

Organic Sedimentation in Sud-Rifain Jurassic Basin

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The organic sedimentation in the Sud-Rifain Jurassic basin was very heterogeneous. The organic sedimentation process was controlled by several factors. The principal ones are the tectonic, paleogeographic and physico-chemical factors. These parameters allowed the installation within the basin of two distinguished organic sedimentation areas.

An area (A), located at the western part of the basin, with terrigenous detrital mineral content. The deposited organic matter is a lignite with a percentage of organic carbon not exceeding 1%, associated with low values of oil potential and S2/S3 ratio. However, the index of production (IP) is high testifying the presence to important accumulation of hydrocarbons. These geological and geochemical criteria make the area (A) as hydrocarbon rock reservoir.

* An area (B), located at the eastern part of the basin, characterized mainly by fine sedimentary shale deposits. The geochemical study of fossilized organic carbon shows the presence of a well preserved organic carbon with a percentage which exceeds 2.5%, associated with high values of S2/S3 ratio, petroleum potential (PP) and hydrogen index which reaches 716mg HC/G of COT. These geochemical results testify of better conditions of organic sedimentation in an anoxic medium leading to the existence in this area (B) of a good petroleum source rock.

The juxtaposition of the area (A) as petroleum rock reservoir and the area (B) as petroleum source rock in the same basin is an exceptional phenomenon that attracts the attention of prospectors and places the Sud-Rifain basin among the most promising petroleum Moroccan systems. In fact, more the source rock is close to the hosting reservoir, more the probabilities of having important accumulations are higher due to the complicated hydrocarbon migration processes.

Keywords: organic matter, Sud-Rifain basin, petroleum potential, petroleum source rock, rock reservoir.