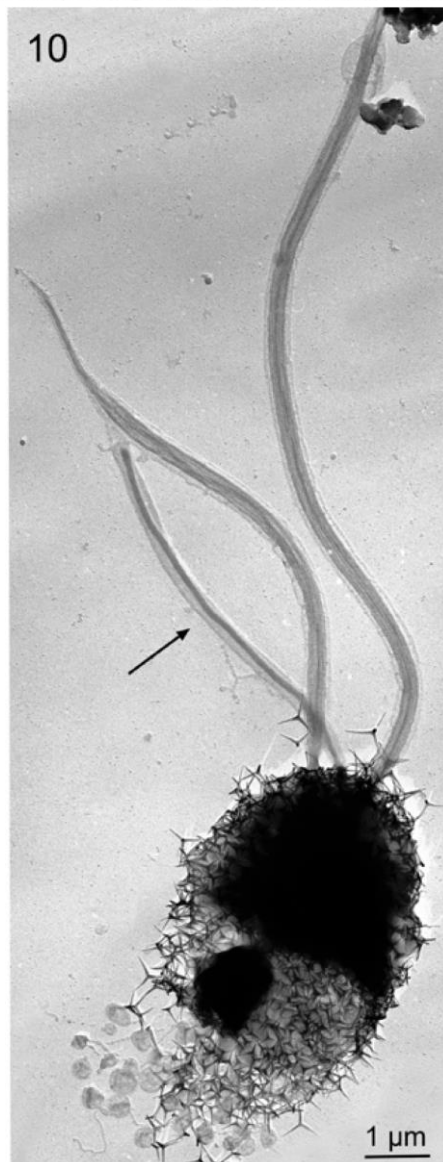
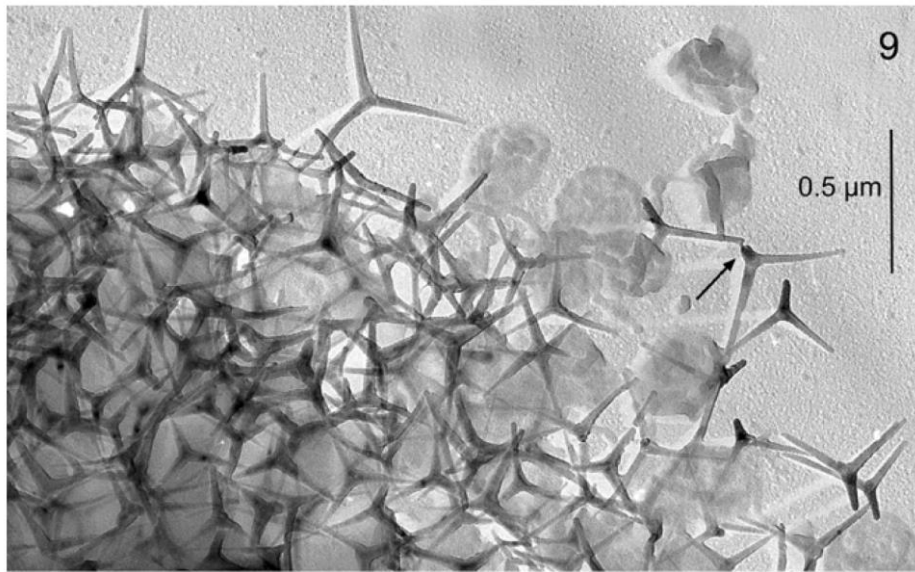
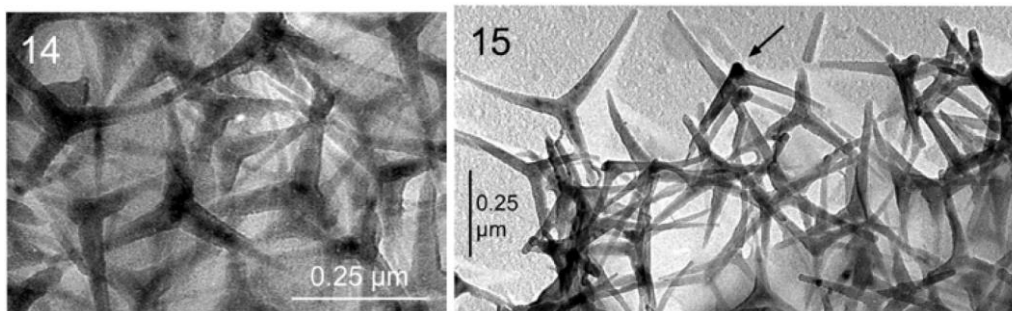


*Mercedesia multistellata* Thomsen & Østergaard (2015)





Figs 9, 10, 14, 15

Figs 9, 10, 14, 15. TEM whole mounts of *M. multistellata* (Figs 9, 10, 14, 15) from the Arctic (NOW). 9 – scatter of nannoliths from the cell shown in Fig. 10; arrow points to an asymmetrically positioned ‘two-armed’ nannolith; spherical structures of unknown origin occur among the nannoliths; 10 – complete cell (*M. multistellata* type specimen) with stretched out flagella and haptonema (arrow); 14 – detail of nannoliths (from Fig. 10) showing the rather robust appearance of some nannoliths; 15 – detail of nannoliths (from Fig. 10) showing a perfectly aligned nannolith and others that are tilted to the extent that one arm is ‘reduced’ to a dark spot (arrow).

**Diagnosis:** Cell elongate (c.  $4 \times 5 \mu\text{m}$ ) with two flagella ( $12.5/9.5 \mu\text{m}$ ) and a shorter haptonema (ca.  $7 \mu\text{m}$ ) (Fig. 10). Nannoliths are monomorphic three-pointed stars (Figs 9, 14, 15), with arms slightly bent in proximal direction. The individual arms gradually taper to wards the tip. The mean value ‘tip-to-tip’ distance is  $0.46 \mu\text{m}$ .

**Holotype:** Figs 9, 10, 14, 15 (same cell) from the Kane Basin, NW Greenland (NOW st. #B7 at  $79^{\circ}00.096 \text{ N} / 73^{\circ}19.964 \text{ W}$ ) occurring in a sample from 40 meters depth and processed on 12 May 1998.

**Etymology:** from ‘*multi*’ (L) meaning many and ‘*stella*’ (L) meaning star.

Numerical details of *M. multistellata* have been accounted for in Table 2. The tip-to-tip distance between neighbouring arms is  $0.46 \mu\text{m}$  (mean value) which is basically identical to the edge length in *M. aspiphora* coccoliths from the same geographical area (Table 1).

The star-shaped nannoliths somewhat resemble the central three-armed rib-pattern on the nannoliths of *M. aspiphora* but without the membranous material between the arms of the ribs. However, we don’t think that *M. multistellata* nannoliths represent an extreme variation of the *M. aspiphora* morphological theme, because of the robust appearance of the stars in *M. multistellata* and the absence of intermediate forms in our material.

In nannoliths resting on all three arms these appear to be equally long (Figs 9, 14, 15). A tilted position of nannoliths often causes these to display two complete arms and a ‘short’ arm (Figs 9, 15 arrows), with the short arm appearing much darker in the micrograph as a microscopy artefact. Organic under layer scales have not been observed and there is no indication of life cycles involving *M. multistellata*.

The nature of the small spherical structures that appear among the nannoliths (Figs 9, 10) is unknown to us.

*Mercedesia multistellata* was found in three different samples from NW Greenland (NOW) and has also been observed in a single sample from NE Greenland (NEW) (Gammelgaard, personal communication). A cluster of nannoliths reminiscent of *M. multistellata* have been observed by Østergaard (unpublished results) from tropical waters (Phuket, Thailand).

**Table 2.** Nannolith dimensions ( $\mu\text{m}$ ) of *Mercedesia multistellata* and *M. pusilla*.

Nannolith dimensions ( $\mu\text{m}$ )	Spine length				"Tip-to-tip" distance			
	Mean	SD	Range	n	Mean	SD	Range	n
<i>Mercedesia multistellata</i>								
NOW (Figs 9, 15)	0.292	0.032	0.244–0.369	20	0.459	0.057	0.369–0.599	20
<i>Mercedesia pusilla</i>								
EPOS (Fig. 13)	0.133	0.012	0.110–0.158	25	0.22	0.025	0.173–0.279	25
EPOS (Fig. 12)	0.17	0.014	0.144–0.198	20	0.284	0.022	0.238–0.327	20
AMERIEZ (Thomsen <i>et al.</i> 1988, loc. cit. Fig.	0.117	0.013	0.094–0.144	20	0.204	0.021	0.167–0.248	11

Thomsen, H. A., & Østergaard, J. B. 2015. Coccolithophorids in polar waters: *Mercedesia* gen. nov., *Ericolus*, *Quaternariella* and *Porsildia* gen. nov. *Acta Protozoologica*, **54(3)**: 155-169.