Thin Layer Chromatography (TLC)

Aromatic hydrocarbons were isolated from the extracted oil by preparative
TLC using Merck GF_{254} silica plates and distilled AR grade n-pentane as
eluent. Naphthalene and anthracene were employed as reference standards
for the diaromatic and triaromatic hydrocarbons, respectively. These two
bands, visualised under UV light, were scraped from the plate and the
aromatic hydrocarbons redissolved in dichloromethane.

Gas Chromatography-Mass Spectrometry (GC-MS)

The di- and triaromatic hydrocarbons isolated from the extracted oil by
thin layer chromatography were analysed by GC-MS.

GC-MS analysis of the aromatic hydrocarbons was undertaken in the selected
ion detection (SID) mode. The instrument and its operating parameters
were as follows:

System:	Perkin-Elmer 8420 GC coupled with an Ion Trap mass selective detector and data system
Column:	50 mm x 0.2 mm i.d. HP PONA cross-linked methylsilicone phase fused silica, interfaced directly to source of mass spectrometer
Injector:	Split injection (40:1)
Carrier gas:	He at 140 kPa head pressure
Column temperature:	50-260°C @ 4°/min.
Mass spectrometer conditions:	Selected ion mode (16 ions)

The following mass fragmentograms were recorded:

m/z	Compound Type
155 + 156	dimethylnaphthalenes
169 + 170	trimethylnaphthalenes
178	phenanthrene
191 + 192	methylphenanthrene

The area of the phenanthrene peak was multiplied by a response factor of
0.667 when calculating the methylphenanthrene index (MPI).

Naphthenes (branched/cyclic alkanes) were isolated from the oils by urea
adduction of their saturates fractions.

GC-MS analysis of the naphthenes (urea non-adduct) was undertaken in the
multiple ion detection (MID) mode. Instrumental conditions are given in
the table above.