



## Morphology of the larval stages of the spider crab *Herbstia condyliata* (Fabricius, 1787) (Brachyura: Majoidea: Pisidae) obtained in laboratory conditions

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### Abstract

The complete larval development of the majoid crab *Herbstia condyliata* (Fabricius, 1787) from the western Mediterranean was obtained from laboratory culture. All larval stages (two zoeal stages and the megalopa) are described and illustrated in detail for the first time. The morphology of the zoeae and megalopa is compared with the corresponding stages of other known species of the family Pisidae. The zoeal stages of *H. condyliata* present a pleon with unusual characters within the Pisidae such as the presence of dorsolateral processes in pleomere 3, two dorsal setae in pleomeres 2–4 (second zoea) and the very long posterolateral processes in pleomeres 3–4. The megalopa can be differentiated from other Pisidae species by the presence of a very developed cardiac tubercle on the carapace and the absence of plumose setae on the basal segment of the first maxilliped exopod.

**Key words:** zoea, megalopa, larval development

### Introduction

Three species belonging in the genus *Herbstia* H. Milne Edwards, 1834 (Brachyura: Majoidea: Pisidae) have been reported from Mediterranean and eastern Atlantic waters: *Herbstia condyliata* (Fabricius, 1787), whose distribution encompasses the entire Mediterranean Sea and the western Atlantic from the north of the Gulf of Guinea to the Cantabrian Sea, including the Canary Islands, Madeira and the Azores; *Herbstia rubra* A. Milne-Edwards, 1869, West Africa from the Gulf of Guinea to Senegal and Cabo Verde and Canary islands; and *Herbstia nitida* Manning and Holthuis, 1981, Gulf of Guinea, with one record in southern Italy (Zariquiey-Álvarez 1968; Manning & Holthuis 1981; d'Udekem d'Acoz 1999; Galil *et al.* 2002).

*Herbstia condyliata* is apparently the most common species of the genus. Hardly any information, however, is available on its biology, other than its habitat: rocky and coralligenous bottoms, as well as within caves, where it stays during the day, exiting to forage during the night (Ledoyer 1968; Gili & Macpherson 1987; d'Udekem d'Acoz & Wirtz 2002; PA pers. obs.). Juveniles may be found under stones and among algae in shallow waters in summer (PA pers. obs.). The species has been reported from very shallow water to depths of around 80 m, usually at less than around 40 m (Števíć 1990; d'Udekem d'Acoz 1999). Ovipigerous females have been reported in the summer (Zariquiey-Álvarez 1968) and larvae attributed to this species have been reported from the plankton in spring and summer in the western and eastern Mediterranean Sea (Fusté 1985, 1987; Lakkis & Zeidane 1988).

The present study describes the morphology of the larval stages of *Herbstia condyliata* hatched from an ovipigerous specimen captured in the western Mediterranean. The comparison of the larval morphology of this