



A review of the genus *Tripylina* Brzeski, 1963 (Nematoda: Triplonchida), with descriptions of five new species from New Zealand

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Abstract

Tripylina contains six accepted species. Morphologically, five new species can be briefly characterized as follows: *T. tearoha* **sp. nov.**, *T. manurewa* **sp. nov.** and *T. tamaki* **sp. nov.** each have a single ventromedian seta and two pairs of lateral setae in the cervical region; *T. tearoha* **sp. nov.** differs from *T. tamaki* **sp. nov.** by de Man's Index *a* (25–30 vs 20–23), and differs from *T. manurewa* **sp. nov.** by the distance of the ventromedian cervical seta from the head end (62–77 vs 78–86 μm). *T. manurewa* **sp. nov.** differs from *T. tamaki* **sp. nov.** by de Man's Index *a* (24–29 vs 20–23). Molecularly, these three new species can be differentiated by SSU & LSU analysis. *Tripylina yeatesi* **sp. nov.** and *T. kaikoura* **sp. nov.** are characterised by relatively long bodies, and the absence of ventromedian cervical setae; *Tripylina yeatesi* **sp. nov.** differs from *T. kaikoura* **sp. nov.** by de Man's Indices: *a* (29–30 vs 22–23), *b* (5.8–6.0 vs 6.0–6.2), *c* (18–26 vs 14–16) and *c'* (2.0–2.6 vs 2.7–3.0), respectively. Among the six previously described species, the main distinguishing features for *T. arenicola* and *T. ursulae* are their subventral stoma denticles lying posterior to the dorsal tooth, which differentiates them from *T. longa*, *T. macroseta*, *T. sheri* and *T. stramenti*. All published species also can be differentiated by: body length; values of De Man's Indices *a*, *b*, *c*, *c'* and *V*; presence or absence of setae and setal positions. A key is provided for all eleven species of the genus.

Key words: New Zealand, genus review, new species, morphology, molecular, Nematoda, Tripylidae, *Tripylina*, key

Introduction

Nematodes of the genus *Tripylina* Brzeski, 1963 are found in soil and aquatic habitats. Proposed as a genus containing three species in the family Tripylidae de Man, 1876 by Brzeski (1963), the genus has since been discussed and reviewed, and three more species have been added (Tsalolikhin 1983; Andrassy 1985, 2007; Brzeski & Winiszewska-Ślipińska 1993; Zullini 2006). *Tripylina* currently consists of six published species recorded from Europe, Asia, North America, South America, Africa and New Zealand (Brzeski & Winiszewska-Ślipińska 1993; Tsalolikhin 1983; Andrassy 2007 & 2008; Yeates 1972), of which *T. stramenti* (Yeates, 1972) Tsalolikhin, 1983 was described from New Zealand. All these taxa are based solely on morphological characters. Since March 2007, the nematodes in the family Tripylidae have been sampled from various areas in New Zealand. Over 200 soil and litter samples from native forests and conservation parks have been examined.

The ribosomal DNA (rDNA) is a component of the middle repetitive DNA of the nuclear genome, and the presence of multiple copies of these genes in the genome facilitates PCR amplification from a single nematode (Powers *et al.* 1997). The large subunit ribosomal (LSU) rRNA gene has been useful for resolving closely related taxa (Al-Banna *et al.* 1997; Nadler and Hudspeth 1998; Duncan *et al.* 1999). The small subunit ribosomal (SSU) rRNA gene has been found to be useful for phylogenetic analysis across the Phylum Nematoda (Fitch *et al.* 1995; Aleshin *et al.* 1998; Blaxter *et al.* 1998; De Ley *et al.* 2002; Ye *et al.* 2007a,b; Zhao *et al.* 2008). Therefore, sequence analysis of PCR amplified from both the D2/D3 expansion segments