplankton was the existence of several species, which were recorded by HALIM (1970) and DOWIDAR (1976) as Red Sea immigrants, namely; Coscinodiscus gigas, Biddulphia sinensis, Ceratium breve and C. egyptiacum in addition to Rhizosolenia shrubsolei, R. alata, R. calcar-avis and Guinardia flaccida, which might be also Red Sea immigrants, particularly in winter. Moreover, other Indo-pacific forms such as Hemidiscus hardmanianus, Ceratium schmidtii, C. lineatum, C. recurvatum, Protoperidinium ovatum and P. conicum v. assamushii were not recorded previously in the study area or in the eastern Mediterranean. Some of these species were found in significant density in the net samples. Therefore, they may be regarded as immigrants from the Red Sea. STEINITZ (1968) stated that introduction of individuals of species already represented in the involved area is immigration at least from the numerical point of view.

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