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Rotifera from the Mediterranean Sea, with description of ten new species

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Abstract

A total of 43 rotifer taxa, belonging to 14 genera, was identified in 47 psammon and periphyton samples collected in the northern part of the western basin of the Mediterranean Sea. Of these, 10 previously described species are new to the Mediterranean, 10 species are new to science and could be described, and 5 others are potential new ones of which insufficient material was available to warrant a full description.

Rotifers formed a constant component of meiofauna, from the eulittoral to at least 8 km off shore and a depth of 66 m. A clear zonation was apparent with one to two species only found in the eulittoral zone and sublittoral fringe, and 42 taxa occurring in the sublittoral zone.

The trophi of seven previously known species are redescribed based on scanning electron microscopy. *Dicranophorus bulgaricus* Althaus, 1957 is redirected to *Allodicranophorus* **gen. nov.** and *Lepadella pontica* Althaus, 1957 to *Halolepadella* **gen. nov**.

Key words: *Allodicranophorus*, *Halolepadella*, marine, Mediterranean, biodiversity, psammon, Rotifera

Introduction

Rotifera are among the least known taxonomic groups in marine and brackish water habitats, to date accounting for a total number of about 115 strictly thalassic species reported world-wide (Fontaneto *et al*. 2006; Appeltans *et al*. 2012). Besides a general lack of knowledge on marine rotifer species diversity, our information on their biogeographical distribution is also very patchy since huge areas of the world remain unexplored, and even for the European seas, which belong to the most intensively studied areas, geographical coverage is incomplete (Costello *et al.* 2006). Information on the thalassic rotifer fauna of the Mediterranean is scarce, and mostly restricted to brackish habitats. Reviews of the rotifer fauna of the Mediterranean Sea were compiled by Ahlrichs (2003), Ricci & Fontaneto (2003), and Fontaneto *et al.* (2006, 2008a), reporting about 90 species with only 21 of them being strictly marine, and seven of them occurring in both marine and inland saline waters. Since then several new species have been described: *Myersinella longiforceps* and *M. uncodonta* from the Tyrrhenian Sea (De Smet 2007), *Lecane insulaconae* from the Northern Adriatic Sea (Fontaneto *et al*. 2008b), and *Testudinella bicorniculata* and *T. elongata* from the Hyères Archipelago (De Smet 2009). Ten new species are described in the present contribution. Morphological and distributional data, as well as the descriptions of the trophi based on scanning electron microscopy, are provided for several other species.

Material and methods

Samples of algal vegetation and psammon were hand-collected in the eulittoral zone, the sublittoral fringe, and the sublittoral zone; psammon was obtained by scraping ~200 ml of the uppermost centimetre of sand; the sublittoral samples were taken during scuba-diving. Fixation was done on the spot, by adding 35% formalin up to a final concentration of ~4%. The rotifers were extracted in the laboratory by washing the algae or by multiple swirling and decantation of the psammon using filtered seawater, and consequent filtering on a 40 µm mesh width net (Fontaneto *et al*. 2008). Specimens were examined and drawn using a Leitz Orthoplan microscope equipped with camera lucida. Rotifer trophi were prepared with dilute NaOCl according to De Smet (1998). Scanning electron microscopy (SEM) of the trophi was done with a Philips SEM 515, operated at 20 kV.

The areas sampled (Fig. 1) are restricted to the northern part of the western subregion of the Mediterranean Sea, and located in the Balearic Sea at the Costa Blanca and Costa Brava (Spain), the Golfe du Lion, the Hyères Archipelago and the Côte d'Azur (France), and the Tyrrhenian Sea, Elba Island (Italy). The naming of the larger Mediterranean subregions is according to the database MarineRegions.org. by Claus et al. (2015). The annotated list of samples is shown in Table 1.