



A new species of *Amphicorina* (Polychaeta: Sabellidae: Sabellinae) from the Chafarinas Islands (Western Mediterranean).

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Abstract: A new species of Sabellinae (Sabellidae), *Amphicorina triangulata*, is described. This species is characterized by the shape of the collar (triangular and strongly reduced), by having four pair of radioles and one pair of ventral filaments in the branchial crown, six abdominal segments in adult specimens, and by the shape of ventral thoracic notochaetae and abdominal uncini. The material was collected from different substrata on rocky bottoms in the Chafarinas Islands (SW Mediterranean).

Résumé : Une nouvelle espèce d' *Amphicorina* (Polychaeta: Sabellidae: Sabellinae) des Iles Zaffarines (Méditerranée occidentale). Une nouvelle espèce de Sabellinae, *Amphicorina triangulata*, est décrite. Cette espèce est caractérisée par la forme de sa collerette (triangulaire et très réduite), par la présence de quatre paires de radioles, d'une paire de filaments ventraux dans le panache branchial, de six segments abdominaux à l'état adulte, et par la forme des soies thoraciques notopodiales ventrales et des uncini abdominaux. Le matériel a été récolté sur différents substrats de fonds rocheux des Iles Zaffarines (SW Méditerranée).

Keywords: Polychaeta, Sabellidae, systematics, Mediterranean

Introduction

The genus *Amphicorina* Claparède, 1864, has been recorded worldwide especially from shallow waters. In most of these records, the genus *Oriopsis* Caullery and Mesnil, 1896 has been used, but Rouse (1994) made this a junior synonym of *Amphicorina*. The genus was included within the subfamily Fabriciinae Rioja, 1923 until Fitzhugh (1989) proposed its removal into the Sabellinae Johnston, 1846. In spite of this

wide distribution and of the recent description of several new species, the systematics of the genus *Amphicorina*, which represents probably a non-monophyletic group (Rouse 1994), is still unclear. A complete revision of the genus *Oriopsis* was provided by Rouse (1990) who gave descriptions of four new species of *Oriopsis* and a table with distinctive features for 31 species and subspecies. This work was recently emended and updated by Giangrande et al. (1999) with the description of a new species of *Amphicorina*, complete redescriptions of most known Mediterranean species and a table for 34 species.

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From 1991 to 1994, research teams from the Universidad Autónoma de Madrid and the Universitat de València

undertook a study on the benthic communities of the Chafarinas Islands in which special attention was paid to marine invertebrates, including polychaetous annelids. Information about the study area can be found in previous works devoted to Polychaeta from the Chafarinas Islands (López, 1995; López et al., 1996; Tena, 1996; Villora-Moreno, 1997). Over 300 specimens of an undescribed species of *Amphicorina* were found in different substrata from the Chafarinas Islands and in this work the taxonomic status of the new species is given.

Material and methods

Eighteen samples from several infralittoral and circalittoral communities on hard bottoms ranging from 0 to 35 m were collected by scuba diving. The studied substrata comprised encrusting and non-encrusting algae as well as animal substrata (gorgoniaceans, coral blocks). The material was washed, sieved (0.5 mm mesh size) and fixed without staining in 5% formalin in sea water. After sorting and identification, faunal material was preserved in 70% ethanol. Observations, measurements, and drawings were made using an interference contrast (Nomarsky) microscope with an incorporated camera lucida. Scanning electron microscope (SEM) micrographs of two specimens were obtained, after critical point drying and coating with 30 nm of gold, at the SIdI (Servicio Interdepartamental de Investigación) of the Universidad Autónoma de Madrid. All specimens are deposited at the Museo Nacional de Ciencias Naturales, in Madrid (MNCN).

The holotype of the closest species *Amphicorina pectinata* (Banse, 1957), labelled as *Oridia alata* (Ehlers) *pectinata* Banse, was also examined after loaning by the Zoologisk Museum in Copenhagen (inventory number ZMUC-POL-968).

Results

Family Sabellidae Johnston, 1846

Subfamily Sabellinae Johnston, 1846 emend.

Fitzhugh, 1989

Genus *Amphicorina* Claparède, 1864

Amphicorina triangulata sp. nov.

Figs. 1-2

Oriopsis cf. *brevicollaris* (non Rouse, 1990).- López 1995: 545-548, fig. 65, pl. 1

Oriopsis sp. Tena, 1996: 436-439, pl. 19, fig. a.

Material examined.

Holotype: MNCN 16.01/5301, among epibiotic fauna on the cnidarian *Ellisella paraplexauroides* Stiasny, 24 m, N Isabel

II Island (35°10'46"N-2°26'34"W), 22 July 1992. For paratypes see table 1.

Etymology: the specific name *triangulata* refers to the shape of the ventral collar projection which is one of the most conspicuous features of the new species.

Description

Holotype: complete specimen, with eight thoracic and six abdominal chaetigers (Fig 1 A); total length 4.66 mm (branchial crown 1.6 mm, body 3.06 mm); width at the fourth thoracic chaetiger level: 0.38 mm. Largest specimen 6 mm long (branchial crown 1.6 mm, body 4.4 mm), and 0.44 mm wide. Crown with four pairs of radioles, one pair of ventral filaments (ventral radiolar appendages), one pair of dorsal lips, and one pair of ventral lips. Radioles provided with well developed lateral flanges and two rows (only one near tip) of broad skeletal axial cells (Fig. 1 A, B, C); flanges fused basally to form a fine palmate membrane which can reach up to 1/3 of total crown length; tips with a long filament; each radiole with seven pairs of pinnules in paired arrangement along axis, provided with one row of narrow skeletal axial cells. Ventral filaments smooth, variable in length within type series but always shorter than radioles, sustained by a single row of broad skeletal axial cells (Fig. 1 C). Both pairs of lips short; dorsal digitiform, ventral rounded (Fig. 1 C). Thoracic collar reduced to a thin flange dorsally and laterally, extending forward ventrally to form a triangular projection with median gap and notched tip (Figs. 1 B; 2 A, B).

Thorax with up to eight chaetigers, first two somewhat shorter. First chaetiger bearing only notopodial fascicle; four (two to four on paratypes) large broadly hooded notochaetae and three or four (one to five on paratypes) small narrowly hooded chaetae. Rest of thoracic chaetigers with notopodial and neuropodial fascicles; notopodial fascicles with five to seven (two to seven on paratypes) long, thick broadly hooded dorsal chaetae (Fig. 1D) and three or four (one to four on paratypes) shorter and thinner, geniculated, bayonet-shaped ventral chaetae (Fig. 1E); neuropodial fascicles with seven to nine (two to eight on paratypes) acicular uncini (Fig. 1 F; Fig. 2 C, D), each provided with a well developed main fang, a smaller secondary tooth, and a distal part with two or three series of smaller teeth.

Abdomen formed by up to six chaetigers (five in very small specimens); last three clearly shorter. Neuropodial fascicles bearing three to six (one to five on paratypes) thin needle-like capillaries; notopodial fascicles bearing twelve to seventeen uncini (three to sixteen on paratypes), quadrangular and narrow in cross section, each with up to ten rows of small teeth overlying a clearly larger basal tooth (Fig. 1G; Fig. 2 E); basal tooth sometimes smaller on posterior abdominal chaetigers but always clearly larger than overlying teeth (Fig. 2 F). Pygidium triangular and

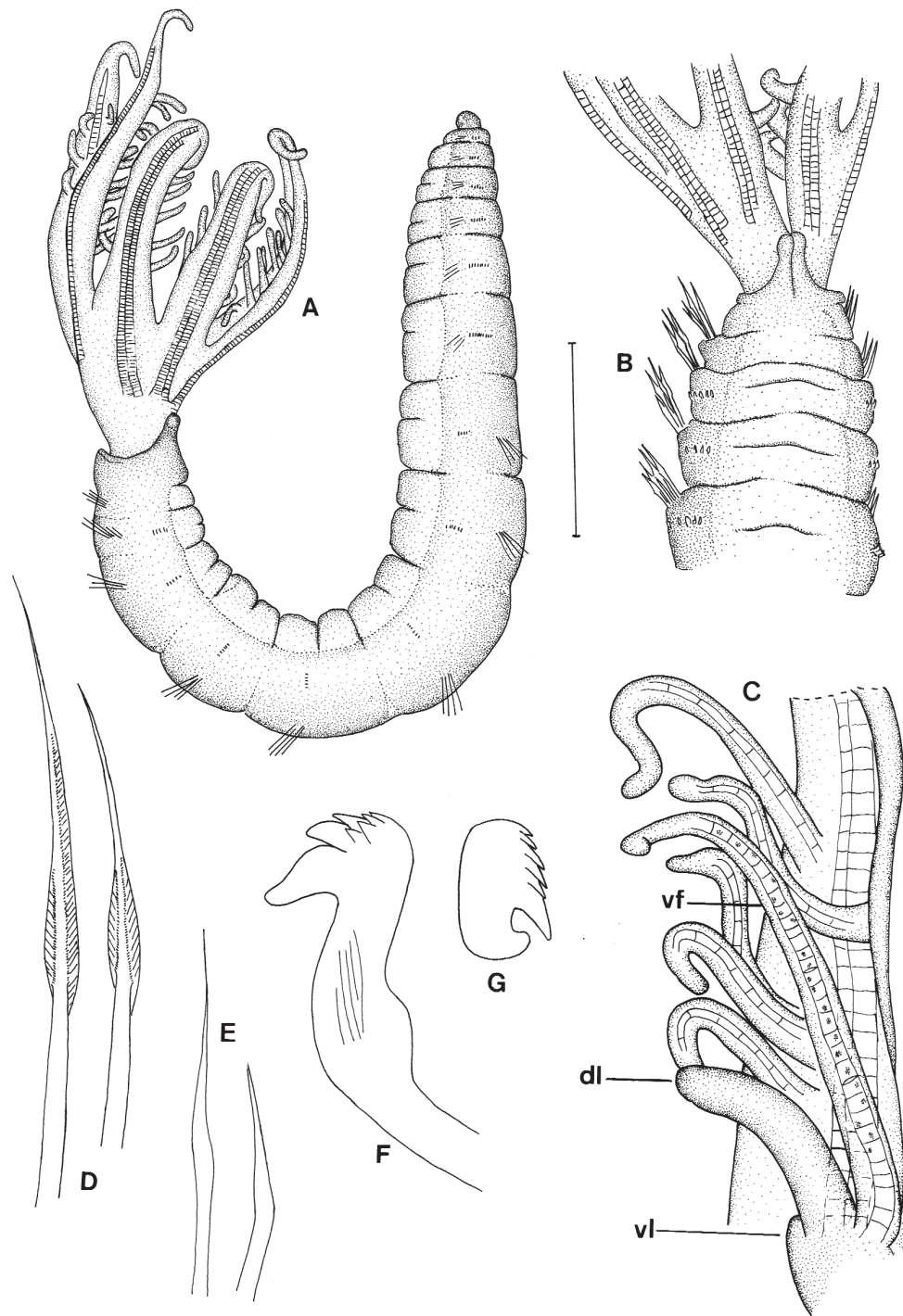


Figure 1. *Amphicorina triangulata* sp. nov. A. Complete specimen, lateral view. B. Anterior end, ventral view. C. The branchial crown base with one radiole and a ventral filament (vf); (dl) dorsal lip; (vl) ventral lip. D. Thoracic dorsal notopodial chaetae, broadly hooded. E. Thoracic ventral notopodial chaetae, bayonet shaped. F. Thoracic uncinus (neuropodial chaeta). G. Abdominal uncinus (notopodial chaeta).

Figure 1. *Amphicorina triangulata* sp. nov. A. Spécimen entier, vue latérale. B. Partie antérieure, vue ventrale. C. Base de la couronne branchiale avec un radiole et un filament ventral (vf); (dl) lèvres dorsale; (vl) lèvres ventrale. D. Soies thoraciques notopodiales dorsales, bilimbées. E. Soie thoracique notopodiale ventrale, en baïonnette. F. Uncinus thoracique (soie neuropodiale). G. Uncinus abdominal (soie notopodiale).

Scale bar, échelle : A : 0.6 mm, B : 0.37 mm, C : 0.11 mm, D, E : 48 μ m, F, G : 20 μ m.

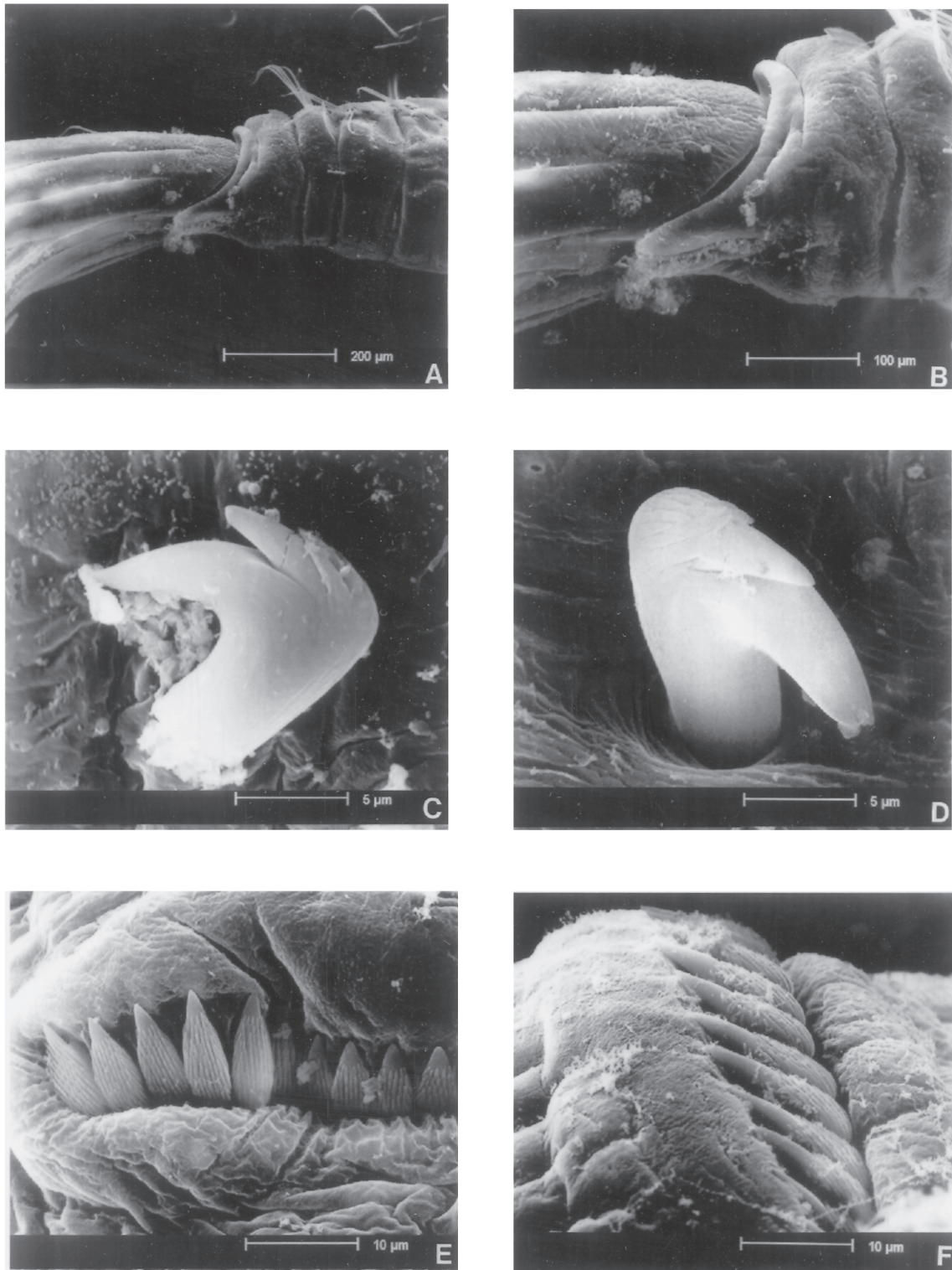


Figure 2. *Amphicorina triangulata* sp. nov. SEM micrographs. A, B. Anterior end, ventro-lateral view. C, D. Thoracic uncini (neuropodial chaetae). E. Uncini (complete notopodial fascicle), from a posterior abdominal segment. F. Uncini (complete notopodial fascicle), from an anterior abdominal segment.

Figure 2. *Amphicorina triangulata* sp. nov. Micrographies (Microscope électronique à balayage). A, B. Partie antérieure, vue ventro-latérale. C, D. Uncini thoraciques (soies neuropodiales). E. Uncini (rangée notopodiale complète), d'un segment abdominal postérieur. F. Uncini (rangée notopodiale complète), d'un segment abdominal antérieur.

Table 1. List of collected paratypes.
Tableau 1. Liste des paratypes récoltés.

Museum Reference	Substratum / Depth	Locality	Coordinates	Date	Number of specimens
MNCNM 16.01/5301 (Paratypes)	Epibiotic fauna on cnidarian <i>Ellisella paraplexauroides</i> Stiasny, 24 m	N Isabel II Island	35°10'46"N 2°26'34"W	22 July 92	30
MNCNM 16.01/5302 (Paratypes)	<i>Mesophyllum lichenoides</i> (Ellis) on a <i>Posidonia oceanica</i> (Linné) bed, 6 m	SW Rey Francisco Island	35°10'44"N 2°25'06"W	8 Sept. 92	15
MNCNM 16.01/5303 (Paratypes)	Photophilic algae, <i>Stypocaulon scoparium</i> , Linné - <i>Cladostephus verticillatus</i> (Lightfoot), 3 m	N Congreso Island	35°11'02"N 2°26'13"W	25 July 91	2
MNCNM 16.01/5304 (Paratype)	Sciaphilic algae, <i>Flabelia</i> <i>petiolata</i> (Turra), 3 m	N Congreso Island	35°11'03"N 2°26'12"W	25 July 91	1
MNCNM 16.01/5305 (Paratype)	Epibiotic fauna on cnidarian <i>Ellisella paraplexauroides</i> , 24 m	N Isabel II Island	35°11'03"N 2°25'04"W	13 July 91	1
MNCNM 16.01/5306 (Paratypes)	Sciaphilic algae, <i>Halopteris</i> <i>filicina</i> (Grateloup), 12 m	N Isabel II Island	35°11'02"N 2°25'25"W	13 July 91	4
MNCNM 16.01/5302 (Additional material)	<i>Mesophyllum lichenoides</i> on a <i>Posidonia oceanica</i> bed, 6 m	SW Rey Francisco Island	35°10'44"N 2°25'06"W	8 Sept. 92	174
MNCNM 16.01/5307 (Additional material)	Hemiphotophilic algae, <i>Cystoseira spinosa</i> Sauvageau, 12 m	N Rey Francisco Island	35°11'08"N 2°25'14"W	13 Sept. 92	31
MNCNM 16.01/5308 (Additional material)	Epibiotic fauna on <i>Paramuricea</i> <i>clavata</i> (Risso), 23 m	N Rey Francisco Island	35°11'08"N 2°25'14"W	13 Sept. 92	1
MNCNM 16.01/5309 (Additional material)	Hemiphotophilic algae, <i>Cystoseira spinosa</i> , 12 m	N Congreso Island	35°11'01"N 2°26'16"W	10 Sept. 91	15
MNCNM 16.01/5310 (Additional material)	Hemiphotophilic algae, <i>Cystoseira spinosa</i> , 20 m	NW Congreso Island	35°10'56"N 2°26'21"W	20 Sept. 92	30
MNCNM 16.01/5311 (Additional material)	Photophilic algae, <i>Corallina elongata</i> Ellis & Solander), 0.5 m	N Isabel II Island	35°11'03"N 2°26'21"W	15 Sept. 92	5
MNCNM 16.01/5312 (Additional material)	Hydroids, 20 m	E Rey Francisco Island	35°10'53"N 2°25'09"W	19 Febr. 91	7
MNCNM 16.01/5313 (Additional material)	Sciaphilic algae, <i>Flabelia petiolata</i> , 3 m	Between Rey Francisco and Isabel II Islands	35°10'57"N 2°25'21"W	20 Sept. 92	3
MNCNM 16.01/5314 (Additional material)	Concretions of calcareous algae, 12 m	E Congreso Island	35°11'05"N 2°25'43"W	21 Febr. 91	5
MNCNM 16.01/5315 (Additional material)	Concretions of calcareous algae, 22 m	E Rey Francisco Island	35°10'53"N 2°25'09"W	8 Sept. 92	3
MNCNM 16.01/5316 (Additional material)	Sciaphilic algae, <i>Flabelia petiolata</i> , 12 m	E Congreso Island	35°11'05"N 2°25'43"W	21 Febr. 91	1
MNCNM 16.01/5317 (Additional material)	Hemiphotophilic algae, <i>Cystoseira spinosa</i> , 15 m	Congreso Reef	35°11'10"N 2°26'03"W	18 Sept. 92	3
MNCNM 16.01/5318 (Additional material)	Blocks of <i>Cladocora</i> <i>caespitosa</i> (Linné), 15 m	N Isabel II Island	35°11'03"N 2°25'36"W	15 Sept. 92	5

slightly flattened, with no appendages; anus in dorsal position.

Both thoracic and abdominal segments show distinct ventral shields, each divided in two halves (anterior and posterior).

Discussion

The new species described herein is characterized by: 1) the strong reduction of the collar, which is very short and has a ventral projection, 2) four pairs of radioles and one pair of

ventral filaments in the branchial crown, 3) six abdominal segments in adult specimens, 4) the shape of ventral notochaetae and abdominal uncini.

Out of the 34 previously known species, 8 show some kind of collar reduction, while the remaining species are provided with well developed collars and will not be commented here. *Amphicorina minuta* (Berkeley & Berkeley, 1932), from Canadian Pacific, has two pairs of radioles in the branchial crown, spatulate thoracic notochaetae, and a collar without ventral projection. *Amphicorina neglecta* (Banse, 1957), from South Africa, differs in possessing sub-spatulate thoracic notochaetae, and a collar without ventral projection. *Amphicorina gracilis* (Hartman, 1969), from California, has three pairs of radioles in the branchial crown, eight abdominal chaetigers, and a collar without ventral projection. *Amphicorina kocki* (Hartmann-Schröder, 1989), from Antarctica, has three pairs of radioles, a collar without ventral projection, and a more slender body, with 13 abdominal chaetigers. *Amphicorina grahamensis* Giangrande et al. (1999), has three pairs of radioles, a collar without a ventral projection and only five abdominal chaetigers.

The most similar taxa are *Amphicorina alata* (Ehlers, 1897), *A. alata pectinata* (Banse, 1957), and *A. brevicollaris* (Rouse, 1990). *Amphicorina alata*, from South Georgia, (Hartman, 1953; Banse, 1957) is similar in having four pairs of radioles in the branchial crown, six abdominal segments, and a reduced collar but this shows no ventral projection. Furthermore, this species possesses very different abdominal uncini (rasp shaped and without enlarged basal tooth) and two pairs of ventral radiolar appendages. *Amphicorina brevicollaris*, from Australia, has four pairs of radioles, a similar shape for the body and collar, as well as for the thoracic ventral notochaetae, and abdominal uncini with similar basal teeth. It differs only in having up to seven abdominal chaetigers, though being a much smaller species, and in possessing two pairs of ventral radiolar appendages. *Amphicorina alata pectinata*, from New Zealand, is similar in possessing abdominal uncini with an enlarged basal tooth and a reduced collar with ventral projection. It differs in having straight ventral thoracic notochaetae and abdominal uncini with a basal tooth which is only slightly larger than overlying ones. Furthermore, it shows a different arrangement of branchial crown elements. Banse (1957) described a branchial crown with four pairs of radioles and two pairs of ventral filaments. After examination of the holotype, only a single pair of ventral filaments could be distinguished, while radioles numbered nine (four on right side and five on left side). The ventralmost left radiole was quite shorter than the rest, perhaps leading to confusion with a ventral filament in Banse's original description, but the presence of paired pinnules on this radiole confirmed its identification. In addition, ventral and dorsal lips were

proportionally larger and more slender than those of *A. triangulata* sp. nov. Specimens recorded from the Mediterranean Sea as *Amphicorina pectinata*, by Giangrande et al., (1999) have up to seven abdominal chaetigers and two pairs of ventral filaments.

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