

Delineation of the Paleogene-Neogene Boundary from the Phylogenetic Trends of Miogypsina and Lepidocyclina: - A Case Study from the Andaman Basin, India.

MISHRA P.K. Regional Geology Group, ONGC, Nazira, Assam, India.

Quantitative analysis of the Miogypsina and Lepidocyclina populations from the Oligocene – Miocene subsurface succession of Andaman Basin has been carried out, following the principles of Nepionic Acceleration. The biometric parameters have been measured from the median sections and used for taxonomic classification and establishing phylogenetic trends. The Miogypsinidae lineage comprises of two distinct trends, i.e. Miogypsinoides (complanata – formosensis – bantamensis – dehaartii) and Miogypsina s.s. (basraensis – gunteri – tani). The Lepidocyclina lineage is represented by L. isolepidinoides, its gradation to L. sumatrensis and L. sumatrensis.

The sequence of mean values of the biometric data indicate a gradual and sustained evolutionary trend for the older species and pulsating pattern for the younger species of the lineages. The protoconch diameter of Miogypsinidae has an increasing trend and the Nepionic diameter has a decreasing trend from Oligocene to Miocene. The number of adauxiliary chambers around the deuterocoel of Lepidocyclina show an increasing trend from the Oligocene to Miocene. The Paleogene – Neogene boundary is demarcated here at the mean value of X (number of spirally coiled Nepionic chambers excluding both embryonic chambers) at 10.40 ± 0.60 in the Miogypsina scale. This level coincides with the transition of L. isolepidinoides to L. sumatrensis and LAD of Globigerina ciperoensis angulicostata. Thus the occurrence of M. bantamensis, M. gunteri and L. isolepidinoides denote Oligocene whereas M. dehaartii, M. tani and L. sumatrensis assemblage as Miocene in this area of study.