

## Preliminary nannofossil biostratigraphic results from the Mariakani Formation, onshore Lamu Basin (SE Kenya)

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During the mid-Jurassic, eastern Gondwana experienced a drastic tectonic and palaeogeomorphological reorganisation that was characterised by a shift from the continental depositional environments of the Karoo Superformation to the marine incursions of the transgressive Kambe Formation. There is a faulted contact between the lacustrine Mariakani and Mazeras Formations (both Triassic) and the marine Kambe Formation (Jurassic) in the Mombasa Basin (Caswell, 1953, 1956; Karanja et al., 1993).

Two samples (60 and 61) were collected from an exposure located about 15 km from the Kinango-Kwale junction, mapped as the Mariakani Formation (Caswell, 1953, 1956). The samples consist of a light grey, weathered, soft shale (Sample 60) and a heavily-jointed and fractured, light greyish, fine-grained sandstone with minor cross-bedding (Sample 61). Only Sample 61 contained moderately-preserved, rare nannofossil remains, including *Watznaueria barnesiae*, *W. britannica*?, *Thoracosphaera* sp., *Lotharingius* cf. *L. contractus*, *Discorhabdus striatus*? and *Triscutum sullivanii*?. The age of this assemblage was identified as uppermost Bajocian–lowermost Bathonian or Zone NJ9 (*Watznaueria britannica*) to lower Zone NJ11 (*Pseudoconus enigma*), based on the bases of *W. britannica* and *W. barnesiae* (Bown & Cooper, 1998). This interval corresponds to the *laeviuscula-garantiana/parkinsoni* Ammonite Zones. Thus, the obtained results biostratigraphically correlate Sample 61 with the upper shaly member of the lower Kambe Formation (Chiocchini et al., 2005) and the Upper Bajocian ammonite zones (*Strenoceras niortense* and *Garantiana garantiana*) of Galasz (2017) from the Mwache River area (25 km to the NE), and also re-evaluates the age of the Mariakani Formation at this location. These data also continue the discussion of how far west the Jurassic marine sequences overlap the Karoo/Duruma sandstone series, first discussed by E. Fraas (see Caswell, 1953).

### References

- Bown, P.R. & Cooper, M.K.E. 1998. Jurassic. In: P.R. Bown (Ed.). *Calcareous nannofossil biostratigraphy*. British Micropalaeontological Society Publications Series. Chapman & Hall, London: 34–54.
- Caswell, P.V. 1953. Geology of Mombasa Kwale area. *Geological Survey of Kenya*, **24**: 69 pp.
- Caswell, P.V. 1956. Geology of Kilifi-Mazeras area. *Geological Survey of Kenya*, **34**: 40 pp.
- Chiocchini, M., Fazzuoli, M. & Reale, V. 2005. The Mid-Jurassic marine transgression in East Africa: New data on the depositional environment and age of the Lower Kambe Formation (Aalenian to Bajocian) in the Mombasa area (S.E. Kenya). *Rivista Italiana di Paleontologia e Stratigrafia*, **111**(3): 439–454.
- Galasz, A. 2017. Bajocian (Middle Jurassic) ammonites of stratigraphical and palaeobiogeographical importance from Mombasa, Kenya, East Africa. *Geodiversitas*, **39**(4): 717–727. <https://doi.org/10.5252/g2017n4a4>
- Karanja, F.M., Siambi, W.S. & Sewe, C. 1993. *Excursion guide to the coastal Kenyan geology and marine terraces*. International Workshop on Past Global Changes (PAGES), Mombasa, Kenya: 11 pp.