

# Organic geochemistry of Çan (Çanakkale): Miocene coals, saturated and aromatic biomarker distributions

FATMA HOŞ ÇEBİ

Karadeniz Technical University, Department of Geological  
Engineering, Trabzon/Turkey hos@ktu.edu.tr

In this study n-alkane and isoprenoid, saturated and aromatic biomarker distributions of Miocene coals in the Çan (Çanakkale) region were determined to investigate organic geochemical characteristics, depositional environment and hydrocarbon potential of these coals.

The Rock Eval analyses show that the average total organic carbon (TOC) content of the peat was 47%, and the average HI value was 172 mgHC/gTOC, OI values (avg. 23 mgCO<sub>2</sub>/gTOC) show that the depositional environment of peat deposits were suboxic. According to HI-T<sub>max</sub>, S<sub>2</sub>-TOC classification diagrams and Pr/n-C<sub>17</sub>-Ph/n-C<sub>18</sub> diagram, the organic matter is composed of Type II and Type III kerogen mixing and represents a transitional environment. In gas chromatographs, n-alkanes with high, mostly single-numbered carbons are dominated and they are associated with a slight algal contribution. CPI<sub>22-30</sub> is calculated as 3.8 and 2.6. Terrigenous/aquatic ratio (TAR) is high, computed as 2.9 and 1.2. These values indicate a dominance of high-carbon numbered n-alkanes, meaning the presence of terrestrial organic matter.

20S/(20R+20S), ββ/(αα+ββ) sterane, 22S/(22R+22S) homohopane, moretane/hopane ratios that reflect the maturity of organic matter are indicative of immature organic matter. MA(I)/MA(I+II), TA(I)/TA(I+II) and C<sub>28</sub>TA/(C<sub>29</sub>MA+C<sub>28</sub>TA) steroid, MPI, MPR, MDR ratios obtained from aromatic biomarkers are quite low which show an immature character.

The n-alkane, saturated and aromatic biomarker data on the Çan coals reveal that deposition took place in a terrestrial environment changing from lacustrine to fluvial under predominately suboxic-anoxic conditions.