

The ostracods inhabiting interdune ponds between a freshwater lake and the sea (Albufera de València, Spain), with special reference to the life cycle of *Sarscypridopsis aculeata*

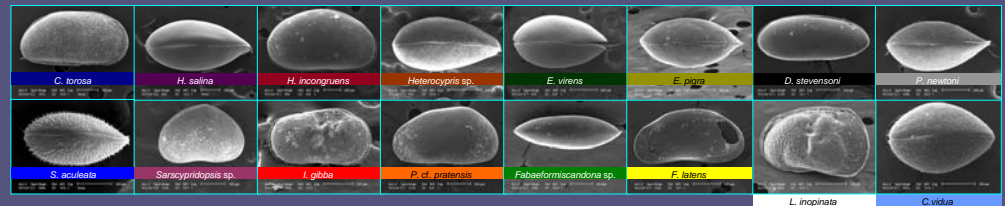
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INTRODUCTION, MATERIAL AND METHODS

In the framework of a biodiversity assessment of the invertebrates living in interdune ponds of the Natural Park Albufera de València, ostracods were collected using hand nets, to be studied as a part of the invertebrate community. More than 50 of these ponds, located on a sand bar separating the shallow freshwater lake Albufera from the Mediterranean sea, and occupying an area of about 7 km long per 1 km wide, were sampled using hand nets and main abiotic factors analysed, including temperature, conductivity, salinity, pH, oxygen concentration and alkalinity.

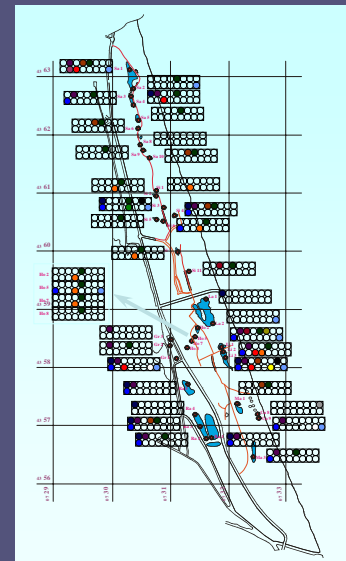


THE SITES AND THEIR OSTRACOD COMMUNITY

Most of the study sites are temporary and have a variable hydroperiod depending on precipitation, but a few others maintain a permanent water table throughout the year (e.g. sites La, Ra; see map and pictures). Salinity varied between 0.2 and 43 ppt, with 7 ppt on average, and mean pH was 8.0.

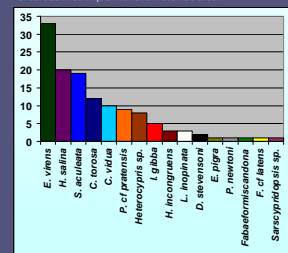
The ostracod community is dominated by species tolerant to desiccation, and also to some degree to salinity variation. The most frequent species were *Sarscypridopsis aculeata*, *Eucypris vires* and *Heterocypris salina*, common inhabitants of temporary ponds. In brackish permanent waters, *Cypridopsis torosa* was the most abundant species (see the attached map and bar figure). In the map figure, it can be seen how *C. torosa* is appearing in the widest sites with permanent brackish waters (Ra, La), but not in the small temporary ponds.

In general, ostracod species living in interdune temporary ponds, need to be able to be resistant to desiccation, usually through diapausing eggs, tolerate wide salinity variation, and reproduce fast before the pond dries up. This is probably the case not only of *S. aculeata*, which is discussed further below, but also of other species present in these ponds in the Albufera Natural Park.

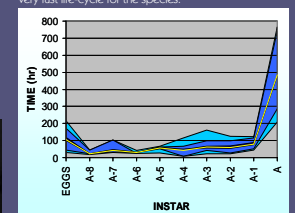


Map of the Albufera "Malladas" sampling sites showing the location of most sites, and their ostracod community composition. Each plate of colours are ordered in the same position as the pictures of the species shown above with SEM pictures.

Number of sites in which all the species found have been collected. The first three species, *E. vires*, *H. salina*, *S. aculeata* are tolerant to desiccation, while the fourth, *C. torosa* lives in permanent water bodies.

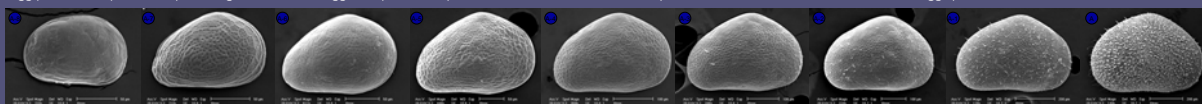


The figure below shows: i) in pale blue, the maximal and minimal duration of each instar, ii) in blue, the range excluding the extreme values, iii) in dark blue colour, the median instar duration time (incl. error), and iv) in bright yellow the median of the average duration for each instar. In general, the youngest instars last for around 30-50 hours, whilst the last juvenile instar, A-1, lasts for about 80 h and adults can survive for more than 500 h. These results indicate a very fast life-cycle for the species.



GROWTH OF *SARSCYPRIDOPSIS ACULEATA* IN THE LAB

In order to better understand the ecological adaptation to temporary waters in ostracods, we reared individuals of *S. aculeata* in the laboratory at room temperature (21-26 °C). Individually placed females were able to lay eggs, and we followed the development of juvenile instars until new adults were present and laid eggs again. Our results are consistent with the findings of Ganning (1971) in the sense that this species can complete its development (from egg to an egg laying adult) in about 17 days, a very fast life-cycle for an ostracod. However, we found a higher egg production per female, attaining more than 70 eggs laid per female, in contrast to the results shown by this author who found a maximum of 36 eggs per female.



ACKNOWLEDGEMENTS

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SELECTED REFERENCES

Ganning, B., 1971. On the ecology of *Heterocypris salinus*, *H. incongruens* and *Cypridopsis aculeata* (Crustacea: Ostracoda) from Baltic brackish-water rockpools. *Marine Biology*, 8: 971-979.