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Mineralogic Characterization and Petroleum Potential of Clays (Shales) of the N' Kappa Formation (Paléocene-Eocene) in the Douala Sedimentary Sub-basin (South-West Cameroon)

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ABSTRACT

The aim of this research work was to report a facies analysis of the N' Kappa formation, identified the clay minerals present in those facies and evaluate their oil potential. For that to be done, Lithostratigraphic descriptions were performed on three natural outcrops chosen in three different localities of the northern border of Douala sedimentary basin. Ten shaly samples were then collected on those outcrops and submit to X ray diffraction and Rock-Eval pyrolysis. Lithologically, the N' Kappa formation is made up of dark to grey shales and fine to coarse sandstones. The mineralogic content of the shales is made up of Kaolinite, dickite, low quartz and vaterite. Those shaly facies present high amount of immature organic matter (average TOC content around 2%). The petroleum potential is fair to poor (average S₂ for all the samples around 3.33 mg HC/g of rock) though some samples (M1 and M2) presenting a good petroleum potential up to 6.62 kg HC/t of rock and 6.44 kg HC/t of rock respectively. They have undergone a low degree of diagenesis (early to burying diagenesis). This is evidenced by the predominance of kaolinite and dickite, low quartz and vaterite which are minerals stable at low temperature.

KEYWORDS

Mineralogy; Organic Matter; Petroleum Potential; N' Kappa Formation; Douala Sub-Basin

Cite this paper

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