

## SHORT NOTES

# A new record of Placozoa from the Mediterranean Sea

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*Trichoplax adhaerens* is the only recognized species from the phylum Placozoa described up to now. It was discovered in 1883 by Schulze in a seawater aquarium at the Graz Zoological Institute in Austria. The water in the aquarium came from the Adriatic Sea (Italy). The interest sparked by finding this organism and the possibility of clarifying the origin of Metazoa flagged shortly thereafter when a work published by Krumbach in 1907 considered it to be a modified planula larva of a hydromedusa, and thus, the discovery lost its relevance (GRELL & LÓPEZ-OCHOTERENA, 1988) (1). Subsequently, it was rediscovered and meticulously studied by GRELL, 1973 (2); 1982 (3) and GRELL & RUTHMANN, 1991 (4), among others, with material from Red Sea coral reef microfauna. Recently, VOIGT et al., 2004 (5) showed that the phylum Placozoa is significantly more diverse than previously thought on the genetic level and that its species richness is still to be determined. Also, they report two divergent lineages of placozoans from the Mediterranean Sea. At this time, the phylum is considered essential to understand the origin of bilaterian Metazoa (COLLINS, 1998) (6).

Regarding the biogeography, placozoans have been cited in seawater puddles and aquariums with water from different parts of the world : the Bermudas (North Atlantic Coasts), the Mexican Caribbean Sea, Eastern Australia -the Great Barrier Reef-, Guam (Mariana Islands -Philippine Sea-), Japan, Hawaii and Western Samoa (Polynesia -Pacific Ocean-), Palaw (Andaman Sea), Papua New Guinea, the Red Sea and Vietnam. On all occasions, the individuals were found in tropical and subtropical locations. Here we report the third finding of placozoans from Mediterranean Sea waters and the first citing from the Spanish Mediterranean waters of the Granada coast (Spain).

Our observation of placozoans on walls of the aquarium at the University of Granada's Marine Zoology investigation area in September 2003 was fortuitous, as in most cases of reported findings. This 250 litre-capacity aquarium held water and sand from the Almuñecar coast (Granada) sampled in October 2002. It is used to maintain the different animals and algae included in the water and sand samples for teaching purposes and research. Thus, the water, sand and the organisms in the aquarium have

never come from anywhere other than the coast of Granada and an introduction of the placozoans from other sources can be excluded. A film of diatom algae from the genera *Cocconeis*, *Amphora* and *Achnanthes* had formed a deposit on the aquarium walls, with the diatom *Cocconeis* populations especially abundant. Placozoans must feed on diatoms from the cited genera. Individuals probably feeding on protozoa associated with a lay of opisthobranchs were also found in the same aquarium. It is known that placozoans can feed on protozoa and even bigger organisms (NIELSEN, 1995 (7); GRELL, 1983 (8)).

A visual count found several hundred individuals, which appeared as small off-white dots, mostly moving around very slowly. In some areas, the individuals were arranged in closer formations, while in others they were more dispersed. Microscopic preparations were made of different individuals extracted and prepared 'in vivo' for drawing with the help of a camera lucida combined with an optical microscope to obtain the measurements. It was possible to distinguish between bigger and smaller individuals. Both showed amoeba-like movements. When flattened out, the bigger individuals had a diameter between 1.5 and 2.5 mm and the smaller individuals between 300 and 800 µm. Photographs of different individuals of the placozoans appear in Fig. 1.

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### BIBLIOGRAPHY

- GRELL, K.G. & E. LÓPEZ-OCHOTERENA (1988). A new record of *Trichoplax adhaerens* F. E. Schulze (Phylum Placozoa) in the Mexican Caribbean Sea. *Anales del Instituto de Ciencias del Mar y Limnología de la Universidad Nacional Autónoma de México*, 14 : 255-256.
- GRELL, K.G. (1973). *Trichoplax adhaerens* and the origin of the Metazoa. *Actualités Protozoologiques*. I<sup>er</sup> Cong. Int. Protozoologie. Paul Couty, Clermont-Ferrand.
- GRELL, K.G. (1982). Placozoa. In : PARKER S. (ed), *Synopsis and Classification of Living Organisms*. McGraw-Hill, New York : 639 pp.
- GRELL, K.G. & A. RUTHMANN (1991). Placozoa. In : HARRISON F.W. & J.A. WESTFALL (eds), *Microscopic Anatomy of Invertebrates, Vol. 2. Placozoa, Porifera, Cnidaria and Ctenophora*. Wiley-Liss, New York : pp. 13-28.

5. VOIGT, O., G. COLLINS, V.B. PEARSE, J.S. PEARSE, A. ENDER, H. HADRYN & B. SCHIERWATER (2004). Placozoa – no longer a phylum of one. *Current Biology*, 14 (22) : R944-R945.
6. COLLINS, A.G. (1998). Evaluating multiple alternative hypotheses for the origin of Bilateria : An analysis of 18S molecular evidence. *Proceedings of the National Academy of Sciences, USA*, 95 : 15458-15463.
7. NIELSEN, C. (1995). *Animal Evolution. Interrelationships of the Living Phyla*. Oxford University Press. Oxford : 467 pp.
8. GRELL, K.G. (1983). A New Cultural Method for *Trichoplax adhaerens* F.E. Schulze. *Zeitschrift für Naturforschung*, 38c : 1072.

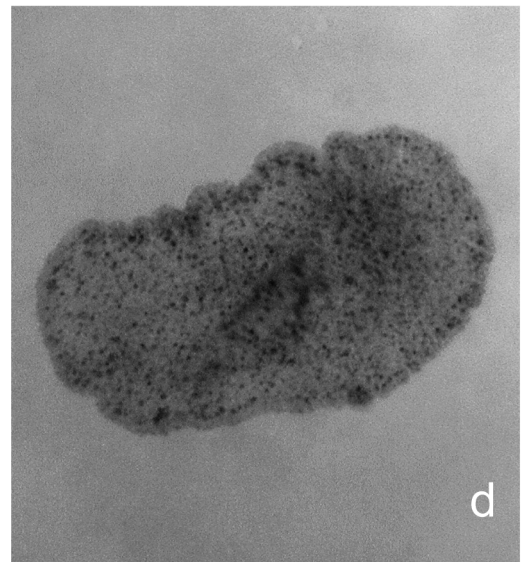
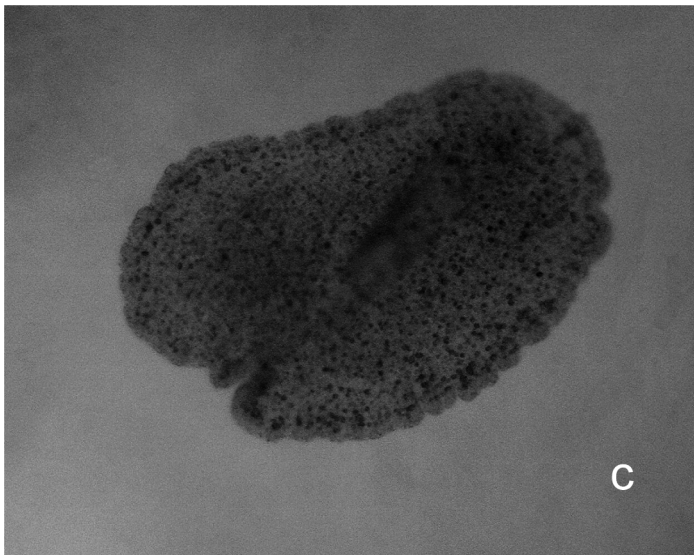
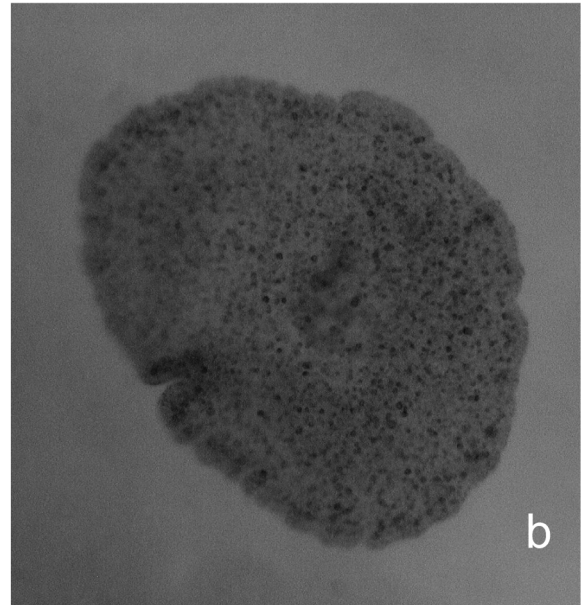
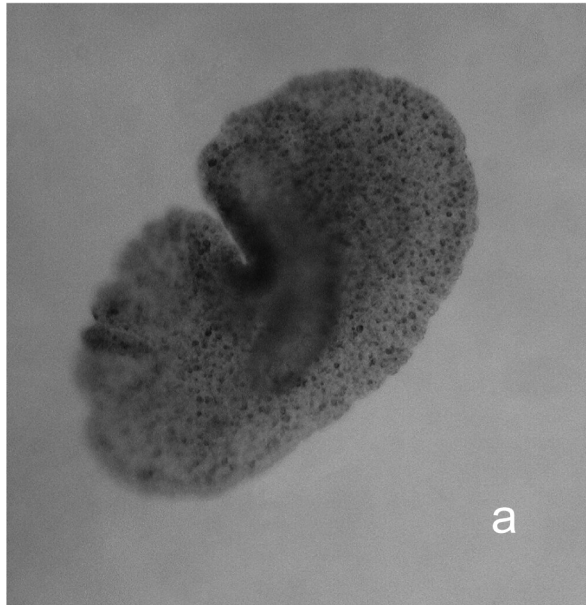


Fig. 1. – (a-d). Photographs of four different individuals from placozoans : a,b,c : bigger individuals and d : smaller individual.

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