
Chapter 5 Conclusion

This work was undertaken to explore the analytical potential of normal phase (silica) high-performance liquid chromatography to the fractionation of complex rock (coal) extract for recovery of aliphatic and polynuclear aromatic hydrocarbons fractions based on their relative retention data from HPLC-UV and HPLC-RI. The method has an attractive feature, which is the simple and relatively rapid experimental procedure.

The work reported here can be extended in several ways. Fine-tuning of developed method, isocratic elution of hexane: ethyl acetate (95:5, V:V) was found to be quite a good mobile phase. However, further HPLC separation of the fractions by gradient elution should give even better separation. The applications of various spectroscopic techniques (MS, infrared and nuclear magnetic resonance spectroscopy) will facilitate the identification of unknown components in the extract, which can be correlated with other geochemical results for coals. Unusually low concentrations of biomarkers, as in certain condensates, may require further treatment. An alternative method of fractionation, preparative TLC, can be further explored instead of semipreparative HPLC because this is one of the current methods applied in the fractionation of organic matter in coal rock extract.