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A review of the genus *Litinium* Cobb, 1920 (Nematoda: Enoplida: Oxystominidae) with descriptions of four new species from two contrasting habitats

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Abstract

Four new species of the genus *Litinium* are described from mangroves and from deep sea. The genus *Litinium* now includes ten valid species. An emended generic diagnosis and a pictorial guide for species identification are given. *Litinium quangi* **sp. n.** and *L. curticauda* **sp. n.**, both found in mangroves of South Vietnam, are morphologically similar and differ from other congeneric species in body size, having short anterior setae, ovoid amphideal fovea and a short rounded tail. *Litinium quangi* differs from *L. curticauda* in the number of midventral preanal supplementary setae (one in *L. quangi* and two in *L. curticauda*) and relative tail length (c' 1.12–1.63 in *L. quangi* and 0.83–0.94 in *L. curticauda*). *Litinium abyssorum* **sp. n.** and *L. profundorum* **sp. n.**, both collected from the Angola Basin, South-East Atlantic Ocean, at depth 5400 m, are also morphologically similar and differ from other species of the genus by having a smaller body and relatively large amphideal fovea with deep invagination of the anterior edge. *Litinium abyssorum* differs from *L. profundorum* in the number of midventral preanal setae (two in *L. abyssorum,* one in *L. profundorum*), relative tail length (c' 3.61 in L. *abyssorum* and 1.17 in *L. profundorum*) and *L. abyssorum* has unequal spicules.

Key words: Angola Basin, deep-sea nematodes, DIVA I project, marine biodiversity, taxonomy, Vietnam mangroves, morphology, pictorial key

Introduction

Litinium Cobb, 1920 is a small and distinct genus of the family Oxystominidae. Like other oxystominid taxa, species of *Litinium* species dwell in marine or at least brackish bottom sediments worldwide, from mangroves to deep sea. Species of *Litinium* are generally rare and constitute a small part of marine nematode assemblages wherever found (Gerlach 1958a; Tietjen 1971; Soetaert *et al.* 1995; Mokievsky *et al.* 2011). Most *Litinium* species were described on the base of single or few specimens, often of one sex. However, the species of *Litinium* are mainly well-defined and present few problems in their discrimination from one another. Most earlier records of *Litinium* species were from shallows of tropical and temperate zones of the Atlantic Ocean and the tropical zone of the Indo-West Pacific. More recently, deep-sea species were recorded, which did not appear to share any common features distinguishing them from shallow-water species (see data in this paper). The first taxonomic review of the genus was performed by Quang Ngo Xuan *et al.* (2008), and the most recent account was presented by Smol *et al.* (2014).

Here we describe four new species: two similar species from mangroves in South Vietnam and two species, also similar, from the South-East Atlantic deep sea. An updated list of species, emended generic diagnoses and pictorial key for species identification are also presented.

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Several species of *Litinium* are known from either males (*L. curticauda*, *L. profundorum*, *L. volutum*) or females (*L. obtusilobus*, *L. parmatum*) only. This may make species identification difficult because of sexual dimorphism in shape of the amphideal fovea that occurs in some species. Thus, in *L. aequale*, the aperture is depicted in the middle of the fovea of females but at the anterior edge of the fovea of males. However, descriptions of females and males were made by different authors and strict comparison is not possible because the male head is not drawn in a fully lateral position. In L. *bananum*, the dimorphism of the amphideal fovea is more evident: in the female, the aperture is situated within the frame of the amphideal fovea but more close to its anterior edge while in the male the aperture breaks the anterior edge of the fovea thus making the latter crescent-shaped. Other known species, described using both sexes, have no marked dimorphism in amphid outline or other characters other than size (males may be smaller).

In the pictorial key, icons of males are given where possible. Males are preferable for identification as they have additional characters such as precloacal organs. In the Table 1, size values of males and females are given together.

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