Accumulation of lacustrine shale oil in Triassic Chang 7 Member in Ordos Basin and its controlling factors

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The seventh member of Yangchang Formation (Chang 7 Member) of Triassic in the Ordos Basin contains high-quality source rocks of black shale and dark mudstone. However, it has frequently changed lithologies. In this study,the mud shale in the Chang 7 Member contains organic lamina, clay lamina and carbonate lamina. Shale oil was generated in organic lamina, and then migrated to organic-poor formations along carbonate lamina, clay lamina, siliceous lamina and fractures. Shale oil enrichment is controlled by source rock quality, thermal evolution degree and adsorption capacity of clay minerals,showing the vertical difference of shale oil enrichment. First, higher organic carbon abundance in source rocks corresponds to bigger hydrocarbon expulsion quantity and less detained movable oil quantity. Shale oil enriches in the source rocks with relatively lower organic matter abundance (*TOC* <1%) near high-quality source rocks. Second, for the shale with low organic matter abundance, the oil saturation index (OSI) has negative relationship with the content of minerals, especially clay minerals. Especially, the dark massive mudstone with lower *TOC* and the mud shale with rich terrigenous debris and lower *TOC* are key targets for shale oil exploration and development.