Source-rock oil expulsion mechanism and the hypothesis of primary migration: A typical lacustrine geochemical section study in Jiuquan Basin, NW China

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Source-rock oil expulsion was the largest unsolved problem in petroleum geochemistry 40 years ago and still remains(L. C. Price et al,1997). Petroleum system established on the high source-rock oil expulsion (>80~90%) (Magoon,. and Dow, 1994.)and recent unconventional shale resources explode has put it into the controversial spotlight. A typical established geochemical section of semi-salty and semi-fresh water deposited lacustrine source rock gives us evidence that the thickness of source-rock oil expulsion maybe overestimated in the previous research work. A notable decline in contact plane of shale and sandstone through Chloroform bitumen ("A") are possibly infer the tendency of the transition from primary migration to second migration. Primary migration through shale has been possibly hypothesized to be much easier than expected. The role of thickness of shale has been long overestimated and the maturity has been proposed to be emphasized. Overpressure in the lower part of Jiuquan Basin account for the high Chloroform bitumen ("A") and the formation of mudstone fracture reservoir.

The initial idea of this ariticle has been listed in PhD thesis of the author. Titled: Geochemistry of Source rocks and oils in Jiuxi Basin, NW China.