

CONSEIL INTERNATIONAL POUR L'EXPLORATION DE LA MER

Zooplankton
Sheet 114

ACANTHARIA
ORDER: HOLOCANTHA
Family: Acanthochiasmidae
(By E. BOTTAZZI MASSERA and G. NENCINI)
1969

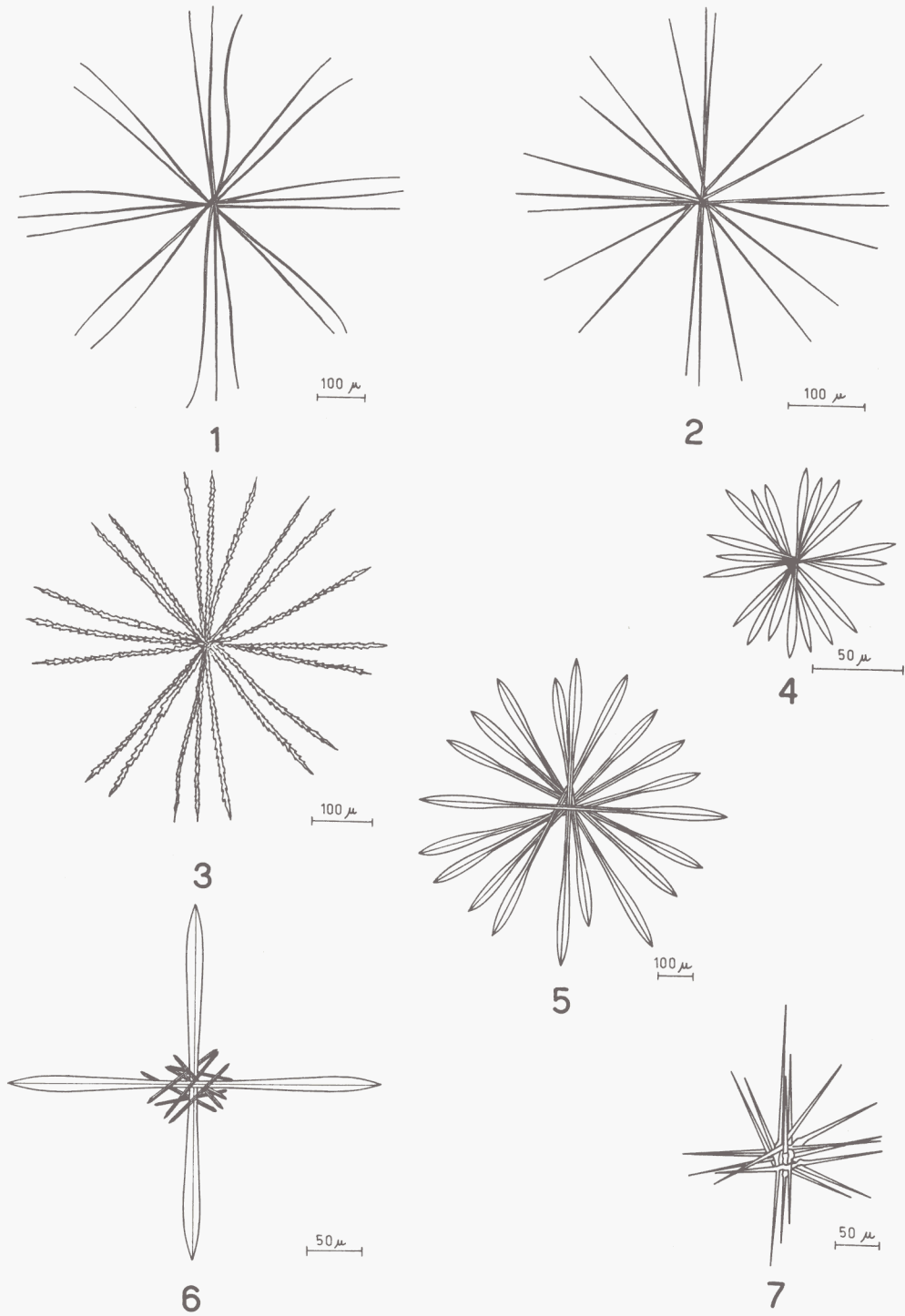


Figure 1. *Acanthochiasma rubescens*; Figure 2. *A. fusiforme*; Figure 3. *A. serrulatum*; Figure 4. *A. planum*; Figure 5. *A. quadrangulum*; Figure 6. *A. hertwigi*; Figure 7. *Acanthocyrtia haeckeli*. Figures 1, 2 and 7 modified after SCHEWIAKOFF; 3, 4, 5 and 6 original.

ACANTHARIA

Acantharia, marine planktonic Protozoa, are now separated from Radiolaria and are included in a distinct class.

Distinctive characters: skeleton of celestite (SrSO_4) formed by a set of spiculae which always meet at the centre of the protoplasmatic body and are regularly arranged according to a fixed law (MÜLLER's law); presence of a hydrostatic apparatus; lack of the perforated membrane.

MÜLLER's law: On comparing the roughly spheroidal of the Acantharia with a terrestrial globe, one may see that the emerging points of the spiculae are located in five parallel planes: 1 equatorial plane, 2 tropical planes and 2 polar planes. To be more specific: 1) two diametral or four radial spiculae on the Equator plane, arranged at 90° one with respect to the other (equatorial spiculae); 2) four diametral or eight radial spiculae inclined 30° on the equatorial plane; in projection, as seen from the pole, they form an angle of 45° with the preceding spiculae (tropical spiculae); 3) four diametral or eight radial spiculae inclined 60° on the equatorial plane; in projection, as seen from the pole, they become confused with the equatorial spiculae (polar spiculae).

ORDER: HOLOCANTHA

Ten diametral spiculae

Family: ACANTHOCHIASMIDAE

Spiculae which loosely cross in the centre or fit forming a more compact centre. Homogeneous gelatinous capsule. Absence of myonema.

Genus: ACANTHOCHIASMA Haeckel p. p.

Spiculae generally of equal shape and length, loosely crossed in the centre of the body. Ramified pseudopodia and non-ramified axopodia.

1. *Acanthochiasma rubescens* (Krohn). Thin cylindrical spiculae, of equal length and width. The separation between ectoplasm and endoplasm little differentiated. Endoplasm with several concretions and few zooxantelles.
Dimensions: length of spiculae: 0.8–1.0 mm, width of spiculae: 0.002–0.0025 mm. Diameter of protoplasmatic body: 0.24–0.35 mm.
2. *Acanthochiasma fusiforme* Haeckel. Short cylindrical spiculae, of the same length, enlarged in the central part and restricted in the distal parts. Ectoplasm and endoplasm differentiated. Endoplasm with few concretions and several zooxantelles.
Dimensions: length of spiculae: 0.4–0.6, width of spiculae: 0.003–0.0035 mm. Diameter of protoplasm: 0.16–0.24 mm.
3. *Acanthochiasma serrulatum* Schewiakoff. Compressed spiculae, of the same length, pointed at the ends and with denticulated edges. Ectoplasm and endoplasm differentiated. Endoplasm with several concretions and without zooxantelles.
Dimensions: length of the spiculae: 0.55–0.6 mm; width of the spiculae: 0.0025 mm. Diameter of protoplasm: 0.05–0.06 mm.
4. *Acanthochiasma planum* Popofsky. Compressed spiculae, of the same length, very thin in the central part, lanceolate in the distal parts.
Dimensions: length of the spiculae: 0.11 mm, width of the spiculae in the apices: 0.0034 mm, in the middle: 0.002 mm.
5. *Acanthochiasma quadrangulum* Popofsky. Quadrangular spiculae, of the same length, thin in the central part, lanceolate in the distal parts.
Dimensions: length of the spiculae: 0.9 mm, width of the spiculae in the apices: 0.007–0.008 mm and in the middle: 0.004 mm. Diameter of the protoplasm: 0.15 mm.
6. *Acanthochiasma hertwigi* Popofsky. Quadrangular spiculae two of which longer than the other eight (6–7 times). The two main spiculae are thin in the central part and lanceolate in the distal parts.
Dimensions: main spiculae length: 0.34 mm; width: in the apices 0.0048 mm, and in the middle 0.0017 mm. Secondary spiculae length: 0.051 mm, width: 0.001 mm.

Genus: ACANTHOCYRTA Schewiakoff

Spiculae of the same or of a different length, of the same or of a different shape, in the central part twisted like a spiral and gathered in a central body. Ramified or non-ramified pseudopodia, flagellum-shaped axopodia.

7. *Acanthocyrtia haeckeli* Schewiakoff. One or two longer spiculae, stouter and differently shaped. The other spiculae cylindrical and point ended. Ectoplasm and endoplasm differentiated.
Dimensions: length of the spiculae: 0.18–0.24 mm; width 0.002–0.003 mm. Main spiculae length: 0.3 mm; width: 0.004–0.006 mm. Diameter of the protoplasm: 0.11–0.14 mm.

Further Information on Identification

1. *A. rubescens*: HAECKEL, 1862, pag. 403–404; BRANDT, 1885, pag. 208, Tab. 3, Fig. 2, 3, 7, 14; HAECKEL, 1887, pag. 739; POPOFSKY, 1904, pag. 51–52; POPOFSKY, 1906 b, pag. 349, Tab. 14, Fig. 2; MIELCK, 1907, pag. 62; SCHEWIAKOFF, 1926, pag. 64–69, Tab. 1, Fig. 1–2, Tab. 2, Fig. 1–2 c, 6–9, Tab. 4 Fig. 1–2.
2. *A. fusiforme*: HAECKEL, 1860, pag. 810; HAECKEL, 1862, pag. 404, Tab. 19, Fig. 8; HAECKEL, 1887, pag. 739; POPOFSKY, 1904, pag. 52; POPOFSKY, 1905 b, pag. 49, Fig. 2; POPOFSKY, 1906 b, pag. 350, Tab. 14, Fig. 3; MIELCK, 1907, pag. 62–63; SCHEWIAKOFF, 1926, pag. 74–76, Tab. 2, Fig. 18, Tab. 4, Fig. 7–8.
3. *A. serrulatum*: POPOFSKY, 1906 b, pag. 352, Tab. 14, Fig. 10 as ? *Ac. Bruhni*; MIELCK, 1907, pag. 63–64, Tab. 4, Fig. 2 a–6 as ? *Ac. Bruhni*; SCHEWIAKOFF, 1926, pag. 74–76, Tab. 2, Fig. 18, Tab. 4, Fig. 7–8.
4. *A. planum*: POPOFSKY, 1904, pag. 53–54, Tab. 4, Fig. 7; POPOFSKY, 1906 b, pag. 351, Tab. 14, Fig. 9; POPOFSKY, 1906 b, pag. 351, Tab. 14, Fig. 8 as *Ac. plana* var. *Schotti*; MIELCK, 1907, pag. 69, Tab. 5, Fig. 1–2, Tab. 7, Fig. 7; SCHEWIAKOFF, 1926 pag. 76.
5. *A. quadrangulum*: POPOFSKY, 1904, pag. 54, Tab. 4, Fig. 4; SCHEWIAKOFF, 1926, pag. 77.
6. *A. hertwigi*: POPOFSKY, 1904, pag. 54, Tab. 4, Fig. 5; MIELCK, 1907, pag. 65; SCHEWIAKOFF, 1926, pag. 77.
7. *A. haeckeli*: POPOFSKY, 1904, pag. 53, Tab. 4, Fig. 3 as ? *Acanthochiasma decacanthum*; MIELCK, 1907, pag. 65 as ? *Ac. decacanthum*; HERTWIG, 1920, pag. 26, Tab. 2, Fig. 9 as ? *Ac. decacanthum*; POPOFSKY, 1904, pag. 53, Tab. 5, Fig. 1 as ? *Ac. bicuspidatum*; SCHEWIAKOFF, 1926, pag. 79–82, Tab. 3, Fig. 2, Tab. 4, Fig. 9–12, Tab. 2, Fig. 19.

Distribution

Atlantic Ocean

Labrador Current	1, 2
North Sea	2
East Coast of America	
a) Coastal area	–
b) Continental shelf	–
c) Continental slope	1, 2, 3
Gulf Stream	2, 7
Southern Edge of Gulf Stream	–
Northern Edge of Gulf Stream	–
Sargasso Sea	2, 5, 7
Northern Sargasso Sea	1, 2, 7
Southern Sargasso Sea	1, 2, 3, 5
Western Sargasso Sea	1, 2, 3, 4
North Equatorial Current	1, 2, 7
South Equatorial Current	1, 2, 4, 5, 6, 7
Equatorial Counter Current	1, 2, 3, 7
Canaries Current	1, 7
Antilles Current	1
Caribbean Sea	1, 2
Guyanas Current	2
South Atlantic Gyre, feeding into Guyanas Current	1, 2, 3

Mediterranean Sea

Ligurian Sea	1, 2, 7
Tyrrhenian Sea	1, 2, 3, 7

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