

Short Communication

Schistomeringos japonica (Family Dorvilleidae) – A new record of polychaete from Pakistani coast

Sumaira Khatoon*, Ghazala Siddiqui, Javed Mustaqim &
Safia Khanam

Centre of Excellence in Marine Biology, University of Karachi,
Karachi-75270, Pakistan

*[E-mail: sumaira.khatoon@ymail.com]

Received 10 September 2018; revised 17 January 2019

A marine polychaete worm, of the genus *Schistomeringos* Jumars, 1974, is hereby reported for the first time from the coasts of Pakistan. Several specimens of *Schistomeringos japonica* (Annenkova, 1937) were collected from settlement panels deployed at Korangi Fish Harbour (24°48'8.34" N; 67°17'60" E), Karachi, Pakistani coast. *S. japonica* is closely related to *S. rudolphi* (Delle Chiaje, 1828) but differs in having furcate chaeta from the first, not the second, pair of parapodia. *S. rudolphi* has been reported from the Red Sea. Detailed description and illustrations of *S. japonica*, based on Pakistani materials, are given herein.

[Keywords: Dorvilleidae, Karachi, Pakistan, Polychaeta, *Schistomeringos japonica*]

Introduction

Schistomeringos japonica (Annenkova, 1937), a marine polychaete worm, was originally described from northern part of Japan sea as *Staurocephalus japonica*¹. Jumars² revised the family Dorvilleidae Chamberlin, 1919 and introduced a new genus *Schistomeringos* (meaning 'split bristle' in Greek) for dorvilleids having forked or furcate chaetae in the parapodia. Type species of genus *Schistomeringos* is *Nereis rudolphi* Delle Chiaje, 1828. At present there are 17 valid species of genus *Schistomeringos* worldwide, excluding *S. incerta* (Schmarda, 1861) which is indeterminable³.

Species belonging to family Dorvilleidae have suffered a great deal of nomenclature difficulties. In this regard, revisions of the family by Pettibone⁴ and Jumars² are noteworthy. From Pakistani coast only one species of Dorvilleidae, *Dorvillea gardineri* (Crossland, 1924), has recently been reported so far⁵. Genus *Dorvillea* Parfitt, 1866 differs from *Schistomeringos* in lacking furcate chaetae in the parapodia. Little information available about dorvilleids of Pakistan may be attributed to their small size and dull colour which make them unattractive and difficult to collect.

While studying settlement and growth of fouling organisms by deploying settlement panels in the Korangi Fish Harbour, Karachi, found several specimens of *S. japonica*. Detailed description and illustration of this species, based on Pakistani materials, are given herein, keeping in view the confused state of dorvilleid taxonomy.

Materials and Methods

More than 200 specimens of *S. japonica* were collected from settlement panels from February to November 2017. The panels were made of transparent perspex sheet (152 x 102 mm) and were deployed at Korangi Fish Harbour (24° 48' 8.34" N; 67°17' 60" E), Karachi. The panels were exposed for 30 days. After 30 days the panels were removed, placed in a container containing seawater, and brought to the laboratory. The panels were examined under Olympus Stereomicroscope and the worms were picked out. The worms were then fixed overnight in 4 % commercial formalin. Thereafter, they were washed and preserved in 70 % alcohol for further study. Temporary mounts of parapodia were made in 50 % glycerol. Lactophenol was used to make chaetae clearly visible, when necessary. Maxillary apparatus of large specimens was removed by dissection. Drawings were made with camera lucida attachment for Olympus CX21 microscope. Measurements were taken with the help of ocular micrometre. Body dimensions do not include parapodia, palps, antennae and anal cirri.

Results

Family Dorvilleidae Chamberlin, 1919

Genus *Schistomeringos* Jumars, 1974

Schistomeringos japonica (Annenkova, 1937)

(Figs. 1 to 3)

Staurocephalus japonica Annenkova¹, 1937: 168

Dorvillea japonica, Uschakov and Bao-Ling⁶, 1979: 85, figs. 23A – E

Stauronereis japonicus Pettibone⁴, 1961: 181

Material Examined: Fifteen specimens were examined in detail. They varied from 2.6 to 17.4 mm in length and from 0.5 to 1.2 mm in width for 28 to 80 chaetigerous segments.

Description: Prostomium rounded anteriorly, slightly wider than long. One pair of eyes, when present,

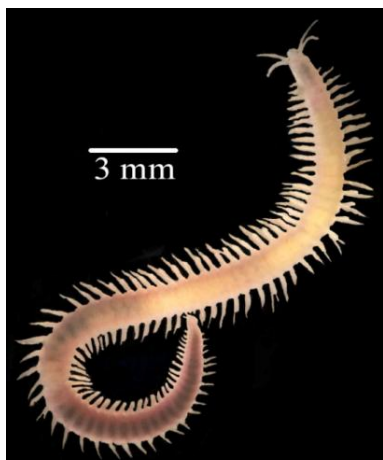


Fig. 1 — *Schistomeringos japonica*, entire worm.

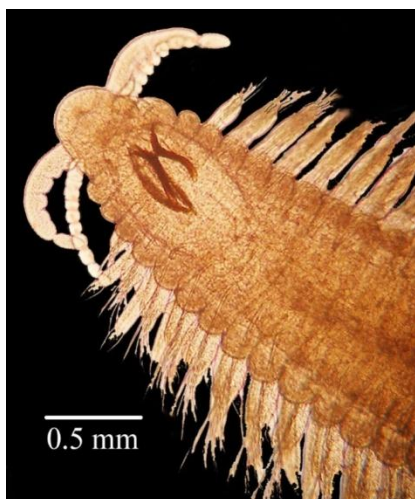


Fig. 2 — *Schistomeringos japonica*, anterior region, ventral view.

reniform, situated at the base of antennae. Palps biarticulate, palpophore 3 to 4 times longer than palpostyle, anterior margin smooth, posterior margin wrinkled. Antennae annulated, with 5 to 17 annuli, slightly longer than palps (Figs. 1, 2 and 3 A).

Mandibles H-shaped, denticulate anteriorly with 3 to 6 free denticles distally (Fig. 3 B). Maxillae with carriers and two rows of denticles on each side. Carriers fused posteriorly, inferior rows of denticles free posteriorly. Denticles of superior rows larger and broader than the corresponding denticles of inferior rows (Figs. 3 K-M).

First pair of parapodia lacks dorsal cirrus; chaetae include 1-2 capillaries, 1-2 furcate chaetae, and 9-12 heterogomph falcigers with short and long blades, tip bidentate with delicate hood (Fig. 3 C). Succeeding parapodia sesquiramous, dorsal cirri with fine

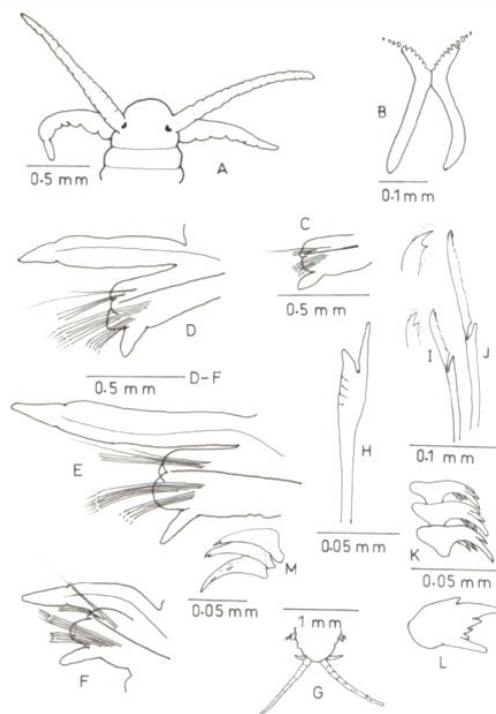


Fig. 3 — *Schistomeringos japonica*. A. Prostomium, B. Mandibles, C. First parapodium, D. Anterior parapodium (5th segment), E. Middle parapodium (35th segment), F. Posterior parapodium (70th segment), G. Pygidium, H. Furcate chaeta, I and J. Compound chaetae with short and long blade and bidentate tip, K and L. Denticles from superior maxillary row and M. Denticles from inferior maxillary row.

notoacacula, cirrophore about three times longer than cirrostyle (Figs. 3 D, F). Ventral cirrus short, extending slightly beyond the parapodial lobe. Dorsal (supra-acicular) chaetal fascicles with 1-2 capillaries and 2-3 furcate chaetae (smaller specimens with one furcate chaeta per parapodium). Furcate chaetae with unequal prongs, long prong about twice the length of short prong, outer margin of short prong usually serrated, rarely smooth (Fig. 3 H). Ventral (sub-acicular) chaetal fascicles with 9-14 heterogomph falcigers with long and short blades, tips bidentate covered with delicate hood (Figs. 3 I, J). Capillary chaetae with serrated margin and fine tip. Pygidium with two pairs of anal cirri, one pair about three times longer than the other, short pair weakly annulated, long pair distinctly annulated (Fig. 3 G).

Distribution: Japan Sea¹, Yellow Sea⁶, South China Sea⁷ and coasts of Pakistan (this paper).

Discussion

Present specimens of *S. japonica* agree to the description and illustrations of Yellow Sea specimens⁶

except the number of eyes and the serrated margins of the short prong of furcate chaetae. Variation in the number of eyes in *Schistomeringos* has been reported for *S. japonica* from Yellow Sea⁶ and for *S. loveni* (Kinberg, 1865) from Australia³. In our specimens usually one pair of eyes was present; in a few specimens' eyes were absent. This suggests that number of eyes is unimportant in *Schistomeringos* taxonomy.

Shape of the furcate chaetae and the relative size of the two prongs have been used to define different species of *Schistomeringos*^{2,3,8}. During this study we found consistency in this feature; short prong was about half of the length of the long prong. However, serration on the margins of short prong was found variable. Weak serration is reported on both margins of the short prong of *S. japonica* from Yellow Sea⁶. In our specimens most of the furcate chaetae have serrated outer margin only of the short prong and a few lack serration at all. We did not find serration on both the margins of the short prong. Length of the furcate chaetae was also found variable in single parapodia. Usually 2 or 3 furcate chaetae of equal length are present in parapodia but in some parapodia one furcate chaeta was found to be so short that it hardly extends beyond the parapodial lobe. This may affect chaetal count if care is not taken. Two species of *Schistomeringos* have been reported from areas close to Pakistan. *S. incerta* was reported from Arabian Gulf and Red Sea whereas *S. rudolphi* from the Red Sea⁹. *S. incerta* (as *Staurocephalus incertus*) is also reported from Gulf of Mannar, India⁸. *S. japonica* differs from *S. rudolphi* and *S. incerta* in having furcate chaetae from the first, not the second, pair of parapodia^{3,10}.

Schistomeringos incerta was originally described as *Cirrosyllis incerta* by Schamdr¹¹ in 1861 from New Zealand. The original description is based on a single specimen with mutilated head. Some important diagnostic characters associated with the head are lacking. The type specimen is also not

available³. Hence the species is now regarded as indeterminate¹².

Conflict of interest statement

No conflict of interest

References

- 1 Annenkova, N. P., Polychaete fauna of the northern part of the Japan Sea] (in Russian, with English translation of new species text only). *Issled. Morei, SSSR.*, 23 (1937) 139-216.
- 2 Jumars, P. E., A generic revision of the Dorvilleidae (Polychaeta), with six new species from the deep North Pacific. *Zool. J. Linn. Soc.*, 54 (1974) 101-135.
- 3 Hutchings, P. A & Murray, A., Taxonomy of polychaetes from the Hawkesbury River and the southern estuaries of New South Wales, Australia. *Rec. Aust. Mus. Suppl.*, 3 (1984) 1-118.
- 4 Pettibone, M. H., New species of polychaete worms from the Atlantic Ocean, with a revision of the Dorvilleidae. *Proc. Biol. Soc. Washington*, 74 (1961) 167-186.
- 5 Khan, M. U., Mustaqim, J., Khanam, S. & Nazim, K., A new record of the polychaete *Dorvillea gardineri* (Crossland, 1924) (Family Dorvilleidae) from Pakistan. *Faust J. Biol.* (2019) 127-129.
- 6 Uschakov, P. V. & Bao-Ling, W., *Polychaeta errantia of the Yellow Sea*. (Amerind Publishing Co. Pvt. Ltd. New Delhi). 1979, pp. 137.
- 7 Glasby, C. J., Lee, Y. & Hsueh, P., Marine Annelida (excluding clitellates and siboglinids) from the South China Sea. *Raffles Bull. Zool. Suppl.*, 34 (2016) 178-234.
- 8 Fauvel, P., Annelida Polychaeta In: *The fauna of India, including Pakistan, Ceylon, Burma and Malaya* edited by R. B. Seymour-Sewell (The Indian Press, Ltd. Allahabad) 1953, pp. xii + 507.
- 9 Wehe, T. & Fiege, D., Annotated checklist of the polychaete species of the seas surrounding the Arabian Peninsula: Red Sea, Gulf of Aden, Arabian Sea, Gulf of Oman, Arabian Gulf. *Fauna of Arabia*, 19 (2002) 7-238.
- 10 Gibbs, P. E., The polychaete fauna of the Solomon Islands. *Bull. Br. Mus. nat. Hist. (Zool.)*, 21 (1971) 101-211.
- 11 Schmarda, L. *Neuwirbello. re thierte beobachtet und gesammelt auf einer Reise um die Erde 1853.1. bis 1857. 1. Bd. Turbellarien, Rotatorien und Anneliden. 2. H'alfte.* (1861) pp. 164, Leipzig.
- 12 World Register of Marine Species. Available from <http://www.marinespecies.org/aphia.php?p=taxadetails&id=334729>. Accessed 28-12-2018. doi:10.14284/170