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# Marine gastrotrich fauna in Corsica (France), with a description of a new species of the genus *Tetranchyroderma* (Macrodasyida, Thaumastodermatidae)

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**SARSIA**

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A faunistic analysis of the sandy sediment collected from 10 locations along the east (four) and west coasts (six) of Corsica, western Mediterranean Sea, yielded a rich and diverse range of gastrotrichs: 42 species of 18 genera and seven families from the orders Chaetonotida (17 species) and Macrodasyida (25 species). Sublittoral samples were always more species-rich than those from littoral sites: 37 versus nine spp. The gastrotrich fauna from the east coast was more diverse than that from the west coast, both in terms of the total species number (35 spp.: 13 Chaetonotida + 22 Macrodasyida versus 23 spp.: 12 Chaetonotida + 11 Macrodasyida) and the number of species per location (13 ± 4.2 versus 7.5 ± 4.0). All but three of the species have previously been reported from other Mediterranean locations. The exceptions are two as yet unidentified species of the genera *Cephalodasys* and *Macrodasys*, and *Tetranchyroderma inaequitubulatum* sp. nov., a thaumastodermatid with pentanerous covering, showing a cluster of ventral adhesive tubes peculiarly located only on the right side and an unusually conspicuous sexual caudal organ. *Aspidiophorus paramediterraneus*, *Chaetonotus apechochaetus*, *Acanthodasys aculeatus*, *Paraturbanella teissieri*, *Pseudostomella etrusca* and *Tetranchyroderma thysanophorum*, present at 50% or more of the investigated locations, are the most common species on the third largest island of the western Mediterranean basin.

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Keywords: Gastrotricha; diversity; Mediterranean fauna; meiobenthos; France.

## INTRODUCTION

As far as the gastrotrich fauna is concerned, the Mediterranean Sea, with some 200 species reported to date, is becoming one of the best known basins of the world. Even though records come from several countries and different authors (e.g. France, Swedmark 1956; Algeria, d'Hondt 1974; Tunisia, Westheide 1972; Egypt, Hummon & al. 1994; Israel, Hummon & Hummon 1995, Malta, Boaden 1965; Greece, Hummon & Roidu 1995; Croatia, Schrom 1972), the majority of the research has been carried out along the Italian shores, from where more than 180 species have been reported (cf. Todaro & al. 2001 and references therein). As the bulk of the data comes from Italy alone, our current perception of the Mediterranean gastrotrich fauna may not reflect the reality as far as species composition and distribution, and the processes of species dispersal are concerned. For this reason, we recently widened the geographical range of our sampling programmes to include the coasts of other Mediterranean countries for which little or no data are available, e.g. France, Greece, Tunisia (M. Balsamo & al. unpublished data). In this paper, we report a survey carried out in early June 1999 in Corsica (France), the third largest island of the Mediterranean Sea, from which to our knowledge only two gastrotrich species have been reported to date (Hummon & al. 1992).

## MATERIAL AND METHODS

Samples of sandy sediment were collected from littoral (six) and/or sublittoral (10) sites at 10 locations along the west (six locations) and east (four locations) coasts of Corsica (western Mediterranean Sea) in June 1999 (Fig. 1, Table 1). At the time of sampling, the water temperature and salinity of each location were recorded. Littoral samples were taken at the mid-water mark by digging 30 cm deep holes in the beach and removing the sediment from the wall and the bottom of

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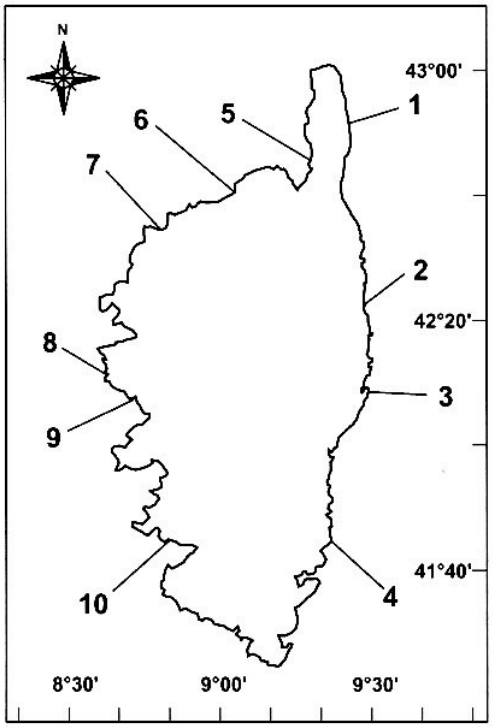


Fig. 1. Study locations in Corsica. 1. Marine de Pietracorbara. 2. Moriani Plage. 3. Plage de Padulone. 4. Anse de Fautea. 5. Marine de Farinole. 6. Ostriconi. 7. Plage de Calvi. 8. Plage de Pero. 9. Sagone. 10. Olmeto Plage.

the hole with a spoon. Bulk sublittoral sediments were taken at a depth of 1.5–4.0 m using a 1.5 l plastic scoop. In all cases, about 2 l of sediment from each site was placed in plastic buckets and returned to the laboratory under aerated conditions within 4 days. In the laboratory, the samples were kept in an environmental chamber at 14 °C and processed within 10 days. Specimens were extracted daily using the narcotization–decantation technique with a 7% magnesium chloride solution (Pfannkuche & Thiel 1988). The gastrotrichs were observed *in vivo* with Nomarski optics using a Leitz Dialux 20 microscope. A number of worms previously fixed in 10% borax-buffered formalin were dehydrated through a graded ethanol series, critical point dried using $CO_2$, mounted on aluminium stubs, sputter-coated with gold–palladium and observed with a Philips XL 40 scanning electron microscope (SEM). Measurements were taken using an ocular micrometer or derived from SEM photomicrographs. In the description of the new species, the terminology used is as in Hummon & al. (1993), while the locations of some morphological characteristics along the body are given in percentage units (U) of the total body length measured from the anterior to the posterior.

Granulometric analysis of the substrata was carried out following Giere & al. (1988). The mean grain size, sorting coefficient, kurtosis and skewness were calculated using a computer programme based on the Seward-Thompson & Hails (1973) equation. The organic content of the sediment was determined by the percentage weight loss after combustion of 100 g of sediment at 480 °C for 4 h, after having previously dried the sediment in an oven at 60 °C for 24 h. Cluster analysis was performed with the software PRIMER using the Bray–Curtis presence–absence similarity value to examine the relationships between sampling locations.

## RESULTS AND DISCUSSION

### ABIOTIC FACTORS

Granulometric analysis of the sediments indicated that in all cases particles were siliceous in nature. The

Table 1. Locations, physical characteristics and date of collection; depth refers to the sublittoral sites.

| Location | Coordinates | Depth (m) | Salinity | Temperature (°C) | Date |
|---|---|---|---|---|---|
| East coast | | | | | |
| 1 Marine de Pietracorbara | 42°50′N 09°24′E | 2.0 | 36.0 | 21.8 | 5 June 1999 |
| 2 Moriani Plage | 42°22′N 09°31′E | 2.0 | 38.0 | 21.9 | 8 June 1999 |
| 3 Plage de Padulone | 42°06′N 09°33′E | 2.0 | 36.0 | 22.1 | 8 June 1999 |
| 4 Anse de Fautea | 41°42′N 09°24′E | 2.0–4.0 | 38.0 | 22.5 | 7 June 1999 |
| West coast | | | | | |
| 5 Marine de Farinole | 42°44′N 09°20′E | 1.5–2.0 | 37.0 | 22.6 | 5 June 1999 |
| 6 Ostriconi | 42°39′N 09°03′E | 2.5–3.0 | 37.5 | 21.2 | 6 June 1999 |
| 7 Plage de Calvi | 42°33′N 08°46′E | 2.5 | 37.5 | 22.9 | 6 June 1999 |
| 8 Plage de Pero | 42°08′N 08°35′E | 3.0 | 37.5 | 23.9 | 6 June 1999 |
| 9 Sagone | 42°06′N 08°41′E | 4.0 | 38.0 | 23.2 | 7 June 1999 |
| 10 Olmeto Plage | 41°42′N 08°50′E | 4.8–5.0 | 37.0 | 21.5 | 7 June 1999 |

Table 2. Sediment characteristics, organic matter and species richness at the 10 sublittoral sites studied.

| Location | Grain size (mm) | Size class | Sorting (mm) | Sorting class | Organic matter (% dry weight) | Species (n) |
|---|---|---|---|---|---|---|
| 1 | 0.168 | vfs | 0.641 | vws | 0.56 | 16* (7C, 9M) |
| 2 | 0.171 | vfs | 0.641 | vws | 0.99 | 8* (2C, 6M) |
| 3 | 0.173 | vfs | 0.683 | vws | 1.53 | 11* (2C, 9M) |
| 4 | 0.253 | fs | 0.632 | vws | 0.87 | 17* (7C, 10M) |
| 5 | 0.222 | fs | 0.632 | vws | 1.2 | 10 (5C, 5M) |
| 6 | 0.216 | fs | 0.637 | vws | 0.93 | 5* (3C, 2M) |
| 7 | 0.179 | m-fs | 0.707 | ws | 0.68 | 11 (4C, 7M) |
| 8 | 0.463 | ms | 0.655 | vws | 1.34 | 7* (3C, 5M) |
| 9 | 0.299 | fs | 0.678 | vws | 0.69 | 11 (7C, 4M) |
| 10 | 0.768 | cs | 0.673 | vws | 1.74 | 1 (1M) |

* Littoral findings included.
cs, coarse sand; fs, fine sand; ms, medium sand; m-fs, medium to fine sand; vfs, very fine sand; ws, well sorted; vws, very well sorted; C, Chaetonotida; M, Macrodasyida.

sublittoral substrata collected from the eastern stations comprised very fine (three locations) or fine (one location), very well-sorted sand, while the western locations had fine to coarse, very well-sorted sand (Table 2, Fig. 2). At a given location, sediment from the littoral site was coarser than that from the sublittoral area, and generally very well sorted. The amount of organic matter in the sediment ranged from 0.56% (dry weight) to 1.74%, generally being higher in the western locations (Table 2). Salinity ranged from 36 to 38‰, while temperature varied (21.5–23.9 °C) according to the time of sampling (Table 1).

## Faunistics

Collection from 10 locations (16 sites) along the east (four locations, eight sites) and west (six locations, eight sites) coasts of Corsica yielded 42 species for a total of 99 records (species × sites) (Tables 3, 4). Seventeen of the species belonged to the order Chaetonotida (six genera, two families) and 25 species to the order Macrodasyida (12 genera, five families). With 17 and 16 species, respectively, Anse di Fautea and Marine de Pietracorbara on the east coast showed the greatest richness of species, followed at some distance by Plage de Padulone (east coast), Plage de Calvi and Sagone (west coast) with 11 species each. The number of species at other locations ranged from one to 10. Sublittoral samples were always more species-rich than those from littoral sites, 37 versus nine spp. Both in terms of the total species number (35 spp.: 13 Chaetonotida + 22 Macrodasyida versus 23 spp.: 12 Chaetonotida + 11 Macrodasyida) and the number of species per location ($13 \pm 4.2$ versus $6.8 \pm 4.0$), the gastrotrich fauna of the east coast was more diverse than that of the west coast. A cluster analysis by location on a species by location matrix revealed two main clusters, each of which only partially grouped locations from the same coast (Fig. 3).

The macrodasyidan *Tetranchyroderma thysanophorum*, found at eight of 10 investigated locations and always in sublittoral sand, was the most common species. Other frequent species were *Aspidiophorus parameditерraneus, Chaetonotus apechochaetus, Acanthodasys aculeatus, Paraturbanella teissieri* and *Pseudostomella etrusca* found in at least 50% of the locations. *Mesodasys laticaudatus*, ubiquitous and abundant along the east coast, was found only once on the western shoreline. Twenty-four species (Tables 3, 4) were recovered from just one location. Of these, *Cephalodasys turbanelloides, Diplodasys ankeli, Dactylopodola mesotyphle, Macrodasys caudatus, Turbanella ambronensis*, and *Turbanella cornuta* were found in quite large numbers. Of the latter taxa *Turbanella ambronensis* was the only species restricted to the littoral zone, confirming previous distributional reports (e.g. Todaro & al. 1992, 2001; Evans & al. 1993).

Eight Corsican locations showed a number of species (seven to 17) comparable with that at other western Mediterranean locations known to host a very rich gastrotrich fauna (Balsamo & al. 1992; Todaro & al. 2001). These locations also shared the characteristics of the microhabitat (Todaro 1992; Balsamo & al. 1995). This finding supports previous observations that in siliceous bottoms, species richness is invariably associated with well-defined granulometric parameters of the sediment, i.e. medium to fine particles in well-sorted to very well-sorted sediment (e.g. Todaro & al. 1995; for carbonate sediments see Todaro 1998). The recovery of just one species from the coarse siliceous sand of Olmeto Plage strengthens this point.

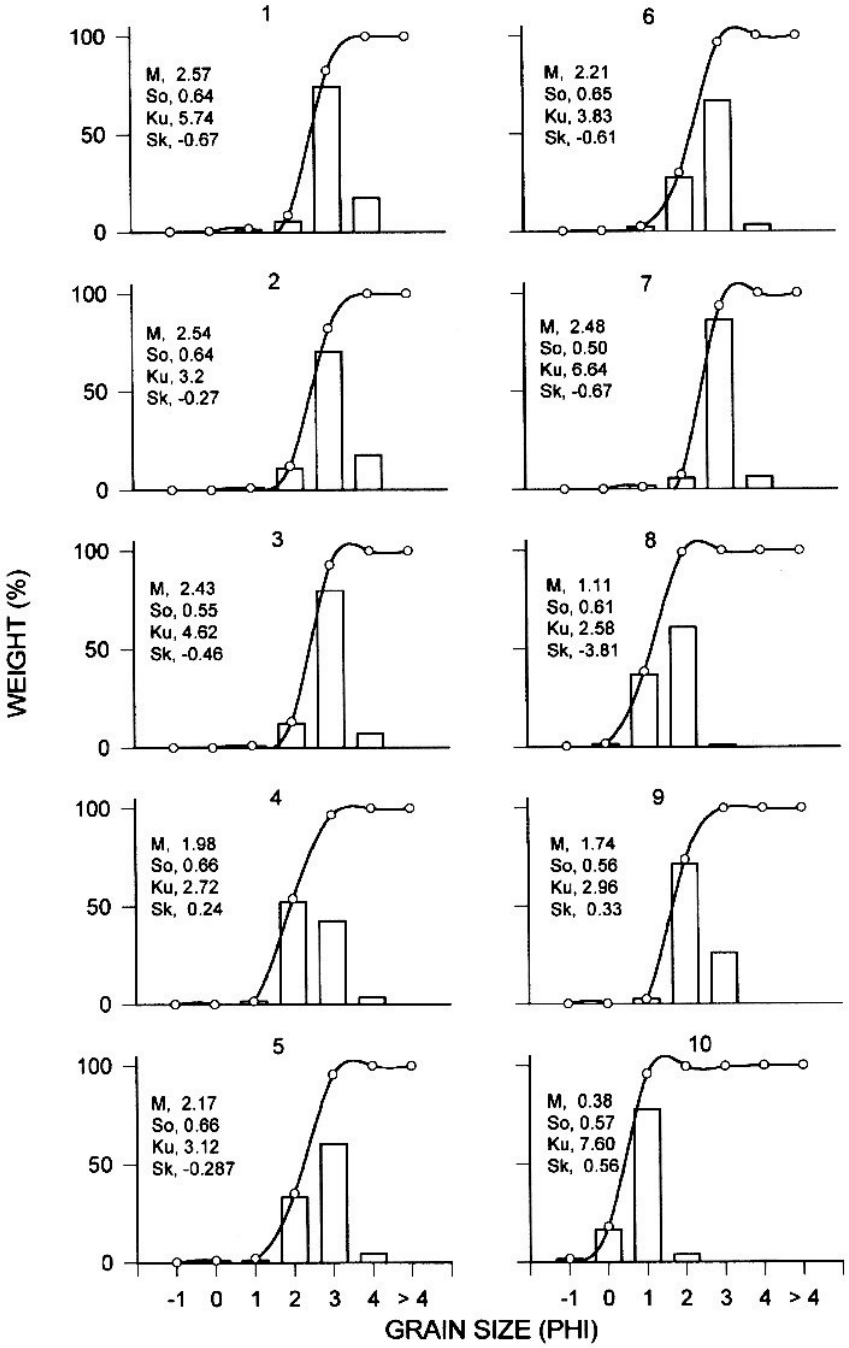


Fig. 2. Granulometric analysis, histograms by weight and cumulative curves, of sublittoral sediment from 10 locations. M–Mean grain size; So–Sorting; Sk–Skewness; Ku–Kurtosis. Parameters are expressed in phi values.

Table 3. Chaetonotida: species list and distribution.

| | East coast | | | | West coast | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Chaetonotidae | | | | | | | | | | |
| *Aspidiophorus polystictos* Balsamo & Todaro, 1987 | – | – | – | – | – | – | – | – | SL | – |
| *Aspidiophorus paramediterraneus* Hummon, 1974 | SL | – | – | SL | SL | – | SL | – | SL | – |
| *Chaetonotus apechochaetus* Hummon, Balsamo & Todaro, 1992 | – | – | SL | SL | SL | – | SL | – | SL | – |
| *Chaetonotus* cf. *apolemmus* Hummon, Balsamo & Todaro, 1992 | – | – | – | L | – | – | – | – | – | – |
| *Chaetonotus atrox* Wilke, 1954 | – | SL | – | – | – | – | SL | – | – | – |
| *Chaetonotus dispar* Wilke, 1954 | L | – | – | – | – | – | – | – | – | – |
| *Chaetonotus lacunosus* Mock, 1979 | SL | – | – | – | – | SL | – | SL | SL | – |
| *Chaetonotus neptuni* Wilke, 1954 | – | – | – | – | – | – | – | – | SL | – |
| *Chaetonotus siciliensis* Hummon, Balsamo & Todaro, 1992 | – | – | – | SL | – | – | – | – | – | – |
| *Chaetonotus variosquamatus* Mock, 1979 | – | – | – | – | – | – | – | SL | – | – |
| *Halichaetonotus aculifer* (Gerlach, 1953) | SL | – | – | – | SL | SL, | L, SL | – | – | – |
| *Halichaetonotus decipiens* (Remane, 1926) | L | – | – | – | – | – | – | – | – | – |
| *Halichaetonotus paradoxus* (Remane, 1927) | – | – | – | SL | – | – | – | – | SL | – |
| *Halichaetonotus spinosus* Mock, 1979 | – | – | – | – | SL | – | – | – | – | – |
| Xenotrichulidae | | | | | | | | | | |
| *Draculiciteria tesselata* Hummon, 1974 | – | SL | SL | SL | – | – | – | – | – | – |
| *Heteroxenotrichula squamosa* Wilke, 1954 | L | – | – | L | – | – | – | L | – | – |
| *Xenotrichula punctata* Wilke, 1954 | L | – | – | – | SL | SL | – | – | SL | – |
| Number of chaetonotid species by location | 7 | 2 | 2 | 7 | 5 | 3 | 4 | 3 | 7 | 0 |

L, species present in the littoral samples; SL, species present in the sublittoral samples; –, species not present.

Table 4. Macrodasyida: species list and distribution.

| | East coast | | | | West coast | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Dactylopodolidae | | | | | | | | | | |
| *Dactylopodola mesotyphle* Hummon, Todaro, Tongiorgi & Balsamo, 1998 | – | – | SL | – | – | – | – | – | – | – |
| Lepidodasyidae | | | | | | | | | | |
| *Cephalodasys turbanelloides* (Boaden, 1960) | – | SL | – | – | – | – | – | – | – | – |
| *Cephalodasys* sp. | SL | – | – | – | – | – | – | – | – | – |
| *Lepidodasys martini* Remane, 1926 | – | – | – | – | – | – | SL | – | – | – |
| *Mesodasys adenotubulatus* Hummon, Todaro & Tongiorgi, 1993 | SL | SL | SL | SL | – | – | – | SL | – | – |
| *Mesodasys laticaudatus* Remane, 1951 | SL | – | – | SL | – | – | – | – | – | – |
| Macrodasyidae | | | | | | | | | | |
| *Macrodasys caudatus* Remane, 1927 | – | – | – | SL | – | – | – | – | – | – |
| *Macrodasys* sp. | L | – | – | – | SL | – | SL | – | SL | – |
| Thaumastodermatidae | | | | | | | | | | |
| *Acanthodasys aculeatus* Remane, 1927 | SL | – | SL | SL | SL | SL | SL | – | – | – |
| *Diplodasys ankeli* Wilke, 1954 | – | – | – | SL | – | – | – | – | – | – |
| *Pseudostomella etrusca* Hummon, Todaro & Tongiorgi, 1993 | – | SL | SL | SL | SL | SL | SL | – | – | – |
| *Tetranchyroderma cirrophorum* Levi, 1950 | – | – | SL | – | – | – | – | – | – | – |
| *Tetranchyroderma heterotubulatum* Hummon, Todaro & Tongiorgi, 1993 | SL | – | – | – | – | – | SL | – | – | – |
| *Tetranchyroderma hirtum* Luporini, Magagnini & Tongiorgi, 1973 | – | – | – | – | – | – | – | – | SL | – |
| *Tetranchyroderma papii* Gerlach, 1953 | – | SL | SL | SL | – | – | – | – | – | – |
| *Tetranchyroderma quadritentaculatum* Todaro, Balsamo & Tongiorgi, 1992 | – | – | SL | – | – | – | – | – | – | – |
| *Tetranchyroderma sardum* Todaro, Balsamo & Tongiorgi, 1988 | SL | – | – | – | – | – | – | – | – | – |
| *Tetranchyroderma thysanophorum* Hummon, Todaro & Tongiorgi, 1993 | – | SL | SL | SL | SL | | SL | SL | SL | SL |
| *Tetranchyroderma inaequitubulatum* sp. nov. | – | – | – | – | – | – | – | SL | – | – |
| *Thaumastoderma mediterraneum* Remane, 1927 | – | – | – | SL | – | – | – | – | – | – |
| Turbanellidae | | | | | | | | | | |
| *Paraturbanella dorhni* Remane, 1927 | SL | – | – | – | – | – | – | – | – | – |
| *Paraturbanella pallida* Luporini, Magagnini & Tongiorgi, 1973 | – | – | – | – | – | – | – | – | SL | – |
| *Paraturbanella teissieri* Swedmark, 1954 | – | SL, L | – | SL | SL | – | SL | SL | – | – |
| *Turbanella ambronensis* Remane, 1943 | – | – | L | – | – | – | – | – | – | – |
| *Turbanella cornuta* Remane, 1924 | SL | – | – | – | – | – | – | – | – | – |
| Number of macrodasyid species by location | 9 | 6 | 9 | 10 | 5 | 2 | 7 | 4 | 4 | 1 |
| Total species (C + M) by location | 16 | 8 | 11 | 17 | 10 | 5 | 11 | 7 | 11 | 1 |

L, species present in the littoral samples; SL, species present in the sublittoral samples; –, species not present.

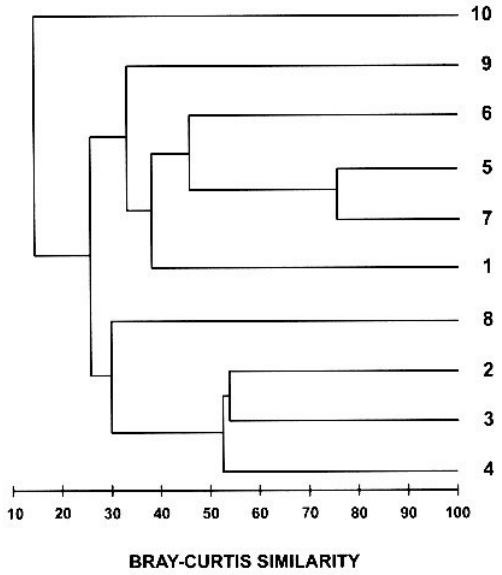


Fig. 3. Dendrogram showing locations (1–10) grouped in two main clusters following cluster analysis on a species by location matrix.

## Taxonomic account

For the 39 positively identified species, the metric and meristic characteristics are in substantial accordance with data reported in the recent literature. Given the small number of specimens recovered of two of the remaining species, i.e. *Cephalodasys* sp. and *Macrodasys* sp., full identification was not possible. However, we believe these to be taxa not reported to date for the Mediterranean basin, and very likely new to science. The discovery of 10 specimens of a previously unidentified thaumastodermatid species suggests its formal affiliation to the following new taxon.

Order Macrodasyida Remane, 1925
(Rao & Clausen, 1970)
Family Thaumastodermatidae Remane, 1926
Subfamily Thaumastodermatinae Ruppert, 1978
Genus *Tetranchyroderma* Remane, 1926

*Tetranchyroderma inaequitubulatum* sp. nov.
(Figs 4, 5)

*Type locality*

Beach of Pero (42°08′N 08°35′E), west coast of Corsica, just north of Cargese, 3.5 m water depth (Fig. 1).

*Type material*

The holotype is the adult male shown in Fig. 4A collected by M. A. Todaro & P. Tongiorgi (6 June 1999). The holotype and an additional younger paratypic male are both maintained on a SEM stub in the meiofauna collection of the first author (collection number, Crs 5 – 1999). Negative and positive photographs of the holotype and paratypes were sent as vouchers to the Museo Civico di Storia Naturale di Verona, Lungadige Porta Vittoria 9, I-37129 Verona, Italy.

*Additional material*

Four subadults and four adult males.

*Diagnosis*

A *Tetranchyroderma* with an adult Lt up to 350 µm; pharyngeo-intestinal junction at U39; rounded head without tentacles or pestle organs; broad oral hood with slightly lobed margins; stout body with a short, bilobed caudum. Thick sensory hairs on the head margin, becoming sparse but evenly spaced on the body and forming dorsolateral and lateral columns from about U15 to U94. Few viscid glands (seven per side) mixed in size and unevenly spaced along the length of the body. Well-recognizable lenticular gland openings on the dorsal side of the body. Cuticular armature of medium pentancres, smaller anteriorly. Adhesive tubes: anterior tubes, six per side, one medial at U14 and five forming an arc ventrolaterally at U14–U15; lateral tubes, up to 21 per side, a small one at U18 and 20 larger tubes evenly spaced in and past the intestinal region from U46 to U94; ventral tubes, up to five in a cluster at U80, only on the right side; posterior tubes, six per side, 2 + 1 forming one foot of the bilobed caudum and the other three flanking each foot medially. Ventral locomotor cilia: a continuous field of transverse rows covering the entire ventral surface with the exception of the anogenital region. Reproductive system: elongated testis on the right side; massive and elongated caudal organ apparently connected on the right side to a vesicular frontal organ.

*Etymology*

The trivial name "*inaequitubulatum*" alludes to the uneven implant of the ventral adhesive tubes.

*Description*

The description is based on an adult specimen of 350 µm total length. Pharynx 91 µm in length with

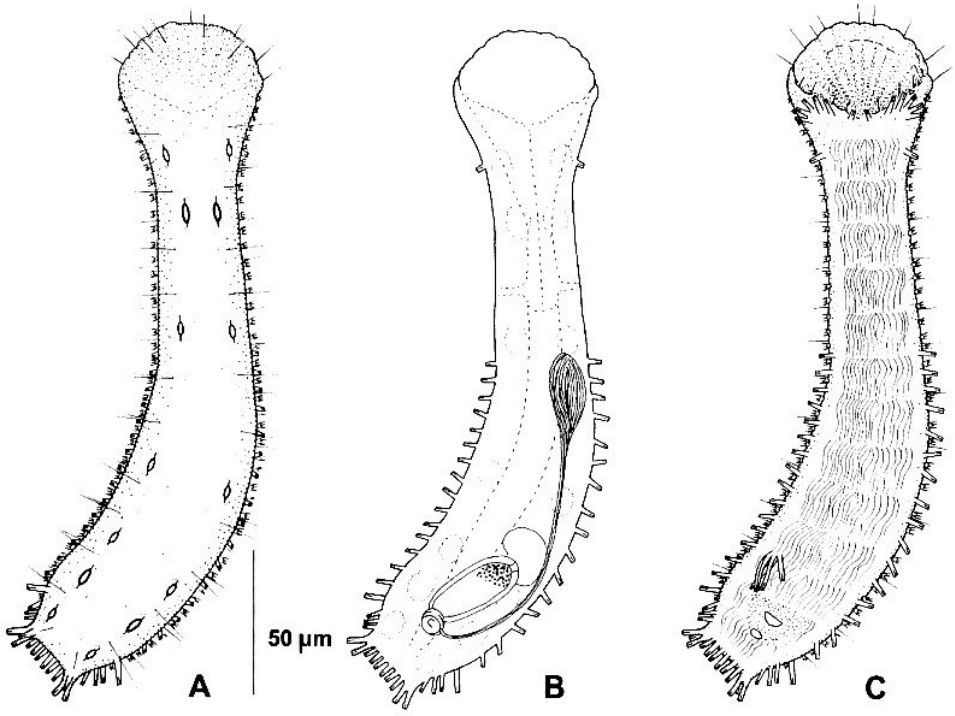


Fig. 4. *Tetranchyroderma inaequitubulatum* sp. nov. A. Habitus drawn as if lying dorsally, showing the opening of the epidermal glands, pentancrous armature not shown. B. Internal structures. C. Habitus drawn as if lying ventrally, showing the adhesive apparatus, the locomotor ciliary band, and both anal and genital openings.

pharyngeal pores near the posterior at U36. Pharyngeo-intestinal junction at U39. Flared oral opening and slightly scalloped hood. Stout, medium length body, with a moderately inflated trunk that narrows quickly to the base of a short, bilobed caudum. Widths of the oral opening and at the neck/trunk/caudal base are as follows: 70/42/63/35 µm at U07/U28/U65/U94, respectively. Cephalic tentacles, dorsal cirrata tubes and pestle organs are absent. Sensory hairs include a sparse ventral fringe around the oral opening (*ca* 5 µm long), a dorsal row just behind the leading edge of the oral hood (8–14 µm) and scattered dorsal elements (10–14 µm) inserting in the bare region anterior to the cuticular armature. Other sensory hairs form lateral (about 11 per side) and dorsolateral (11–12 per side) columns and are evenly spaced within these. Individual hairs are *ca* 10–16 µm long. Few (seven per side) large (up to 16 × 10 µm), round viscid glands are arranged in two dorsolateral columns in the pharyngeo-intestinal region from U18 to U92. Externally emptying glands with elliptic openings (7 × 4 µm) are readily discernible on the dorsal side amid the elements of the cuticular armature. Cuticular armature: from U1 to U96 a complete dorsal/lateral covering of pentancrous hooks that wraps around the lateral margins of the body in 13–15 columns, each with about 40 hooks. The pentancres are of medium size (4–8 µm), with slightly curved, grasping outer tines and a nearly straight central tine that is slightly longer than the others. Adhesive tubes: there are six anterior tubes per side inserting directly on the body surface, one medial at U14, 6.0 µm in length, and five somewhat more lateral at U14–U15, 10 µm in length. There are 20 lateral tubes per side, a small one at U18, 7.0 µm in length, and 19 larger ones (10 µm in length) evenly spaced in and past the intestinal region from U46 to U94. On each side, there is an additional 13 µm long tube of the lateral adhesive tube series at U91 implanted dorsolaterally. Dorsal tubes are absent. Ventral tubes, 12.8–20.0 µm in length, are present on the right side only forming a cluster at U80. The caudum indents medially to U96 and bears a total of 12 posterior tubes. It is formed by two feet born on short

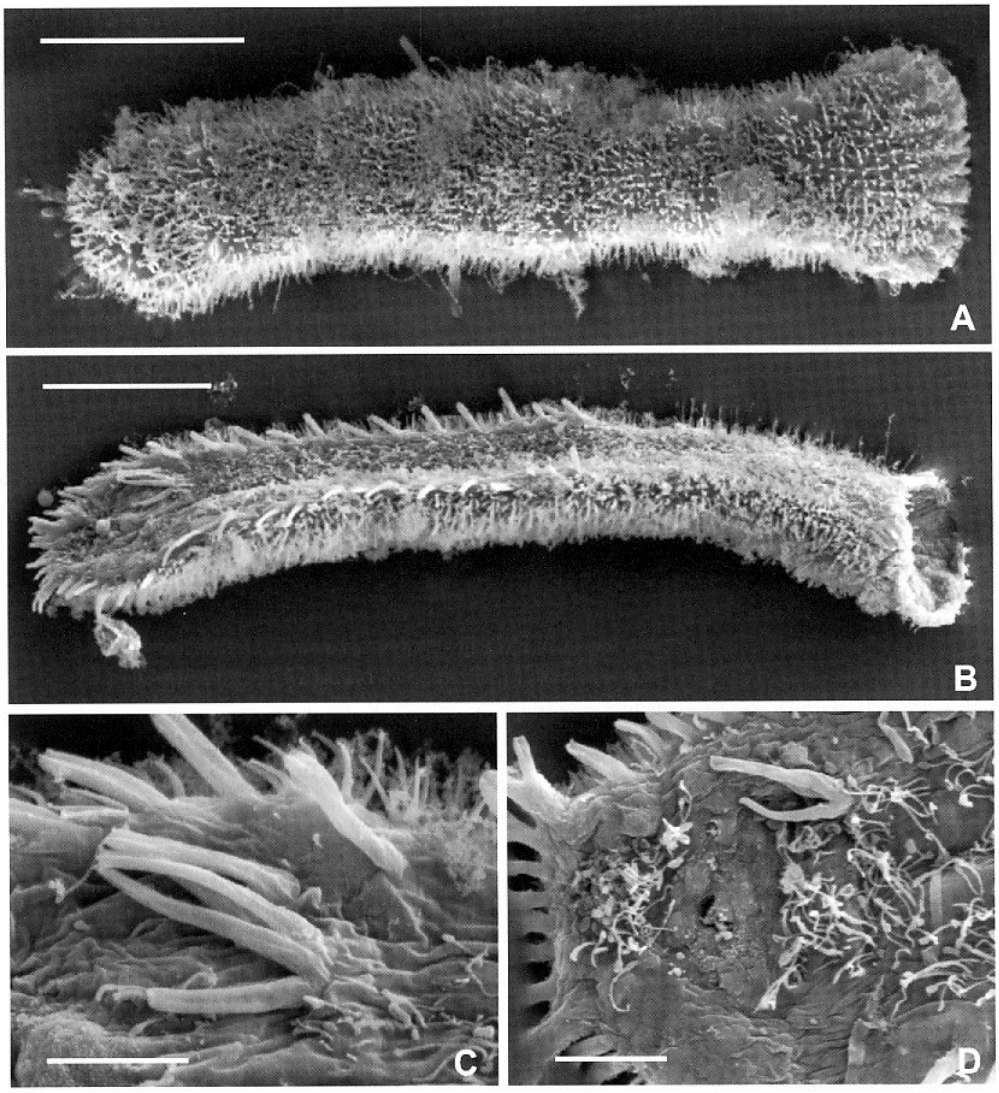


Fig. 5. *Tetranchyroderma inaequitubulatum* sp. nov. scanning electron micrographs. A. Habitus, dorsal view. B. Habitus, ventral view. C. Close up of the right ventral side of an adult specimen of 350 µm total body length, showing a cluster made up of five adhesive tubes. D. Close up of the right ventral side of an adult specimen of 260 µm total body length showing a cluster made up of two adhesive tubes only. Scale bar = 50 µm (A, B); 10 µm (C, D).

fleshy lobes, each comprising two posterior tubes (8.4 µm in length) fused at their bases and one mid-dorsal tube inserted between the other two. Three additional 9.8 µm long posterior tubes flank each foot medially. Ventral ciliation: a continuous field of cilia arranged in transverse rows covers the entire ventral surface from U16 to U94 except for the anogenital region, which at SEM analysis appears bare. Digestive tract: the oral opening is broad (70 µm in width) with an oral hood extending forward above the mouth from U00 to U12. The pharynx narrows over its half to 15 µm and bears pores at the base. The intestine is broader in the anterior portion (15–20 µm), narrowing gradually to the anus, which opens ventrally at U90. Reproductive

system: probably protandrous hermaphrodites; female reproductive system not seen, nor were maturing oocytes. There is a single, elongated testis on the right side. A vas deferens opens into the rear of the elongated oval caudal organ (60 × 20 µm) oriented from the median rear to the right forward. Refringent goblets fill the anterior portion of the caudal organ lumen. A vesicular, hyaline (17 × 23 µm) frontal organ sags from the forepart of the caudal organ.

*Distribution*

Locality 8. Frequency of occurrence: sparse in medium, sublittoral sand at about 3.0 m water depth. Abundance: scarce in samples where found.

*Remarks*

Specimens about 250 µm in total body length show a lower number of adhesive tubes, in particular only two ventral tubes. In this age–size class, animals possess a well-defined male sexual apparatus, including a testis filled with spermatozoa, but no developing oocytes are visible. On these grounds, it is reasonable to assume that *T. inequitubulatum* is protandrous.

To date, the genus *Tetranchyroderma* includes 45 named species, 21 of which possess a cuticular covering made up of pentancres. Of the latter, only five species have ventral adhesive tubes but no cephalic tentacles and/or pestle organs. These are: *T. coeliopodium* Boaden, 1963, *T. norvegicum* Clausen, 1996, *T. pacificum* Schmidt, 1974, *T. polyprobolostomum* Hummon, Todaro, Balsamo & Tongiorgi, 1996 and *T. thysanophorum*.

*Tetranchyroderma thysanophorum* principally differs from other species in having only one ventral adhesive tube per side and in bearing trailing filaments in the posterior part of the trunk. *Tetranchyroderma norvegicum* and *T. polyprobolostomum* both show peculiar cirrata tubes, while *T. pacificum* presents very slender ventral adhesive tube inserted on a protruding fleshy base. *Tetranchyroderma coeliopodium* and *T. inaequitubulatum* sp. nov. are distinguished by ventral adhesive tubes arising directly from the trunk and the lack of dorsal cirrata. However, although agreeing in these aspects, the Mediterranean species is easily differentiated from its co-generic by the presence of a cluster of ventral adhesive tubes on one side only and by the larger size (60 versus 28 µm) and particular shape of its noticeable caudal organ.

## CONCLUSIONS

The gastrotrichs represent one of the most important components of marine meiobenthos in sandy habitats (cf. Coull 1985), and the present study gives for the first time a clear faunistic picture, although not conclusive, of this taxon along the coast of the third largest Mediterranean island. In a larger framework, the research allows the number of marine gastrotrich species known to French fauna to be increased from 100 spp. (41 Chaetonotida and 59 Macrodasyida) to 114 spp. (47 Chaetonotida and 67 Macrodasyida). The increase in gastrotrich species recorded from the French Mediterranean coasts is even more impressive: from 33 spp. (15 Chaetonotida and 18 Macrodasyida) to 60 spp. (24 Chaetonotida and 36 Macrodasyida).

Given the small number of sampled locations (10), Corsica supports a number of gastrotrich species (42 spp.) comparable with that of other Mediterranean islands, i.e. Sardinia (55 species from 26 locations) and the Tuscan Archipelago (55 species from 25 locations), and greater than that of Sicily (41 species from 21 locations) and the Tremiti Archipelgo (37 species from 11 locations).

Although 39 species found in Corsica were already known from other Mediterranean locations, the discovery of three new species suggests that the gastrotrich fauna of the western Mediterranean basin has not yet been fully recorded.

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