83. *Solisphaera helianthifomis* Bollmann et al. (2006)
Coccosphaerae parvae polymorphae (diametro circa 8.5 µm) ex planolithis formarum tribus constatae. Coccolithi coronarii protrusionibus elongatis tortis triangularibus muniti (usque ad 2.3 µm longis, 0.8 µm latis). Coccolithi lateris tholiformis leviter calcarei (circa 1.4 x 1.1 µm); sunt planolithi elliptici, margine angusto ex circulo uno elementorum bacilliformium tangentialium constato, area centrali ex circa 20 elementis trapeziformibus (circa 0.1 x 0.4 µm) in annulo radialiter dispositis. Coccolithi lateris plani valde calcarei plani, elliptici ad multanguli (circa 1.5 x 0.1 µm).

Small, polymorphic coccosphere (c. 8.5 µm in diameter) formed of three types of planoliths. Coronal coccoliths bear an elongate, twisted, triangle-shaped protrusions (up to 2.3 µm)
high x 0.8 µm wide). The domal-side lightly-calcified coccoliths (c. 1.4 x 1.1 µm) are elliptical planoliths with a narrow rim of a single cycle of rod-shaped tangential elements. The central area consists of c. 20 trapezoidal elements (c. 0.1 x 0.4 µm), arranged in a single, radial cycle. The planar-side heavily-calcified coccoliths are elliptical to polygonal and planar (size c. 1.5 x 1.0 µm).

**Holotype (designated here):** Figs 22-24.

**Type material:** ETH SEM stub: P212 St799 150m, filter sample collected at the type locality. 21 September 1995.

**Type repository:** Geological Institute, ETH Zurich.

**Type locality:** North Atlantic Ocean (29.65°N. 17.85°W. R.V. *POSEIDON* Cruise P212, station 799 at a depth of 150 m).

**Etymology:** From Latin *helianthus* = sunflower, *formis* = formed/shaped, referring to the collapsed coccosphere resembling a sunflower.

**Distribution:** *Solisphaera helianthifomis* was found in the lower photic zone of the North Atlantic Ocean near the Canary Islands, the central equatorial Pacific Ocean and in the Gulf of Mexico (Table 1). At present this species has been found in water samples with a temperature of 16.2-18.3°C and a salinity of 34.7-37‰.

**Remarks:** The number of coronal coccoliths varies between 18-28, while 30-50 lightly-calcified domal-side body coccoliths cover the remaining part of the coccosphere. The domal-side body coccoliths resemble the lightly-calcified coccoliths of *Solisphaera emidasia* in their shape, structure and size. In addition, a few lightly-calcified coccoliths without rims are often seen. It is unclear whether these coccoliths represent another type of body coccoliths or lightly-calcified coccoliths affected by carbonate dissolution or malformation. Heavily calcified planar-side coccoliths, as observed for *S. emidasia* and *S. blagnacensis* are clearly present in this species (see arrow on Fig. 22). However, their ultrastructure and their distribution on the planar side of the coccosphere remains unknown because of the rareness of this species.

The coronal coccoliths of *S. helianthifomis* can be easily distinguished from those of *S. emidasia* and *S. blagnacensis* by their twisted, elongated triangular shape (Figs 22, 23, 25). The base of the coronal coccoliths appears to be more or less oblong (Fig. 23), similar to those of *S. emidasia*. The overall structure of *S. helianthifomis* is similar to that of *S. emidasia*, due to the absence of process-bearing body coccoliths (Figs 5-9, 22, 24). However, the twisted triangular shape of the protrusions in *S. helianthifomis* provides an obvious difference (Figs 22, 23, 25).

*Sulisphaera helianthifomis* was illustrated for the first-time as 'unknown' coccolithophore by Pariente (1997), her Plate 3 fig. G and subsequently as ‘*Saturnulus helianthifomis*’ (nomen nudum) in Young et al. (2003), p. 61, plate 27, figs 9, 12.
Unmineralised underlayer scales were not observed and neither energy-dispersive X-ray nor polarising light microscopy analysis could be performed because of the rarity of the species. However, the appearance of the elements and the close similarities of them in this species to those of the other *Solisphaera* species lead us to predict that the coccoliths are formed of calcite.