



A new species of *Scolelepis* (Polychaeta: Spionidae) from sandy beaches in China, with a review of Chinese *Scolelepis* species

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Abstract

A new species of Spionidae, *Scolelepis* (*Scolelepis*) *daphoinos* **sp. nov.**, is described and illustrated from northern China seas. The species was frequently encountered and highly abundant on sand beaches, but rarely found in subtidal areas. It was formerly misidentified as *S. (S.) squamata* (Müller, 1806) in China but differed from the latter species in several details in morphology, including the presence of obvious reddish pigmentation patches and the absence of unidentate hooded hooks. Another two *Scolelepis* species, *S. (S.) lingulata* Imajima, 1992 and *S. (S.) variegata* Imajima, 1992, are reported for the first time from Chinese waters. Two species of *Scolelepis*, *S. (S.) globosa* Wu & Chen, 1964 and *S. (S.) lefebvrei* (Gravier, 1905), were reported previously; therefore, five species in this genus are known from China in total. A key to all *Scolelepis* species from Chinese waters is provided.

Key words: systematics, morphology, Spionidae, *Scolelepis*, Chinese waters

Introduction

The Spionidae represents one of the largest and most common polychaete families in both littoral and sublittoral areas in Chinese waters; however, this family is poorly known in China. So far, only 12 genera and approximately 14 species in this family have been documented. Some previous records lack detailed morphological descriptions and illustrations; thus, a few available records are confused and sometimes may be the result of misidentification (e.g., Yang & Sun 1988; Wu *et al.* 1990; Sun 1990). In order to clarify the species diversity of Spionidae in Chinese coastal waters, we have been systematically studying the taxonomy of this family and, as a result, some genera such as *Paraprionospio* and the *Prionospio* complex in China have been revised (Zhou *et al.* 2008; Zhou & Li 2009).

The genus *Scolelepis* is mainly characterized by a pointed prostomium and branchiae occurring from setiger 2 and fused with the postsetal lamellae. Maciolek (1987) provided an important revision of this genus and divided it into two subgenera, *Scolelepis* and *Parascolelepis*, based on the morphology of the hooded hooks and notches of postsetal lamellae. This division has been followed by various subsequent authors (e.g., Imajima 1992; Blake 1996; Delgado-Blas 2006; Williams 2007).

In the northwest Pacific, the *Scolelepis* fauna is not evenly known: the fauna of Japan is better known than that of other regions. This is mainly due to the studies of Okuda (1935), Imajima & Hartman (1964), and Imajima (1959, 1992). Up to the present, only three *Scolelepis* species have been previously reported in China. They are *S. (S.) globosa* Wu & Chen, 1964, *S. (S.) lefebvrei* (Gravier, 1905), and *S. (S.) squamata* (Müller, 1806). *Scolelepis (S.) globosa* Wu & Chen, 1964 was originally described based on material from the

intertidal zone around Zhoushan archipelago in the East China Sea; it has not been reported from other places in the world. *Scoelepis* (*S.*) *lefebvrei* (Gravier, 1905) was traditionally known to be restricted to the Daya Bay, South China Sea in China (Wu *et al.* 1990), and *S. (S.) squamata* (Müller, 1806) is considered to be a common species in the intertidal zone of Yellow Sea (Yang & Sun 1988).

In the present study, we examined *Scoelepis* specimens collected extensively from China's coastal waters (including both intertidal and subtidal areas) beginning in the 1950s, and deposited in the Marine Biological Museum, Chinese Academy of Sciences (MBMCAS). Our examination revealed that there exists some confusion and misidentifications in the taxonomy of Chinese *Scoelepis* species. The present paper provides a revision of *Scoelepis* in China, with records of a new species and two species new to Chinese waters.

The distribution of *Scoelepis* (*S.*) *lefebvrei* (Gravier, 1905) in China is confirmed. The species extends from the East China Sea to the South China Sea (it was formerly thought to be restricted to the South China Sea). The reported distribution of *S. (S.) squamata* (Müller, 1806) could be the result of misidentifications. In this paper, material formerly regarded as *S. (S.) squamata* is described as a new species, *Scoelepis (Scoelepis) daphoinos* **sp. nov.** This new species can be frequently collected in northern Chinese coastal waters and sometimes is found in high abundances in the intertidal zone. In addition, *Scoelepis (S.) lingulata* Imajima, 1992 and *S. (S.) variegata* Imajima, 1992 are reported for the first time in China. *Scoelepis (S.) globosa* Wu & Chen, 1964 is considered a valid species based on the original description, although the type material is lost and there is no other material available for examination.

Materials and methods

Material examined in the present paper was collected extensively from China's coastal waters during the past several decades. Specimens were fixed in 10% formaldehyde and later preserved in 70% ethanol. Drawings were made with a camera lucida. Specimens were measured with a millimeter rule; width includes parapodia but not setae. All material examined in the present study is deposited in the MBMCAS, Qingdao, China.

Systematic section

Spionidae Grube, 1850

Scoelepis De Blainville, 1828

Scoelepis Blainville, 1828. Type species: *Lumbricus squamata* Müller, 1806, by monotypy.

Diagnosis. Prostomium pointed on anterior margin, extending posteriorly as narrow caruncle. Occipital tentacle present or absent. Peristomium well-developed, lateral wings present or absent. Branchiae present from setiger 2, continuing to near end of body, anterior branchiae completely fused to notopodial lamellae or distally free; accessory branchiae present or absent. Anterior setae limbate, sometimes reticulated capillaries; neuropodial hooded hooks present; notopodial hooded hooks present or absent. Hooks either falcate with 0–2 small apical teeth and straight shaft (subgenus *Scoelepis*); or multidentate with large main fang, several apical teeth and curved shaft (subgenus *Parascoelepis*). Pygidium with oval disc or multilobed.

Key to *Scoelepis* from Chinese waters

1. Occipital tentacle present 2
- Occipital tentacle absent 3
2. Globular expansions present at bases of palps; hooded hooks tridentate, with close hood.....

- *Scolelepis (Scolelepis) globosa* Wu & Chen, 1964
- Globular expansions absent; hooded hooks unidentate, with open hood
..... *Scolelepis (Scolelepis) lingulata* Imajima, 1992
- 3. Reddish pigment patches present on posterior part of prostomium and dorsal and sides of body surface
..... *Scolelepis (Scolelepis) daphoinos* **sp. nov.**
- Pigment patches absent 4
- 4. Branchiae fused entirely with notopodial postsetal lamellae; without notosetae on setiger 1
..... *Scolelepis (Scolelepis) variegata* Imajima, 1992
- Branchiae fused with notopodial postsetal lamellae at bases, with free distal part; with notosetae on setiger 1
..... *Scolelepis (Scolelepis) lefebvrei* (Gravier, 1905)

***Scolelepis (Scolelepis) daphoinos* sp. nov.**

Figure 1

Scolelepis (Scolelepis) squamata (Müller, 1806), Yang & Sun 1988: 216, fig. 97 E–G.

Type material. Holotype: MBMCAS 228838, tidal flat of Kongdong Is., Shandong Province, 19°30' N, 107°30' E, sandy mud, 20 Apr 2007, coll. Hongfa Wang. Paratypes: MBMCAS 228828 (5 spms), tidal flat of Zhanggong Is., Shandong Province, sandy mud, 20 Apr 2007, coll. Hongfa Wang; MBMCAS 228829 (28 spms), tidal flat of Rushan City, Shandong Province, 121°37' N, 36°44' E, silty sand, 20 May 2007, coll. Hongfa Wang; MBMCAS 228831 (3 spms), tidal flat of Rushan City, Shandong Province, 121°29' N, 36°46' E, silty sand, 20 May 2007, coll. Jin Zhou; MBMCAS 228832 (11 spms), low tidal flat of Rushan City, Shandong Province, 121°29' N, 36°46' E, silty sand, 20 May 2007; MBMCAS 228833 (3 spms), middle tidal flat of Rushan City, Shandong Province, 121°37' N, 36°44' E, silty sand, 12 Aug 2007; MBMCAS 228834 (210 spms), middle tidal flat of Rushan City, Shandong Province, 121°37' N, 36°44' E, silty sand, 5 Nov. 2007; MBMCAS 228835 (10 spms), low tidal flat of Rushan City, Shandong Province, 121°37' N, 36°44' E, silty sand, 5 Nov 2007; MBMCAS 228836 (80 spms), middle tidal flat of Rushan City, Shandong Province, 121°29' N, 36°46' E, silty sand, 20 May 2007; MBMCAS 228837 (88 spms), low tidal flat of Rushan City, Shandong Province, 121°29' N, 36°46' E, silty sand, 5 Nov 2007; MBMCAS 228839 (4 spms), low tidal flat of Liugong Is., Shandong Province, 14 Apr 2007; MBMCAS 228840 (7 spms), middle tidal flat of Liugong Is., Shandong Province, 19 Apr 2007; MBMCAS 228841 (1 spm), low tidal flat of Yangma Is., Shandong Province, 22 Apr 2007; MBMCAS 228842 (2 spms), middle tidal flat of Yangma Is., Shandong Province, 23 Apr 2007; MBMCAS 228894 (4 spms), tidal flat of Huiquan Bay, Qingdao City, silty sand, 23 May 1963, coll. Daoyuan Sun & Mu Chen.

Other material examined. MBMCAS 198576 (4 spms), tidal flat of Huiquan Bay, silty sand, 23 May 1963, coll. Mu Chen & Ruiping Sun; MBMCAS 198577 (5 spms), tidal flat of Laohushi, Hebei Province, 20 Apr 1978; MBMCAS 198578 (7 spms), high tidal flat of Huiquan Bay, Qingdao City, 23 May 1963, coll. Ruiping Sun & Mu Chen; MBMCAS 198579 (1 spm), Zhanqiao pear, Qingdao City, Shandong Province (trawl), 24 Apr 1963; MBMCAS 198580 (20+ spms), tidal flat of Huiquan Bay, Qingdao City, 6 Jun 1963, coll. Mu Chen & Ruiping Sun; MBMCAS 198581 (8 spms), tidal flat of Yantai City, Shandong Province, sand, 20 Jun 1963; MBMCAS 198582 (6 spms), tidal flat of Huiquan Bay, Qingdao City, 6 Jun 1963; MBMCAS 198583 (5 spms), tidal flat of Yantai City, Shandong Province, 21 Jun 1963; MBMCAS 198584 (3 spms), middle tidal flat of Zhifu district, Yantai City, Shandong Province, 20 Jun 1963; MBMCAS 198586 (10+ spms), tidal flat of Huiquan Bay, 28 Aug 1963; MBMCAS 198587 (4 spms), tidal flat of Taiping Bay, Qingdao City, 5 May 1958; MBMCAS 198588 (6 spms), tidal flat of Huiquan Bay, Qingdao City, 9 Jun 1963; MBMCAS 198594 (13 spms), tidal flat of Maidao Is., Qingdao City, sand, 29 May 1957, coll. Uschakov; MBMCAS 198594 (7 spms), tidal flat of Zhifu district, Yantai, Shandong Province, 28 Jun 1957, coll. Strelkov & Uschakov; MBMCAS 198595 (50+ spms), tidal flat of Taiping Bay and Huiquan Bay, Qingdao City, silty sand, 28 Aug 1963; MBMCAS 198717 (3 spms), tidal flat of Huangdao Is., Qingdao City, 12 Sep 1957; MBMCAS 228676 (2 spms), tidal flat of Yantai Mountain, 21 Jun 1963.

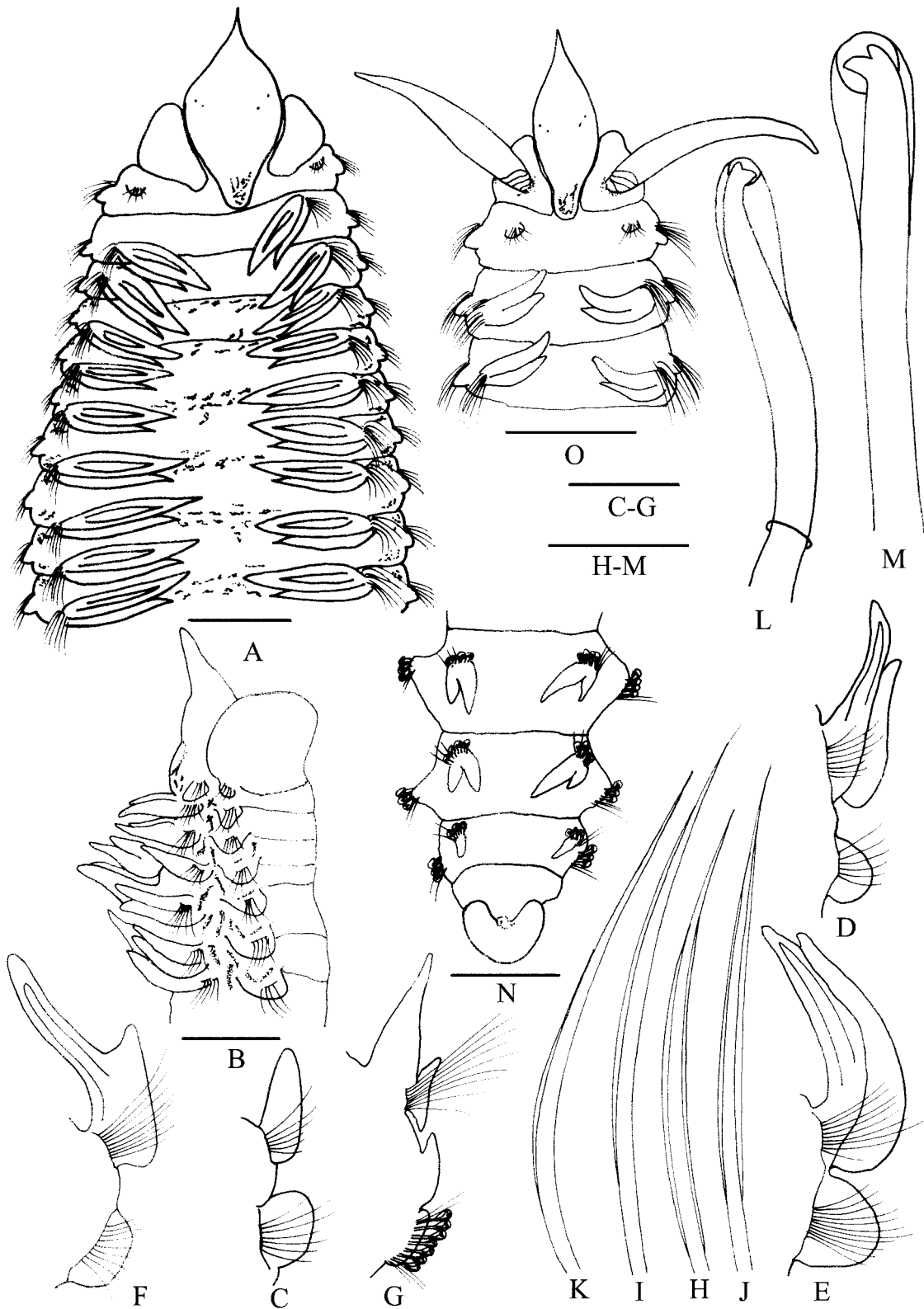


FIGURE 1. *Scolelepis (Scolelepis) daphoinos* sp. nov. A, anterior end, dorsal view; B, anterior end, lateral view; C, parapodia of setiger 1, anterior view; D, parapodia of setiger 2, anterior view; E, parapodia of setiger 3, anterior view; F, parapodia of setiger 4, anterior view; G, parapodia of setiger 49, anterior view; H, notopodial seta from anterior row of setiger 4; I, notopodial seta from posterior row of setiger 4; J, neuropodial seta from anterior row of setiger 4; K, neuropodial seta from posterior row of setiger 4; L, neuropodial hooded hook from setiger 32; M, notopodial hooded hook from setiger 32; N, pygidium, dorsal view. O, anterior end, dorsal view (Paratype, MBMCAS 228841). Scales: A, 600 μ m; B, O, 400 μ m; C–G, 120 μ m; H–M, 250 μ m; N, 100 μ m.

Description of holotype. Specimen complete, 0.8 mm wide and 12 mm long for 92 setigers. Color in alcohol yellowish. Body wide anteriorly, tapering posteriorly. Prostomium elongated, with pointed anterior margin. Caruncle extending posteriorly to setiger 1, terminating with distinct protuberance. Distinct reddish patches present in posterior part of prostomium. Occipital tentacle absent. Two pairs of eyes, arranged in a transverse row. Peristomium long, distinct from setiger 1, forming well-developed lateral wings (Fig. 1A–B). Proboscis not observed. Palps missing.

Distinct reddish patches present on sides and dorsal surface of anterior setigers. Parapodia of setiger 1 well developed; notopodial postsetal lamellae triangular and neuropodial postsetal lamellae subtriangular, with capillary setae in both rami (Fig. 1C). Branchiae present from setiger 2, continuing posteriorly to end of body. Notopodial postsetal lamellae fused with branchiae along about 90% of length, long, narrow with slight ruffled edge in anterior setigers (Fig. 1D–F). Posterior notopodial lamellae triangular with elongated pointed tips (Fig. 1G). Degree of fusion with branchiae decreasing in posterior setigers. Neuropodial postsetal lamellae oval on setigers 2–3, rounded on following setigers; becoming low and round from around setiger 30 to posterior setigers. Notch present from setiger 31, dividing lamellae into two lobes from setiger 49. On following setigers lamellae divided into subtriangular interramal lobe and small low, rounded ventral lobe (Fig. 1G). Neuropodial presetal lamellae thick and round, from setiger 2 to posterior setigers; smaller than corresponding neuropodial postsetal lamellae.

All anterior setae sheathed capillaries, arranged in two rows on both rami; anterior row thick, heavily granulated, with obvious sheaths, posterior row thin with narrow sheaths (Fig. 1H–K). Neuropodial hooded hooks from setiger 39, bidentate, with open hoods (Fig. 1L), 6–12 in a series, accompanied by capillaries. Notopodial hooded hooks present from setiger 60, bidentate, with open hoods (Fig. 1M), 2–4 in a series, accompanied by capillaries.

Pygidium cushion-like, without lateral anal cirri, anus opening dorsally (Fig. 1N).

Variability. Paratypes 5.4–26 mm long (mean length: 12.217 ± 5.65 , $n=456$) and 0.5–2.3 mm wide for 48–101 setigers. Palps relatively short in this species (usually reaching to not more than setiger 3). Palps slender, with basal sheath, but lacking cilia at bases of sheaths (Fig. 1O). Eyes arranged in a transverse row or in trapezoid; lateral eyes kidney-shaped and inner ones rounded. All specimens with neuropodial lamellae rounded on anterior setigers, developing notch around setigers 26–35. Notch becoming deeper, dividing lamellae into separate lobes around setigers 34–50, on posterior setigers dorsal neuropodial lamellae square with triangular dorsal projection. Neuropodial hooded hooks present from setigers 32–41, numbering 2–9 in a series. Notopodial hooded hooks from setiger 48–63, 2–6 in a series. All specimens having bidentate hooded hooks only.

Distinct reddish pigment patches on sides of body easily faded after preservation in ethanol; however, those on dorsal surface usually well preserved even after a long time of fixation (more than 35 years).

Etymology. From the Latin *daphoinos*, referring to the obvious reddish patches on the posterior part of the prostomium and on the sides and dorsal surface of the body.

Remarks. *Scoelepis* (*Scoelepis*) *daphoinos* **sp. nov.** is frequently encountered and highly abundant on sandy beaches in northern Chinese waters; however, it has long been misidentified as *S. (S.) squamata* (Müller, 1806) (e.g., Yang & Sun 1988; Sun 1990). These two species are similar in the morphology of the prostomium and parapodia, but differ in that *S. (S.) daphoinos* **sp. nov.** bears bidentate hooded hooks only rather than having both unidentate and bidentate hooded hooks as in *S. (S.) squamata*. The more important point is that the new species has distinct reddish pigment patches on the posterior part of the prostomium and on the sides and dorsal surface of the anterior body region. Pigmentation on the prostomium and the sides of the body is easily faded while that on the dorsal surface of the body can be well preserved and easily detected even after a long time of fixation (in some specimens, more than 35 years).

Scoelepis (*S.*) *daphoinos* **sp. nov.** also resembles *S. (S.) kudenovi* Hartmann-Schröder, 1981 from Australia in having only bidentate hooded hooks in the posterior parapodia. However, the new species has relative short palps (commonly not beyond setiger 3) instead of long palps (extending posteriorly to setiger 10) and reddish pigment patches on the anterior body. In addition, *S. (S.) daphoinos* **sp. nov.** mainly inhabits

intertidal areas, while *S. (S.) kudenovi* Hartmann-Schröder, 1981 is mainly distributed in subtidal waters.

Distribution. Common on sandy beaches or rarely in the shallow subtidal (< 8 m) of the Yellow Sea.

Scolelepis (Scolelepis) lefebvrei (Gravier, 1905)

Figure 2

Nerine lefebvrei Gravier, 1905: 43–44.

Scolelepis (Scolelepis) lefebvrei: Pettibone 1963: 92–93; Foster 1971: 65; Maciolek 1987: 18; Imajima 1992: 10–13; Eibye-Jacobsen & Soares 2000.

Material examined. MBMCAS 198572 (2 spms), tidal flat of Dazuo, Fujian Province, sandy mud, 23 Apr 1963; MBMCAS 198603 (1 spm), 123°40' E, 35°15' N, Yellow Sea, silty mud, 77 m, 26 Jun 1976; MBMCAS 228653 (5 spms), tidal flat of Weizhou Is., Guangxi Province, sandy mud, 5 Apr 1978, coll. Ruiping Sun; MBMCAS 228911 (2 spms), 113°30' E, 21°45' N, South China Sea, sandy mud, 32 m, 12 Jul 1959, coll. Xiutong Ma; MBMCAS 228995 (2 spms), 111°45' E, 22°30' N, South China Sea, sandy mud, 18 m, 12 Jul 1959, coll. Xixing Liu.

Description. Prostomium elongated, with pointed anterior margin. Caruncle extending posteriorly to setiger 1. Occipital tentacle absent. Two pairs of eyes, arranged in a transverse row. Peristomium distinct from setiger 1, forming well-developed lateral wings (Fig. 2A).

Parapodia of setiger 1 well developed; notopodial postsetal lamellae large, subtriangular; neuropodial postsetal lamellae small; with capillary setae in both rami (Fig. 2B). Branchiae present from setiger 2, continuing posteriorly to end of body; branchiae on anterior region of body with thick, glandular, subtriangular tips. Notopodial postsetal lamellae distally free from branchiae, long, narrow with ruffled edge in anterior setigers (Fig. 2C–D). Posterior lamellae triangular with elongated pointed tip, nearly equal in length through posterior setigers. Notopodial presetal lamellae rounded. Neuropodial postsetal lamellae rounded anteriorly; slight notch present from setigers 26–30; lamellae divided into low, rounded interramal lobe and small triangular ventral lobe from setigers 45–49 (Fig. 2E). Interramal lamellae in posterior setigers divided into 3–4 lobes. Neuropodial presetal lamellae thick and round, from setiger 2 through posterior setigers, smaller than corresponding postsetal lamellae.

All anterior setae sheathed capillaries, arranged in two rows on both rami. Anterior row thick, heavily granulated, posterior row thin capillaries without obvious sheaths (Fig. 2F–I). Neuropodial hooded hooks from setiger 38, unidentate, with open hoods (Fig. 2J), 7–9 in a series, accompanied by capillaries. Notopodial hooded hooks absent.

Pygidium with brownish, incised ventral cushion; anus opening dorsally (Fig. 2K).

Remarks. The specimens correspond well with previous descriptions and illustrations. Glands in the distal part of branchiae can be easily detected in some of the samples; however, they are easily faded. The number of hooded hooks in posterior neuropodia in samples from China (7–9 in a series) differs slightly from those in the material from Japan (no more than five in a series). *Scolelepis (S.) lefebvrei* (Gravier, 1905) was previously recorded from the South China Sea by Wu *et al.* (1990). The distribution of the species is extended in the present paper; besides the South China Sea, it also inhabits the East China Sea.

Distribution. China (East China Sea, South China Sea, 0–45 m); Red Sea, Japan, Madagascar.

Scolelepis (Scolelepis) lingulata Imajima, 1992

Figure 3

Scolelepis (Scolelepis) lingulata Imajima, 1992: 7–10, figs. 4–5.

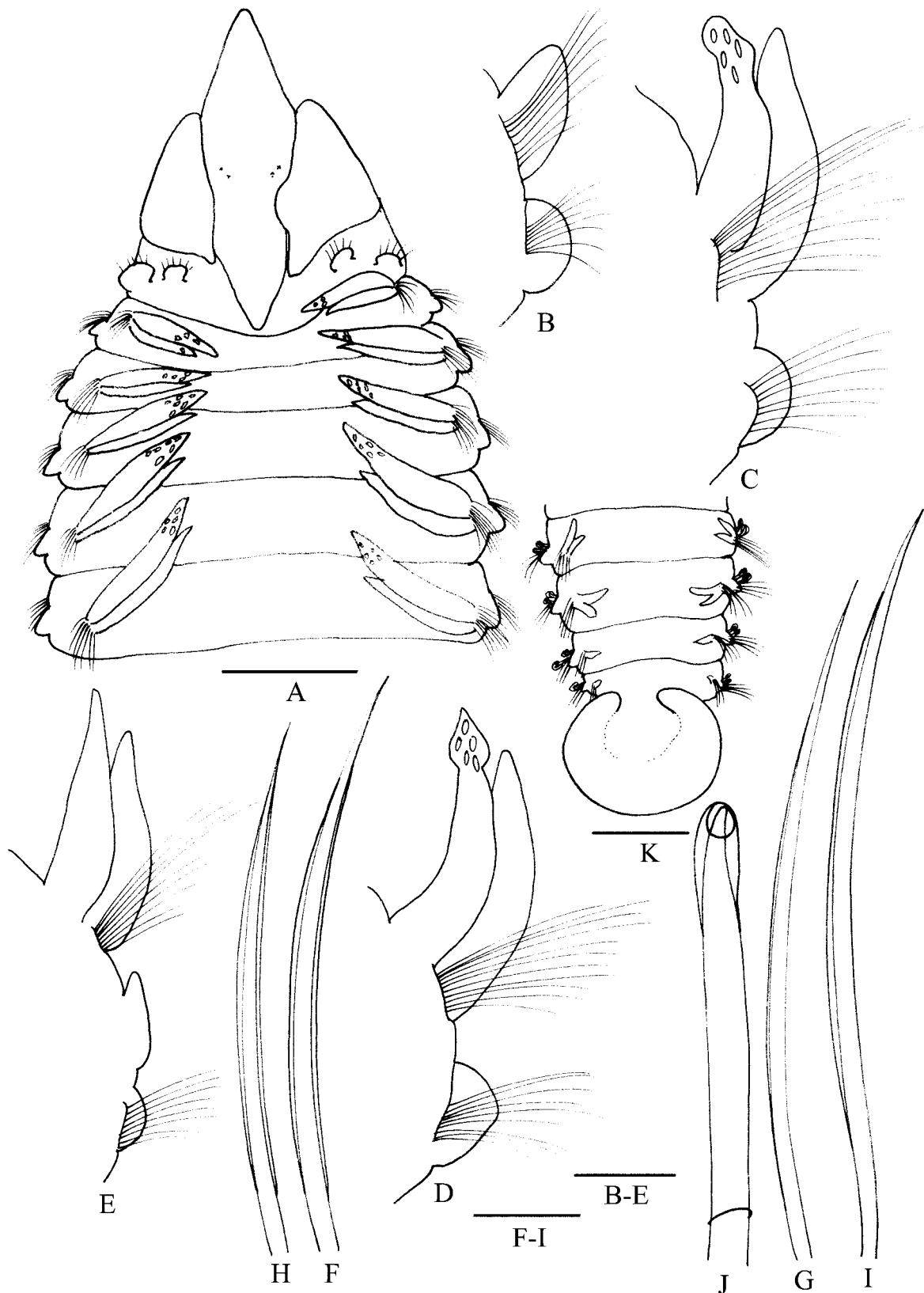


FIGURE 2. *Scolelepis (Scolelepis) lefebvrei* (Gravier, 1905). A, anterior end, dorsal view; B, parapodia of setiger 1, anterior view; C, parapodia of setiger 4, anterior view; D, parapodia of setiger 12, anterior view; E, parapodia of setiger 46, anterior view; F, notopodial seta from anterior row of setiger 4; G, notopodial seta from posterior row of setiger 4; H, neuropodial seta from anterior row of setiger 4; I, neuropodial seta from posterior row of setiger 4; J, neuropodial hooded hook from setiger 30; K, pygidium, dorsal view. Scales: A, 600 µm; B–E, 120 µm; F–J, 250 µm; K, 100 µm.

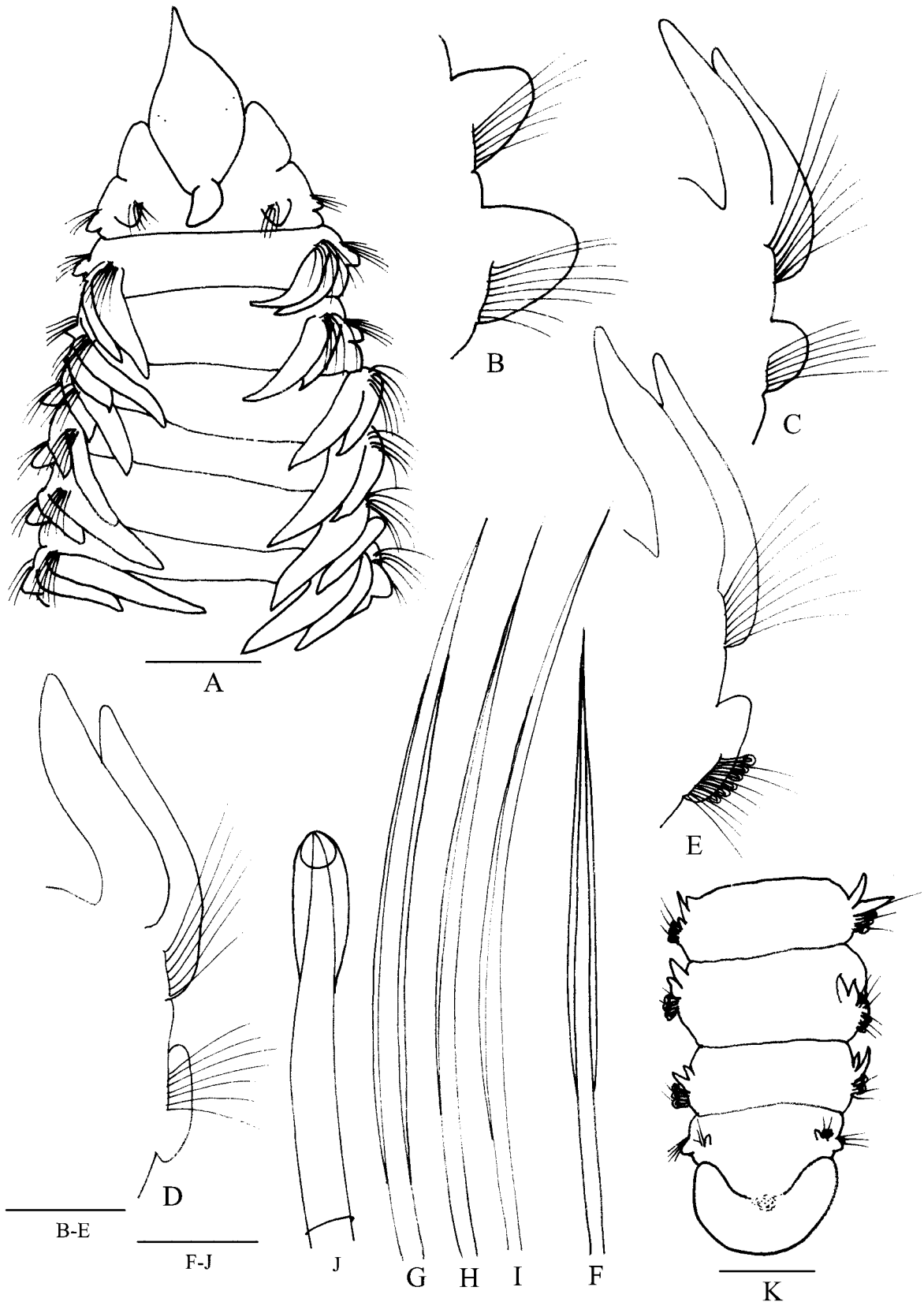


FIGURE 3. *Scolelepis (Scolelepis) lingulata* Imajima, 1992. A, anterior end, dorsal view; B, parapodia of setiger 1, anterior view; C, parapodia of setiger 2, anterior view; D, parapodia of setiger 12, anterior view; E, parapodia of setiger 22, anterior view; F, notopodial seta from anterior row of setiger 4; G, notopodial seta from posterior row of setiger 4; H, neuropodial seta from anterior row of setiger 4; I, neuropodial seta from posterior row of setiger 4; J, neuropodial hooded hook from setiger 30; K, pygidium, dorsal view. Scales: A, 600 μm ; B–E, 120 μm ; F–J, 250 μm ; K, 100 μm .

Material examined. MBMCAS 020734 (1 spm), 120°45' E, 37°30' N, Bohai Sea, sandy mud, 26 m, 30 Apr 1959, coll. Mu Chen; MBMCAS 020735 (1 spm), 122°45' E, 39°00' N, Bohai Sea, silty mud, 22.8 m, 18 Apr 1959; MBMCAS 020736 (1 spm), 121°30' E, 40°30' N, Bohai Sea, sandy mud, 20 m, 1 Nov 1958, coll. Yuhang Cui; MBMCAS 020737 (2 spms), 123°00' E, 32°00' N, East China Sea, sand with debris, 34 m, 13 May 1959, coll. Baolin Zhang; MBMCAS 020738 (1 spm), 123°30' E, 31°30' N, East China Sea, sandy mud, 45 m, 14 May 1959, coll. Baolin Zhang; MBMCAS 020861 (2 spms), 113°00' E, 21°15' N, South China Sea, sandy mud, 45 m, 10 Feb 1960, coll. Shengpeng Shen; MBMCAS 020862 (1 spm), 110°45' E, 20°48' N, South China Sea, sandy mud, 20 m, 11 Jul 1959; MBMCAS 020863 (2 spms), 111°15' E, 20°00' N, East China Sea, silty mud, 52 m, 25 Apr 1959, coll. Xiutong Ma; MBMCAS 020864 (1 spm), 112°30' E, 21°15' N, South China Sea, sandy mud, 41 m, 21 Oct 1959, coll. Yongliang Wang; MBMCAS 020865 (1 spm), 111°00' E, 21°00' N, South China Sea, sandy mud, 25.8 m, 30 Oct 1959; MBMCAS 020866 (2 spms), 109°00' E, 21°24' N, South China Sea, sandy mud, 41 m, 20 Apr 1959; MBMCAS 198575 (2 spms), 123°00' E, 31°30' N, Changjiang River Estuary, sandy mud, 34 m, 17 Oct 1985, coll. Bin Sun; MBMCAS 198602 (2 spms), 122°30' E, 37°40' N, Yellow Sea, silty mud, 25 m, 20 Oct 1959, coll. Jinxiang Jiang; MBMCAS 228688 (1 spm), 122°00' E, 33°00' N, East China Sea, sandy mud, 33 m, 13 Jan 1959, coll. Yuhang Cui; MBMCAS 228991 (1 spm), st. 31007, East China Sea, sandy mud, 44 m, 26 Nov 1961, coll. Baolin Zhang; MBMCAS 229142 (1 spm), 123°30' E, 32°00' N, Changjiang River Estuary, sandy mud, 41 m, 7 Sep 1985, coll. Wenlong Li; MBMCAS 229143 (1 spm), st. J1, Changjiang River Estuary, sandy mud, 10 m, 12 Sep 1985, coll. Wenlong Li.

Description. Prostomium elongated, with pointed anterior margin. Caruncle extending posteriorly to setiger 1. Occipital tentacle present. Two pairs of eyes arranged in a transverse row. Peristomium distinct from setiger 1, forming well-developed lateral wings (Fig. 3A).

Parapodia of setiger 1 well developed; notopodial postsetal lamellae conical and neuropodial postsetal lamellae large, subtriangular, with capillary setae in both rami (Fig. 3B). Branchiae present from setiger 2, continuing posteriorly to end of body. Notopodial postsetal lamellae distally free from branchiae, long, narrow with ruffled edge in anterior setigers (Fig. 3C–D). Posterior lamellae triangular with elongated pointed tip, nearly equal in length through posterior setigers (Fig. 3E). Neuropodial postsetal lamellae small and rounded anteriorly; slight notch present from setigers 23–27; lamellae divided into low, rounded interramal lobe and small triangular ventral lobe. Neuropodial presetal lamellae thick and round, from setiger 2 to posterior setigers; smaller than corresponding neuropodial postsetal lamellae.

All anterior setae capillaries, arranged in two rows on both rami. Anterior row thick, heavily granulated, posterior row thin capillaries without obvious sheaths (Fig. 3F–I). Neuropodial hooded hooks from setiger 21, unidentate, with open hoods (Fig. 3J), up to nine in a series, accompanied by capillaries. Notopodial hooded hooks absent.

Pygidium with ventral cushion, anus opening dorsally (Fig. 3K).

Remarks. The specimens agree well with previous descriptions and illustrations. *Scoelepis* (*S.*) *lingulata* is a common species in Chinese coastal waters (Bohai Sea, Yellow Sea, East China Sea, South China Sea). It seems that previous *S.* (*S.*) *lingulata* specimens have probably been misidentified because this species has never been reported in China. However, it can be easily distinguished from other Chinese *Scoelepis* species by the presence of an occipital tentacle. The species is newly reported for the Chinese *Scoelepis* fauna.

Distribution. China (Yellow Sea, Changjiang River Estuary, East China Sea; 10–52 m); Japan.

Scoelepis (*Scoelepis*) *variegata* Imajima, 1992

Figure 4

Scoelepis (*Scoelepis*) *variegata* Imajima, 1992: 20–22, figs. 3a–h.

Material examined. MBMCAS 228678 (1 spm), 122°40' E, 31°15' N, Changjiang River Estuary, sandy mud

with debris, 33 m, 30 Jun 1986; MBMCAS 228909 (1 spm), 122°45' E, 31°45' N, Changjiang River Estuary, sandy mud, 37 m, 13 Dec 1985, coll. Xianqiu Ren; MBMCAS 228912 (1 spm), 121°45' E, 31°30' N, East China Sea, sandy mud, 10.5 m, 21 Oct 1959; MBMCAS 228988 (2 spms), 121°15' E, 38°00' N, Yellow Sea, sandy mud, 44 m, 28 Jan 1959; MBMCAS 228990 (2 spms), 123°00' E, 37°00' N, Yellow Sea, mud, 30 m, 18 Apr 1959; MBMCAS 228996 (1 spm), 123°00' E, 31°45' N, Changjiang River Estuary, sandy mud, 38 m, 4 Mar 1986, coll. Xianqiu Ren; MBMCAS 228997 (1 spm), 122°40' E, 31°15' N, Changjiang River Estuary, silty mud, 37 m, 15 Oct 1985.

Description. Prostomium elongated, with pointed anterior margin; posterior with rounded swelling just behind 2 pairs of small eyes. Occipital tentacle absent. Two pairs of eyes arranged in a transverse row. Peristomium distinct from setiger 1, forming well-developed lateral wings (Fig. 4A).

Parapodia of setiger 1 well developed, with small, oval notopodial and neuropodial postsetal lamellae; capillary setae present on neuropodia, lacking on notopodia (Fig. 4B). Branchiae present from setiger 2, continuing posteriorly to end of body. Notopodial postsetal lamellae completely fused with branchiae from setiger 2 to setiger 29, thereafter lamellae separated from branchiae, posterior notopodial lamellae triangular with elongated pointed tips (Fig. 4C–D). Notopodial postsetal lamellae long, narrow with slight serrations in anterior setigers, gradually reduced to subtriangular lamellae in middle and posterior region. Notopodial presetal lamellae rounded in anterior setigers, becoming reduced in posterior setigers. Neuropodial postsetal lamellae rounded in anterior setigers, becoming low and round in posterior setigers. Neuropodial presetal lamellae thick and round, from posterior setigers; smaller than corresponding neuropodial postsetal lamellae.

All anterior setae capillaries, arranged in two rows on both rami. Anterior row thick, heavily granulated, posterior row thin capillaries without obvious sheaths (Fig. 4E–H). Neuropodial hooded hooks from setigers 24–27, bidentate, with distinct secondary tooth (Fig. 4I), 6–16 in a series, accompanied by capillaries. Notopodial hooded hooks absent.

Pygidium missing in present material.

Remarks. The specimens agree well with previous descriptions and illustrations. *Scolelepis (S.) variegata* Imajima, 1992 is unique among *Scolelepis* from China in its relative plump body and lack of notosetae on setiger 1. Additionally, the branchiae and notopodial lamellae in the anterior part of the body are completely fused. The species is newly reported for the Chinese *Scolelepis* fauna.

Distribution. China (Yellow Sea, East China Sea; 10.5–44 m); Japan.

Remarks on *Scolelepis (Scolelepis) globosa* Wu & Chen, 1964

Scolelepis (Scolelepis) globosa Wu & Chen, 1964 was originally described as *Scolelepis (Nerinides) globosa* Wu & Chen, 1964, based on material from the intertidal flat around Zhoushan archipelago in the East China Sea. After that, there were no additional reports of the species. According to the original description, the species is characterized by globular expansions at the bases of the palps. It also can be clearly separated from other Chinese *Scolelepis* species by the combination of the characters of the presence of tridentate hooded hooks and occipital tentacle. Therefore, we consider it to be a valid species, but unfortunately neither the type materials nor other representative samples are available for examination.

Although the validity of *Scolelepis (Scolelepis) globosa* Wu & Chen, 1964 is certain, the subgeneric arrangement of the species is confusing. Wu & Chen (1964) placed the species in the subgenus *Nerinides* without any detailed explanation. The original description of the species lacks the morphological characters of the neuropodial postsetal lamellae in the posterior part of body, which is the most important taxonomic character for the subgenus *Nerinides* according to Pettibone (1963). Detailed information on the shapes of the neuropodial postsetal lamellae in this species is obviously needed.

The concept of the division of the genus *Scolelepis* into the subgenera *Scolelepis* and *Parascolelepis* has been followed by various subsequent authors (e.g., Imajima 1992; Blake 1996; Delgado-Blas 2006). The former is characterized by having uni-, bi- or tridentate hooded hooks, while the latter has multidentate

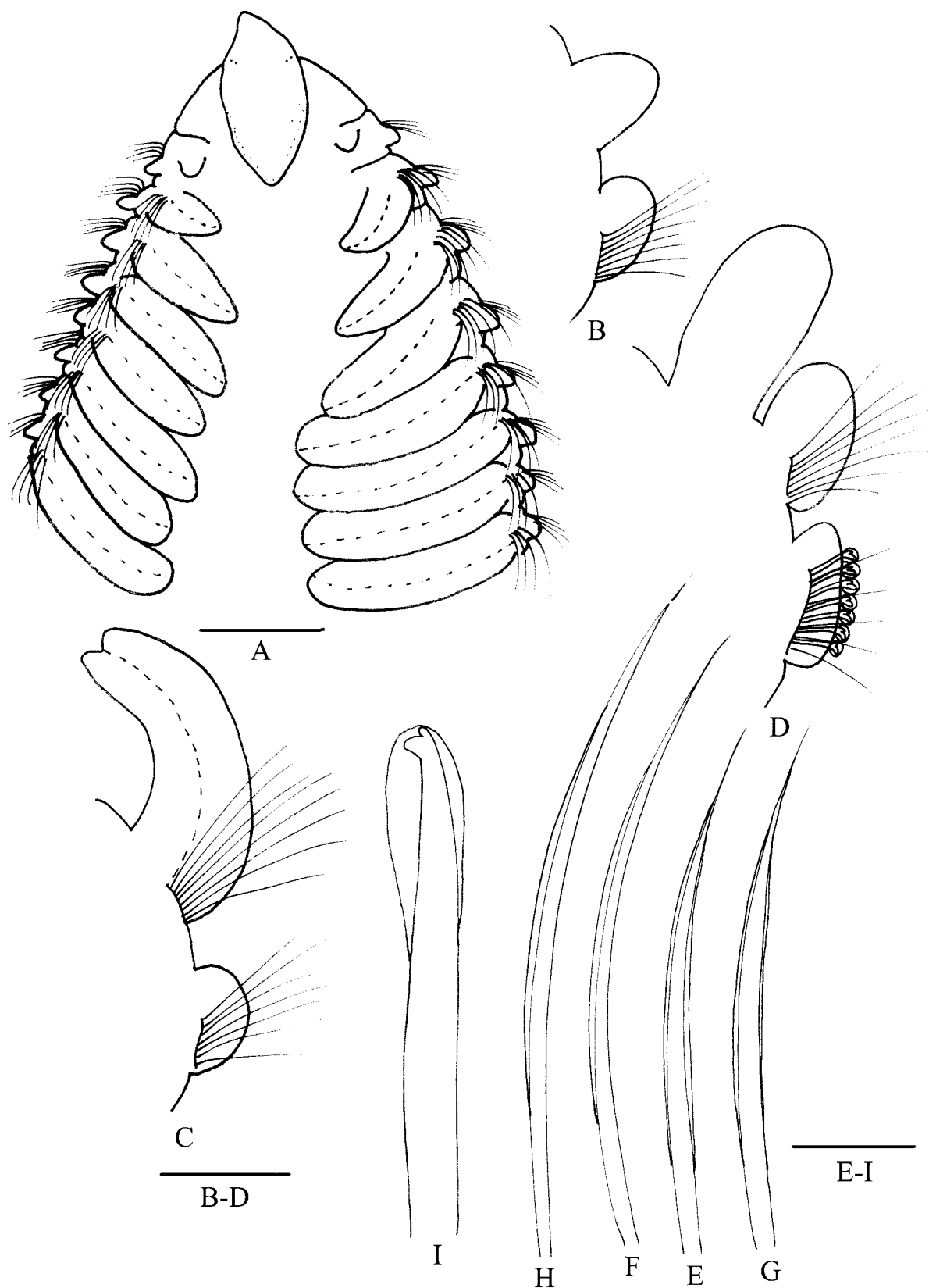


FIGURE 4. *Scolelepis (Scolelepis) variegata* Imajima, 1992. A, anterior end, dorsal view; B, parapodia of setiger 1, anterior view; C, parapodia of setiger 2, anterior view; D, parapodia of setiger 31, anterior view; E, notopodial seta from anterior row of setiger 4; F, notopodial seta from posterior row of setiger 4; G, neuropodial seta from anterior row of setiger 4; H, neuropodial seta from posterior row of setiger 4; I, neuropodial hooded hook from setiger 30. Scales: A, 600 μ m; B–D, 120 μ m; E–I, 250 μ m.

hooded hooks. In order to avoid confusion, *Scolelepis (Nerinides) globosa* Wu & Chen, 1964 should be cited as *Scolelepis (Scolelepis) globosa* Wu & Chen, 1964 in subsequent studies.

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