



Cliona parenzani n. sp. (porifera, hadromerida) from the Ionian sea

Giuseppe Corriero & Lidia Scalera-Liaci

To cite this article: Giuseppe Corriero & Lidia Scalera-Liaci (1997) *Cliona parenzani* n. sp. (porifera, hadromerida) from the Ionian sea, Italian Journal of Zoology, 64:1, 69-73, DOI: [10.1080/11250009709356174](https://doi.org/10.1080/11250009709356174)

To link to this article: <https://doi.org/10.1080/11250009709356174>



Copyright Taylor and Francis Group, LLC



Published online: 28 Jan 2009.



Submit your article to this journal [↗](#)



Article views: 152



View related articles [↗](#)



Citing articles: 7 View citing articles [↗](#)



Cliona parenzani n. sp. (Porifera, Hadromerida) from the Ionian Sea

GIUSEPPE CORRIERO
LIDIA SCALERA-LIACI

Istituto di Zoologia ed Anatomia Comparata,
Università di Bari,
via Orabona 4, I-70125 Bari (Italy)

INTRODUCTION

During recent sampling in the Porto Cesareo lagoon (Ionian Sea) some encrusting and massive specimens of *Cliona* Grant, 1862 were collected; they could not be assigned to any of the known Mediterranean species of this genus (for a list, see Pulitzer-Finali, 1983).

Most of the Clionidae species are well known for their habit of excavating calcareous substrata and living, cryptically, in their burrows. Some species, however, grow out of their burrows and partially or totally envelop the substratum, showing an encrusting or massive shape (beta and gamma stages, respectively). In the past, *Cliona viridis* (Schmidt) (*sensu* Topsent, 1900) and *C. celata* Grant have been considered the only Mediterranean clionids able to attain these peculiar shapes. Later, Sarà (1959) described *C. copiosa*, another species which commonly attains a massive shape. Rützler (1973) proposed that some of the massive forms commonly attributed to *C. viridis* belong to *C. nigricans* (Schmidt) instead. More recently, Bavestrello *et al.*, (1996) confirmed the distinction between *C. viridis* and *C. nigricans* on the basis of both morphological and genetic evidences.

MATERIALS AND METHODS

The material came from the Porto Cesareo lagoon, Ionian Sea (eastern Mediterranean), 40°15' N, 17°54' E. It consists of several specimens collected by SCUBA, at 1 m of depth, fixed in formaldehyde (4% in sea water) and preserved in 70% ethanol. Transverse sections, perpendicular to the surface, of paraffin-embedded sponges were prepared in order to study the spicular arrangement. Spicule slides were made by dissolving sponge fragments in boiling nitric acid. Ranges and means of spicule sizes were calculated from 50 measurements for each type. For SEM micrographs, spicule mounts were covered with gold-palladium and observed under a PHILIPS SEM scanning electron microscope.

ABSTRACT

A new species of the genus *Cliona* Grant is described from the Ionian Sea (Eastern Mediterranean). *Cliona parenzani* sp. n. is characterized by an encrusting or massive shape and a spiculation consisting of robust tylostyles, together with spiny and smooth-spirasters. The new species is very close to the group of related species *C. nigricans* (Schmidt), *C. viridis* (Schmidt), and *C. copiosa* Sarà from which it mainly differs by the occurrence of reduced spirasters that lost their spines.

KEY WORDS: Demospongiae - *Cliona* - Ionian Sea.

ACKNOWLEDGEMENTS

We would like to thank Maurizio Pansini for critical review of the manuscript, Carlotta Nonnis Marzano for help in collecting specimens and Rossella Rizzello for technical assistance in drawings. This work has been financially supported by Italian Ministero dell'Università e della Ricerca Scientifica e Tecnologica (MURST) 40% and 60% funds.

TAXONOMIC ACCOUNT

Family CLIONIDAE Gray, 1867

Genus *Cliona* Grant, 1862

Cliona parenzani n. sp.

Material examined

MZB POR PC 35, holotype; MZB POR PC 35a, MZB POR PC 35b, paratypes. The material was collected by G. Corriero and C. Nonnis Marzano, 21/05/1994. Holotype, paratypes and slide preparations are deposited in the Museo di Zoologia ed Anatomia Comparata, University of Bari.

Description

Specimens are encrusting (2 to 6 mm) to massive, cushion shaped (up to 23 mm of thickness). Colour: yellow, light olive (Fig. 1B) or brownish in live

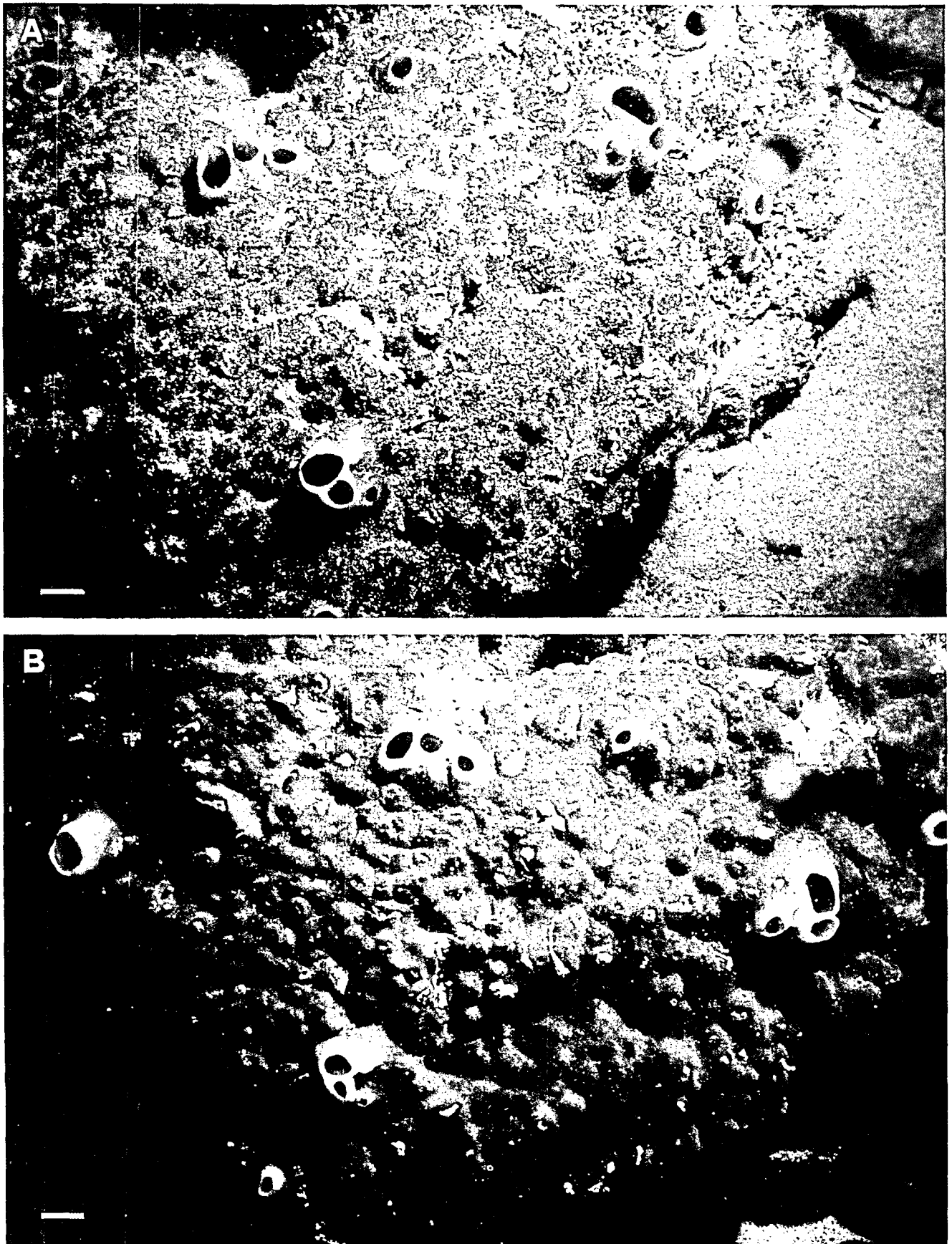


Fig. 1 - *Cliona parenzani* n. sp. External morphology of the holotype in its natural environment, covered by a layer of sediment (A) and cleaned of sediment (B). Bar, 1 mm.

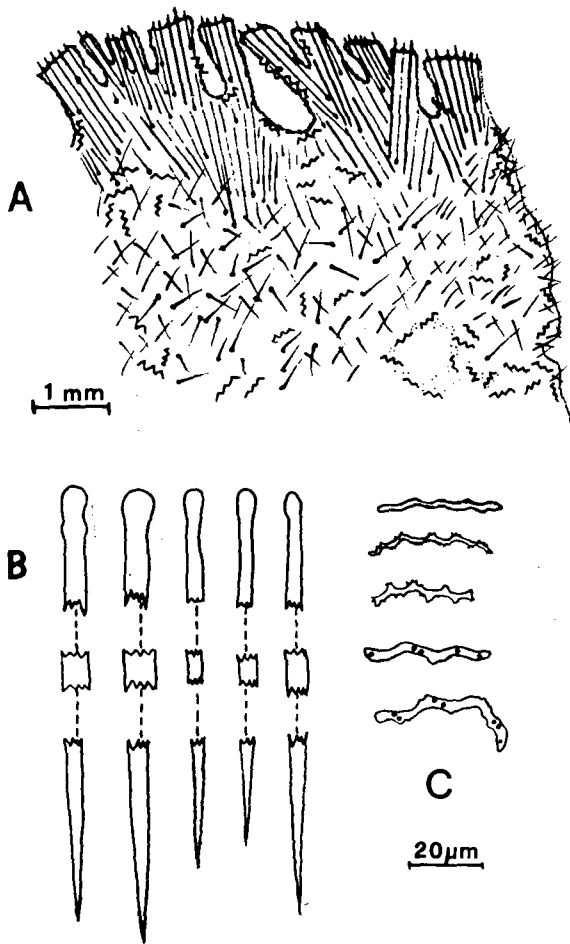


Fig. 2 - Skeletal architecture and spicular types of *Cliona parenzani* n. sp. **A**: transversal section with skeletal pattern (tylostyles and spirasters, the latter not to scale); **B**: tylostyles; **C**: spirasters.

specimens, brown in ethanol. Consistency fleshy. The size of specimens ranges from 300 to 2500 cm² of covered area. Surface: verrucose, with circular (3-8 mm in diameter) or elongate (10-14 mm in maximum diameter) papillae bearing either grouped ostia or oscula. Oscula, 2-10 mm in diameter, protrude up to 20 mm from the sponge surface (Fig. 1). An irregular arrangement of perforating chambers is recognizable below the surface of encrusting specimens. Chambers are spherical or subspherical, and measure from 0.7 mm to 15 mm in maximum diameter.

Skeletal arrangement - The skeleton consists of tylostyles and spirasters, the latter mainly confined to the choanosome around the canals of the aquiferous system (Fig. 2A). The ectosome is reinforced by a series of perpendicular tylostyles; these spicules partly penetrate the surface with their tips. In the choanosome tylostyles occur without a clear orientation, but lay predominantly tangential to the surface (Fig. 2A). Loose sand particles are always embedded in the sponge tissue.

Spicules - There are three principal types. 1) Robust tylostyles, with a well-developed, distinct head and sharp

point, gradually tapering from the middle of the shaft. Tylostyles measure 300-500 (424.5 ± 50.02) \times 7.5-15 (12.38 ± 2.37) μm ; their heads are 14-20 (17.24 ± 2.19) μm in diameter (Figs 2B, 3A). 2) Spiny spirasters variable in shape, with 3-9 weak bends and with spines uniformly distributed along the shaft or grouped in clusters; their dimensions are 25-50 (38.43 ± 6.28) \times 1-2.5 (2 ± 0.78) μm (Figs 2C, 3B, C). 3) Smooth reduced spirasters, often with a slight central swelling, sometimes microhispid 32-60 (46.3 ± 5.11) μm \times 1-2 (1.5 ± 0.53) μm (Figs 2C, 3D, 4A, B, C). Intermediate forms with low, blunt spines also occur (Fig. 4D).

Ecology

The species was only found inside the lagoon of Porto Cesareo. This is a small sheltered basin characterized by a large water exchange with the sea. Due to the lack of strong environmental variations and in particular to the low salinity variations (Corriero *et al.*, unpublished), sponges are a very important component of benthos (Corriero *et al.*, 1984). In addition to *C. parenzani* other clionids occur in this habitat: *C. celata* Grant, *C. vastifica* Hancock, *C. viridis* (Schmidt) and *C. schmidti* (Ridley); among these, *C. celata* and *C. parenzani* are the most common.

Almost all the specimens observed of *C. parenzani* were covered by a thick layer of sediment (Fig. 1A). Specimens inhabiting the carbonate rock bottom of the lagoon are mainly encrusting, whereas specimens boring calcareous stones develop massive shape.

Etymology

This species is dedicated to the memory of Pietro Parenzan, who devoted a great part of his marine biology research to the Porto Cesareo lagoon.

CONCLUSIVE REMARKS

Cliona parenzani shows a number of features similar to those of two congeneric, closely related Mediterranean species: *C. copiosa* Sarà and *C. nigricans* (Schmidt) (*sensu* Rützler, 1973). All three species occur mainly in shallow water; they may attain large size and encrusting-massive shape, and exhibit robust tylostyles although they are separated by small differences in dimensions and shape of the heads. Moreover, they share spiny spirasters, with spines either uniformly distributed or grouped in clusters. However, *C. parenzani* is clearly separated by the occurrence of peculiar reduced spirasters that lost their spines.

'Smooth spirasters' also occur in the Mediterranean *C. sarai* Melone and *C. levispira* Topsent, two species living mainly in carbonate skeleton of sciaphilous organisms. Both of these species however, have very different megascleres and lack regular spirasters.

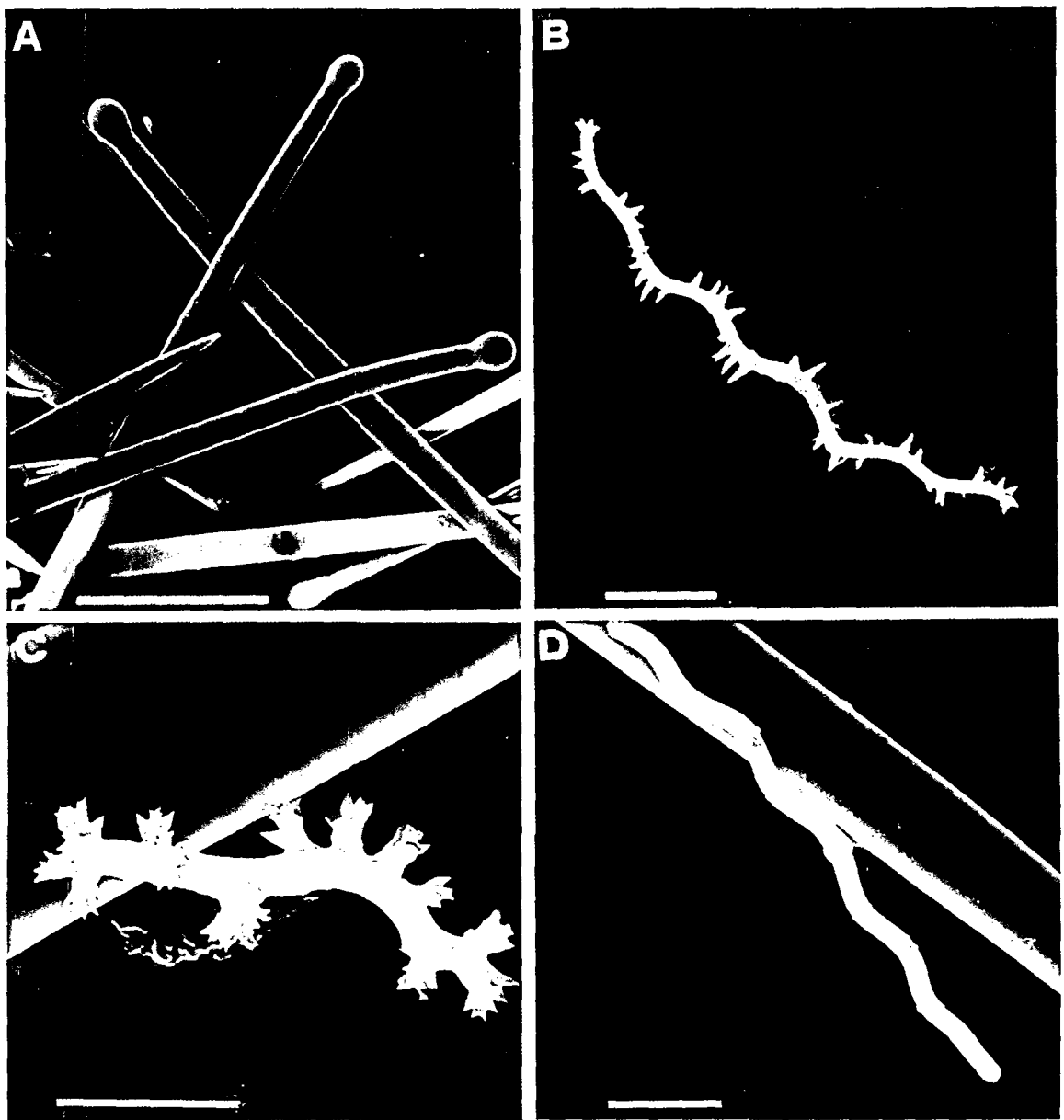


Fig. 3 - *Cliona parenzani* n. sp. Tylostyles (A); spiny (B, C) and smooth (D) spirasters (electron micrographs). Bar, A, 100 μ m; B-D, 10 μ m.

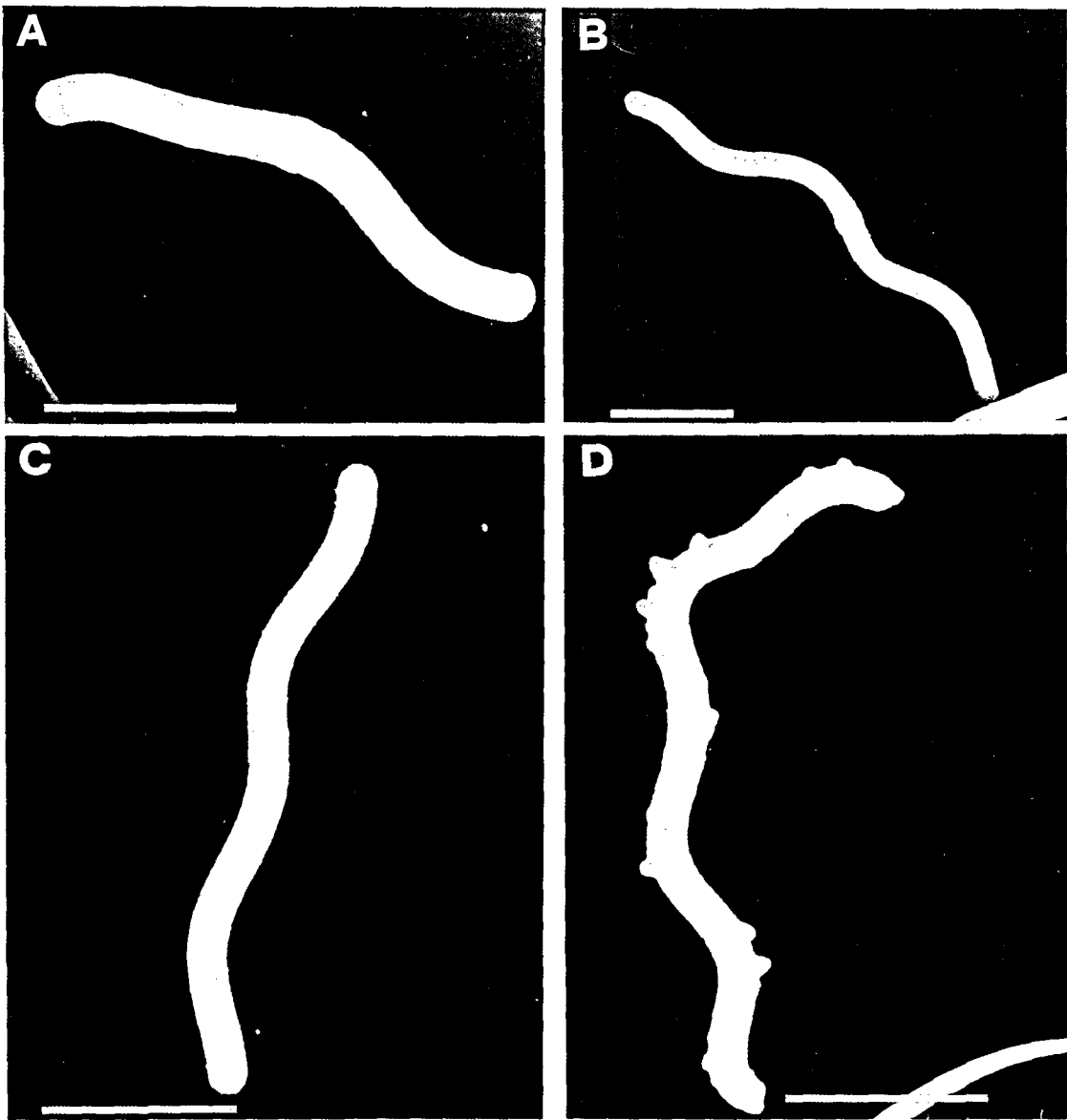


Fig. 4 - *Cliona parenzani* n. sp. Smooth (A-C) and moderately spiny (D) spirasters (electromicrographs). Bar, 10 μ m.

REFERENCES

- Bavestrello G., Calcinaï B., Cerrano C., Pansini M., Sarà M., 1996 - The taxonomic status of some Mediterranean clionids (Porifera: Demospongiae) according to morphological and genetic characters. In: P. Willenz (ed.), Recent advances in sponge biodiversity inventory and documentation. Bull. Inst. r. Sci. nat. Belg., Biologie, 66 suppl., pp. 185-195.
- Corriero G., Pansini M., Sarà M., 1984 - Sui poriferi dell'insenatura della Strea a Porto Cesareo (Lecce). - *Thalassia Salentina*, 14: 3-10.
- Pulitzer-Finali G., 1983 - A collection of Mediterranean Demos-

- pongiae (Porifera) with, in appendix, a list of the Demospongiae hitherto recorded from the Mediterranean Sea. - *Ann. Mus. civ. St. nat. Genova*, 84: 445-621.
- Rützler K., 1973 - Clionid sponges from the coast of Tunisia. - *Bull. Inst. Océanogr. Pêche, Salammbô*, 2: 623-637.
- Sarà M., 1959 - Specie nuove di Demospongie provenienti da acque superficiali del golfo di Napoli. - *Ann. Ist. Zool. Univ. Napoli*, 11: 1-22.
- Topsent E., 1900 - Étude monographique des spongiaires de France. III, Monaxonida (Hadromerina). - *Arch. Zool. exp. gén.*, (ser. 3), 8: 1-331.