

TAXONOMY & ECOLOGY

Beyond Classical Approaches

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TAXONOMY OF FREE-LIVING NEMATODES SPECIES IN SIMILAJAU RIVER ESTUARY, SARAWAK

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ABSTRACT

Free-living nematodes are enormously diverse and abundant, forming a major component of benthic community. However, it has received little attention in Malaysia. There are not much detailed information about species diversity and taxonomy of free-living nematodes especially for estuarine species. Therefore, a pioneered study had been carried out in Similajau estuary on 27th October 2007. Three replicates of sediment were taken and sieved *in-situ* using seawater with a 500µm sieve above and 45µm sieve below before preserved in the specimen bottle with 5% buffered formalin. In the laboratory, the nematodes specimen were processed and identified. Results showed six species were found: *Anoplostoma viviparum*, *Halichoanolaimus cf. consimilis*, *Sabatieria cf. granifer*, *Spilophorella papillata*, *Sphaeroaimus lodosus* and *Trissochulus cf. obtusus*. *A. viviparum* is characterized by having a large cylindrical buccal cavity with no tooth, pocket-like amphid, smooth cuticle, oesophagus with no bulb, and long filiform tail. While *H. cf. consimilis* is having a buccal cavity which separated into two sections, spiral amphid, cuticle with transverse rows of fine dots, no oesophageal bulb, and cylindrical tail. *S. cf. granifer* is having a cup-shaped buccal cavity, spiral amphid, smooth cuticle with transverse row of fine punctations, oesophagus with no bulb and cylindrical tail. *S. papillata* is characterized by having a buccal cavity with prominent hollow dorsal tooth, an elongated transverse slit of amphid, complex heterogenous cuticle, double oesophageal bulb and conical tail. *S. lodosus* is characterized by having a buccal cavity of barrel shaped, circular amphid, transversely striated cuticle, oesophagus with no bulb and conico-cylindrical tail. Lastly, *T. cf. obtusus* is having a buccal cavity with solid curved teeth, cup-liked amphid, smooth cuticle, no oesophageal bulb together with a long and conical tail.

Keywords: taxonomy, nematodes species.

INTRODUCTION

Free-living nematodes are enormously diverse and abundant, forming a major component of benthic community (Platonova and Gal'tsova 1985; Platt and Warwick 1983, 1988; Warwick *et al.* 1998). Nematodes, also known as microworms derived from the phylum Nematoda. The whole phylum contains 20,000 nominal species and an estimated 4,000 to 5,000 species are free-living nematodes (Giere 1993; Platt and Warwick 1983, 1988; Warwick *et al.* 1998). According to Gibbons (2002), nematodes also colloquially referred to as roundworms but this rarely reflected their shape in cross-section. Free-living nematodes can be found in almost all types of soils, sediments, in the freshwater lakes, deep ocean floor, even in the hot springs and Antarctic soils (Platt and Warwick 1983, 1988; Tarjan 1987; Warwick *et al.* 1998).

But, it has received little attention by the researchers even in Malaysia. There are not much detailed information about species diversity and taxonomy of free-living nematodes especially for estuarine species. Studies conducted in Malaysia only covered the ecology and diversity of marine meiofauna or meiobenthos (Sasekumar 1994; Shabdin 2006; Shabdin and Othman 2005). Free-living nematodes are ignored probably due to their less contribution in economic importance as compared to parasitic nematodes which are well known in inflicting great economic loss and disease to human. Recently the study on the free-living nematodes had attracted the attention of researchers all over the world due to its potential as pollution indicator and live feed in aquaculture (Vidakovic, 1983; Platt *et al.*, 1984; Gyedu-Ababio *et al.*, 1999; Guo *et al.*, 2002; Ricci *et al.*, 2003; Schlechtriem *et al.*, 2004; Liu *et al.*, 2008). In the attempt of exploring the potential of the free-living nematodes in this field,