

An Assesment of Unconventional Hydrocarbon Potential of the Silurian Dadaş Shales in Diyarbakır Basin, Türkiye

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Abstract : The Silurian Dadaş Formation within the Diyarbakır Basin in SE Türkiye, like other Silurian shales in North Africa and Middle East, represents a significant prospect for conventional and unconventional hydrocarbon exploration. The Diyarbakır Basin remains relatively underexplored, presenting untapped potential that warrants further investigation. This study focuses on the thermal maturity and hydrocarbon generation histories of the Silurian Dadaş shales, utilizing basin modeling approach. The Dadaş shales are organic-rich and contain mainly Type II kerogen, especially the basal layer contains up to 10 wt. %TOC and thus it is named as "hot shale". The research integrates geological, geochemical, and basin modeling data to elucidate the unconventional hydrocarbon potential of this formation, which is crucial given the global demand for energy and the need for new resources. The data obtained from previous studies were used to calibrate basin model that has been established by using PetroMod software (Schlumberger). The calibrated model results suggest that Dadaş shales are in oil generation window and that the major episode for thermal maturation and hydrocarbon generation took place prior rot Alpine orogeny (uplift and erosion) The modeling results elucidate the burial history, maturity history, and hydrocarbon production history of the Silurian-aged Dadaş shales, as well as its hydrocarbon content in the area.

Keywords : dadaş formation, diyarbakır basin, silurian hot shale, unconventional hydrocarbon

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