



Organic Geochemical Characteristics of Cenomanian-Turonian Black Shales in Western Taurus, Turkey

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In this study, organic geochemical characteristics, hydrocarbon potential and depositional environment of black shale in Northwest Taurus that were deposited during Cenomanian-Turonian were interpreted.

The black shales are very rich in organic matter with the 24.12 % average TOC. These black shales have very high Potential Yield (PY) values (average 145). Black shales show high hydrogen index (HI) and low oxygen index (OI). These parameters indicate that black shales have high hydrocarbon potential and characteristic of petroleum generated. Based on pyrolysis data (HI-OI, HI-Tmax and S2-TOC) black shales contain a mixture of type I and II. Black shales show unimodal n-alkane distribution which are dominated by low carbon numbers and terrigenous/aquatic ratios are very low. The low carbon number tricyclic terpanes which are indicator for terrigenous organic matter input were recorded with low abundances and (C19+C20)/C23 tricyclic terpanes ratios is low for black shale samples. These parameters show that black shales contain predominantly marine organic matter. Sterane distribution was calculated as C29>C27>C28 from m/z 217 mass chromatograms for black shale samples. The higher C31 R homohopane/C30 hopane ratios (>0.25) indicated that black shales were deposited in a marine environment. Gammacerane which is typical for salinity depositional environment was recorded for black shale samples. The average Tmax value for black shale is 417°C. High isoprenoid/n-alkane ratios were calculated from gas chromatograms and high peak concentration were observed at biomarker region the gas chromatograms. All these features show that black shales had no sufficient thermal maturity for hydrocarbon generation and have immature characteristic.