Nematodes were determined to generic level. Nematode biomass varied between a minimum of 23-26 mg ww/m² at 540 m depth and a maximum of 270-310 mg ww/m² at 175 m depth. Biomass is lowest at intermediate depths because both density and individual weight are low. Between 540 m and 1605 m there is first an increase in biomass to about 100 mg ww/m² at 800-1200 m and a slow decrease to about 80-90 mg ww/m² at 1600 m.

Similarity between nematode assemblages was tested with several qualitative and quantitative indices, which all gave nearly the same results : the shallowest station (— 175 m) clusters apart whereas the five deeper stations form a coherent group, in which further clusters are formed according to depth. Sediments on the other hand cluster in two distinct groups, the three shallower stations, where particles of sand dimensions are present in large amounts, and the three deeper stations where the sediment consists almost exclusively of silt and clay.

Diversity of the nematodes at the generic level is high and is maximal at 175 m and 1605 m (around 4.1 bits/ind.), lowest at the intermediate stations (around 3.6 bits/ind.). The genus *Richtersia*, which was studied systematically, was present with four species new to science.

At 305 m an individual of the newly described phylum Loricifera was found. This consists the first finding in the Mediterranean.

ADENYLATE ENERGY CHARGE AND ATP CONCENTRATIONS IN MARINE BENTHOSORGANISMS : USEFUL POLLUTION INDICES ?

by

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The concentrations of the adenine nucleotides, adenosine triphosphate (ATP), diphosphate (ADP), and monophosphate (AMP), were measured in two polychaetan species, *Nereis diversicolor* O.F. Müller and *Nephtys* sp. For each organism, the adenylate energy charge (AEC) is calculated.

The AEC is a measure of the amount of metabolic energy available to an organism from the adenylate pool. It is calculated from the molar concentrations of the three adenine nucleotides : AEC = (ATP + ½ ADP)/(ATP + ADP + AMP), and varies between 0 and 1. In optimal growth conditions, the AEC is buffered in the upper part of the scale (0.8 to 0.9). Its application as a biochemical index of stress, with lower values indicating non-optimal or stressful conditions, has been proposed by several authors.

In this study, an evaluation of the applicability of the AEC as an ecphysiological measure of pollution stress is made. It was determined in organisms collected in ten stations in the tidal zone along the heavily polluted Westerschelde-estuary. As an unpolluted control, some organisms were collected in the Dievengat, a brackish water pond in Knokke (N.W. Belgium).

It was found that neither AEC, nor ATP concentration vary in function of the assumed pollution gradient in the Westerschelde. Besides, the AEC values in the Westerschelde are as high as measured in the Dievengat.

The ATP concentration is higher in *Nephtys* than in *Nereis*; the value in *N. diversicolor* in the Dievengat is higher than in the Westerschelde population. It is, however, possible to induce a short-term reduction of the AEC, for example by drying of the organisms as was demonstrated in an experiment.

It is concluded that, with *N. diversicolor* as testorganism, AEC is not a suitable measure to demonstrate a pollution stress, which although high, is relatively constant in time. Apparently, AEC only reacts to short-term disturbances. A definitive judgment about the utility of the ATP concentration as a pollution index is not yet possible.