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Typton dentatus sp. nov. from the Ryukyu Islands, Japan
with discussion on the generic characters
(Decapoda, Palaemonidae)¹

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The pontoniid genus *Typton* Costa, which is known in commensal with sponges, has been recorded from the Eastern Atlantic, Mediterranean and Atlantic and Pacific American coastal regions.

Two specimens belonging to this genus, which appear to represent an undescribed species, were recently obtained from a small sponge living at the base of branching corals in Yoron-jima Island, one of the Ryukyu Islands. The present species therefore further extends the distributional range of the genus to the Indo-Westpacific region.

The antennal scale of the present species is strongly degenerated into a small lobe, which character apparently represents one of the most important generic characters of *Typton*. However, in regard to the other character, the rostrum, the present species differs from the known ones because of its possessing distinct teeth on the upper border instead of the short and simple rostrum. Hence, the definition of *Typton* as to the rostrum is obliged to be rectified in order to place the present species in this genus.

The types have been deposited in the collection of the Zoological Laboratory, Faculty of Agriculture, Kyushu University.

¹⁾ Contributions from the Zoological Laboratory, Faculty of Agriculture, Kyushu University, No. 410.

Typton dentatus sp. nov.

(Figs. 1, 2)

Description of holotype. The body is rather small and plump. The rostrum (Fig. 1, *a*) is nearly straight with the tip pointed and upturned, almost reaching the end of the antennular peduncle. On the upper border there are three strong and similar teeth, which are all placed before the orbit; the distal tooth is separated from the tip by a certain distance. The lower border is entire and gently arcuated. No lateral carina is present. An obscure dorsal carina runs slightly backwards. Several fine setae are visible near the tip.

The carapace is smooth and rather swollen. It is a little longer than the breadth. The antennal spine is small and situated on the lower orbital angle. The anteroventral margin is broadly produced round.

The abdomen is smooth. The pleura are expanded to enclose a distinct marsupium. The pleura of the first four segments are broadly expanded round. That of the fifth becomes smaller and narrower. The sixth segment is somewhat depressed and much less longer than the fifth segment; the posterolateral margin is produced backwards bilaterally into a strong projection.

The telson (Fig. 1, *b*) is flat and broad, being about twice as long as its maximum breadth. It is more or less sunken longitudinally throughout its length. The lateral margins are slightly convex and bear two pairs of minute spines; the anterior pair is placed a bit behind the half point of the telson; the posterior stands halfway between the anterior pair and the posterior end of the telson. On the posterior margin three pairs of small spines lie; the outer pair is minute and much smaller than the lateral spines of the telson; the intermediate is somewhat long and stout; the median is very slender and subequal to the intermediate in length.

The eye (Fig. 1, *c*) is well developed. The cornea is nearly hemispherical and somewhat obliquely situated. The ocellus is invisible. The peduncle is much longer and broader than the cornea, being heavy proximally.

The basal segment of the antennular peduncle (Fig. 1, *d*) is broad and somewhat elongated. The outer margin is slightly convex, terminating in a strong lateral tooth which scarcely touches the level of the end of the second segment. The stylocerite is short and broad with a tip bluntly pointed, not extending to the middle of the basal segment. The distal two segments are subequal in breadth but the second segment is a trifle shorter than the third. The outer flagellum is short and fused for three joints. The shorter free portion is very short. The inner flagellum is also short and less than the outer in length.

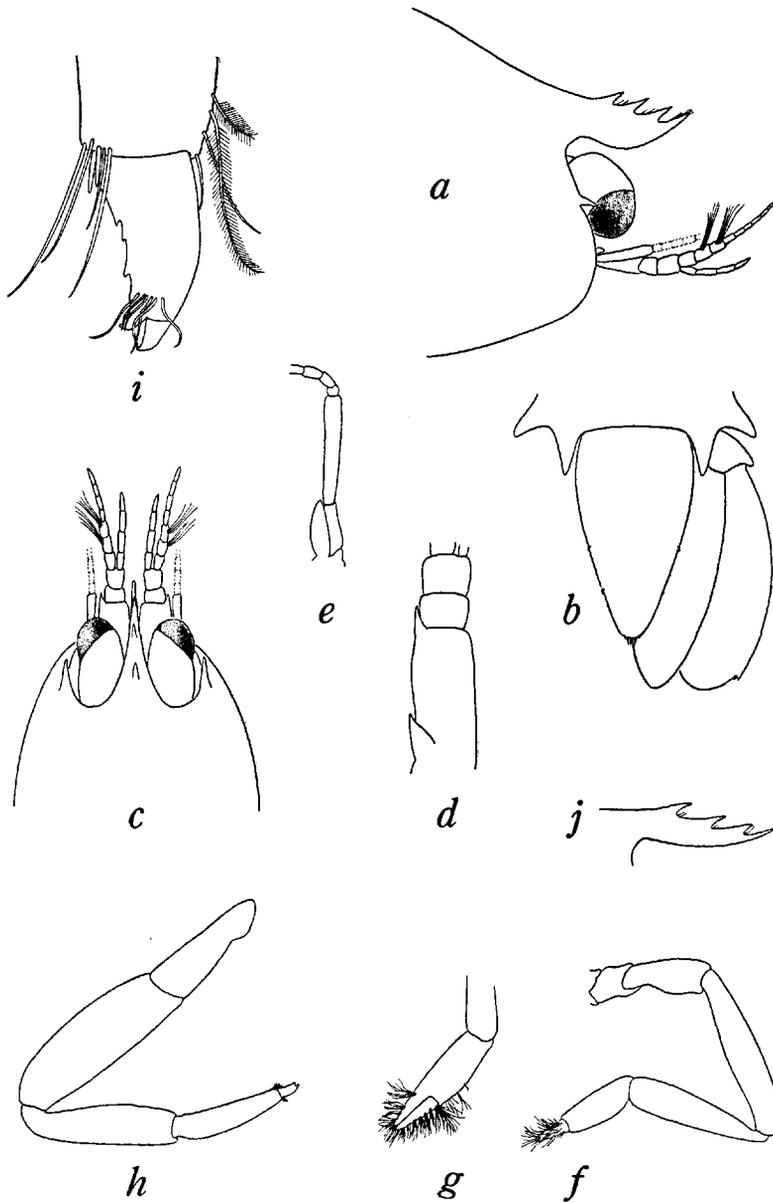


Fig. 1. *Typton dentatus* sp. nov.

a, Anterior part of body in lateral view, holotype, $\times 24$; *b*, telson and uropod, $\times 36$; *c*, anterior part of body in dorsal view, $\times 24$; *d*, antennular peduncle, $\times 36$; *e*, antennal scale and peduncle, $\times 24$; *f*, first pereopod, $\times 24$; *g*, chela of first pereopod, $\times 24$; *h*, third pereopod, $\times 24$; *i*, dactylus of third pereopod, $\times 240$; *j*, rostrum of paratype, $\times 24$.

The antennal peduncle (Fig. 1, *e*) has the antennal scale very small, degenerated and foliaceous with the tip obtuse, which reaches the end of the penultimate segment of the antennal peduncle. It is devoid of a lateral tooth terminally. The ultimate segment is long,

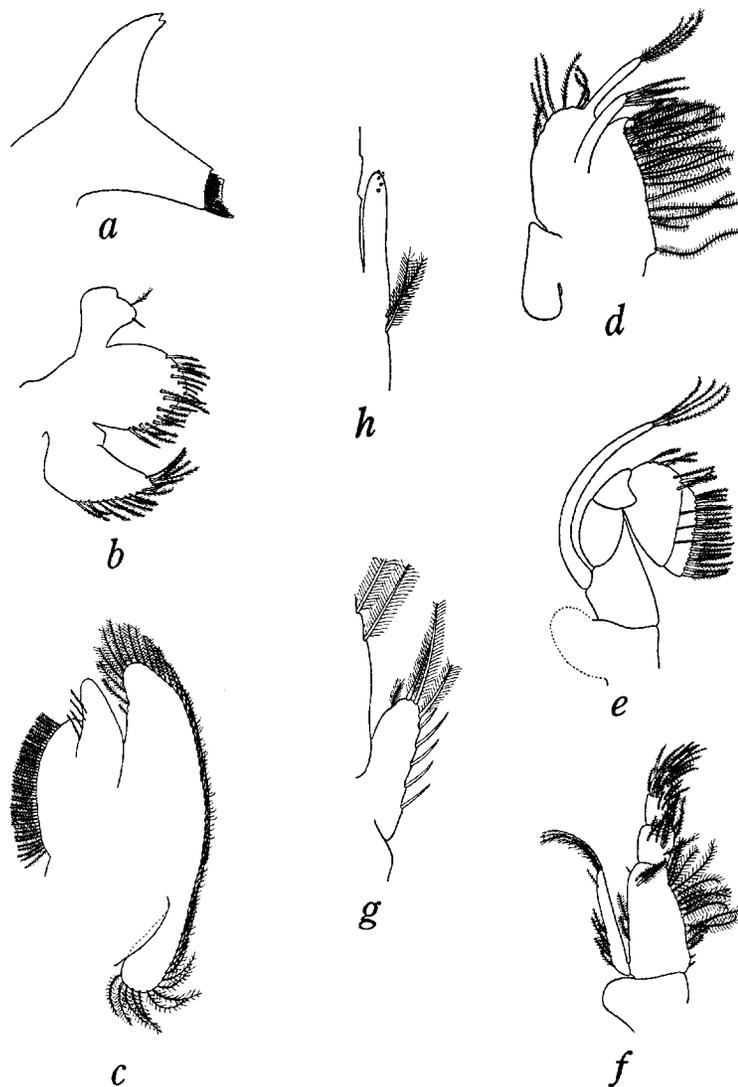


Fig. 2. *Typton dentatus* sp. nov.

a, Mandible; *b*, maxillule; *c*, maxilla; *d*, first maxilliped; *e*, second maxilliped; *f*, third maxilliped; *g*, endopod of first pleopod of paratype; *h*, appendix interna of second pleopod of paratype.

slender and cylindrical, exceeding the end of the basal segment. The flagellum is missing.

The mandible (Fig. 2, *a*) has the laminar incisor process, the tip of which is surrounded by coarse setae so as to cover the terminal portion. The maxillule (Fig. 2, *b*) possesses the palp slightly bifid distally; the upper lacinia is broad and provided with many coarse setae; the lower lacinia is also broad and fringed on the inner margin with many long setae. The palp of the maxilla (Fig. 2, *c*) is well developed and broad with some setae; the endite is broad and unlobed, bearing marginally stout setae; the scaphognathite is narrow and elongated posteriorly. The first maxilliped (Fig. 2, *d*) has a slender, long and setose palp; the endite is broad and not bilobed; the flagellum of the exopod is rather elongated and bears the developed and slender caridian lobe; the large, oblong and unlobed epipod is present. The second maxilliped (Fig. 2, *e*) is normal in shape; the epipod is broadly expanded. The third maxilliped (Fig. 2, *f*) is short and broad; the distal two segments are similar each other in both length and shape; the antepenultimate segment is broad, being about twice as long as broad as well as the distal segments; the exopod a little overreaches the end of the antepenultimate segment; the broad epipod is present; no arthrobranch is present.

The first pereopod (Fig. 1, *f*) is rather short. The fingers (Fig. 1, *g*) are narrow, the cutting edges being straight and entire. The palmar portion of the chela is somewhat depressed, being measured two and a half as long as broad and one and a half the length of the finger. Fine hairs are thickly grown on the fingers. The carpus is subcylindrical and becomes heavier distally, being much longer than the chela. The merus is somewhat longer than the carpus.

The second pereopods are missing on either side.

The last three pereopods (Fig. 1, *h*) are rather similar one another but becomes much more slender than the third, fourth and fifth in order. The dactylus (Fig. 1, *i*) is broad and a little recurved, and the breadth decreases gradually towards the end, being more than one and a half the breadth at the base; the tip is biunguiculated and rather truncated distally; the posterior margin bears several obscure teeth. The propodus is narrow and slightly curved, being more than five times as long as the dactylus; the posterior margin is smooth except a pair of distal spinules and fine setae. The carpus is stouter than the propodus, the maximum breadth lying in the middle, and is a little less than one and a half the length of the propodus. The merus is much broader than the distal segments and a trifle shorter than three times as long as the maximum breadth, being somewhat longer than the carpus. The ischium is nearly equal to the carpus in length.

The uropods are longer than the telson. The outer margin of the exopod is entire and convex, terminating in a minute movable spine. The ova are large and rather small in number.

Description of paratype. The body is much more slender and smaller than the holotype.

The rostrum (Fig. 1, *j*) is nearly straight and reaches a little beyond the end of the antennal peduncle, with three teeth on the upper border, but much more slender than in the holotype.

The first pleopod has the small and somewhat elongated endopod (Fig. 2, *g*) with marginally stout setae. The endopod of the second pleopod is only provided with the broad appendix interna (Fig. 2, *h*).

Types. Holotype: ovig. ♀, ZLKU No. 12054, Ukachi, Yoron-jima I., Ryukyu Is., Japan, from a sponge collected at the base of corals, July 11, 1968, T. Fujino leg. Paratype: 1 sp.,¹ ZLKU No. 12055, from the same sponge as in the holotype.

Size. Holotype (ovig. ♀): body length 7.5 mm, carapace length 1.9 mm, rostrum length 0.6 mm, telson length 0.7 mm. Paratype: body length 4.5 mm, carapace length 1.4 mm, rostrum length 0.8 mm, telson length 0.8 mm.

Hosts. The specimens here treated were found together in the small pit of a sponge living at the base of branching corals at about 1 m deep.

Relationships. This species is easily distinguished from all the other members of this genus by the rostrum with the distinct teeth on the upper border. And also the broad endite of the maxilla seems probably characteristic of the present species. The incisor process of the mandible is well developed unlike those of *Typton gnathophylloides* Holthuis and *T. carneus* Holthuis, in which it is either entirely or considerably reduced.

Discussion on generic characters

The antennal scale of the present species, as described above, is much reduced to form a very small, narrow lobe and lacks a

¹⁾ The non-ovigerous specimen lacks the appendix masculina in the endopod of the second pleopod. Although Holthuis (1951) pointed out the absence of it from males of *Typton* it is still uncertain whether or not the paratype is ascertained to be male because of the appendix masculina being the most effective means to decide sex.

lateral tooth as usually seen in *Typton*. The antennal scale extends as far forward as the level of the base of the last segment of the antennal peduncle. While, Holthuis (1951) noted in the definition of *Typton* that "the scaphocerite is strongly reduced and hardly reaches the base of the last segment or falls short of it." The difference between the present species and Holthuis's definition seems rather small and less noteworthy. With regard to the obsolete antennal scale the genus *Paratypton* Balss, which is known from the Indo-Westpacific region, resembles *Typton*, but apparently differs from it in lacking the exopods of the second and the third maxillipeds as well as in the absence of the rostrum.

Holthuis (1951) erected six species of *Typton*, depending upon the material from the east and west coasts of America, with the definition that this genus has the rostrum simple, without teeth. On the contrary, the present species has the rostrum toothed on the upper border. While, certain degrees of development of the rostral teeth are observed in other pontoniid genera, *Anchistus*, *Pontonia* and *Coralliocaris*. In the first two genera the teeth, if present, are rather small and obsolete, standing near the tip of the rostrum. And in the last genus, *Coralliocaris*, e.g., *C. superba* (Dana) and *C. graminea* (Dana) have several strong teeth, while *C. brevirostris* Borradaile entirely lacks them. Thus, the rostral teeth in some other genera are observed considerably variable in the development within each genus. Taking these facts into consideration, it may be preferable to include the species having the toothed rostrum in this genus. Hence the authors should make a slight but important redefinition of *Typton* in order to insert the present species in this genus: the rostrum of *Typton* is simple or toothed on the upper border.

The genus *Typton* seems to be closely related to *Periclimenaeus* as pointed out by Holthuis (1951). The antennal scale in the latter is small but not so strongly degenerated as in the former. And also *Periclimenaeus* has the rostrum with several strong teeth, never known the simple rostrum. Nobili (1904) recorded a new species, *Typton bouvieri*, from the Red Sea, which possesses two small teeth on the upper border of the rostrum. However, re-examination of the syntypes of that species by Holthuis (1952) revealed that it should not be placed in *Typton* but in *Periclimenaeus* because of its having a developed antennal scale with a small lateral tooth terminally and the toothed rostrum. The toothed rostrum and a rather longer antennal scale of the present species may suggest its occupying the position between these two genera.

The already known species were all recorded from the Eastern Atlantic, Mediterranean and American shores, no record from the Indo-

Westpacific region. Hence, the discovery of this species from the Ryukyu Islands establishes the occurrence of this genus almost throughout the Pacific and Atlantic.

References

- Borradaile, L. A., 1898. A revision of the Pontoniidae. *Ann. Mag. nat. Hist.*, (7) 2: 376-391.
- Dana, J. D., 1852. Crustacea. United States Exploring Expedition during the years 1838, 1839, 1840, 1841, 1842 under the command of Charles Wilkes, U.S.N., 13: 1-1620.
- Holthuis, L. B., 1951. A general revision of the Palaemonidae (Crustacea Decapoda Natantia) of the Americas. I. The subfamilies Euryrhynchinae and Pontoniinae. *Allan Hancock Found. Publ., Occ. Pap.*, 11: 1-332, pls. 1-63.
- Holthuis, L. B., 1952. The Decapoda of the Siboga Expedition. Part XI. The Palaemonidae collected by the Siboga and Snellius Expeditions with remarks on other species. II. Subfamily Pontoniinae. *Siboga Exped., Monogr.* 39a¹⁰, 1-253, figs. 1-110, 1 tab.
- Nobili, G., 1904. Diagnoses préliminaires de vingt-huit espèces nouvelles de Stomatopodes et Décapodes Macroures de la Mer Rouge. *Bull. Mus. Hist. nat.*, Paris, 10: 228-238.