DISTRIBUTION OF SUSPENDED BACTERIA, COLONY-FORMING AND H_2S- PRODUCING BACTERIA IN THE COASTAL WATERS OF THE CENTRAL ADRIATIC

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On a présenté les résultats des études de la distribution spatialle et relation entre le numéro total des bactéries suspendues, les bactéries aérobies hétérotrophes, bactéries producteurs de H_2S et de la valeur ATP dans les eaux cotiéres de l'Adriatique Centrale.

Water samples were collected from three layers (surface, intermediate, interface) at six stations of the coastal waters in April and June 1980.

Total direct counts of suspended bacteria were made by filtering aliquots of sea water samples, using irgalan black stained, 0.2 µm Nucleopore filters, and staining the filters with 0.01 % acridine orange for 3 min (HOBBIE et al., 1977). The filters were viewed by epifluorescence microscopy, and 20 fields per sample were counted to determine total numbers of bacteria.

Colony-forming bacteria were enumerated by plate counts using ZoBell 2216 medium. H_2S-producing bacteria detected on the same medium were supplemented by cysteine, Na-sulfate and Pb-acetate.

Extraction and analyses of the ATP samples followed HOLM-HANSEN and BOOTH (1966).

The total number of suspended bacteria varied from 2.5 to 16.7 x 10^5 cells ml^{-1} (s.d. 3.0 x 10^5). Variations in the number of bacteria could not be associated with time of sampling, temperature, or salinity, but some differences were associated with geographic position and influence of the coast. Estimates of total cell volume were converted to bacterial carbon and compared to ATP estimates of total plankton carbon (FERGUSON, 1976), Bacterial carbon averaged 12.8 % of the ATP estimate of total plankton carbon (range of 33 observations 2.7 - 28.6 %) and there is a significant correlation between them (r = 0.78).

Viable, aerobic, heterotrophic bacteria (colony-forming units) were recorded in considerably less quantity (110-4930 ml^{-1}) than the total number of bacteria, of which the population of these bacteria made up 0.01 to 1.1 % ($\bar{x}$ = 0.2 %).

H_2S-producing bacteria were present in all the samples collected. They made up 12.5 - 96.1 % ($\bar{x}$ = 30.0 %) of the total number of colony--forming bacteria enumerated by plate counts. The maximum number of H_2S--producing bacteria was found at the interface layer at all stations (from 150 to 4800 ml^{-1}). They were observed to be significanty correlated with the total plate counts (r = 0.90), but not with the total number of suspended bacteria.

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