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Fatma Hoş Çebi (1) and Sadettin Korkmaz ()
(1) Turkey (hos@ktu.edu.tr), (2) Turkey (korkmaz@ktu.edu.tr)

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Fatma Hoş-Çebi* and Sadettin Korkmaz
Department of Geological Engineering, Karadeniz Technical University, 61080 Trabzon, Turkey
Abstract
Young peat deposits crop out in the southern part of the Ağaçbaşı region of Trabzon city, Northern Turkey. In this study, chemical, organic geochemical, petrographic and palynological features of the peat occurrences are investigated and results obtained evaluated. According to palynological investigations, it is determined that peats were occured in terrestrial or lacustrine environments, which is containing average of 80% woody, 15% herbaceous and 5% amorphous organic matter. Age of peats has been determined as Miocene or younger, by the palynological age determinations. It is understood from the obtained SCI (Sport Color Index) analysis results that constituting organic material of peat is immature.
Total organic carbon content of the peat is average 41.69% by pyrolysis analysis. HI values were calculated as average 315.46 mgHC/gTOC, which is very high for the coal occurrences. The high OI values (avg. 134 $mgCO_2$/gTOC) show that the environments of peat deposits were oxic or suboxic.
TAR (Terrigenous/Aquatic Ratio) and CPI (Carbon Preference Index) index value, is found to be 2.4 and 3.4 respectively. These values that resulted from dominance of high-numbered n-alkanes, indicate terrestrial organic matter input.
According to the m/z 191 and m/z 217 mass peaks of GC chromatogram data which is obtained by biomarker analysis, sterane/hopane ratio suggests algal organic matter. Moreover, the lack of C34 and C35 homohopans show that organic matter deposited under oxic or suboxic conditions. Moretane/hopane, Tm/Ts and Tm/C30 hopane ratios were calculated in order of 0.15, 3.25 and 0.33, respectively. These values imply acidic and oxic conditions during the formation of peat. Due to the absence of 17α(H)-28.30-bisnorhopan in the m/z 191 chromatograms, it is concluded that Ağaçbaşı plateau peat might be deposited in a terrestrial or lacustrine environments under oxic or suboxic conditions. Dominant sterane content of C29 suggests terrestrial organic matter input. In the sterane triangle diagram, the extract of the peat sample was plotted in the area of high plant and brown and green alga inputs. Also C30 sterane, which is implication of marine environment, has not been recorded on chromatogram. 22S/(22S+22R) homohopan index, Ts/(Ts+Tm), moretan/hopane, 20S/(20S+20R) sterane and $\beta\beta$/($\beta\beta$+$\alpha\alpha$) sterane ratios suggest immature level of the organic matter.

Key Words: peat, biomarker, sterane, terpane