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A Systematic Study on the Marine Sponges in Korea. 7. Demospongiae and Hexactinellida

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한국산 해산해면류의 계통분류학적 연구 7. 보통해면류와 육방해면류

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적 요

1985년부터 1987년에 걸쳐 남한의 동 · 서 · 남해로부터 채집된 해면동물과 그동안 미해결로 보류되어 있던 표본들을 조사한 결과 총 24종이 밝혀졌는데 이 중에서 23종은 보통해면류 이었으며 6종이 한국미기록 종이고, 1종은 육방해면동물로서 신종임이 판명되어 *Aphrocallistes jejuensis*라고 명명기재한다. 한국미기록종에 대하여는 특기와 도판을 첨가하였다.

Key words: Systematic, Demospongiae, Hexactinellida, Korea.

INTRODUCTION

On the systematic study of Korean Demospongiae and Hexactinellida, 141 species were recorded from Korean waters (Kim *et al.*, 1968; Rho & Sim, 1972b; Sim, 1982). Of which, 139 species were Demospongiae and only two species were Hexactinellida (Rho & Sim, 1972a; Sim, 1982).

The present study is based on the materials collected from 17 localities (see Fig. 1) during the period from 1985 to 1987, and some preserved specimens were used for this experiment. The species identified consist of 24 species, 20 genera and 17 families. Of these species, one Hexactinellida from Pŏmsŏm, Cheju-do is new to science. Six Demospongiae are unrecorded ones from Korea.

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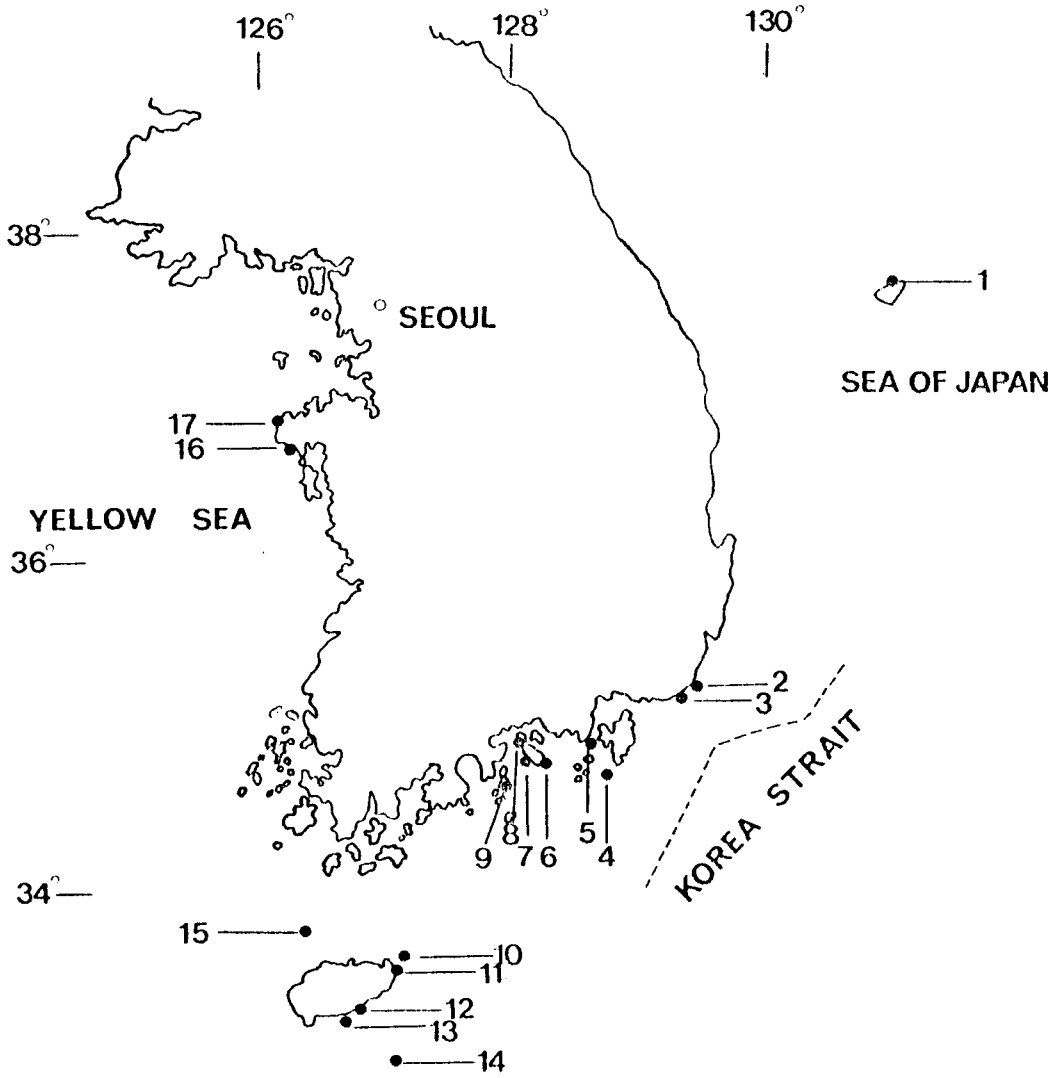

Fig. 1. A map showing the localities where the materials were collected. 1, Ulreungdo; 2, Mip'o; 3, Haeundae; 4, Pijindo; 5, Ch'ungmu; 6, Mijo-ri; 7, Sangju-ri; 8, Namhaedo; 9, Tŏlsando; 10, U-od; 11, Sŏngsanp'o; 12, Sŏgwip'o; 13, Pŏmsŏm; 14, 33°00′00″N, 217°30′00″E; 15, Ch'ujado; 16, Manlip'o; 17, Anhŭng.

LIST OF SPECIES

Class Demospongiae
Subclass Ceractionomorpha
Order Halichondria
Family Hymeniacidonidae De Laubenfels, 1936

1. *Hymeniacidon sinapium* De Laubenfels, 1930
   Family Halichondriidae Gray, 1867
2. *Halichondria okadai* (Kadota, 1922)

Family Ophlitaspongidae De Laubenfels, 1936

3. * *Ophlitaspongia minor* Burton, 1959
4. *Ophlitaspongia noto* Tanita, 1963
5. * *Oxymycale paradoxa* De Laubenfels, 1935
6. * *Clathria madrepora* Dendy, 1921
7. *Clathria spinispicula* Tanita, 1968

Family Microciona Henschel, 1923

8. *Microciona longistyla* Burton, 1959

Family Myxillidae Hentschel, 1923

9. * *Myxilla productus* Hoshino, 1981
10. *Myxilla setoensis* Tanita, 1961
11. *Lissodendoryx isodictyalis* (Carter, 1882)

Family Tedaniidae Ridley & Dendy, 1887

12. *Iotrochota baculifera* Ridley, 1884

Order Haplosclerida Topsent, 1928

Family Haliclonidae De Laubenfels, 1932

13. *Haliclona permollis* (Bowerbank, 1866)

Family Callyspongidae De Laubenfels, 1936

14. *Callyspongia elegans* (Thiele, 1899)
15. *Callyspongia elongate* (Ridley & Dendy, 1886)

Family Renieridae Schmidt, 1870

16. * *Gellius edaphus* De Laubenfels, 1930

Order Keratosa Grant, 1861

Family Spongiidae Gray, 1867

17. *Spongia officinalis* Linne, 1759

Subclass Tetractinomorpha

Order Epipolasida Sollas, 1888

Family Tethydae Gray, 1867

18. *Tethya amamensis* Thiele, 1898

Order Hadromerida Tospent, 1894

Family Suberitidae Ridley et Dendy, 1886

19. *Suberites excellens*(Thiele, 1898)

Order Spirophorida Levi, 1956

Family Tetillidae Sollas, 1886

20. *Tetilla ovata* Thiele, 1898

Order Axinellida Bergquist, 1970

Family Raspailiidae Hentschel, 1912

21. *Raspailia hirsuta* Thiele, 1898

Order Choristida Sollas, 1880

Family Kaliapsidae De Laubenfels, 1936

22. *Discodermia calyx* Döderlein, 1883

Family Stelletidae Carter, 1875

23. * *Stelletta validissima* Thiele, 1898

Class Hexactinellida
Order Hexasterophora F.E.Sch., 1899
Family Aphrocallistidae Gray, 1858

24. * *Aphrocallistes jejuensis*,nov. sp.

The asterisks(*) indicate the species which were newly recorded from Korean waters.

Family Hymeniacidonidae De Laubenfels, 1936
Genus *Hymeniacidon* Bowerbank, 1864

1. Hymeniacidon sinapium De Laubenfels, 1930

Hymeniacidon sinapium: De Laubenfels, 1932 (pp. 57-60, Text-fig. 29); Sim, 1985 (p. 6, pl. 1, figs. 5-6).

Halichondria japonika: Kim *et al.*, 1968 (p. 39, pl. 1, fig. 5, text-fig. 6); Rho *et al.*, 1969 (p. 155); Hoshino, 1970 (p. 22), 1971 (p. 23); Rho & Sim, 1972 a (pp. 183-184), 1972 b (p. 126); Hoshino, 1974,(p. 10), 1976 (p. 6); Sim, 1982 (p. 192).

Material examined: Sŏngsanp'o, VII/1985; Sŏgwip'o, VII/1987; Tŏlsando VIII/1987.

Distribution: California, Japan, Korea (East, South, West).

Family Halichondriidae Gray, 1867
Genus *Halichondria* Fleming, 1928

2. Halichondria okadai (Kadota, 1922)

Halichondria okadai: Tanita, 1964 (p. 18, pl. 1, fig. 6); Kim *et al.*, 1968 (p. 39, pl. 1, fig. 6, text-fig.7); Hoshino, 1970 (p. 22), 1971 (p. 23), 1974 (p. 10).

Material examined: Mijo-ri, VII/1983; Sŏngsanp'o, VII/1985.

Distribution: Korea (Korea strait, Cheju Island), Japan.

Family Ophlitaspongidae De Laubenfels, 1936
Genus *Ophlitaspongia* Bowerbank, 1964

3. * Ophlitaspongia minor Burton, 1959 (pl. 1, figs. 1-2)

Ophlitaspongia minor Burton 1959 (pp. 246-247, text-fig. 27).

Material examined: Sŏgwip'o, VII/1982.

Remarks: Sponge is long, irregularly branched, 5-6mm in diameter, 17cm in length. The texture is firm and the surface of the body is a little velvety with the protruding spicules. Colour in alcohol beige.

Spicules:

Large Style ..... 439 – 732 × 25-27μm.
Small Style ..... 333 – 386 × 20-23μm.
Subtylostyle ..... 306-704 × 4-8μm.
Toxa ..... 40-119μm.
Isochela ..... 16-20μm.

Distribution: Korea, Arabian Sea.

4. Ophlitaspongia noto Tanita, 1963

Ophlitaspongia noto Tanita, 1963 (pp. 124-125, pl. 4, fig. 3, text-fig. 3), 1964 (pp. 17-18, pl. 1, fig. 4), 1965 (p. 48); Kim: *et al.*, 1968 (p. 41, pl. 3, fig. 12, text-fig. 13); Rho *et al.*, 1969 (p. 158); Rho & Sim, 1972a (p. 185), 1972b (p. 128); Hoshino, 1981 (p. 173); Sim, 1982 (P. 195).

Material examined: Sŏgwip'o, VII/1984.

Distribution: Korea, Japan.

Genus *Oxymycale* Hentschel, 1929

5. * Oxymycale paradoxa De Laubenfels, 1935 (pl. 4, figs. 1-2)

Oxmycale paradoxa De Laubenfels, 1935 (p. 5, fig. 2).

Material examined: 33° 00'00"N, 127°30'00"E, 145m depth, IV/1987.

Remarks: This Sponge is hemispherical, size 5×3cm. On the top occurs oscule, 0.6mm in diameter. Texture is compressible and soft. Colour in spirit is dirty grey.

Spicules:

Style ..... 501-714×8-14μm.
Oxea ..... 399-728×4-17μm.
Anisochela ..... 84-115μm.
Sigma ..... 21-70μm.
Raphid ..... 70-84μm.

Distribution: Mexico, Korea.

Genus *Clathria* Schmidt, 1862

6. * Clathria madrepora Dendy, 1921 (p 1.2, figs. 1-2)

Clathria madrepora: Dendy, 1921 (pp. 68-69, pl. 5, fig. 3, pl. 14, figs, 1a-d).

Material examined: Sŏgwip'o VII/1982.

Remarks: Sponge ramified, thin noodle like irregularly branched, averaging about 3mm in diameter. Pore and oscules not conspicuous. Texture is tough. Colour in spirit pale brown.

Spicules:

Large tylostyle ..... 254-308×7-14μm.
Small tylostyle ..... 154-224×4-7μm.
Acantho subtylostyle ..... 91-112×7-10μm.
Isochela ..... 12-14μm.

Distribution: Korea, Seychelles.

7. Clathria spinispicula Tanita, 1968

Clathria spinispicula Tanita, 1968 (pp. 48-49. pl. 1, fig. 6, text-fig. 8).

Clathria spinispicula: Rho & Sim, 1972 a (p. 185, pl. 4, figs. 9-10); Hoshino, 1981 (p. 161); Sim, 1982 (p. 193, pl. 6, fig. 3).

Material examined: Sŏgwip'o, VII/1982.

Distribution: Korea, Japan.

Family Microcionidae Henschel, 1923

Genus *Microciona* Bowerbank, 1864

8. Microciona longistyla Burton, 1959

Microciona longistyla Burton, 1959 (pp. 249-250, text-fig. 29); Rho & Sim, 1976b (p. 100, pl. 2, figs. 7-8).

Material examined: Sŏgwip'o, VII/1982.

Distribution: Korea, South Arabean Sea (?).

Family Myxillidae Hentschel, 1923

Genus *Myxilla* Schmidt, 1862

9. * Myxilla productus Hoshino, 1981 (pl.3, figs. 1-2)

Myxilla productus Hoshino, 1981 (pp. 138-140, pl. 6, fig. 2, text-fig. 58).

Material examined: Sŏgwip'o, VII/1982.

Remarks: Sponge is long, Solid cylindrical branched, 25cm in height, 2cm wide, 8-10mm in thickness. Texture hard and tough. Colour in alcohol is ivory.

Spicules:

Large acanthostyle ..... 252-294×11-17μm.
Samll acanthostyle ..... 100-157×6-14μm.
Tornote ..... 168-196×7-12μm.
Sigma ..... 56-70μm.
Isochela ..... 28-39μm.
Birotulate ..... 12-15μm.

Distribution: Japan, Kroea.

10. Myxilla setoensis Tanita, 1961

Myxilla setoensis Tanita, 1961 (pp. 158-160, pl. 2, figs. 8-9, text-fig. 3); Kim *et al.*, 1968 (p. 40, pl. 2, fig.10, text-fig. 11); Rho *et al.*, 1969 (p. 158, pl. 1, fig. 6); Hoshino, 1971 (p. 23, pl. 1, fig. 1); Rho & Sim, 1972 b (p. 127); Rho & Lee, 1976 (p. 100).

Material examined: Haeundae, VIII/1982.

Distribution: Korea, Japan.

Genus *Lissodendoryx* Topsent, 1892

11. Lissodendoryx isodictyalis (Carter, 1882)

Lissodendoryx issodictyalis: Hartman, 1958 (pp. 41-44, pl. 4, fig. 12, text-fig. 11); Little, 1963 (pp. 48-49); Kim *et al.*, 1968 (pp. 40-41, pl. 2, fig. 11, text-fig. 12); Hoshino, 1971 (p. 23); Rho & Sim, 1972 a (p. 184), 1972 b (p. 127); Rho & Lee, 1976 (pp. 101-102); Hoshino, 1981 (pp. 145-147, text-fig. 61).

Material examined: Sŏngsanp'o, VIII/1982; Namhaedo, VII/1983.

Distribution: Korea, North America, Japan, Indian ocean.

Family Tedaniidae Ridley & Dendy, 1887

Genus *Iotrochota* Ridley, 1884

12. Iotrochota baculifera Ridley, 1884

Iotrochota baculifera Ridley, 1884 (pp. 435-436, pl. 39, fig. M, pl. 42, fig. f); Burton, 1959 (p. 239); Tanita, 1969 (pp. 73-74, pl. 2, fig. 6, Text-fig. 1); Rho & Sim, 1976 (p. 74, pl. 7, figs. 3-4); Hoshino, 1976 (p. 6, pl. 2,

figs. 10-12), 1981 (pp. 144-145, pl. 10, figs. 5-6).

Material examined: Sŏngsanp'o, VI/1984.

Distribution: Korea, Japan, Indian ocean.

Family Haliclonidae De Laubenfels, 1932
Genus *Haliclona* Grant, 1835

13. Haliclona permollis (Bowerbank, 1866)

Isodictya permollis Bowerbank, 1866 (p. 278).

Haliclona permollis: De Laubenfels, 1954 (pp. 67-69, text-fig. 38); Tanita, 1958 (p. 130, pl. 1, figs. 3-4, text-fig. 2), 1967 (p.113), 1968 (p. 41), 1969 (p. 71); Rho *et al.*, 1969 (p. 154); Hoshino, 1974 (p. 8, pl. 1, fig, 2).

Material examined: Sangju-ri, VII/1983; Mijo-ri, VII/1983; Tŏlsando, VIII/1987.

Distribution: Cosmopolitan.

Family Callyspongidae De Laubenfels, 1936
Genus *Callyspongia* Duchassaing & Micheloffi, 1864

14. Callyspongia elegans (Thiele, 1899)

Spinosella elegans Thiele, 1899 (pp. 23-24, pl. 3, fig. 2, pl. 5, fig. 19).

Callyspongia elegans: Tanita, 1965 (pp. 46-47, pl. 1, fig. 2); Kim *et al.*, 1968 (p. 38, pl. 1, fig. 2, text-fig. 3); Rho *et al.*, 1969 (p. 154); Tanita, 1970 (p. 101); Sim, 1982(pp. 196-197).

Material examined: Pijin do, VII/1984; Sŏgwip'o, VII/1987.

Distribution: Korea, Japan, Celebes.

15. Callyspongia elongata (Ridley & Dendy, 1886)

Callyspongia elongata: Tanita, 1964 (p. 17, pl. 1, fig. 3), 1967 (p. 114), 1968 (p. 42), 1969 (p. 73); Rho *et al.*, 1969 (p. 155, pl. 1, fig. 1, text-fig. 1); Rho & Sim, 1972a (p. 183), 1972b (p. 125); Rho & Lee, 1976 (pp. 104-105); Sim, 1982 (p.196).

Material examined: Sŏgwip'o, VII/1985.

Family Renieridae Schmidt, 1870
Genus *Gellius* Gray, 1867

16. *Gellius edaphus De Laubenfels, 1930 (pl. 2, figs. 3-4)

Gellius edaphus De Laubenfels, 1932 (p. 111, fig. 66).

Material examined: 33°00′00″N, 127°30′00″E, 145 depth, IV/1987.

Remarkes: Sponge is small fragment, 4.5 × 2cm Texture is a little hard, colour in spirit is dirty grey.

Spicules:

Oxea ..... 210-326×1-18μm.
Sigma ..... 36-52μm.

Distribution: California, Korea.

Family Spongiidae Gray, 1867
Genus *Spongia* Linné, 1759

17. Spongia officinalis Linné, 1759

Spongia officialis: Burton, 1934 (pp. 576-577); De Laubenfels, 1948(p. 4, pl. 1, figs. 1-2); Sim, 1985 (p. 4, pl. 1, figs. 1-2).

Material examined: Sŏngsanp'o, VII/1984.

Distribution: Korea, Mediterranean Sea, West Indian ocean, South America, Asia.

Famil Tethydae Gray, 1867

Genus *Tethya* Lamark, 1815

18. Tethya amamensis Thiele, 1898

Tethya amamensis Thiele, 1898 (p. 30, pl. 7, figs. 19a-f); Tanita, 1969 (p. 77, pl. 2, fig. 8); Hoshino, 1971 (p. 21); Rho & Sim, 1972a (pp. 185-186, pl. 5, figs. 11-14); 1972b (p. 129).

Material examined: Sŏngsanp'o, VII/1982.

Distribution: Korea, Japan.

Family Suberitidae Ridley & Dendy, 1886

Genus *Suberites* Nardo, 1833

19. Suberites excellens (Thiele, 1898)

Rhizaxinella excellens Thiele, 1898 (p. 34, pl. 3, fig 2, pl. 8 figs. 2a-e).

Suberites excellens: Rho & Lee, 1976 (p. 96, pl. 1, figs. 1-2).

Material examined: Anhuňg, X/1984.

Distribution: Korea, Japan.

Family Tetillidae Sollas, 1886

Genus *Tetilla* Schmidt, 1868

20. Tetilla ovata Thiele, 1898

Craniella ovata Thiele, 1898 (p. 27, pl. 5, fig. 16, pl. 7, figs. 15a-e).

Tethya ovata: Lendenfeld, 1903 (p. 24).

Tetilla ovata: Tanita, 1965 (p. 51, pl. 2, fig. 10), 1969 (p. 76); Rho & Sim, 1972b (p. 130, pl. 4, figs. 1-4).

Material examined: Ch'u ja do, II/1986.

Distribution: Korea, Japan.

Family Raspiailiidae Hentschel, 1912

Genus *Raspailia* Nardo, 1833

21. Raspailia hirsuta Thiele, 1898

Raspailia hirsuta Thiele, 1898 (p. 59, pl. 3, fig. 9, pl. 8, figs. 46a-d); Tanita, 1970 (p. 102, pl. 2, fig. 8); Rho & Sim, 1972a (p. 185, pl. 3, figs. 7-8); Hoshino, 1977 (p. 6); Sim, 1982 (p. 200, pl. 2, fig. 2).

Mateial examined: Chejudo, VII/1984.

Distribution: Korea, Japan.

Family Kaliapsidae De Laubenfels, 1936

Genus *Discodermia* Bocage, 1869

22. Discodermia calyx Döderlein, 1883

Discodermia calyx Döderlein, 1883 (p. 77, pl. 5, figs. 4-5); Tanita, 1970 (p. 102, pl. 2, fig. 12); Rho & Sim, 1972b (p. 129, pl. 3, figs. 6-9); Hoshino, 1975 (p. 34, pl. 4, figs. 5-6), 1977 (p. 6).

Material examined: Off Sangju, I/1983, Sŏgwip'o VII/1984.

Distribution: Korea, Japan.

Family Stelletidae Carter, 1875

Genus *Stelletta* Schmidt, 1862

23. *Stelletta validissima Thiele, 1898 (pl. 5, figs. 1-2)

Stelletta validissima Thiele, 1898 (p. 13, pl. 1, fig. 5, pl. 7, figs. 1a-i).

Material examined: Chújado, II/1986.

Remarkes: Sponge is round shape, 4 cm in diameter, with long root tuft. Texture is hard and tough. Colour in spirit is dirty grey.

Spicules:

Oxea ..... 3900-4920 × 21 – 42 μm.

Dichotriaene ..... rabdome 3360 – 5760 × 57 - 75 μm.
clad 165 – 204 μm.

Protriaene ..... rabdome 3900 – 4800 × 2 – 48 μm.
clad 100 – 115 μm.

Large anatriaene ..... rabdome 3870 – 4500 × 21 – 51 μm.
clad 60-90 μm.

Small anatriaene ..... rabdome 3500 – 4500 μm.
clad 35 – 54 μm.

Chiaster ..... 6 – 12 μm.

Oxyaster ..... 9 – 33 μm.

Material examined: Ch'ujado, II/1986.

Distribution: Japan, Korea.

Family Aphrocallistidae Gray, 1858

Genus *Aphrocallistes* Gray, 1858

24. *Aphrocallistes jejuensis, nov. sp.

(pl. 6, figs. 1-3, pl. 7, figs. 1-4, pl. 8, fig. 1, pl. 9, fig. 1, pl. 10, fig. 1)

Material examined: Holotype (Por. 5), Sŏgwip'o (Pŏmsŏm), 60m, 11/1971, B.J. Rho. Paratype (Por. 5-1, Por. 5-2), same data as holotype. The type specimens are deposited in the Department of Biology, Ewha Womans University.

Description: This sponge from is three side branched round tubes, 2.5cm to 3.5cm in width. They don't grow staight upward. The tubes being generally 0.6 - 0.8 mm in diameter are not over 1mm in thickness of the wall. The dictyonal framework forms very irregular meshes. The parietal skeleton is honeycomblike, with hexagonal. The outer surface is covered with the dermal membrane. The gastral skeleton is without scopulae. In the dermal skeleton occur hexacts with a variously developed distal

ray, which is bruch type. The proximal ray equals or usually exceeds the four transvers ray in length. Except the dermal hexacts, three types of dermal scopulae occur: one type presents terminally rounded stalk, the other type two or four strong, barbed, unknobbed prongs, the third type two or four straight pointed prongs. The gastral skeleton is without scopulae; it consists of long rod-like diacts, which are rough throughout and are provided with a central node of intersection.

The uncinates of the parenchyma vary greatly in length and form. The numerous irregularly scattered hexasters are discohexasters in which the terminal rays are also curved, and they are provided with rounded terminal knobs and have also elongate hemidiscohexaster.

Spicules:

Uncinates ..... 579 – 933 × 3 – 5μm.
Hexact pinulus ..... 106 – 140μm axes ray in length
Leptoscopule ..... 237 – 261μm in total lengh
60 - 66μm terminal branches
Pachyscopule ..... 387 – 420μm in total lengh
90μm terminal branches
Scopule with pointed prongs ..... 182 – 196μm total length
28 – 42μm terminal branches
Discohexaster ..... 27 – 55μm in diameter
Hemidiscohexaster ..... 40 – 67μm in diameter

Remarks: This new species is similar to *Aphrocallistes ramosus* (Schulze, 1887) in body form but differs in branches and tube closed with lid which is made of sieve plate. Ijima (1926) and Burton (1959) synonymized *A. ramosus, A. bocagei* and *A. beautrix orientalis* with *A. beatrix*; all of these species have oxyhexasters and discohexasters. The new species has discohexasters, hemidiscohexasters and scopulae with pointed prongs, but no oxyhexasters.

ABSTRACT

The sponges identified in the present study turned out to be twenty three species of Demospongia and one Hexactinellida. Of which, six species are new to the Korean fauna and a new species, *Aphrocallistes jejuensis* belonging to Aphrocallistidae, Hexasterophora was found from pŏmsŏm, cheju-do.

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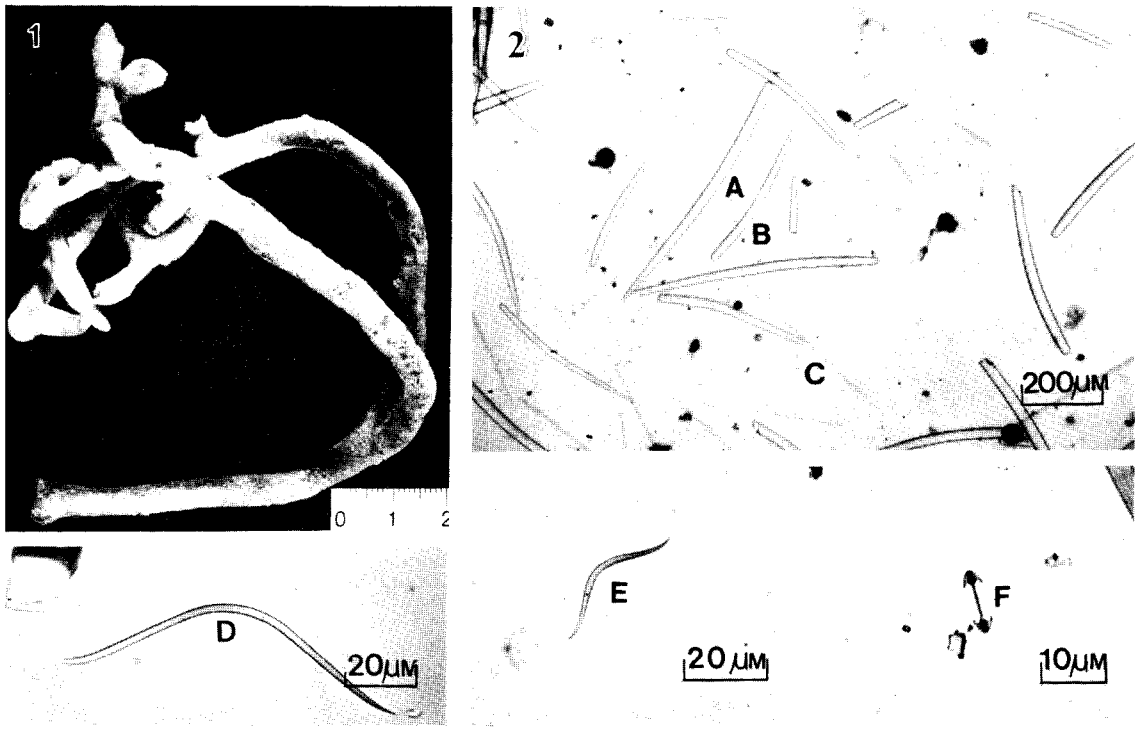
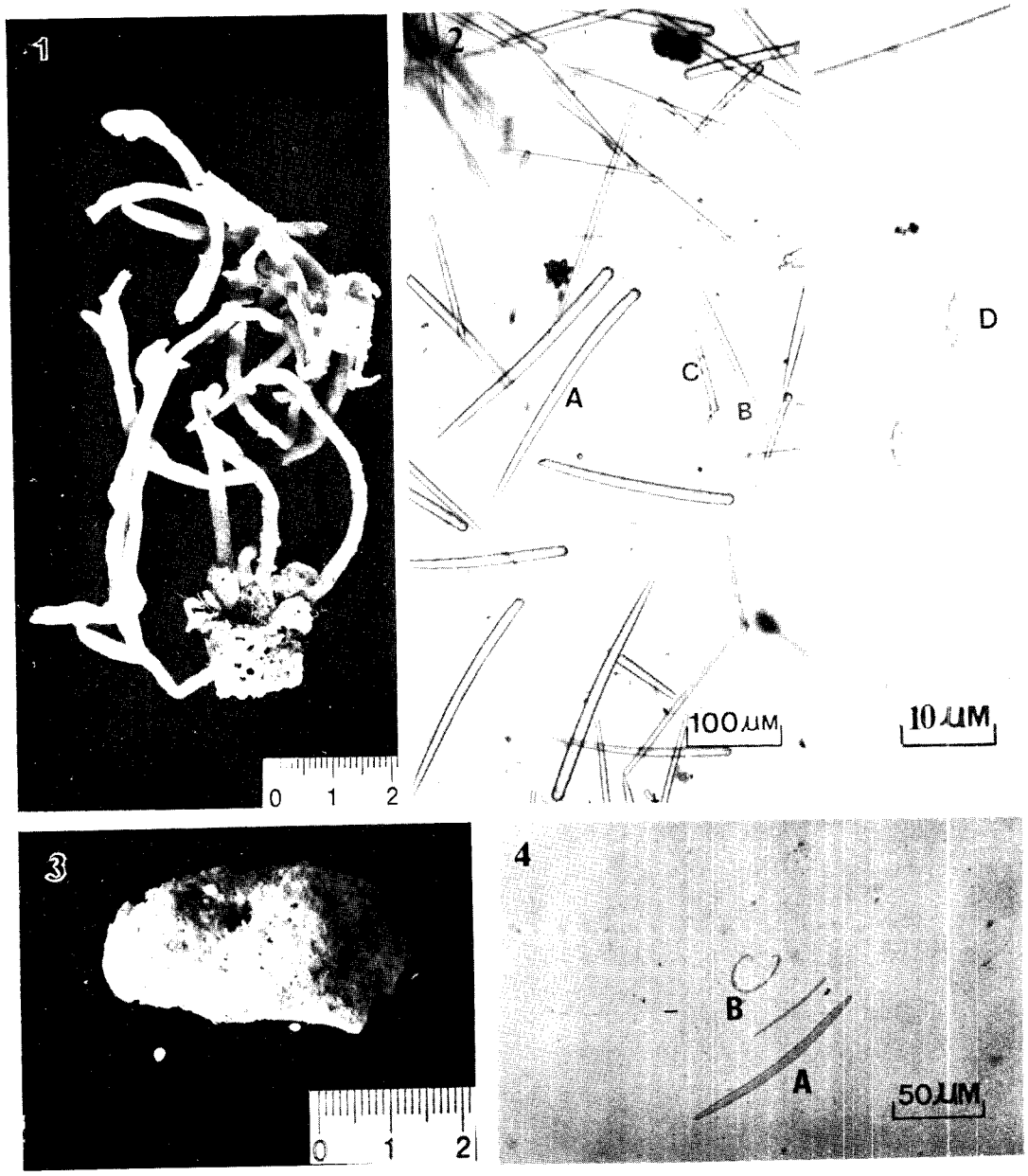
PLATE 1



Figs. 1-2. *Ophlitaspongia minor* Burton.

1. Entire animal; **2.** Megasclere: A, Large Style; B, Small Style; C, Subtylostyle Microsclere: D, Large toxa; E, Small toxa; F, Isochela.

PLATE 2



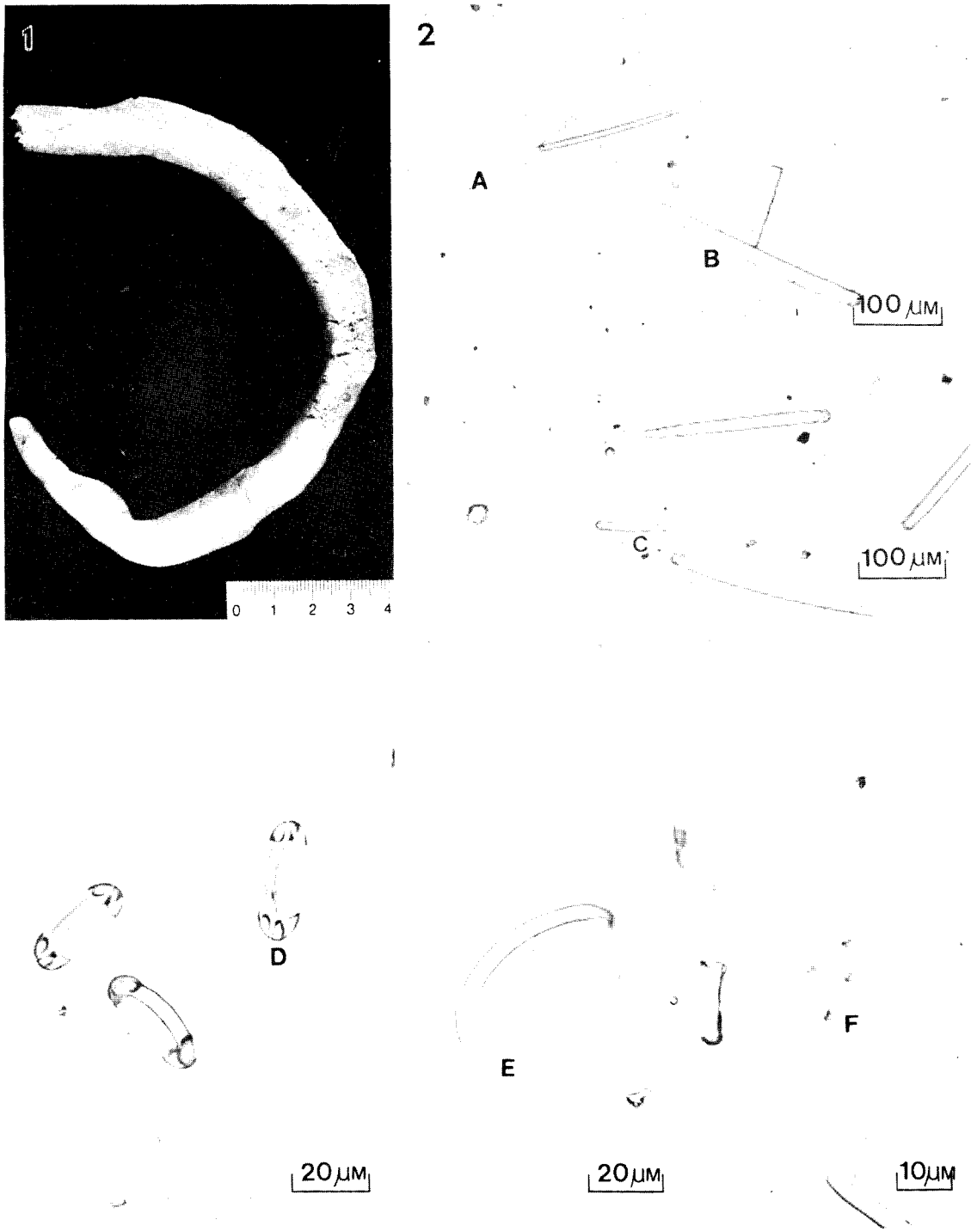
Figs. 1-2. *Clathria madrepora* Dendy.

1. Entire animal; **2.**Megasclere: A, Large tylostyle; B, Small tylostyle; C, Acanthostyle.

Figs. 3-4. *Gellius edaphus* De Laubenfels.

3. Entire animal; **4.** Megasclere: A, Oxea, Microsclere: B, Sigma.

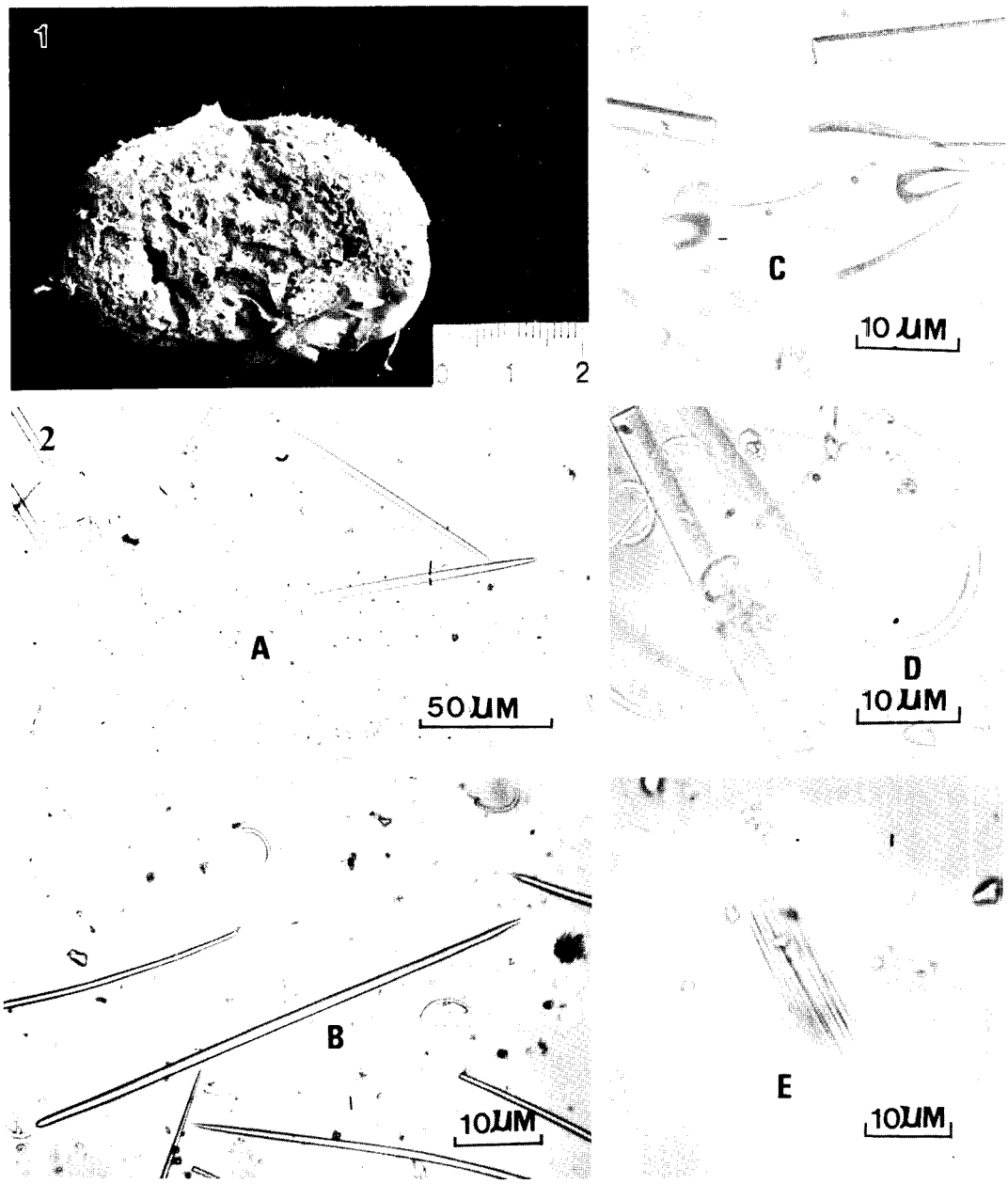
PLATE 3



Figs. 1-2. *Myxilla productus* Hoshino.

1. Entire animal; **2.** Megasclere: A, Tornote; B, Large acanthostyle; C, Small acanthostyle. Microsclere: D, Large isochela; E, Sigma; F, Small isochela.

PLATE 4

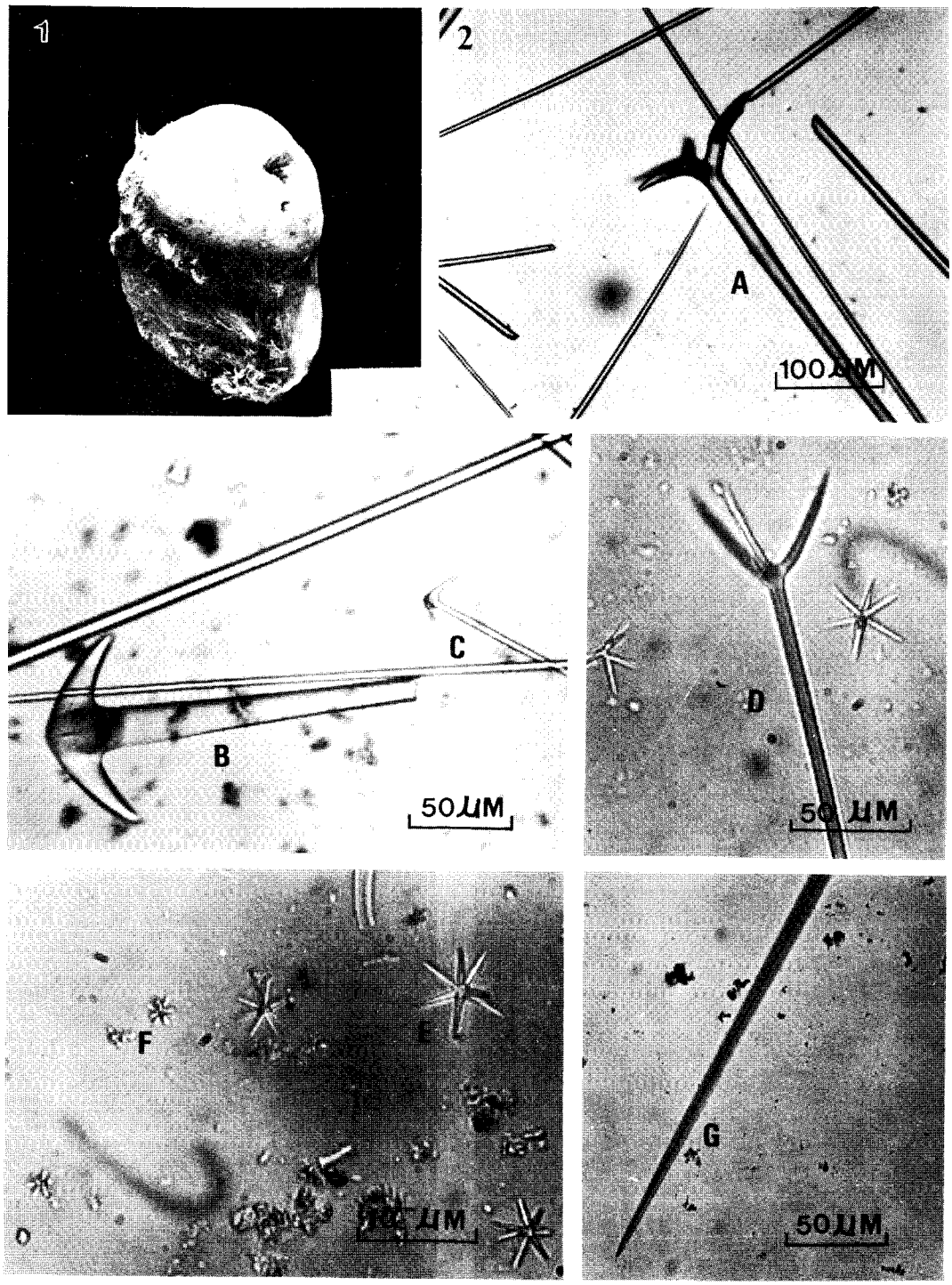


Figs. 1-2. *Oxymycale paradoxa* De Laubenfels.

1. Entire animal; **2.** Megasclere: A, Oxea; B, Style.

Microsclere: C, Anisochela; D, Sigma; E, Raphid.

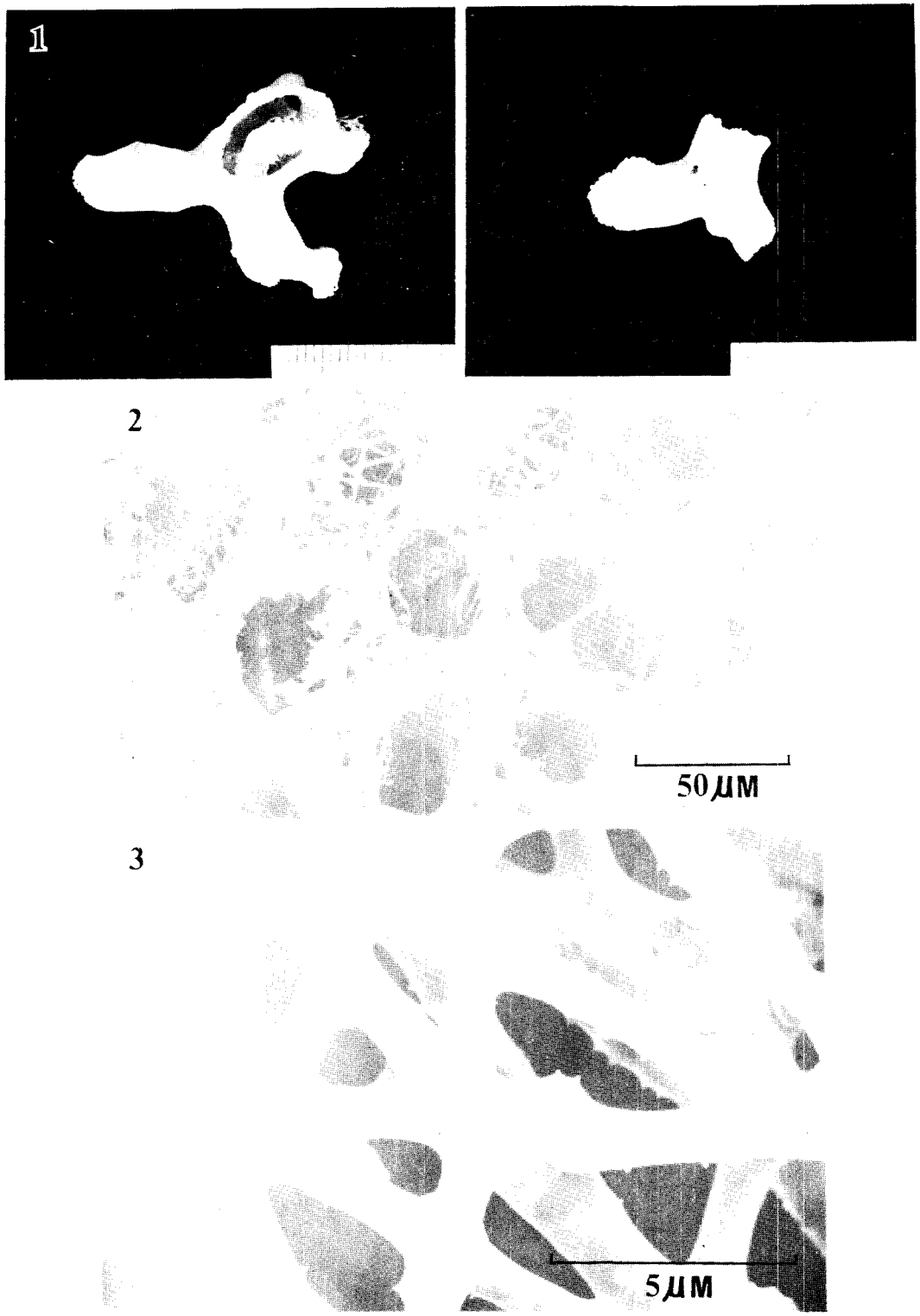
PLATE 5



Figs. 1-2. *Stelleta validissima* Thiele.

1. Entire animal; **2.** Megasclere: A, Dichotriaene; B, Large anatriaene; C, Small anatriaene; D, Protriaene; E, Oxea. Microsclere: F, Oxyaster; G, Chiaster.

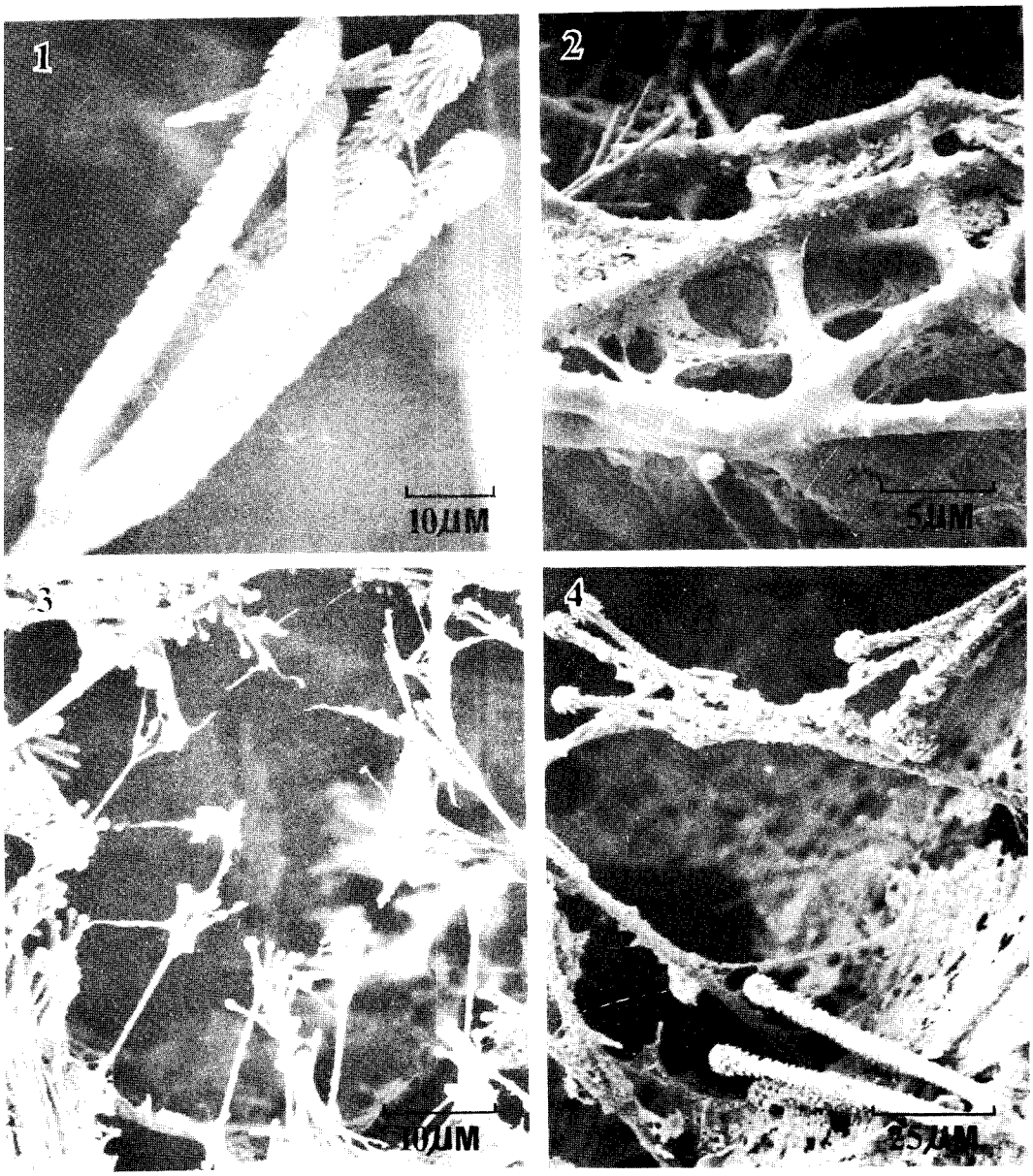
PLATE 6



Figs. 1-3. *Aphrocallistes jejuensis*, nov. sp.

1. Entire animal; **2.** Surface; **3.** Dictyonal skeleton.

PLATE 7



Figs. 1-4. *Aphrocallistes jejuensis*, nov. sp.

1. Scopule; **2.** Gastral part; **3-4.** Surface with scoples.

PLATE 8

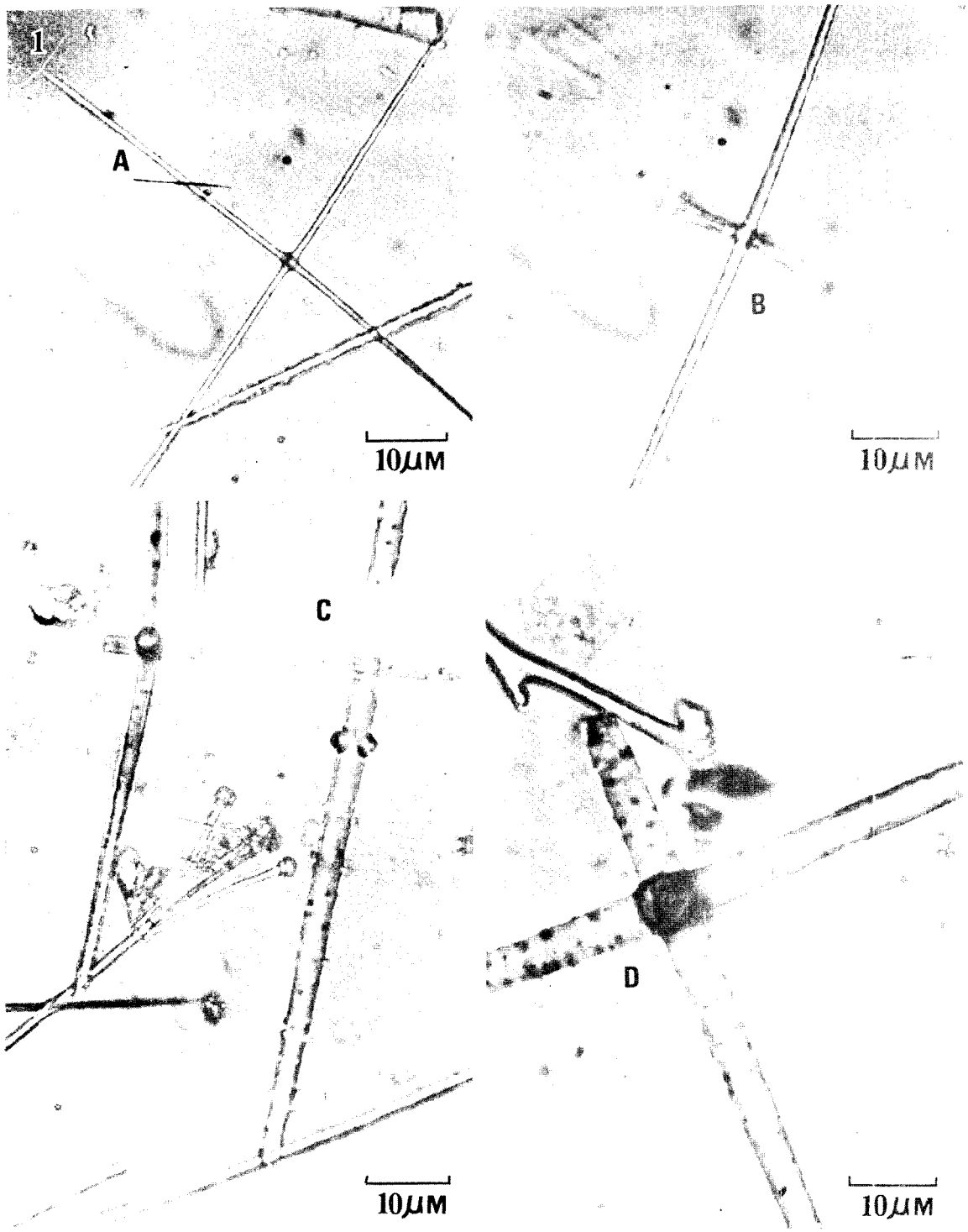


Fig. 1. *Aphrocallistes jejuensis*, nov. sp.

1. Megasclere: A-B, Hexact; C, Uncinate; D, Hexact.

PLATE 9

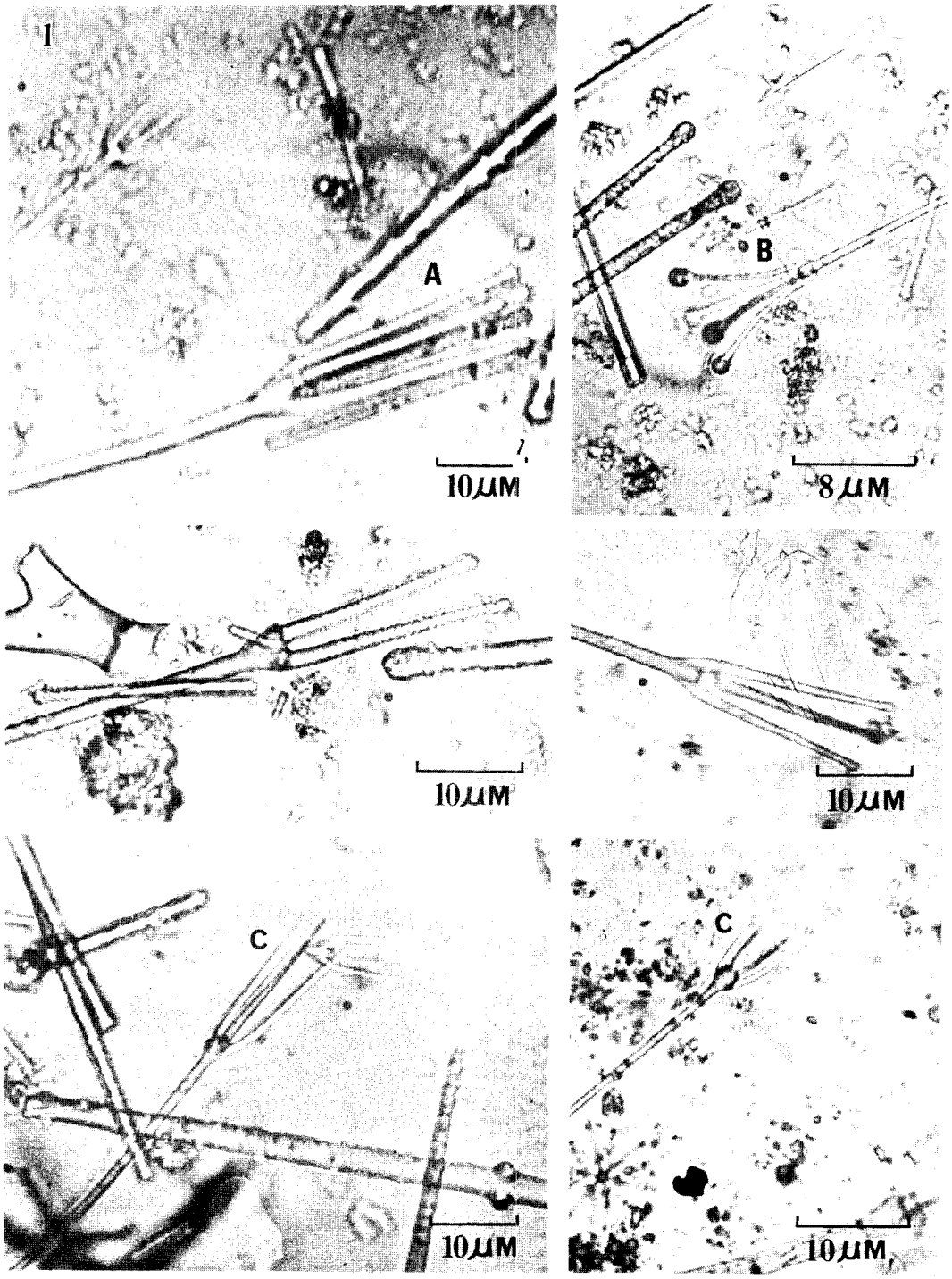
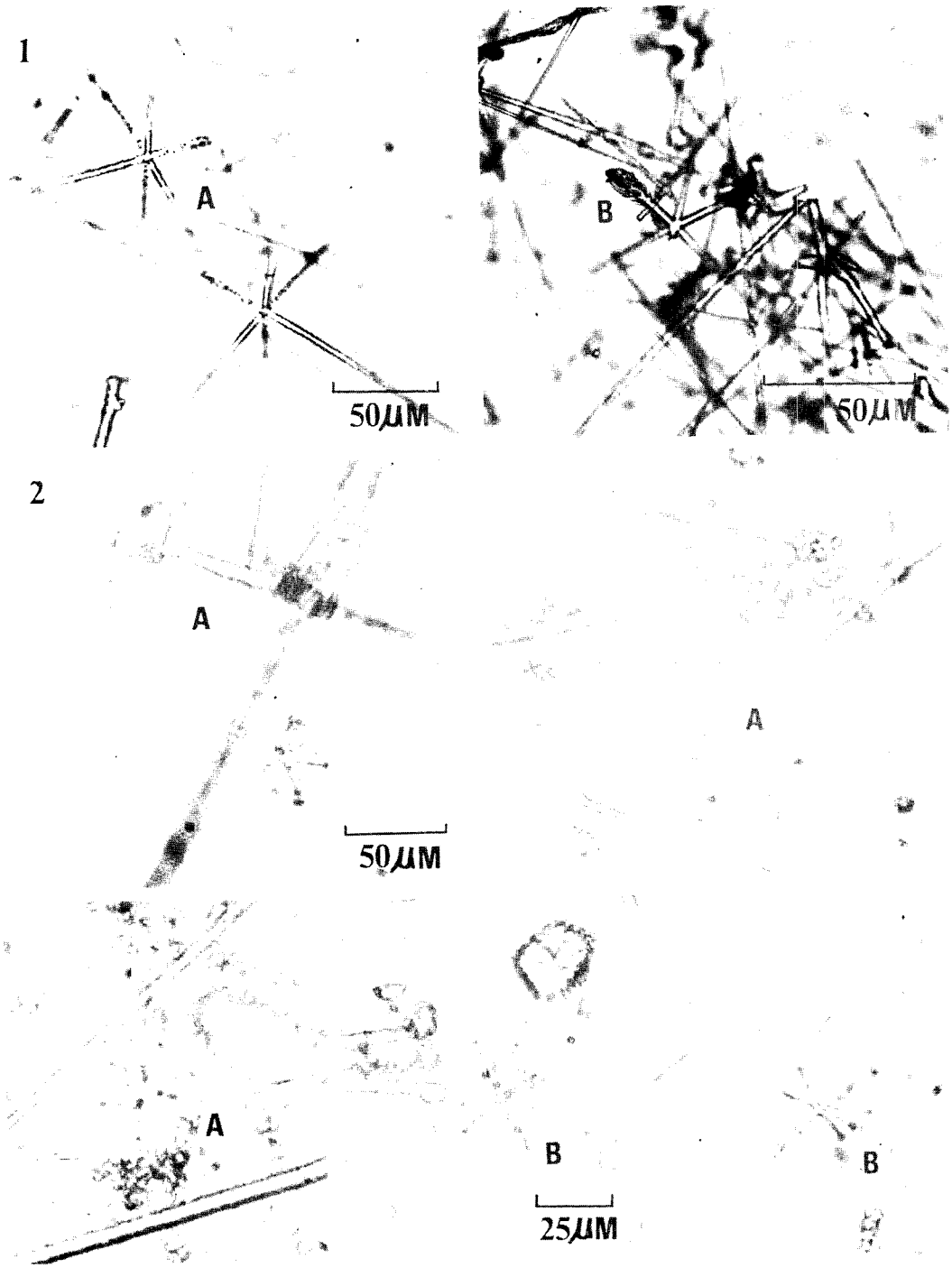


Fig. 1. *Aphrocallistes jejuensis*, nov. sp.

1. Microsclere: A, Pachyscopule; B, Leptoscopule; C, Scopule with pointed prongs.

PLATE 10



Figs. 1-2. *Aphrocallistes jejuensis*, nov. sp.

1. Microsclere: A-B, Heact pinulus; **2.** Microsclere: A, Dischohexaster; B, Hemidischohexaster.