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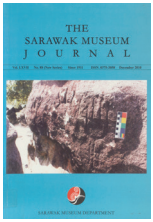

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DISTRIBUTION OF INTERTIDAL NEMATODE FROM WESTERN SARAWAK, MALAYSIA

Shabdin Mohd Long, Sarinah Bujang and Samsur Mohamad

ABSTRACT

A study on the diversity of marine nematodes was conducted at the intertidal area of western Sarawak, Malaysia. The main objective of this study was to identify the taxonomic composition of nematodes along the coastal area of western Sarawak. Marine nematodes were sampled while the physico-chemical and biological parameters of the water and sediment were recorded. Results obtained show that there are 26 genera of nematodes found in the sampled sites. The most abundant genera in the study area were *Viscosia, Halalaimus, Daptonema* and *Anticoma*. The density of nematodes was approximately 91- 285 individual / 10 cm^2. The basic data recorded in this study could be used for future pollution monitoring of the benthic environment in western Sarawak.

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INTRODUCTION

The Phylum Nematoda consists of small multicellular vermiform organisms which can be found in almost every conceivable environment. Apart from existing as free-living forms in soil, freshwater and marine benthic habitats, they also parasitise plants and other animals, including man (Pechenick, 2000).

Nematodes hold an important role in benthic processes. There was evidence that nematodes play an important role in making detritus available to macro-consumers (Tenore *et al.*, 1977). Development of the nematode community was characterised by subtle shifts in the composition of species inhabiting the leaf litter. Gee and Somerfield (1997) suggested that changes in the meiofauna community including

nematodes may be more intimately linked to successional changes in the chemistry and/or microflora of the leaf litter than to the physical breakdown of the substratum.

Nematode communities are important food component in the marine and estuarine food webs. The finding of nematode communities serving as food sources for higher trophic levels are more evident in mud rather than sand. This is because in most cases where nematodes were known to be food for higher trophic levels, studies had been conducted in a muddy and detrital substrate (Coull, 1988). Conversely, it was also being suggested that nematodes are not food for higher trophic levels based primarily on works that have been done in the sandy environments (Coull, 1988). In muddy-detrital substrates most of the nematodes were restricted to the top-most sediment layers and an indiscriminant browser-ingester would inevitably consume the resident nematodes. However, due to the available interstitial spaces in the sand, nematodes go deeper into the sediment and are not as susceptible to browse predation, but epibenthic sand nematodes are susceptible to predation.

Nematodes are known to be sensitive indicators of environmental perturbations. Due to their characteristics such as occurring in large numbers, relatively stationary life habits, short generation times, benthic larvae and intimate association with sediments which are known to accumulate various contaminants, nematodes have also become a popular subject to study in relation to pollution. One must realise however, that nematodes are notoriously difficult to identify to species level and since species should be identified to provide a most complete picture of an effect, the use of nematode as indicators are limited. As a result of difficulty in identifying nematodes, many environmental studies prefer not to include them. Parker (1975) and Raffaelli and Mason (1981) have proposed using a ratio of nematodes to copepods (N/C ratio) as a monitor of pollution or sediment changes that eliminates the need for detailed, time consuming species identification. While this idea is very attractive it has generated considerable controversies (Coull *et al.*, 1981; Raffaelli,