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# *Scolelepis* (*Scolelepis*) *kudenovi* (Polychaeta: Spionidae) new to Korea

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A spionid polychaete, *Scolelepis* (*Scolelepis*) *kudenovi* Hartmann-Schröder, 1981, is newly reported from Korean waters with description and illustration. *Scolelepis* (*Scolelepis*) *kudenovi* is characterized by a combination of the following morphological features: the notopodial setae are present on the setiger 1; the occipital tentacle is absent; the branchiae are partially fused to the notopodial postsetal lamellae; the notopodial and neuropodial hooded hooks are bidentate only; the notopodial hooded hooks are present on the posterior setigers. A key to *Scolelepis* species from Korean waters is provided in this paper.

Keywords: Korea, Polychaeta, *Scolelepis* (*Scolelepis*) *kudenovi*, Spionidae, taxonomy

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## Introduction

The genus *Scolelepis* Blainville, 1828, a member of the family Spionidae Grube, 1850, is widely distributed in almost all the sediment types of deep sea as well as sand-beaches and other near-shore areas (Blake, 1996; Rocha and de Paiva, 2012). This taxon has diagnostic features such that the prostomium is pointed anteriorly and the branchiae beginning from the setiger 2 are fused to the notopodial lamellae (Zhou *et al*., 2009; Meißner and Götting, 2015). *Scolelepis* species are grouped into two subgenera, *Scolelepis* and *Parascolelepis*, by the morphology of the hooded hooks: *Scolelepis* includes the species with uni-, bi-, or tridentate hooded hooks and *Parascolelepis* contains those with the multidentate hooded hooks (Zhou *et al*., 2009; Rocha and de Paiva, 2012). To date, this genus comprises 86 valid species, and 74 species of them are belonging to the subgenus *Scolelepis* and remaining 12 species are the components of the subgenus *Parascolelepis* (Sikorski and Pavlova, 2015).

In East Asia, 10 species of the subgenus *Scolelepis*, *S*. (*S*.) *angulata* Zhou, 2014, *S*. (*S*.) *branchia* Imajima, 1992, *S*. (*S*.) *daphoinos* Zhou, Ji and Li, 2009, *S*. (*S*.) *globosa* Wu and Chen, 1964, *S*. (*S*.) *kudenovi* Hartmann-Schröder, 1981, *S*. (*S*.) *lefebvrei* (Gravier, 1905), *S*. (*S*.) *lingulata* Imajima, 1992, *S*. (*S*.) *planata* Imajima, 1992, *S*. (*S*.) *sagittaria* Imajima, 1992, and *S*. (*S*.) *variegate* Imajima, 1992, and three species of the subgenus *Parascolelepis*, *S*. (*P*.) *geniculata* Imajima, 1992, *S*. (*P*.) *texana* Foster, 1971, and *S*. (*P*.) *yamaguchii* (Imajima, 1959), have been recorded in Japanese and Chinese waters (Imajima, 1992; Zhou *et al*., 2009; Zhou, 2014). However, the genus *Scolelepis* has been poorly studied in Korean waters and only one species, *S*. (*P*.) *yamaguchii*, is recorded from this region (Paik, 1982; 1989).

In this study, we dealt with the materials of *Scolelepis* from Korean waters, and described a new record of *S*. (*S*.) *kudenovi* with detailed description and illustration.

## Materials and Methods

Samples were collected from the muddy sand of intertidal flat. The specimens were sorted by using sieves with a pore size of 0.5 mm, fixed initially with 5% formaldehyde-seawater solution, and transferred to 85% ethyl alcohol after sorting in the laboratory. The characteristics of the whole body were observed and the appendages were dissected in a petri dish by using dissection forceps or surgical knives and needles under stereomicroscope (SMZ1500; Olympus, Tokyo, Japan). Dissected specimens were mounted on temporary slides using glycerol or permanent slides using polyvinyl lactophenol solution. Drawings were made by the stereomicroscope and light microscope (LABOPHOT-2; Nikon,

Tokyo, Japan) with the aids of drawing tubes. The examined materials are deposited in Chosun University and the National Institute of Biological Resources (NIBR) in Korea.

## Systematic Accounts

Family Spionidae Grube, 1850
Genus *Scolelepis* Blainville, 1828

***Scolelepis* (*Scolelepis*) *kudenovi* Hartmann-Schröder, 1981** 두이빨넓적얼굴갯지렁이 (신칭)

*Scolelepis* (*Scolelepis*) *kudenovi* Hartmann-Schröder, 1981: 52, figs. 124-129; Imajima, 1992: 17, figs. 11, 12; Meißner and Götting 2015: 390, fig. 4.

**Material examined.** Korea, 5 specimens, Gyema-ri, Hongnong-eup, Yeonggwang-gun, Jeollanam-do (126° 26′14″E, 35°23′27″N), 2 Apr 2015, muddy sand, collected from intertidal soft-bottoms using a sieve (pore size 0.5 mm).

**Description.** Body slender, about 8.0 mm long in incomplete specimens and width about 1.0 mm at anterior region including parapodia.

Prostomium conical-shaped, elongated and tapered anteriorly; caruncle extending to setiger 1 with distinct protuberance posteriorly; 2 pair of eyespots arranged in transverse row. Occipital tentacle absent. Palps paired, reaching to about setigers 10-23. Peristomium distinct from setiger 1, forming lateral wings on each sides (Fig. 1A, B).

First setiger without branchiae, but with conical-shaped notopodial and neuropodial presetal lamallae; notopodial lamellae slightly longer than neuropodial ones (Fig. 1C).

Branchiae elongate and tapered into pointed tip, presented from setiger 2, and continued until posterior end (Fig. 1D-G).

Notopodial postsetal lamellae on anterior and median setigers partially fused to branchiae; pointed tips of lamellae separated from branchiae. Notopodial postsetal lamellae on posterior setigers almost separated from branchiae, becoming gradually smaller, and elongate ventrally. Notopodial presetal lobes low and rounded. Neuropodial postsetal lamellae low and rounded, divided into interramal and ventral lamellae from median and posterior setigers; interramal lamellae low and rounded, with elongate tips dorsally, and ventral lamellae increasing transverse length (Fig. 1D-G).

Anterior setigers with limbate capillary only, arranged in 2 transverse rows. Notopodial hooded hooks bidentate with open hoods, composed of 2-4 hooks per fascicle, presented on posterior setigers. Notopodial capillary setae slender, presented on posterior setigers. Neuropodial hooded hooks bidentate with open hoods, composed of 5-12 hooks per fascicle, and presented from setigers 30-33. Neuropodial capillary setae slender, presented on setigers bearing neuropodial hooded hooks (Fig. 1H-M).

**Remarks.** The present species, *Scolelepis* (*Scolelepis*) *kudenovi* Hartmann-Schröder, 1981, has been described from Australian and Japanese waters based on the following distinctive features: the notopodial setae are present on the setiger 1; the occipital tentacle is absent; the branchiae are partially fused to the notopodial postsetal lamellae; the notopodial and neuropodial hooded hooks are bidentate only; the notopodial hooded hooks are present on the posterior setigers (Hartmann-Schröder, 1981; Imajima, 1992; Meißner and Götting, 2015). In this respect, Korean materials of *Scolelepis* generally agree well with the previous descriptions of *S.* (*S.*) *kudenovi* (Hartmann-Schröder, 1981; Imajima, 1992; Meißner and Götting, 2015).

Meißner and Götting (2015) described some differences between Australian and Japanese materials of *S.* (*S.*) *kudenovi* in the morphology of the prostomium and the beginning setigers of the neuropodial and notopodial hooks. Korean materials of the present study are very similar to Japanese materials in these characters. So, it is believed that at least two different regional groups, Australian and Far Eastern groups, are existed in *S.* (*S.*) *kudenovi*: Australian group has anteriorly trifid prostomium (vs. anteriorly long and pointed one in Far Eastern group), the neuropodial hooks beginning from about the setigers 38-44 (vs. from the setigers 26-33 in Far Eastern group), and the notopodial hooks from about the setiger 98 (vs. from the setigers 55-62 in Far Eastern group) (Imajima, 1992; Meißner and Götting, 2015). However, the taxonomic value of these differences between regional groups are still in need of further detailed study because those can belong to intraspecific variability as mentioned by Meißner and Götting (2015).

Among *Scolelepis* species reported from East Asia, *S.* (*S.*) *kudenovi* resembles *S.* (*S.*) *daphoinos* Zhou, Ji and Li, 2009 and *S.* (*S.*) *lefebvrei* (Gravier, 1905) in having the setiger 1 with notopodial setae, the partially fused branchiae to the notopodial lamellae, and the absence of the occipital tentacles. However, the former species is easily distinguishable from latter two species by the presence of the indistinct pigment pattern on the dorsum of anterior body (vs. distinct reddish pigment patches in *S.* (*S.*) *daphoinos*) and the bidentate hooded hooks (vs. unidentate ones in *S.* (*S.*) *lefebvrei*) (Imajima, 1992; Zhou *et al*., 2009).

**Habitat.** Japanese materials were collected from the subtidal zone (depth 45 m), but Australian materials were distributed in the fine sand of intertidal zone (Imajima, 1992, Meißner and Götting, 2015). In Korean waters,

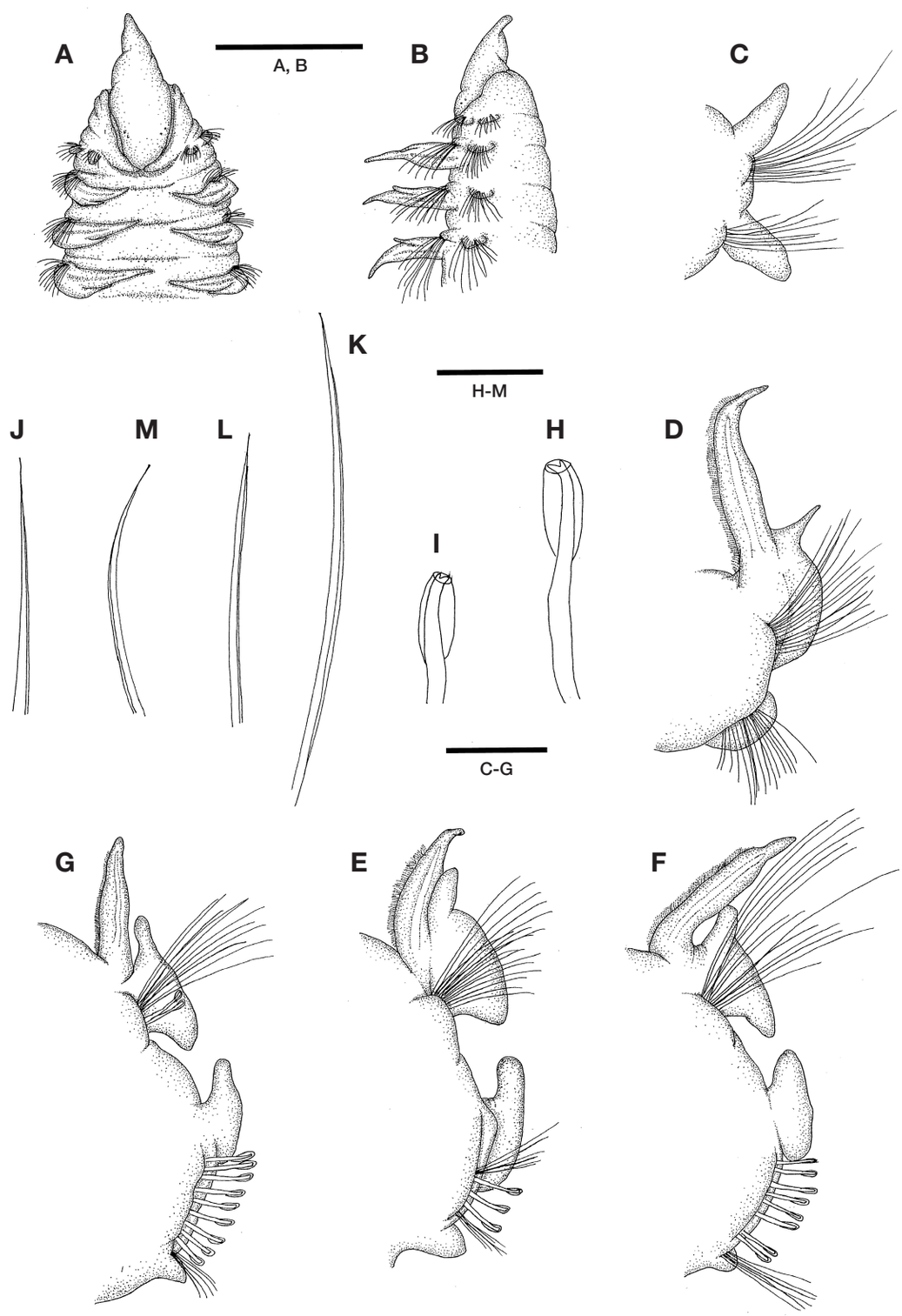


**Fig. 1.** *Scolelepis* (*Scolelepis*) *kudenovi* Hartmann-Schröder, 1981. A, dorsal view of anterior end; B, lateral view of anterior end; C, anterior view of first setiger; D, anterior view of setiger 12; E, anterior view of setiger 42; F, anterior view of setiger 58; G, anterior view of posterior setiger; H, notopodial hooded hook; I, neuropodial hooded hook; J, neuropodial capillary seta of setiger 12; K, notopodial seta in posterior row of setiger 42; L, neuropodial seta in anterior row of setiger 42; M, neuropodial companion seta of posterior setiger. Scale bars: A, B = 0.5 mm, C-G = 0.2 mm, H-M = 0.05 mm.

our materials were found from the muddy sand of intertidal zone.

**Distribution.** Australia, Japan, Korea.

**Depository.** NIBRIV0000325701, NIBRIV0000325702.

**Key to the species of *Scolelepis* Blainville, 1828 from Korea**

1. Hooded hooks bidentate with straight shaft ····· ····· *S.* (*Scolelepis*) *kudenovi*
− Hooded hooks multidentate with curved shaft ····· ····· *S.* (*Parascolelepis*) *yamaguchii*

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