

Microbial and Meiofaunal Dynamics in the Intertidal Sediments of the Northern Red Sea

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Abstract : The meiofaunal population fluctuation, microbial dynamic and the composition of the sedimentary organic matter were investigated seasonally in the Egyptian shores along the northern part of Red Sea. Total meiofaunal population densities were extremely low with an annual average of 109 ± 26 ind./10 cm² and largely dominated by nematodes (on annual average from 52% to 94% of total meiofaunal density). The benthic microbial population densities ranged from $0.26 \pm 0.02 \times 10^8$ to $102.67 \pm 18.62 \times 10^8$ /g dry sediment. Total sedimentary organic matter concentrations varied between 5.8 and 11.6 mg/g and the organic carbon, which was measured as summation of the carbohydrates, proteins and lipids, accounted for only a small fraction of being 32 % of the total organic matter. Chlorophyll a attained very low values and fluctuated between 2 and 11 μ g/g. The very low chlorophyll a concentration in the Egyptian coasts along the Red Sea can suggest that the sedimentary organic matter along the Egyptian coasts is dominated by organic detrital and heterotrophic bacteria on one hand, and do not promote carbon transfer towards the higher trophic level on the other hand. However, the present study indicates that the existing of well diversified meiofaunal group, with a total of ten meiofaunal taxa, can serve as food for higher trophic levels in the Red Sea marine ecosystem.

Keywords : bacteria, meiofauna, intertidal sediments, Red Sea

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