



Article

First report of kinorhynchs from Hokkaido, Japan, including a new species of *Pycnophyes* (Pycnophyidae: Homalorhagida)

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Abstract

We describe and illustrate *Pycnophyes oshoroensis* sp. nov. from Hokkaido, northern Japan. This species is characterized by (1) a trunk 646–775 µm long, and a presence of (2) middorsal elevation on segments 2–9, (3) anterior middorsal projection on segment 2, (4) even anterior tergal margin of segment 1, (5) reticulate cuticular area on anterior margin of tergal, episternal, and midsternal plates of segment 1, (6) laterodorsal setae on segments 2–9, (7) paralateral setae on segments 1, 2, 4, 6, 7, 8 and 10, (8) ventrolateral setae on segments 1, 5 and 10, (9) ventromedial setae on segments 3–9, and (10) subcuticle thickening areas in paraventral position on segments 9 and 10. In addition, we provide morphological descriptions for two species found from Hokkaido, Japan in this study: *Cephalorhyncha asiatica* (Adrianov, 1989) and *Kinorhynchus yushini* Adrianov, 1989. This is the first report of kinorhynchs from Hokkaido and the first report of *C. asiatica* from Japanese waters.

Key words: *Cephalorhyncha*, *Pycnophyes*, *Kinorhynchus*, Echinoderidae, Pycnophyidae, Kinorhyncha, new species

Introduction

Kinorhynchs (Phylum Kinorhyncha) are pseudocoelomate invertebrates with a tiny (less than 1.3 mm long) segmented body; they inhabit various marine benthic environments such as muddy or sandy sediments, or the surface of other organisms, including algae and other invertebrates (Higgins 1983). They are distributed worldwide, from the intertidal zone to abyssal depths (Adrianov & Malakhov 1999). Since the first description of a kinorhynch by Dujardin (1851), about 170 species have been described from the world's oceans (Sørensen & Pardos 2008).

To date, although no species have been recorded from the Hokkaido Island, seven species of kinorhynchs representing five genera have been reported from Japan, mainly in the Seto Inland Sea, Honshu Island. The first was *Echinoderes masudai* Abe, 1930, found at Gogoshima Island near Hiroshima (Abe 1930). This species is currently not regarded as valid because of the poor original description (Adrianov & Malakhov 1999). Tokioka (1949) subsequently reported *E. dujardinii* Claparède, 1863 from Ago Bay, Honshu Island, although this occurrence was far outside the range of the species in European waters, and thus this identification has been questioned (Higgins 1983). The first valid, reliably identified species from Japan was *Kinorhynchus yushini* Adrianov, 1989, reported by Suzuki (1976) as *Trachydemus* sp. and later confirmed by Adrianov and Malakov (1999). Higgins and Shirayama (1990) described a new genus and new species, *Dracoderes abei* Higgins & Shirayama, 1990, from Mukaijima Island in the Seto Inland Sea. From 2001 to 2002, three genera and four species (*Pycnophyes tubuliferus* Adrianov, 1989; *Echinoderes sensibilis* Adrianov *et al.*, 2002b; *Echinoderes aureus* Adrianov *et al.*, 2002c; and *Condyloderes setoensis* Adrianov *et al.*, 2002a) were reported from Tanabe Bay, Honshu Island (Murakami *et al.* 2001; Adrianov *et al.* 2002a, b, c). In 2012, Sørensen *et al.* (2012) reported *D. abei* from five additional localities in the Seto Inland Sea, and Yamasaki and Kajihara (2012) described *E. ohtsukai* Yamasaki and Kajihara, 2012 as a new brackish echinoderid species from the Seto Inland Sea. This paper provides the first records of kinorhynchs including one new species from Hokkaido, northern Japan.