EVOLUTION OF THE FORAMINIFERAL GENUS LEPIDOCYCLINA: SIGNIFICANCE FOR EOCENE HIGH RESOLUTION BIOSTRATIGRAPHY

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ABSTRACT

The orbitoidal foraminiferal genus Lepidocyclina Gümbel is generally accepted to have evolved from a coiled Tremasteginau - like ancestor, via a series of taxa with intermediate morphology, to which the names Helicostegina, Eulinderina and Polylepidina have been applied. Our own and previous investigations indicate that Helicostegina occurs in strata referable to the NP14 and NP15 calcareous nannofossil zones, and perhaps earlier, while Eulinderina is found in rocks of NP15 and lower NP16 zone age. Polylepidina, as defined in this paper, is of upper NP16 zone age, while the Lepidocyclina ariana group first appears in lower NP17 zone horizons. Within this framework it is possible to subdivide the genera Eulinderina and Polylepidina on the basis of an arbitrarily defined "morphological grade". In shallow marine sedimentary rocks of middle Eocene age, where the lepidocyclinids evidently thrived, and where the traditional planktic microfossils may be rare or absent, the "morphological grade" of the lepidocyclinid population may be used as a relatively precise indicator of biostratigraphic horizon. Examples from the Gulf Coast and Caribbean are used to illustrate this concept.