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## Appendix A

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### HPLC conditions:

1. Column: Jones Chromatography APEX® silica 5 $\mu$ , 25 cm x 4.6 mm ID (S/N9021907)  
Eluent: Hexane: Propan-2-ol (95:5, V:V)  
Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)  
Detector: RI (Sensitivity = 8, Scale factor = 8)  
Flow rate: 0.5 ml/min  
Chart speed: 1cm/min
2. Column: Jones Chromatography APEX® silica 5 $\mu$ , 25 cm x 4.6 mm ID (S/N9021907)  
Eluent: Dichloromethane: propan-2-ol (95:5, V:V)  
Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)  
Detector: RI (Sensitivity = 8, Scale factor = 8)  
Flow rate: 0.5 ml/min  
Chart speed: 1cm/min
3. Column: Jones Chromatography APEX® silica 5 $\mu$ , 25 cm x 4.6 mm ID (S/N9021907)  
Eluent: Hexane: ethyl acetate (95:5, V:V)  
Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)  
Detector: RI (Sensitivity = 8, Scale factor = 8)  
Flow rate: 0.5 ml/min  
Chart speed: 1cm/min

4. Column: Jones Chromatography APEX® silica 5 $\mu$ , 25 cm x 4.6 mm ID (S/N9021907)  
Eluent: Hexane: Ethyl acetate (97:3, V:V)  
Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)  
Detector: RI (Sensitivity = 8, Scale factor = 8)  
Flow rate: 0.5 ml/min  
Chart speed: 1cm/min
  
5. Column: Jones Chromatography Genesis® silica 4 $\mu$ , 25 cm x 4.6 mm ID (S/N0032201) column  
Eluent: Hexane: Ethyl acetate (95:5, V:V)  
Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)  
Detector: RI (Sensitivity = 8, Scale factor = 8)  
Flow rate: 0.5 ml/min  
Chart speed: 1cm/min
  
6. Column: Waters PrepPak® Cartridge Prep Nova-silica 6  $\mu$ m, 10 cm x 2.5cm ID Preparative column  
Eluent: Hexane: Ethyl acetate (95:5, V:V)  
Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)  
Detector: RI (Sensitivity = 8, Scale factor = 8)  
Flow rate: 2.0 ml/min  
Chart speed: 1cm/min

7. Column: Waters PrepPak® Catridge Prep Nova-silica 6  $\mu\text{m}$ , 10 cm x 2.5cm ID

Preparative column

Eluent: Hexane: Ethyl acetate (97:3, V:V)

Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)

Detector: RI (Sensitivity = 8, Scale factor = 8)

Flow rate: 2.0 ml/min

Chart speed: 1cm/min

8. Column: Waters PrepPak® Catridge Prep Nova-silica 6  $\mu\text{m}$ , 10 cm x 2.5cm ID

Preparative column

Eluent: Hexane: ethyl acetate (98:2, V:V)

Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)

Detector: RI (Sensitivity = 8, Scale factor = 8)

Flow rate: 2.0 ml/min

Chart speed: 1cm/min

9. Column: Waters PrepPak® Catridge Prep Nova-silica 6  $\mu\text{m}$ , 10 cm x 2.5cm ID

Preparative column

Eluent: Hexane: Propan-2-ol (95:5, V:V)

Detector: UV (Sensitivity = 0.03, Wavelength = 254nm)

Detector: RI (Sensitivity = 8, Scale factor = 8)

Flow rate: 2.0 ml/min

Chart speed: 1cm/min

## Appendix B

Chromatograms for HPLC analysis by employing HPLC condition no.1 (refer Appendix A) for Table 4.2 are given as follows:

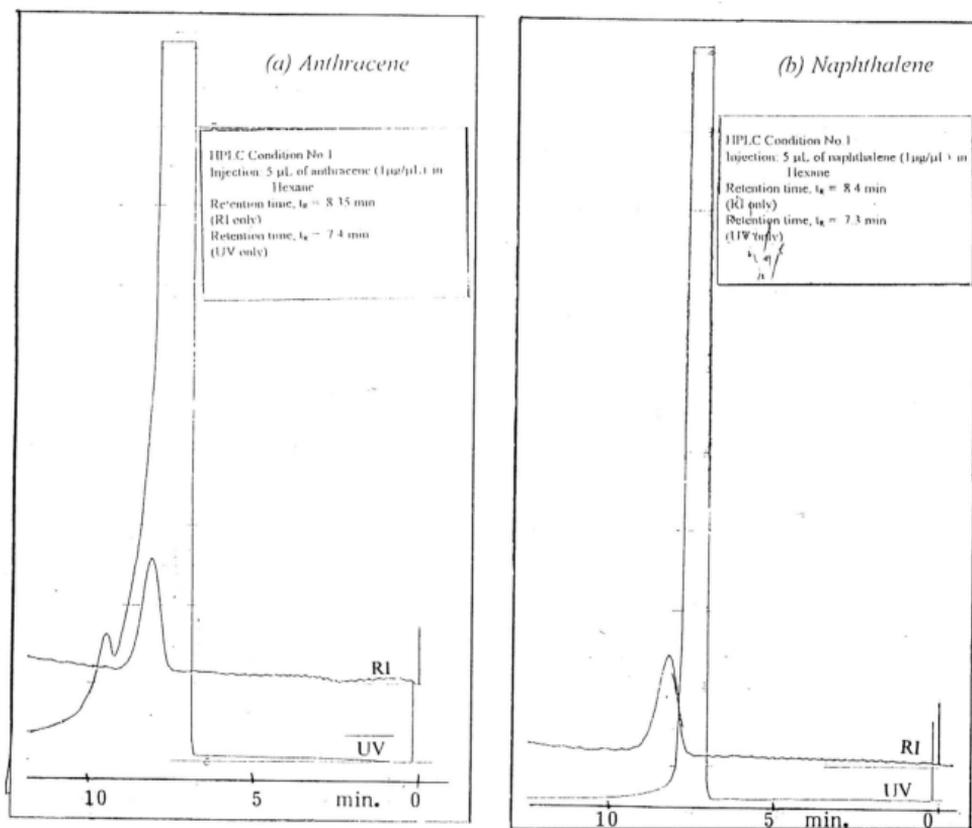


Fig. B. HPLC analysis of standards utilising HPLC condition no.1

(a) anthracene (b) naphthalene

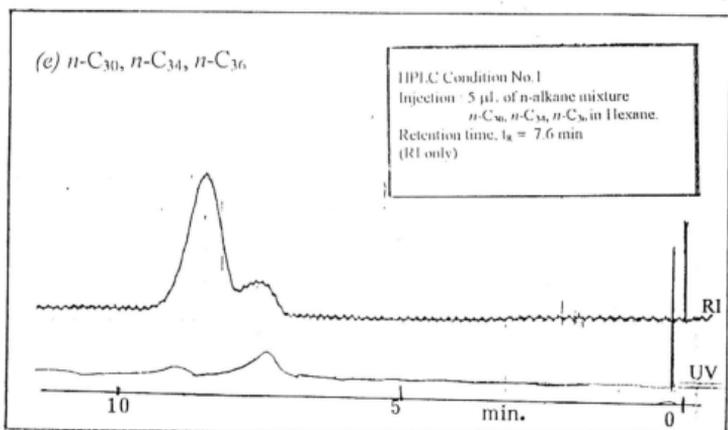
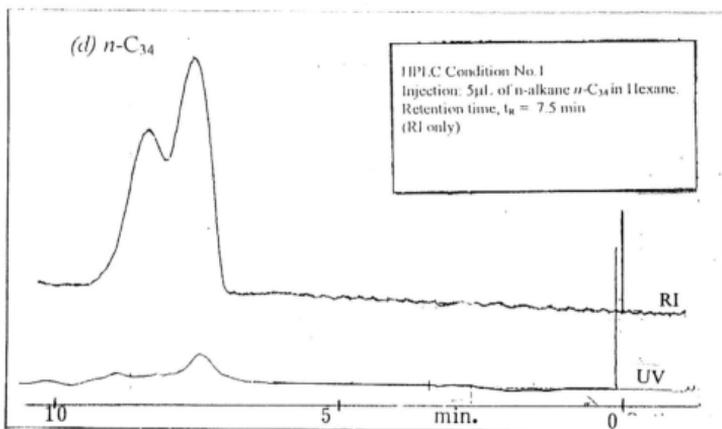
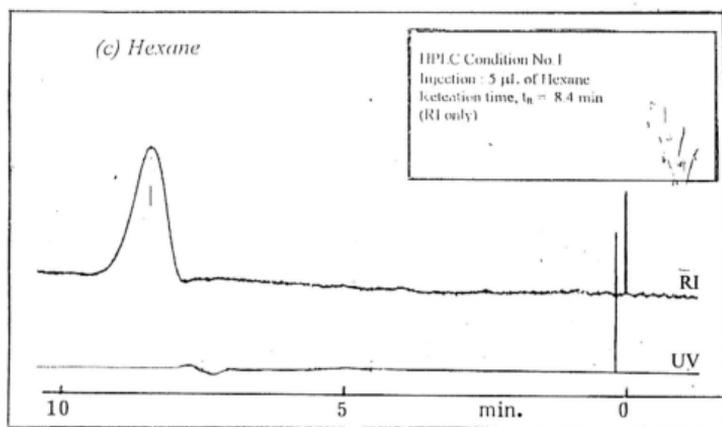


Fig.B. HPLC analysis of standards utilising HPLC condition no. 1  
 (c) Hexane, (d)  $n$ -C<sub>34</sub>, (e) mixture of  $n$ -C<sub>30</sub>,  $n$ -C<sub>34</sub>,  $n$ -C<sub>36</sub>

## Appendix C

Chromatograms for HPLC analysis by employing HPLC condition no.3 (refer Appendix A) for Table 4.3 are given as follows:

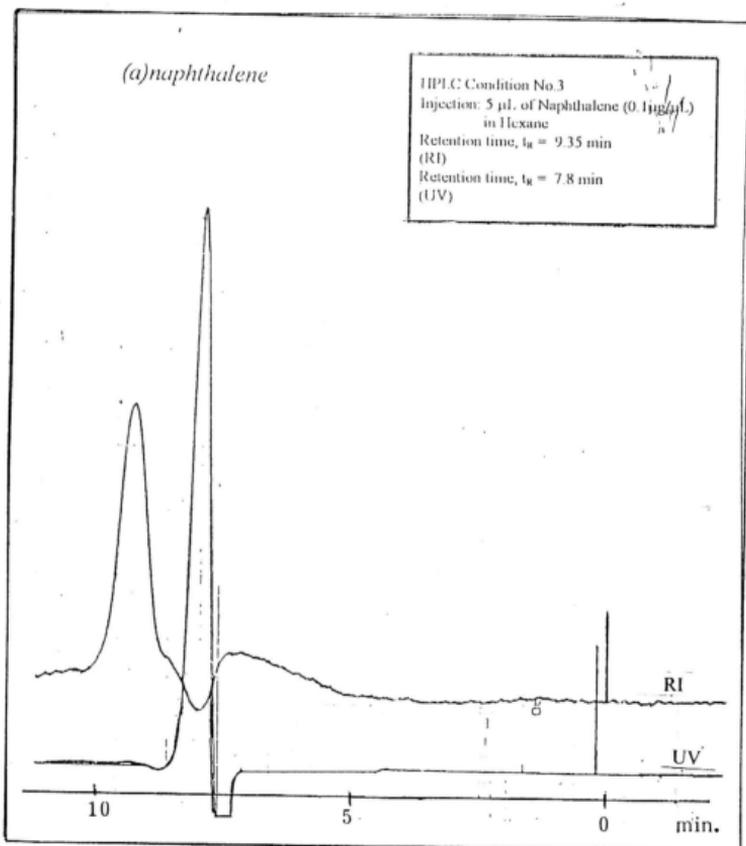
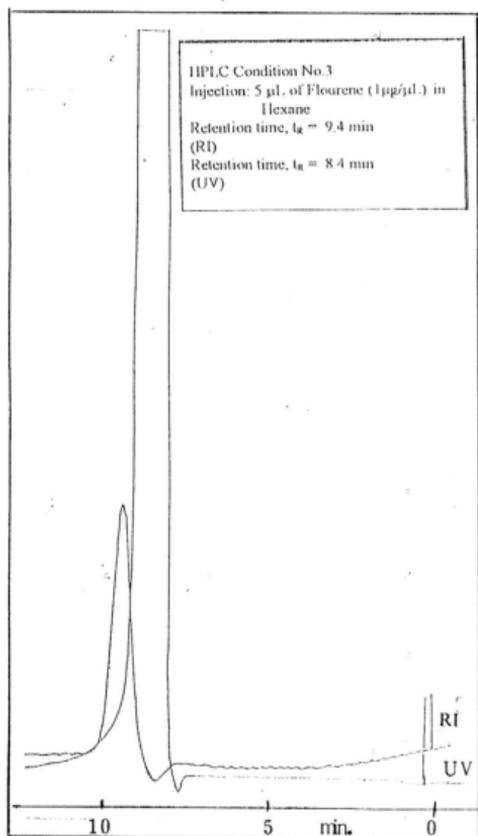


Fig. C. HPLC analysis of standards utilising HPLC condition no.3 (a)naphthalene

(b) Flourene



(c) Phenanthrene

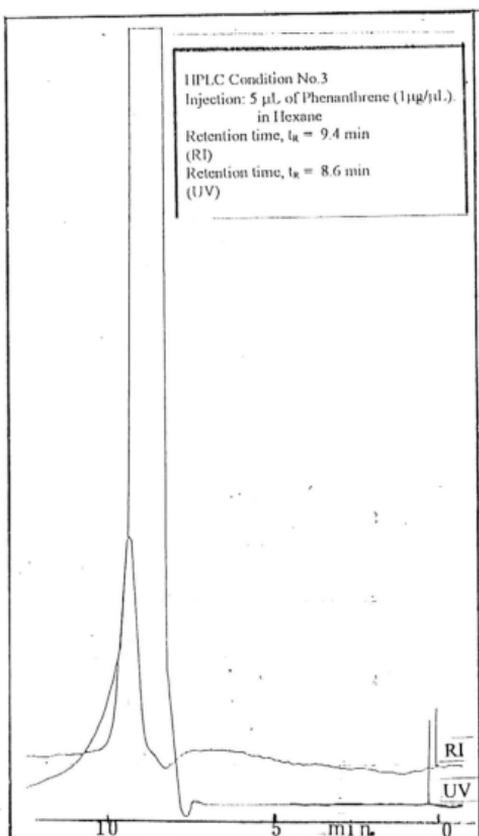


Fig.C. HPLC analysis of standards utilising HPLC condition no.3 (b) Flourene (c) Phenanthrene

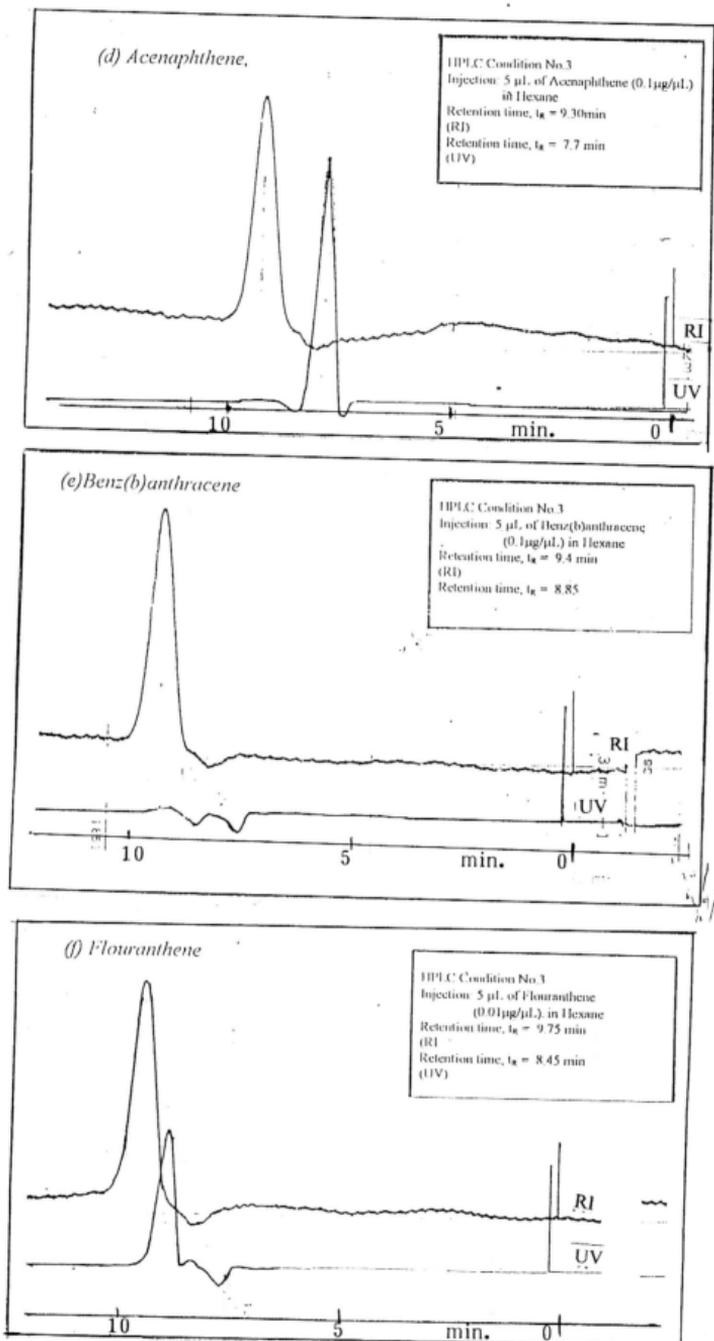


Fig. C. HPLC analysis of standards utilising HPLC condition no.3  
 (d) *Acenaphthene*, (e) *Benz(b)anthracene* (f) *Fluoranthene*

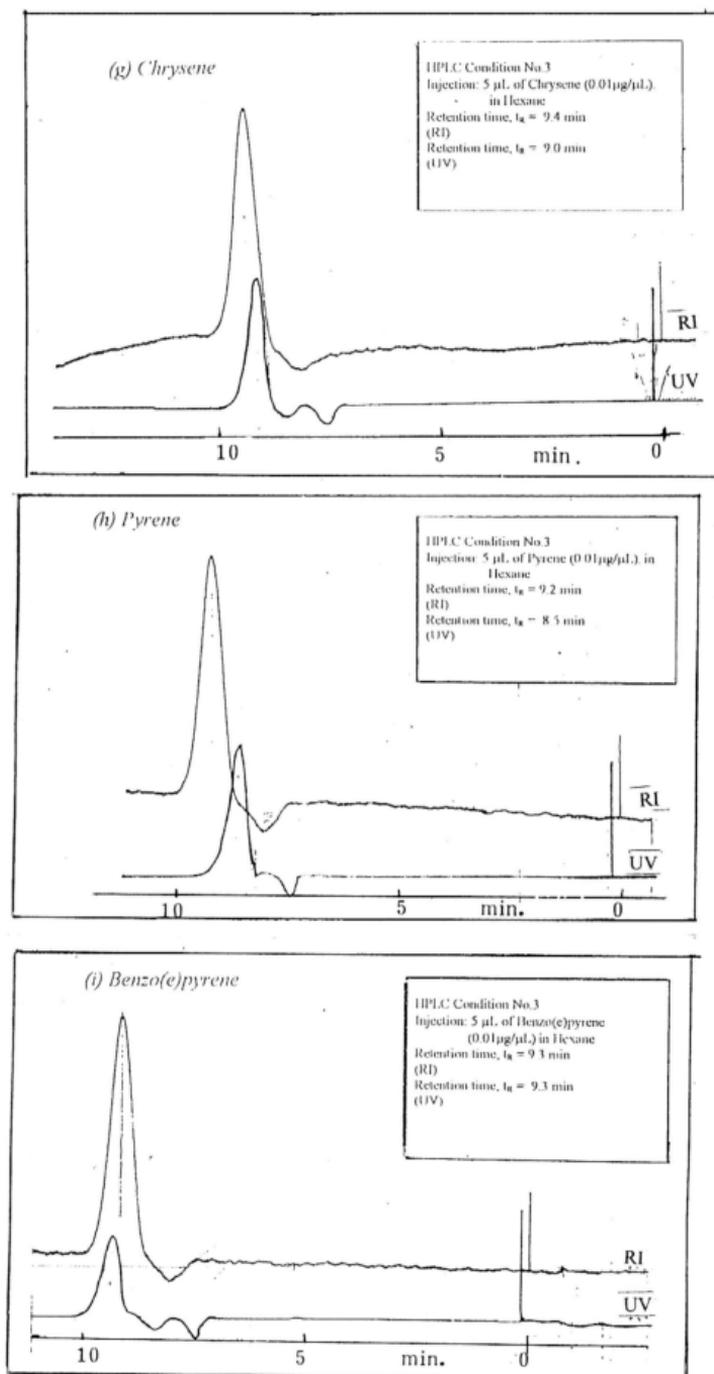


Fig.C. HPLC analysis of standards utilising HPLC condition no.3  
 (g) *Chrysene* (h) *Pyrene* (i) *Benzo(e)pyrene*

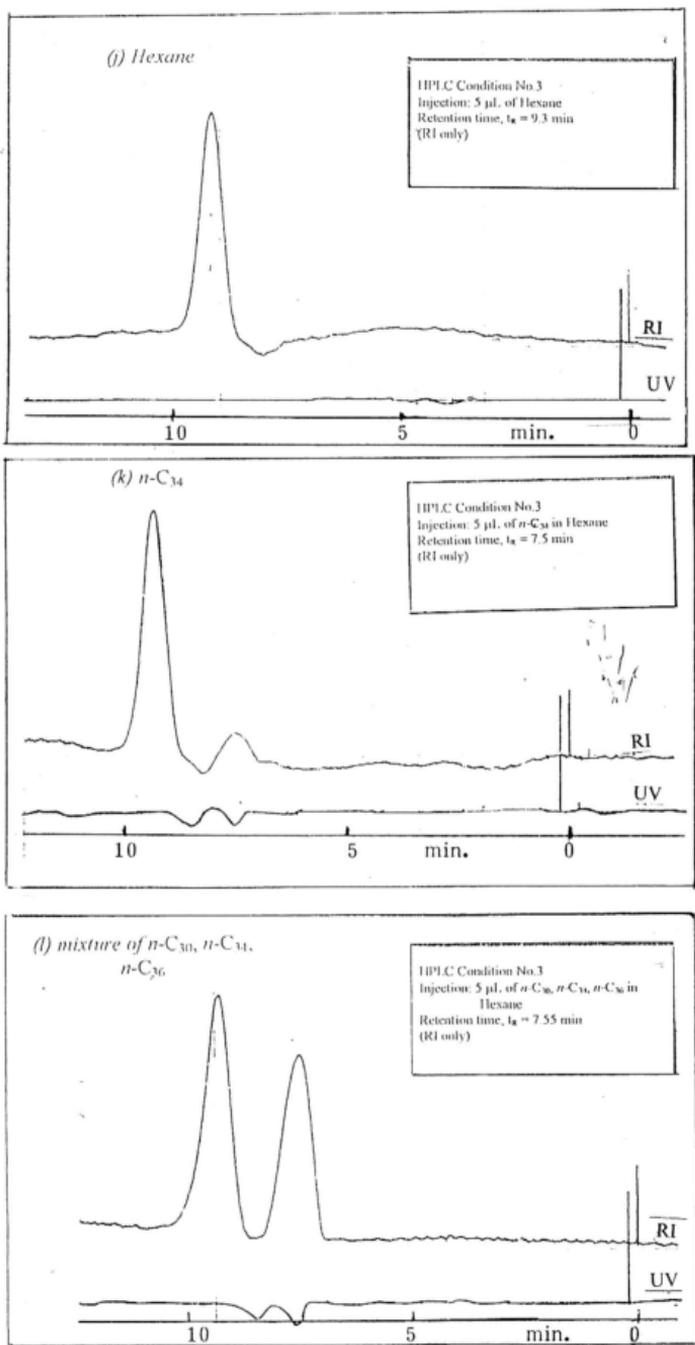


Fig.C. HPLC analysis of standards utilising HPLC condition no.3

(j) Hexane (k)  $n-C_{34}$  (l) mixture of  $n-C_{30}$ ,  $n-C_{34}$ ,  $n-C_{36}$

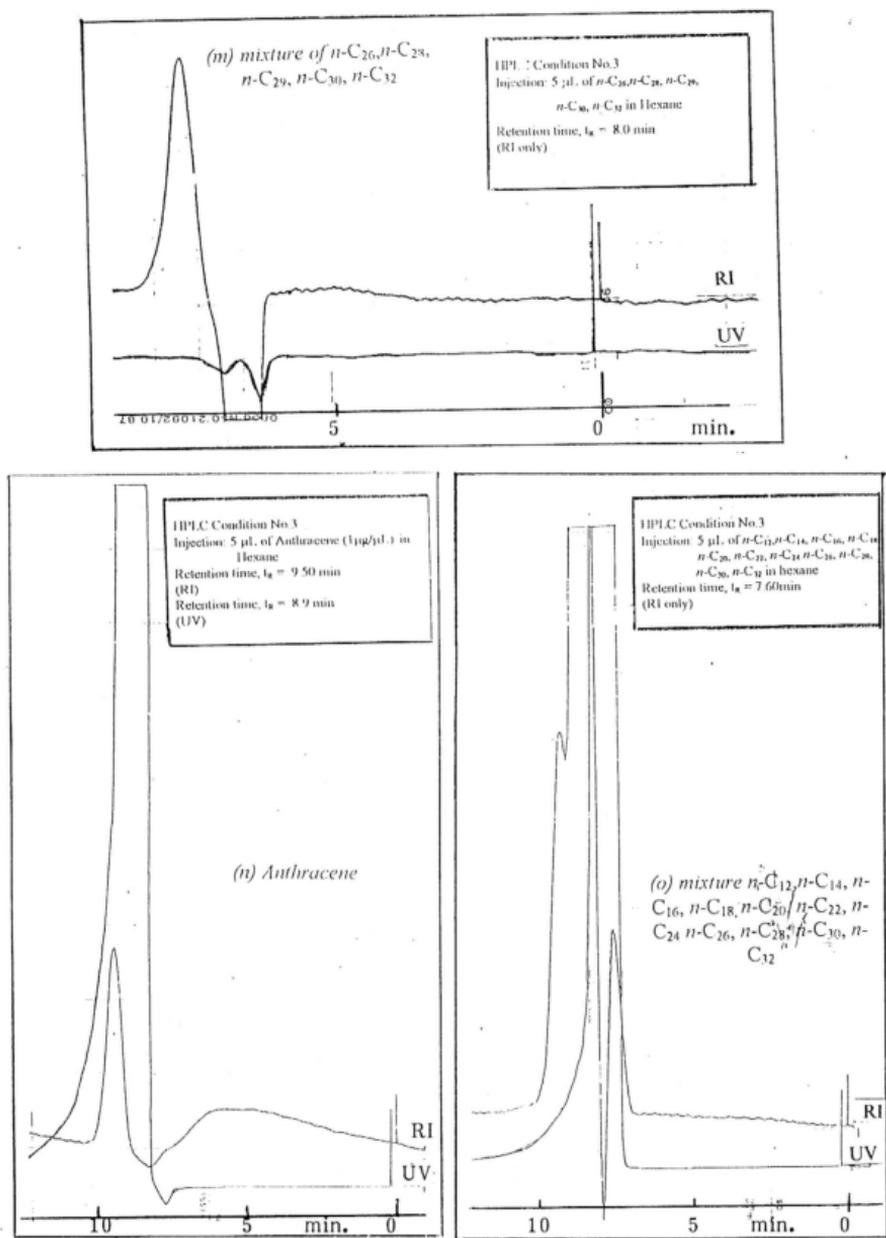


Fig.C. HPLC analysis of standards utilising HPLC condition no.3

(m) mixture of  $n\text{-C}_{26}$ ,  $n\text{-C}_{28}$ ,  $n\text{-C}_{29}$ ,  $n\text{-C}_{30}$ ,  $n\text{-C}_{32}$  (n) Anthracene

(o) mixture  $n\text{-C}_{12}$ ,  $n\text{-C}_{14}$ ,  $n\text{-C}_{16}$ ,  $n\text{-C}_{18}$ ,  $n\text{-C}_{20}$ ,  $n\text{-C}_{22}$ ,  $n\text{-C}_{24}$ ,  $n\text{-C}_{26}$ ,  $n\text{-C}_{28}$ ,  $n\text{-C}_{30}$ ,  $n\text{-C}_{32}$

## Appendix D

Chromatograms for semipreparative HPLC analysis of coal extract by employing HPLC condition no.6 and 9 are given as follows:

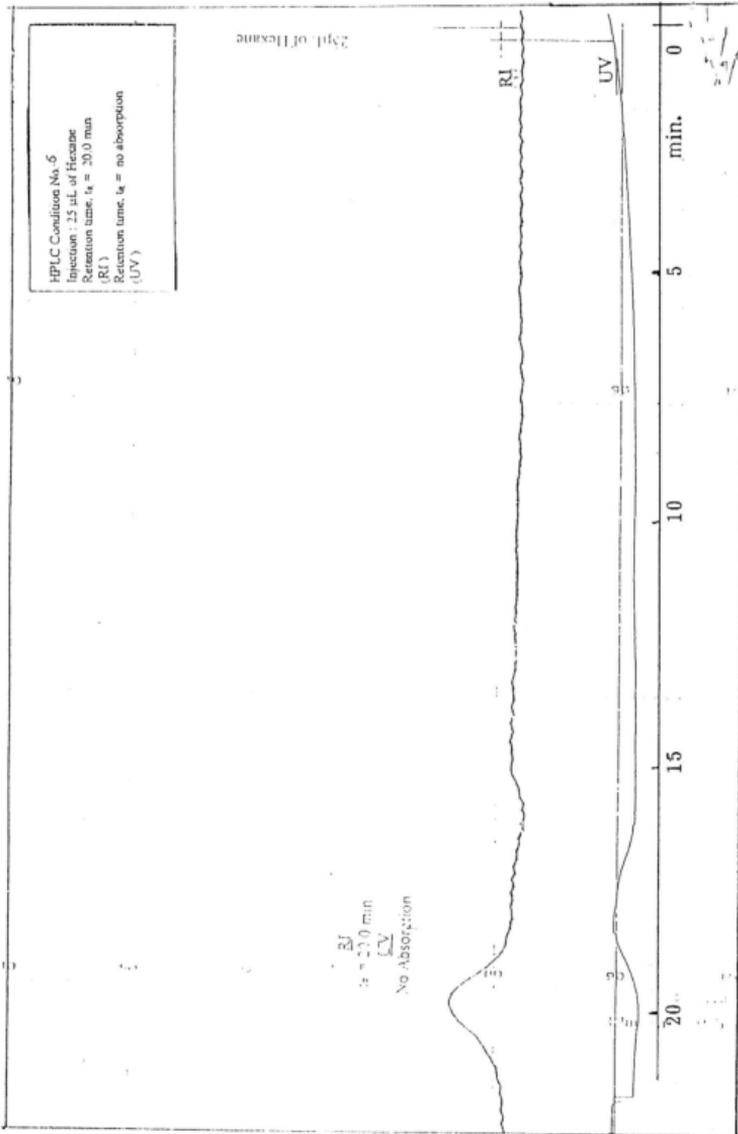
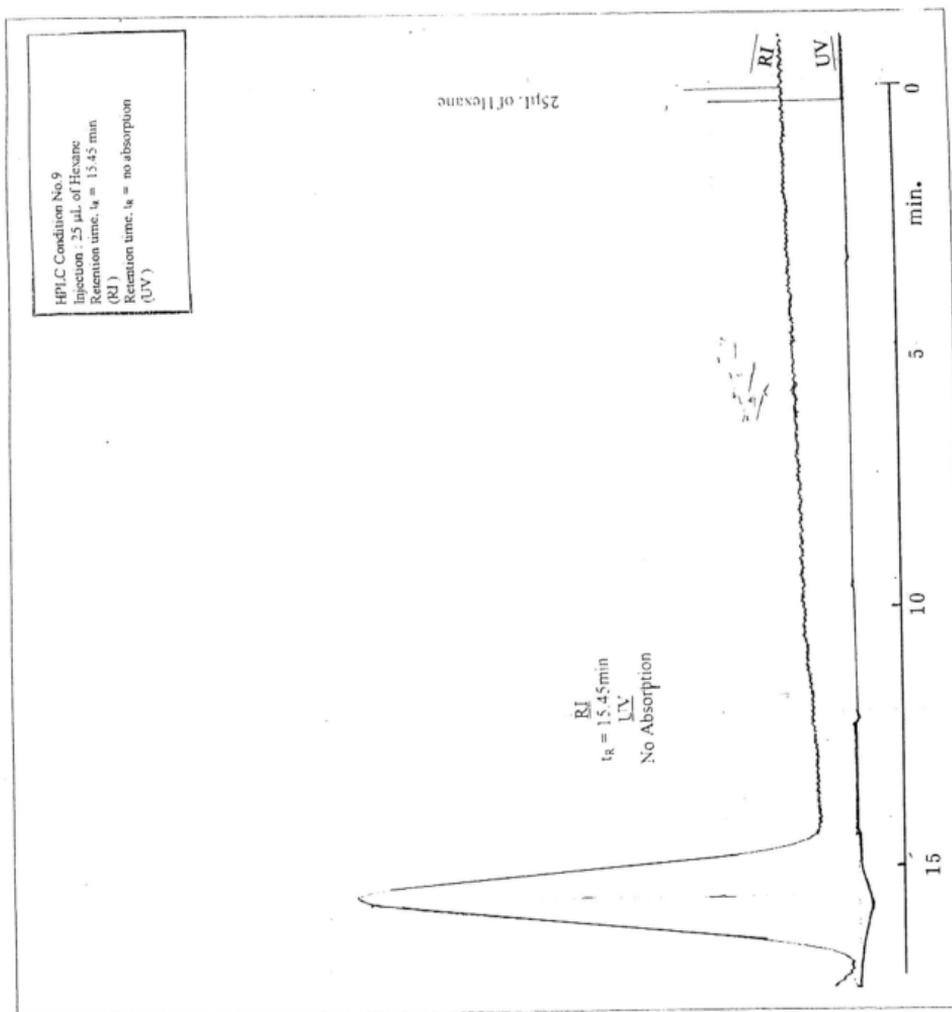


Fig. D (a) Semipreparative HPLC analysis of hexane utilising HPLC condition no. 6



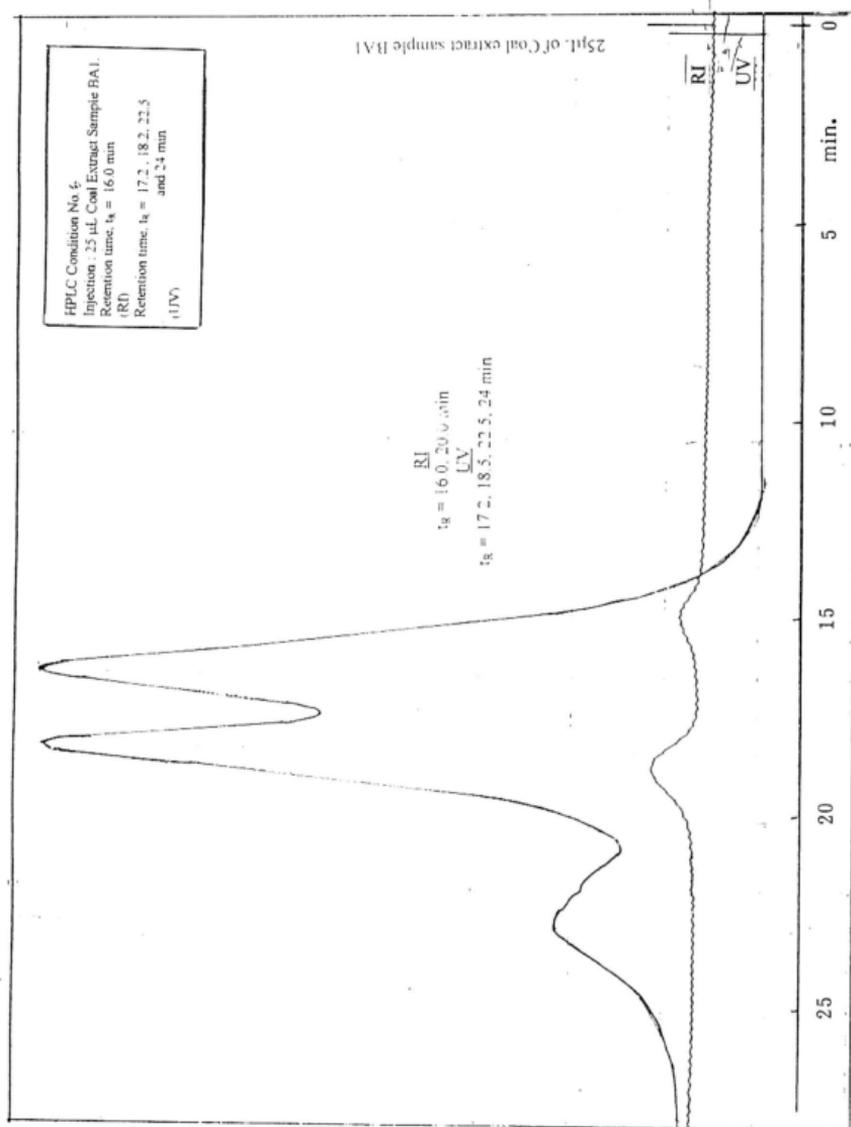


Fig. D (c) Semipreparative HPLC analysis of Coal extract sample B.A.I utilising HPLC condition no. 5

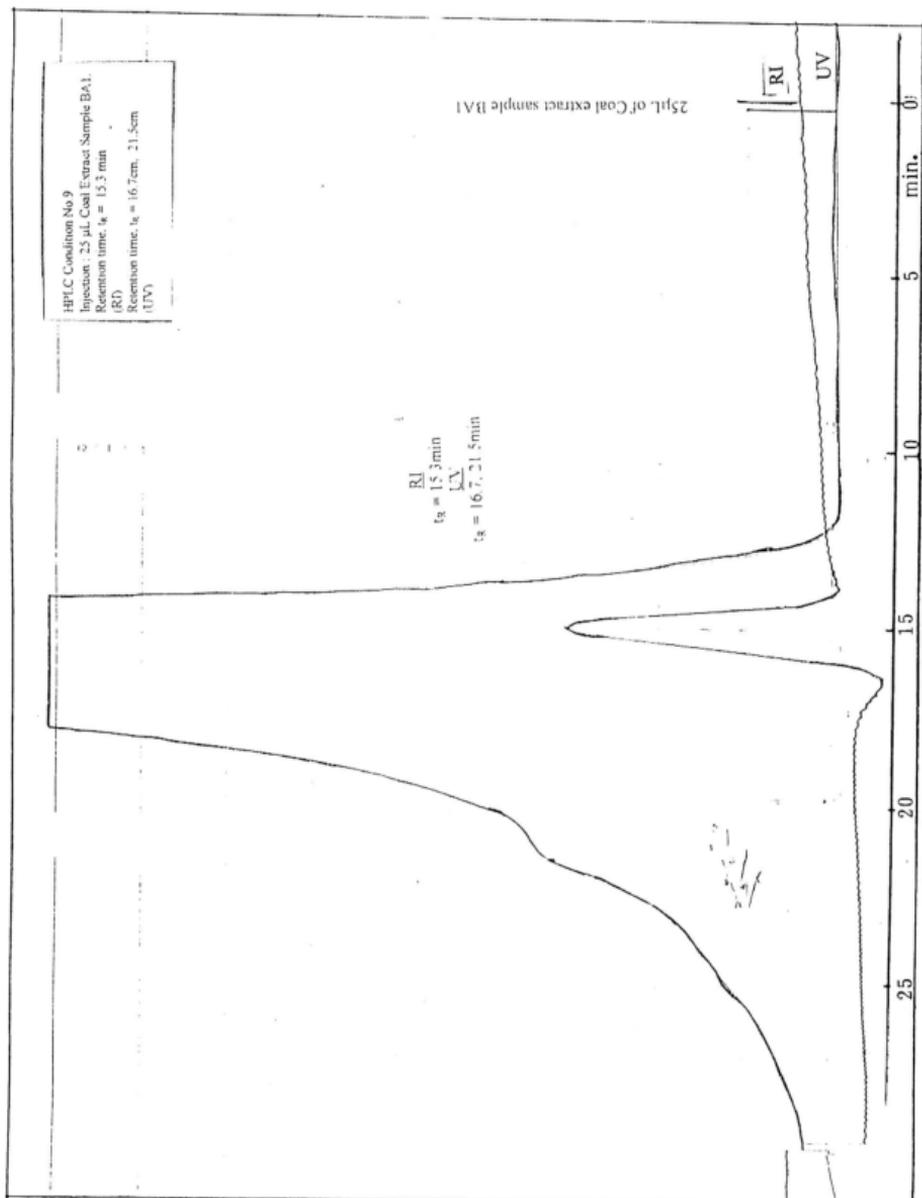


Fig. D(d) Separation of HPLC...