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Geochemical and Palynological Analysis in Assessing Hydrocarbon Potential and Palaeoenvironmental Deposition, North Ir

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SUMMARY

Geochemical and Palynological analysis were carried out to assess hydrocarbon potential and palaeoenvironmental deposition for (27) core and cutting rock samples recovered from selected oil exploratory wells , Makhul-2 (Mk-2),Qarachuq-1 (Qc-1) and Qarachuq-2(Qc-2), TaqTaq-1(Taq-1), Butmah-15 (Bm-15), Ajeel-8 (Aj-8)and Jabal kand(Jk -1) ,encountered from Butmah Formation (Lower-Middle Liassic) , Sargelu Formation (Middle Jurassic) and Naokelekan Formation (upper Jurassic) .The value of palynological analyses in the undertaken study is to resolve stratigraphic and palaeoenvironmental consequences of Jurassic Period in Iraq , thus the profuse of plant cuticle of translucent phytoclast in the basin of deposition refers to proximal depositional environment due to their specific gravity of this type of plant cuticle , whereas the opaque organic matter produced either from highly oxidized environment or from forest fire residues could refer due to its light specific gravity to distal depositional environment that this type could transported far from the continents toward the aquatic environment . Recurring Type A Amorphous kerogen indicates Oil –Prone beside various amorphous types (B, C, D) within Zagros Fold Belt. The specified palynomorphs recovered from palynological analysis declared so many indications to determine the potentiality of source rocks .Almost all slides shows spores and pollen, phytoclasts and amorphous organic matter. Extracted resins and pigments are indicating toxic environment of type II-III kerogen that generates oil with subordinate gas.Geochemical analysis can aid also the undertaken study by determination the Terrestrial origin and kerogen type II-III .Previously proved that all crude oils within this sub- basin is belong to family A (sourced from Middle Jurassic Sargelu Formation) nearby local basins of family B (sourced from U. Triassic Kurra chine, and Rhaetic Baluti Shale Formation). Jurassic Period is considered as a generative hydrocarbon rock unit by means of both optical and chemical approaches definitely in the Great Kirkuk region and surrounding areas in North Iraq. Meanwhile the current studies focused on the western desert as promising reservoirs related with hydrocarbon pathways from Mesopotamian Basin.