

东海近丽海葵属一新种*

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作者鉴定中国科学院海洋研究所“金星”号调查船于 1975 及 1976 年在东海大陆架区进行综合海洋调查所采的底栖生物标本时,发现近丽海葵属 (*Paracalliactis*) 的一个新种——中华近丽海葵 (*Paracalliactis sinica* sp. nov.)。新种的模式标本保存于中国科学院海洋研究所(青岛)。

一、制片方法

(1) 为了分离海葵的刺细胞,作者经过试验,摸索出了用 2% 盐酸处理的方法,此法较为简便,只需 10—15 分钟,就能将刺细胞从组织中分离出来(以往对新鲜材料的细胞分离浸渍是用生理盐水处理,需 12—24 小时)。用胭脂红(或龙胆紫)染色,甘油封片,并在盖玻片四周用毛笔涂上一圈油漆,即可用来镜检测量。作者采用自己改进的方法,制作海葵刺细胞片 200 多张,效果良好,并可较长时间保存。

(2) 石蜡切片,苏木精染色,共制作 500 多张组织切片,进行内部结构观察。

二、新种描述

中华近丽海葵 (新种) *Paracalliactis sinica* sp. nov. (图版 I:3)

正模标本 标本号 V531B—1 (1), 1976 年 9 月 18 日采自东海,北纬 $31^{\circ}30'$, 东经 $124^{\circ}30'$; 水深 39 米;底质为砂质泥;阿网采集。

副模标本 标本号 V531B—1 (2), 1 个标本,产地同正模标本。标本号 V506B—18, 7 个标本, 1976 年 7 月 21 日采自东海,北纬 $31^{\circ}30'$, 东经 $125^{\circ}00'$; 水深 47 米;底质泥质砂;阿网采集。

其他材料 标本号 V463B—3, 2 个标本, 1975 年 10 月 8 日采自东海,北纬 $30^{\circ}50'$, 东经 $123^{\circ}50'$; 水深 55 米;底质细砂。标本号 V478B—18, 2 个标本, 1976 年 6 月 26 日采自东海,北纬 $30^{\circ}30'$, 东经 $124^{\circ}00'$; 水深 55 米;底质泥质砂。标本号 V545B—1, 1 个标本, 1976 年 9 月 18 日采自东海,北纬 $30^{\circ}30'$, 东经 $123^{\circ}00'$; 水深 63 米;底质砂质泥。

标本测量 正模标本: 固定后的领区直径 9×11 毫米;柱体高 13 毫米,柱体直径 12×14 毫米;足盘直径 19×33 毫米。副模标本: 最大标本固定后的领区直径 8×8 毫米;柱体高 23 毫米,柱体直

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本文承唐质灿同志提出宝贵意见,标本由我所底栖生物组同志采集,宋华中同志照相,图由孟昭斌同志复墨,特此致谢。

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径 20×20 毫米;足盘直径 31×52 毫米。最小标本固定后领区不明显,柱体高 4 毫米;足盘直径 7×15 毫米。

外部形态

颜色——14 个标本分别固着在寄居蟹宿居的螺壳和活螺壳上(图版 I:3)。酒精固定标本呈苍白色且透明,或淡黄色不透明,基部边缘薄,色浅。

基部——宽阔,比柱体直径大,边缘呈细锯齿状,伸出的 4—5 个舌状物包住螺壳;壁上有放射状细纹,无壁孔,无隆起结节或斑点;足盘边缘薄,能见到内部隔膜系。

柱体——直立,宽而低;体壁上横条隆起交织成网状,网眼有的呈菱形,有的呈长方形;柱体上除了隆起纹外还有纵行暗条,这些暗条在大个体上为 24 条粗大条纹,将柱体分成 24 瓣,每瓣由 5—9 条细小的纵线组成;在较小个体的柱体上不分瓣,纵线数与隔膜数一致;最小标本的纵线为 64 条。柱体壁有的较薄,有的较厚。柱体表面还常粘附一些砂粒,或为这些砂粒嵌入后所留下的凹陷。

口盘——口小,圆形或裂缝状,领区呈小结节冠状,比柱体色浅,呈白色,无光泽;口唇由 10 个—40 个结节褶组成。

触手——短小,圆锥形,乳白色或奶油色。触手排列成 6—7 环,共 192—384 个,内触手长,按 6 的倍数排列(未成熟个体足盘直径 8×5 毫米,触手 64 个)

枪丝——奶油色或乳白色。

内部结构

隔膜——有 5 轮,首次隔膜无性腺,厚,不透明,有细长的三角旗,基部肥厚,两边对称,彼此靠近,收缩肌发达(图版 I:1; II:1)。壁底肌肉较强。

括约肌——很发达,不长,较规则,呈水平方向排列,充满中胶层,染成淡蓝色(图版 I:1, 2; II:1),顶部对着外胚层,尾部接近内胚层,外胚层有内陷突伸入中胶层,中胶层宽度 92.5—455.0 微米,内陷突在体壁纵切面上表现明显,在横切面上也能表现出来。外胚层连续,宽为 32.5—82.5 微米,基部接近中胶层处有深色颗粒状腺体细胞。(图 1)

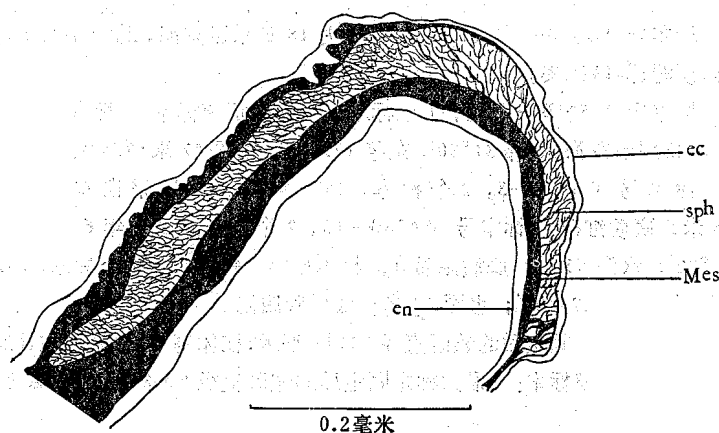


图 1 中华近丽海葵(新种) *Paracalliactis sinica* sp. nov. 柱体上部体壁(纵切)示中胶层括约肌

cc 外胚层; sph 括约肌; Mes 中胶层; en 内胚层

内胚层环肌发达,为苏木精染成紫红色,基部有深蓝色颗粒状腺体细胞;环肌纤维长,呈

规则水平方向排列(图版 I:1), 宽 107.5—142.5 微米。

咽——外胚层和中胶层不发达, 外胚层宽 35.0—100.0 微米, 中胶层 7.5—20.0 微米, 内胚层环肌非常发达, 宽为 392.5—462.5 微米; 环肌上部呈平行排列, 下部呈规则斜行网状排列, 上部近外胚层处网眼大, 下部网眼小, 其中有许多深蓝色颗粒状腺体细胞分布于网眼中。

触手——外胚层宽 42.5—85.0 微米, 中胶层宽 37.5—52.5 微米, 内胚层 17.5—30.0 微米。纵肌位于外胚层, 很发达, 在外胚层的基部有狭长的腺体细胞, 其表层分布 1—3 层长椭圆形的螺旋胞(图 2); 内胚层环肌不明显, 有许多颗粒状腺体细胞(图版 II:2, 3)。

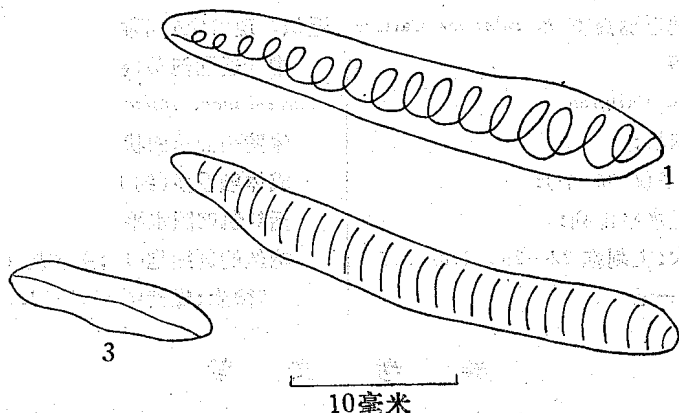


图 2 中华近丽海葵枪丝的刺细胞

1, 2. 螺旋胞; 3. 主刺胞

食物——在肠腔内有甲壳类附肢残骸和 1 个甲壳类幼体。

生殖腺——共解剖 3 个标本, 均已达性成熟, 雌雄异体, 性腺内分别充满精细胞和卵细胞; 卵径 57.5—92.5 微米(图版 I:1; 图版 II:1)。

刺细胞的测量和数量¹⁾(微米)

体壁 主刺胞 15.0—22.5 × 3.0—3.8 一般

螺旋胞 无

咽 主刺胞 11.3—17.5 × 2.0—3.8 少

螺旋胞 17.5—33.8 × 2.0—4.5 少

隔膜 主刺胞 30.0—50.0 × 3.8—6.5 少

螺旋胞 17.5—20.0 × 2.5—3.0 一般

触手 主刺胞(1) 22.5—30.0 × 3.8—5.0 少

(2) 17.5—27.5 × 1.3—3.8 多

旋螺旋胞 20.0—25.0 × 2.5—3.8 多

枪丝 主刺胞 10.0—12.5 × 2.0—2.5 少

螺旋胞 12.5—32.5 × 2.5—3.0 多

1) 压片标本置于 15×40x 显微镜下检查 10 个视野的刺细胞总数, 求得每个视野刺细胞的平均数, 每视野刺细胞在 5 个以内者为“少”, 5—10 个为“一般”, 10 个以上者为“多”。

附记

自 Carlgren 于 1928 年建立近丽海葵属 *Paracalliactis* 以来,迄今已报道的有以下 7 种:

1. *Paracalliactis stephensoni* Carlgren (大西洋, 1976 米) 1928
2. *Paracalliactis michaelisarsii* Carlgren (大西洋, 4700 米) 1928
3. *Paracalliactis japonica* (Carlgren) (太平洋, 53 米) 1928
4. *Paracalliactis involvens* (McMurrich) (大西洋, 1355 米) 1893
5. *Paracalliactis valdiviae* Carlgren (印度洋, 628—823 米) 1928
6. *Paracalliactis lacazei* Dechance & Dufaure (地中海, 70—100 米) 1959
7. *Paracalliactis rosea* Hand (太平洋 50 米) 1975

新种外形与瓦地近丽海葵 *P. valdiviae* Carlgren 近似, 现将它们不同点比较如下:

瓦地近丽海葵	中华近丽海葵(新种)
<i>Paracalliactis valdiviae</i> Carlgren	<i>Paracalliactis sinica</i> sp. nov.
1. 体壁表面不呈网状;	体壁表面呈网状;
2. 成体触手少(最多仅 96 个);	成体触手多(约 192—394 个);
3. 括约肌网眼不呈水平排列;	括约肌网眼水平排列;
4. 枪丝的刺细胞大;主刺胞 22—29 × 2.0—2.5 微米;螺旋胞——无	枪丝的刺细胞(1);主刺胞 10.0—12.5 × 2.0—2.5 微米;螺旋胞 12.5—22.5 × 2.5—3.0 微米。

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A NEW SPECIES OF THE GENUS *PARACALLIACTIS*
(HORMATHIIDAE: ACTINIATIA) FROM THE
EAST CHINA SEA*

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ABSTRACT

A study of sea anemone specimens collected by the R/V Jinxing of the Institute of Oceanology, Academia Sinica during the oceanological exploration in the East China Sea in 1975—1976, yielded one new species, the description of which is given below:
sp. nov.

Paracalliactis sinica sp. nov.

Holotype No. V531B-1(1), East China Sea, 31°30' N, 124°30' E; depth, 39 m; sandy mud; Measurements: Diameter of disc, 11 × 9 mm; height of column, 13 mm; diameter of column 14 × 12 mm; diameter of pedal disc, 33 × 19 mm.

Paratypes No. V531B-1(2), 1 specimen, locality same as holotype; No. V506-18; 7 specimens, July 21, 1976, East China Sea, 31°30' N, 125°00' E; depth, 47 m; muddy sand; Measurements: Largest specimen—Diameter of oral disc 8 × 8 mm, height of column 23 mm, diameter of column 20 mm, diameter of pedal disc 52 × 31 mm.

Fourteen specimens

External characters:

Colour—Attached to a gastropod shell inhabited by a hermit crab (Pl. 1, 3). In alcohol the colour is pale, rather translucent or light yellow and opaque; the colour is lighter on the base and the margin.

Base—Wide, with four or five tongue-like extensions covering the shell of the snail; the diameter of the base is larger than the column, its edge is finely serrate. Wall with fine radial stripes, without cinclides, projecting papillae or dots. Margin thin, the inter mesenteries showing through.

Column—Erect, wide and low, the transverse prominent wrinkles form a reticulate pattern, the longitudinal lines appearing as dark bands. There are twenty-four coarse dark stripes, which divide the column into twenty-four petals, each petal made with 5—9 fine longitudinal lines, extending from the oral disc to the pedal disc. Longitudinal and transverse wrinkles arranged in a crisscross pattern which is rhombic or rectangular in shape. Walls may be thin or thick. The column walls of the concavities of the specimens inlaid with sand grains, and leave concavities by the sand grains.

Oral disc—Mouth small, circular or fissurine, scapus provided in its distal part

* Contribution No. 551 from the Institute of Oceanology, Academia Sinica.

with coron of tubercles, colour, lighter than that of the column, white, not shiny: lips consisting of 10—40 rough noded folds.

Tentacles—Sort and small, conical, milky white or cream. Paratype No. V531B-1 (2), they arranged in 7 cycles, 384, inter tentacle is longer than external one, in 6 times arrangement.

Acontia—Cream or milky.

Internal structure:

Mesenteries of five cycles, rather thick, opaque and bear delicate pennon; usually basally thick, bilaterally symmetrical, close each other. Primary mesenteries without gonads. The retractors of the mesenteries are rather strong. Parieto-basilar muscle is strong.

Sphincter—Well-developed, not very long, it regularly arranged horizontally; filling up the mesogloea, at the top, it is right up against the ectoderm; the tail portion is near the endoderm. In the ectoderm the processes extend into the mesogloea, which is 92.5—455.0 wide; the concavities not only clearly visible in longitudinal and transverse sections of the column wall. Ectoderm is continuous its width is 32.5—82.5 with numerous dark granular gland-cells on its base near the mesogloea.

Endoderm Circular muscle is well developed; staining purple by Delafield's Haematoxylin at its base there are dark blue granular gland-cells; the filaments of circular muscle are long, regularly arranged in horizontally (Pl. 1, 2.), width 107.5—142.5 μ .

Actinopharynx—Its ectoderm which is 35.0—100.0 wide, and mesogloea which is 7.5—20.0 μ . are not well-developed, circular muscle of endoderm is very well-developed, is 392.5—462.5 μ wide; upper portion of circular muscle is parallel in arrangement; the lower portion is regularly obliquely reticular. Meshes of upper portion near the ectoderm are larger than those of the lower portion within the meshes there are many dark blue granular gland-cells.

Tentacles—Width of ectoderm 42.5—85.0 μ , of mesogloea, 37.5—52.5 μ , of endoderm, 17.5—30.0 μ . Well-developed longitudinal musculatures present in the ectoderm, at the base of which there are narrow and long gland-cells, in their epithelial ectoderm there are 1—3 layers of long oval spirocysts; in the ectoderm circular muscles are not distinct; there are a lot of granular gland-cells in the endoderm.

Gonad—Present, mature; filled with spermatocytes and oocytes (diameter 57.5—92.5 μ), dioecism.

Measurements of Nematocysts and numeration; (μ)

Column Nematocysts	15.0 — 22.5 $\times$ 3.0 — 3.8	general
Spirocysts	absent	
Throat Nematocysts	11.3 — 17.5 $\times$ 2 — 3.8	rare
Spirocysts	17.5 — 33.8 $\times$ 2 — 4.5	rare
Filaments		
Nematocysts	30.0 — 50.0 $\times$ 3.8 — 6.3	rare
Spirocysts	17.5 — 20.0 $\times$ 2.5 — 3.0	general

Tentacle

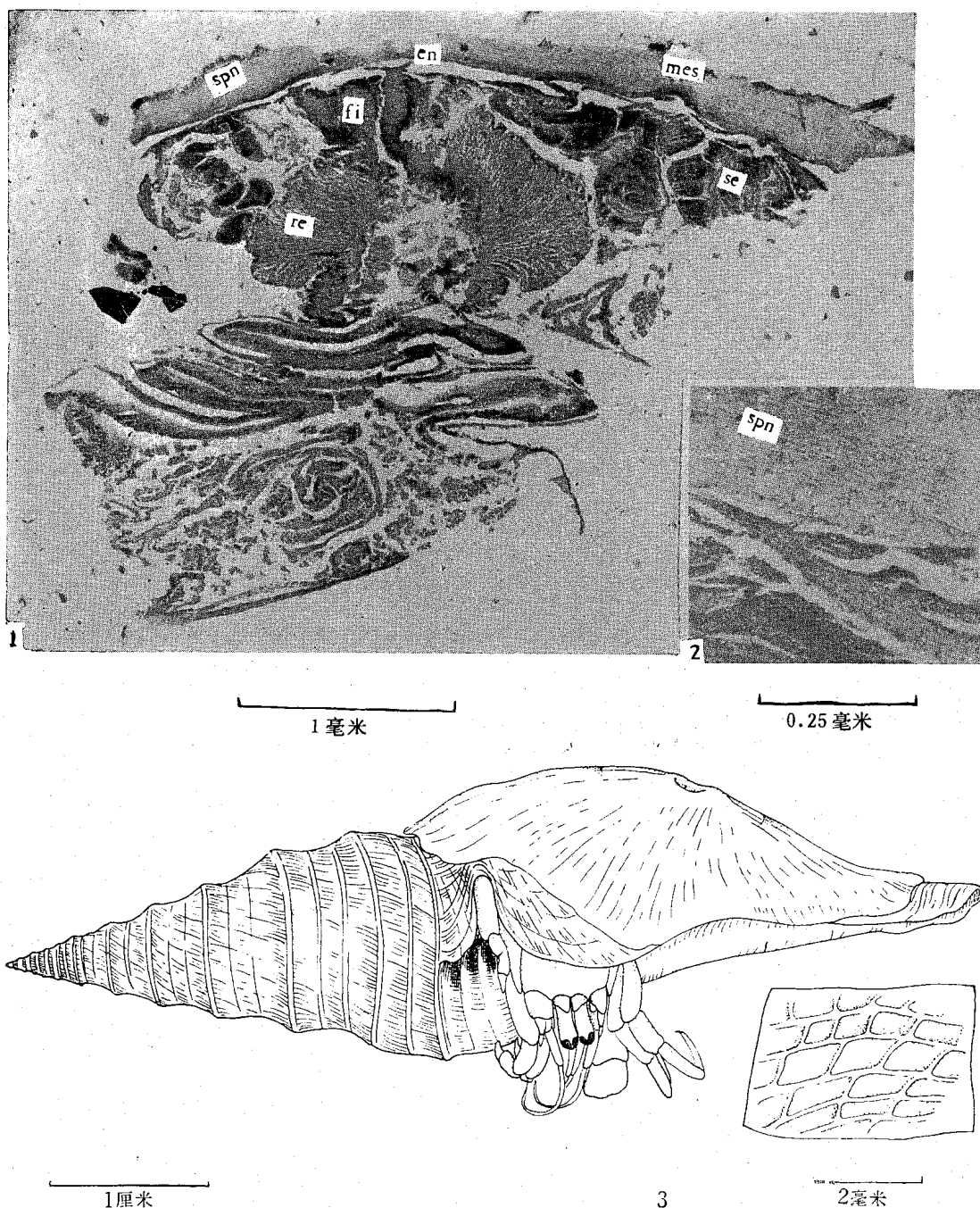
Nematocysts	(1) 22.5—30.0 × 3.8—5.0	rare
	(2) 17.5—27.5 × 1.3—3.8	numerous
Spirocysts	20.0—25.0 × 2.5—3.8	unmerous
Acontia Nematocysts	10.0—12.5 × 2.0—2.5	rare
Spirocysts	12.5—32.5 × 2.5—3.0	numerous

Note:

On external features our specimens resemble *Paracalliactis valdiviae* Carlgren, their distinguishing features are given bellow:

*Paracalliactis valdiviae**Paracalliactis sinica* sp. nov.

- | | |
|---|---|
| 1. Surface of body-wall not reticulate; | surface of body-wall reticulate; |
| 2. Adult tentacles rare; (the most 96); | adulte tentacles numerous (about 192—394); |
| 3. Meshes of the sphincter not horizontal; | meshe of the sphincter horizontal; |
| Nematocysts of acontia large (22—29 × 2—2.5 μ); | nematocysts of acontia small (10.0—12.5 × 2.0—2.5 μ); |
| Spirocysts | |
| —absent | Spirocysts |
| | 12.5—22.5 × 2.5—3.0 μ. |

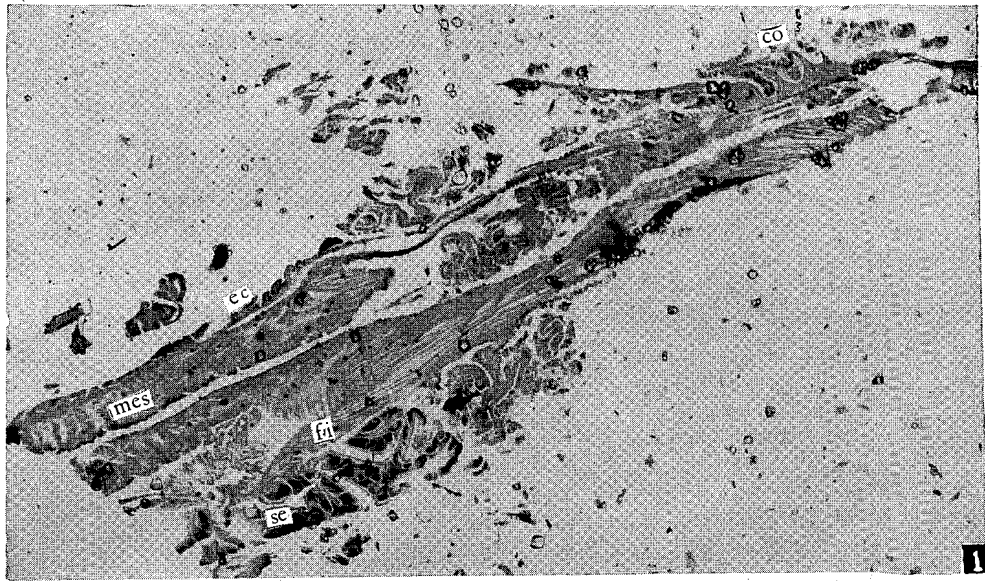


1. 中华近丽海葵 *Paracalliactis sinica* sp. nov. 柱体(横切);

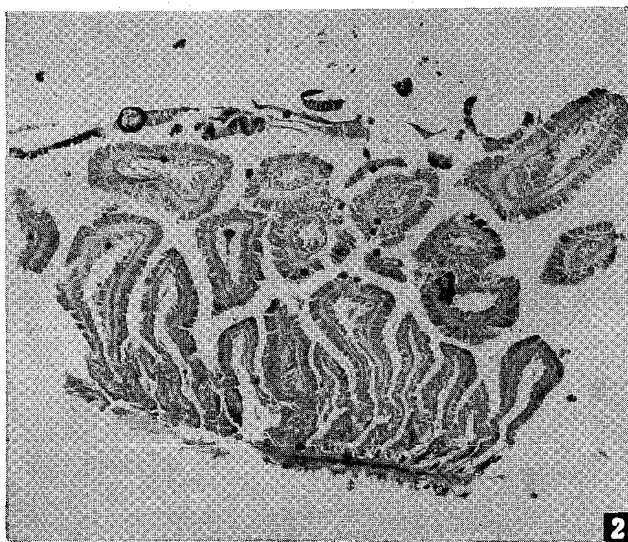
2. 体壁(横切), 示中胶层括约肌水平状排列;

3. 外形(收缩)和体壁表面花纹

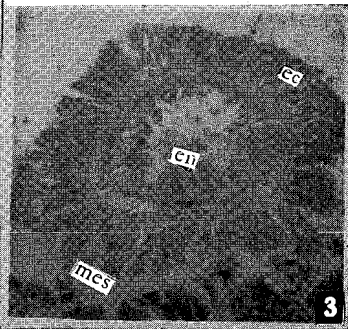
ec 外胚层; spn 括约肌; mes 中胶层; cn 内胚层; fi 隔膜; re 隔膜收缩肌; co 外胚层内陷; se 性腺



1 毫米



1 毫米



0.25 毫米

中华近丽海葵 *Paracalliactis sinica* sp. nov.

1. 柱体(纵切);
2. 触手(纵,横切);
3. 触手(横切)