GEOCHEMICAL SIGNIFICANCE OF PETROPORPHY- RIN AND PERYLENE BIOMARKERS IN SEDIMENTS AND OILS OF NORTH CAMBAY BASIN, INDIA

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Petroporphyrin and perylene biomark- ers were analyzed in crude oils and sedimentary source sequences from diff- erent structures of north Cambay Basin to evaluate depositional environments and to study oil source correlations. The studies indicate that the distri- bution and the preservation of both petroporphyrin and perylene pigments are mainly controlled by redox conditions, experienced by different sub units of Cambay shale Formation. Moreover, the concentration of these pigments can also be correlated with anoxic events due to sea level changes during early to late Eocene period. The enrichment of vanadyl porphyrins and perylenes in younger Cambay shale sequences suggest deposi- tion of these sediments in anoxic condi- tion with low pH where as sediments of older Cambay shales enriched in nickel porphyrins with low VO/(VO+Ni) and high Ni/(Ni+V) ratios indicating the deposition of these \sediments insub-oxic, high pH and Eh conditions. The preferential enrichment of ETIO series of nickel porphyrins, extremely poor concentration of vanadyl porphyrins and V in oils of North Cambay Basin suggest that these oils are generated from the source sequences deposited in sub-oxic conditions present at the base of older Cambay shale and top of Olpad Formation.