

NEW RECORDS OF SABELLID SPECIES (POLYCHAETA: SABELLINAE) FROM THE COASTAL EGYPTIAN WATERS

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ABSTRACT

Eight newly recorded sabellid species were reported during the present study. They affiliated to six genera. These are: *Oriopsis armandi*, *Chone collaris*, *C. usticensis*, *Euchone southerni*, *Jasmeneira caudata*, *Demonax brachychona*, *D. microphthalmus* and *Megalomma cf. bioculatum*. The described species were encountered among both sediment samples and fouling aggregations. They were collected from the coastal waters of the Egyptian Mediterranean Sea and Suez-Canal. A full description is provided for each; taking in consideration all the diagnostic details recently introduced; as well as geographic distribution. Rules of introducing new diagnostic characters in the identification of different sabellid species and confusion between the recorded genera, besides the geographic distribution of the recorded species are discussed. The occurrence of *Demonax microphthalmus*; which is of Atlantic origin; and *D. brachychona*; of Mediterranean origin; among fouling aggregations of Suez-Canal, may interpret the success of two species to introduce this pass way through foulers growing on ship hulls.

1. INTRODUCTION

Sabellidae are commonly known as "fan worms", "feather duster worms" or "sea flowers" (Tovar-Hernandez and Salazar-Vallejo, 2006). They are easily recognized by their colorful radiolar crown projecting from mouth of their tubes. Sabellids represent one of the common polychaete families occurring in a wide variety of habitats, hard surfaces or soft sediments from the intertidal to abyssal depths. It comprises two monophyletic groups, the Fabriciinae and the Sabellinae (Fitzhugh, 1989). Giangrande suggests that there are around 490 sabellid species, 75 in Fabriciinae and the remaining in Sabellinae (Rouse and Pleijel, 2001). Most sabellids are suspension feeders, but some small forms are also deposit feeders.

The identification of sabellidae was previously depending mainly on the shape of

both setae and uncini, as well as few information about branchial crown. Recently, many authors (Banse, 1970 and 1972; Knight-Jones, 1983; Perkins, 1984 and Fitzhugh, 1989, Tovar-Hernandez *et al.*, 2007) tried to emend the generic diagnosis of such family. They added several additional diagnostic characters; usually undescribed; e.g. branchial crown structure and details of its internal structure, the presence or absence of palmate membrane, collar shape, the variation in abdominal uncini between anterior and posterior tori and even within the same torus. In past, all these newly recognized characters have been described only vaguely, if at all. As well, the description and illustration of these structures are usually incomplete, that lead to species misidentification.

Generally, knowledge about the sabellid status in the Egyptian waters is still far from

complete; as a result of lack the adequate taxonomical studies and sufficient data about this group. The first work attended with polychaetes from the fishery grounds of Alexandria has been done by Fauvel (1937) and recorded four sabellid species, namely: *Sabella pavonina*, *Branchiommma lucullanum*, *Fabricia sabella* and *Chone duneri*. Whereas collections of polychaetes from the Suez-Canal; was carried out by the Cambridge Expedition during 1924 (Potts, 1928). Three sabellid species were reported namely: *Chone infundibuliformis*, *Branchiommma lucullanum* and *Myxicola fauveli*. Polychaetes from the Gulf of Suez were studied by Fauvel (1933). He recorded four species namely: *Megalommma vesiculosum*, *Sabellastarte indica*, *Hypsicomus stichophthalmos* and *Branchiommma serratibranchis*. Recently, many Egyptian authors studied Polychaete members including this group (Selim, 1978; Mostafa, 1992; Belal, 2001; and Selim *et al.*, 2006). The last authors added four species: *Jasmineira elegans*, *Branchiommma bombyx*, *Potamilla torelli* and *Potamilla reniformis*. The identification of all the above mentioned species based on old diagnostic characters. Therefore, the Egyptian recorded sabellid species should be revised, to confirm their identification.

Now, the attitude of several authors is to revise the preserved sabellid species in different museums elsewhere, taking in consideration the recent additional diagnostic characters. Therefore, the main objective of the present paper is to give detailed descriptions and illustrations for the newly recorded sabellid species; focusing on the recent diagnostic characters. This study represents a necessary base to establish adequate basic data for any forward work on such family in Egypt.

2. MATERIALS AND METHODS

Collections of sediment samples along the western north coast of the Egyptian Mediterranean Sea were carried out during February and September 2006. Samples collected by using Van Veen grab sampler. Furthermore, additional sediment samples were collected from Suez-Canal during 2007, and fouling aggregations from Abu-Kir Bay during 1999 as well. Collections from the Egyptian western north coast were a part of a programme concerned with. The trip was carried out on board the R/V 'Salsabeel', whereas samples from Suez-Canal come through studies conducted through the canal by the laboratory of the Taxonomy and Aquatic Biodiversity, Alexandria Egypt, where the samples are deposited.

All samples were washed and sieved through 0.5 mm sieve. The retained samples were sorted and preserved in 10% formalin. Examinations of samples were done by using stereo and compound microscopes. Drawings were made by camera lucida. Measurements were taken by using calibrated eye piece micrometer.

3. RESULTS

Systematics

3.1. *Oriopsis armandi* (Claparede, 1864)

Oridia armandi Fauvel, 1927:328 Fig. 114 a-g.

Oriopsis armandi Banse, 1957: 71; Ben-Eliahu, 1975: 67-68 pl. IV a-d; Wehe and Fiege, 2002:121.

Material examined: Ras El-Hekma, 63 m, silty sand (1) February 2006; Suez-Canal, April 2007: Ras El-Esh, 5 m, sandy (1), El-Cap, 3 m, sandy (1).

Complete specimens, with 8 thoracic and 5 abdominal setigers. Length of crown up to 0.8 mm, total thorax-abdomen length up to 1.6 mm, maximum width to 0.3 mm. Glandular ridge absent on Setiger two.

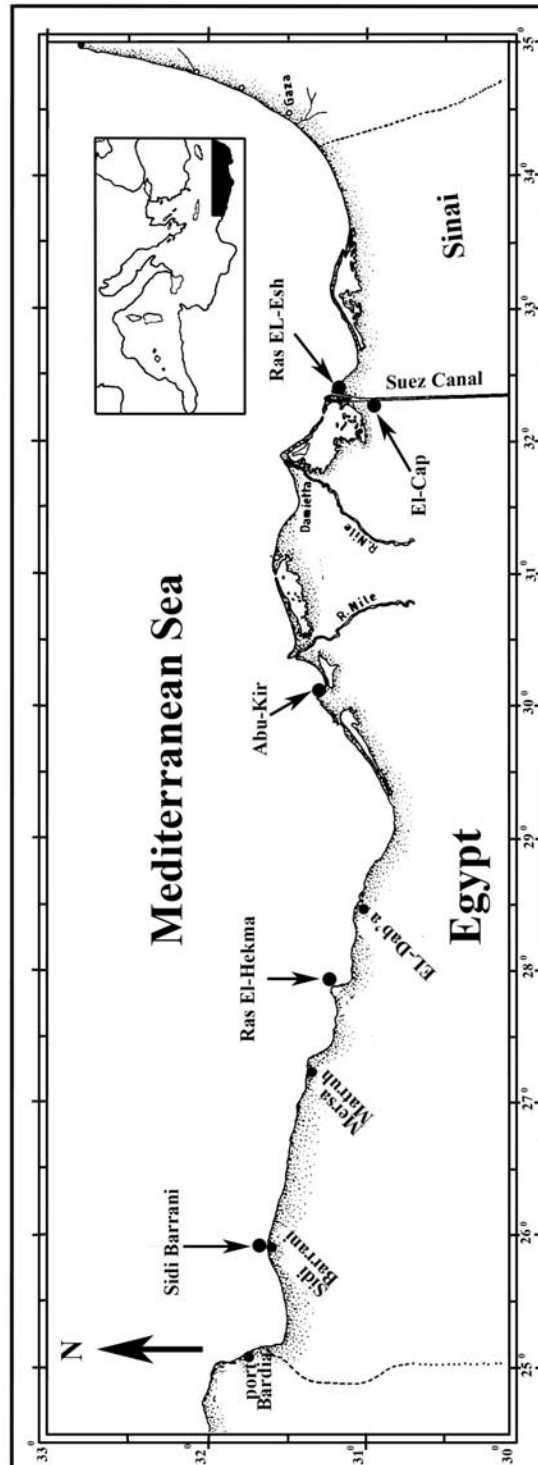


Fig. (1): Map of north Egypt showing the locations of sampling sites.

Branchial crown with 3 pairs of radioles, with short tips (Fig. 2a). Radiolar skeleton (Fig. 2a): consisting of two rows of cells. Radiolar flanges well developed, fused basally forming low palmate membrane. Radioles with 12 long pinnules alternating along length and covering the naked radiolar tips. One pair of ventral radiolar appendages (Fig. 2b) present, half as long as radioles, not connected to palmate membrane. Insertion of the branchial crown (Fig. 2b and c) exposed laterally, obscured ventrally by ventral elevation. Collar separated dorsally by a narrow gap (Fig. 2c), projecting ventrally as two lips (Fig. 2b). Dorsal lips elongate, ventral lips slightly shorter than the dorsal.

Setae: Setiger one with two groups of elongate narrowly hooded setae. Setigers 2-8; notopodia: superior fascicle (Fig. 2d) similar to collar setae (7 per fascicle), posterior row with six bayonet setae (Fig. 2e). Neuropodia: with 6-8 acicular uncini (Fig. 2f) per fascicle. Abdominal notopodia: with 12-14 quadrangular uncini (Fig. 2g) per torus, each one with 8-10 teeth. Neurosetae with two rows of four elongate narrowly hooded setae (Fig. 2h), becoming two in last Setiger. Pygidium (Fig. 2i) semi-circular, without Pygidial eyes.

Remarks: Specimens of *O. armandi* collected from both Mediterranean Sea and Suez-Canal are similar, not differ as mentioned by Ben-Eliahu (1975); her specimens from the Gulf Of Elate with crenulated collar.

Distribution: Mediterranean Sea, Atlantic Ocean, Pacific Ocean, Coast of Mexico, Australia, Red Sea.

3.2. *Chone collaris* Langerhans, 1880

Chone collaris Fauvel, 1927: 337 Fig.116 p-x; Day, 1967: 777 Fig. 37.7. a-f; Simboursa and Nicolaidou, 2001: 39; Wehe and Fiege, 2002: 118; Tovar-Hernandez *et al.*, 2007: 324-325, fig. 5A-N.

Material examined: Ras El-Hekma, 63 m, silty sand (1) February, 2006.

Complete specimen, with eight thoracic and 12 abdominal Setigers. Branchial crown length up to 1.5 mm, total thorax-abdomen length up to 2.5 mm, maximum width to 0.7 mm. Glandular ridge present on setiger two (Fig. 2k).

Insertion of branchial lobes not exposed beyond collar (Fig. 2j and k). Branchial crown with five pairs of radioles with short tips (Fig. 2l), pinnules of similar length, flanges broad. Palmate membrane extends up to one third of the branchial crown. Dorsal lips (Fig. 2k) triangular elongate, with midrib. One short pair of dorsal pinnular appendages. Ventral lips (Fig. 2k) low and short, broadly distally rounded. Four pairs of ventral radiolar appendages. Anterior peristomium ring lobe (Fig. 2j) exposed beyond collar, distally incised. Anterior margin of the collar crenulated (Fig. 2j and k). Entire length of mid-dorsal collar margin with narrow gap. Dorsal pockets well developed. Ventral collar shield (Fig. 2k) horseshoe-shaped. One pair of peristomial eye spots (Fig. 2j) present.

Setae: Collar setae (Fig. 2m) with four elongate narrowly hooded setae. Setigers 2-8: notopodia: with superior row of four setae similar to collar ones, inferior group arranged in two rows: anterior row with four short bayonet setae (Fig. 2n), posterior row with four paleate setae (Fig. 2o) with medium-sized mucro. Neuropodia with 6-8 acicular uncini (Fig. p) arranged in one row; main fang surmounted by few rows of small, equal teeth, occupying about 1/2 length of the main fang. Abdominal notopodia with 10-14 rectangular uncini (Fig. 2r), with main fang surmounted by 3-4 rows of teeth; occupying about 1/2 the main fang. Intertorus variation in uncinal shape occur; becoming smaller posteriorly (Fig. 2s) and the main fang surmounted by 7-8 small teeth, occupying about 3/4 the main fang. Neuropodia: with two rows of elongate narrowly hooded setae (Fig. 2q), reducing in number in far posterior setigers. Pygidium (Fig. 2t) with rounded posterior margin.

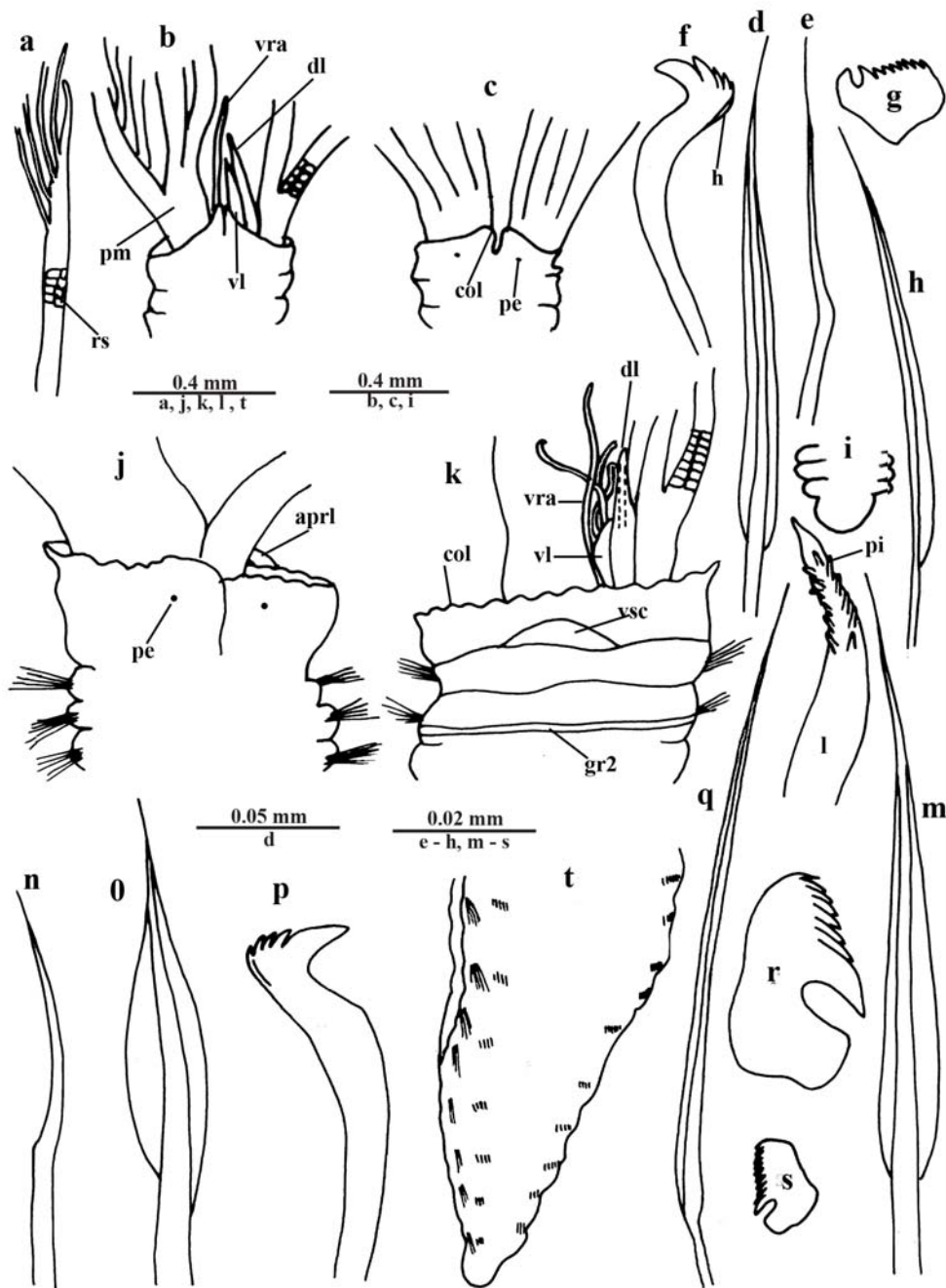


Fig. (2): *Oriopsis armandi*: a, radiolar tip; b, anterior end, ventral view; c, same, dorsal view; d, thoracic notoseta; e, bayonet seta; f, thoracic uncinus; g, abdominal uncinus; h, abdominal neuroseta; i, pygidium. *Chone collaris*: j, anterior end, dorsal view; k, same, ventral view; l, radiolar tip; m, collar seta; n, bayonet seta ; o, paleate seta ; p, thoracic uncinus; q, abdominal neuroseta; r, anterior abdominal uncinus; s, posterior abdominal uncinus; t, posterior end.

Remarks: the present specimen is closely related to that described by Tovar-Hernandez *et al.* (2007), differs only in lacking pygidial eye spots. They also pointed that this species is typical of photophilic algae of shallow waters, and is occasionally be found in sandy bottoms. Egyptian specimen encountered in silty sand bottoms.

Distribution: Mediterranean Sea, eastern central Atlantic Ocean, Red Sea.

3.3. *Chone usticensis* Giangrande, Licciano and Castriota, 2006

Chone usticensis Giangrande, Licciano and Castriota, 2006: 51-58 Fig. 2-4; Tovar-Hernandez *et al.*, 2007: 335-336 Fig. 11 A-B.

Material examined: Ras El-Hekma, 63 m, silty-sand, (1) February 2006.

Complete specimen, with eight thoracic and 13 abdominal setigers. Branchial crown length up to 7 mm, total thorax-abdomen length up to 2.5 mm, maximum width to 3 mm. Glandular ridge (Fig. 3a and b) on setiger two.

Insertion of branchial lobes not exposed beyond collar. Branchial crown with five pairs of radioles with extra radiolar tips (Fig. 3c) and one ventral radiolar appendage (Fig. 3a). Pinnules with equal length. Radiolar skeleton consisting of two rows of cells. Radiolar flanges present distally to palmate membrane. Palmate membrane extends to less than half length of radioles. Dorsal lips (Fig. 3a) pointed, longer than wide, dorsal radiolar appendages absent, but single dorsal pinnular appendage present. Ventral lips (Fig. 3a) shorter with radiolar appendage. Collar with a mid-dorsal gap (Fig. 3a), and slightly higher ventrally. Ventral lobe of anterior peristomium ring (Fig. 3b) pointed extends slightly beyond ventral collar margin. Ventral collar shield horseshoe-shaped (Fig. 3b).

Setae: Notopodia of setiger one composed of four narrowly hooded setae. Notopodia of setiger 2-8: with superior group of four elongate setae (Fig. 3d), similar to collar

ones. Inferior notosetae composed of two rows: anterior row of short five narrowly hooded bayonet setae (Fig. 3e); posterior row of five paleate setae (Fig. 3f) with long tips. Neuropodia: with 5-7 acicular uncini (Fig. 3g) with long handles and the main fang surmounted by several rows of small teeth, hood present, breast slightly swelling. Abdominal notopodia with 8-10 avicular uncini (Fig. 3h), with large main fang surmounted by several rows of small teeth, occupy about 1/2 the main fang, breast: well developed rectangular, handles absent. Intertorus variation well detected in the shape of uncini (Fig. 3i). The main fang becoming smaller, surmounted by smaller teeth and occupying about 3/4 the main fang. Intratorus variation in same setiger as well occurred, the smallest located dorsally. Neuropodia with four elongate narrowly hooded setae arranged in two rows, longer in posterior setigers and arranged in one row; two setae per fascicle. Pygidium (Fig. 3j) triangular; with long cirrus.

Remarks: Egyptian specimen is smaller than that described from the Coast of Ustica Island -north of Sicily -Mediterranean Sea (Giangrande *et al.*, 2006), as well, having less number of radioles; only five pairs were detected instead of 10 as in Ustica Island.

Distribution: Mediterranean Sea (Ustica Island; north of Sicily).

3.4. *Euchone southerni* Banse, 1970

Euchone southerni Banse, 1970: 401-402; Fitzhugh, 2002: 379.

Material examined: Ras El-Hekma, 63 m, silty sand, (1) February 2006; Sedi-Barrani, 70 m, coarse sand, (1) September 2006; El-Cap, 3 m, sandy, (1) April 2007.

Complete specimens, with eight thoracic, and 12 abdominal setigers, of which last four form the anal depression (Fig. 3k), with raised distinctly plicate margins around it. It's anterior margin entire. Branchial crown length up to 1 mm, total thorax-abdomen

length of the largest specimen up to 2.2 mm, maximum width to 0.4 mm. Glandular ridge on setiger two.

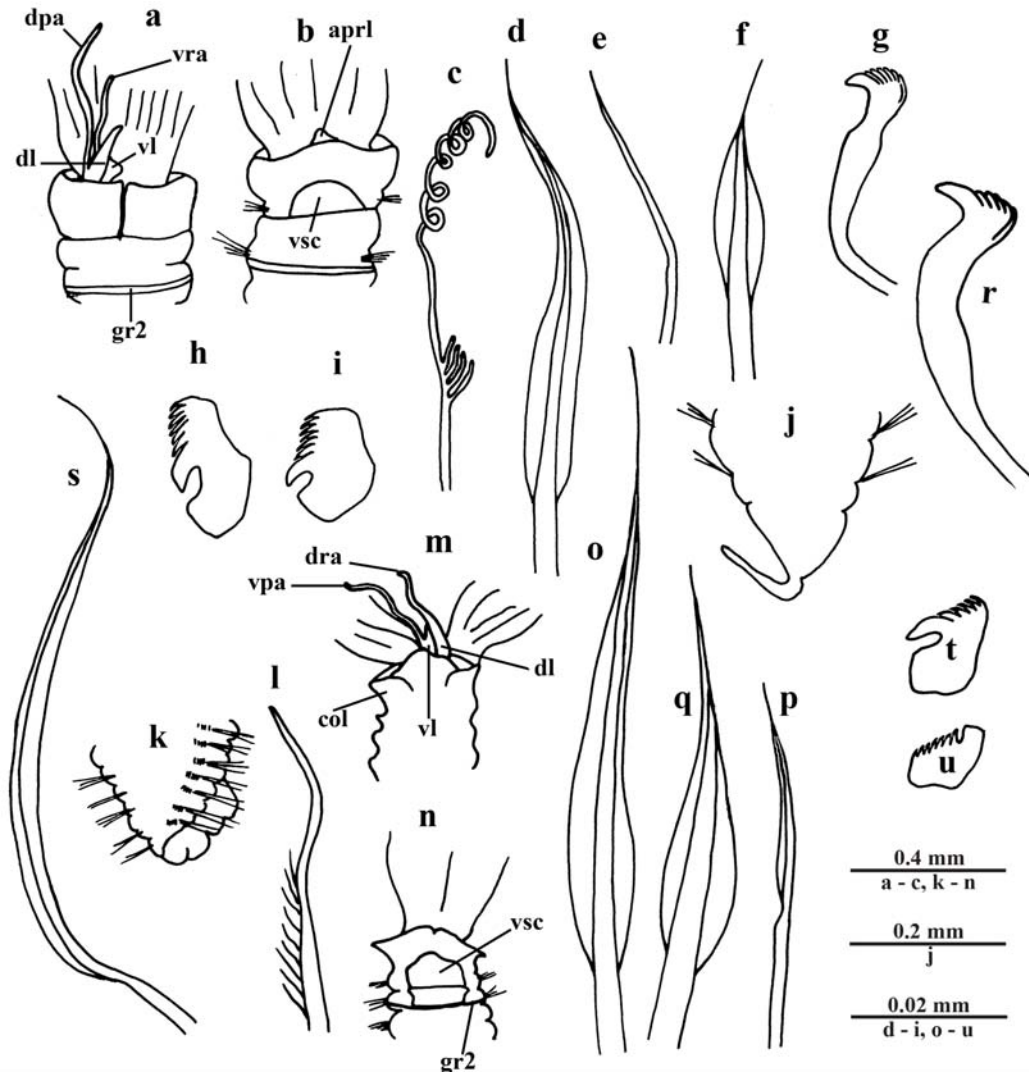


Fig. (3): *Chone usticensis*: a, anterior end, dorsal view; b, same, ventral view; c, radiolar tip; d, thoracic notoseta; e, bayonet seta; f, paleate seta; g, thoracic uncinus; h, anterior abdominal uncinus; i, posterior abdominal uncinus; j, posterior end. *Euchone southerni*: k, posterior end, l, radiolar tip; m anterior end, dorsal view; n, same, ventral view; o, thoracic notoseta; p, bayonet seta; q, paleate seta; r, thoracic uncinus; s, abdominal seta; t, predepression abdominal uncinus ; u, same, from anal depression.

Insertion of branchial crown not exposed beyond collar. Branchial crown: with three pairs of fully developed radioles, with long tips (Fig. 3l), and equal-sized pinnules. Radiolar skeleton; consisting of two rows of cells. Palmate membrane extends to about half length of the radioles. Flanges broad, extends before the radiolar tips. Dorsal lips (Fig. 3 m) pointed with dorsal radiolar appendages; pinnular appendages absent. Ventral lips (Fig. 3m) slightly lower connected with single pinnular appendage. Three pairs of ventral radiolar appendages present. Mid-dorsal collar (Fig. 3m) with widely separated medial gap; expanded laterally forming distinct dorso-lateral pockets. Ventral collar margin (Fig. 3n) entire, slightly elevated with very small ventral incision.

Setae: collar setae arranged in two rows of elongate narrowly hooded setae and bayonet setae. Setigers 2-8 with superior row of elongate setae (Fig. 3o) similar to collar ones, inferior row arranged in two groups; posterior paleate setae (Fig. 3q) and anterior short narrowly hooded bayonet setae (Fig. 3p). Neuropodia: with acicular uncini (Fig. 3r) with main fang surmounted by several rows of teeth of equal size, hoods narrow. Abdominal neuropodia: with elongate narrowly hooded setae (Fig. 3s). Notopodia with avicular uncini (Fig. 3t), with main fang surmounted by five small teeth arranged in few rows, breast rectangular, handles absent. Interiorly: in the same torus uncini appearing smaller. In the anal depression: uncini becoming smaller (Fig. 3u), with smaller main fang and smaller teeth than those from the predepression ones. The teeth occupy about 3/4 the main fang. Tube transparent incrustated with sand.

Remarks: *E. southerni* seems to be distinguished from the other *Euchone* species in having 12 abdominal setigers, of which last four forming the anal depression Banse, 1970 and Fitzhugh, 2002). *E. southerni* also differs from the subspecies *E. southerni incisa* in possessing collar with very small

ventral incision and abdominal uncini without posterior elongation (Banse, 1970).

Distribution: Mediterranean Sea, Ireland.

3.5. *Jasmeneira caudata* Langerhans, 1880

Jasmeneira caudata Fauvel, 1927: 330 Fig. 115 a-f; Day, 1967: 780; Simboura and Nicolaidou, 2001: 53; Fitzhugh, 2002: 387.

Examined materials: Sidi-Barrani, 70 m, coarse sand, (1) September 2006.

Complete specimen, with 26 setigers, of which eight thoracic. Branchial crown length 2.2 mm, total thorax-abdomen up to 5 mm, maximum width to 1.2 mm. Glandular ridge on setiger two.

Branchial crown: with five pairs of radioles; with long tips (Fig. 4a). Radiolar skeleton composed of two rows of cells. Flanges well developed. Palmate membrane absent. Dorsal lips (Fig. 4b) with dorsal radiolar appendages; dorsal pinnular appendages absent. Ventral lips (Fig. 4b) short. Parallel lamellae present (Fig. 4b). Four naked ventral radiolar appendages (Fig. 4b) of different lengths; the longest equal the length of radiolar appendages, while the shortest forming about 1/3 of the largest one. Vascular loop absent. Peristomium collar (Fig. 4b) transparent and well developed. Collar infolded dorsally (Fig. 4b), enlarged with V-shaped incision ventrally (Fig. 4b).

Setae: Notopodia of collar setiger composed of single row of elongate narrowly hooded setae (Fig. 4c). Notopodial fascicle of setigers 2-8 composed of two rows of setae: anterior row with elongate setae similar to collar ones, posterior row of paleate setae (Fig. 4d) with medium-sized mucro. Neuropodia composed of acicular uncini (Fig. 4e) with very long handles and the main fang surmounted by several rows of small, equal size teeth, hood present. Companion setae absent. Abdominal notopodia composed of avicular long handled uncini (Fig. 4f) with narrow breast; main fang surmounted by several rows of teeth. Neuropodial fascicle arranged in two rows with elongate narrowly hooded setae (Fig. 4g). becoming more

narrower (Fig. 4h) in far posterior setigers. Pygidium (Fig. 4i) cone-shaped tapering posteriorly to slightly long cirrus.

Remarks: Egyptian specimen possesses reduced number of radioles (five pairs) instead of 7-8, as compared with Fauvel (1927), Day (1967) and Fitzhugh (1989 and 2002) descriptions. Fitzhugh (1989 and 2002) considered the presence of bayonet setae as a generic character for *Jasmeneira* species. However, he didn't ascertain the presence of such setae in some *Jasmeneira* species; including *Jasmeneira caudata* (2002). Thus, his samples matches the Egyptian specimen as the bayonet setae are not recognized.

Distribution: Mediterranean Sea, warm north Atlantic from Madeira to Ireland.

3.6. *Demonax brachychona* (Claparede, 1870)

Potamilla torelli Fauvel, 1927: 310-311 Fig. 107 m-s.

Demonax saxicola Knight-Jones, 1983: 257-259 Fig. 5 A-Q.

Demonax brachychona Giangrande, 1994: 231-232 Fig. 3 a-d and 4 a-c; Simboura and Nicolaidou, 2001: 41.

Material examined: Abu-Kir, metal substrate, (2) October 1999; Ras El-Esh, hard substrate, (2) April 2007. All specimens from fouling aggregations, consist mainly of serpulid tubes of *Hydroides elegans* and algal associations of *Ulva* sp. and *Pterocladia* sp. as well as erected Bryozoan community.

Complete specimens, with 6 or 8 thoracic and 40-80 abdominal setigers. Branchial crown length up to 10 mm, total thorax-abdomen length up to 45 mm, maximum width to 2 mm.

Branchial crown: with seven or ten pairs of radioles, with short, thin tips (Fig. 4j),

without flanges and stylodes, pinnules short. Palmate membrane absent. Dorsal lips (Fig. 4k) well developed, erect and slender. Ventral lips (Fig. 4k) triangular and shorter than dorsal ones. Collar (Fig. 4k) widely separated dorsally; beginning slightly anterior to collar setae; low laterally; completely incised mid-ventrally (Fig. 4l); terminating into two overlapping triangular lappets. Ventral shield (Fig. 4l) of setiger one about twice as broad as long, incised anteriorly by V-shaped cleft, the following shields of thoracic setigers gradually broader, trapezoidal and indented laterally by the ventral ends of tori.

Setae: Notopodia of setiger one composed of elongate narrowly hooded setae; similar to superior setae (Fig. 4m) of the following thoracic setigers. Inferior notopodial fascicles of setigers 2-8: with broadly hooded setae (Fig. 4n) with moderately long mucro. Neuropodial uncini (Fig. 4n) avicular with equal-sized teeth above the main fang, breast well developed; with handle of medium length. Companion setae (Fig. 4p) typical of the genus. Abdominal notopodial uncini (Fig. 4r): similar to thoracic ones, but with short handles. Neuropodia with narrowly hooded setae (Fig. 4q) arranged in two rows.

Remarks: Egyptian specimens fit well with that described by Knight-Jones (1983) and Giangrande (1994). As pointed out by Knight-Jones *et al.*, 1990 (cited from Giangrande, 1994), *Sabella saxicola* Grube, redescribed by Knight-Jones (1983) as *Demonax saxicola* must be considered a junior synonym of *D. brachychona*. It differs only in the number thoracic setigers, which are always eight in *D. saxicola*. This character is encountered in the specimens collected from Abu-Qir waters.

Distribution: Mediterranean, Ireland.

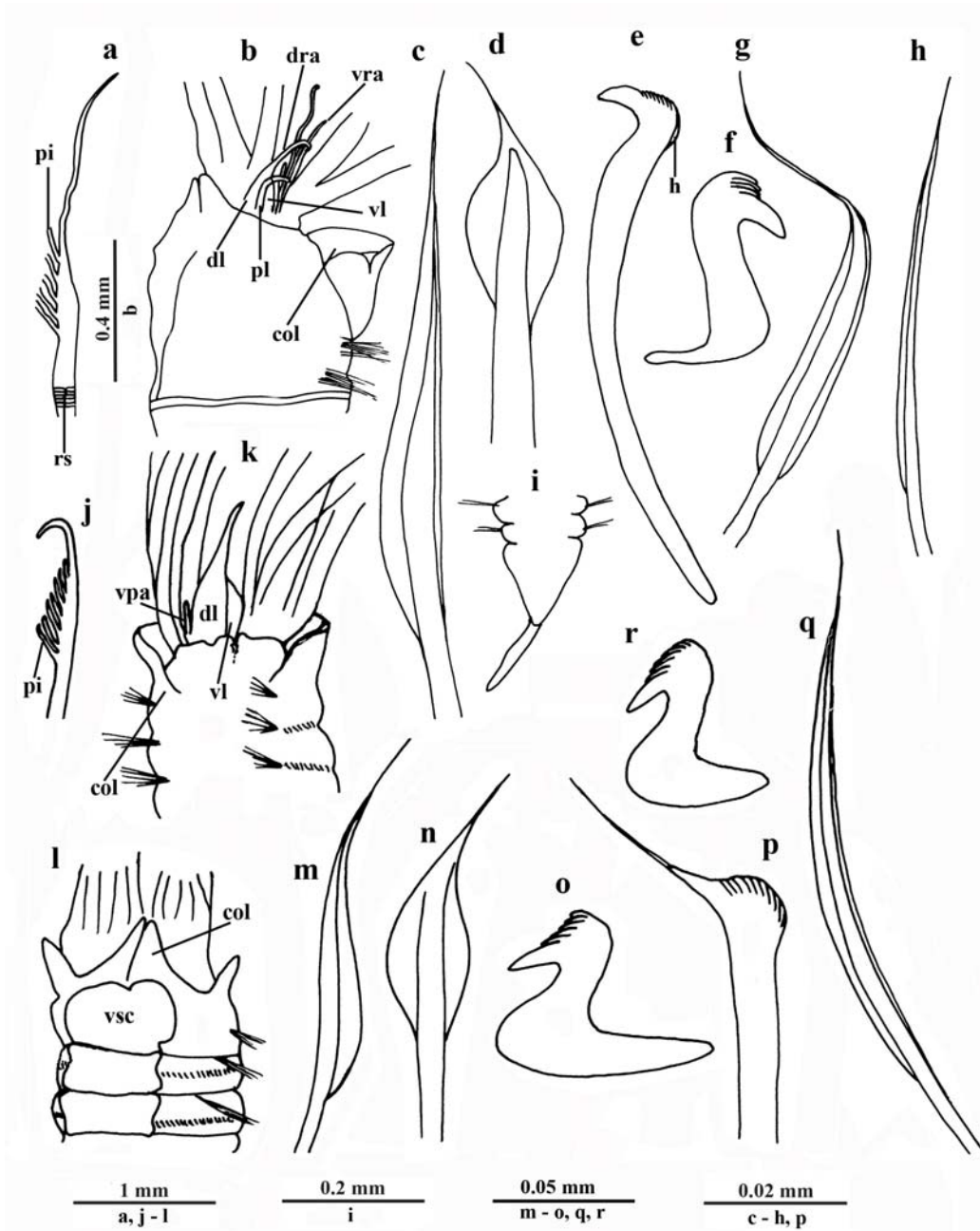


Fig. (4): *Jasmeneira caudata*: a, radiolar tip; b, dorso-ventral view; c, collar seta; d, paleate seta; e, thoracic uncinus; f, abdominal uncinus; g, anterior abdominal seta; h, same, posterior; i, posterior end. *Demonax brachychona*: j, radiolar tip; k, anterior end, dorsal view; l, same, ventral view; m, superior thoracic notoseta; n, paleate seta; o, thoracic uncinus; p, companion seta; q, abdominal neuroseta; r, abdominal uncinus.

3.7. *Demonax microphthalmus* (Verrill, 1873)

Sabella microphthalmus Uebelacker, 1984: 54-40-54-42 Fig. 54-34 a-h.

Demonax microphthalmus Perkins, 1984: 300-304 Figs. 6 A-H and 7 A-k.

Material examined: Suez-Canal: Ras El-Esh, hard substrate, (2) April 2007, from fouling aggregations, all specimens from fouling aggregations, consist mainly of serpulid tubes of *Hydroides elegans* and algal associations of *Ulva* sp. and *Pterocladia* sp. as well as erected Bryozoan community.

Complete specimens, with eight thoracic and 60 abdominal setigers. Total thorax-abdomen length up to 45 mm, width to about 2.9 mm, branchial crown length up to 10 mm long.

Branchial crown: with radioles of short tips (Fig. 5a). Simple small eyespots (Fig. 5d) arranged in two rows on outer lateral sides of radioles. Some radioles with 5-6 orange brown patches, also extending on pinnules. Radiolar skeleton composed of two rows of cells. Radiolar flanges and palmate membrane absent. Radiolar basis fused for short length. Dorsal lips (Fig. 5c) elongate, distally tapering to radiolar appendages, supported by long radiolar midrib, one dorsal pinnular appendages present. Ventral lips (Fig. 5c) about half as long. Parallel lamellae present. Mid-dorsal collar margin widely separated (Fig. 5b), beginning above collar setae, slightly concave laterally; completely incised ventrally (Fig. 5d); bounded by elongate, overlapping, triangular lappets. Ventral shield (Fig. 5d) of collar setiger about twice as broad as long; incised distally. Ventral shields of the following thoracic setigers, gradually broader, trapezoidal in shape and laterally indented by tori.

Setae: Collar setiger with two rows of narrowly hooded setae similar the superior setae (Fig. 5e) of the following setigers. Inferior thoracic setae of setigers 2-8 arranged in two rows; the upper long with moderately broad hood (Fig. 5f); lower setae

(Fig. 5g) similar, but shorter than the upper ones. Neuropodial thoracic uncini (Fig. 5h) avicular with well developed breast and medium long handles, arranged in long tori. Companion setae (Fig. 5i) with dentate distal ends and long mucro. Abdominal notopodial uncini (Fig. 5l) arranged in short rows, similar to thoracic ones, but with short handles. Neuropodial abdominal setae (Fig. 5k) narrowly hooded.

Remarks: Egyptian specimens are structurally similar to that described by Perkins (1984) and Uebelacker (1984).

Distribution: East coast of America, Gulf of Mexico, Caribbean Gulf.

3.8. *Megalomma cf. bioculatum* (Ehlers, 1887)

Megalomma bioculatum Perkins, 1984: 352-353 Fig 38 A-I; Uebelacker, 1984: 54-27-54-30 Fig. 54-22 a-g.

Material examined: Sidi-Barrani, 70 m, coarse sand, (1) September 2006.

Complete specimen, with ten thoracic and 29 abdominal setigers. Branchial crown length about 2 mm. Total thorax-abdomen length up to 18 mm, width to about 1.5 mm.

Branchial crown with ten pairs of radioles; sub-terminal compound eyes (Fig. 5m) present on dorsal most pair of radioles; with short tips distal to eyes. Palmate membrane and radiolar flanges absent. Radiolar skeleton with four rows of cells. Dorsal lips (Fig. 5o) long basally broad, with dorsal radiolar appendages, and single pinnular appendage, ventral lips (Fig. 5o) shorter, parallel lamellae present. Mid-dorsal collar margin not fused to fecal groove. Ventral sacs (Fig. 5o) well developed. Collar bilobed (Fig. 5n), beginning dorsally near posterior margin of segment just above collar setae; extending anteriorly; straight laterally; extending ventrally forming moderately long triangular lappets (Fig. 5o) covering the beginning of radioles mid-ventrally. Peristomium exposed. Collar ventral shield (Fig. 5o) longer than wide with incised

margin. The following thoracic ventral shields rectangular with concave lateral sides.

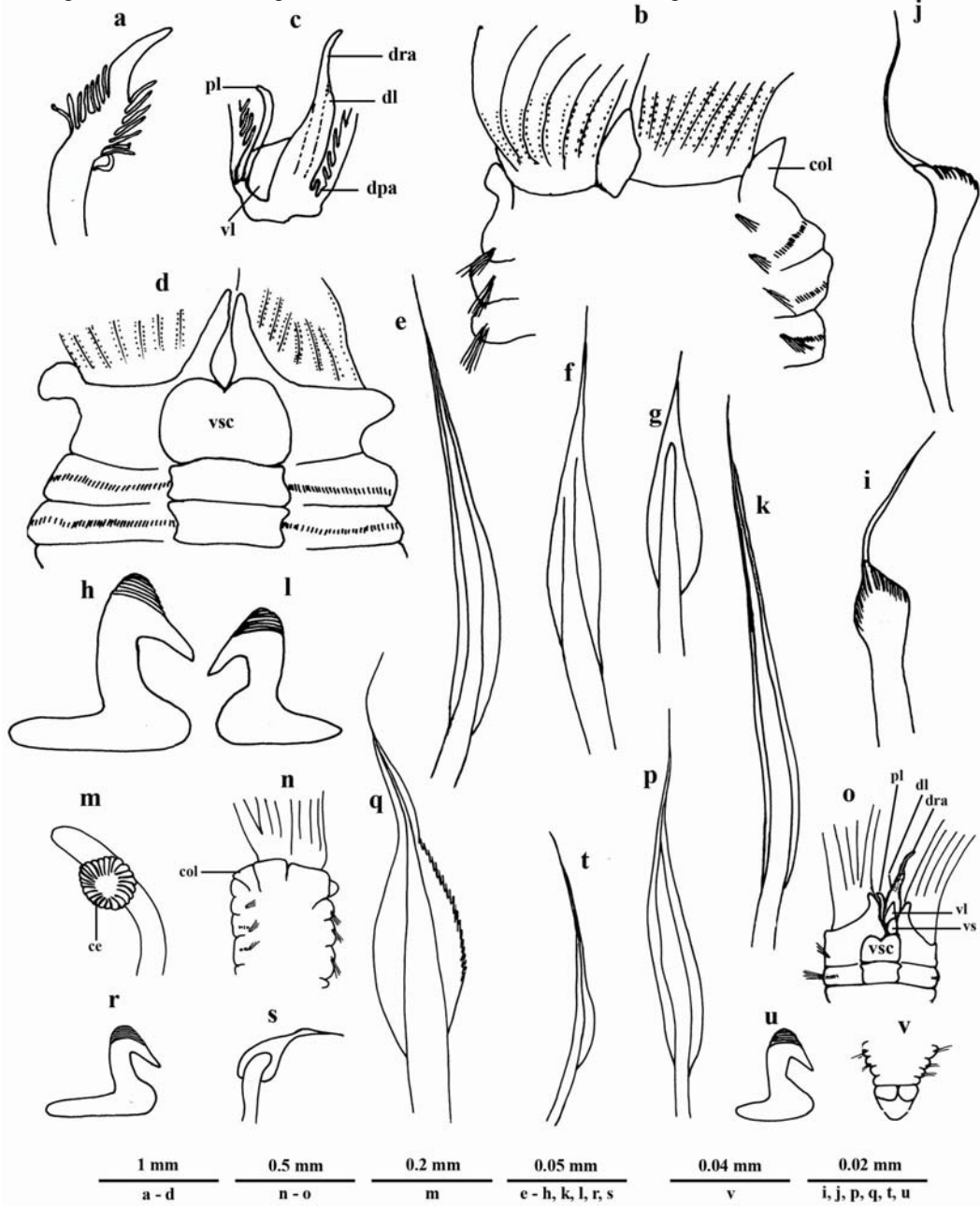


Fig. (5): *Demonax micropthalmus*: a, radiolar tip; b, anterior end, dorsal view; c, internal structure of branchial crown; d, anterior end, ventral view; e, superior thoracic notoseta; f-g, paleate sete; h, thoracic uncinus; i-j, companion seta, anterior & lateral view; k, abdominal neuroseta; l, abdominal uncinus. *Megalomma cf. bioculatum*: m, distal end of dorsalmost radiole showing compound eye; n, anterior end, dorsal view; o, same, ventral view; p, collar seta; q, paleate seta; r, thoracic uncinus; s, companion seta; t, abdominal seta; u, abdominal uncinus; v, posterior end.

Setae: Collar setae (Fig. 5p) narrowly hooded. The following thoracic notopodia (2-10) with three rows of setae, superior similar to collar ones, inferior broadly hooded paleate (Fig. 5q), arranged in two rows. Neuropodial uncini (Fig. 5r) avicular, with equal-sized teeth surmounted the main fang. Breast well developed with moderately long handles. Companion setae (Fig. 5s) with roughly sub-terminal tips. Abdominal neurosetae (Fig. 5t) arranged in two rows of geniculate narrowly hooded setae. Abdominal uncini (Fig. 5u) similar to thoracic ones, but shorter. Pygidium with rounded margin (Fig. 5v).

Remarks: the present specimen is closely related to *Megalomma bioculatum* described by Perkins (1984) and Uebelacker (1984), but differs in having ten thoracic setigers instead of eight.

4. DISCUSSION

As mentioned above the taxonomy of the family Sabellidae is so complicated, due to the presence of much confusion in the identification of several species, which leads to misidentification. Recently, several authors (Banse, 1957; 1970; and 1972; Fitzhugh, 1989; Knight-Jones, 1983; Perkins, 1984; Tovar-Hernandez, *et al.*, 2007 and Tovar-Hernandez, 2007) tried to emend this family based on introducing several new detailed taxonomic features that has not been included in the previous works.

The present study added eight new records to the Egyptian sabellid species; affiliated to six genera. Two of which belong to the genus *Chone*: *C. collaris* and *C. usticensis*. The first species is unique among *Chone* species in having crenulated margin of collar (Tovar-Hernandez *et al.*, 2007), while the second possessing pygidial cirrus. It was previously known that *C. filicaudata* was described as the only *Chone* member having pygidial cirrus. Now, there are more species sharing this feature namely *C. Americana* and

C. gambiae besides *C. usticensis* (Tovar-Hernandez *et al.*, 2007). The genus *Chone* closely resembles the genus *Euchone*. However, the latter has a characteristic anal depression, absent in *Chone*. Generally, radiolar appendage in the dorsal lip has recently become an integral part of sabellid taxonomy (Knight-Jones, 1983; Perkins, 1984; Fitzhugh, 1989 and 2003). This structure is well documented in the present study. Dorsal radiolar appendages in the dorsal lips is confirmed in the genus *Euchone*, but isn't in the genus *Chone*, as a result of recognizing two groups of the species; one having dorsal lips with dorsal radiolar appendages (*Chone*1) and the other group lacking this feature (*Chone*2) (Fitzhugh, 1989 and 2003). He pointed to the possibility of placing *Chone*2 in a separate genus after revising all species of *Chone*. Giangrande *et al.* (2006) revised all species of *Chone* reported from the Mediterranean Sea. She noted that, the dorsal radiolar appendages are not recognized in all Mediterranean *Chone* species up till now. As well, the inter-segmental variation of abdominal uncini and elongate dorsal lips are characterizing features for all the Mediterranean *Chone* species (Tovar-Hernandez *et al.*, 2007). Also, in both two genera (*Chone* and *Euchone*) the *Amphicorina*-type abdominal uncini are located in posterior modified abdominal setigers. All these characteristic features are well detected in the present study for the Egyptian specimens of *Chone* (*C. collaris* and *C. usticensis*) and *Euchone* (*E. southerni*). This symmetry leads to a conclusion that the Egyptian species are identical to the typical Mediterranean species described by the previous authors.

Some sabellid genera are readily recognized as noticed to the genera *Demonax*, *Jasmeneira* and *Megalomma*. The identification of the genus *Demonax* is based on the presence of peculiar thoracic companion setae dentate on its distal end and

connected with small tapered mucro (Knight-Jones, 1983 and Fitzhugh, 1989). Previous identification of this genus has almost ignored this feature. Generally, this genus has been ignored for long time, especially in the Mediterranean area (Knight-Jones and Walker, 1985 and Giangrande, 1994). On the other hand, the genus *Jasmeneira* is recognized by a narrow breast of the abdominal uncini. The final genus *Megalomma* is characterized by the presence of compound eyes in dorsalmost pair of radioles or more than one pair. This genus has been the subject of several recent systematic studies (Perkins, 1984; Fitzhugh, 1989 and 2003 and Knight-Jones, 1997). As a result, Perkins moved most of the species of *Megalomma* to the genus *Notaulax* based on the arrangement of collar setae in typical short bundle, instead of elongate setae as in *Notaulax*. More recently, Knight-Jones (1997) segregated the genus into five groups based on 1) whether the mid-dorsal collar margins are fused to the fecal groove or not 2) whether the dorsolateral collar margins form pockets or not and 3) to what extent eyes occur on radioles. This division leads easement of the identification of different species of this genus.

Apart from *Demonax microphthalmus* and *Magelomma cf. bioculatum*; all the recorded species in the present study were previously reported from the Mediterranean Sea. The above two species were detected by Perkins (1984) in the Atlantic Ocean. The occurrence of the two species of *Demonax*: *D. microphthalmus* and *D. brachychona* -in the present study- among fouling aggregations of Suez-Canal at Ras El-Esh (located near the north entrance) may interpret their success to introduce this pass-way as foulers via ship hulls and started to establish a foothold in the Canal. the occurrence of *Oriopsis armandi* -in the present study- among collections from both Mediterranean Sea and Suez-Canal reveal its wide distribution in the Egyptian waters. As well, this species showed world wide distribution (Banse, 1957).

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FIGURE ABBREVIATIONS

al	aricular lamella
aprl	anterior peristomium ring lobe
ce	compound eye
col	collar
dl	dorsal lip
dpa	dorsal pinnular appendage
dra	dorsal radiolar appendage
gr	glandular ridge
gr2	glandular ridge on setiger 2
h	hood
pe	peristomia
pi	pinnule
pl	parallel lamella
rs	radiolar skeleton
vl	ventral lip
vra	ventral radiolar appendage
vs	ventral sac
vsc	ventral collar shield