



MINERALOGICAL and ORGANO-GEOCHEMICAL PROPERTIES of THE DENIZLI (SW TURKEY) COALS

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Abstract: Coal samples for this study were systematically collected from the Yeşilyuva town of Denizli (SW Turkey) province. In order to be evaluated in terms of their mineralogic composition, source rock potential, total organic carbon (TOC, %), and thermal maturity. To find out the mineralogical composition of the Yeşilyuva coals, X-Ray Diffractometer (XRD) analysis was performed. Quartz, feldspar, calcite, pyrite, gypsum and clay minerals are determined in XRD analysis as the mineral matter in Yeşilyuva coals. The organo-geochemical results of samples suggest that the Yeşilyuva coals have excellent source rock quantity according to total organic carbon (TOC, %) contents (ranging from 8.82 to 43.80 wt. %), indicating that their present circumstances in the basin that preferred production and preservation of organic matter. According to genetic potential (GP, averaging 37.42 mg hydrocarbon/g rock), S_1 (averaging 2.11 mg hydrocarbon/g rock) and S_2 (averaging 35.31 mg hydrocarbon/g rock) values, all the coal samples show good to excellent source rock potential. The hydrogen index (HI) and S_2/S_3 values of Yeşilyuva coals range from 43 to 171 mg HC/g TOC and 0.64 to 2.83, respectively. These values indicate that all the coal samples have gas potential. Determination of the thermal maturity is based on production index (PI) and T_{max} values, and the potential source rock is considered immature for PI values < 0.10 (varying from 0.04 to 0.08) or T_{max} values < 435 °C (ranging from 410 to 435 °C).

Keywords: Yeşilyuva coals (Acı payam/Denizli), Mineral composition, Organo-Geochemical properties. Total Organic Carbon (TOC), Hydrocarbon Potential

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