

**MICROFACIES ANALYSIS OF EOCENE NAMMAL
FORMATION, NAMMAL GORGE, SALT RANGE,
PAKISTAN; IMPLICATION FOR DIAGENESIS AND
ENVIRONMENT OF DEPOSITION**



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BAHRIA UNIVERSITY, ISLAMABAD**

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ABSTRACT

Nammal formation of Eocene age exposed in Nammal gorge was investigated for interpretation of biostratigraphic assemblage, microfacies analysis, diagenetic settings and paleoenvironmental conditions. A total of 16 samples were collected from the base of the Formation to the top of the Formation an interval of three to five meter distance during the field for the detailed microscopic studies.

The term “Nammal Formation” has been formally accepted by stratigraphic committee of Pakistan for the “Nammal Limestone” and “Shale” of Gee (Fermor, 1935) and “Nammal Marl” of Danilchik and Shah (1987) occurring in Salt Range and Trans Indus Ranges. The Formation has conformable lower and upper contact with Patala and Sakesar Formations respectively.

Globigerina sp., d’Orbigny, (1826), *Discocyclina* sp., Gumbel, (1868), *Assilina laminose* sp., W. D (1953), *Hamulusella liburnica* sp., Buser & Radoicic (1987), *Nummulites* sp., Lamarck, (1801), *Lepidocyclina eodilatata* sp., Coleman (1963), *Lepidocyclina (Eulepidina) ephippioides* sp., Jones and Chapman (1900), *Textularia* sp., Defrance, (1824) and *Cymopolia* sp., after Scholle and Ulmer Scholle, (2003) were also identified on the basis of detailed petrographic characteristics, and four microfacies are assigned which are Foraminiferal bioclastic wackestone microfacies, Bioclastic wackestone-packstone microfacies, Mudstone microfacies and Bioclastic mudstone to wackestone microfacies. These four microfacies representing the inner ramp, middle ramp, ramp slope and outer ramp depositional environments.

The presence of various cement types and diagenetic processes leads to the conclusion that the Nammal Formation was deposited in the shallow shelfal conditions. The age of the Nammal Formation is reassigned which is from Late-Paleocene to Early-Eocene on the basis of microfossils content present in it.

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