



A new species of *Halaphanolaimus* (Nematoda: Leptolaimidae) from the southern Black Sea (Turkey) with a modified key for species identification

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Abstract

Halaphanolaimus sergeevae n. sp. is described and illustrated from the Sinop coasts (southern Black Sea, Turkey). The new species morphologically resembles *H. pellucidus* Southern, 1914, but differs from it by having a higher number of tubular supplements (12–14 vs 6–7), longer spicules (68–70 µm vs 47–52 µm), smaller tail/spicule ratio (1.6 vs 2.7), smaller body size (926–1273 vs 1500 µm), and smaller De Man indices of *a*, *b* and *c*'. An updated identification key to the species of *Halaphanolaimus* is proposed.

Key words: free-living marine nematodes, Chromadorida, taxonomy, coasts of Sinop Peninsula, oxic/anoxic interface

Introduction

The free-living marine nematode fauna of the Turkish Seas has only recently been studied by Turkish scientists (Ürkmez *et al.*, 2011). Several new species were reported previously from the Bosphorous and Black Sea by Sergeeva (1973 a,b; 1974; 1977). During the coastal exploration of seabed features along the shelf of southern Black Sea (Sinop), the oxic/anoxic interface off the coast of Sinop was investigated for the first time in terms of meiobenthic structure focusing on free-living marine nematodes. Core samples were taken from anoxic, suboxic and oxic zones off Sinop. The exact sampling locations were determined during the dive by monitoring dissolved O₂ levels as recorded by a sensor on ROV *Hercules*. Meiofaunal abundance varied from 1,140 to 217,078 individuals per m² with a dominance of nematodes at all three zones. The highest proportion of Nematoda (90%) was recorded for the suboxic sample (Brennan *et al.*, 2013). During the course of identifications, a new species of the genus *Halaphanolaimus* was found in the oxic sample (with the low oxygen level as 2.2 mg/l, indicating hypoxia). In that sample, Comesomatidae (mostly *Sabatieria*), Linhomoeidae, Desmodoridae and Enoplidae dominated and comprised 65% of the total number of nematodes. Here, the new species of *Halaphanolaimus* is described and illustrated and a new key for the species of *Halaphanolaimus* is suggested. This is the first free-living marine nematode species described by scientists from Turkey.

Material and methods

The specimens in this study were collected off the coast of Sinop (southern Black Sea) during the Black Sea leg of the 2011 expedition of the exploration vessel (E/V) “Nautilus”. Meiobenthic material was sampled from three locations representative of oxic (90 m, 2.2 mg/l O₂), suboxic (120 m, 0.05 mg/l O₂), and anoxic (203 m, 0.00 mg/l O₂) zones with push cores collected by ROV “Hercules”. All samples were fixed on board in 75% ethanol. In the laboratory, sediments were washed through sieves with mesh sizes of 500 and 63 µm and stained with Rose Bengal solution (Giere, 2009). Using a dissecting stereo microscope, meiofauna were sorted to higher taxa. For taxonomical analysis, nematodes were processed to anhydrous glycerol by the slow evaporation method and

- 12–14 preloocal supplements, body length 0.9–1.2 mm, spicule length 68–70 μm , diameter of labial region 6 μm or less, $a=21\text{--}25.6$, $b=4.7\text{--}5.4$, $c=9.9\text{--}11.0$ *H. sergeevae* n. sp.
- 3 Cervical and somatic setae absent 4
- Cervical and somatic setae present 5
- 4 Spicule length 35 μm , stoma length 8 μm , $c'=4.0\text{--}4.5$ *H. luridus* (Timm, 1963)
- Spicule length 16–18 μm , stoma length 14–18 μm , $c'=5.0\text{--}8.1$ *H. cangionensis* Gagarin & Thanh, 2007
- 5 Spicule length 27–28 μm , diameter of labial region 5.5–6.0 μm *H. rivalis* Gagarin & Thanh, 2007
- Spicule length 15–16 μm 6
- 6 Body length 0.43 mm–0.52 mm, $a=26\text{--}35$, $b=3.8\text{--}4.5$ *H. harpaga* Boucher & Bovee, 1972
- Body length more than 0.6 mm, $a=40\text{--}45$, $b=5.3\text{--}6.1$ *H. lorenzeni* Boucher & Bovee, 1972

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