



Clay sedimentology and geochemical characterization of the Oligocene series from the Tavas and Maymundag regions (Denizli, SW Turkey)

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The study area is located at the Maymundağ and Tavas regions near the Town of Denizli. In these regions Tertiary-Quaternary continental clastic deposits, shallow-marine carbonates and lacustrine sediments unconformably overlay on the Paleozoic and Mesozoic basement rocks. The stratigraphic sections were measured from Oligocene units and samples were collected from the measured stratigraphical sections. Mineralogical composition of samples was determined by using X-Ray diffractometer and abundances of major element oxides were measured by using X-Ray Fluorescence spectrometer. Micromorphological properties of clay minerals were determined with Scanning Electron Microscopy.

Mineral assemblages are generally similar and clays, calcite, mica, feldspar, quartz, and dolomite were determined in whole rock. Smectite is the dominant mineral in clay fraction. Illite, chlorite, kaolinite and serpentine are the other clay minerals but with lesser abundances. Abundance of smectite decreases in the upper part of the Oligocene units followed by increasing illite contents. In clay fractions according to major element chemical analysis, samples are rich in $\text{Al}_2\text{O}_3\text{-Fe}_2\text{O}_3$ or $\text{MgO-Fe}_2\text{O}_3$. These results reflect the mineralogy of the samples. Especially in the upper parts of the section Al_2O_3 percent is rich in clay fraction. Results also show that the sedimentary material transported from two different sources. Illite and chlorites are detrital clay minerals and were transported from the metamorphic rocks around the study area. Smectites were formed by transformation of detrital material which were derived from different rocks. Serpentine minerals are originated from the ultramafic rocks in the source. According to these results Menderes metamorphic massive and Taurid Ophiolitic belt

are the major sources in this region.