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More than 35 years of studies on marine nematodes from Tunisia: a checklist of species and their distribution

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Abstract

This work provides an inventory of species of free-living nematodes from Tunisian waters, based on samples collected from September 1977 until March 2013. Sediment samples were taken from 8 ecosystems: the Lagoons of Bizerte, Ghar El Melh and Bou Ghrara, Northern and Southern Lakes of Tunis, Old Harbor of Bizerte, Bizerte Bay and Ichkeul Lake. A total of 31 families, 133 genera, and 249 species of marine nematodes are currently known from Tunisia. The Xyalidae (with 30 species), Cyatholaimidae (25), Chromadoridae and Linhomoeidae (each 21) and Comesomatidae (20) are the richest families. Among them, *Daptonema* (with 9 species), *Pomponema* and *Sabatieria* (with 7 each) are the most species-rich genera. Some species were recovered only from a specific type of ecosystem. In detail, 109 species were recovered from lagoons, 56 species from sandy beaches and 6 species from mudflats. The 78 remaining species were widely distributed in Tunisian waters and four of these (*Terschellingia longicaudata*, *Oncholaimus campylocercoides*, *Sabatieria pulchra* and *Theristus flevensis*) were present in most of the 8 ecosystems studied.

Key words: Tunisian waters, free-living marine nematodes, biodiversity, Xyalidae, Cyatholaimidae, Chromadoridae, Linhomoeidae, Comesomatidae

Introduction

Free-living marine nematodes often represent 60–90% of the benthic meiofauna (Sajan *et al.* 2010) and play an important role in the structure and functioning of marine ecosystems (Semprucci & Balsamo 2012; Carriço *et al.* 2013). Such organisms are frequently found in very large numbers with high species richness in the sediments of aquatic environments, with densities reaching 10–23 million individuals per m² (Semprucci *et al.* 2008) and an estimated total of a million species (Lamshead 2004).

Since the 19th century, the diversity of free-living marine nematodes has been explored and has become a popular tool in environmental monitoring (Balsamo *et al.* 2010). Species from Western European and North American waters are comparatively well known due to extensive faunistic investigations and availability of databases (e.g. World Register of Marine Species or WoRMS, Nematoda and Mysida database or NeMys) and collections (Ghent University, Natural History Museum of Paris, Plymouth Marine Laboratory, Smithsonian Institution) (Semprucci & Balsamo 2012). In contrast, marine nematodes from Africa remain poorly known and no databases or collections have been available. In the particular case of Tunisia, free-living marine nematodes were not studied before 1977 because of the lack of active taxonomists. After 1977, however, these metazoans received deep attention from Pierre Vitiello (France) and Patricia Aïssa (Tunisia) (Aïssa 1981) and thereafter from a team of nematologists led by the latter since the 1990s. The aim of this study is to document the first collection on permanent slides of marine nematodes from Africa. The collection was recently established at the Faculty of Sciences of Bizerte (Tunisia) by the authors. A complete species list, based on almost 4 decades of collecting data from Tunisia, is provided here. Further, new information on their distributions in this area and their habitat preferences are given.

TABLE 5. (Continued)

<i>Enoploides thyrrenicus</i>	<i>Valvaelaimus major</i>
<i>Enoplolaimu longicaudatus</i>	<i>Viscosia cobbi</i>
<i>Eurystomina terricola</i>	<i>Viscosia glabra</i>
<i>Filitonchus filiformis</i>	<i>Theristus flevensis</i>
<i>Halalaimus capitulatus</i>	<i>Trichotheristus mirabilis</i>
<i>Longicyatholaimus longicaudatus</i>	<i>Xyala striata</i>
<i>Marylynnia bellula</i>	MF+ B
<i>Mesacanthion diplechma</i>	<i>Calomicrolaimus acanthus</i>
<i>Mesacanthion hirsutum</i>	<i>Dichromadora geophila</i>
<i>Metalinhomoeus torosus</i>	<i>Halalaimus gracilis</i>
<i>Monoposthia mirabilis</i>	<i>Neotonchus punctatus</i>
<i>Neochromadora poecilosomoides</i>	<i>Promonhystera tricuspadata</i>
<i>Neochromadora trichophora</i>	<i>Theristus modicus</i>
<i>Odontophora villoti</i>	L + MF
<i>Oncholaimellus mediterraneus</i>	<i>Paracomesoma dubium</i>
<i>Oncholaimus campylocercoides</i>	<i>Prooncholaimus megastoma</i>
<i>Paramesonchium angelae</i>	<i>Sphaerolaimus gracilis</i>
<i>Paramicrolaimus spirulifer</i>	<i>Tripyloides marinus</i>
<i>Paramonhystera pilosa</i>	<i>Viscosia viscosia</i>
<i>Prochromadorella longicaudata</i>	L + B + MF
<i>Pomponema multipapillatum</i>	<i>Anoplostoma viviparum</i>
<i>Sabatieria granifer</i>	<i>Eleutherolaimus stenosoma</i>
<i>Sabatieria longisetosa</i>	<i>Ptycholaimellus ponticus</i>
<i>Sabatieria pulchra</i>	<i>Sabatieria punctata</i>
<i>Setosabatieria hilarula</i>	<i>Sphaerolaimus hirsutus</i>
	<i>Terschellingia longicaudata</i>

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