Geophysical Research Abstracts
Vol. 13, EGU2011-1072-1, 2011
EGU General Assembly 2011

Inorganic Geochemistry of the Upper Jurassic Chia-Gara Formation, a potential source rock in Iraqi Kurdistan Region

Ibrahim Mohialdeen
Iraq (ibrahim.jaza@univsul.net), University of Sulaimani-Sulaimani -Kurdistan-Iraq

Inorganic Geochemistry of the Upper Jurassic Chia-Gara Formation, a potential source rock in Iraqi Kurdistan Region

Ibrahim M.J.MOHIALDEEN
Department of Geology, College of Science, University of Sulaimani, Kurdistan, NE Iraq ibrahim.jaza@univsul.net

One of the potential source rocks in Mesozoic Petroleum system in Kurdistan is the Tithonian-Berriasian Chia Gara formation (Mohialdeen, 2008). Four wells (K-109, Hr-1, Tk-3, and Bj-1) in Kurdistan and north of Iraq were selected to study this formation from the inorganic geochemical point of view. The intervals of the Chia Gara formation studied occurred at a present day burial depth of Hr-1: 3075-3310m, K-109: 2780-3090, Tk-1: 2770-2890, Bj-1: 2150-2310 m. Molecular geochemical data for the sediment from the Chia Gara Formation support an origin from marine organic matter with some minor admixture of terriginous material (Mohialdeen, et al., 2007). Sedimentological study indicates to the deep outer shelf to carbonate slope environments of the Chia Gara Formation (Mohialdeen, 2008).
Sixteen samples from the studied wells were investigated using XRF for elemental analysis especially the trace elements. The results indicate to the presence of CaO nearly in all samples in a high weight percentage, as well as the SiO2 is remaining the same in all samples. This is mostly indicating the same chemical and depositional environment as concluded from sedimentological study.
The trace elements distribution along the sections is remaining similar. The V/Ni and V/Cr ratios have higher values in the lower part of the sections more than the other parts, which is a good indicator to deposition of the lower part of the formation in anoxic condition. However, the V/Ni ratio in well Bj-1 is lower in the lower part than the upper part, this exception may be due to lithology of the formation in this section which lacking shale or calcareous shale. The V/Cr ratio still indicates the reducing condition of the lower part. The Th/U ratio as it is recorded from the lower part of the sections is lower than the upper part, which is coinciding with the reducing condition of this part. This conclusion is approved the organic geochemistry study of the Chia Gara Formation which indicates that the lower part is rich with organic matter and has good potentiality for hydrocarbons.

Keywords: Iraq, Kurdistan, Chia Gara Formation.
References:
Mohialdeen, I.M.J., Al-Beyati, F.M., Theil, V., and Schwark, L., 2007, Geochemical characterization of the Upper Jurassic Chia Gara Formation, a prolific source rock in Kurdistan, 23rd International Meeting on Organic Geochemistry, UK (Poster).(www.imog2007)
Mohialdeen, I.M.J., 2008, Source rock appraisal and oil/source correlation for the Chia Gara Formation, Kurdistan - North Iraq, PhD thesis, unpublished, University of Sulaimani, 140p.