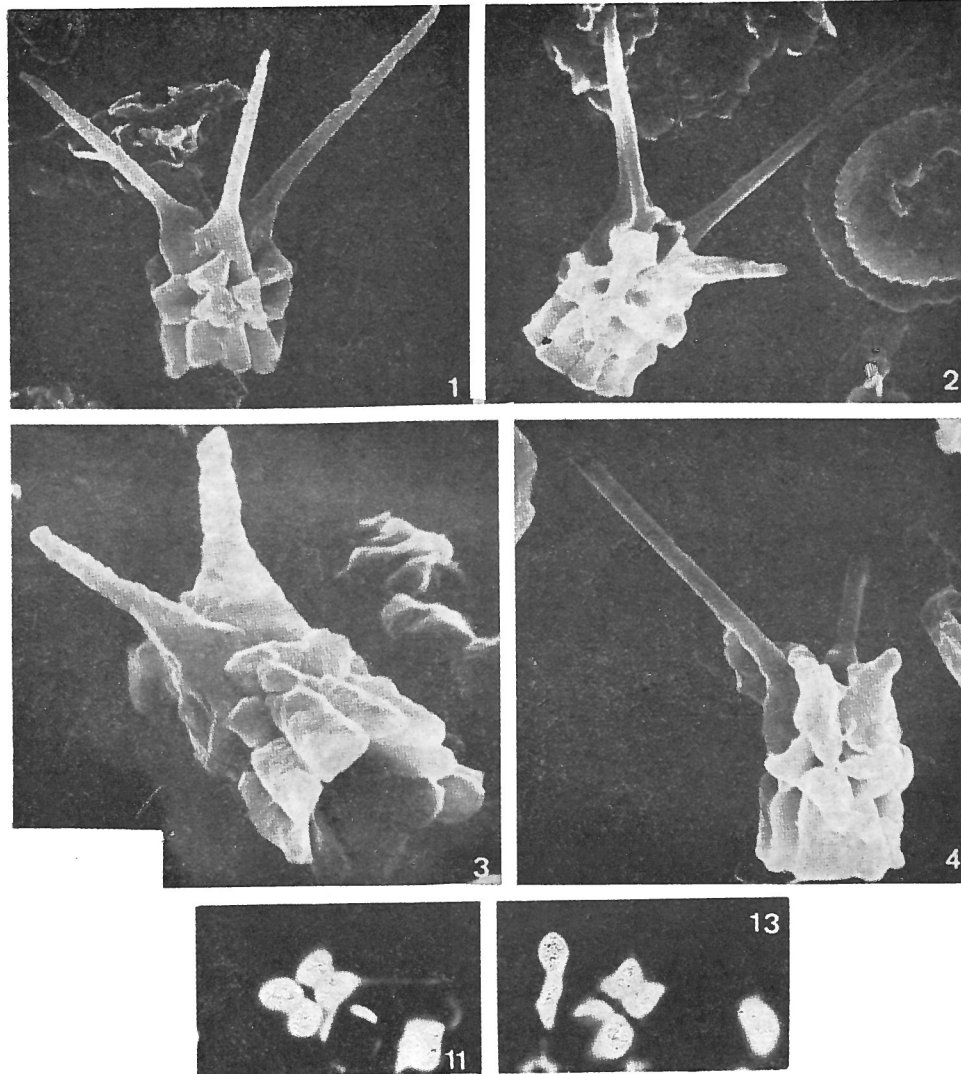


Sphenolithus quadrispinatus PERCH-NIELSEN, 1980



Figs. 1-4, 11, 13 — *Sphenolithus quadrispinatus* n. sp. from the Upper Miocene of DSDP Site 357, Rio Grande Rise, South Atlantic, Sample 3-6, 70 cm. Figure 2 = holotype. Fig. 1: $\times 5,600$; fig. 2: $\times 6,300$; fig. 3: $\times 9,800$; fig. 4: $\times 7,000$; figs. 11, 13: $\times 3,200$.

Description:

Diagnosis: Species of *Sphenolithus* with a proximal shield consisting of columns, one to two tiers of lateral elements and four spines.

Description: The proximal shield consists of eight to ten columnar elements arranged to form a cylindrical rather than a conical base for the one or two tiers of lateral elements. The latter are blocky and support four long spines.

Remarks:

S. quadrispinatus differs from other similar sphenoliths by the presence of four spines. *S. capricornutus* has only two spines and a conical proximal shield. *S. abies*, *S. heteromorphus* and *S. belemnus* have only a single central process. Specimens of *S. quadrispinatus* where all four spines are preserved in their full length are very rare. Damaged specimens can however, still be distinguished from i.e. *S. capricornutus* by the different shape of the proximal shield.

Type level:

Late Miocene, NN 10, *Discoaster calcaris* Zone.

Occurrence: *S. quadrispinatus* has only been found in the Upper Miocene (NN 10) of DSDP Site 357 in the South Atlantic, where it occurs in low numbers.

Type locality:

DSDP Site 357, Rio Grande Rise, South Atlantic (Sample 3-6, 70 cm).

Depository:

Holotype: Pl. 2, Fig. 2 (Negative 6-2278/2, ETH SEM Archive, Höggerberg, Zürich).

Author:

Perch-Nielsen K., 1980, p. 3; pl. 1, figs. 11-13; pl. 2, figs. 1-4.

Reference:

New Tertiary calcareous nannofossils from the South Atlantic. *Eclogae Geol. Helv.*, vol. 73, no. 1, pp. 1-7, 2 pls.