

敏捷海葵属一新种*

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作者于1980年9月19日在青岛中港潮下带人工放置的防化腐蚀试验板上采到1个活的海葵个体,经鉴定为一新种,此标本即为模式标本。个体伸展时其基盘直径为 $9.0 \times 6.0\text{mm}$,柱体高 10.0mm ,宽 5.5mm 。该个体纵切的一半制成切片标本,模式标本保存在中国科学院海洋研究所。

青岛敏捷海葵(新种) *Actinothoe qingdaoensis* sp. nov.

(图版 I: 1—6, 图 1)

外部形态 基部圆形,呈粉红色,伸展时边缘呈均匀花边状,含有少量的肌肉纤维,透过足盘能看到呈暗线状的隔膜系。

柱体呈短圆柱形,表面光滑,无结节。无疣状物和吸盘,只有在收缩时壁上有许多纵横交织的皱纹。不分头部和躯干部;有壁孔,约20个,分布在柱体中部。体的颜色上下相同,为粉红色。透过体壁能见到体内呈暗线状的隔膜系,壁表面上有与隔膜相对应的纵线,暗淡相间,形状大致相同。柱体高(包括触手)约与足盘的直径相等。当个体收缩时,体呈半球形或小丘状,此时,足盘直径大于其高度;而当个体充分伸展时,其中部宽度略大于足盘的直径。

在柱体的上半部不均匀地分布着的壁孔呈小暗点状。当个体受刺激时,有粗而长的白色枪丝(长度为 $18.0-25.0\text{mm}$)从壁孔和口中喷射出来(图版 I: 1, 2)。

口盘圆盘状,比基盘小。颜色比柱体色深,呈均匀的浅桔黄色。盘上有规则地分布着一些暗色放射线,其中三分之一呈乳白色,这些线的位置与隔膜相对应。盘上有一圈奶油色环纹,环纹距中央口的直径约与口的长度相等。唇瓣12个,排列在口的两侧。口盘边缘上的内外触手白色透明,按6的倍数排列,其基部边缘线与盘上的放射线相交织。个体收缩时,口盘与触手均能缩进到体腔内。

当个体伸展时口呈裂缝状,半收缩状态的个体口呈圆形(图版 I: 1)。口区呈黄色,口的两端各有一个对称分布的口道沟,呈奶油色。

咽呈淡黄色,比口盘色浅,伸展时唇瓣外翻,口位于咽的顶端,咽向肠腔下延达体高的一半。

触手透明(中空)或微带淡黄色,向口盘上方弯曲或伸展。内触手粗壮而肥大,棒形;

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外触手纤细;5轮触手按6的倍数排列,6,6,12,24,48,共96个。内触手比外触手短,所有触手的顶端均尖细。其基部边缘与口盘放射线相交处膨大成透明圆形的触手腔,有的触手腔内有乳白色的枪丝,有的枪丝在触手腔内自由翻滚,从触手(腔)顶端一直滚动到与

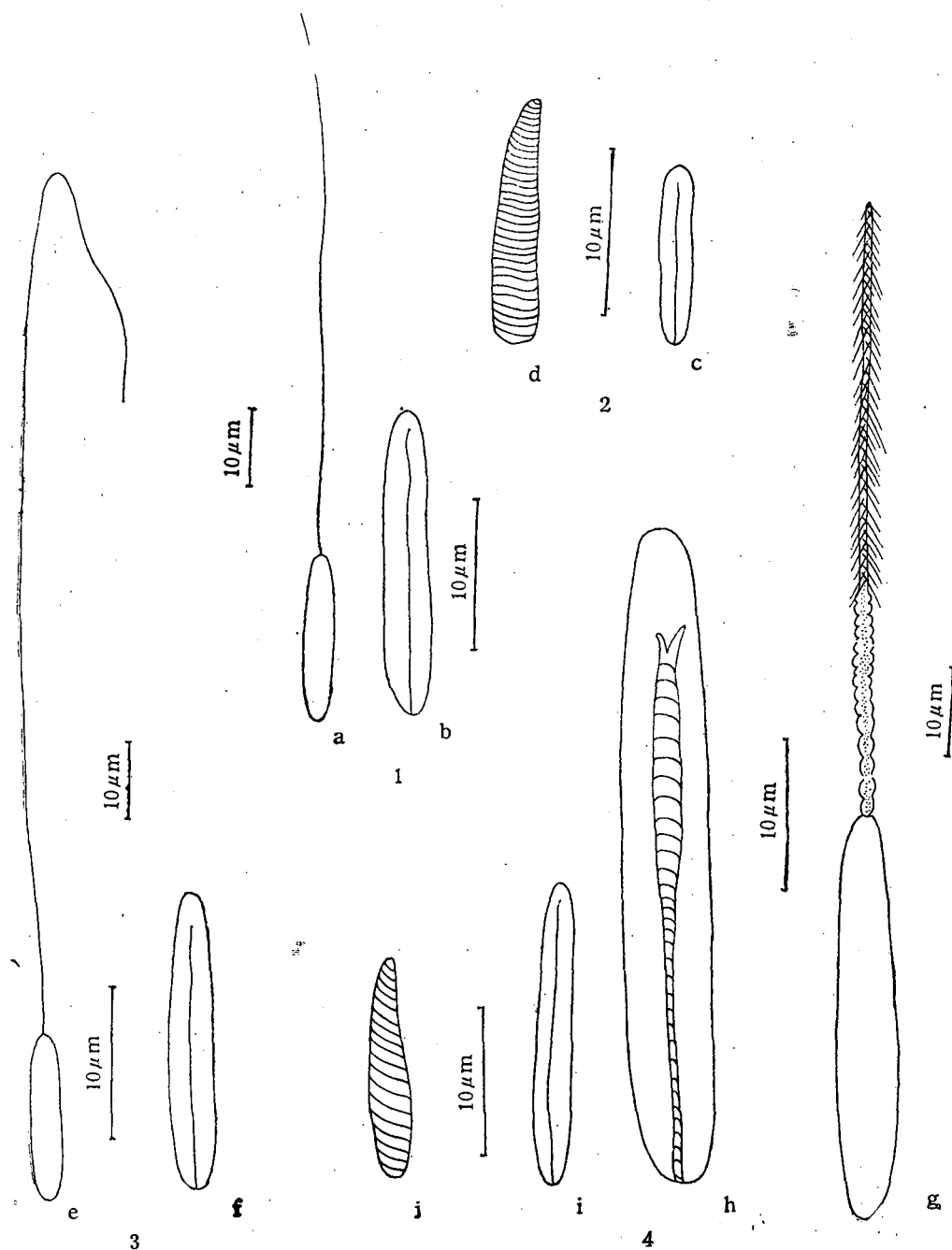


图 1 青岛敏捷海葵刺细胞的分布

1. 柱体(下部): a. 基毛胞, b. 基毛胞; 2. 触手: c. 基毛胞, d. 螺旋胞; 3. 柱体(上部): e. 基毛胞, f. 基毛胞; 4. 枪丝: g. a 主刺胞, h. a 主刺胞, i. 基毛胞, j. 螺旋胞。

口盘放射线相交的透明圆腔内(图版 I:1,2)。

内部结构 体壁薄,外胚层起伏不平,不连续,内有虫黄藻。外胚层内陷延伸到中胶层,壁孔沿外胚层横穿到中胶层;中胶层薄,在与外胚层交界处更薄。内胚层最发达,较厚,有发达的壁底肌肉(图版 I:4,5)。

隔膜上的收缩肌很发达。从横切面上可以看到,由中胶层分出许多分枝,呈放射状分部于肌肉纤维之间,每根主枝两侧有稀少的短枝,收缩肌的横切面呈圆形(图版 I:3)。各轮隔膜基部的壁底肌肉均很发达(图版 I:4,5),呈叶片状。隔膜和触手的数目一致,体上下部的隔膜数相同,按 6 的倍数排列,头 3 轮隔膜完全。两对直接隔膜固定在口道沟上。

触手的内胚层和中胶层较宽。内胚层和外胚层在组成上都有许多颗粒细胞,外胚层基底部有一圈大小均匀的虫黄藻(图版 I:6)。

刺细胞的螺旋胞仅分布在枪丝和触手中,基毛胞分布在枪丝、触手和柱体中,以枪丝中的数量最多。体上部没有小的基毛胞。a 主刺胞仅分布于枪丝中。

刺细胞的测数和大小¹⁾ (μm)

枪丝	a 主刺胞	$42.5 \times 52.5 \times (5.0-5.5)$ (刺毛长 75.0)	很多
	基毛胞	$(12.5-27.5) \times (1.3-3.8)$	很多
	螺旋胞	$(10.0-17.5) \times (2.5-3.8)$	少
触手	基毛胞	$(7.5-15.0) \times (1.3-1.8)$	少
	螺旋胞	$(12.5-17.5) \times (2.5-3.8)$	一般
柱体(上部)	基毛胞	$(17.5-20.0) \times (2.5-3.0)$ (刺毛长 125.0)	多
柱体(中部)	基毛胞	(1)(15.0—22.5) $\times$ 3.0	很多
	基毛胞	(2)(10.0—12.5) $\times$ (1.8—2.3)	少

讨论 新种与近似种 *Actinothoe anguicoma* (Price) 的共同点是: 体壁薄,光滑,能明显地见到隔膜丝;壁孔明显;呈暗色小孔。枪丝数多而密集,很易射出。括约肌弱。但两者仍有明显区别,比较如下:

蛇形指敏捷海葵 <i>Actinothoe anguicoma</i> (Price)	青岛敏捷海葵(新种) <i>Actinothoe qingdaoensis</i> sp. nov.
1. 体呈长柱形,直径约为 2—4cm	1. 体呈短柱形,直径约为 0.5—1.0cm
2. 体完全伸展时,壁孔仅分布在围口区	2. 体完全伸展时,壁孔散居在体的中上部
3. 口盘上有梅花状斑点	3. 口盘上无明显色斑,仅有放射线纹
4. 触手按 12 的倍数排列,每个触手有两条暗色纵线(除第 5 轮外)	4. 触手按 6 的倍数排列,无暗色纵线
5. 触手形状一致,为细圆锥蛇形	5. 内触手呈短棒形,外触手呈长圆锥形,比内触手长
6. 触手基部与口盘相接触处不扩大	6. 触手基部与口盘接触处扩大,呈透明的球形腔
7. 无触手球形腔	7. 触手腔内有短粗的枪丝

两者最明显的差别是口盘上的图案和触手的特征及排列。

1) 用 10×40 显微镜,观察 10 个视野,共观察 5 片;平均 10 个视野内刺细胞在 5 个以下者为少,5—10 个为一般,10 个以上为“多”或“很多”。

参 考 文 献

- Atoda, K., 1954, Postlarval development of the sea anemone, *Anthopleura* sp., *Science Reports of the Tohoku University*, Ser. 4(biology), 20(3): 274—286.
- Dunn, D. F., 1977, *Anthopleura handi* n. sp. (Coelenterata, Actiniaria), an internally brooding, intertidal sea anemone from Malaysia, *The Wasmann Journal of Biology*, 35(1): 54—64.
- Hand, C., 1955, The Sea Anemones of Central California, Part III. The Acontiarian Anemones, *The Wasmann Journal of Biology*, 13(2): 189—251.
- Stephenson, T. A., 1935, *The British Sea Anemones*, Vol. 2, Stafford, London, 426.

A NEW SPECIES OF THE GENUS *ACTINOTHOE* (SAGARTIIDAE: ACTINARIA)*

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ABSTRACT

A sea anemone specimen collected by the author on September 19, 1980, in Qingdao. It was identified to be a new species and being as holotype. Half of its body is being study to internal structure, the description of which is as follows:

Actinothoe qingdaoensis sp. nov.

External characters

Base——circular, with an even decorative margin in extension. Mesenteries insertions visible through pedal disc as dark lines, its colour is pink.

Column——short cylinder in shape, translucent, mesenterial insertions visible, appearing as dark line. Column smooth, with no spherular acroohagi, verrucae and suckers. When contracted, a lot of creasing lines intercepted. Radial lines (dark alternating with light), corresponding to mesenterial insertions on the body wall. About 20 cinclides on the middle part of the column. When the animal is stimulated, white acontia, about 18—25 mm in length, rush out from cinclides and oral disc (plate I: 1,2).

Oral disc and actinopharynx——there are 12 lips arranged on the two sides of oral disc. Mouth is slit-like, around it is a creamy cycle. Actinopharynx is light yellow, lighter than disc, on each end of the mouth there is a siphonoglyph of creamy colour, and extending down from actinopharynx to the half part of the column.

Tentacles——translucent, empty inside. They are stout and stick-like in inner cycles and slender on outer cycles, arranged in 5 cycles hexamerously (in sum of 96). Inner tentacles shorter than outer ones. The interception between base of tentacles and radial lines of the disc is a swelling, translucent, circular vacunae.

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Internal structure

Sphincter not well developed, mesenteries retractor muscles strong and circular-restricted; there are numerous long mesogloal branches, and sparse, short branches on the two sides of the main branch (plate I:3). Parietobasilar muscles very strong (plate I:4,5), being lamellae-shape. The number of tentacles is equal to that of mesenteries, numbers of which is equal on the upper and bottom parts of the column too. First three order mesenteries are complete. Two pairs of directives attach to the siphonoglyphs. The ectoderm and mesogloea of the tentacle are rather wide, there are a lot of granular cells in the endoderm and ectoderm.

Measurements of Nematocysts and numeration(μm)

Column (upper)	basitrichs	$(17.5-20.0) \times (2.5-3.0)$ (barb 125.0)	numerous
Column (middle)	basitrichs	$(15.0-22.5) \times 3.0$ $(10.0-12.5) \times (1.8-2.3)$	numerous rare
Tentacles	basitrichs	$(7.5-15.0) \times (1.3-1.8)$	rare
	spirocysts	$(12.5-17.5) \times (2.5-3.8)$	general
Acontia	basitrichs	$(12.5-27.5) \times (1.3-3.8)$	numerous
	spirocysts	$(10.0-17.5) \times (2.5-3.8)$	rare
	macrobasic	a-mastigophores $(42.5-52.5) \times (5.0-5.5)$ (barb 75.0)	numerous

Discussion

The new species is similar to *Actinothoe anguicoma* (Price): wall thin and smooth, mesenterial insertions visible, cinclides are clear with dark hole. Acontia abundant, emitted very readily. Sphincters weak.

The *Actinothoe qingdaoensis* sp. nov. compared with its similar species is as follows:

<i>Actinothoe anguicoma</i>	<i>Actinothoe qingdaoensis</i> sp. nov.
1. Body is of a long cyclinder, the diameter is about 2—4cm.	1. Body is of a short cyclinder, the diameter is about 0.5—1.0cm.
2. Cinclides are located around the mouth of the animal fully expanded.	2. Cinclides are located on the middle column of the animal fully expanded.
3. Spots appear as plum flowers on the disc.	3. Without spots on the disc, but radial lines only.
4. Tentacles arranged in rows of 12 times.	4. Tentacles arranged in rows of 6 times.
5. All of the tentacles are slender cone-shaped.	5. Inner tentacles are short stick-like and outer ones are cone-shaped, longer than inner ones.
6. The base of tentacle is undistened.	6. The base of tentacle is distened.
7. No cavity of tentacles is found	7. Some acontia are in the basic cavities of the translucent tentacles.

图 版 说 明

1. 半伸展个体口面观(示口盘和触手); 2. 同上个体的侧面观(示触手、枪丝和隔膜暗线); 3. 收缩肌(横切); 4. 部分体壁(横切)(示外胚层、中胶层和内胚层及壁底肌肉); 5. 部分体壁(横切)(上图放大); 6. 触手(横切)(示外胚层、中胶层和内胚层及虫黄藻) a. 枪丝; ec. 外胚层; en. 内胚层; me. 中胶层; p. 壁底肌肉; r. 收缩肌; t. 触手; 2. 虫黄藻

