The Ostracoda

(from Wikipedia, 5/5/2009: http://en.wikipedia.org/wiki/Ostracod)

Ostracoda is a class of the Crustacea, sometimes known as the **seed shrimp** because of their appearance. Ostracods are small crustaceans, typically around one mm in size, but varying between 0.2 to 30 mm, laterally compressed and protected by a bivalve-like, chitinous or calcareous valve or "shell". The hinge of the two valves is in the upper, dorsal region of the body.

Some 65,000 species (13,000 of which are extant taxa) have been identified, grouped into several orders. This group may not be monophyletic. Ostracod taxa are grouped into a Class based on gross morphology.

Ecologically, marine ostracods can be part of the zooplankton or (most commonly) they are part of the benthos, living on or inside the upper layer of the sea floor. Many ostracods, especially the Podocopida, are also found in fresh water and some are known from humid continental forest soils.

The body consists of a cephalon (head), separated from the thorax by a slight constriction. The segmentation is unclear. The abdomen is regressed or absent whereas the adult gonads are relatively large. There are 5–8 pairs of appendages. The branchial plates are responsible for oxygenation.

The epidermal cells may also secrete calcium carbonate after the chitinous layer is formed, resulting in a chalk layer enveloped by chitin. This calcification is not equally pronounced in all orders. During every instar transition, the old carapace (chitinous and calcified) is rejected and a new, larger is formed and calcified. The outer lamella calcifies completely, while the inner lamella calcifies partially, with the rest remaining chitinous. The partial inner lamella calcification occurs when the ostracod becomes adult. The partial inner lamella calcification is most strongly developed frontally (see electron micrograph). The marginal zone is the area where inner and outer lamella meet, and includes part of the vestibulum. The edge of the marginal zone is called the fused zone, and in this area inner and outer lamella join. The fused zone can contain marginal pore canals. These, along with non-marginal pore canals (that are dispersed evenly along the ostracod's valve) connect the vestibulum to the outer world. The line of concrescence is the visible line between the vestibulum and the fused zone. In many cases, this line is wavering and follows the marginal pore canals. On the inner **lamella**, a selvage may be present.

Phylogeny

Ostracods are divided into two subclasses: the **Myodocopa** and Podocopa. The **Podocopa** can be differentiated from the Myodocopa by the morphology of the second antenna: the Podocopa have a relatively long endopod, whereas the Myodocopa have a relatively long exopod. The seventh limb of the Podocopa has a variety of forms or is absent, but is never an annulated worm-like limb (as seen in some Myodocopa). In addition, the Myodocopa can be defined by possession of a poorly-calcified carapace, and 8-9 articles in the exopod of the second antenna. (Kornicker, 1993). The ventral margin of the carapace is not concave, and the valves do not overlap to a great extent (Horne, 2002).

Within the Podocopa there are two orders: Platycopida and Podocopida. The Myodocopa contain two orders: Halocyprida and Myodocopida.

The **Halocyprida**, like their relatives in the order Myodocopida, have a long exopod on the second antenna. However, unlike myodocopids, their fifth appendage is leg-like rather than modified for feeding, their seventh limb is reduced or absent, and they have no lateral eyes. The group is primarily planktonic. There are two suborders: Halocypridina and Cladocopina. A website of planktonic halocyprids in the southern ocean can be found at: http://ocean.iopan.gda.pl/ostracoda/index.php.

The **Myodocopida** are distinguished by a worm-like seventh limb, and, usually, a rostrum above an incisur (notch) from which the antennae can protrude. Unlike other ostracods, many species of the Myodocopida have lateral compound eyes. Over the last thirty years there has been much research into the morphology, behaviour and distribution of myodocopids. More recently, DNA sequences have been used to investigate the phylogeny of various groups.

Key references:

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