

ORGANIC-PETROGRAPHIC STUDIES OF THE SEMBAR FORMATION IN THE MIDDLE BASIN, PAKISTAN

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Organic petrography of well and outcrop samples was carried out to assess the amount and type of organic matter and its level of maturity in different areas of middle and lower Indus basin. The organic matter in most of the outcrop samples from Sulaiman Foldbelt is of terrestrial origin, with small amount of marine liptinites. This sort of organic matter can be correlated with kerogen type III.

The type of organic matter in Ahmad pur-1 and Khajari-1 is also Kerogen III, with considerable amount of liptinite macerals which are the source of liquid hydrocarbons.

The most important finding of this study is an oil shale facies in Sembar Formation in Ahmad pur-1. This oil shale comprises predominantly laminated algae. Porth & Raza (1990) and HDIP's others studies indicate that bituminite is the main maceral of Sembar Formation in Gindari-1 and in samples from Mughal Kot, Loralai and Mazar Darik areas. Bituminite is the dominant maceral of oil shale and is considered a decompositional product of algae and plankton. So the oil shale facies of Ahmad pur-1 can be correlated with the above localities. This oil shale facies further increases the status of Sembar Formation as potential source rock in Punjab platform and in Sulamian Depression.

The iso-reflectance map of Sembar Formation shows that maturity increases from east (platform) to west and southeast (Sulaiman Foldbelt) and then again decreases near axial belt and north of Sibi area.