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A New Record of a Commensal Scale Worm *Medioantenna clavata* Imajima, 1997 (Polychaeta: Polynoidae), from Ogasawara Islands, Japan

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Abstract A polynoid scale worm, *Medioantenna clavata* Imajima, 1997 was discovered in shallow water of the Ogasawara Islands, Japan for the first time since the original description from Sagami Bay, central Japan. The species is associated with colonies of hydroid, *Solanderia misakiensis*. Living color and habit are described for the first time. Description and figures are also provided.

Key words: scale worm, Polychaeta, *Medioantenna clavata*, Ogasawara Islands.

During a faunal survey in the Ogasawara Islands, oceanic islands in Japan, an important collection of polychaetes has been obtained. From the material, we have already described a new species of polynoid scale worm (Nishi and Tachikawa, 1997). Here we report an unusual species of a polynoid scale worm, *Medioantenna clavata* Imajima, 1997, in the subfamily Arctonoinae Hanley, 1989. In the taxonomy of the Polynoidae, the position of lateral anennae and median antennae are considered as very important (Uschakov, 1977), and Arctonoinae usually has arctonoid-type lateral antennae (also as in the Acholoinae Pettibone, 1996) and anterior median antenna. *Medioantenna clavata* is typical of this subfamily Arctonoinae for the position of lateral antennae, but has a median antenna in a middle position as in the Admetellinae Uschakov, 1977, thus it is very unique. Before this study, *M. clavata* has been previously known only from Sagami Bay on the Pacific side of central Japan by the original description (Imajima, 1997), and there was no record of living colors and living habit, such as commensal, as known for many species of scale worms, with echinoderms, other polychaete, etc. In this paper, a description and figures including living state of *M. clavata* are provided on the basis of the material from Ogasawara Islands.

Materials and Methods

Specimens were collected in a subtidal rocky area, fixed in 10% neutralized formaldehyde, and later transferred to 70% ethanol. Some parapodia were dissected using scissors to see ultrastructure of setae, transferred to 80%, 90%, 95%, 100% alcohol series, then air-dried, coated with Palladium and Platinum, and finally viewed with a scanning electron microscope (SEM), Hitachi S-800. The material is deposited in the Natural History Museum & Institute, Chiba (CBM, with a code of ZW).

Systematics

Family Polynoidae Kinberg, 1856
Subfamily Arctonoinae Hanley, 1989

Medioantenna clavata Imajima, 1997
(Figs. 1–2)

Medioantenna clavata Imajima: Imajima, 1997, Ntl. Sci. Mus., Monographs, 13: 14–18, figs. 7–9.

Materials examined. –CBM-ZW-890 (40 mm in length, 4 mm in width); CBM-ZW-891 (48 mm in length, 4 mm width) and 892 (42 mm in length, 4 mm in width); all complete but some elytra and cirri missing; Chichi-jima Island, Ogasawara Islands, Japan, about 10 m

Table 1. Variation of elytron attachment pattern on three specimens of *Medioantenna clavata* and size of worms.

Specimen	Length in mm	Width in mm	No. of segments	No. of pairs of elytra	Elytra attached on segments 2, 4, 5, 7, 9, 11, 13, 15, 17, 19
CBM-ZW-890	40	4	83	Left 38	21, 23, 25, 28, 31, 34, 37, 38, 41, 42, 44, 45, 48, 51, 52, 55, 57, 59, 60, 62, 64, 66, 68, 70, 72, 74, 75, 79
				Right 37	21, 23, 25, 28, 31, 34, 37, 38, 41, 42, 44, 45, 46, 48, 49, 52, 55, 57, 59, 62, 64, 66, 68, 70, 73, 75, 78
CBM-ZW-891	48	4	81	Left 38	21, 23, 26, 29, 32, 35, 36, 39, 40, 43, 46, 47, 49, 52, 53, 55, 56, 58, 60, 61, 62, 65, 67, 70, 72, 73, 75, 77
				Right 38	21, 23, 26, 29, 32, 35, 36, 39, 40, 43, 46, 47, 49, 52, 53, 55, 56, 58, 60, 61, 63, 64, 67, 70, 72, 73, 75, 77
CBM-ZW-892	42	4	75	Left 35	21, 23, 26, 29, 32, 35, 36, 37, 39, 41, 43, 47, 49, 51, 55, 55, 56, 60, 63, 66, 68, 69, 70, 72, 74
				Right 38	21, 22, 25, 28, 31, 34, 35, 36, 37, 40, 41, 42, 46, 48, 50, 52, 55, 59, 60, 63, 64, 67, 68, 70, 71, 73, 74, 75

* The number with underline shows asymmetrical distribution of elytra.

deep; collected by hand; associated with a hydroid *Solanderia misakiensis* 15 Oct. 1995; coll. H. Tachikawa.

Description. Body elongate, composed of 75–83 segments in type series (83 in 890, see Table 1). Elytra and bulbous elytrophores 35–38 pairs, on segments 2, 4, 5, 7, on alternating segments to 21, 25, 28, 31, (in 890) then variable in number and arrangement (Table 1). Elytra orbicular, smooth, semi-transparent, without fringes of papillae, without microtubercles and with one nodular process (Fig. 1E–G). Dorsal cirri present on non-elytrigerous segments with cylindrical cirrophores posterodorsal to notopodia, styles inflated and tips narrow (Fig. 1A, B). Prostomium bilobed with lobes rounded, lacking cephalic peaks; one pair of palps and three antennae with distinct ceratophores (Fig. 1A–C); median antenna with large ceratophore in middle position of prostomium, bearing cylindrical styles with filiform tip; lateral antennae with distinct, short ceratophores inserted terminoventrally (Fig. 1B, C); two pairs of black eyes (Fig. 1B, C). Tentaculophores lateral to prostomium, with acicula, 3 to 8 setae. Second or buccal segment without nuchal fold, with first pair of elytra, biramous parapodia, and long ventral buccal cirri. Parapodia subbiramous, smaller notopodia subconical with acicular processes on anterodorsal sides of larger neuropodia; neuropodia deeply notched dorsally and ventrally, with rounded presetal lobe and slightly flattened subtriangular postsetal lobes. Notosetae 3 to 8 in number, each providing 20 to 25 rows of minute teeth and groove (Fig. 1G), stouter than neurosetae. Neurosetae 16 to 20 in number, with 15 to 18 rows of small teeth (Fig. 1H), all with entire tips slightly bent. Ventral cirri short, subulate. Pygidium simple, terminal, without anal cirri. Pharynx with 7 to 8 pairs of papillae and two pairs of jaws (Fig. 1I, J). Sexes unknown. Commensal with hydroid colony *Solanderia secunda* (Inaba) (Fig. 2).

Color in life. Body generally orange to red in dorsal view (Fig. 2). Antennae, palps, dorsal cirri, cirrophores, styles and parapodia dark purple in basal half, each with white tip. Elytra transparent.

Color in preservative. Faded into cream-white or light brown; dark purple portions mentioned above faded into dark brown.

Remarks. The number of setigers appears not stable in the material. The distribution of the segment with elytra is not symmetrical in all three specimens (Table 1).

This is the first record of this species after original description by Imajima (1997) from

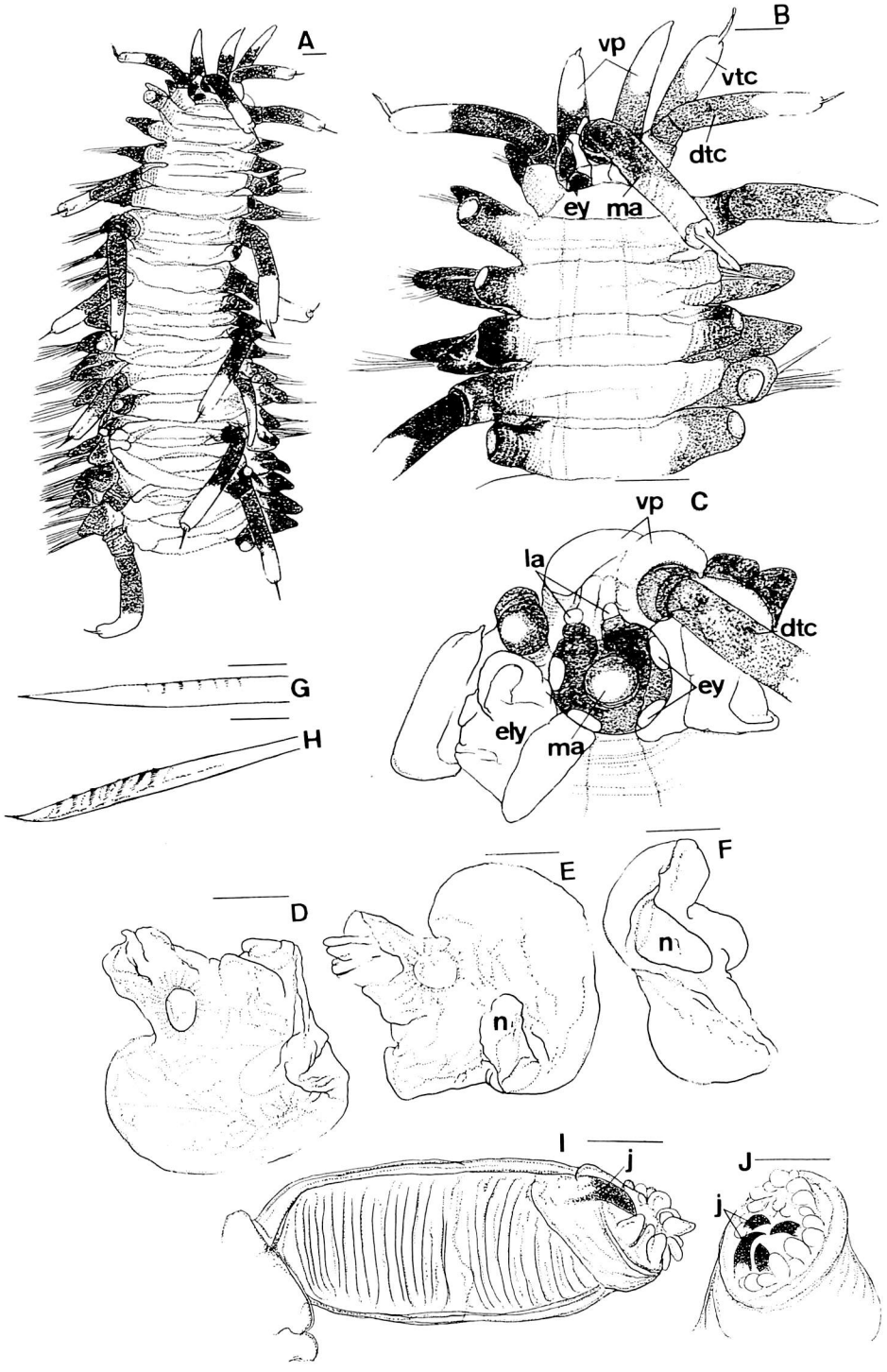

Fig. 1. *Medioantenna clavata.* A, B, anterior end of CBM-ZW-890, dorsal view; C, head part of CBM-ZW-892, lateral view; D–F, elytra of 7th setiger showing attachment site and nodular process (n); G, H, notosetae of 10th segment of holotype, drawn from SEM micrograph; I, J, pharynx cut from CBM-ZW-890. Abbreviations, ely, elytra; ey, eye; dtc, dorsal tentacular cirri; j, jaw; ma, median antenna; la, lateral antenna; vtc, ventral tentacular cirri; vp, ventral palp. Scales are 0.5 mm (A–F, I, and J) and 0.02 mm (G and H).

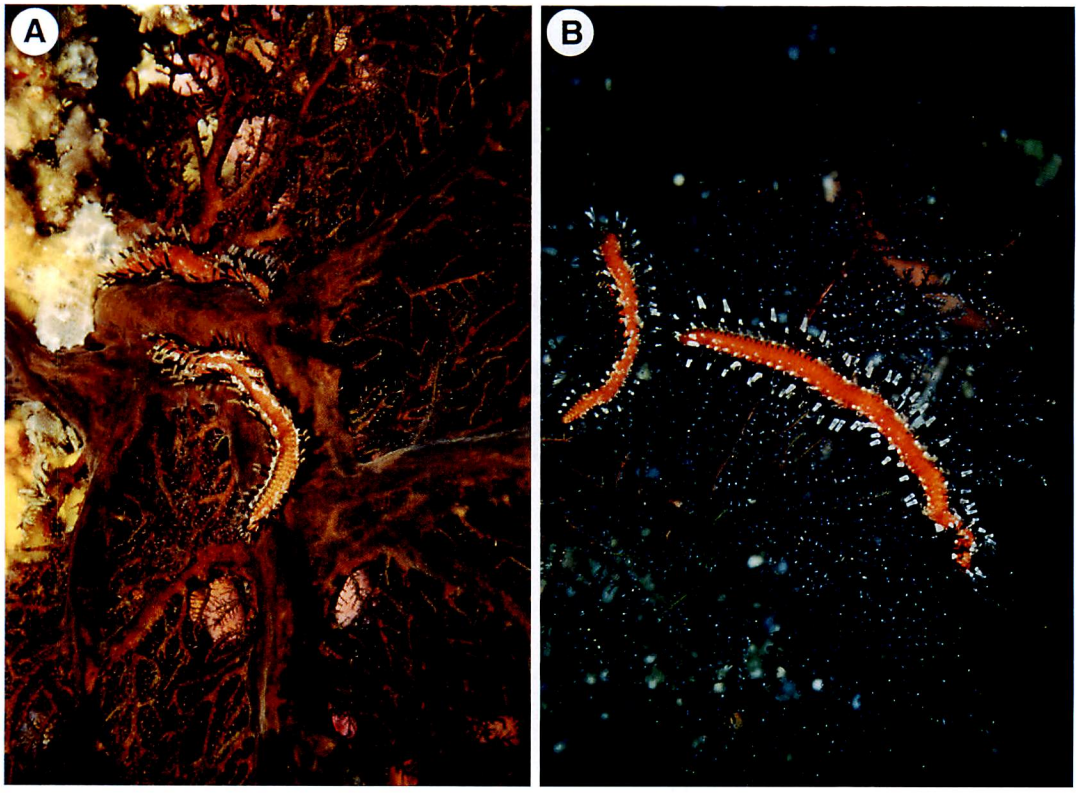

Fig. 2. *Medioantenna clavata* on the hydroid colony at a depth of about 10 m of Chichi-jima Island, Ogasawara. Photos by H. Tachikawa.

the Sagami Bay, central Japan.

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小笠原諸島父島から獲られた希種 *Medioantenna clavata* （多毛綱，ウロコムシ科）の記録

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Medioantenna clavata（多毛綱，ウロコムシ科）は相模湾から記載された以外に記録のなかった希種であるが，今回小笠原から新たに生きた個体が採集された．発見時にはセンナリウミヒドラの群体上に付着していた．宿主と生時の色を初めて記載した．