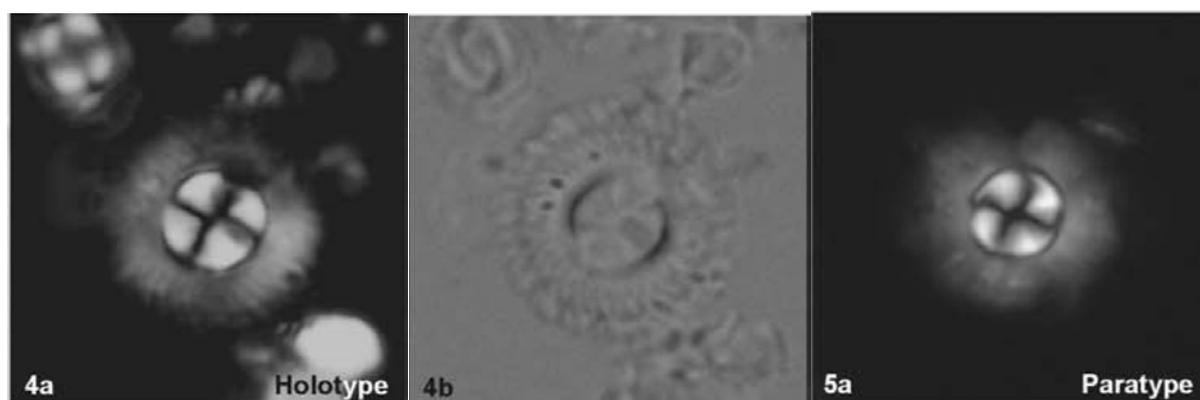


58. *Markalius latus* Shamrock & Watkins (2012)



Pl. 7, figs 4, 5

Fig. 4. 23-3-51.

Fig. 5. 24-2-54.

Markalius inversus BRAMLETTE and MARTINI 1964, plate 2, figures 7-8. – BYBELL and SELF-TRAIL 1994, plate 36, figures 26, 31

Holotype: Plate 7, figure 4.

Paratype: Plate 7, figure 5.

Etymology: (L.) broad or wide, for the expanded central-area that occupies approximately > 33% of the coccolith diameter.

Diagnosis: Medium to large, circular placolith with broad, birefringent CA.

Description: Medium to large, bicyclic, circular placolith with a wide CA occupying > 33 % of the coccolith diameter. The distal shield is narrower than the proximal shield, and each is composed of 30-50 oblique elements that are weakly birefringent. The broad CA is depressed and filled with blocky element that are highly birefringent and show a thin, quadrature extinction figure that is slightly off-axis.

Dimensions: Shield diameter: 5.5-9.1 μm ; $\mu = 7.2 \mu\text{m}$, s.d. = 1.13; CA diameter: 2.3-3.8 μm , $\mu = 3.1 \mu\text{m}$, s.d. = 0.44; CA/Shield ratio: 36.9-48.7 %; $\mu = 43.8 \%$; s.d. = 2.9; N = 23 for all data.

Remarks: The relative size of the CA was measured in 50 specimens of *Markalius*. This data shows a distinctly non-normal distribution (Figure 9a), with specimens clustering into two dominant populations (Fig 8b), those with a relatively constricted CA (< 33%) and those with a more expanded CA (> 33%). When separated, both groups approach normal distribution (Figure 9c, d), and comparison of these two populations indicate that they are morphologically unique (μ *M. inversus* s.s. = 27.8%, μ *m. inversus* var. *latus* = 43.9%, $p_{\text{same}} = 3.24^{\text{E-26}}$). In addition, *M. inversus* and *M. latus* have discrete stratigraphic ranges.

Type Locality: ODP Leg 122 Site762C, Exmouth Plateau

Type Level: 23-3-(51-52cm), 373.01 msbf.

Observed range: CP8b/9a?-12b; NP 9/10-14b.

Shamrock, J.L. & Watkins, D.K., 2012. Eocene calcareous nannofossil biostratigraphy and community structure from Exmouth Plateau, Eastern Indian Ocean (ODP Site 762). *Stratigraphy*, **9(1)**: 1–54.