

## ORGANIC GEOCHEMICAL COMPARISON OF AVGAMASYA-SEGURUK (SIRNAK) ASPHALTITES AND RAMAN-DINCER PETROLEUM IN TURKEY

Orhan KAVAK\*

\*Dicle Univ. Eng. Faculty Min. Dept. 21280-Diyarbakır, Turkey, [orkavak@dicle.edu.tr](mailto:orkavak@dicle.edu.tr)

The aim of this study is to examine origin similarity of Avgamasya-Seguruk asphalt compounds at Sirnak province and Raman-Dincer petroleum in the Southeastern Region of Turkey (Fig.1). Samples from these regions were analyzed by various methods such as TOC, Pirollyse, Extraction, Gas Chromatography, GC-MS and Stable isotope methods and the results were evaluated in detail. The results from both samples showed big similarities on geochemical parameters. However, definite migration and settlement mechanism of the asphaltites as filling materials in the cracks remained unclear. A general view of the Avgamasya-Seguruk region is illustrated in the Figure (Fig.2-3).

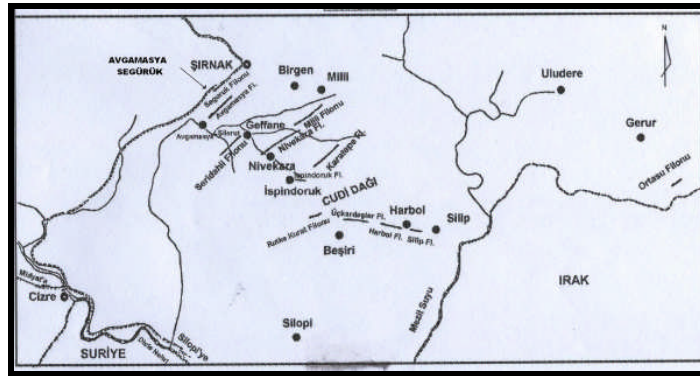


Fig.1. Map of location



Fig.2. Avgamasya



Fig.3. Segürük

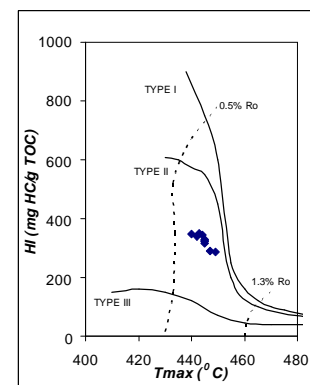


Fig.4. HI-Tmax

Some previous studies on the asphaltites indicated that; its original formation comes from by arising of a bituminous formation at deeper level or petroleum containing zone throughout cracks (Lebküchner, 1969), alteration of aromatic petroleum during migration (Bartle, 1981), multiphase migration of petroleum and by biodegrading (Harput,

1990), chemical combinations showed similarities with Raman-Dincer petroleum (Erdem, 1991; Akrami, 1997).

Some minimum and maximum values for both regions are as follows; low moisture contents 0,5–2 %, high ash yields 35–40%, high total sulfur contents 5–7%, and low calorific values 4200–4600 kcal/kg. The mineral matter of the bulk asphaltites is mainly made up of calcite 15-25 %, dolomite 5-10 %, quartz 0,5-2 % , minor quantities of feldspar, clay mineral , gypsum and pyrite

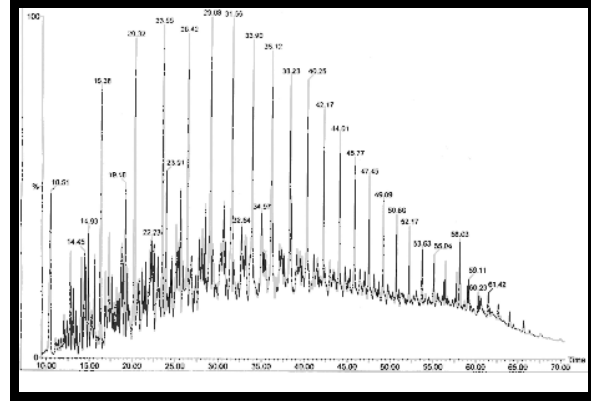
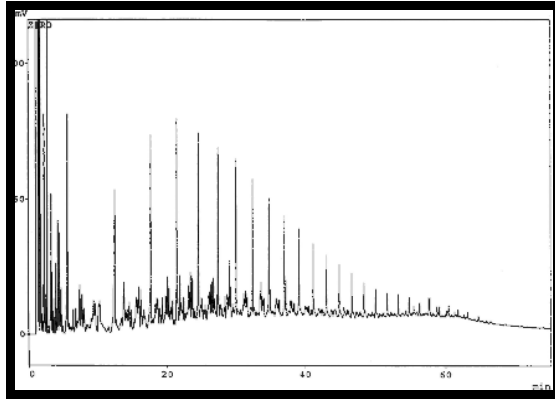


Fig. 5. GC Pig of Raman-Dincer Petroleum Fig. 6. GC-MS Pig of Raman-Dincer Petroleum

Total organic carbon content of the asphaltites is very high and represent Tip II kerosene features in case of Rock Eval pyrolyse evaluation (Kavak, 2003) (Fig4). These asphaltites show big similarities with the Raman-Dincer petroleum by organic geochemical parameters and settlement mechanism. However, further studies are required especially on local area and regional geology for definite solutions (Fig5-6).

## REFERENCES

- Akrami, H.A., Yardım, M.F., Akar, A., Ekinci, E., (1997), FTIR characterization of pitches derived from Avgamasya asphaltite and Raman-Dinçer heavy crude. *Fuel*, v. 76, 1389-1394.
- Bartle, K. D., Frere, B., Mulligan, M., saraç, S., Ekinci, E., (1981), The nature and origin of harbolite and related asphaltitefrom southeastern Turkey. *Chem. Geol.* 34, 151-164
- Erdem-Şenatalar, A., Ekinci, E., Keith, D., Bartle, K. D., Frere, B., (1991), *Science and Technology Bd. 44, Hft 7/8, Agutos* , p : 296-300
- Harput, B., Harput, A., (1990), Güneydoğu Anadoludaki Seridahli ( Şırnak ) Asfaltitlerinin Jeokimyasal Değerlendirmesi , Türkiye Petrol kongresi 16-20 nisan ., 92-106
- Kavak, O, Yalcin M.N., (2003), Şırnak Asfaltitlerinin Organik Jeokimyasal Özellikleri:14 th Int. Petroleum and Natural Gas Congress and Exhibition of Turkey 185-187 p.12-14 May Ankara.
- Lebküchner, R. F., (1969), The occurrences of asphaltic substances in southeastern Turkey and their genesis . *MTA bull.* 72, 74-96