Lengths of Cypridoidean (Ostracoda, Crustacea) Spermatozoa

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While cypridoidean ostracods are famed for their giant spermatozoa, very little data on ostracod spermatozoa lengths exist. Of the thousands of species in this group, spermatozoa data is only available for about a dozen identified species. The longest spermatozoa recorded for ostracods are those of *Cypris sydneia* King, 1855, measuring in at a staggering 10,000 µm, while lengths of 4000, 4740, and 4800 µm have been recorded for *Bradleystrandesia dentifera* (Dobbin, 1941), *Chlamydotheca ?flexilis*, and *Mytilocypris praenuncia* (Chapman, 1966) respectively (Bauer 1940; Gupta 1969; Wingstrand 1988; Matzke-Karasz 2005). The shortest cypridoidean spermatozoa on record are those of the candonid *Pseudocandona marchica* at 440 µm (Matzke-Karasz 2005), still a remarkable length considering that ostracod spermatozoa are aflagellate, and considerably longer than the spermatozoa of many other animal groups. However, with such a small data set, it is unknown if recorded lengths are representative of the superfamily, or are anomalously long examples that have piqued researchers’ interest.

We measured the lengths of spermatozoa of 21 Cypridoidea species in the taxa Candoninae, Paracypridinae, Ilyocypridinae, Cyprididae and Notodromatidae to expand the data available.

The shortest spermatozoa recorded for a species in our study ranged from 236 to 268 µm for the Candoninae *Fabaeformiscandona velifera* Smith & Janz, 2008, and the longest ranged from 3117 to 3285 µm for the Cyprididae *Sclerocypris longisetosa* Martens, 1988. The subfamily Candoninae have the shortest spermatozoa, ranging from 268 to 737 µm (maximum lengths), while the range for the Family Cyprididae is the widest, at 1000 to 10,000 µm (maximum lengths). In relation to body size, the Candoninae still have the shortest spermatozoa, but many other non-cyprididaen species have relatively longer spermatozoa than some Cyprididae. While species with spermatozoa as long or longer than the males’ carapace length are common (40% of species we now have data for), species with spermatozoa more than twice male carapace length are few (6%). The longest spermatozoa in relative terms and second longest in absolute terms found in our study are that of the Notodromatidae species *Oncocypris voeltzkowi* Müller, 1898, with spermatozoa 4.3 times the length of the males’ carapace (2207 to 2334 µm spermatozoa length), the second largest ratio on record for the superfamily.
This indicates that exceptionally long spermatozoa (i.e., over 2000 µm in length) are not restricted to the family Cypridiidae. Within the superfamily as a whole, spermatozoa lengths show no correlations with body size, length of Zenker organs, or number of Zenker rosettes.

References


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