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APPENDIX

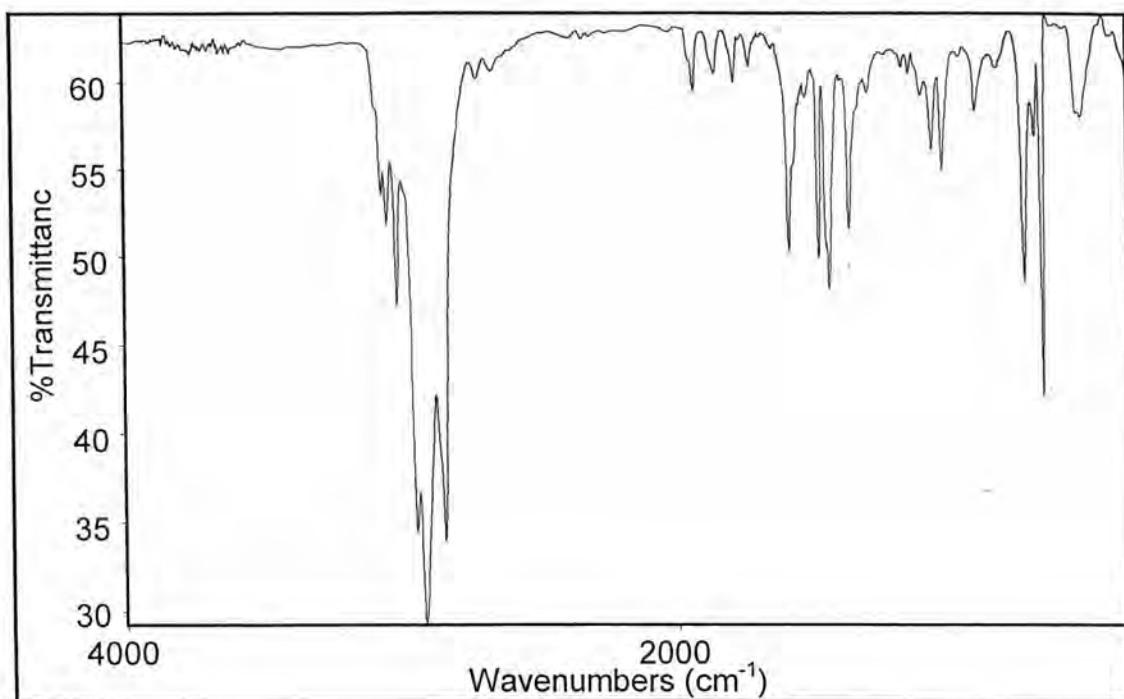


Fig. A.1 The IR spectrum of linear alkylbenzene

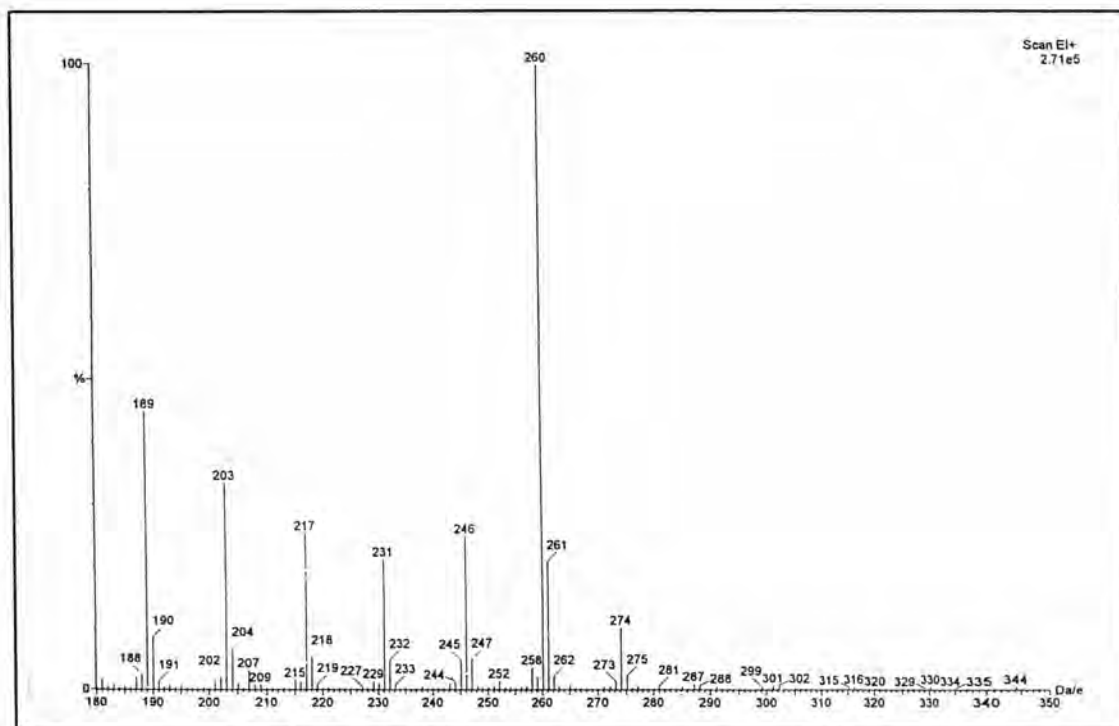


Fig. A.2 The mass spectrum of linear alkylbenzene

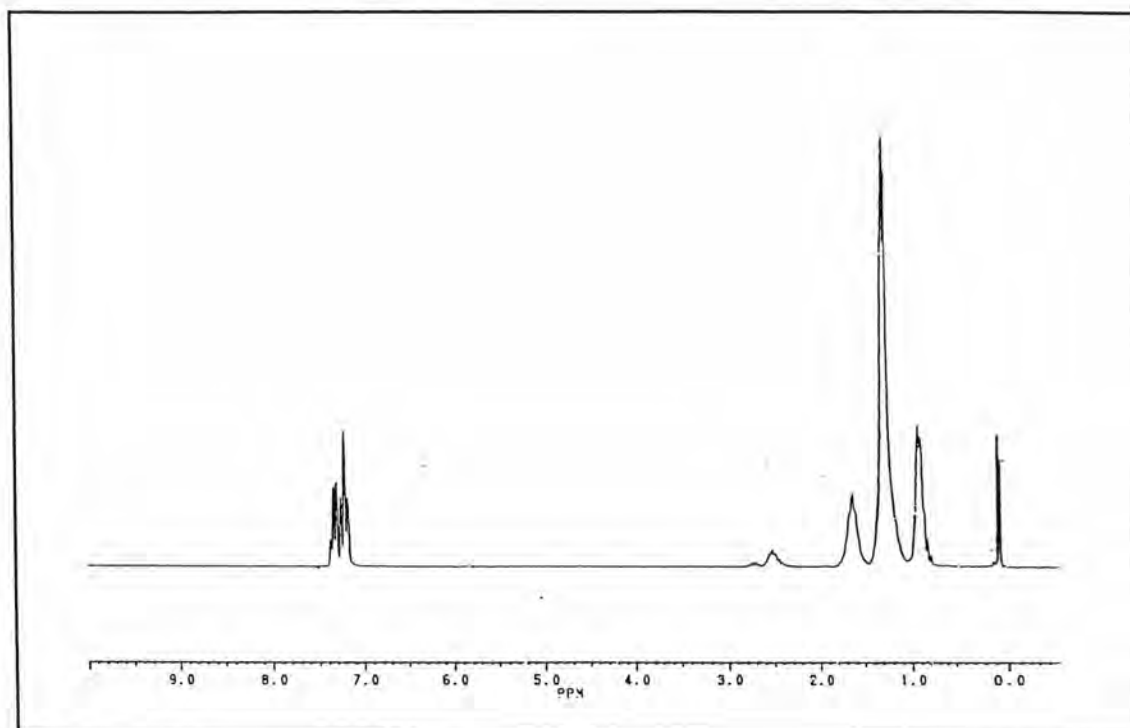


Fig. A.3 The ^1H -NMR spectrum of linear alkylbenzene

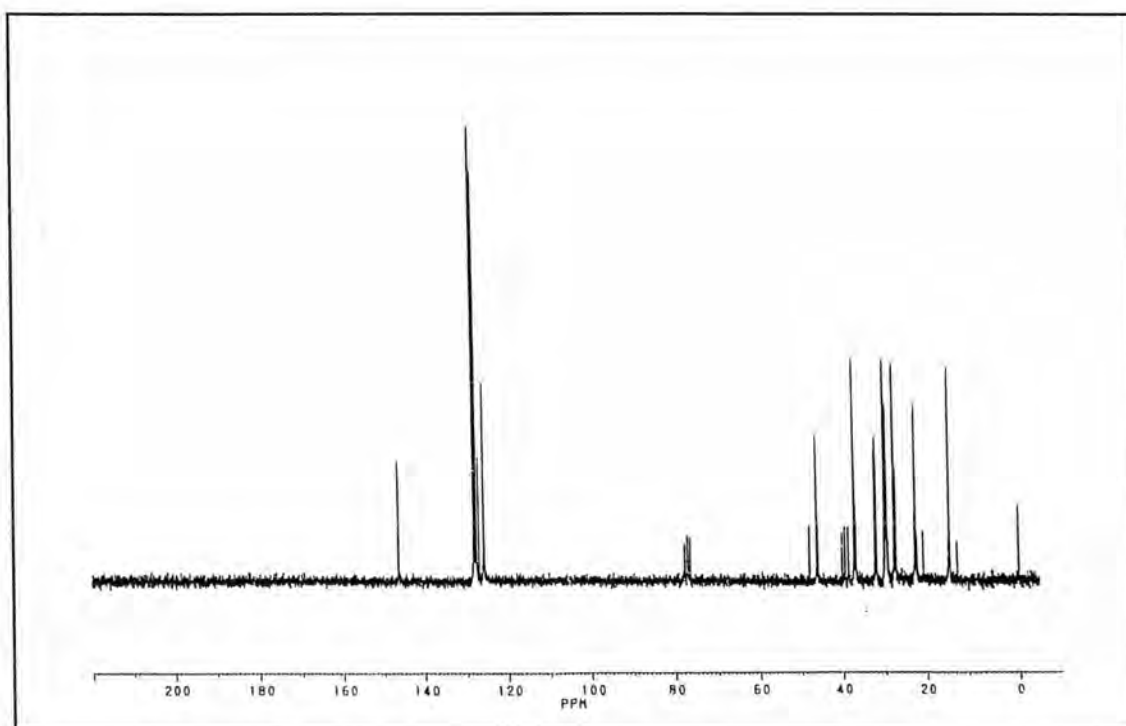


Fig. A.4 The ^{13}C -NMR spectrum of linear alkylbenzene

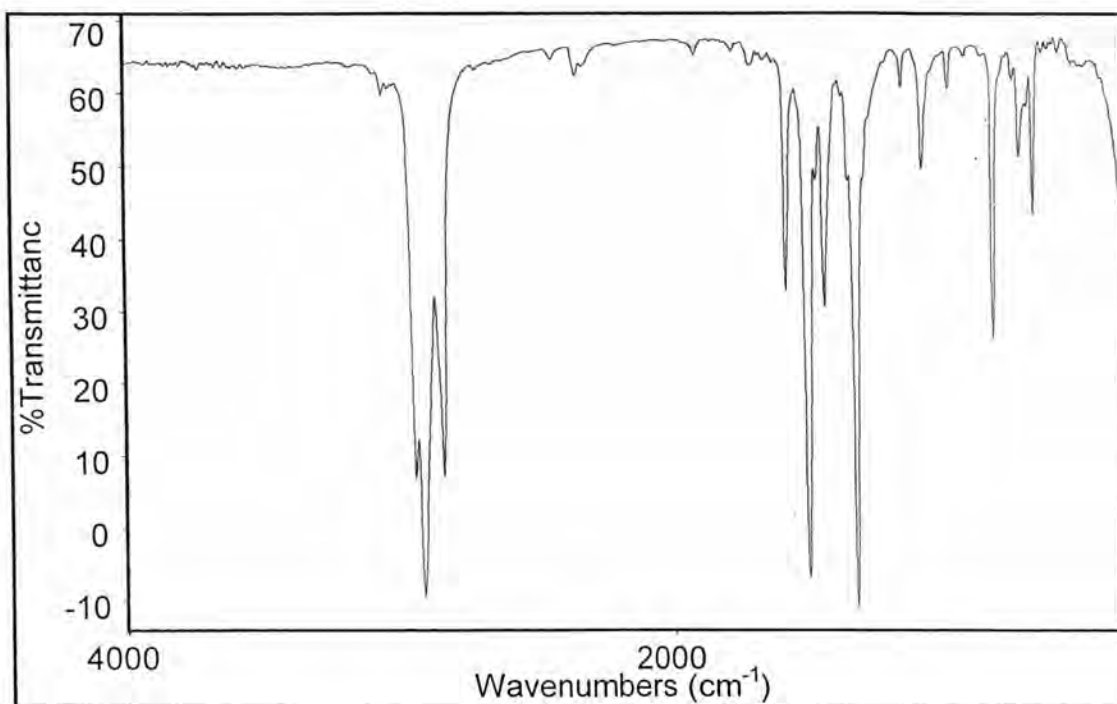


Fig. A.5 The IR spectrum of *p*-nitro-linear alkylbenzene

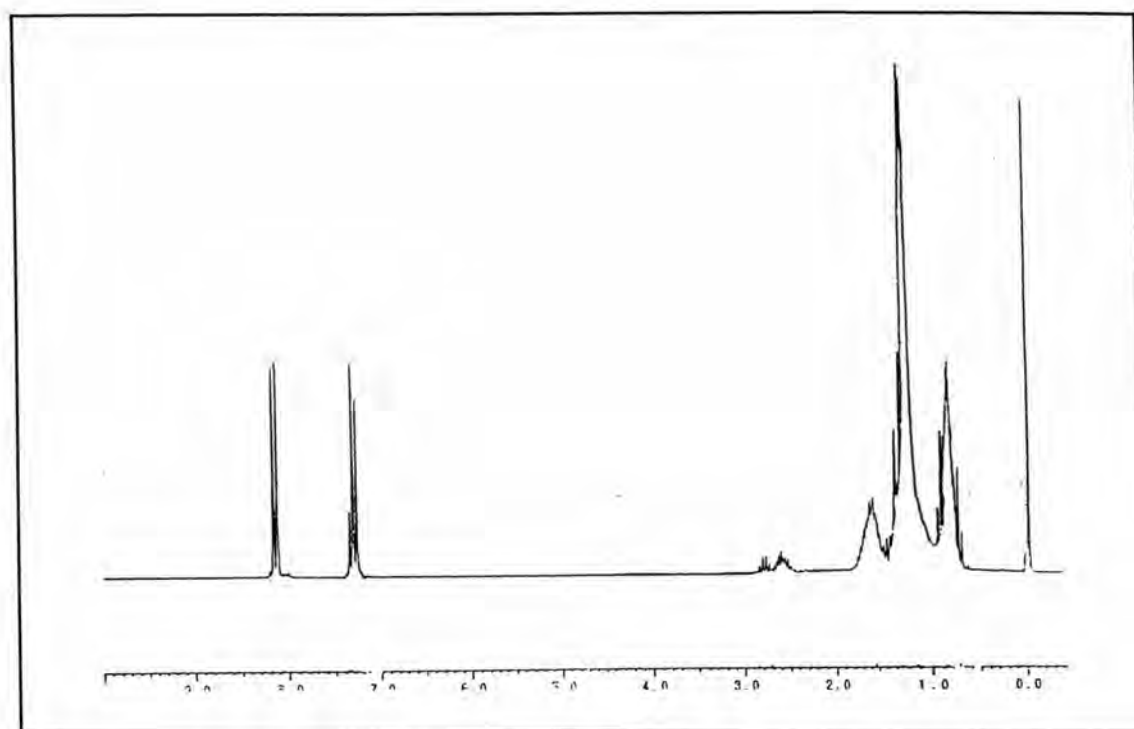


Fig. A.6 The $^1\text{H-NMR}$ spectrum of *p*-nitro-linear alkylbenzene

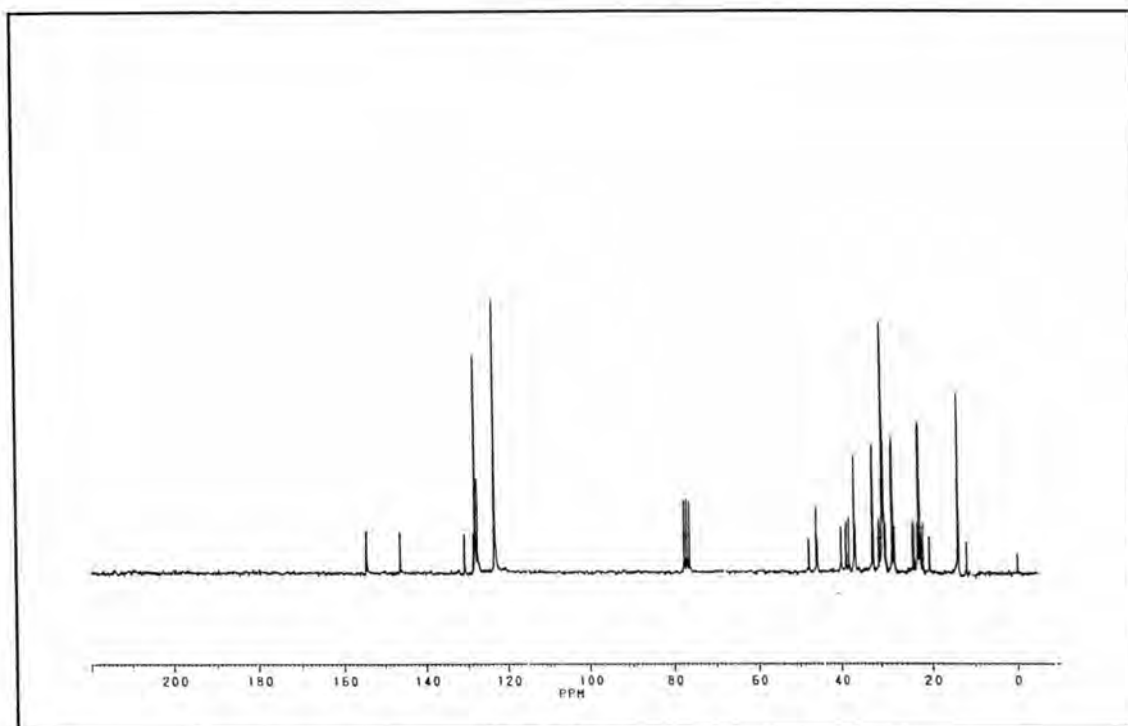


Fig. A.7 The $^{13}\text{C-NMR}$ spectrum of *p*-nitro-linear alkylbenzene

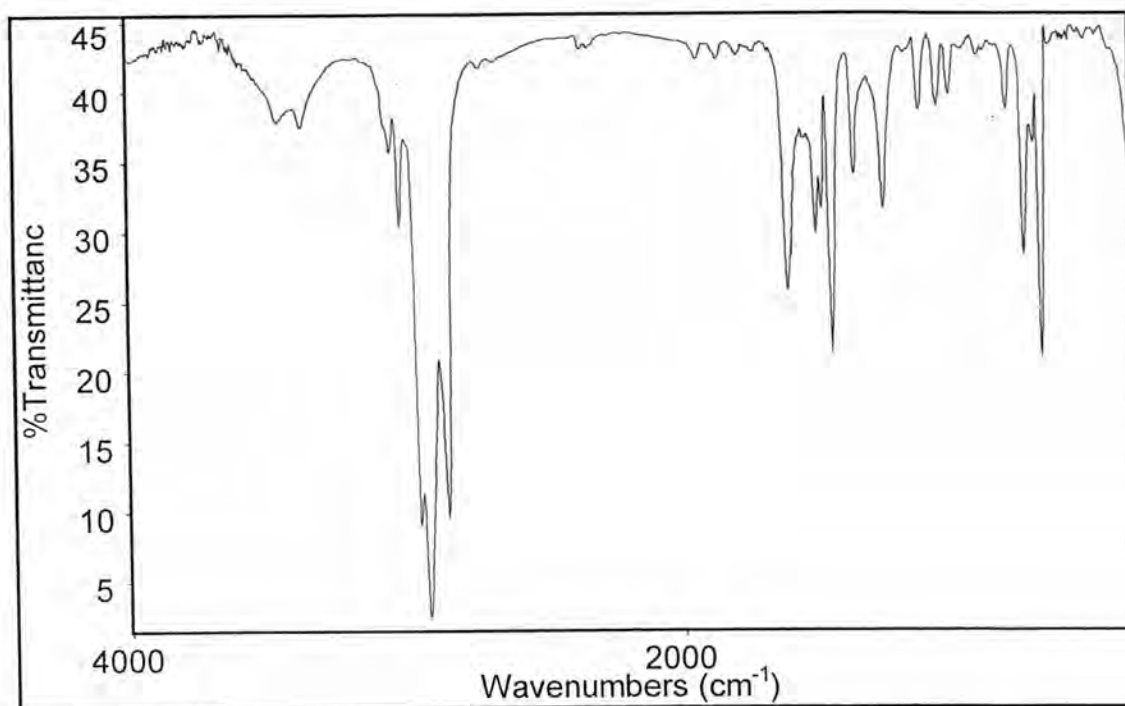


Fig. A.8 The IR spectrum of *p*-linear alkylaniline

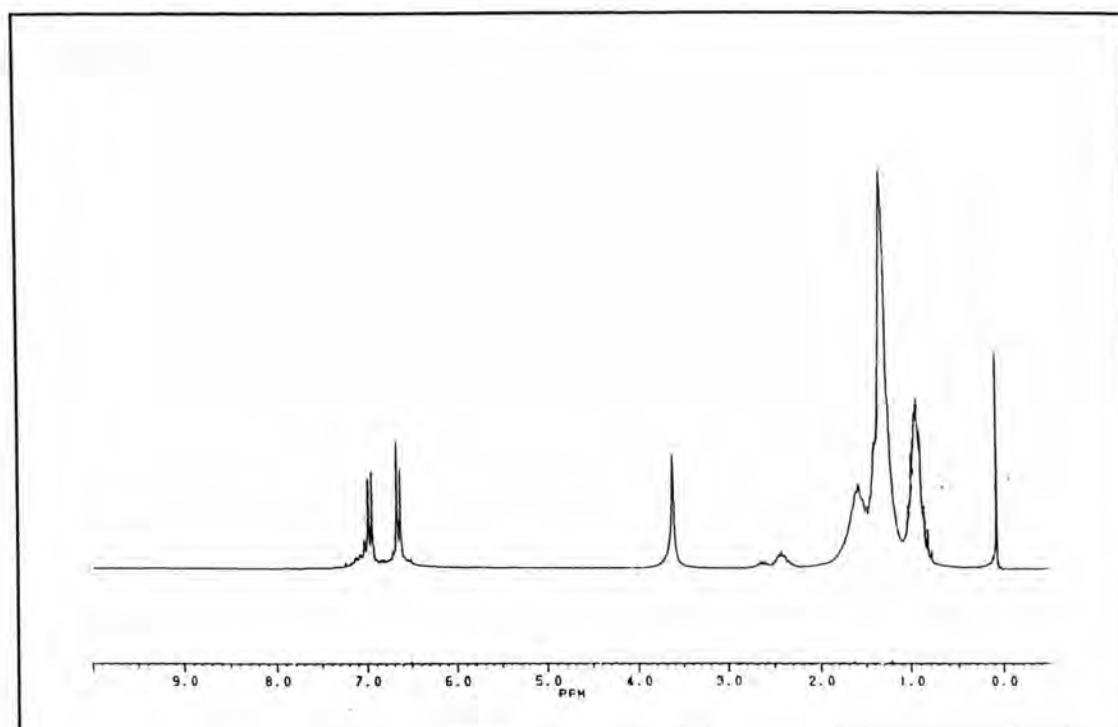


Fig. A.9 The ^1H -NMR spectrum of *p*-linear alkylaniline

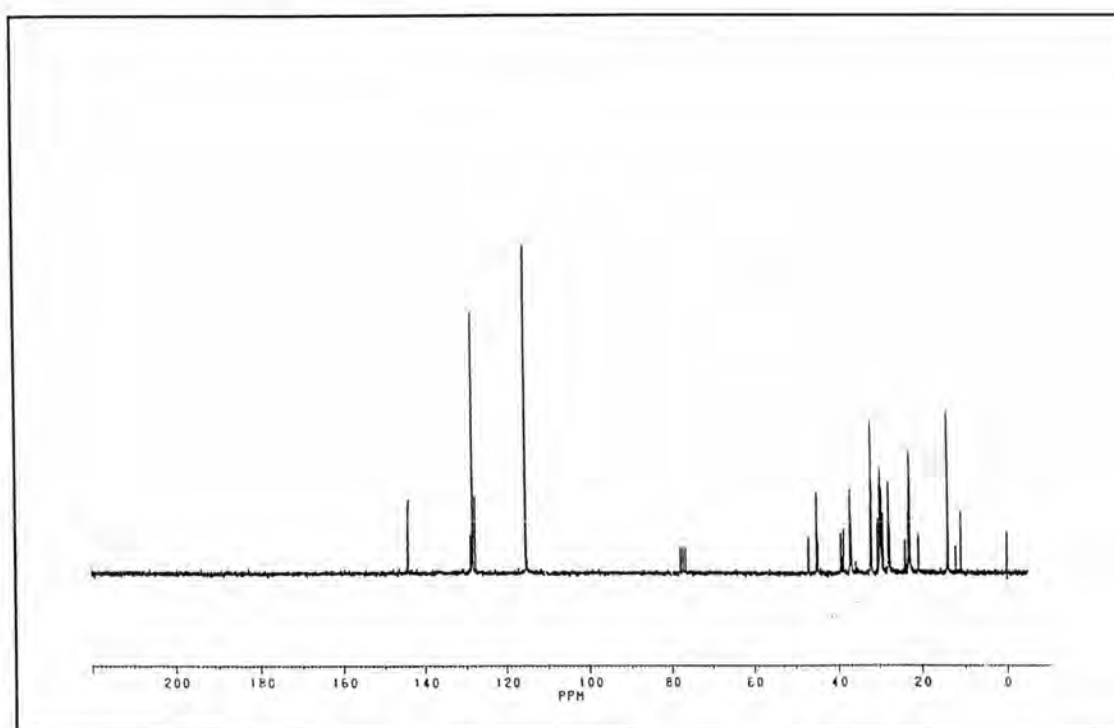


Fig. A.10 The ^{13}C -NMR spectrum of *p*-linear alkylaniline

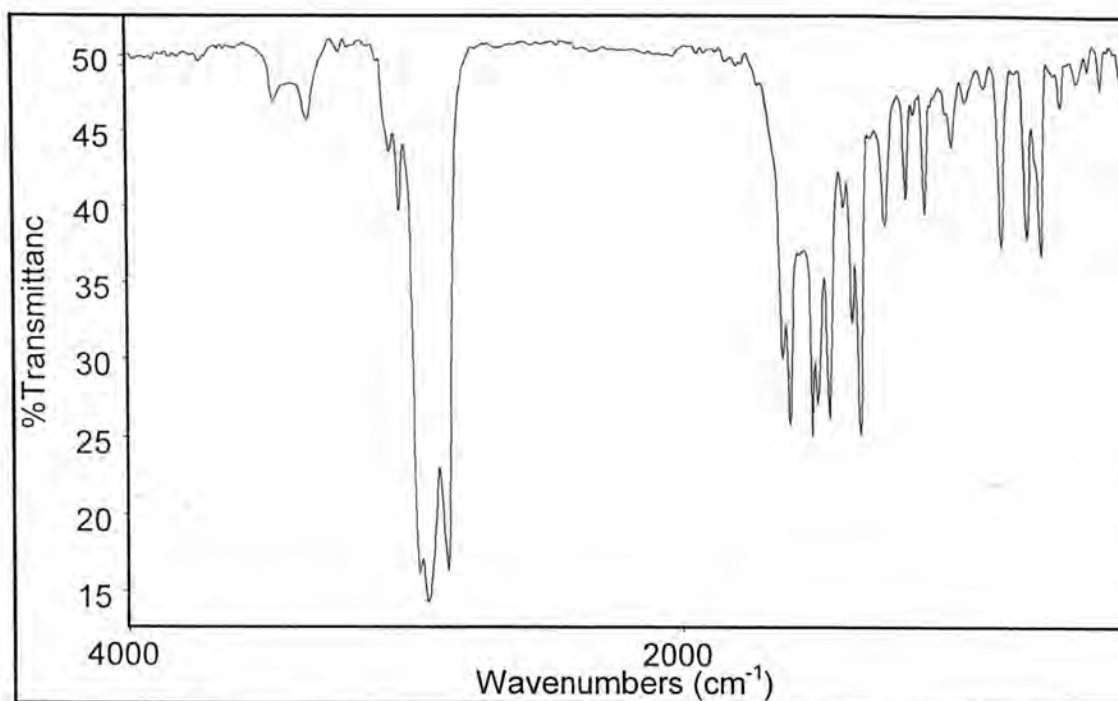


Fig. A.11 The IR spectrum of Compound 1a

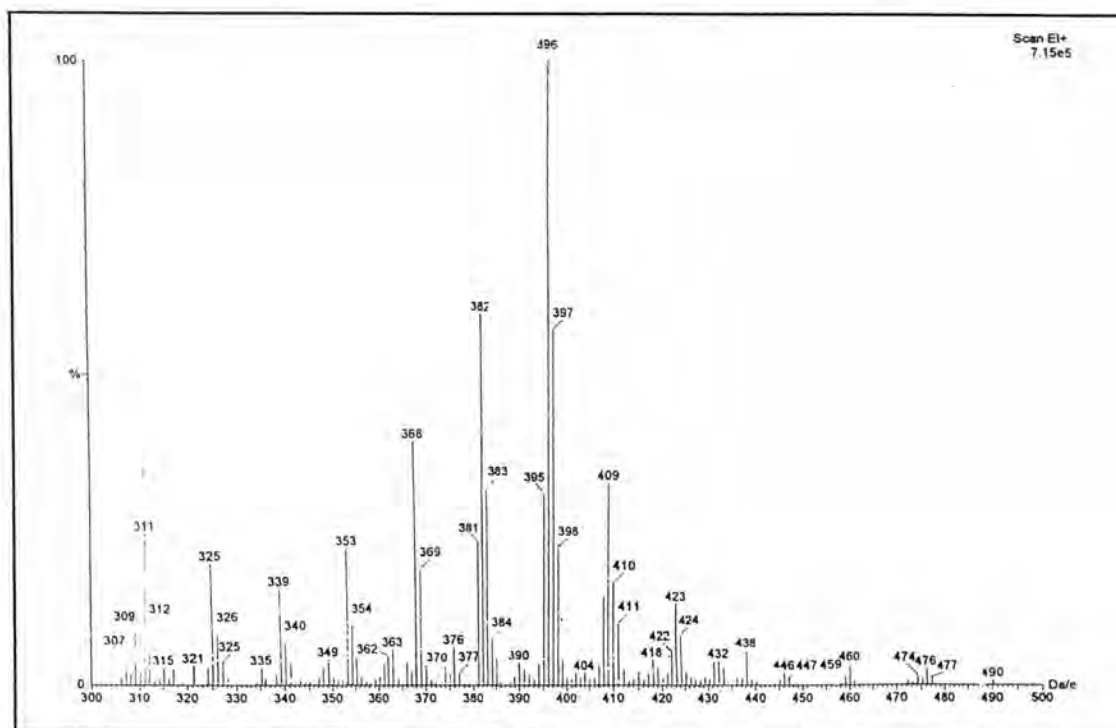


Fig. A.12 The mass spectrum of Compound 1a

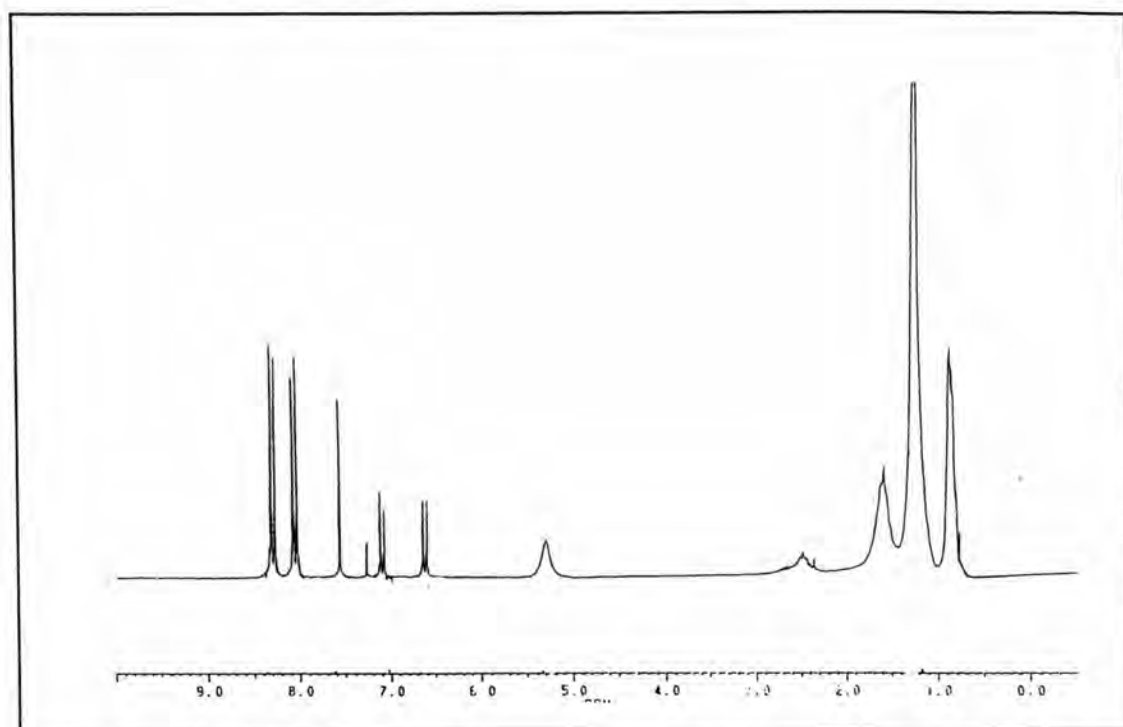


Fig. A.13 The $^1\text{H-NMR}$ spectrum of Compound 1a

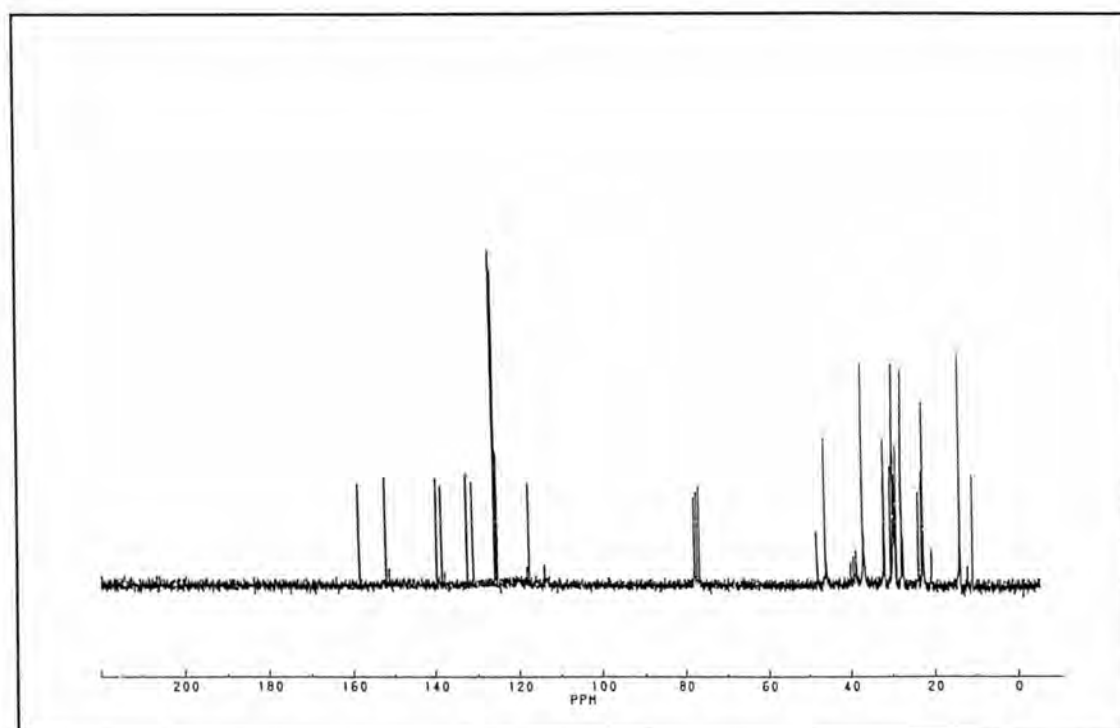


Fig. A.14 The $^{13}\text{C-NMR}$ spectrum of Compound 1a

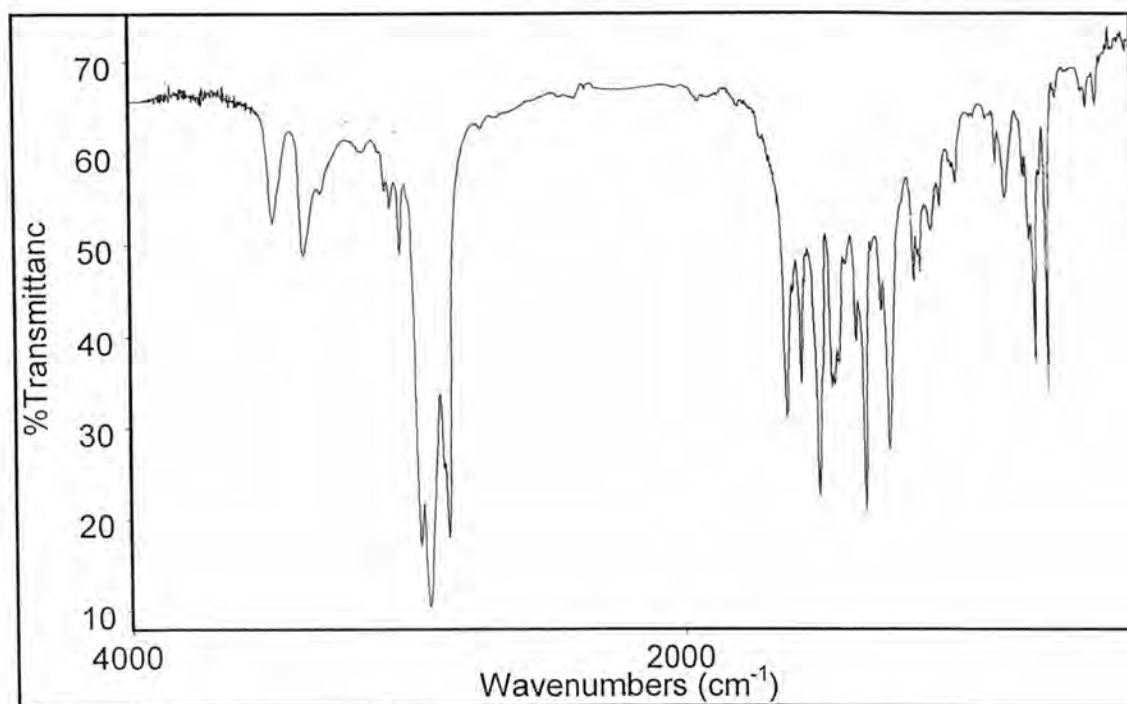


Fig. A.15 The IR spectrum of Compound 2a

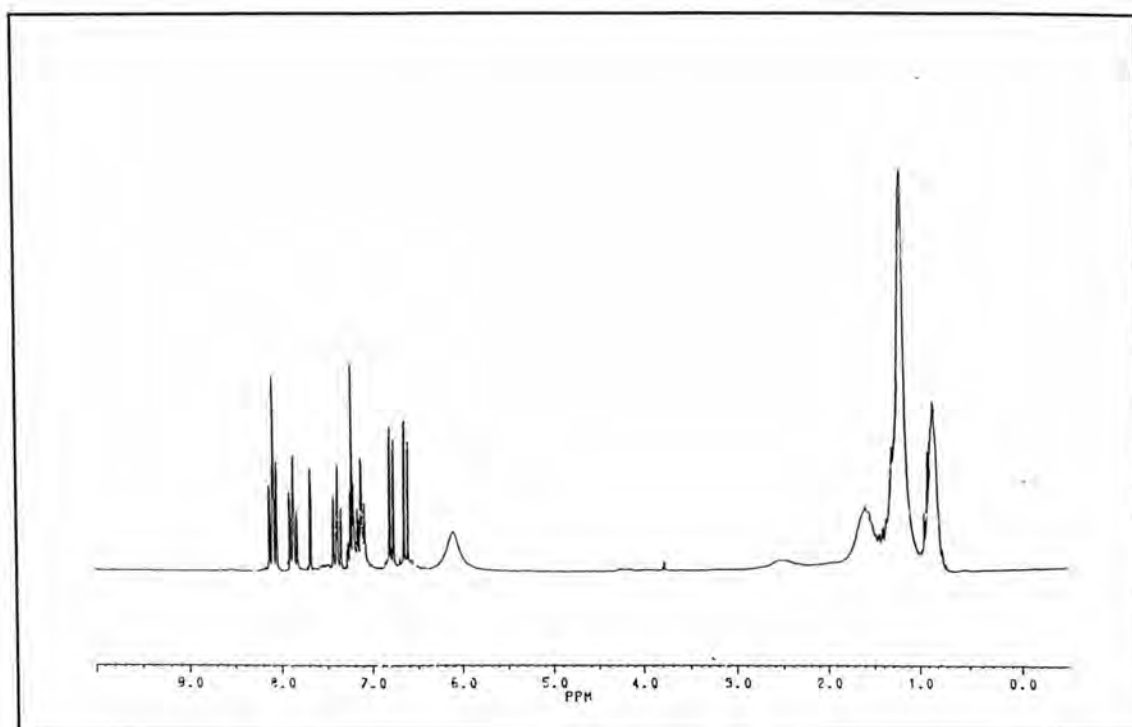


Fig. A.16 The ^1H -NMR spectrum of Compound 2a

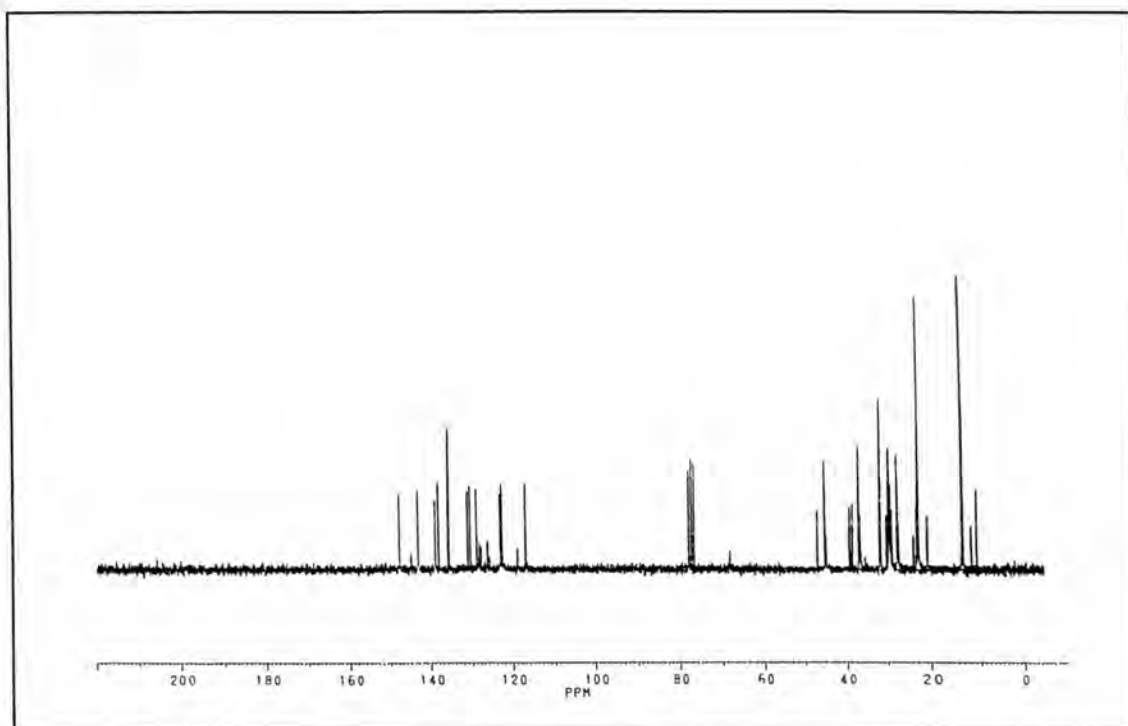


Fig. A.17 The ^{13}C -NMR spectrum of Compound 2a

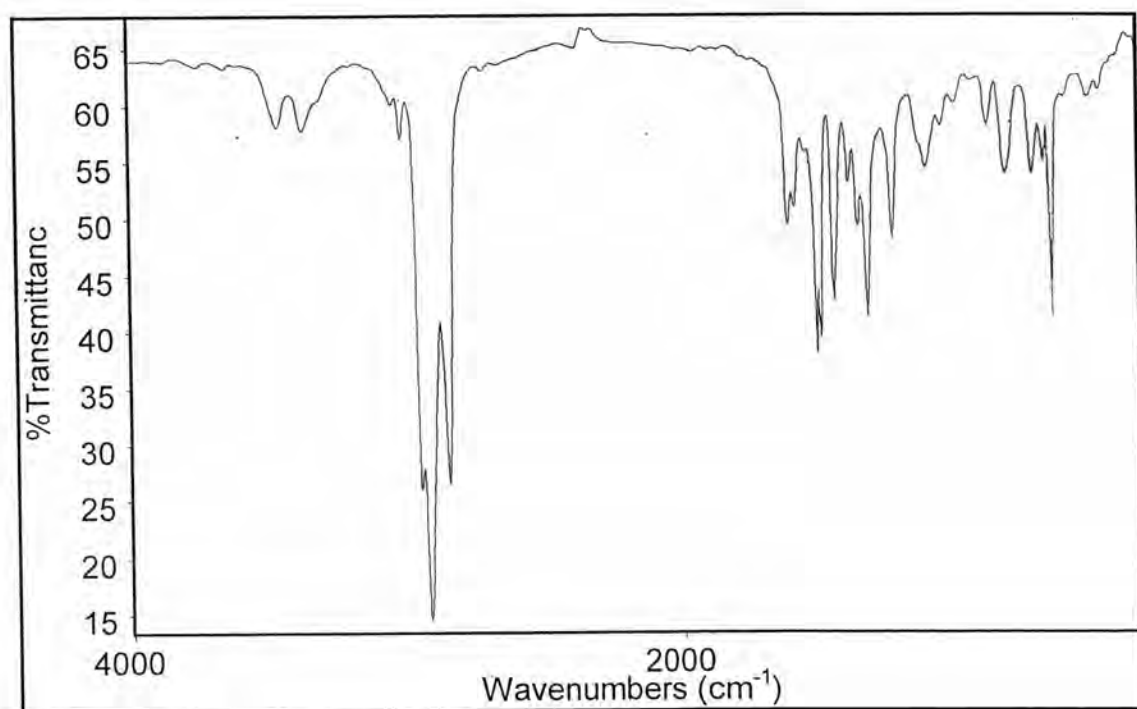


Fig. A.18 The IR spectrum of Compound 3a

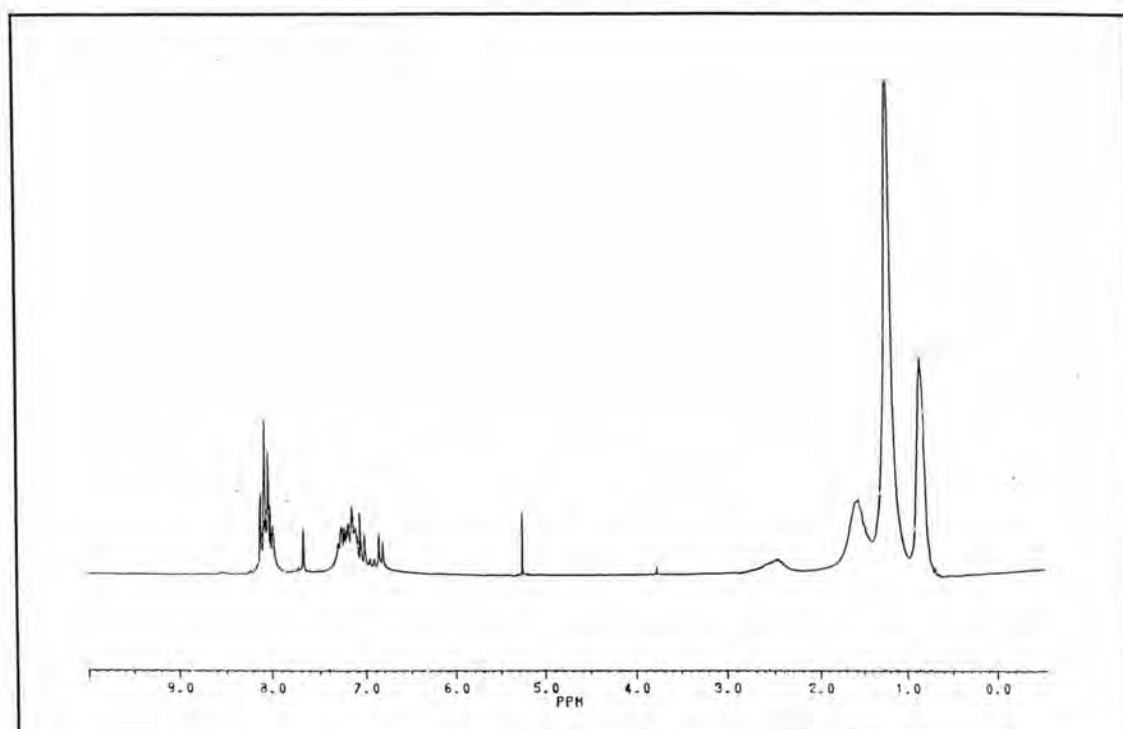


Fig. A.19 The $^1\text{H-NMR}$ spectrum of Compound 3a

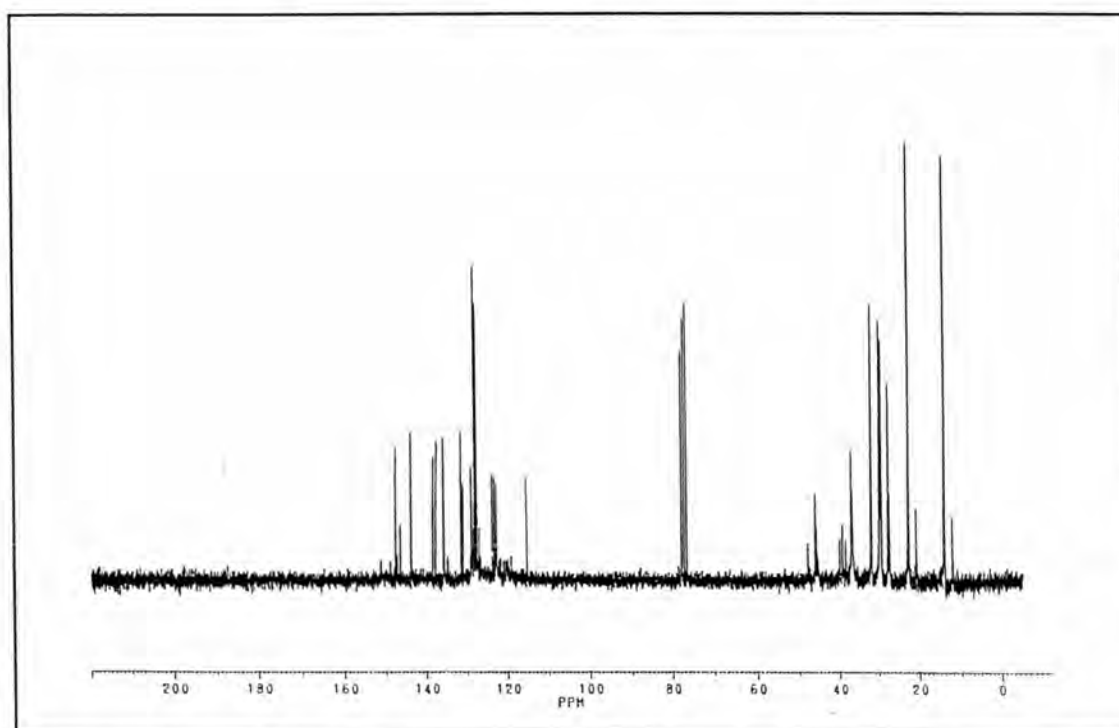


Fig. A.20 The $^{13}\text{C-NMR}$ spectrum of Compound 3a

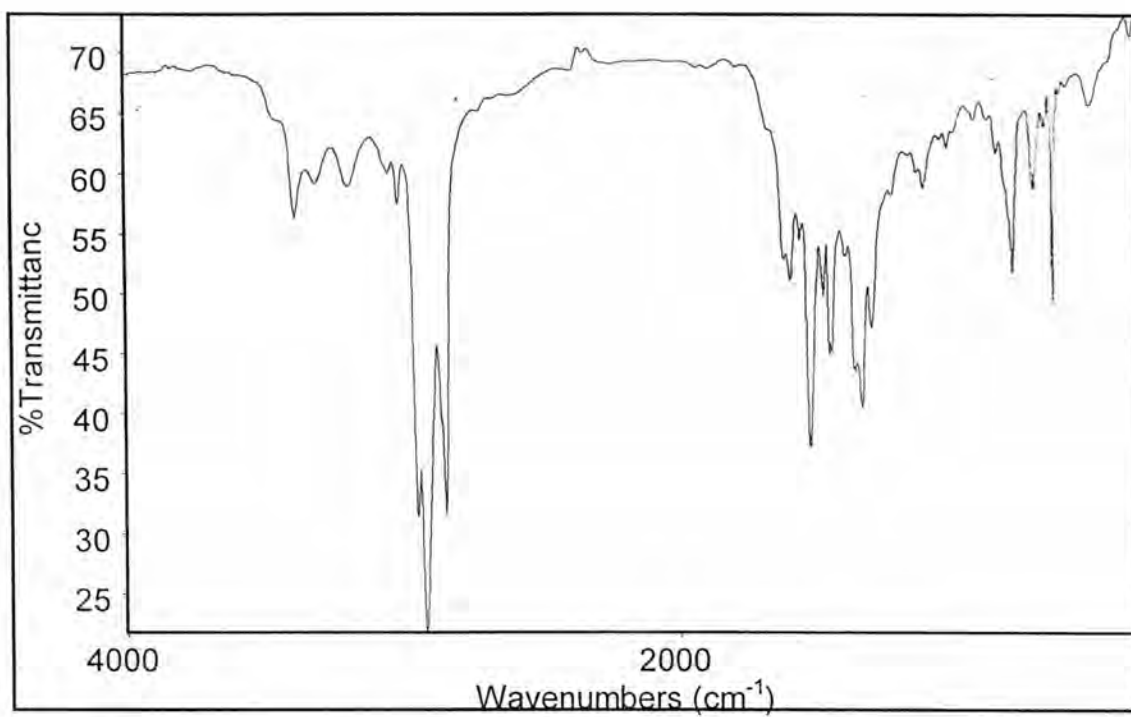


Fig. A.21 The IR spectrum of Compound 4a

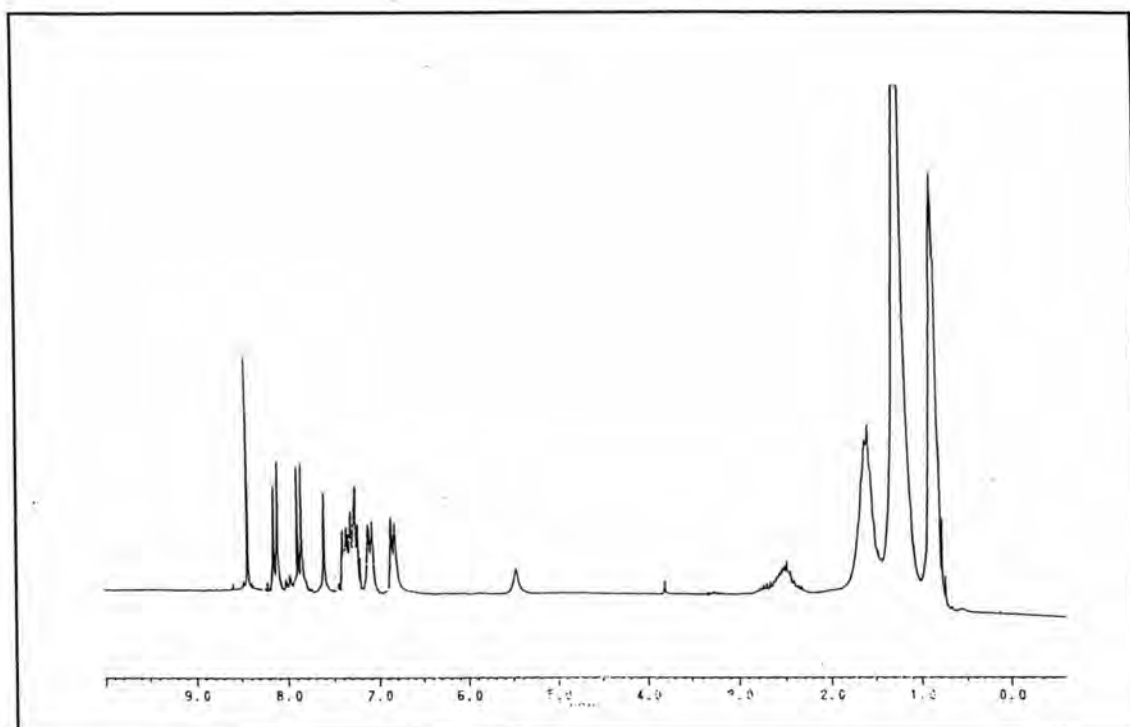


Fig. A.22 The $^1\text{H-NMR}$ spectrum of Compound 4a

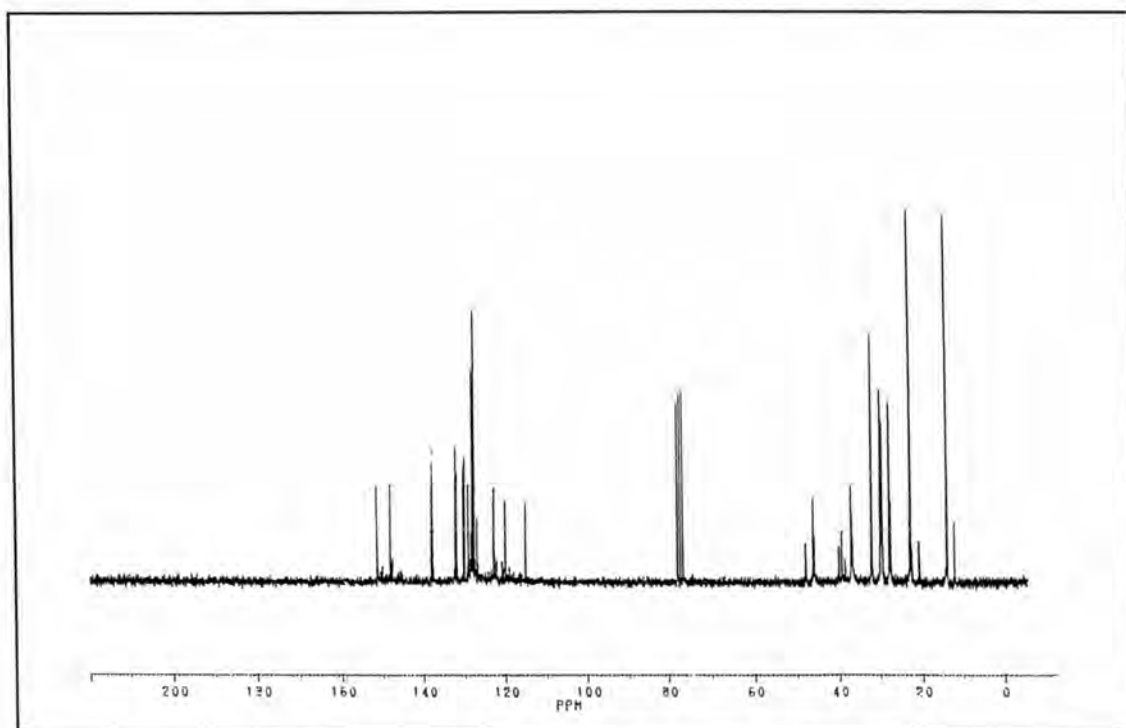


Fig. A.23 The $^{13}\text{C-NMR}$ spectrum of Compound 4a

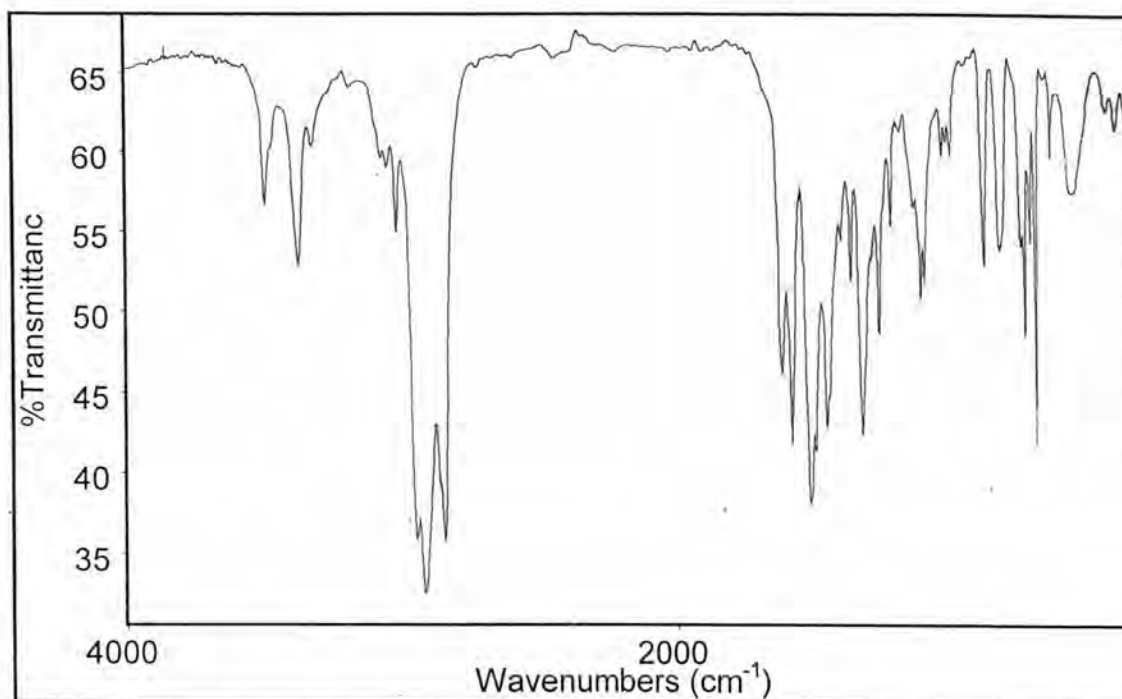


Fig. A.24 The IR spectrum of Compound 5a

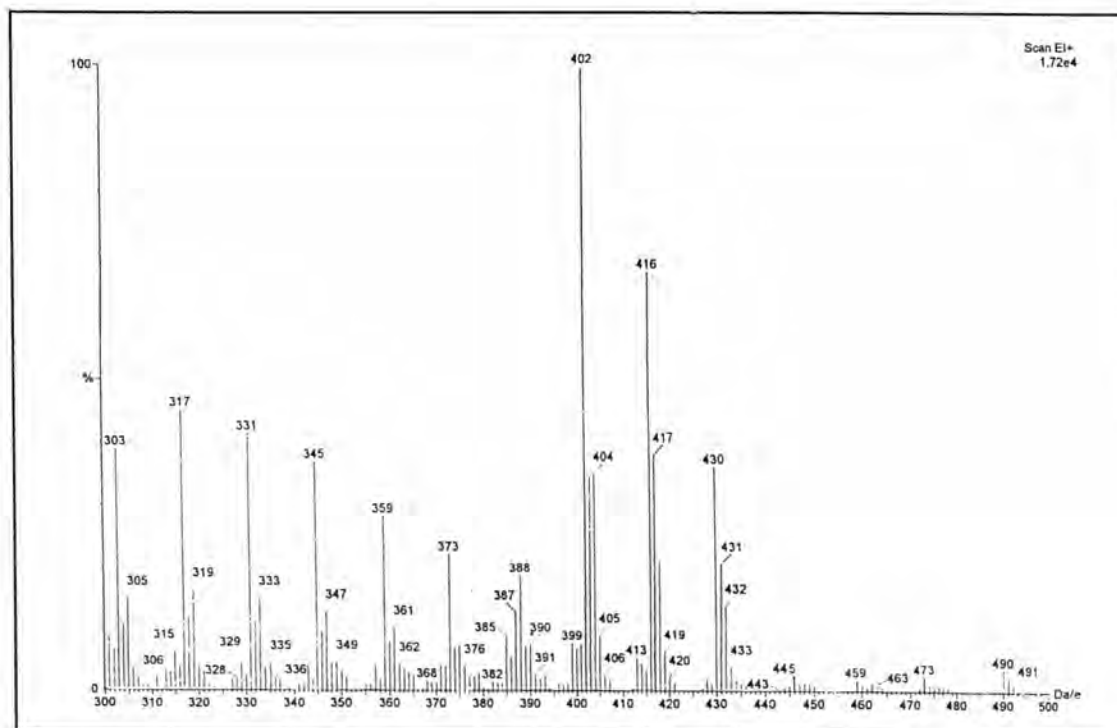


Fig. A.25 The mass spectrum of Compound 5a

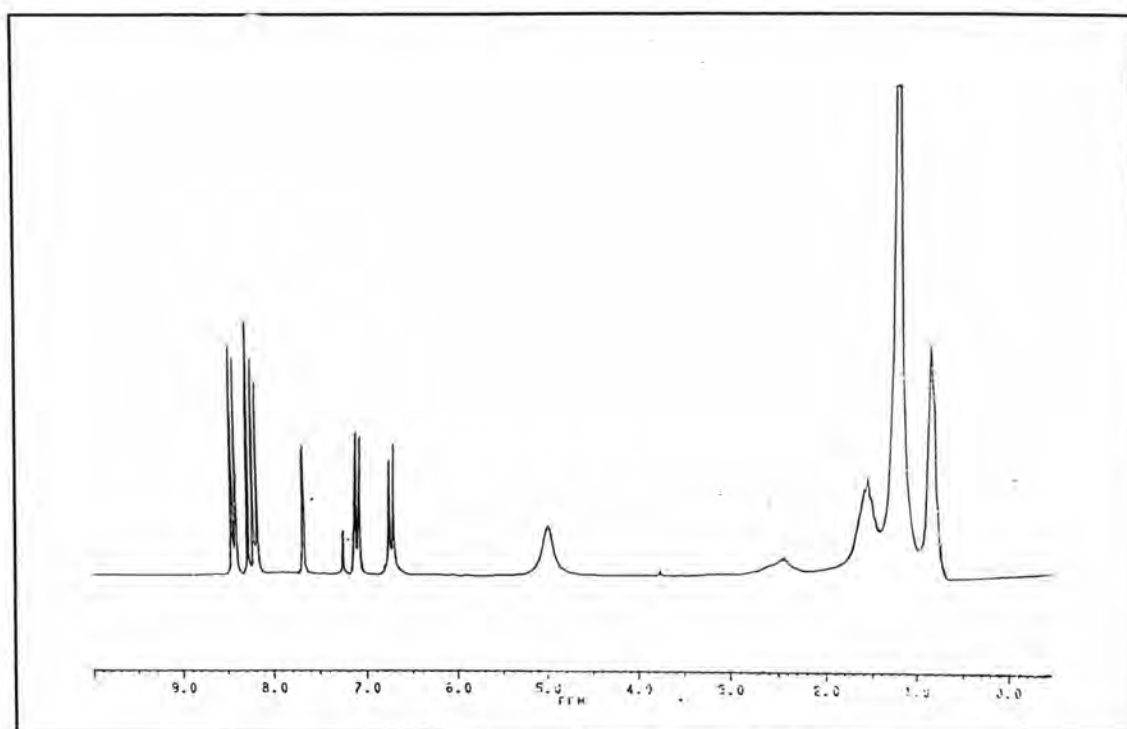


Fig. A.26 The $^1\text{H-NMR}$ spectrum of Compound 5a

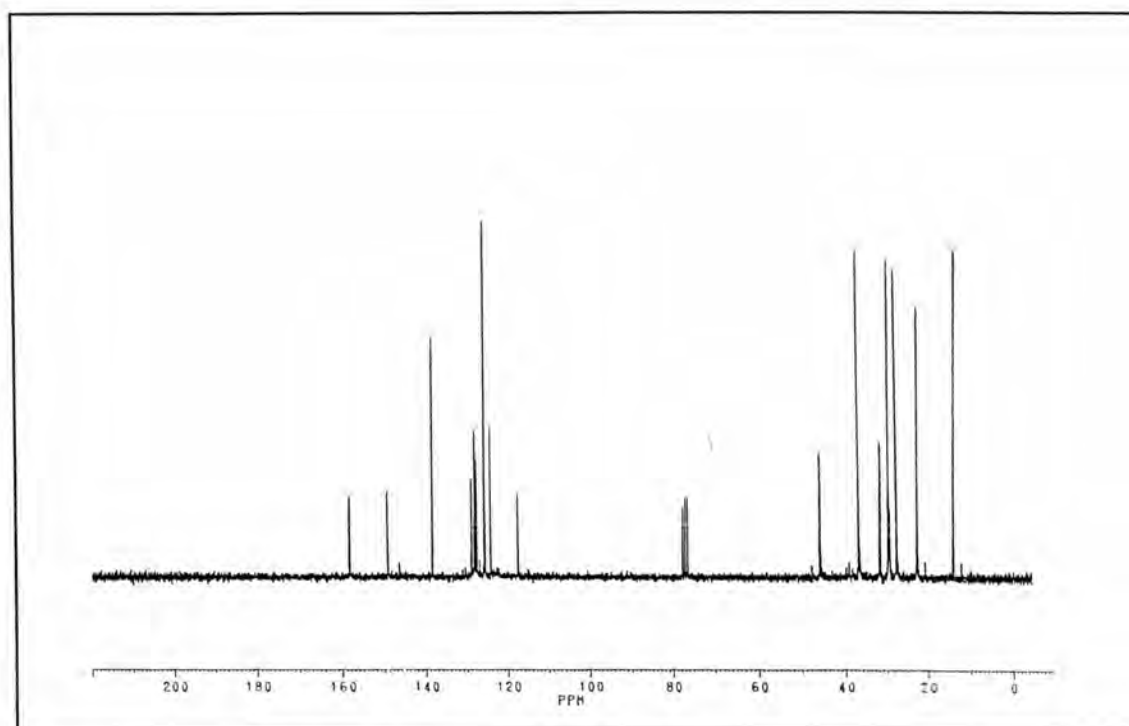


Fig. A.27 The $^{13}\text{C-NMR}$ spectrum of Compound 5a

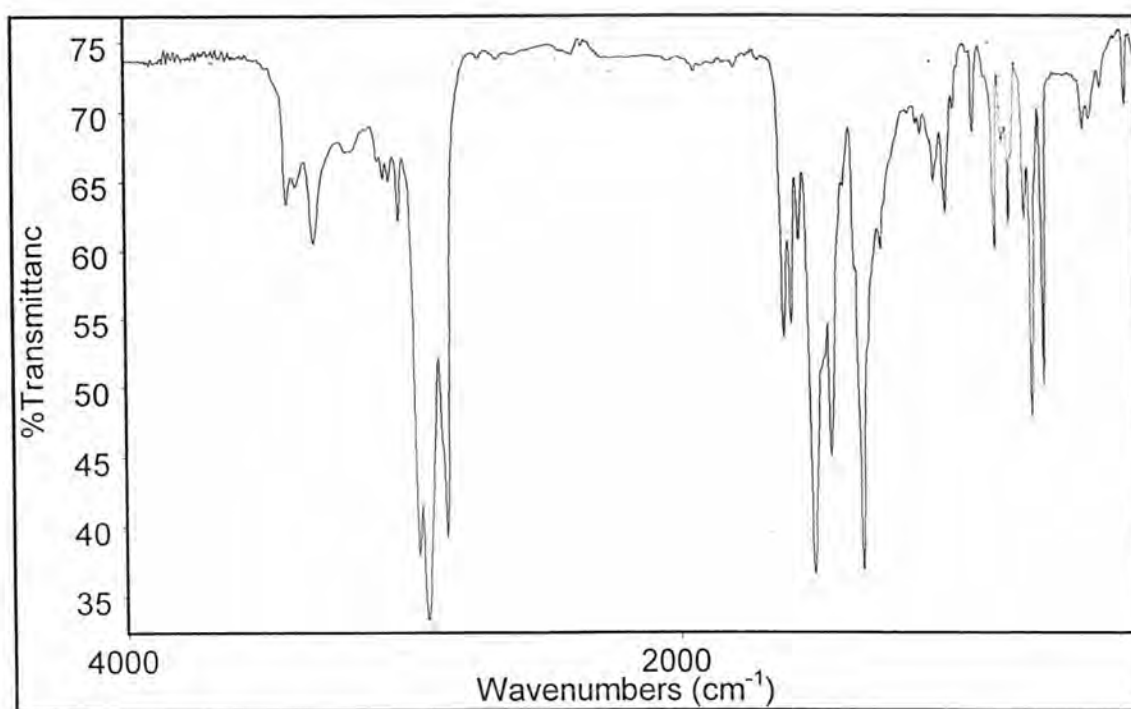


Fig. A.28 The IR spectrum of Compound 6a

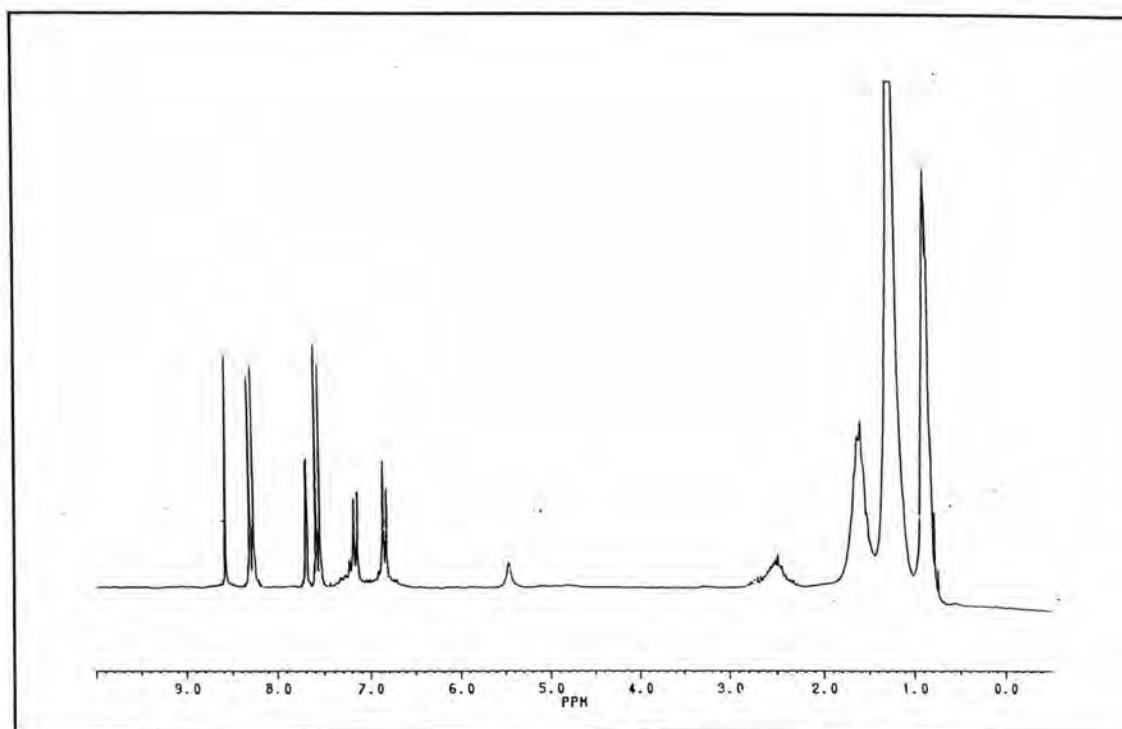


Fig. A.29 The $^1\text{H-NMR}$ spectrum of Compound 6a

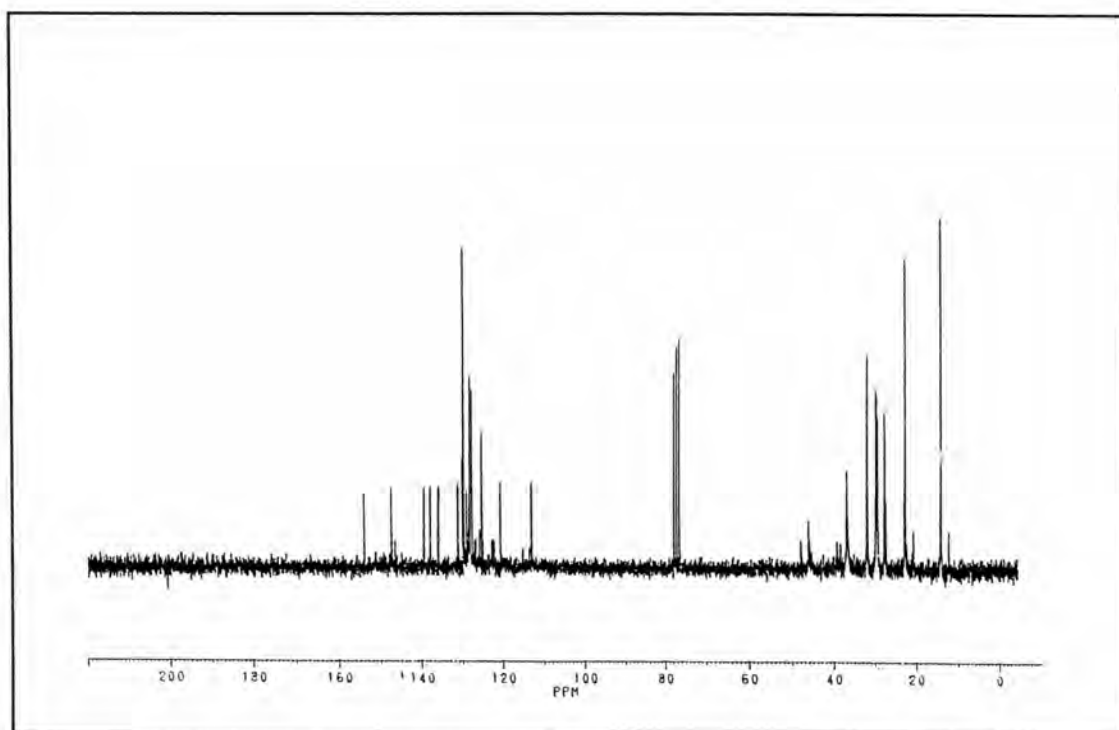


Fig. A.30 The $^{13}\text{C-NMR}$ spectrum of Compound 6a

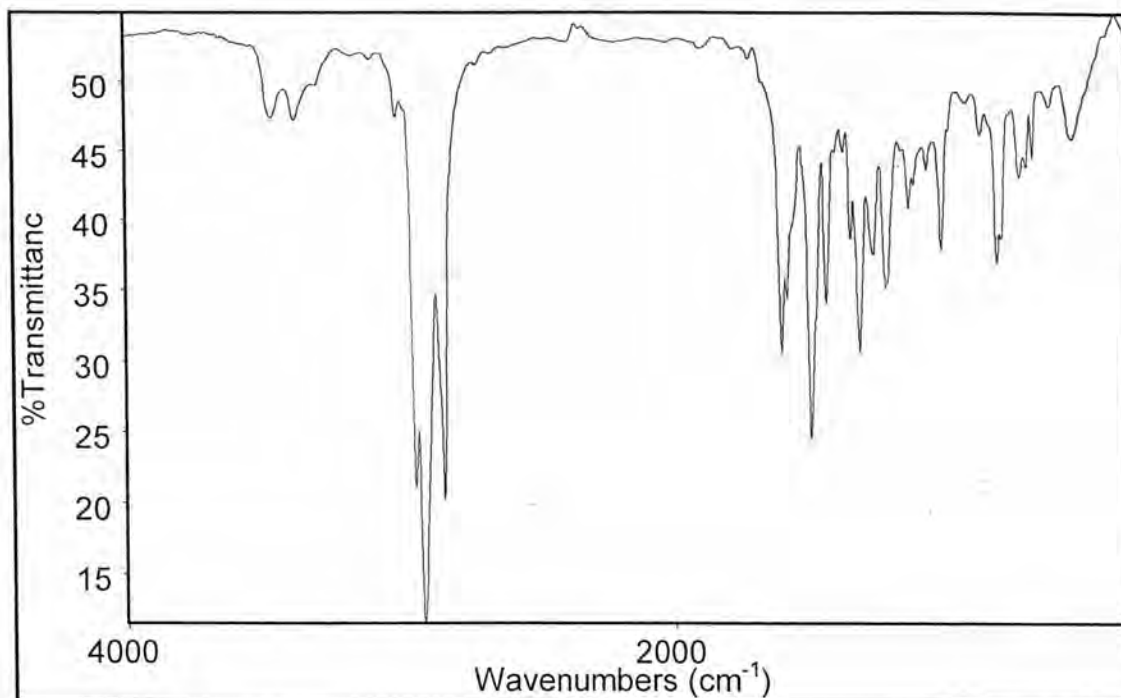


Fig. A.31 The IR spectrum of Compound 7a

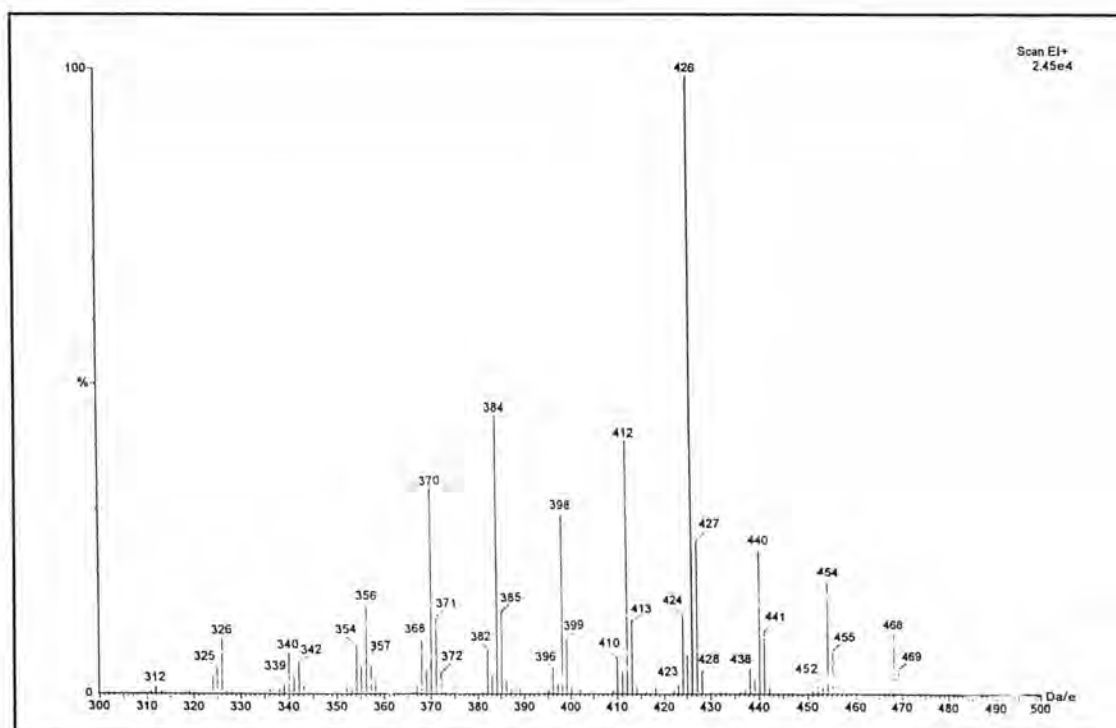


Fig. A.32 The mass spectrum of Compound 7a

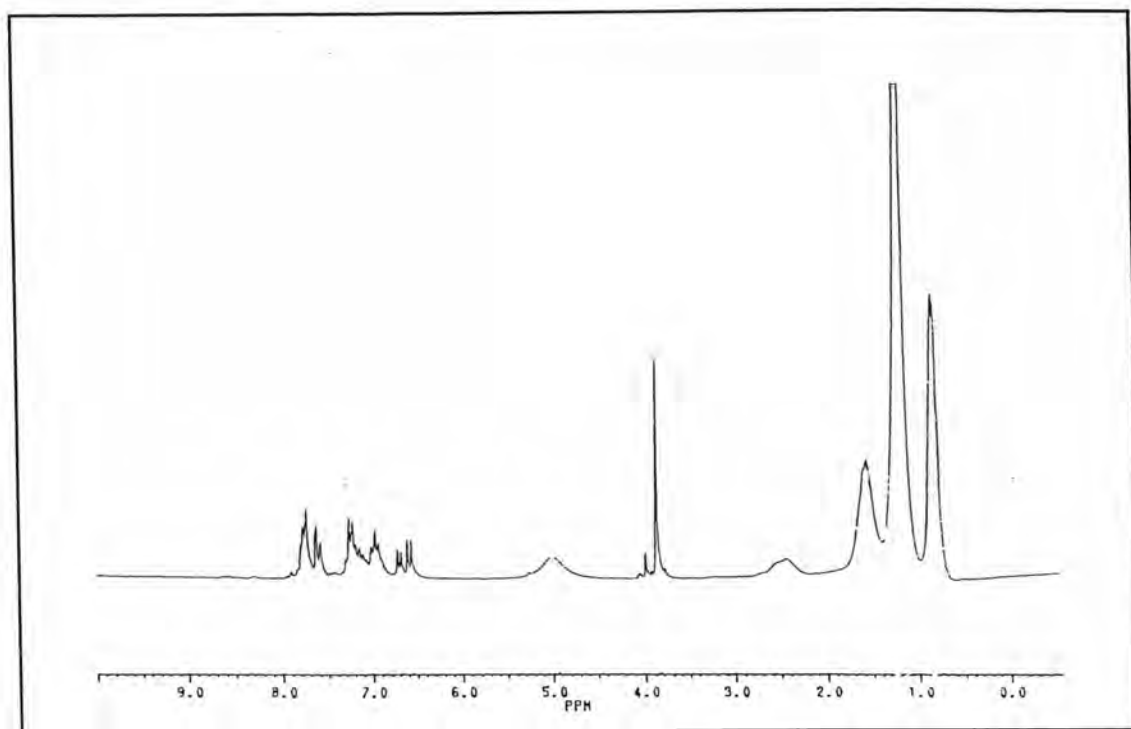


Fig. A.33 The ^1H -NMR spectrum of Compound 7a

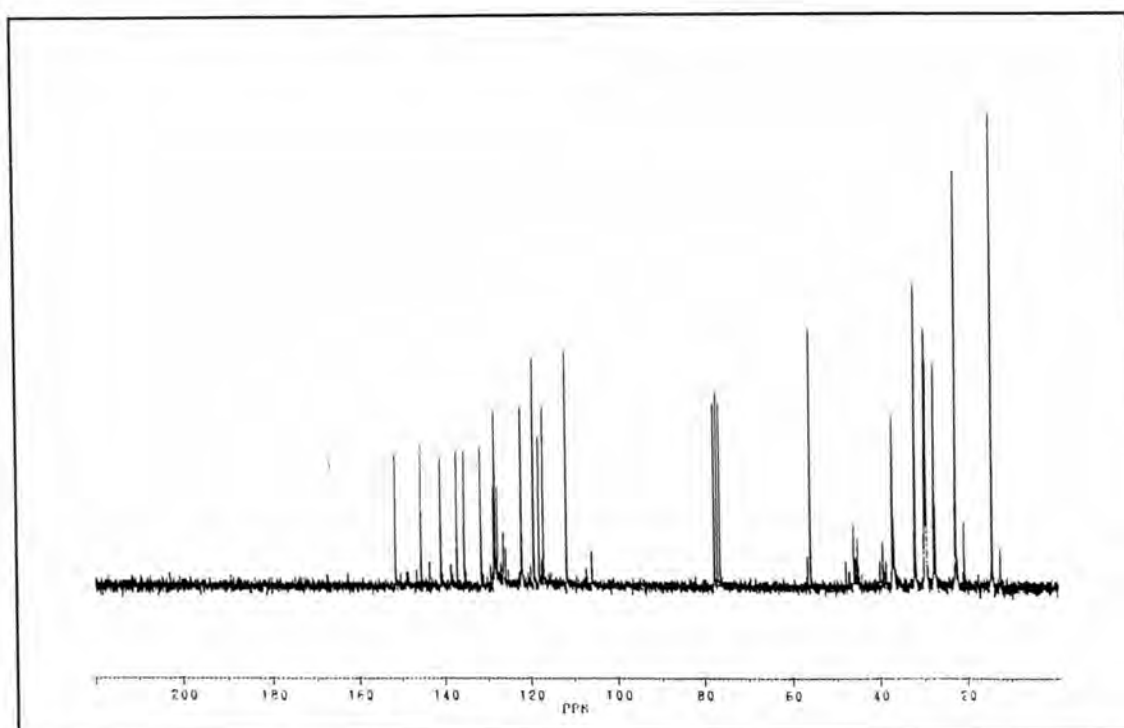


Fig. A.34 The ^{13}C -NMR spectrum of Compound 7a

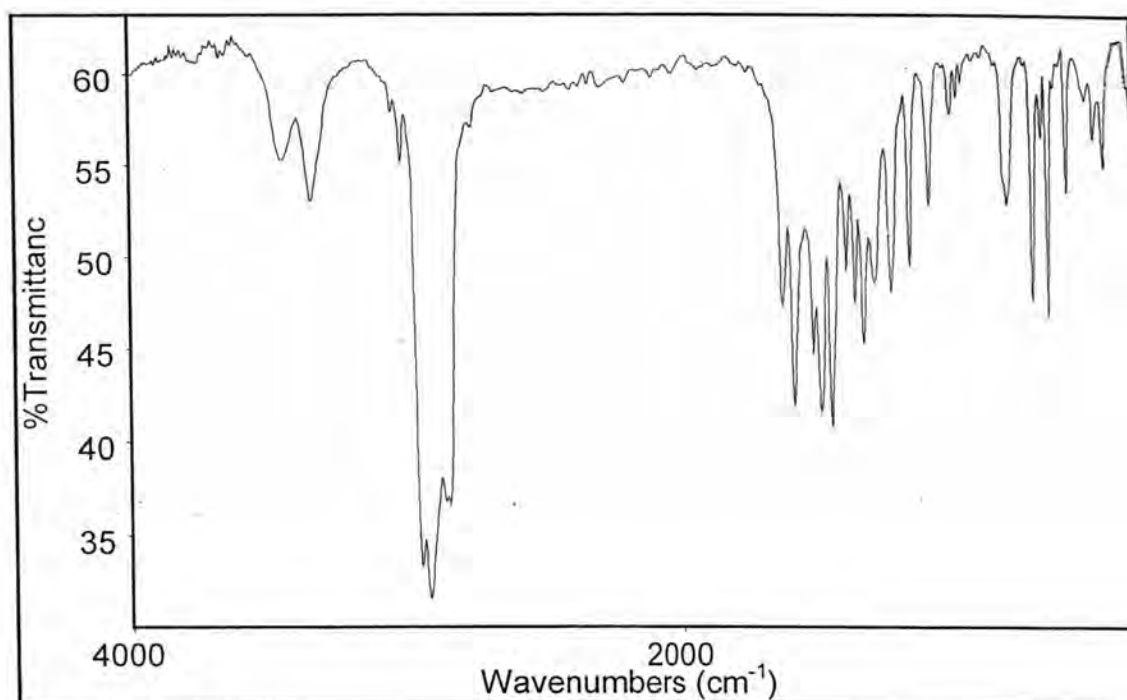


Fig. A.35 The IR spectrum of Compound 1b

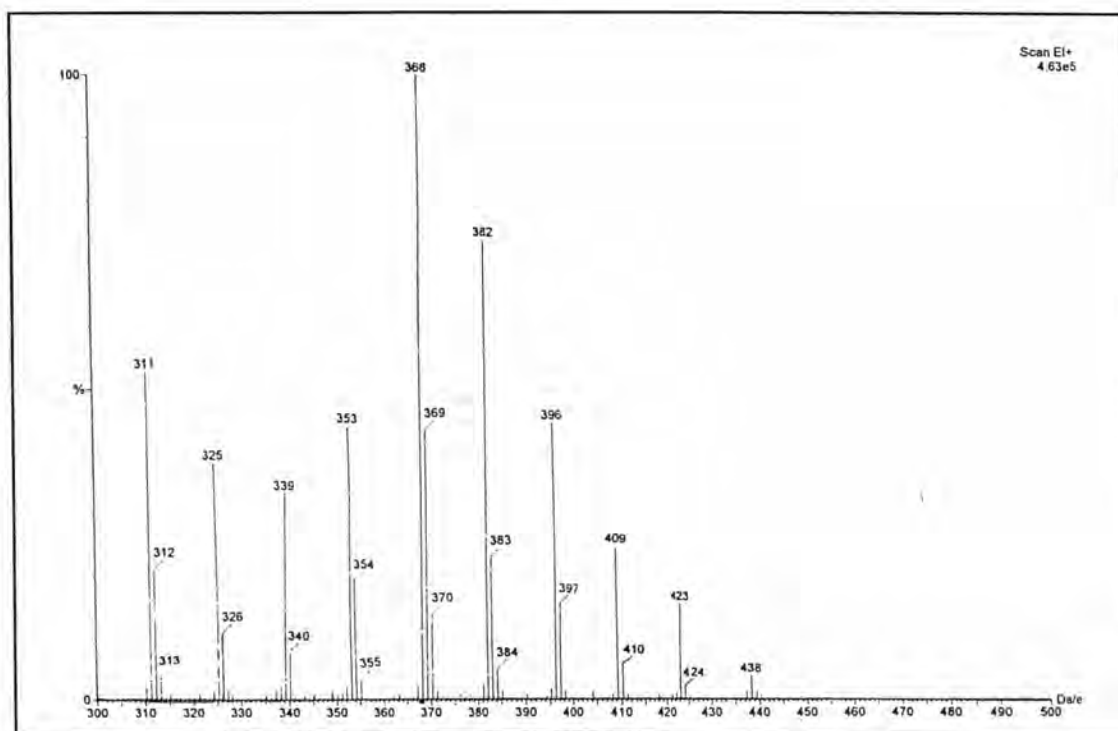


Fig. A.36 The mass spectrum of Compound 1b

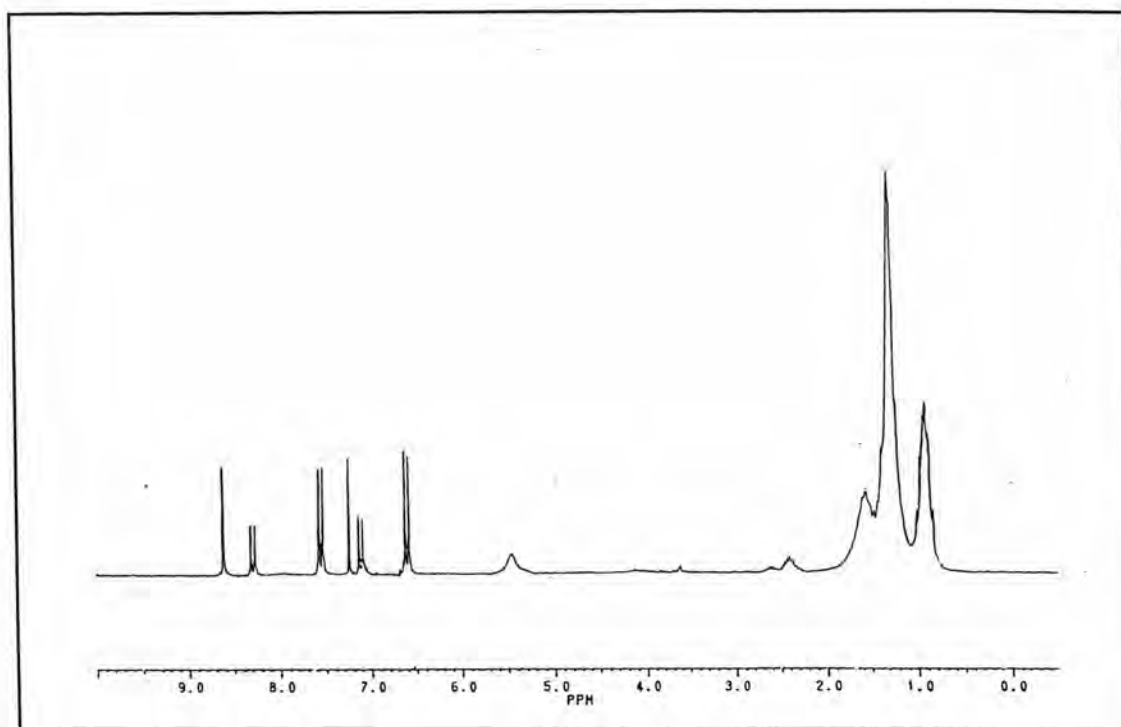


Fig. A.37 The $^1\text{H-NMR}$ spectrum of Compound **1b**

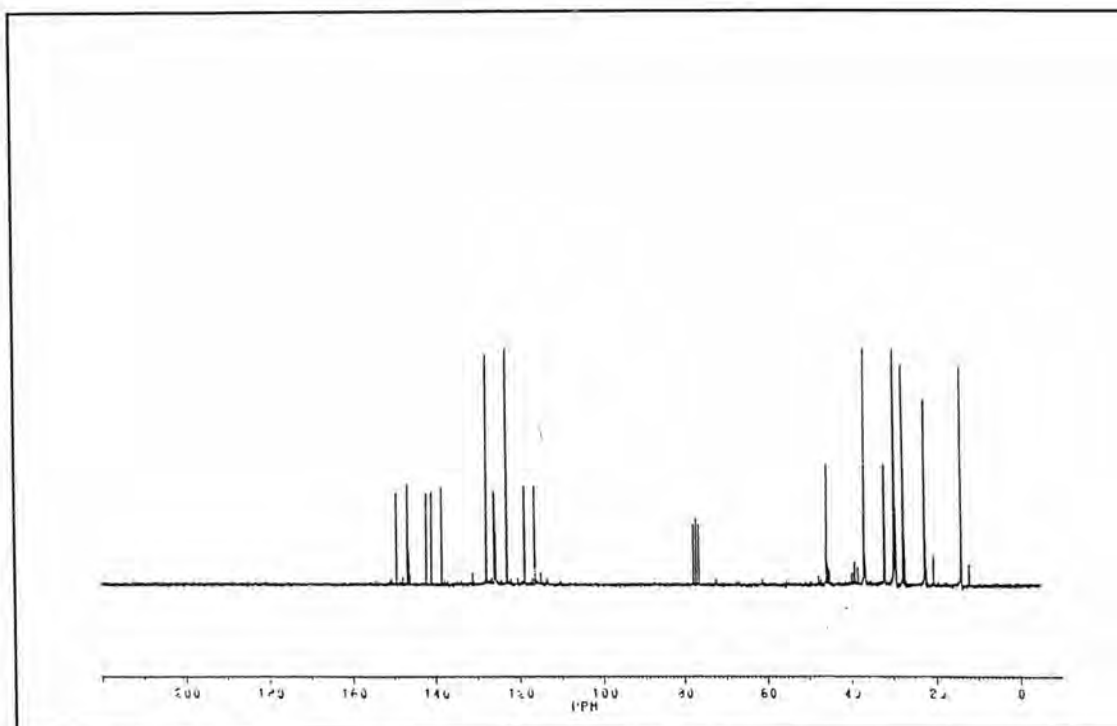


Fig. A.38 The $^{13}\text{C-NMR}$ spectrum of Compound **1b**

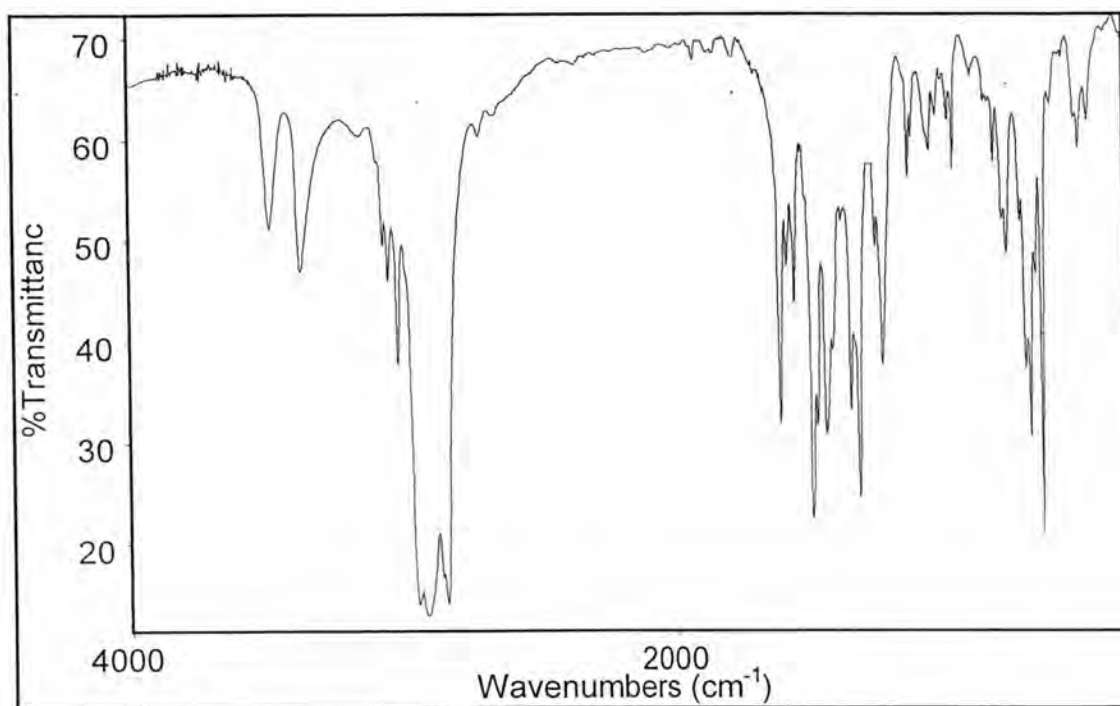


Fig. A.39 The IR spectrum of Compound **2b**

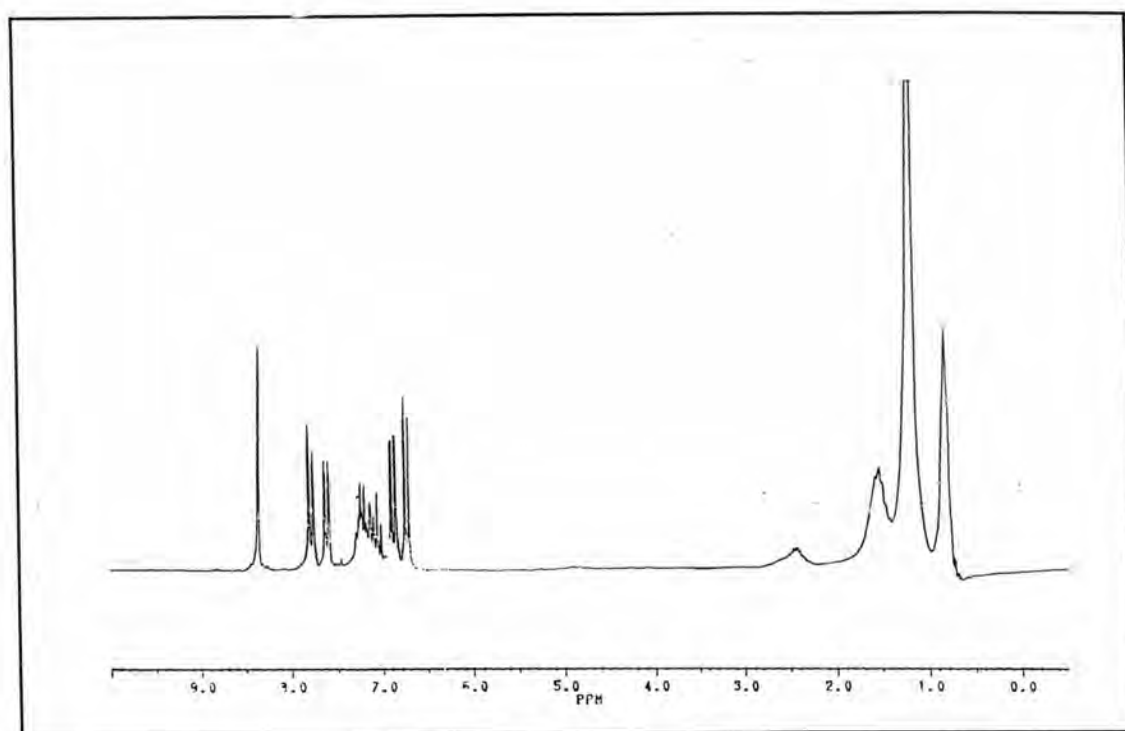


Fig. A.40 The $^1\text{H-NMR}$ spectrum of Compound 2b

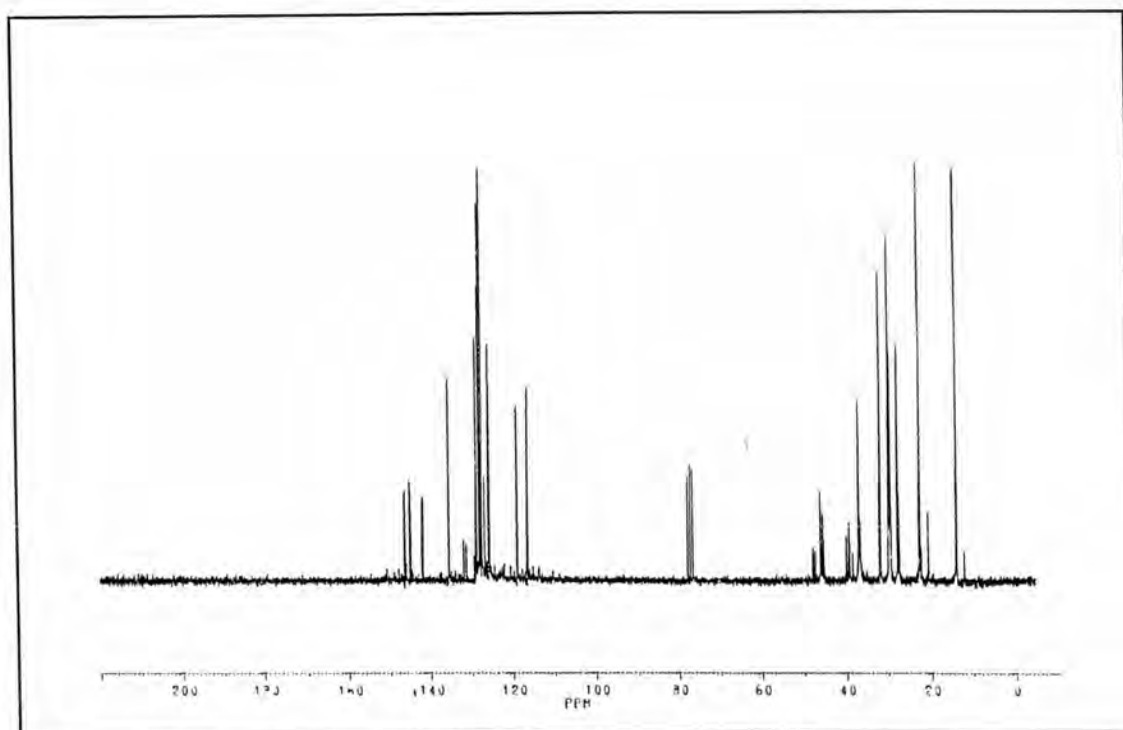


Fig. A.41 The $^{13}\text{C-NMR}$ spectrum of Compound 2b

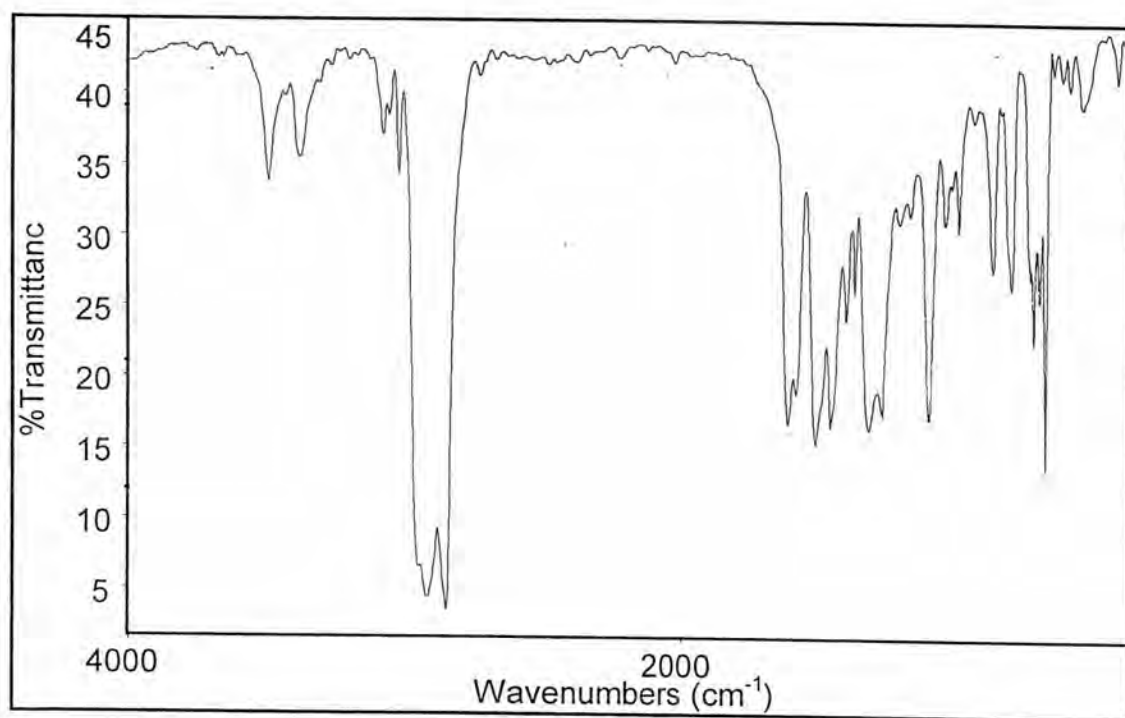


Fig. A.42 The IR spectrum of Compound **3b**

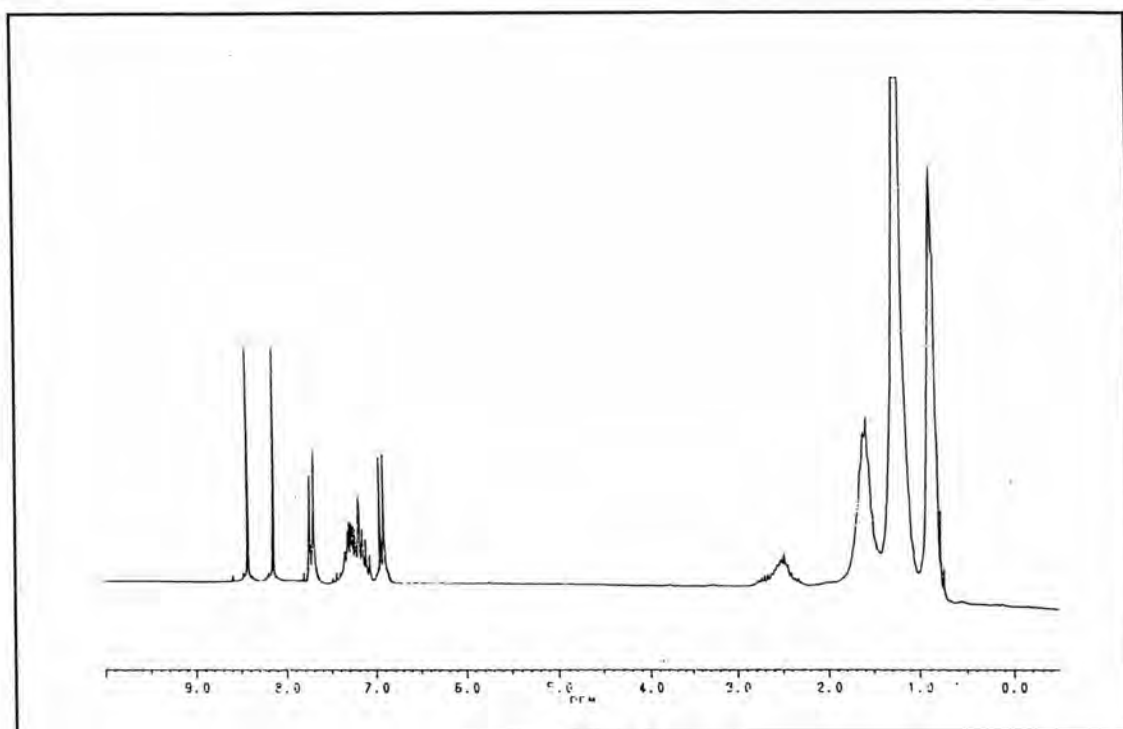


Fig. A.43 The $^1\text{H-NMR}$ spectrum of Compound 3b

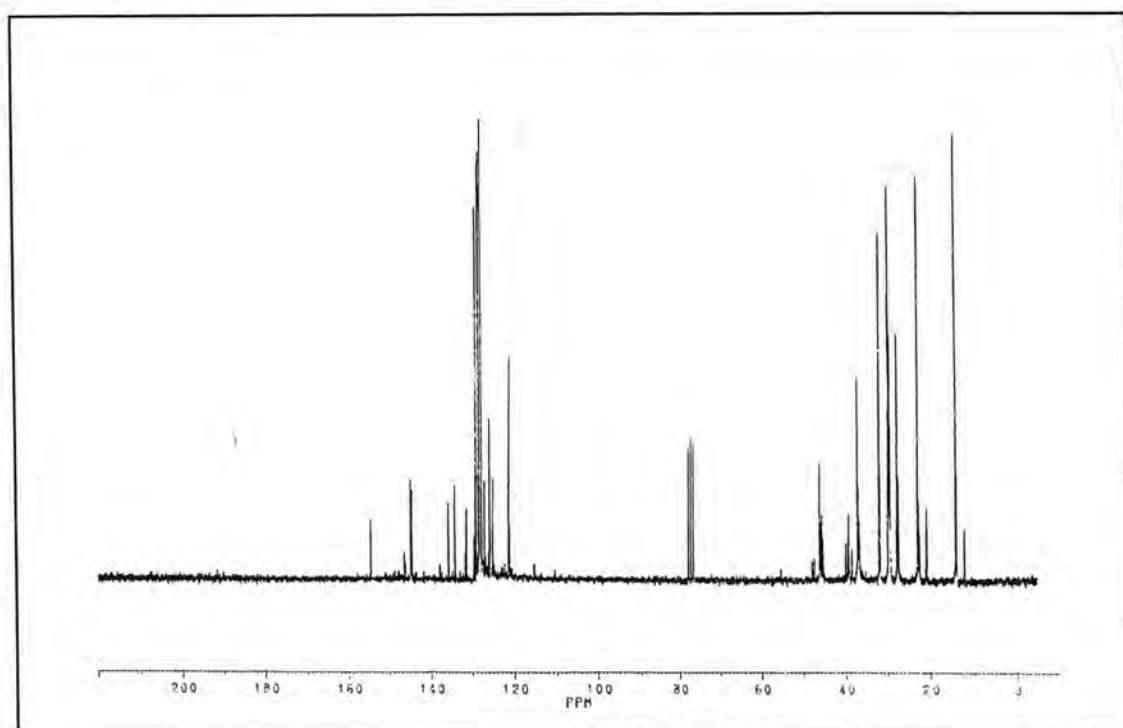


Fig. A.44 The $^{13}\text{C-NMR}$ spectrum of Compound 3b

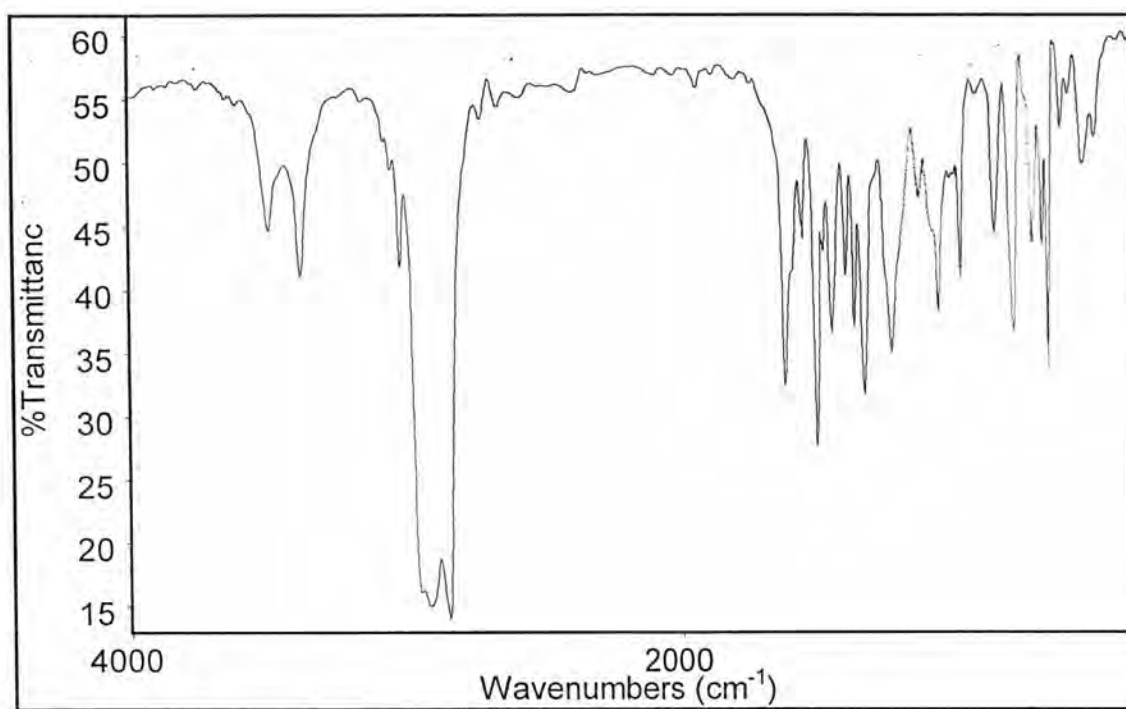


Fig. A.45 The IR spectrum of Compound **4b**

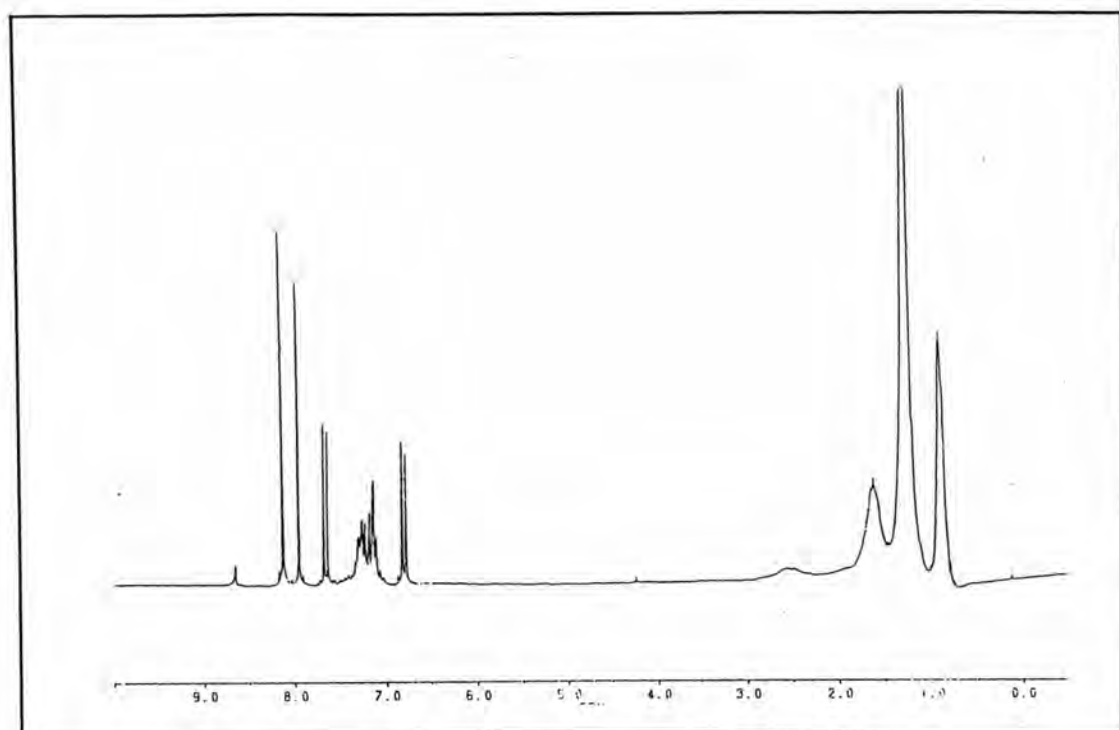


Fig. A.46 The $^1\text{H-NMR}$ spectrum of Compound **4b**

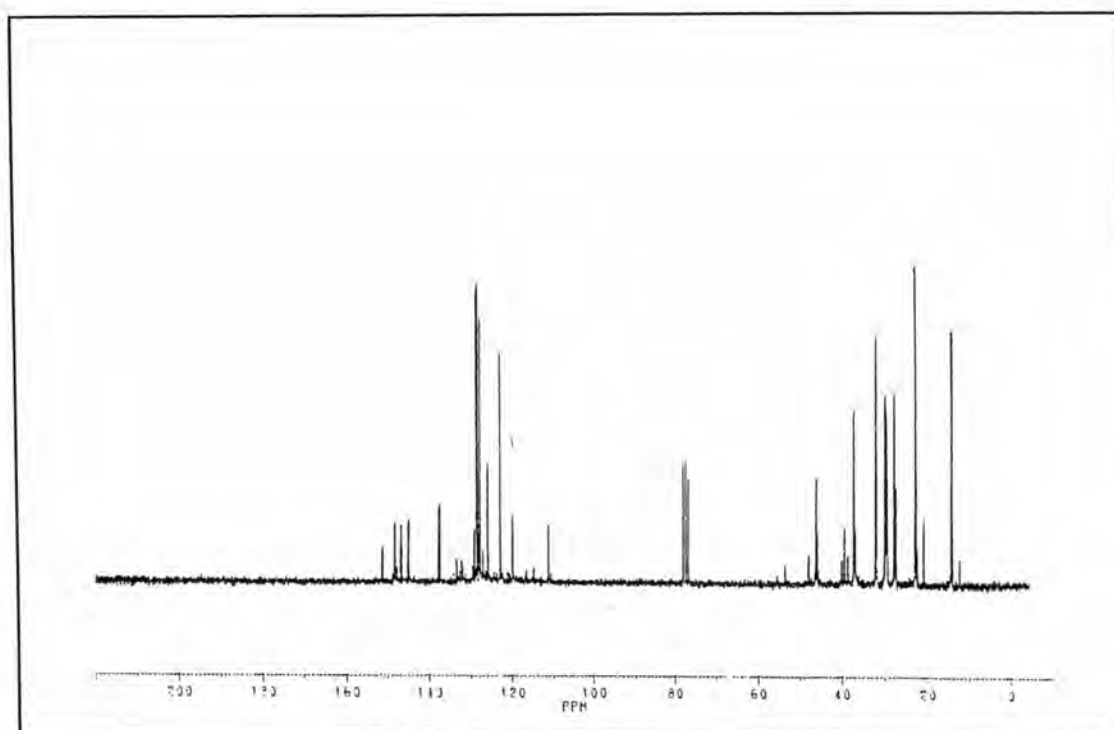


Fig. A.47 The $^{13}\text{C-NMR}$ spectrum of Compound **4b**

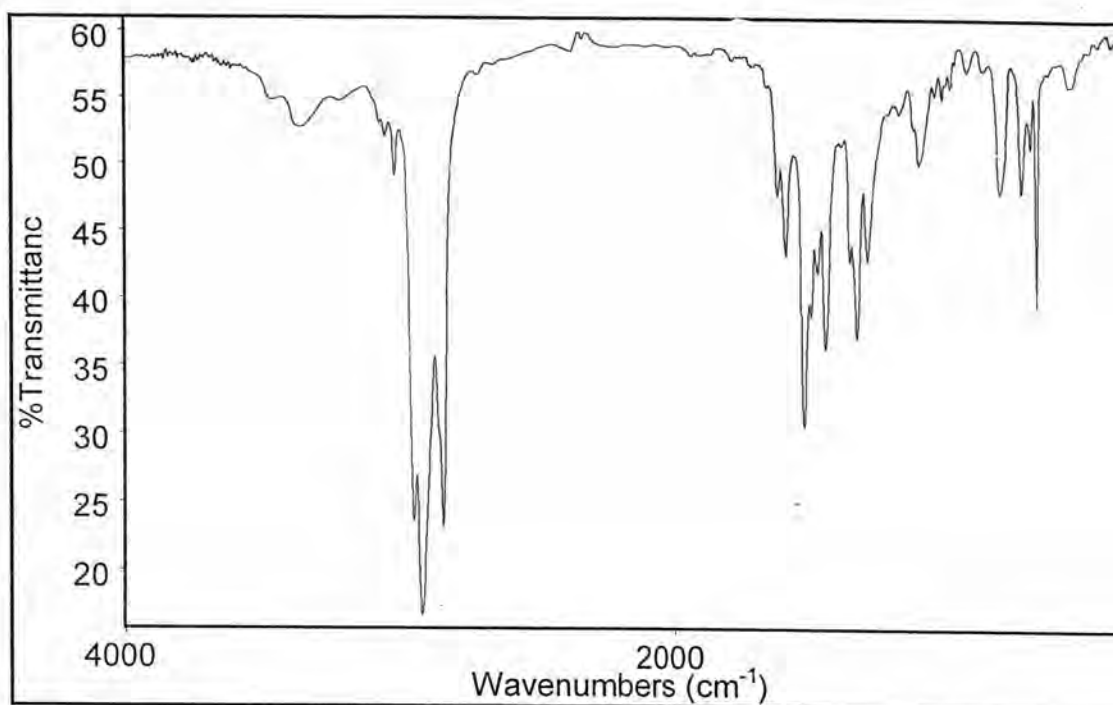


Fig. A.48 The IR spectrum of Compound 5b

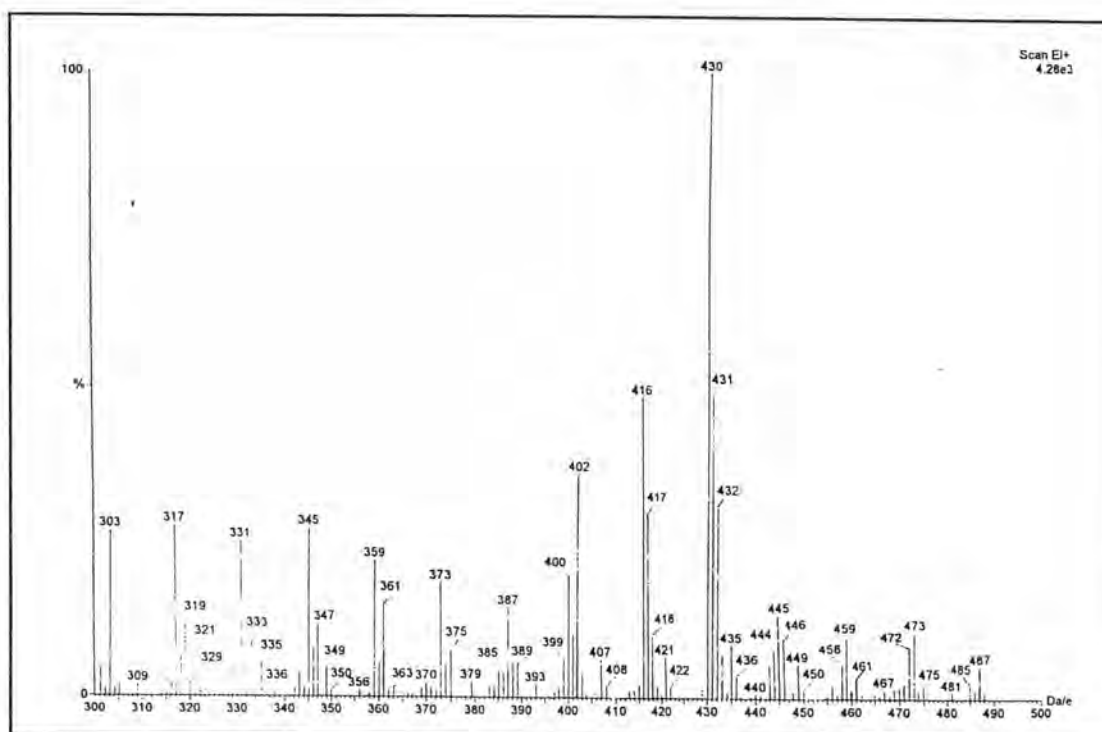


Fig. A.49 The mass spectrum of Compound 5b

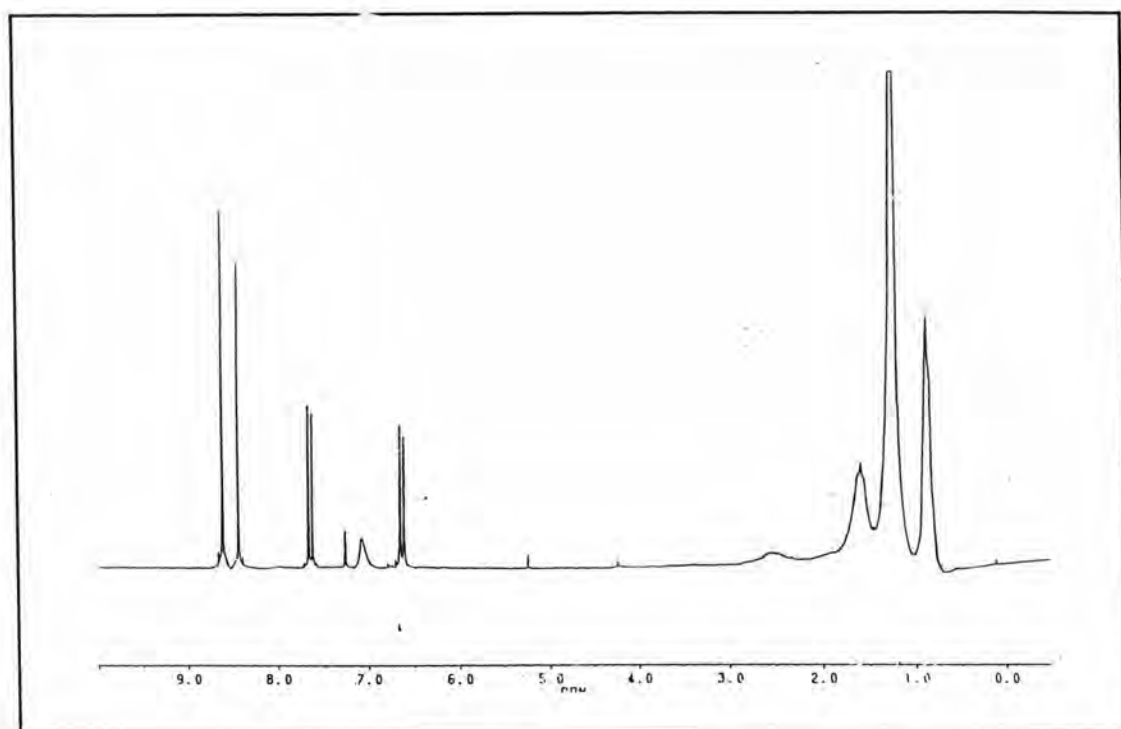


Fig. A.50 The $^1\text{H-NMR}$ spectrum of Compound 5b

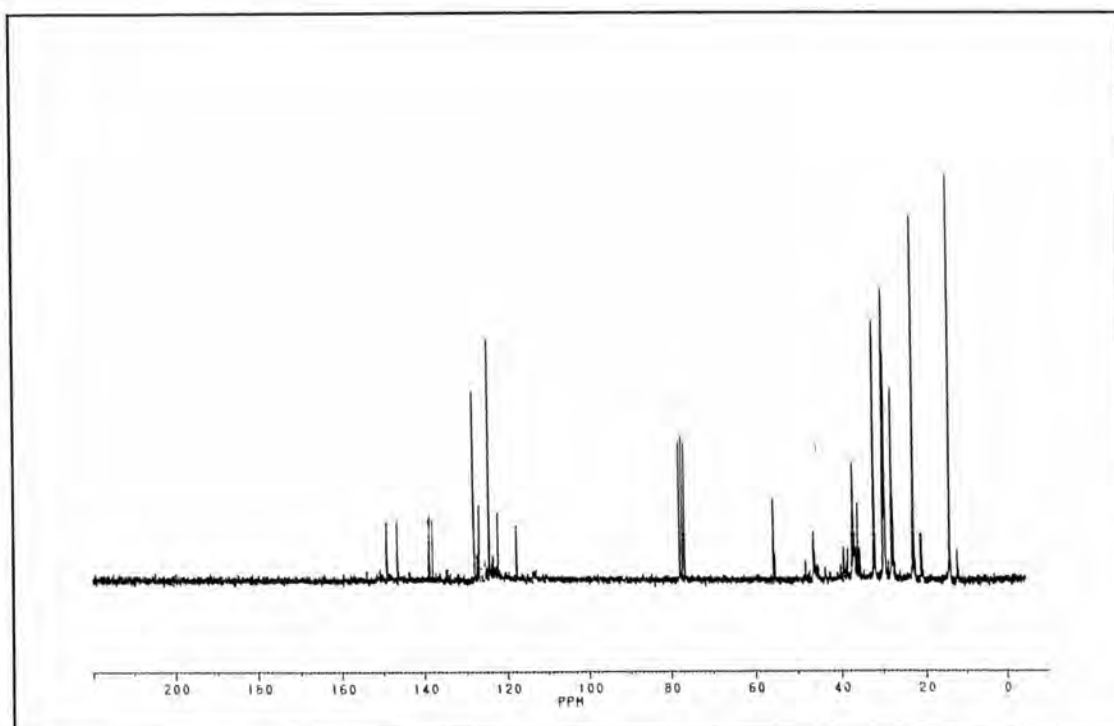


Fig. A.51 The $^{13}\text{C-NMR}$ spectrum of Compound 5b

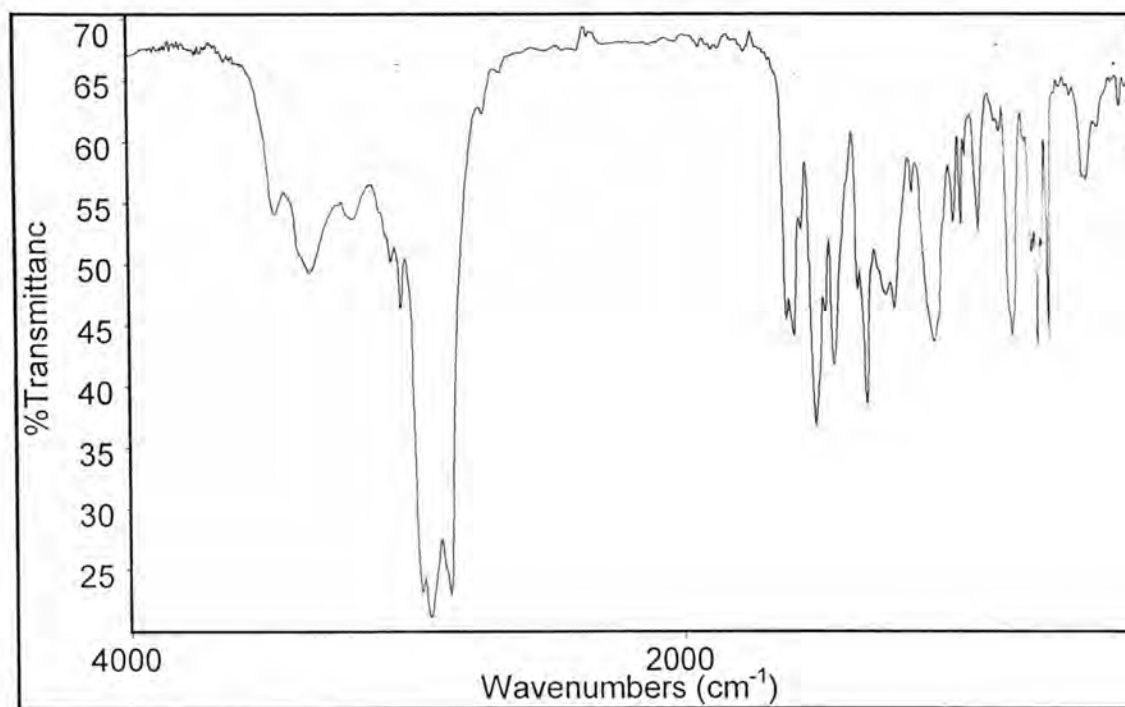


Fig. A.52 The IR spectrum of Compound **6b**

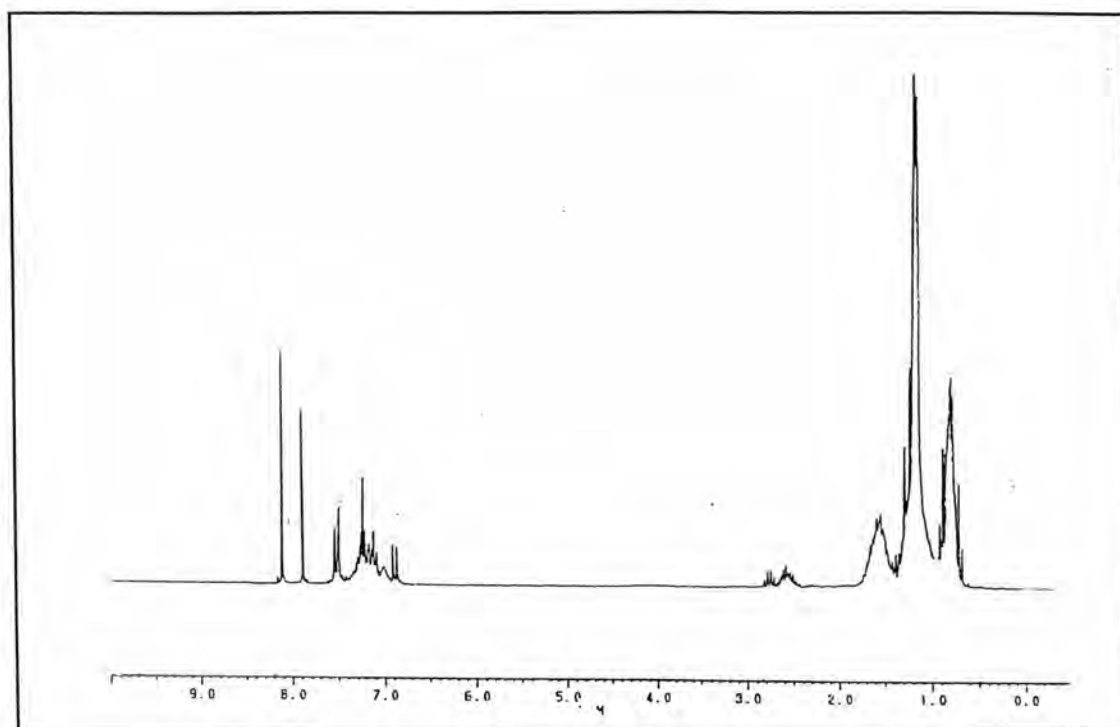


Fig. A.53 The ^1H -NMR spectrum of Compound 6b

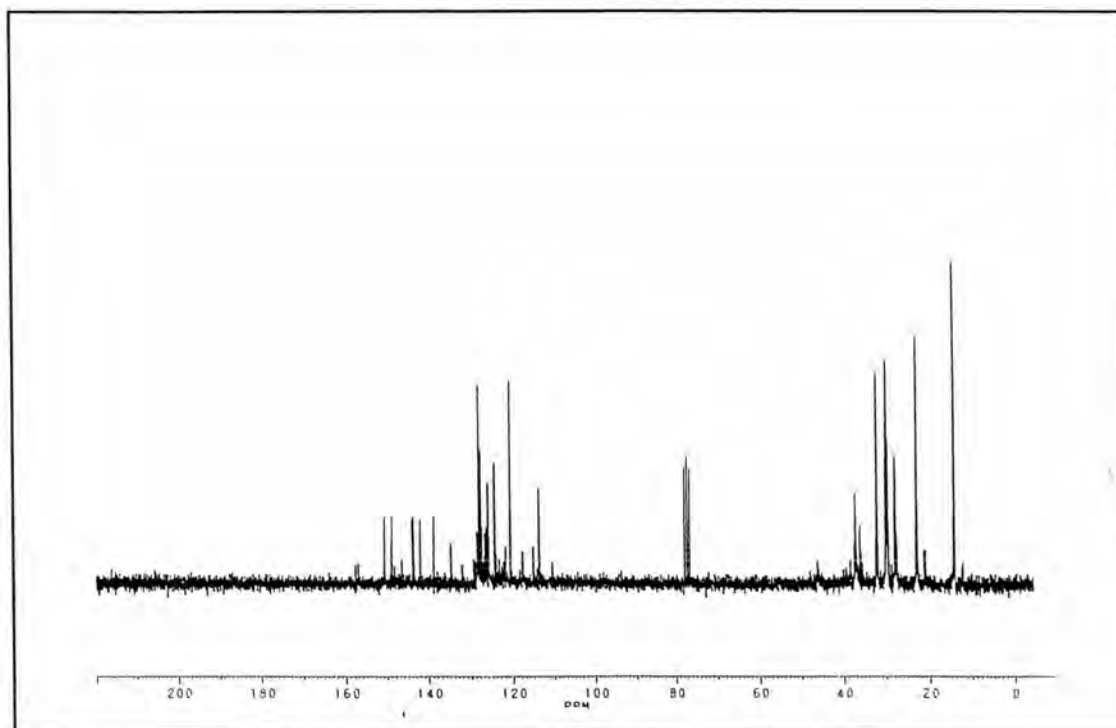


Fig. A.54 The ^{13}C -NMR spectrum of Compound 6b

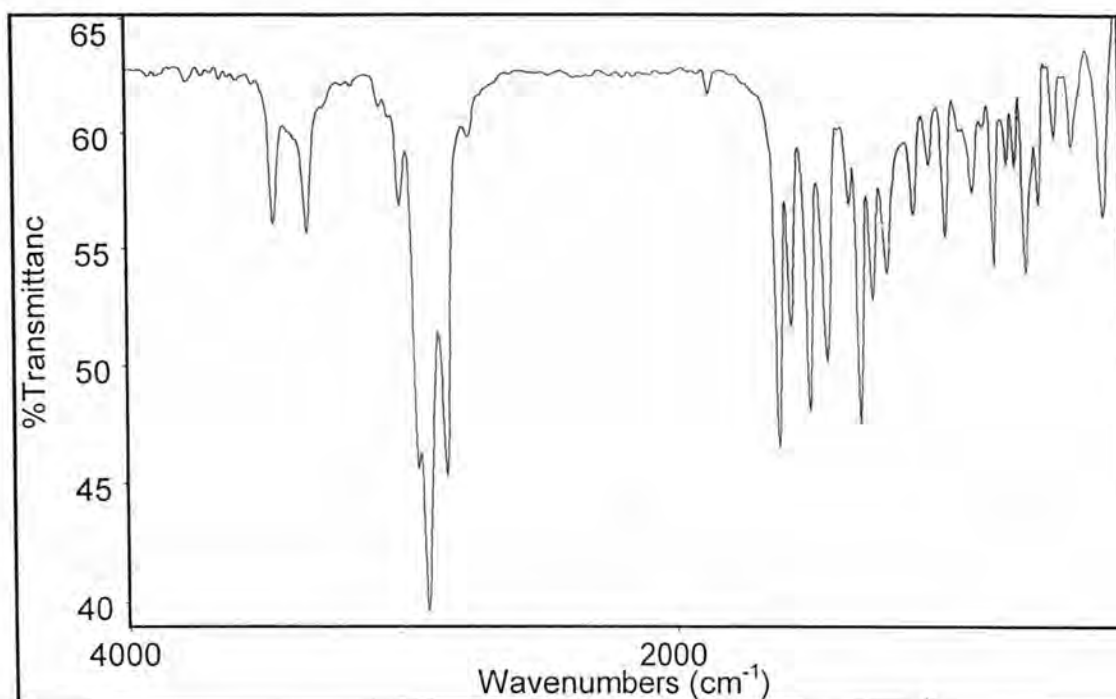


Fig. A.55 The IR spectrum of Compound 7b

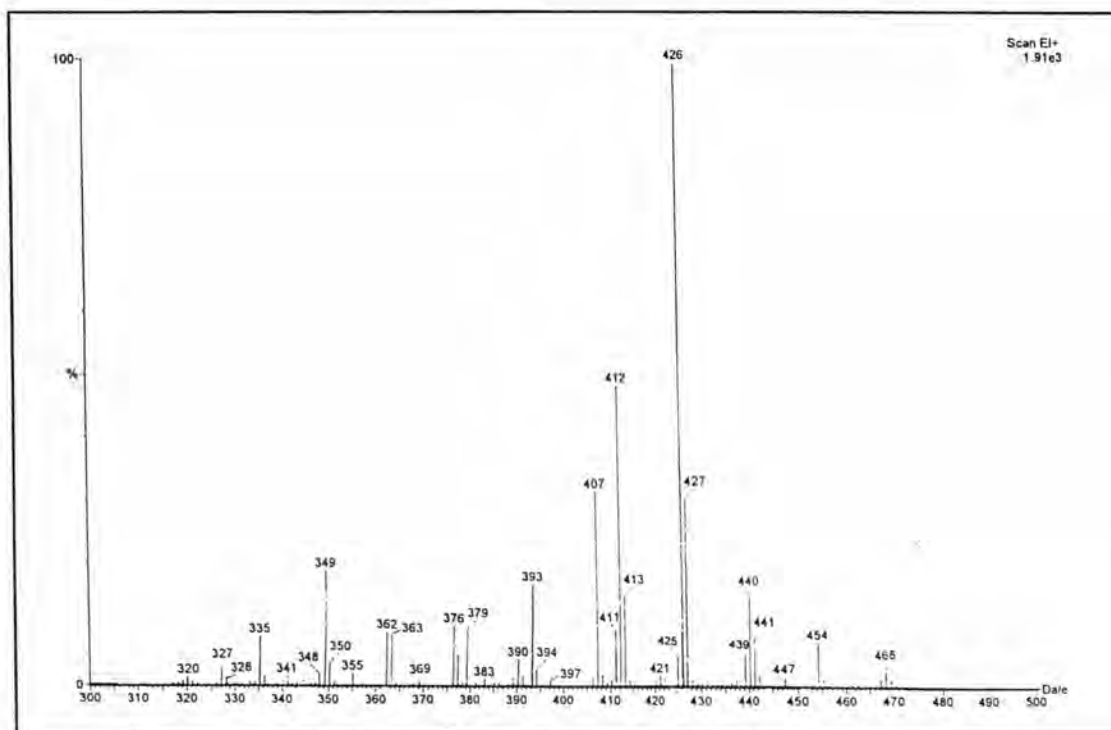


Fig. A.56 The mass spectrum of Compound 7b

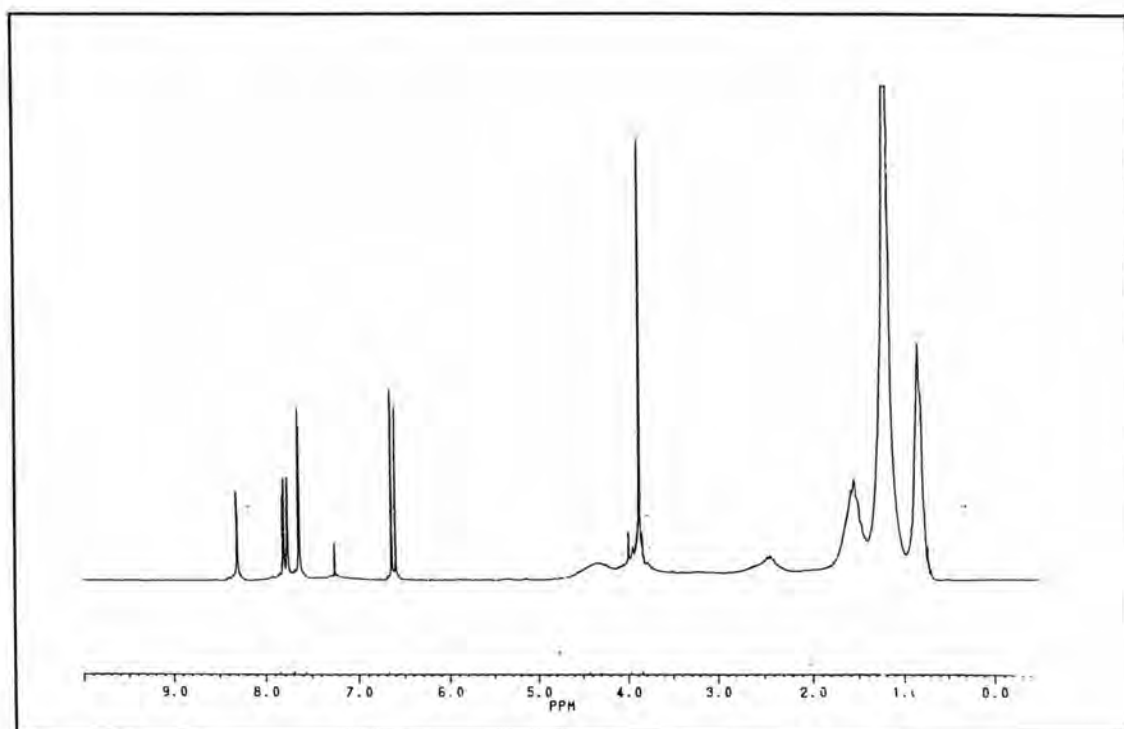


Fig. A.57 The $^1\text{H-NMR}$ spectrum of Compound 7b

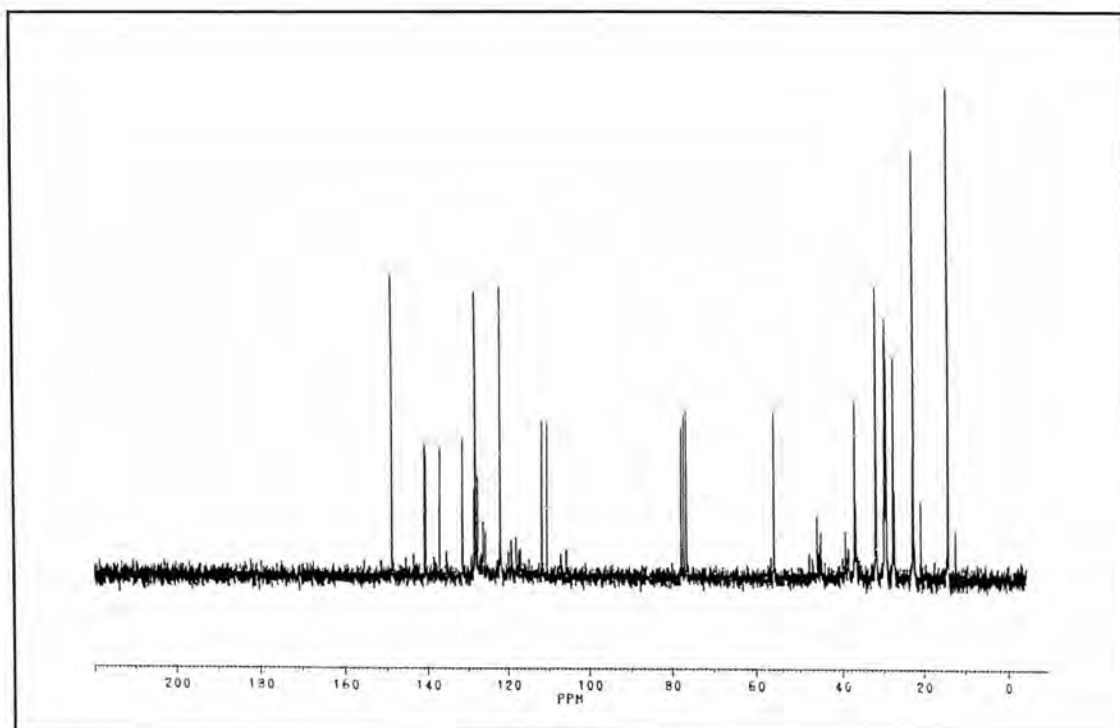


Fig. A.58 The $^{13}\text{C-NMR}$ spectrum of Compound 7b

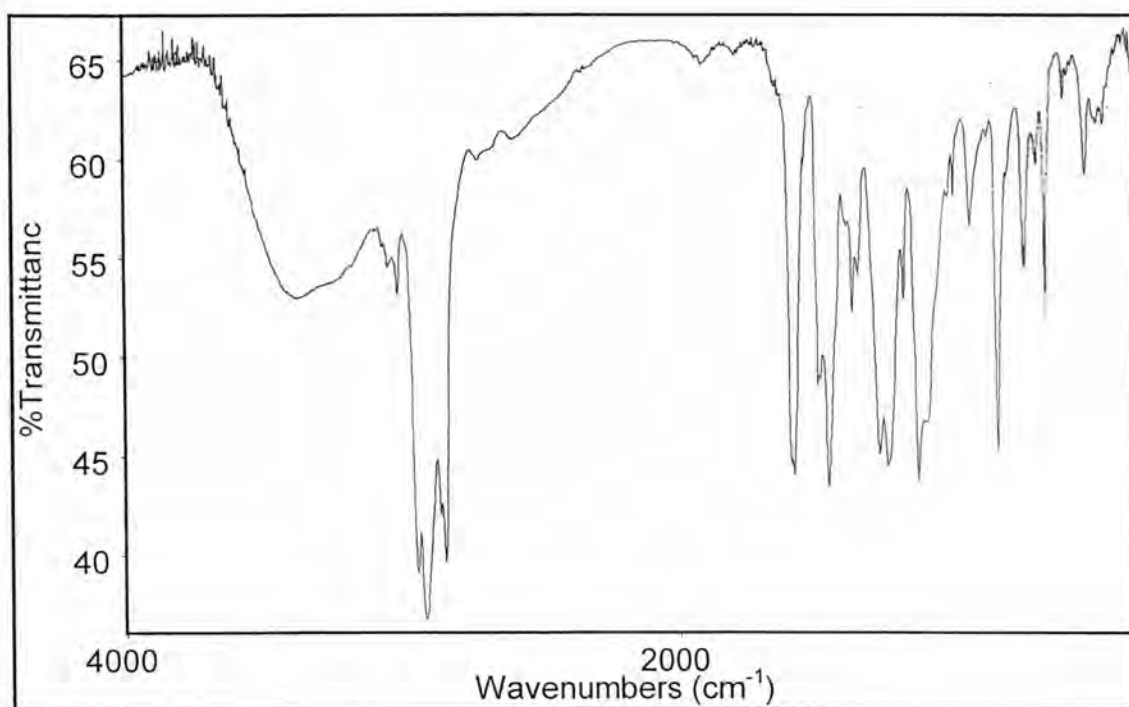


Fig. A.59 The IR spectrum of Compound 1c

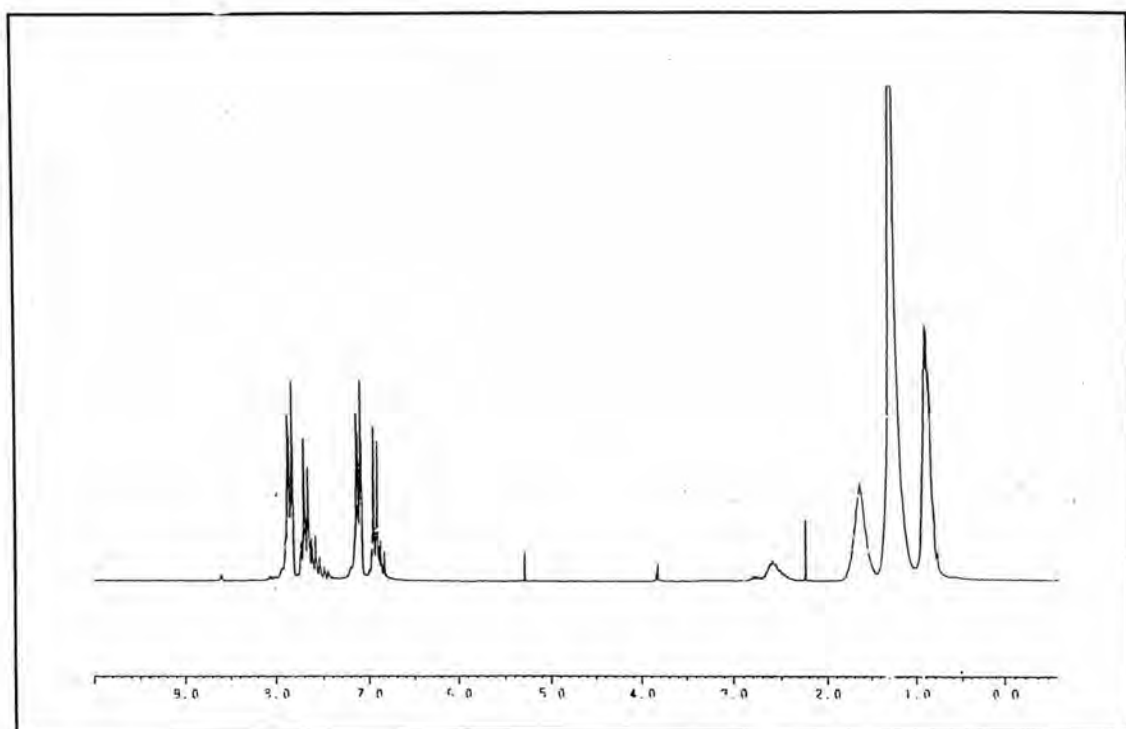


Fig. A.60 The $^1\text{H-NMR}$ spectrum of Compound 1c

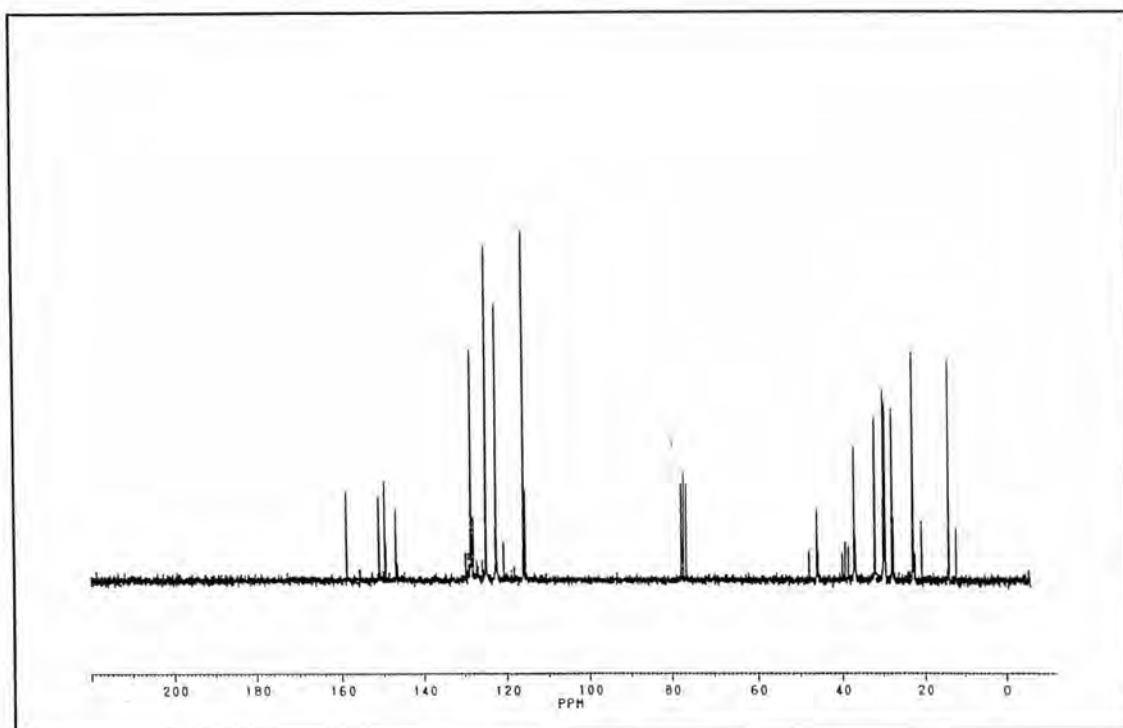


Fig. A.61 The $^{13}\text{C-NMR}$ spectrum of Compound 1c

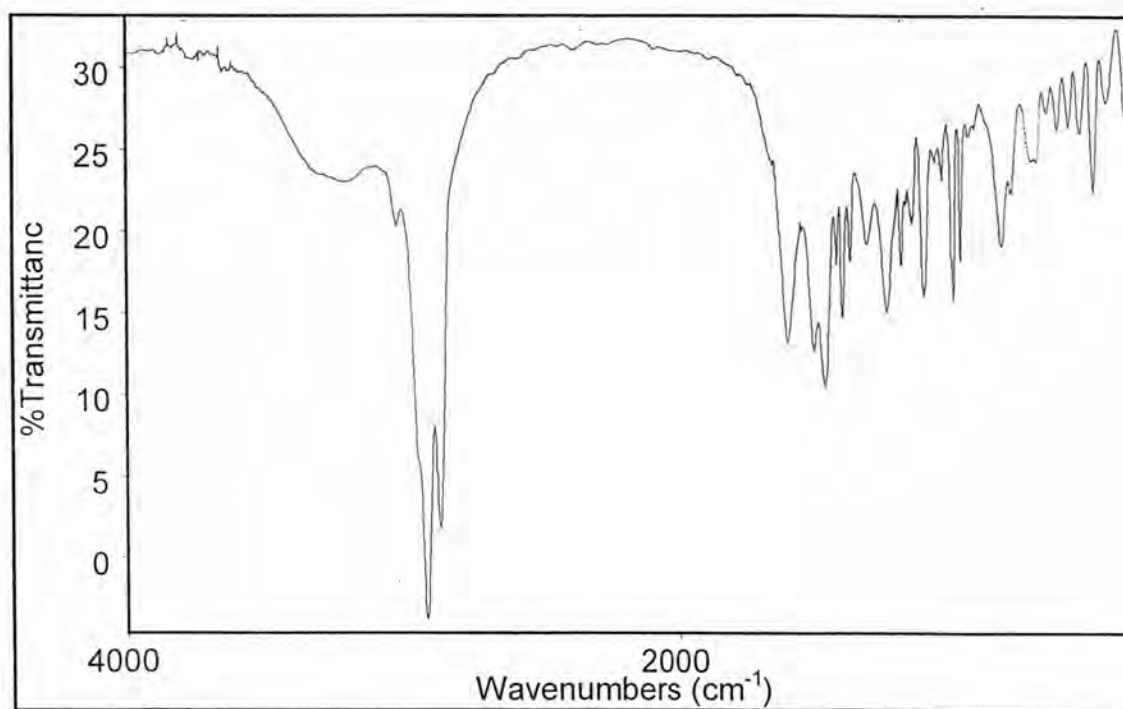


Fig. A.62 The IR spectrum of Compound 2c

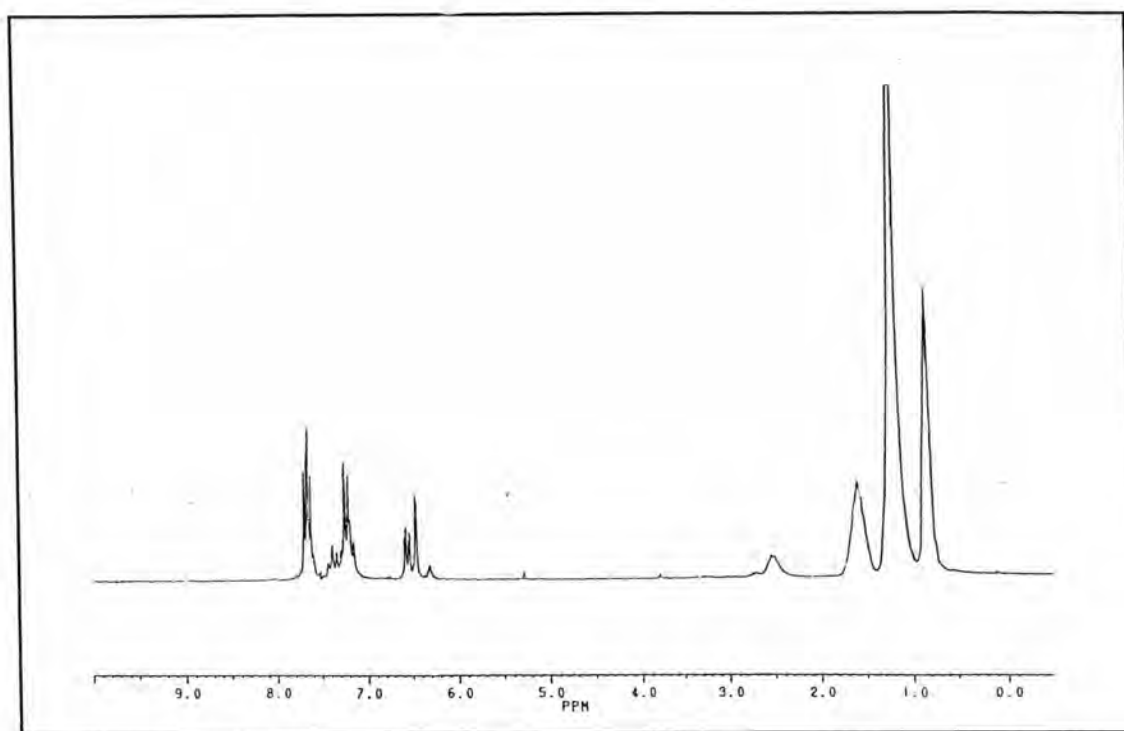


Fig. A.63 The $^1\text{H-NMR}$ spectrum of Compound 2c

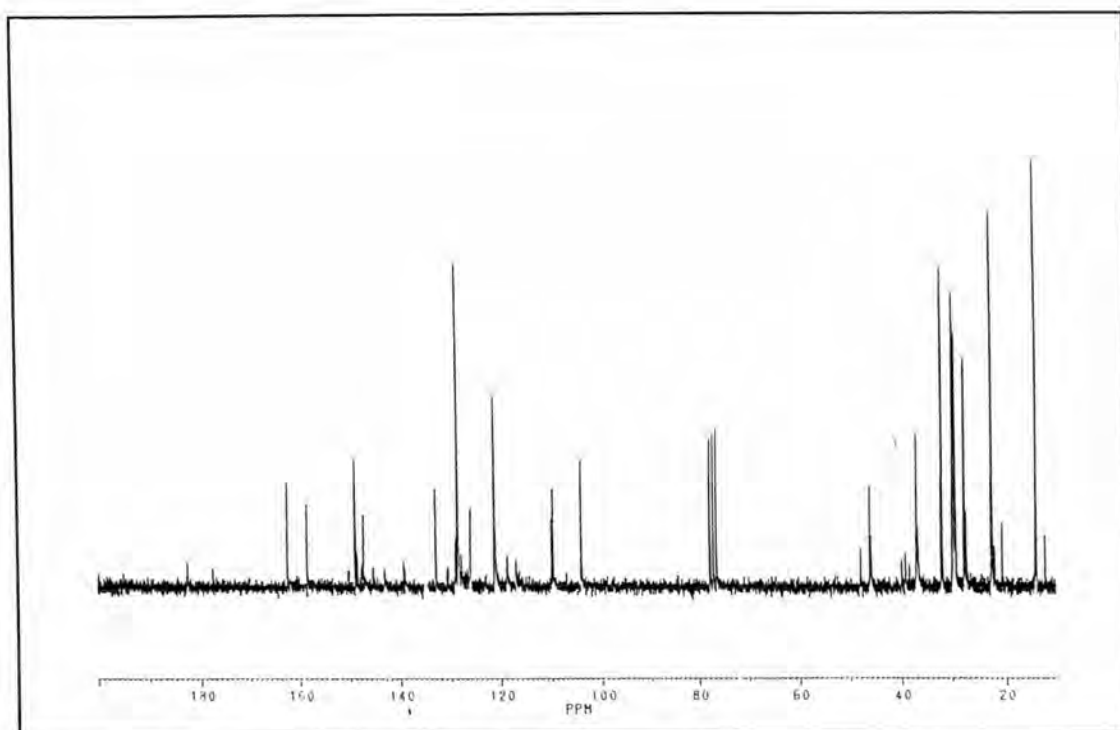


Fig. A.64 The $^{13}\text{C-NMR}$ spectrum of Compound 2c

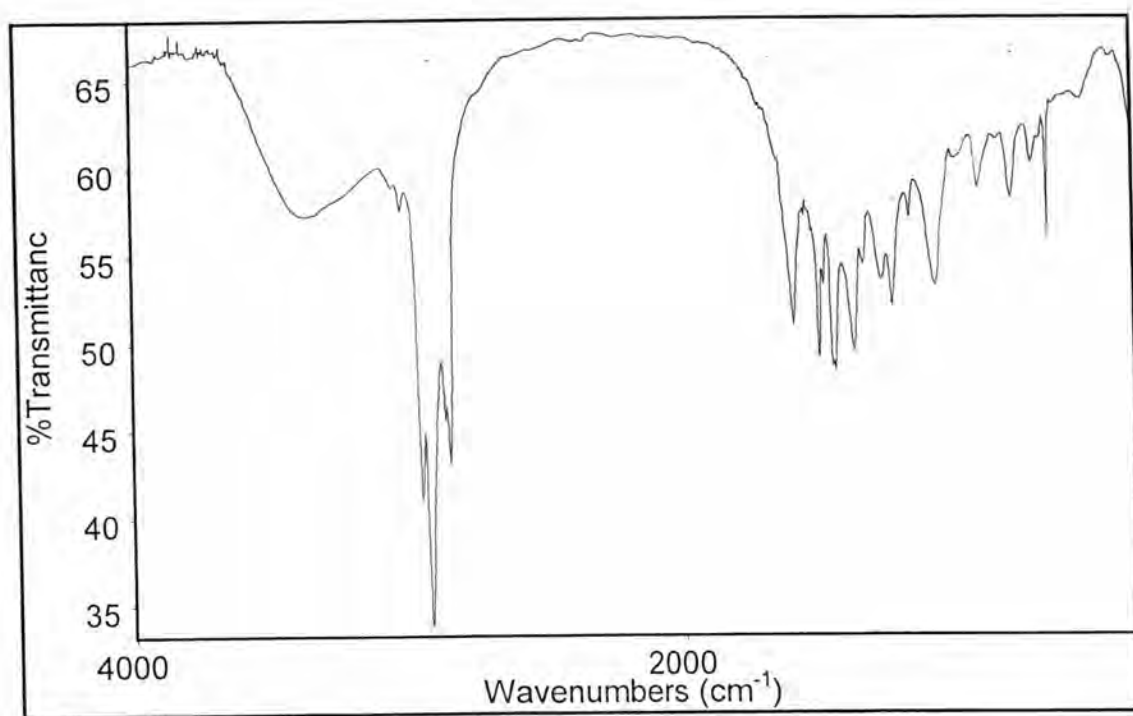


Fig. A.65 The IR spectrum of Compound 3c

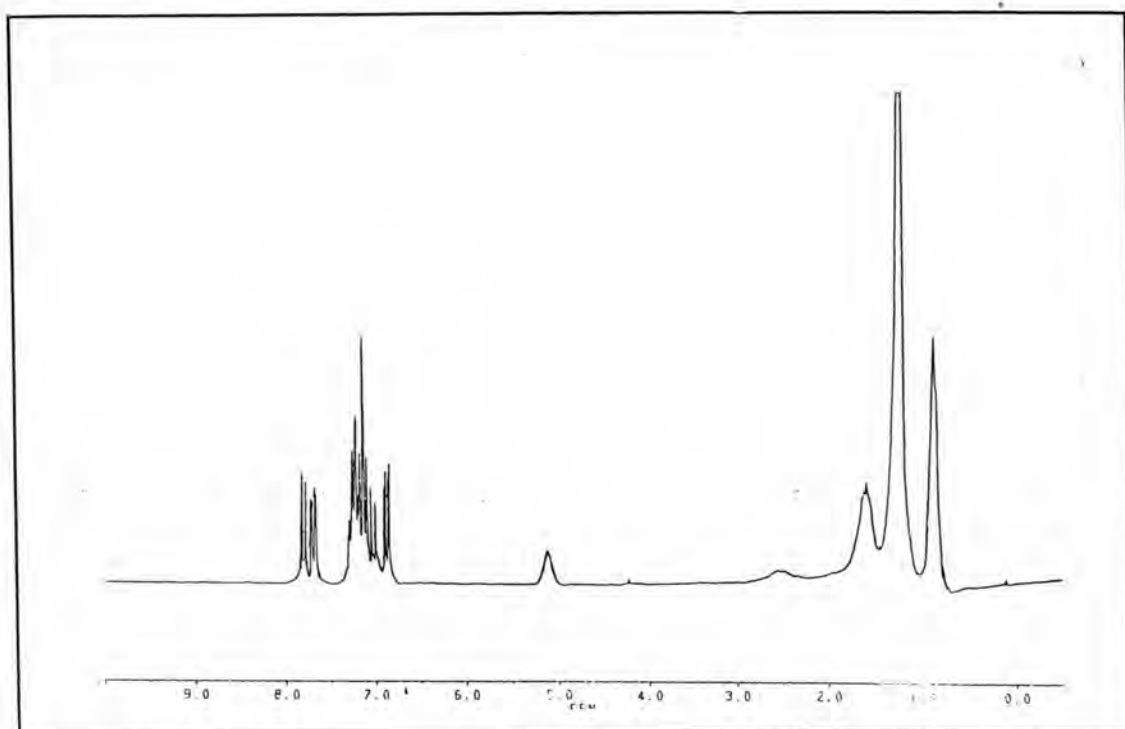


Fig. A.66 The $^1\text{H-NMR}$ spectrum of Compound 3c

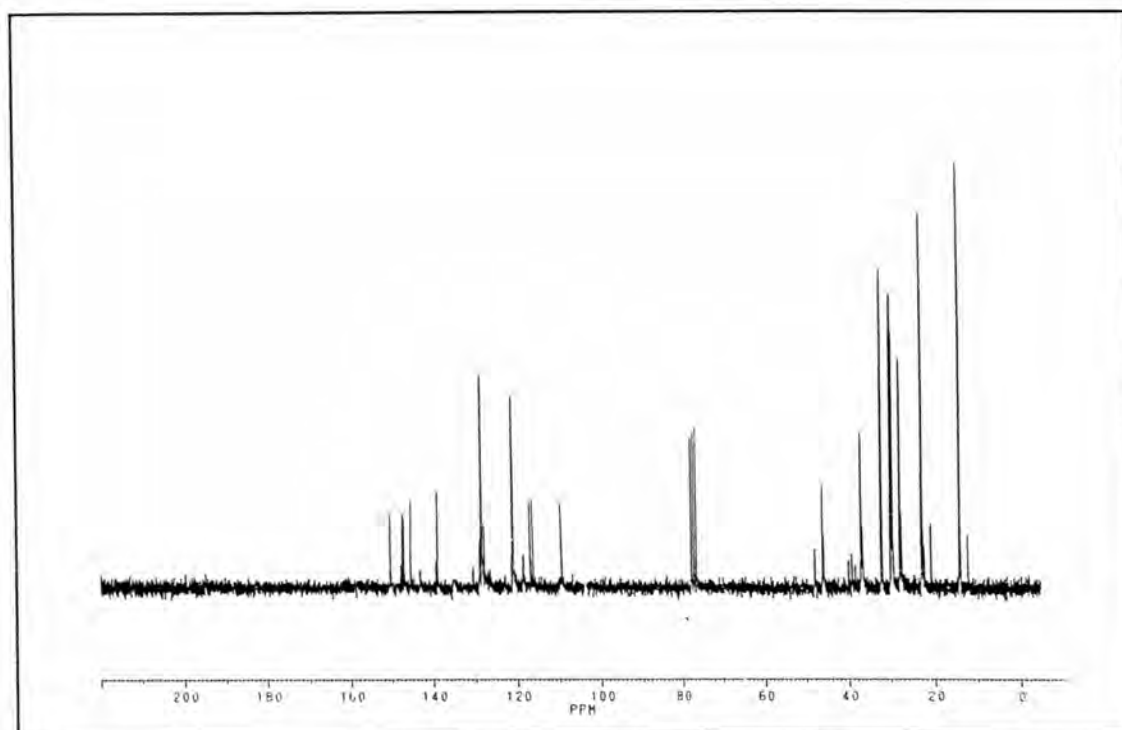


Fig. A.67 The $^{13}\text{C-NMR}$ spectrum of Compound 3c

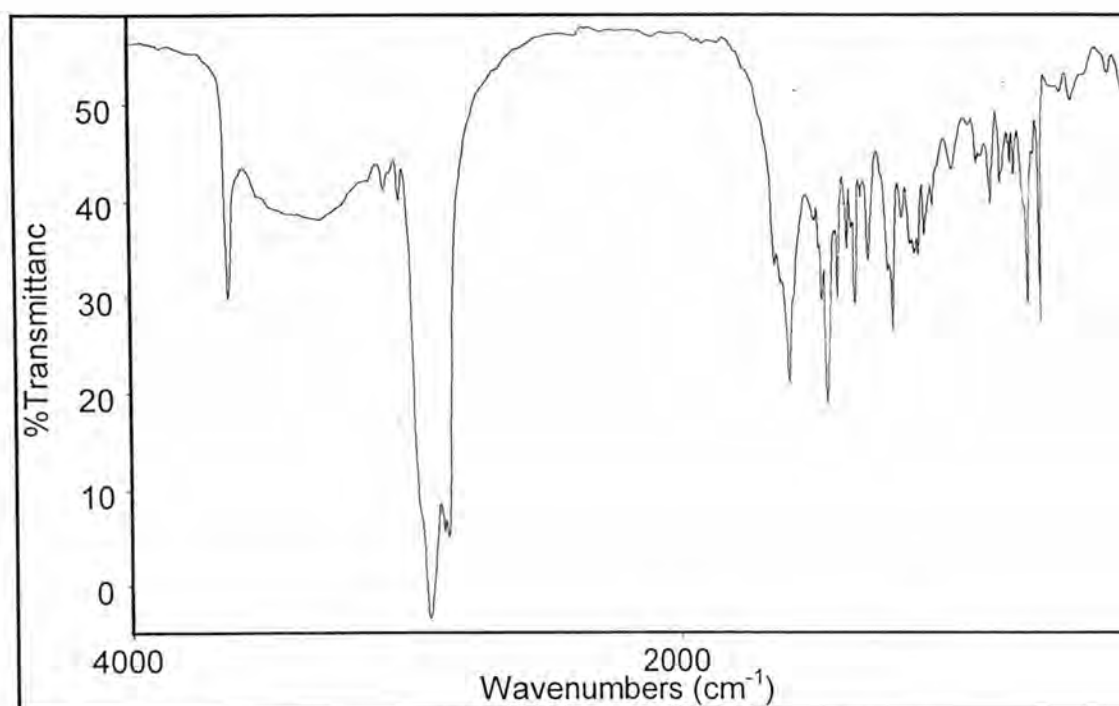


Fig. A.68 The IR spectrum of Compound **4c**

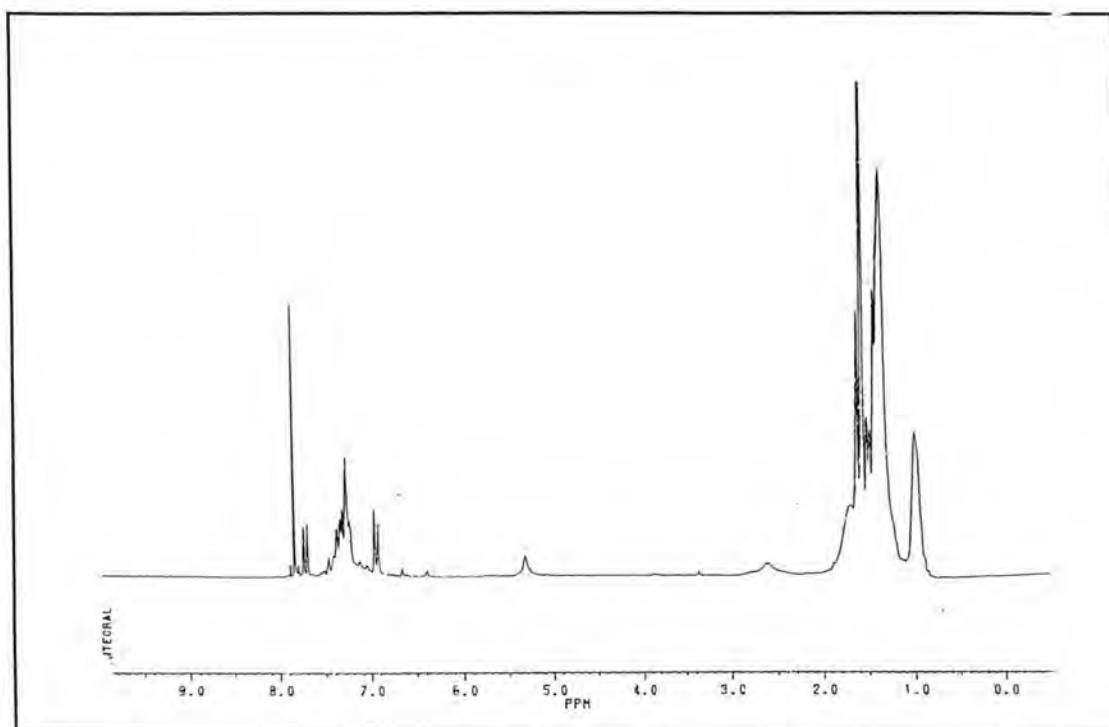


Fig. A.69 The $^1\text{H-NMR}$ spectrum of Compound 4c

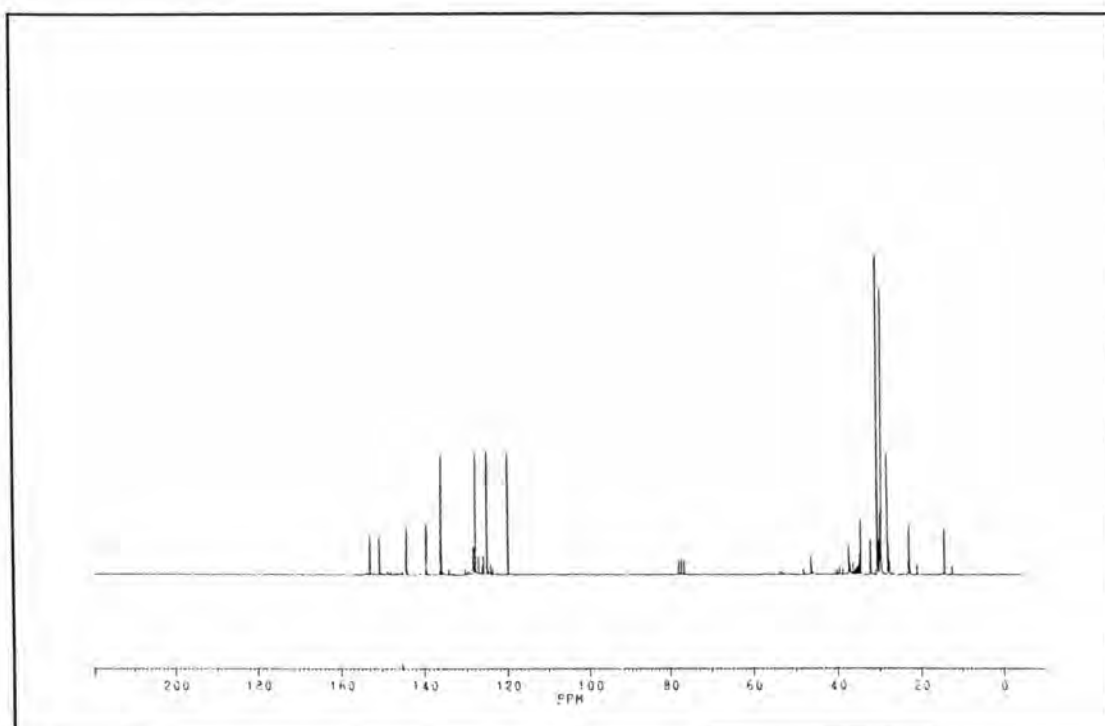


Fig. A.70 The $^{13}\text{C-NMR}$ spectrum of Compound 4c

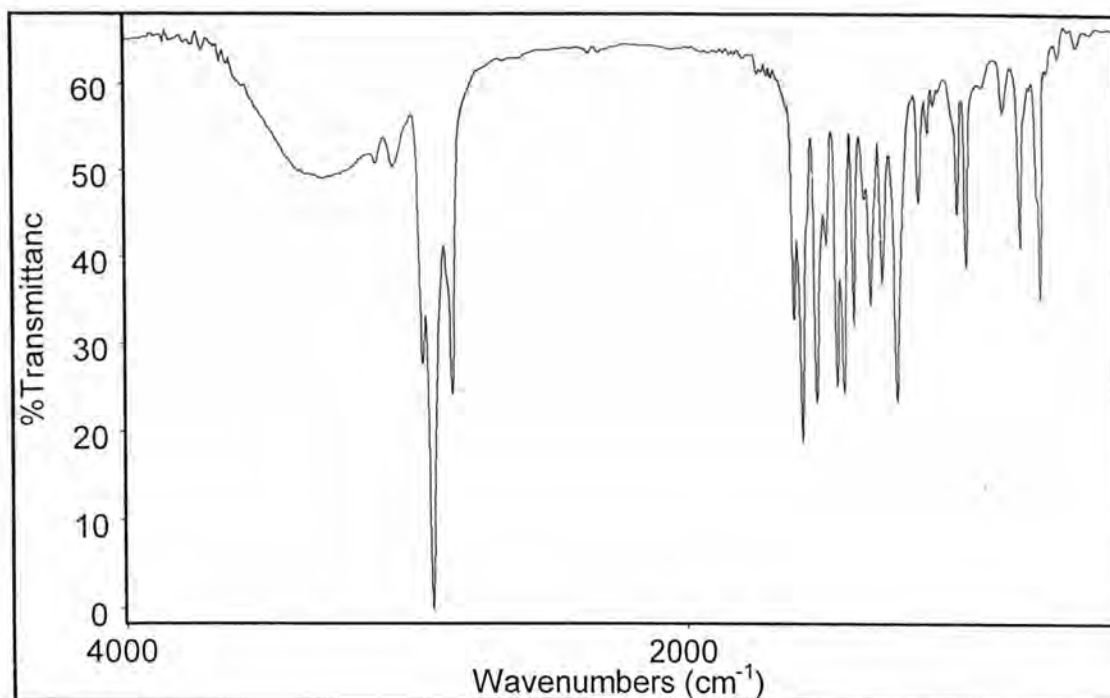


Fig. A.71 The IR spectrum of Compound 5c

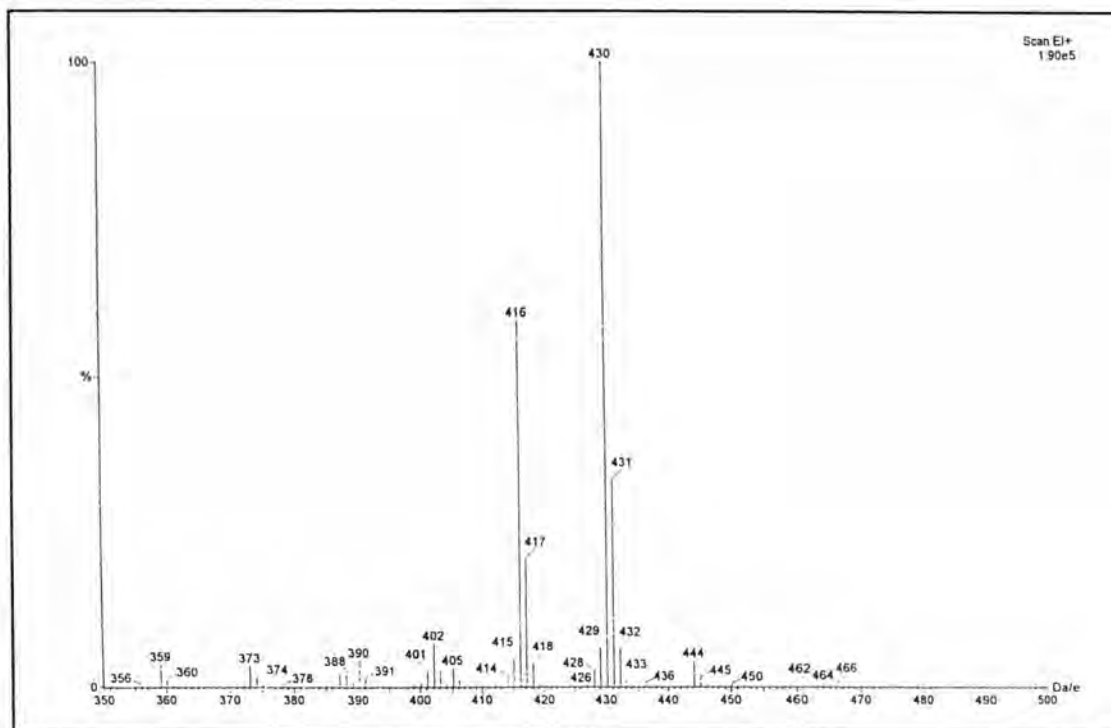


Fig. A.72 The mass spectrum of Compound 5c

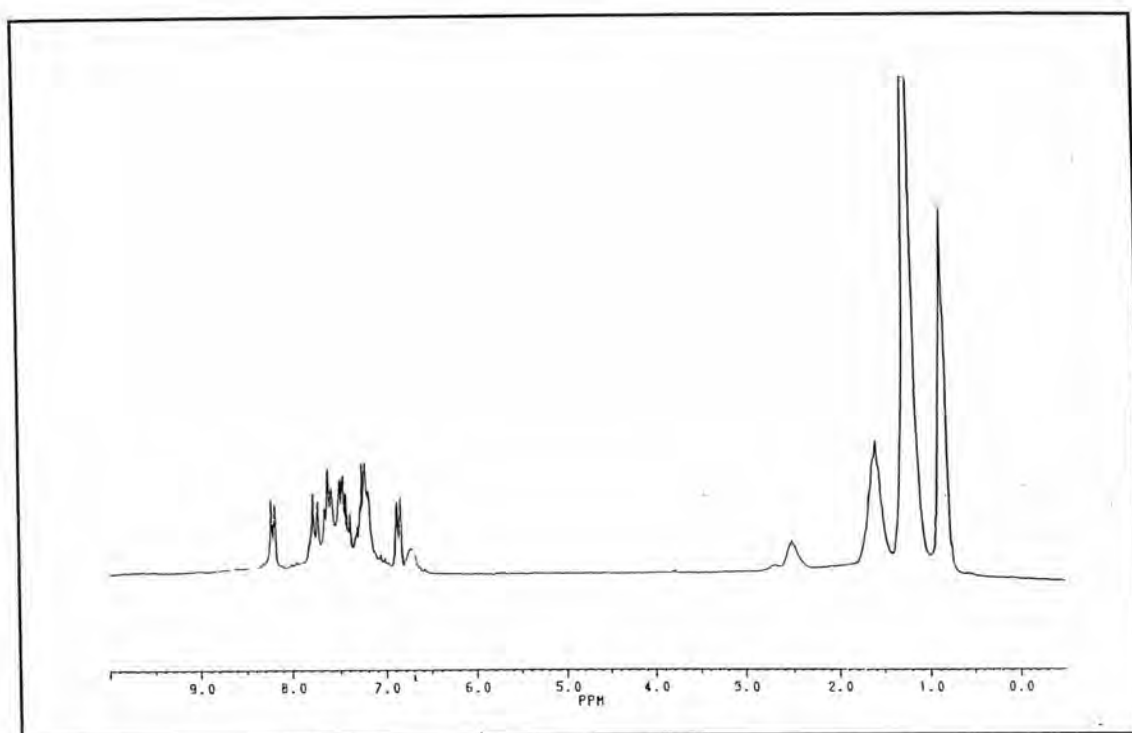


Fig. A.73 The $^1\text{H-NMR}$ spectrum of Compound 5c

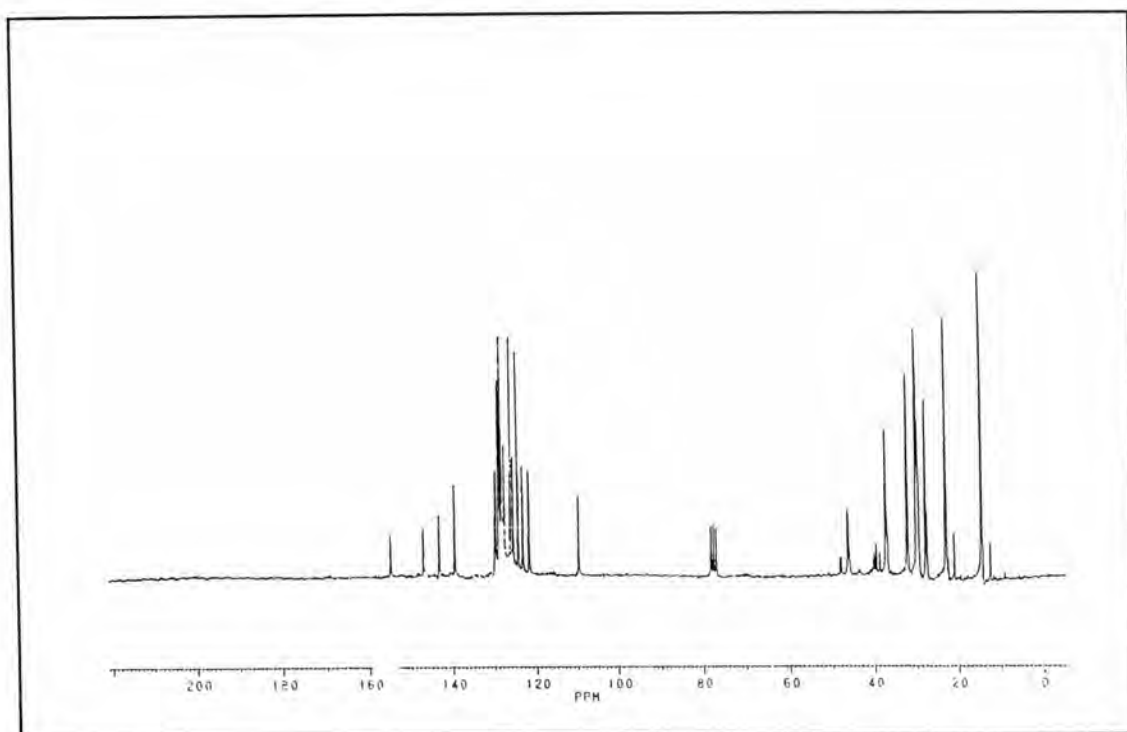


Fig. A.74 The $^{13}\text{C-NMR}$ spectrum of Compound 5c

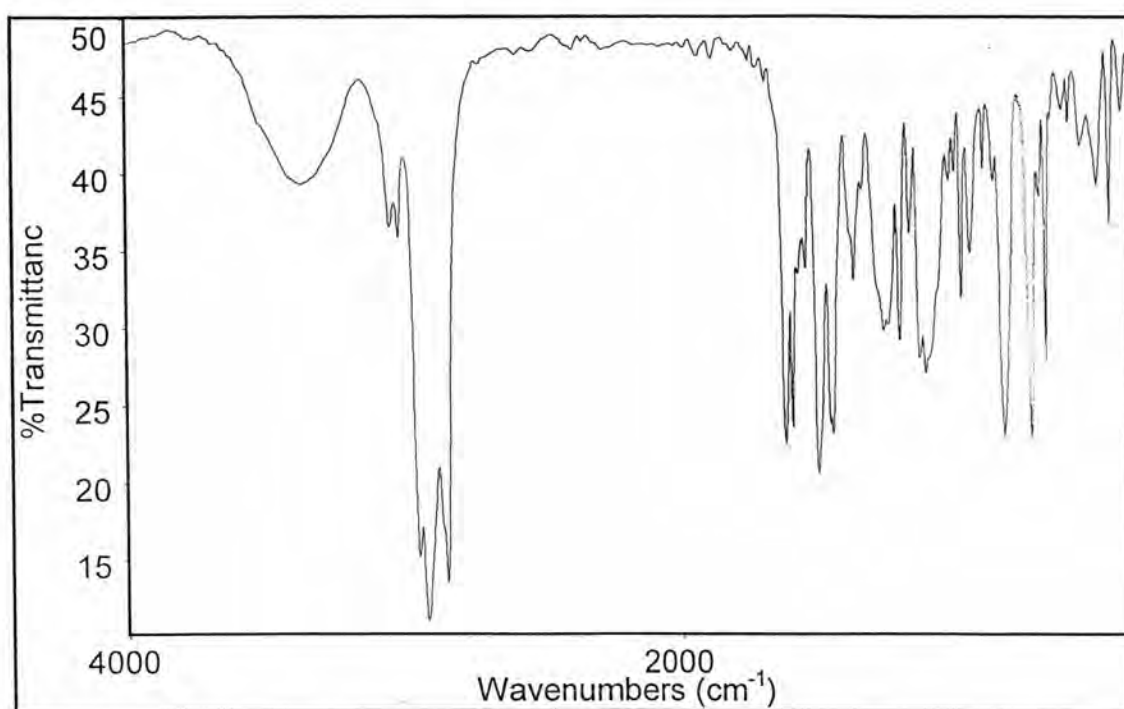


Fig. A.75 The IR spectrum of Compound 6c

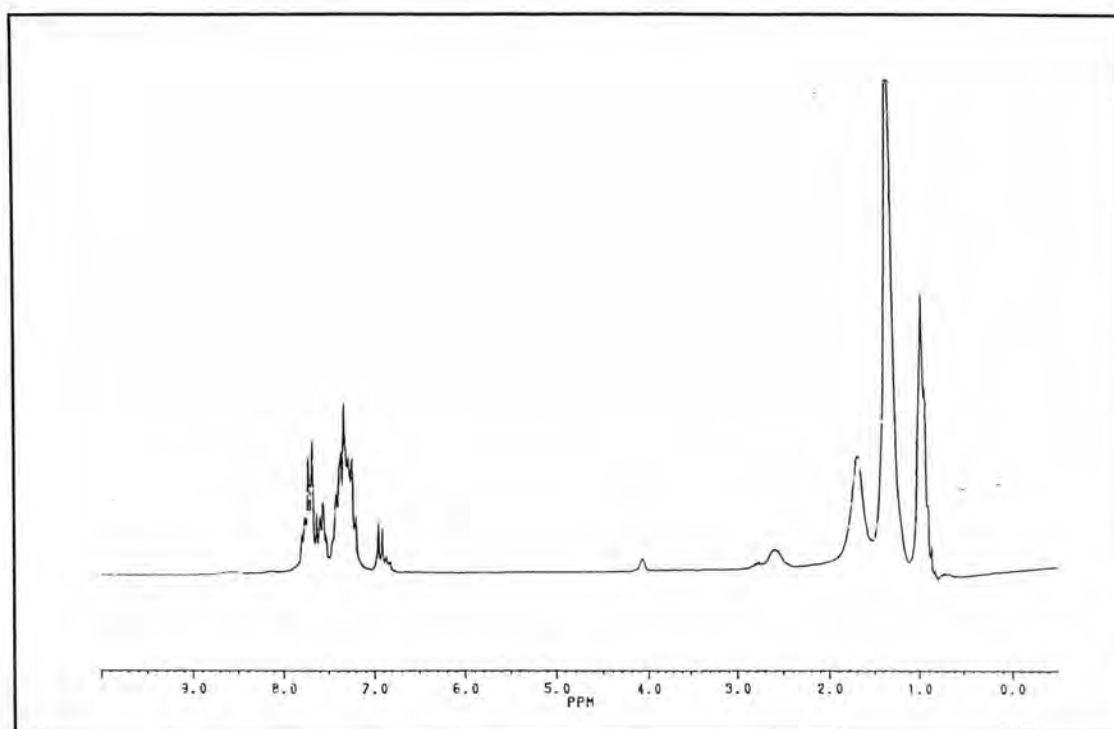


Fig. A.76 The $^1\text{H-NMR}$ spectrum of Compound 6c

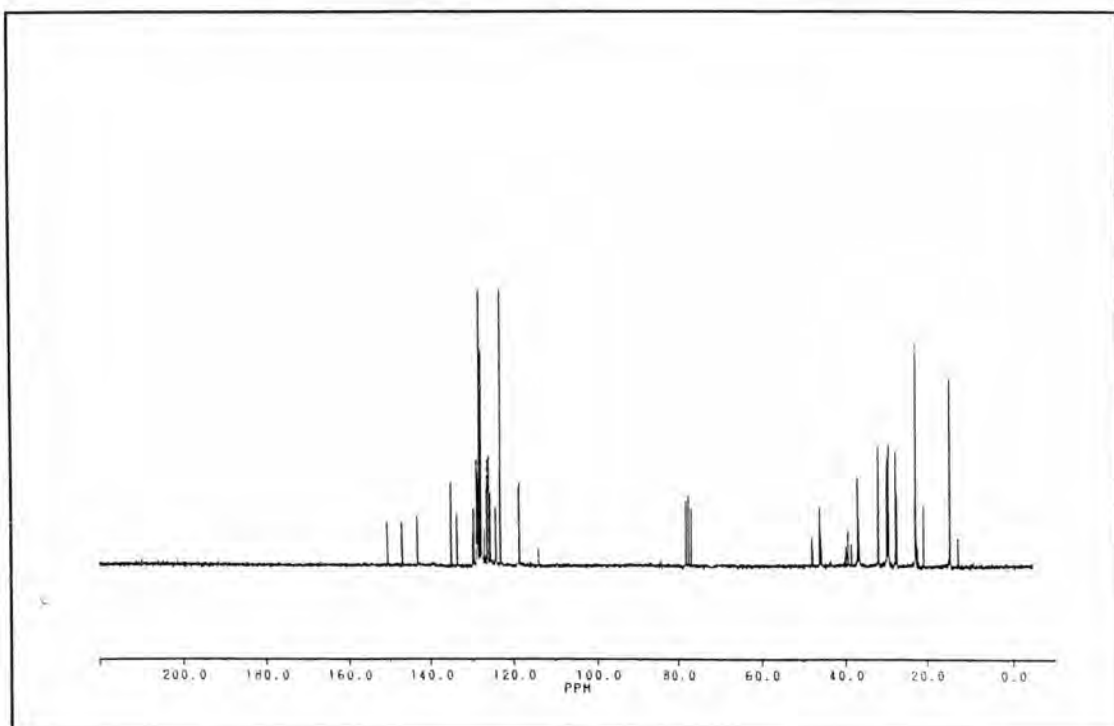


Fig. A.77 The $^{13}\text{C-NMR}$ spectrum of Compound 6c

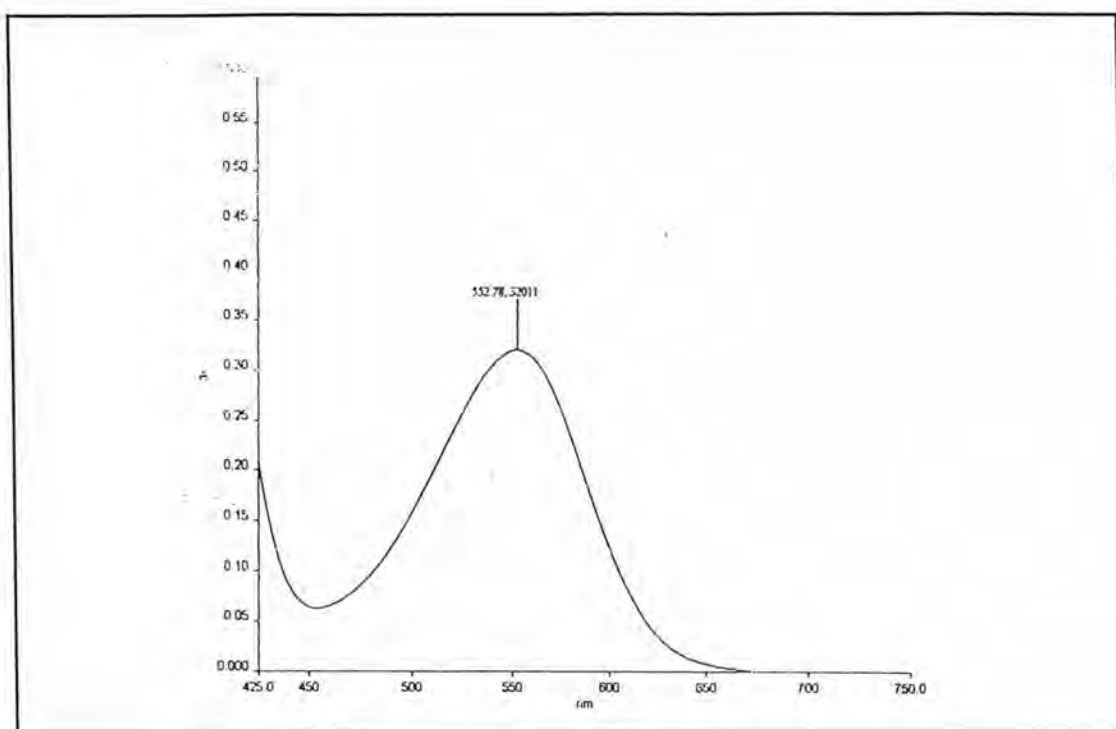


Fig. A.78 Maximum wavelength of Compound 1a using 6:1 volume ratio of marked HSD to extractant

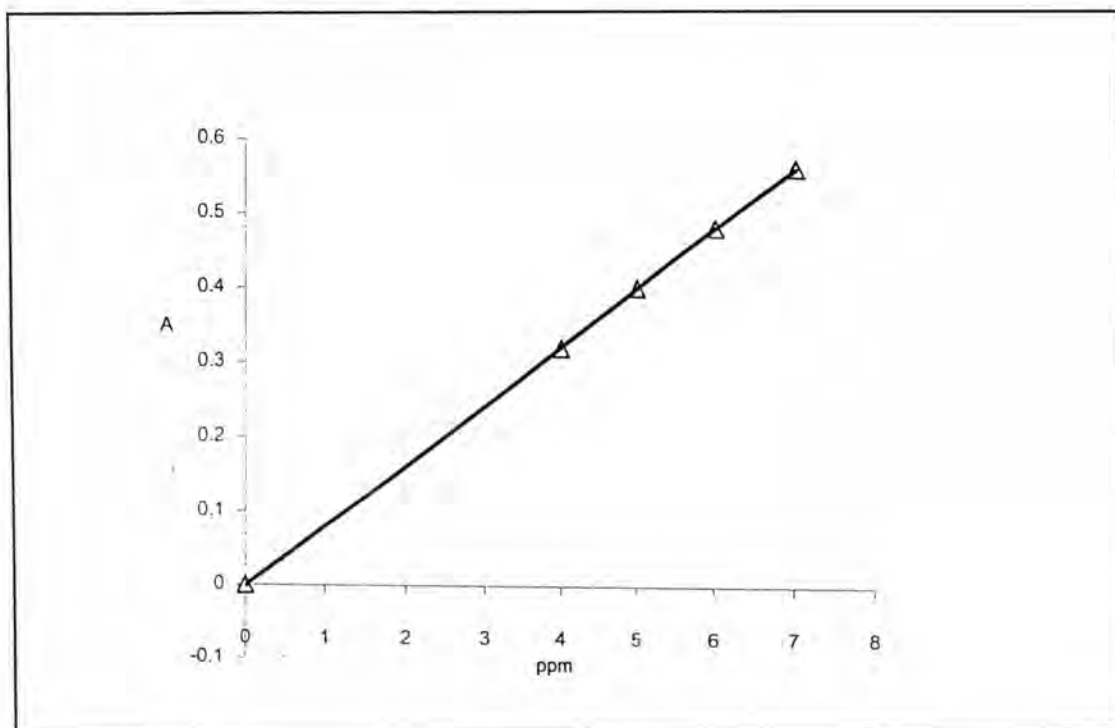


Fig. A.79 Calibration curve of Compound 1a using 6:1 volume ratio of marked HSD to extractant

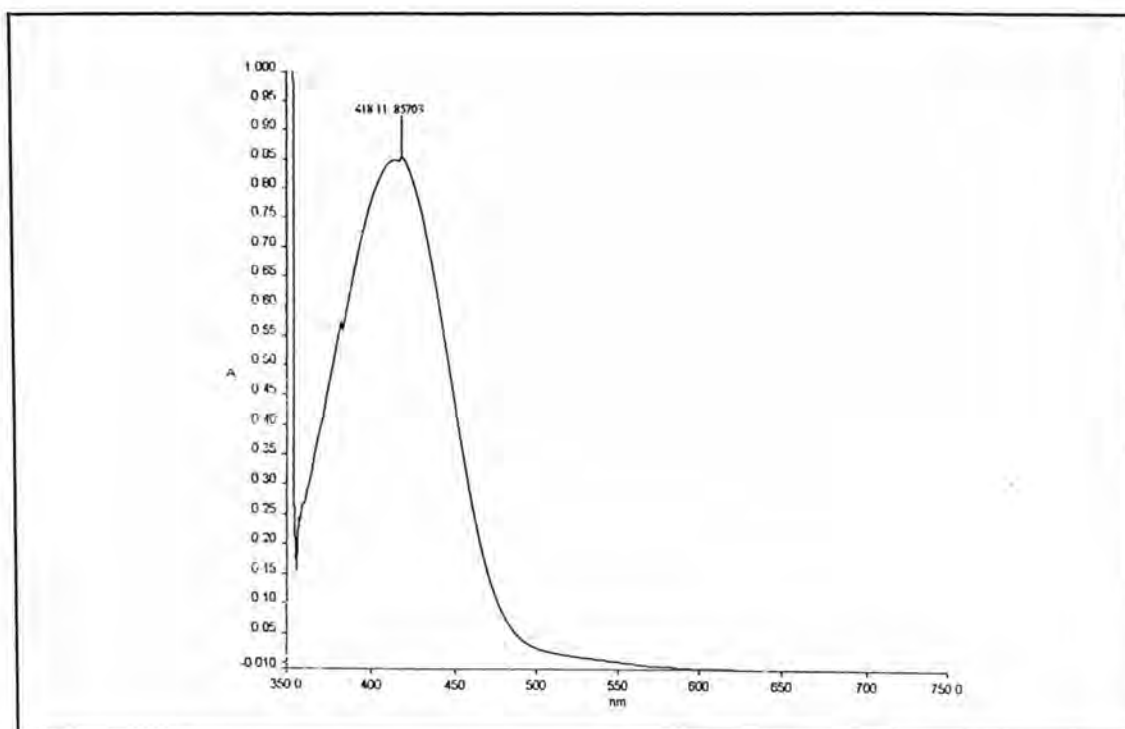


Fig. A.80 Maximum wavelength of Compound **2a** using 6:1 volume ratio of marked HSD to extractant

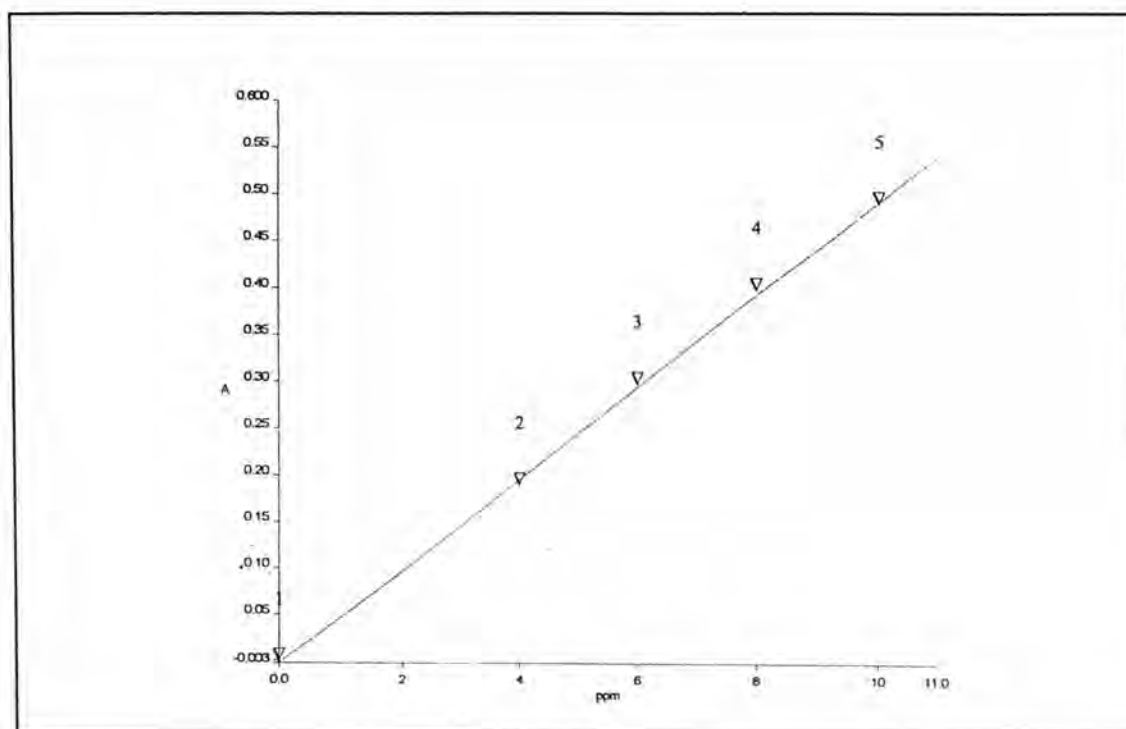


Fig. A.81 Calibration curve of Compound **2a** using 6:1 volume ratio of marked HSD to extractant

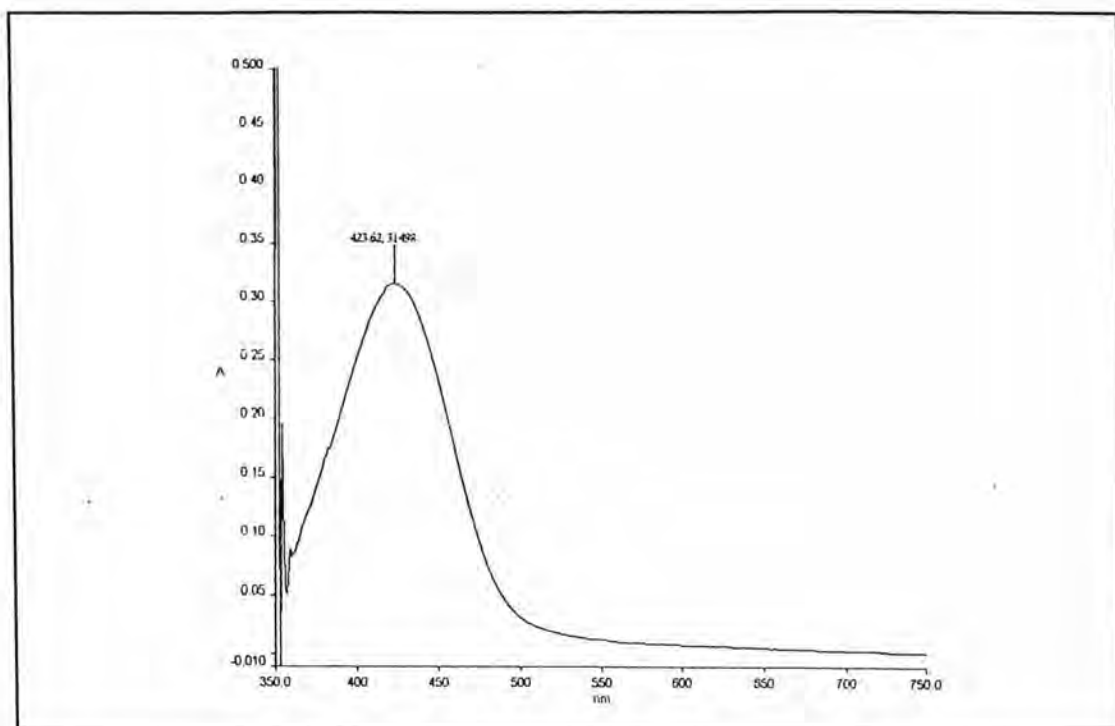


Fig. A.82 Maximum wavelength of Compound 3a using 6:1 volume ratio of marked HSD to extractant

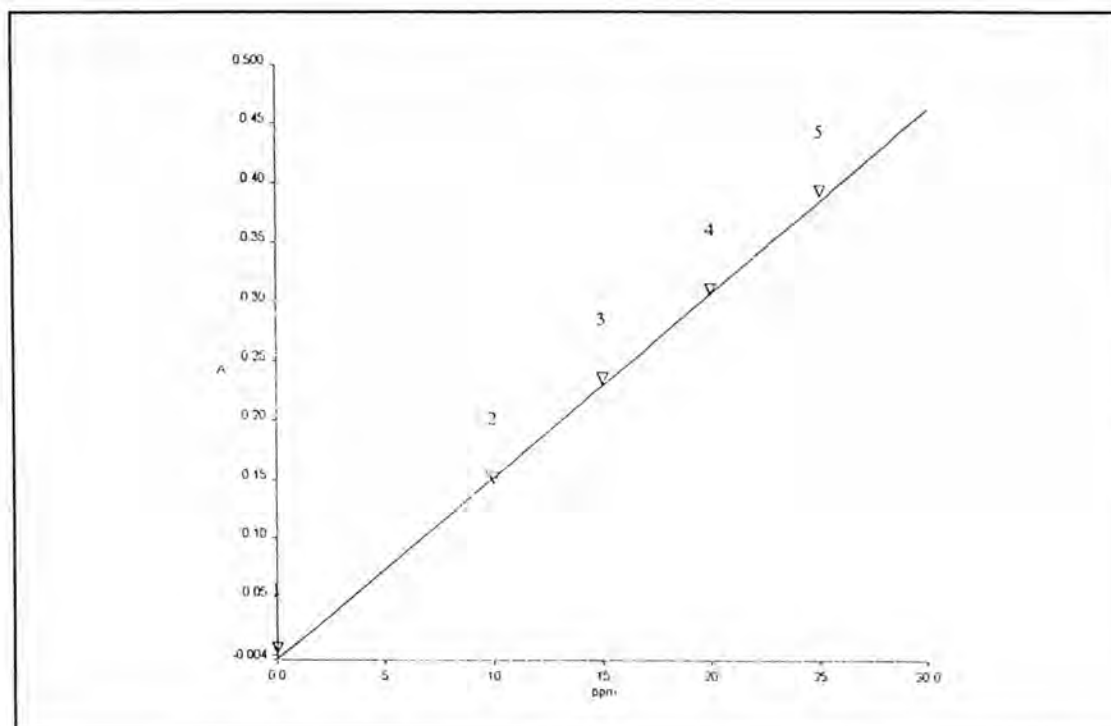


Fig. A.83 Calibration curve of Compound 3a using 6:1 volume ratio of marked HSD to extractant

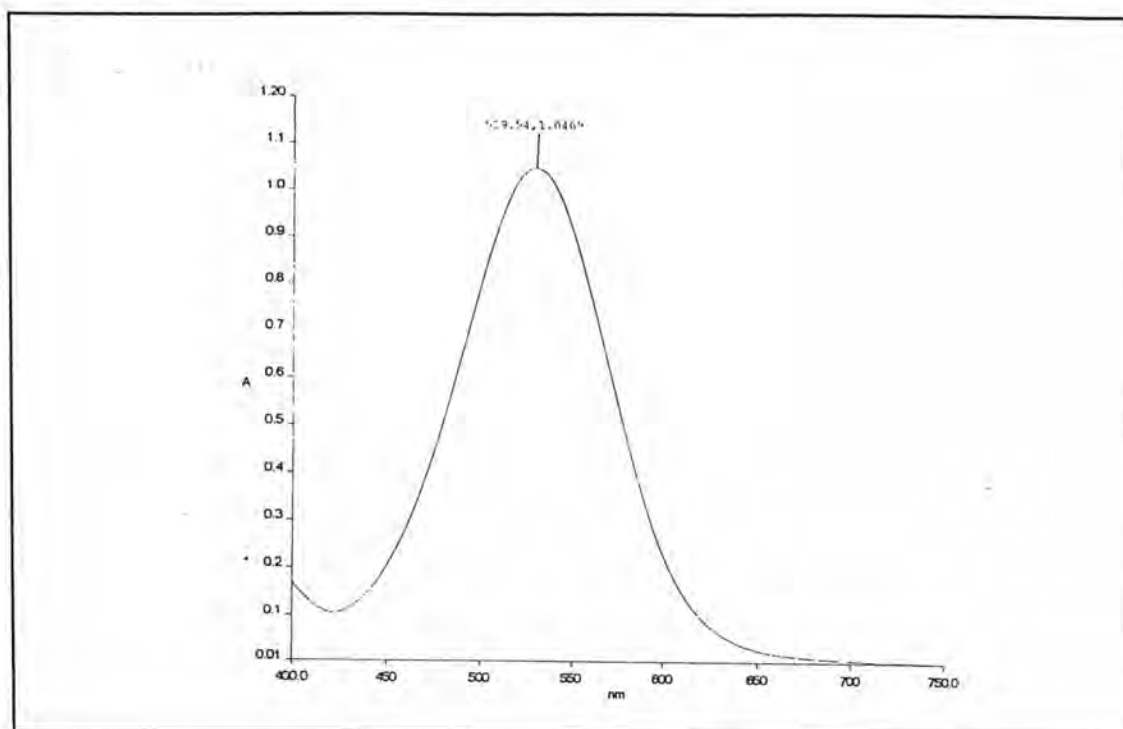


Fig. A.84 Maximum wavelength of Compound 5a using 6:1 volume ratio of marked HSD to extractant

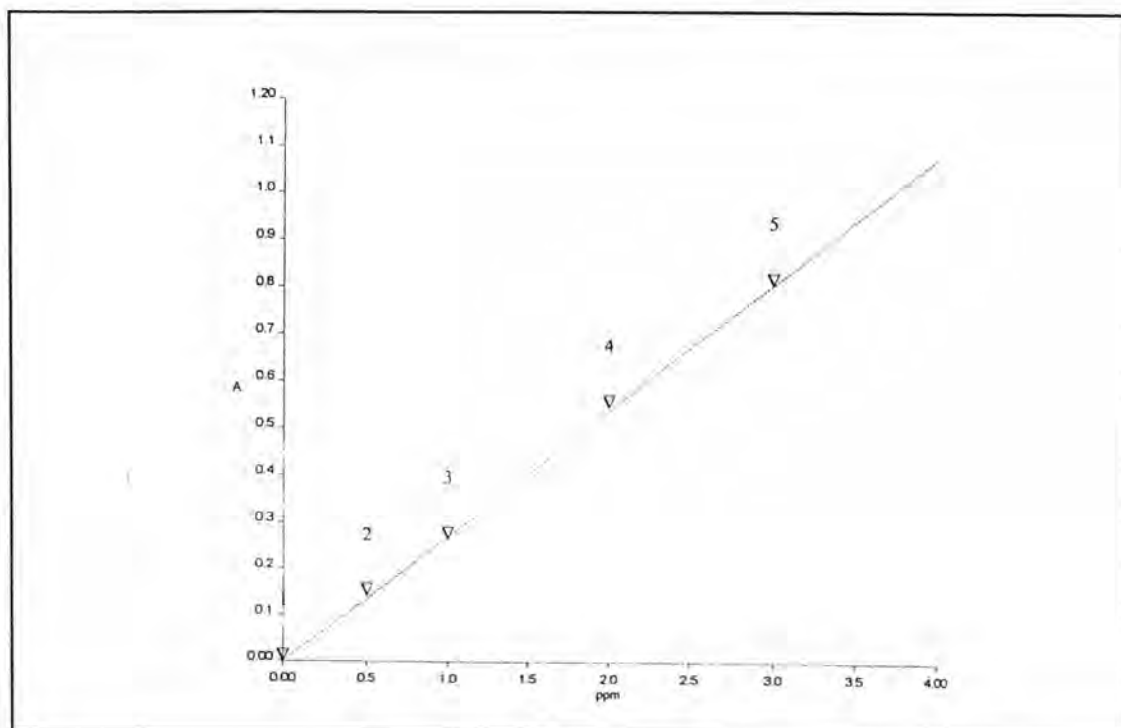


Fig. A.85 Calibration curve of Compound 5a using 6:1 volume ratio of marked HSD to extractant

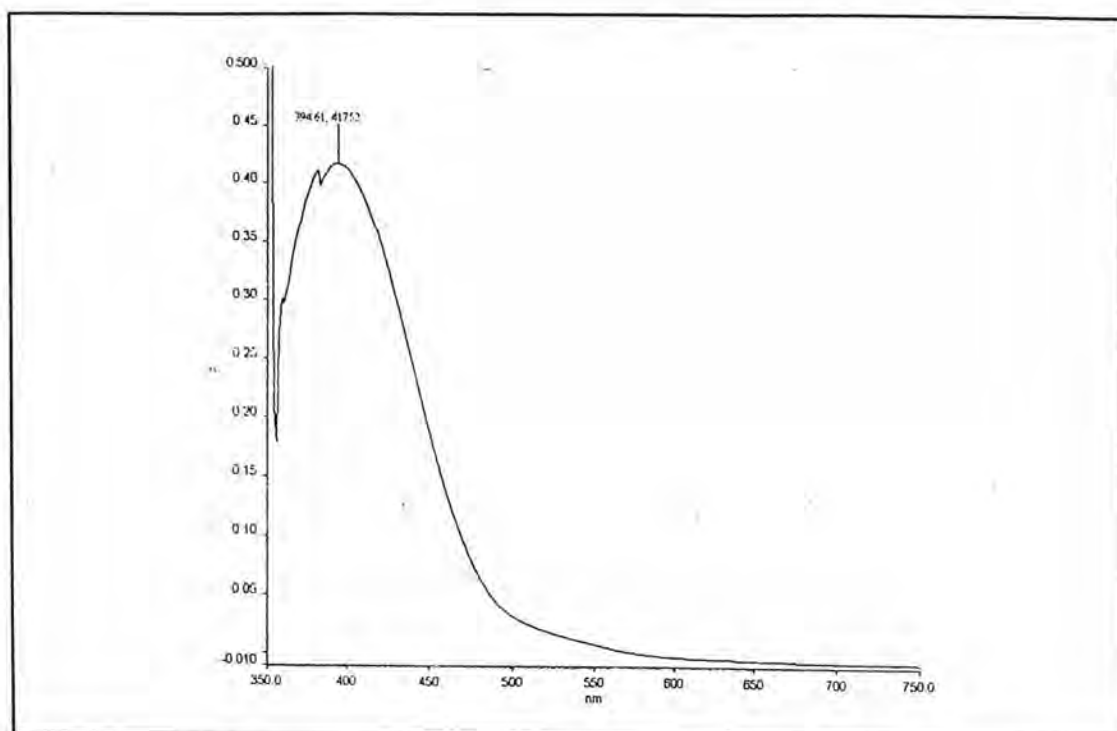


Fig. A.86 Maximum wavelength of Compound 6a using 6:1 volume ratio of marked HSD to extractant

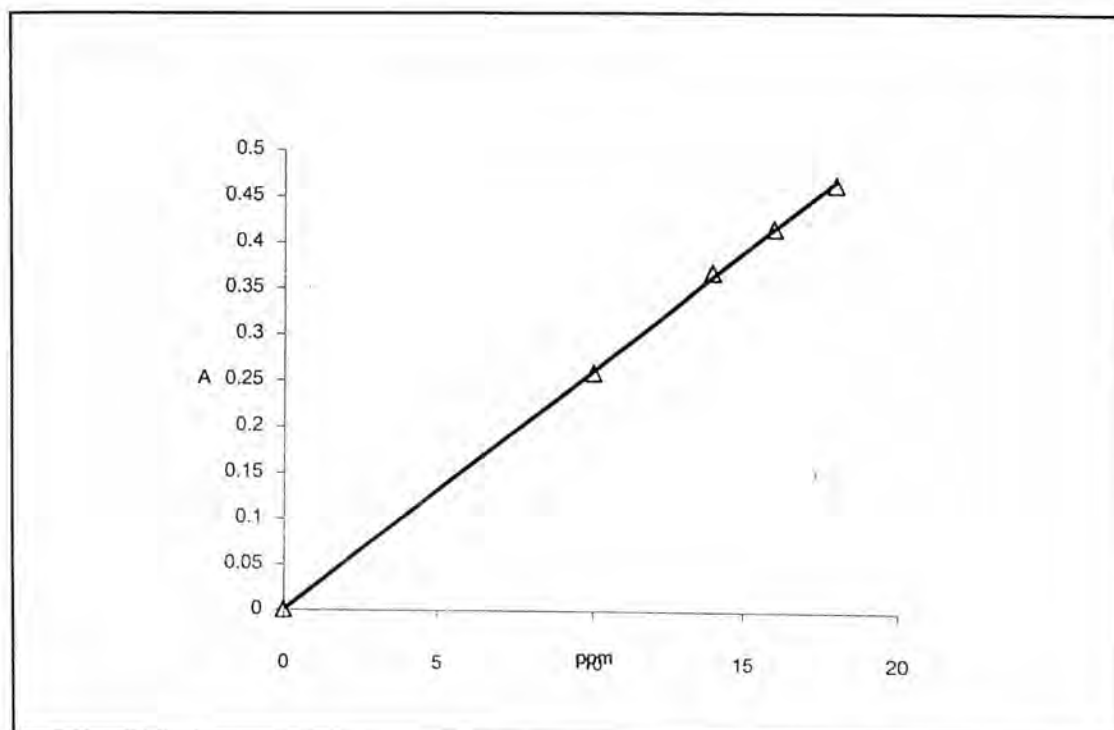


Fig. A.87 Calibration curve of Compound 6a using 6:1 volume ratio of marked HSD to extractant

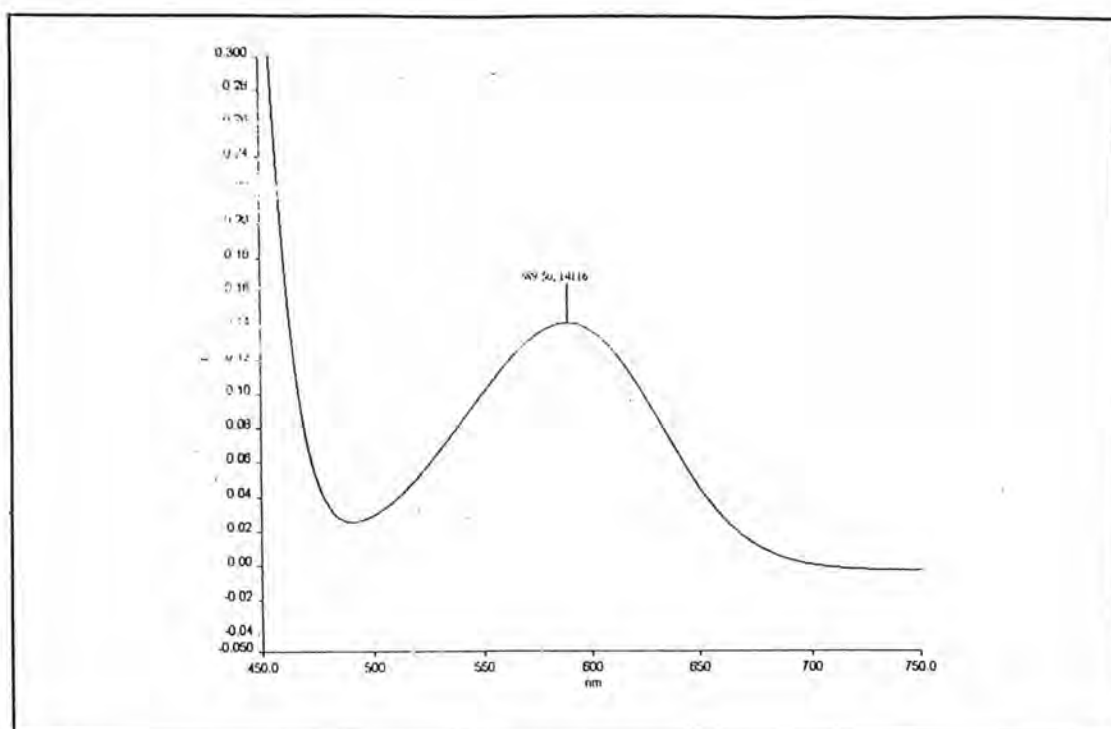


Fig. A.88 Maximum wavelength of Compound 7a using 6:1 volume ratio of marked HSD to extractant

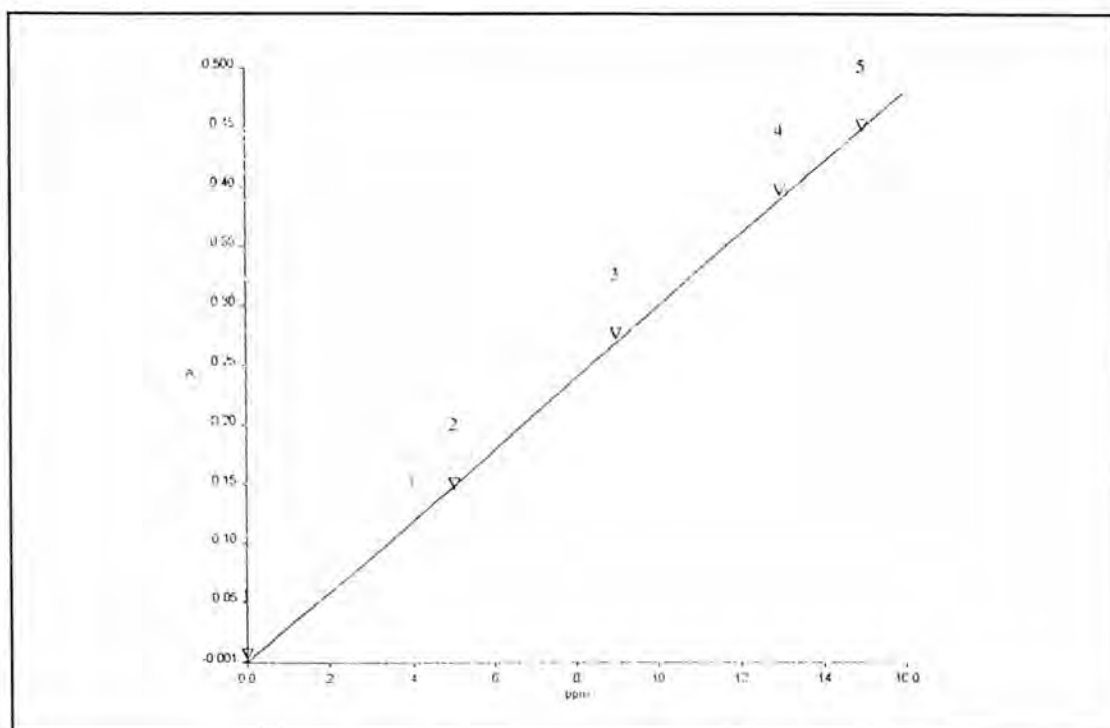


Fig. A.89 Calibration curve of Compound 7a using 6:1 volume ratio of marked HSD to extractant

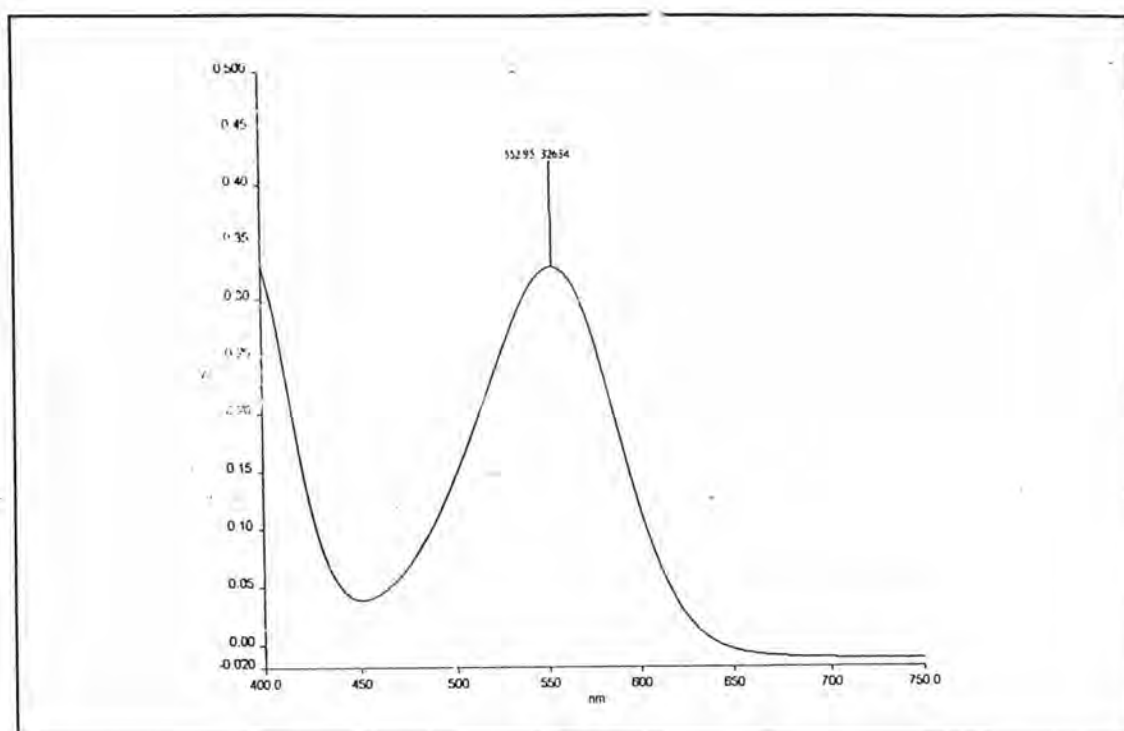


Fig. A.90 Maximum wavelength of Compound 1b using 6:1 volume ratio of marked HSD to extractant

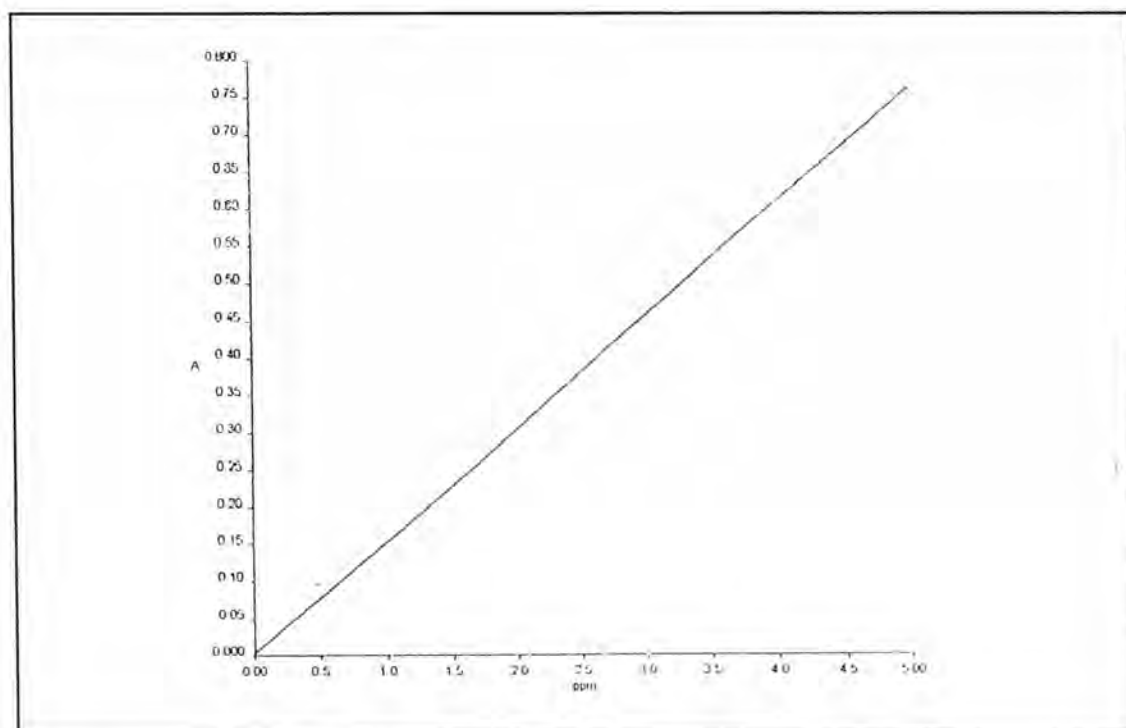


Fig. A.91 Calibration curve of Compound 1b using 6:1 volume ratio of marked HSD to extractant

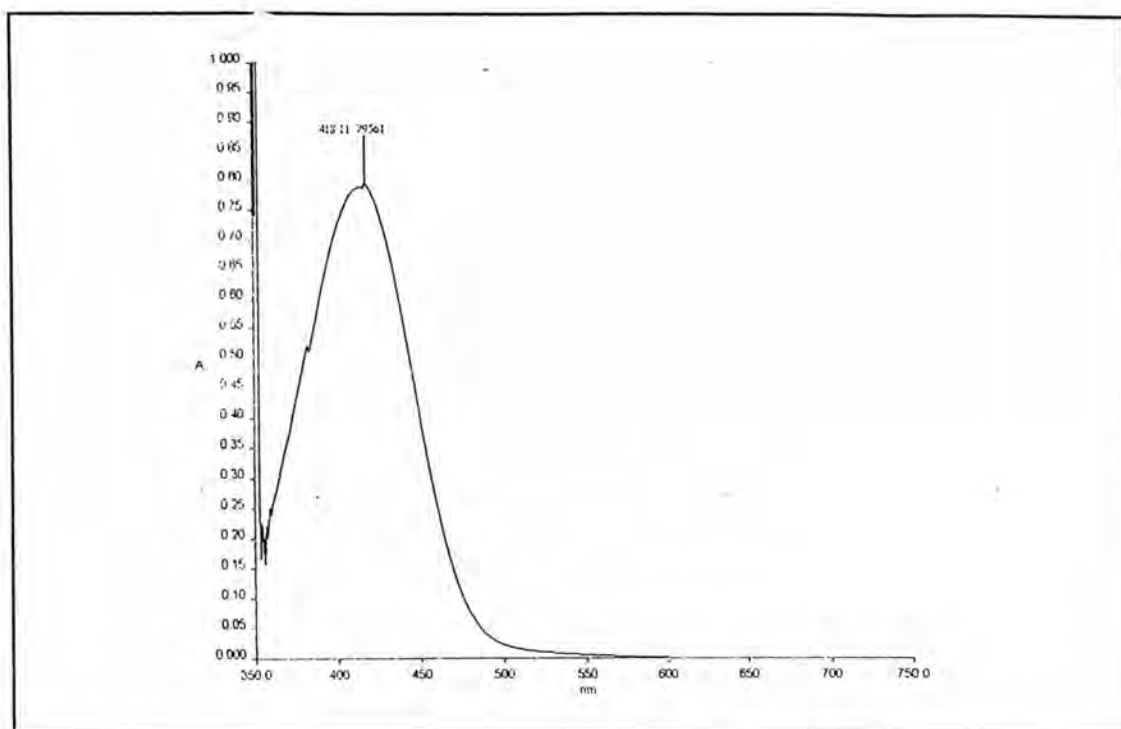


Fig. A.92 Maximum wavelength of Compound 2b using 6:1 volume ratio of marked HSD to extractant

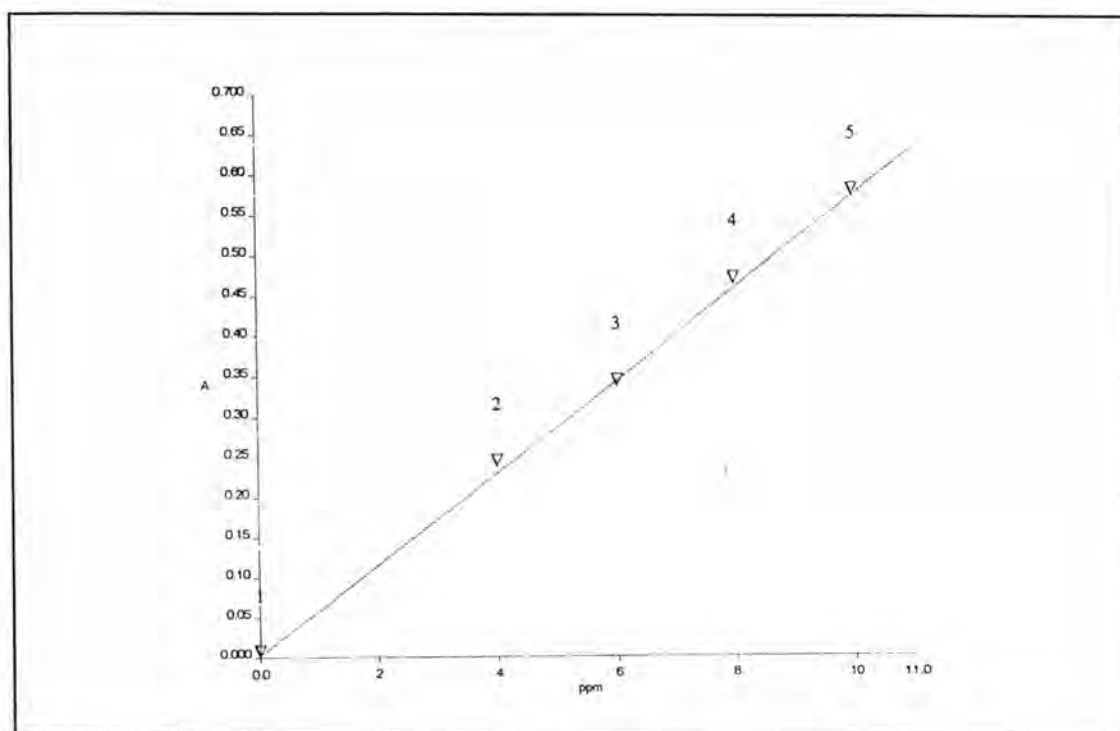


Fig. A.93 Calibration curve of Compound 2b using 6:1 volume ratio of marked HSD to extractant

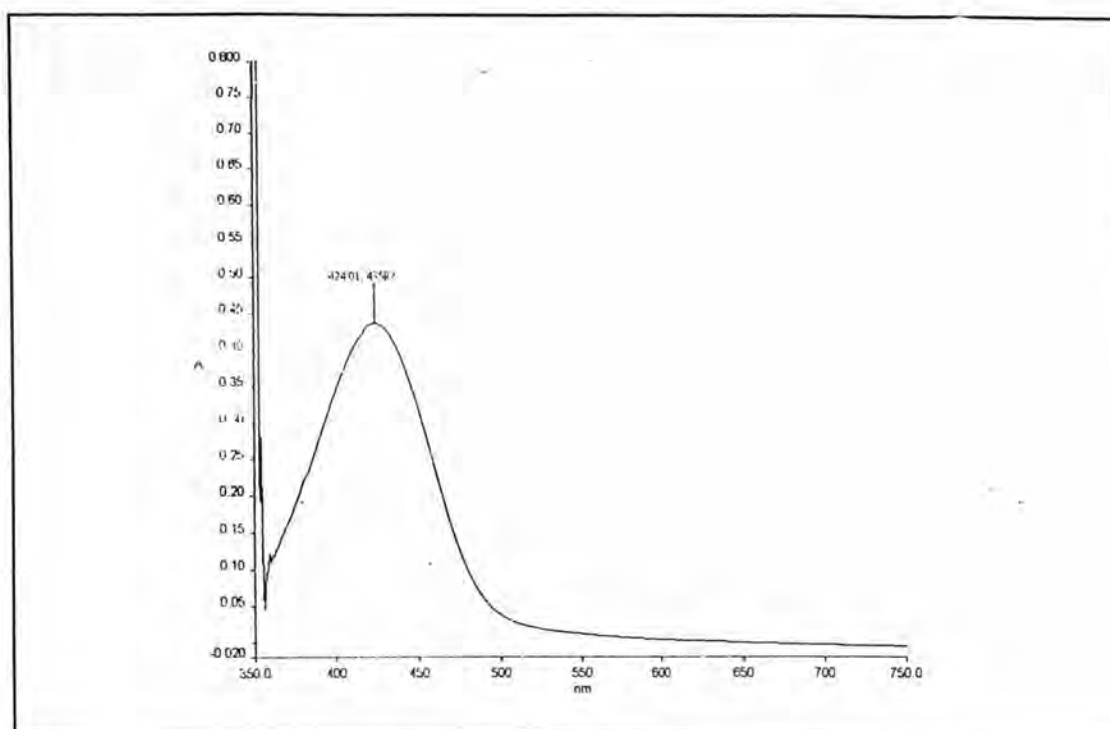


Fig. A.94 Maximum wavelength of Compound **3b** using 6:1 volume ratio of marked HSD to extractant

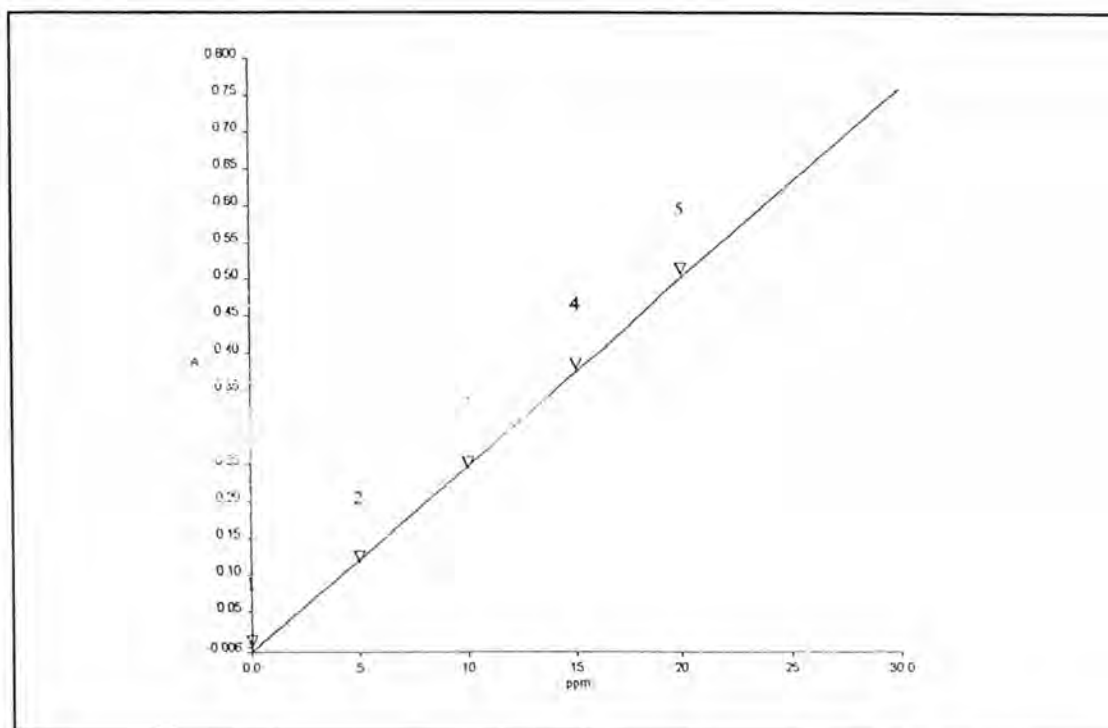


Fig. A.95 Calibration curve of Compound **3b** using 6:1 volume ratio of marked HSD to extractant

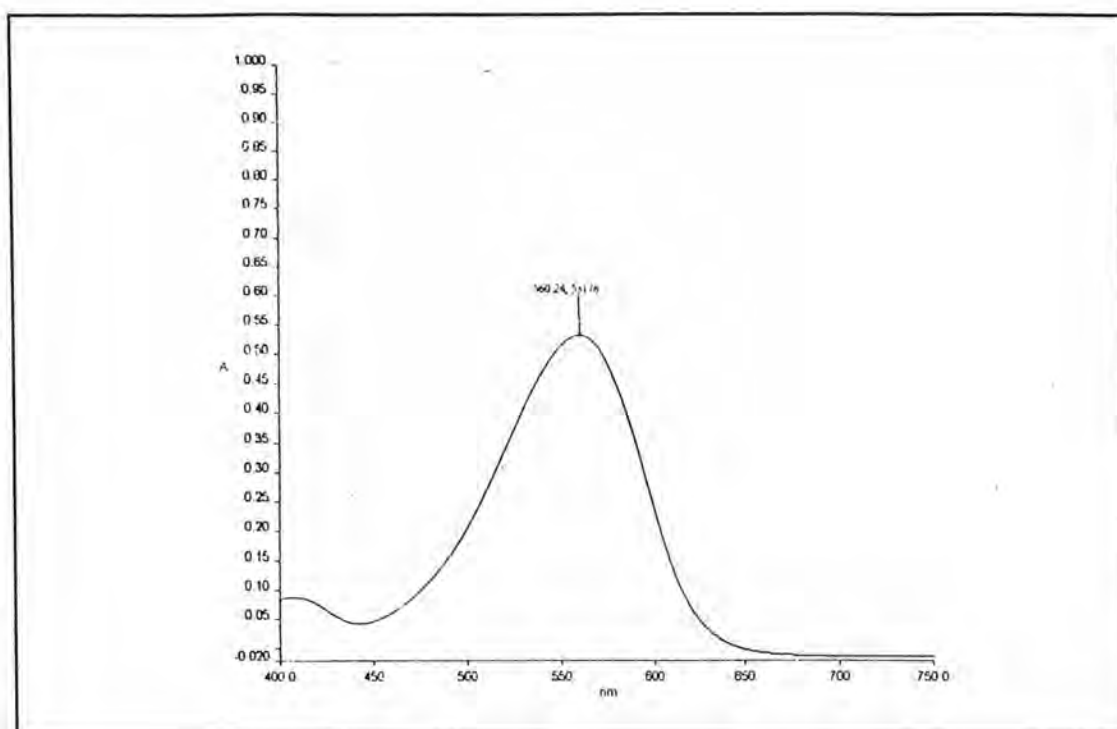


Fig. A.96 Maximum wavelength of Compound **5b** using 6:1 volume ratio of marked HSD to extractant

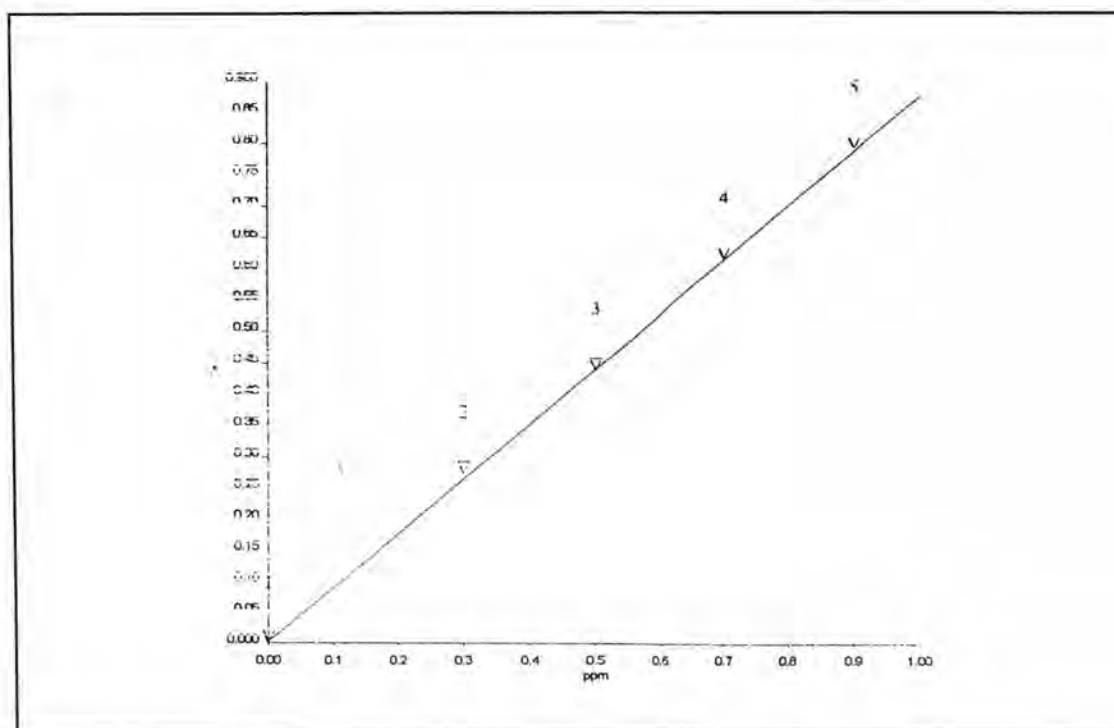


Fig. A.97 Calibration curve of Compound **5b** using 6:1 volume ratio of marked HSD to extractant

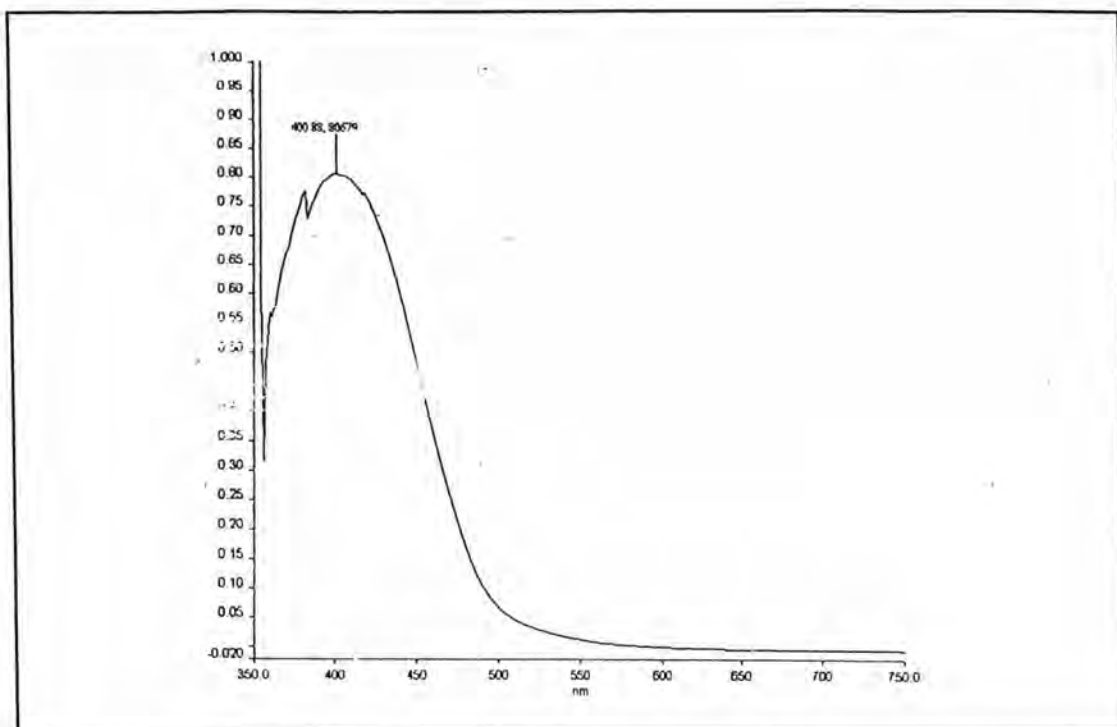


Fig. A.98 Maximum wavelength of Compound **6b** using 6:1 volume ratio of marked HSD to extractant

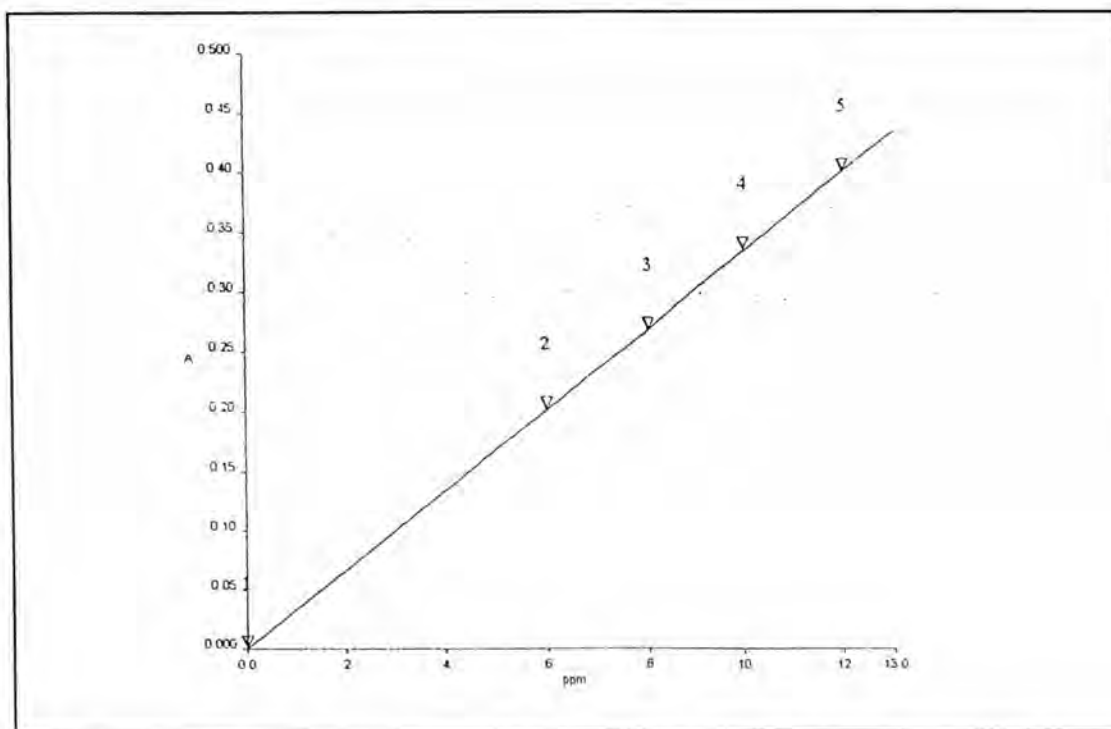


Fig. A.99 Calibration curve of Compound **6b** using 6:1 volume ratio of marked HSD to extractant

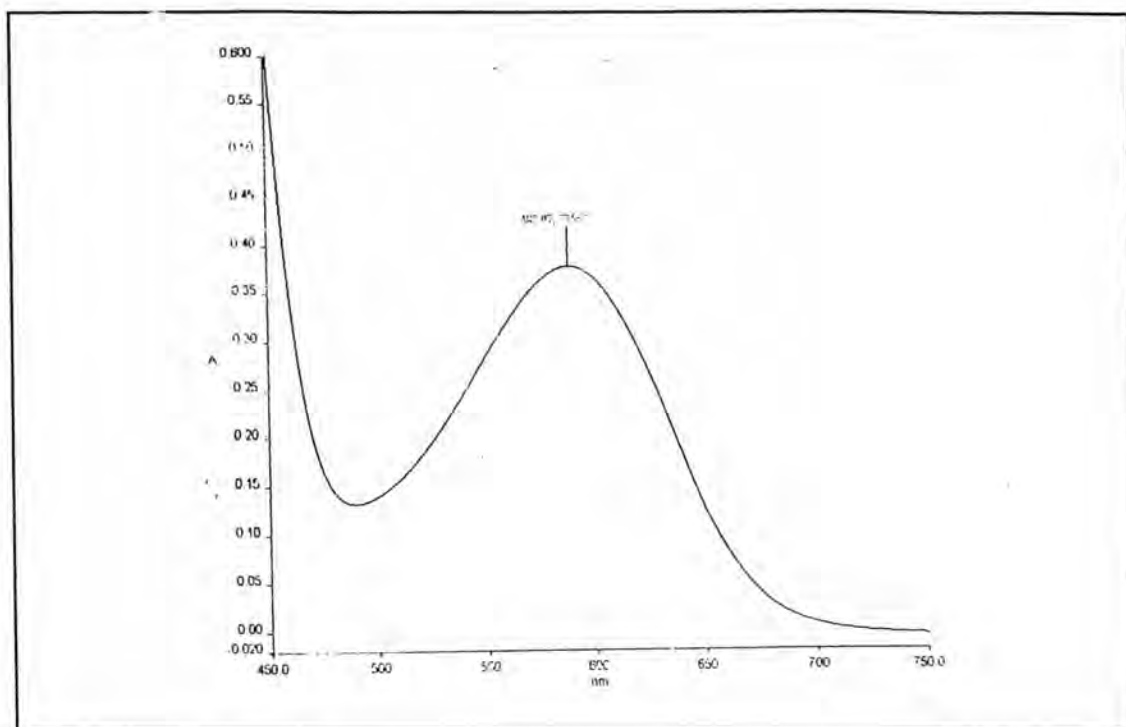


Fig. A.100 Maximum wavelength of Compound 7b using 6:1 volume ratio of marked HSD to extractant

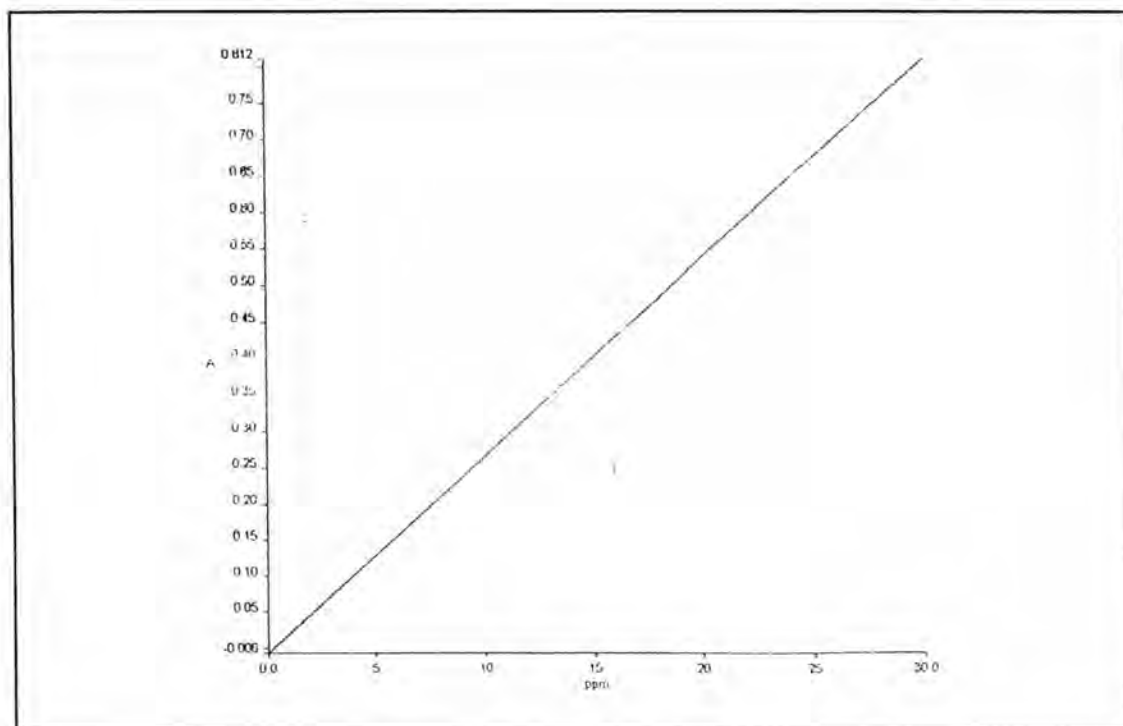


Fig. A.101 Calibration curve of Compound 7b using 6:1 volume ratio of marked HSD to extractant

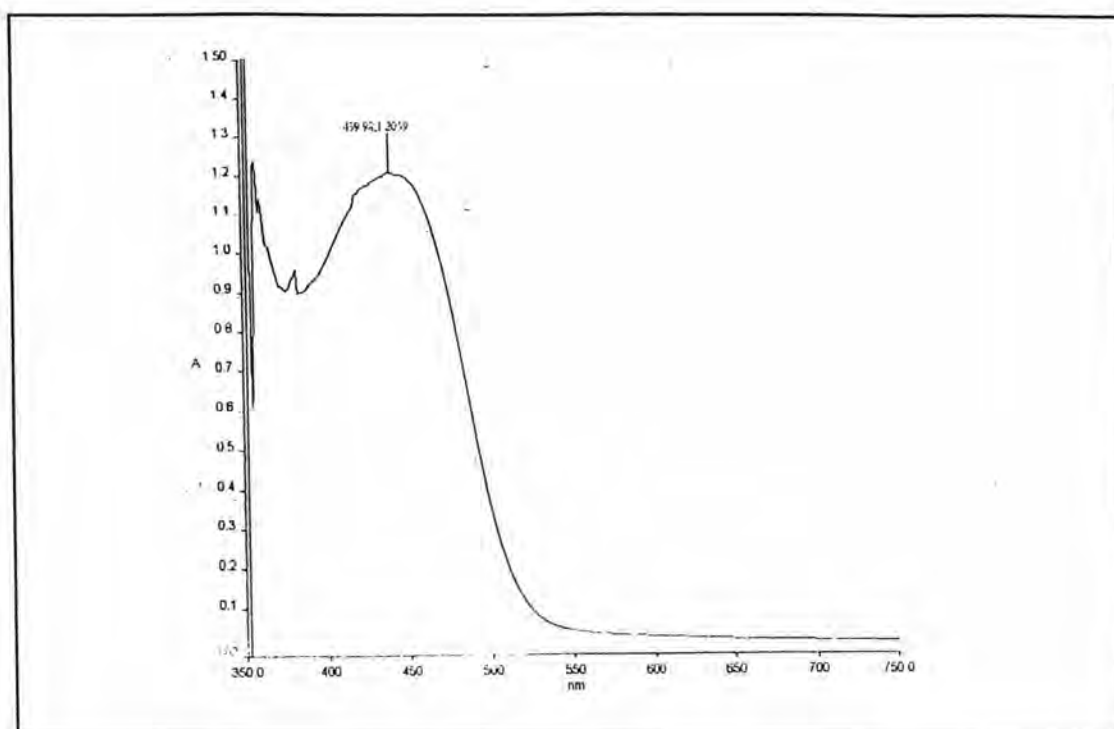


Fig. A.102 Maximum wavelength of Compound 1c using 6:1 volume ratio of marked HSD to extractant

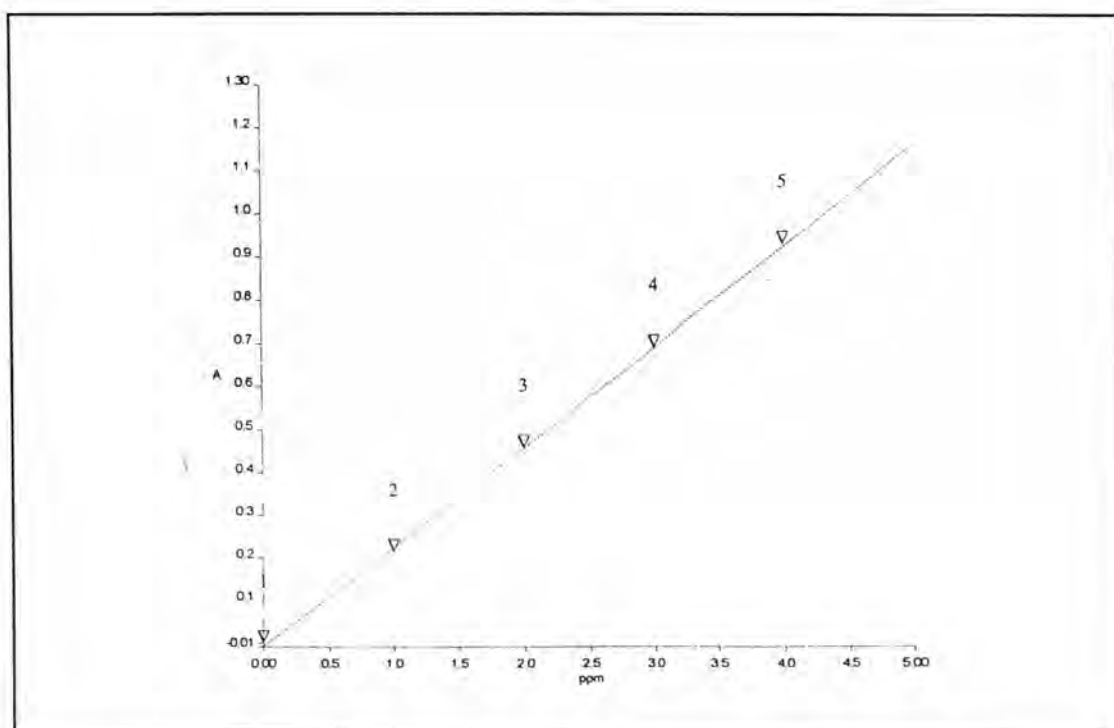


Fig. A.103 Calibration curve of Compound 1c using 6:1 volume ratio of marked HSD to extractant

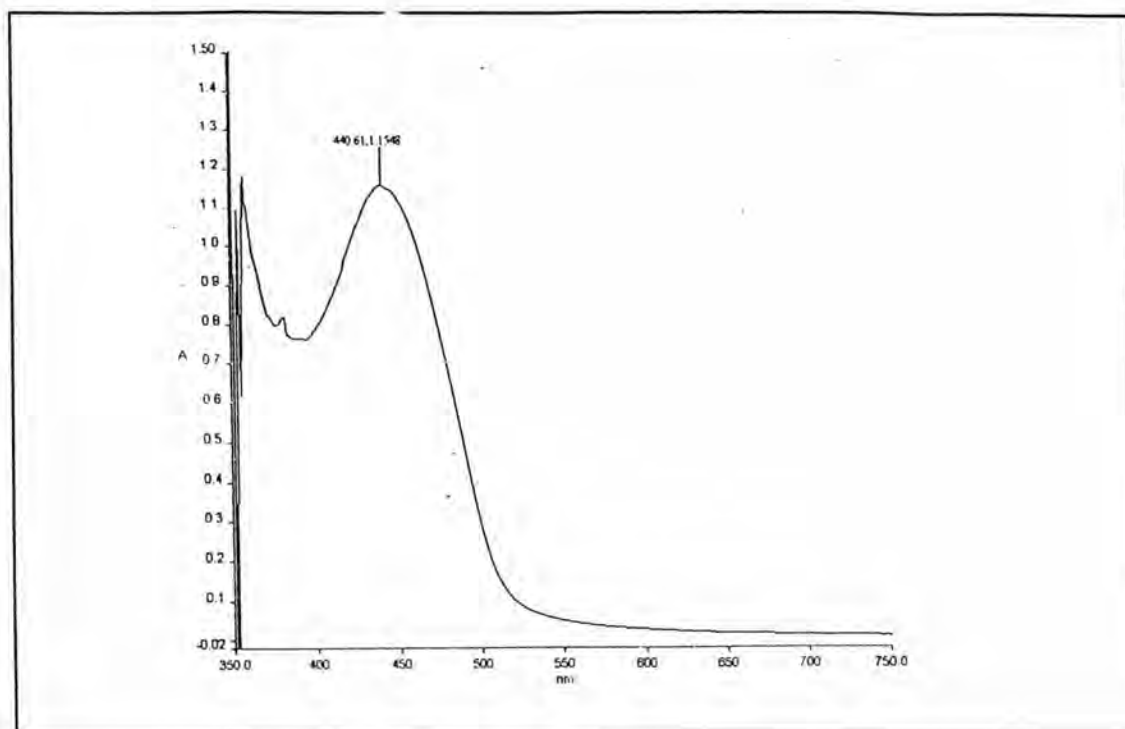


Fig. A.104 Maximum wavelength of Compound 2c using 6:1 volume ratio of marked HSD to extractant

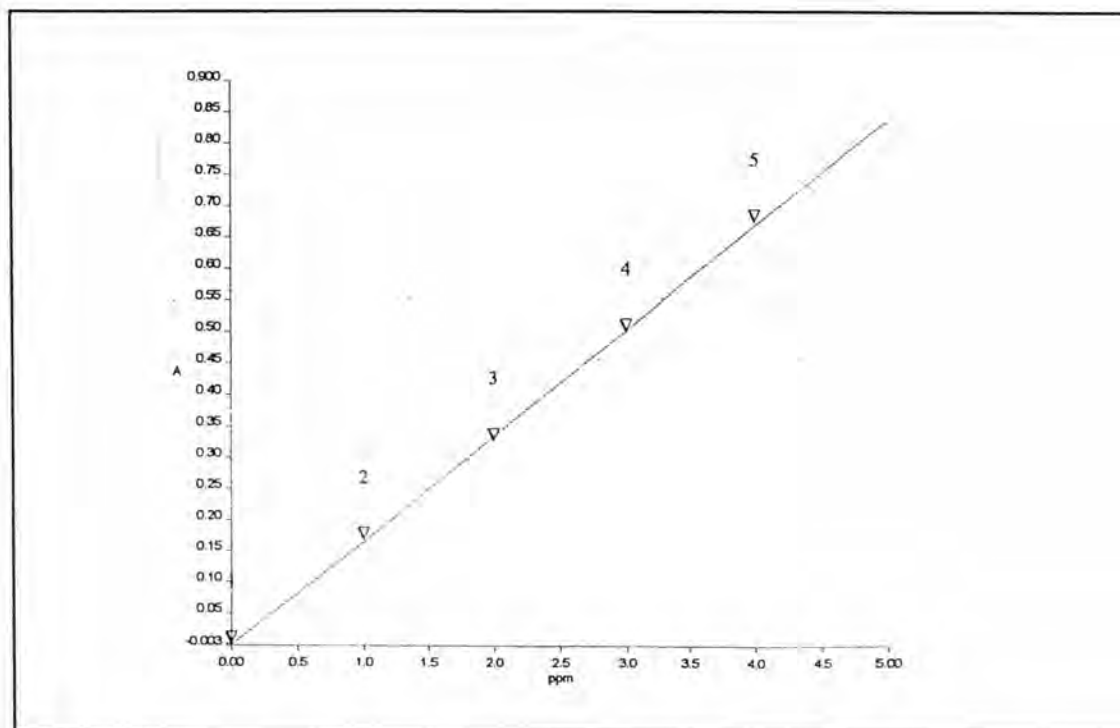


Fig. A.105 Calibration curve of Compound 2c using 6:1 volume ratio of marked HSD to extractant

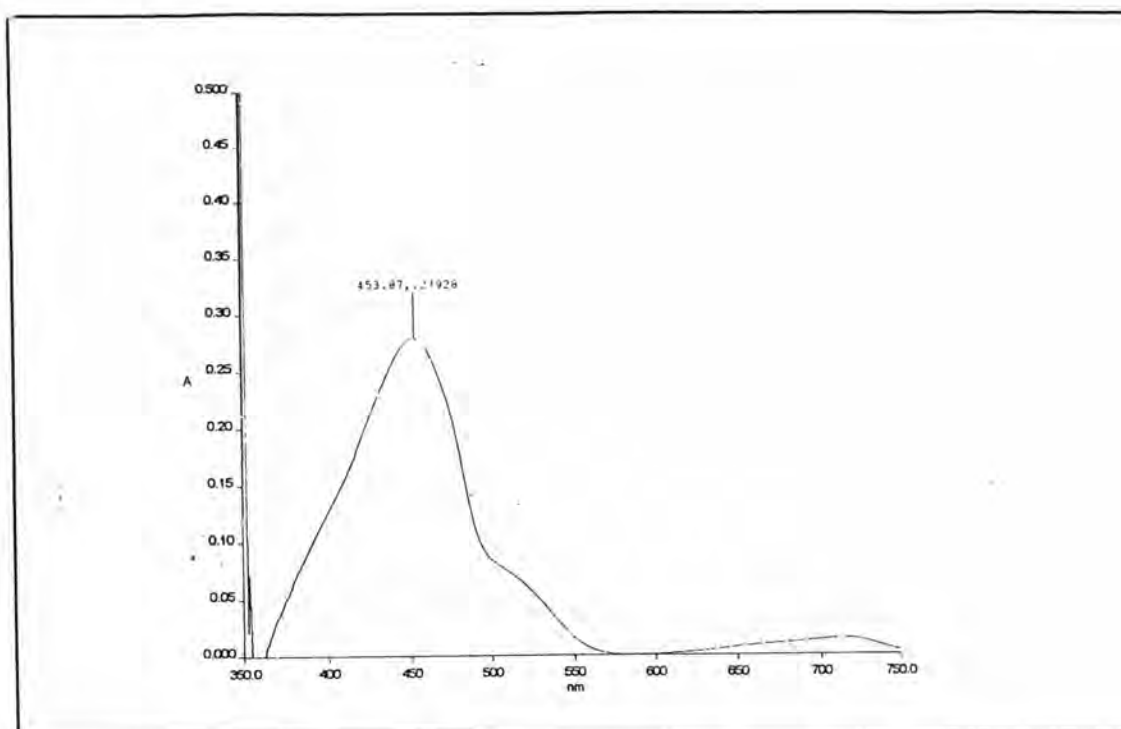


Fig. A.106 Maximum wavelength of Compound 4c using 6:1 volume ratio of marked HSD to extractant

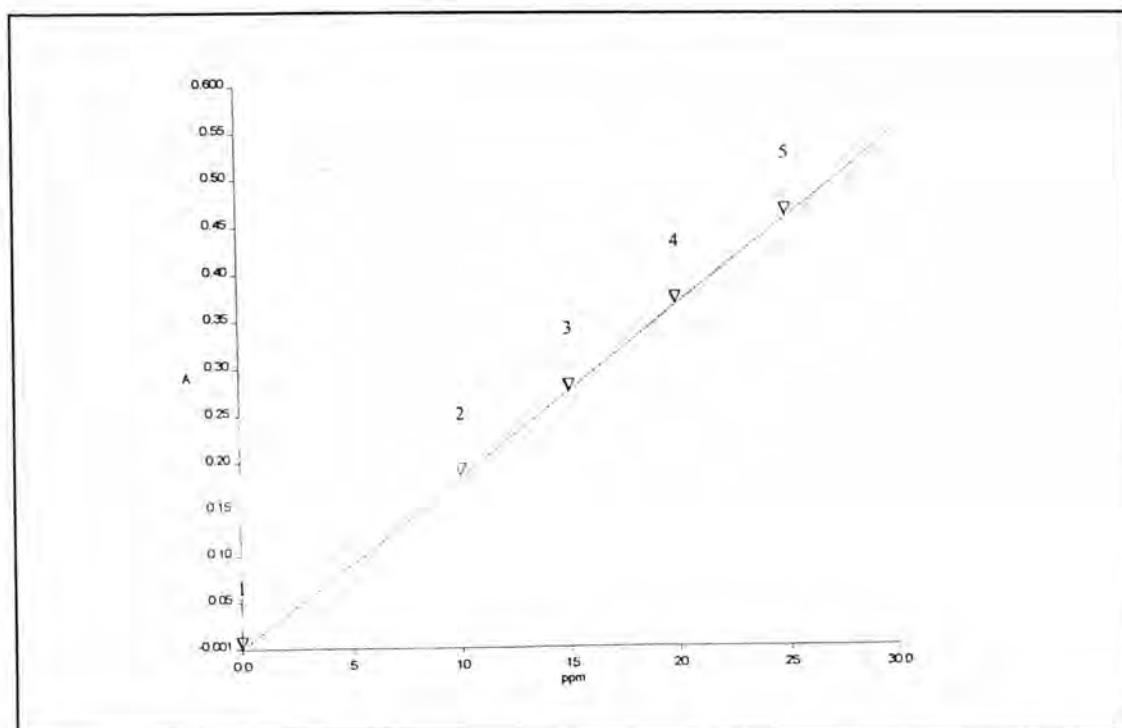


Fig. A.107 Calibration curve of Compound 4c using 6:1 volume ratio of marked HSD to extractant

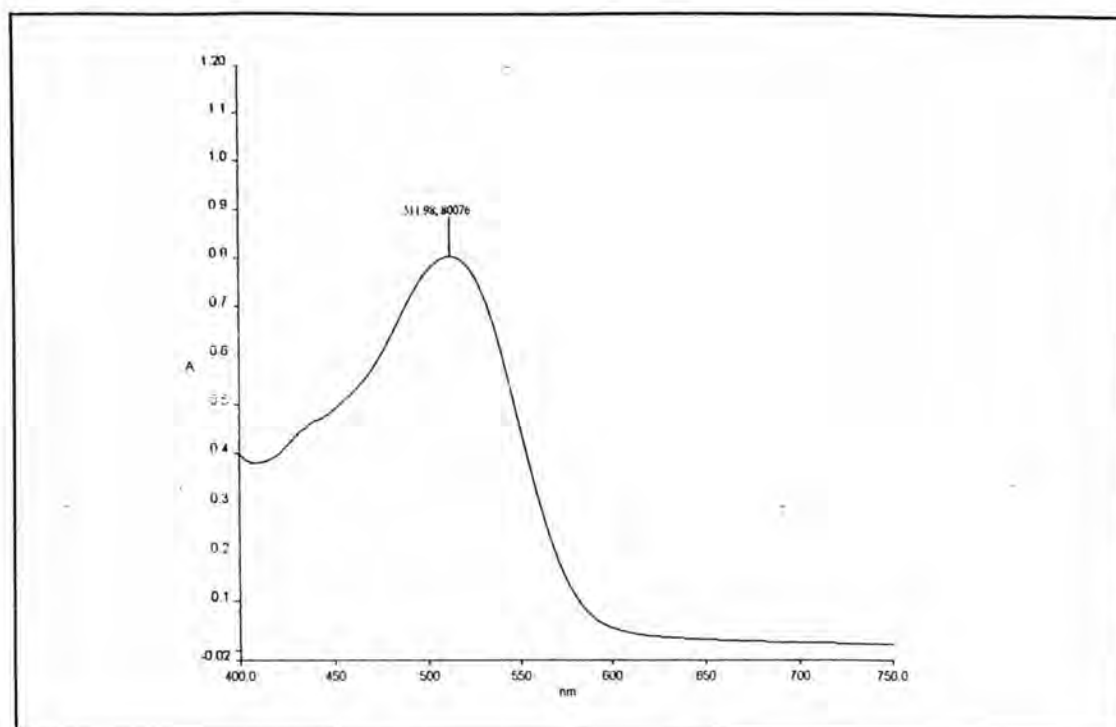


Fig. A.108 Maximum wavelength of Compound 5c using 6:1 volume ratio of marked HSD to extractant

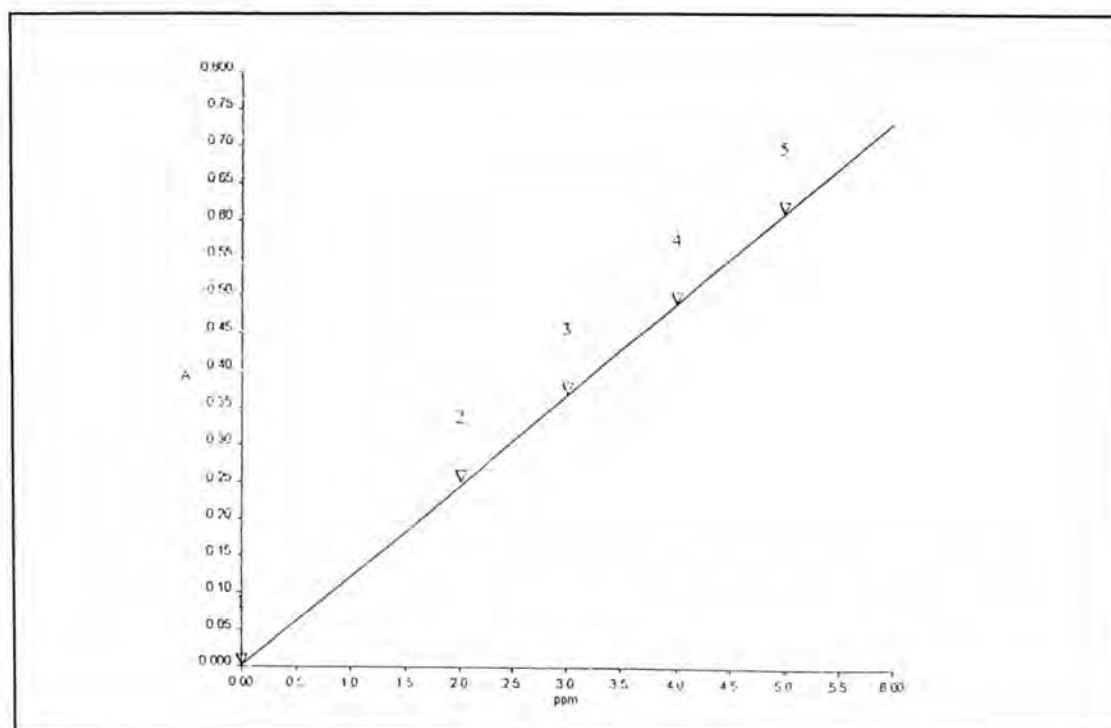


Fig. A.109 Calibration curve of Compound 5c using 6:1 volume ratio of marked HSD to extractant

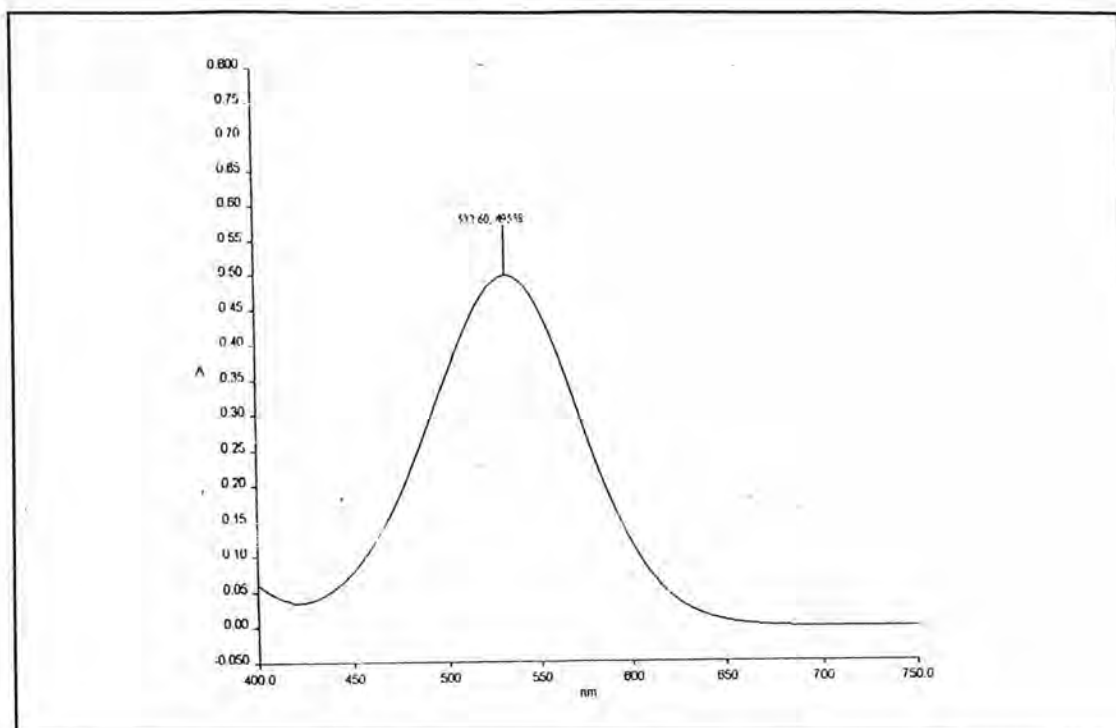


Fig. A.110 Maximum wavelength of Compound 5a using 2:1 volume ratio of marked HSD to extractant

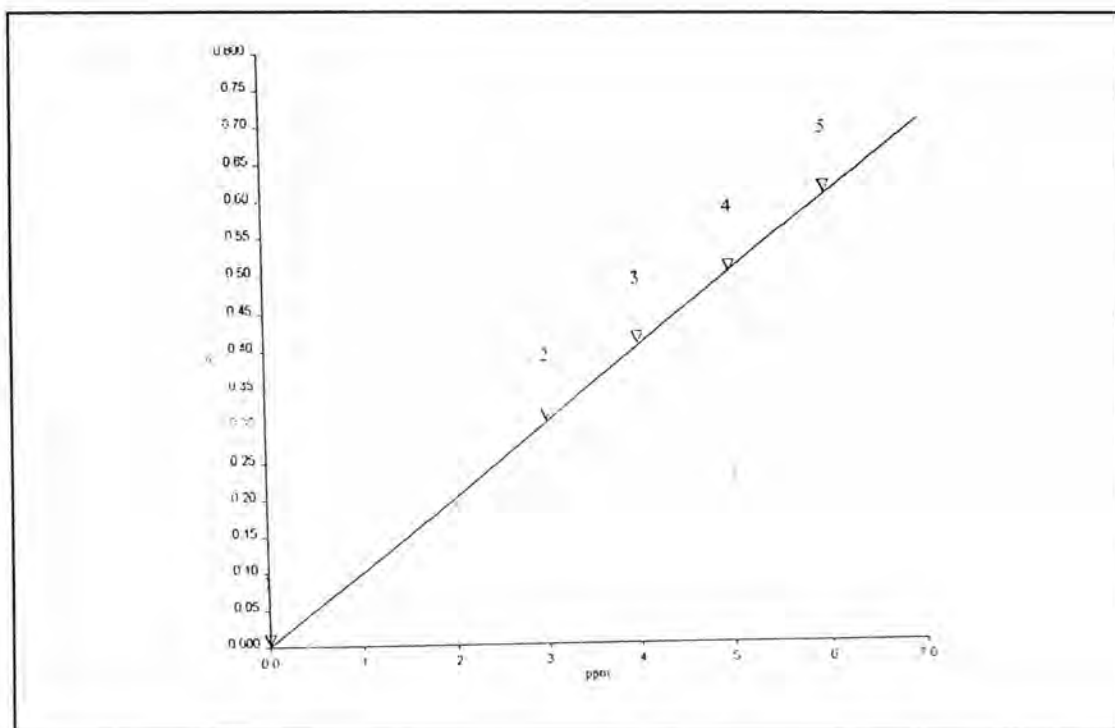


Fig. A.111 Calibration curve of Compound 5a using 2:1 volume ratio of marked HSD to extractant

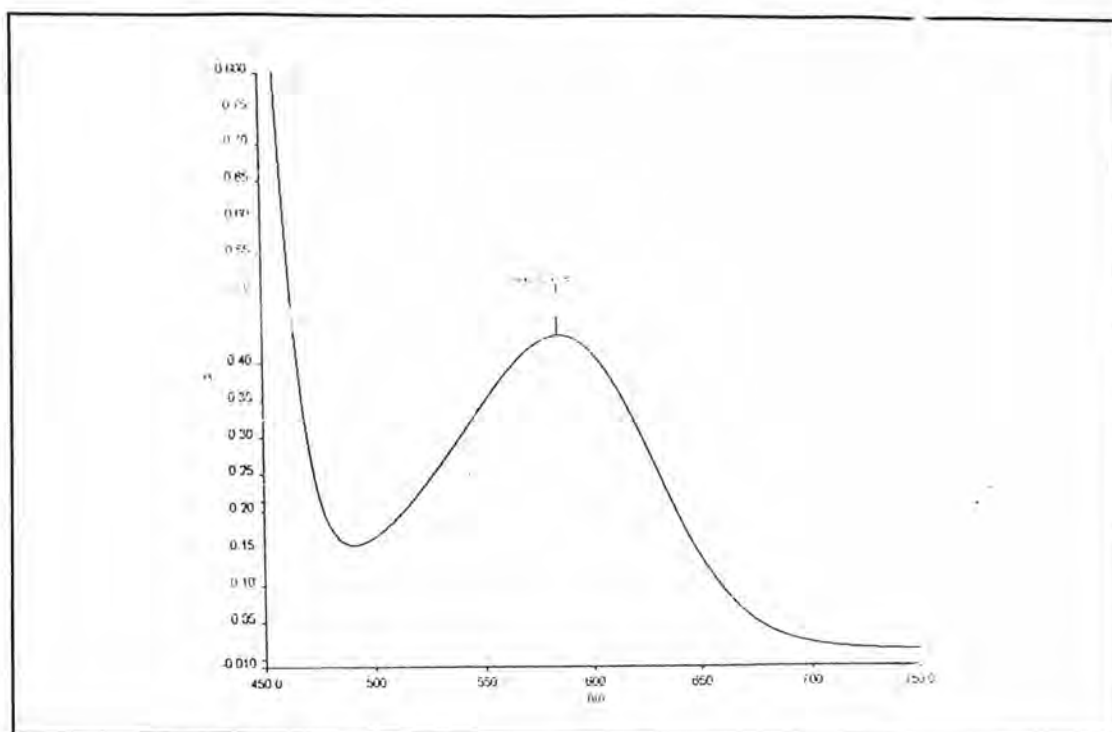


Fig. A.112 Maximum wavelength of Compound 7a using 15:1 volume ratio of marked HSD to extractant

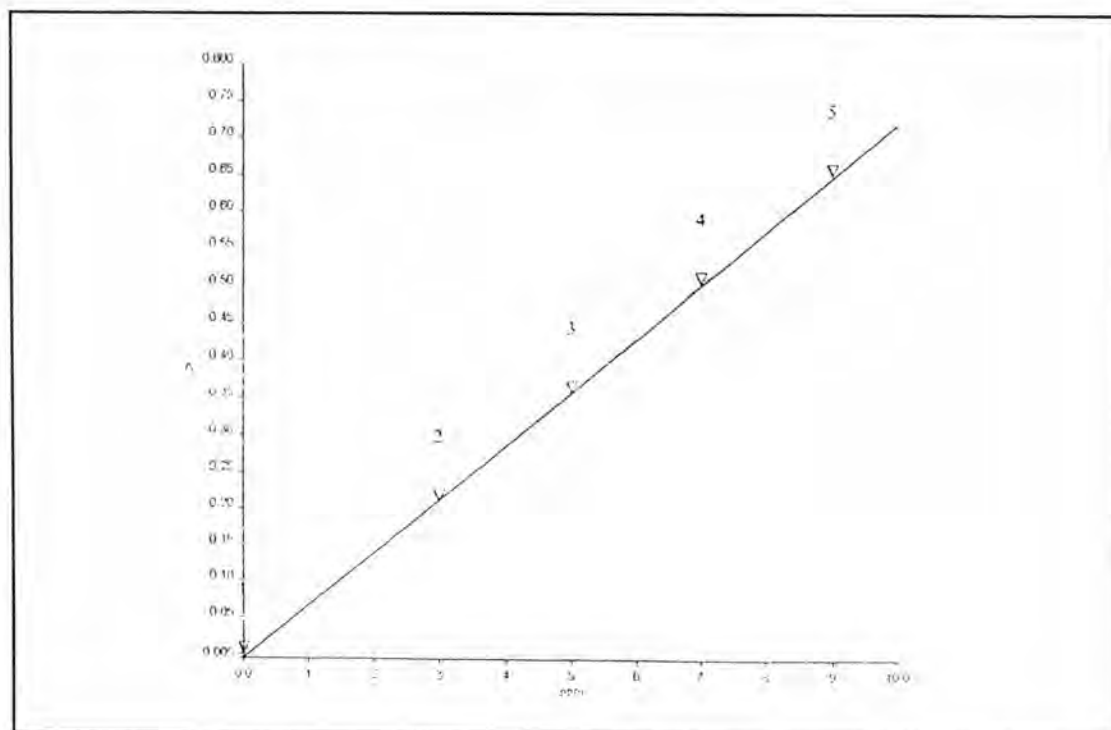


Fig. A.113 Calibration curve of Compound 7a using 15:1 volume ratio of marked HSD to extractant

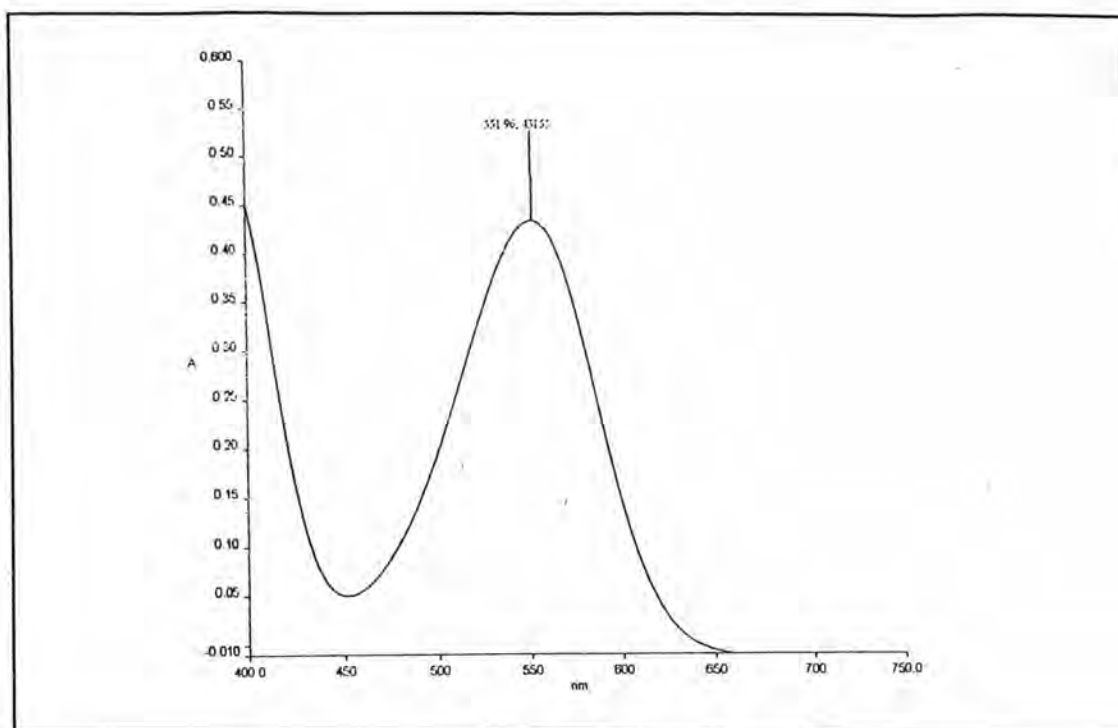


Fig. A.114 Maximum wavelength of Compound 1b using 3:1 volume ratio of marked HSD to extractant

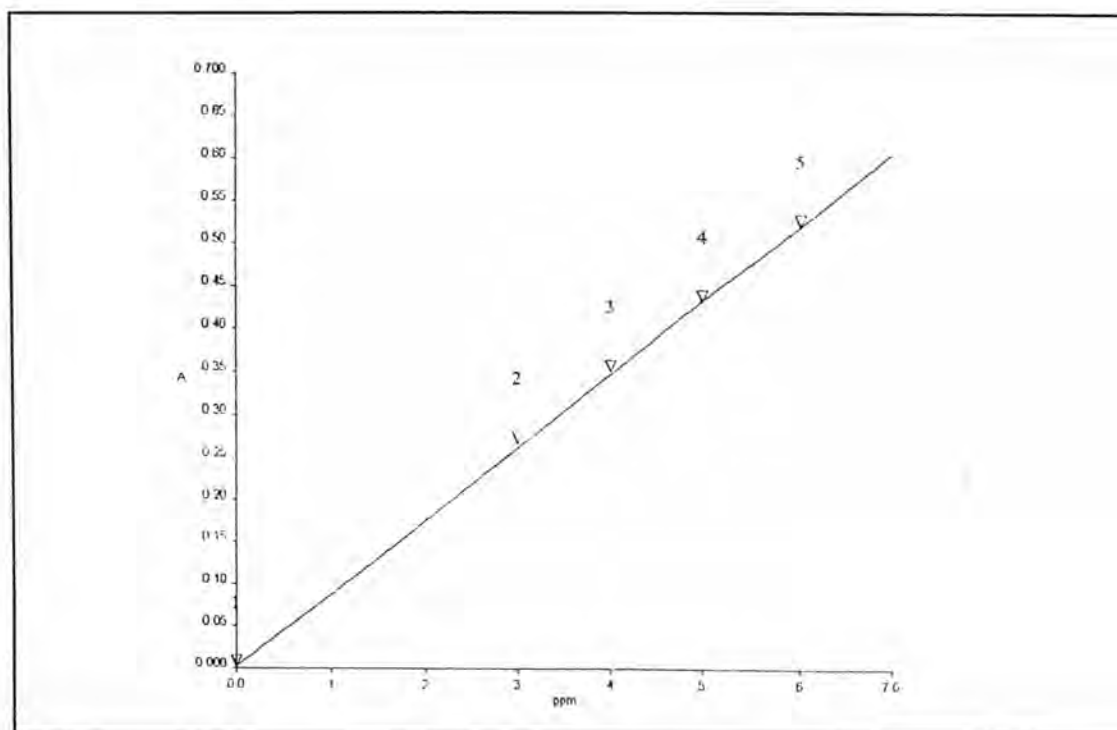


Fig. A.115 Calibration curve of Compound 1b using 3:1 volume ratio of marked HSD to extractant

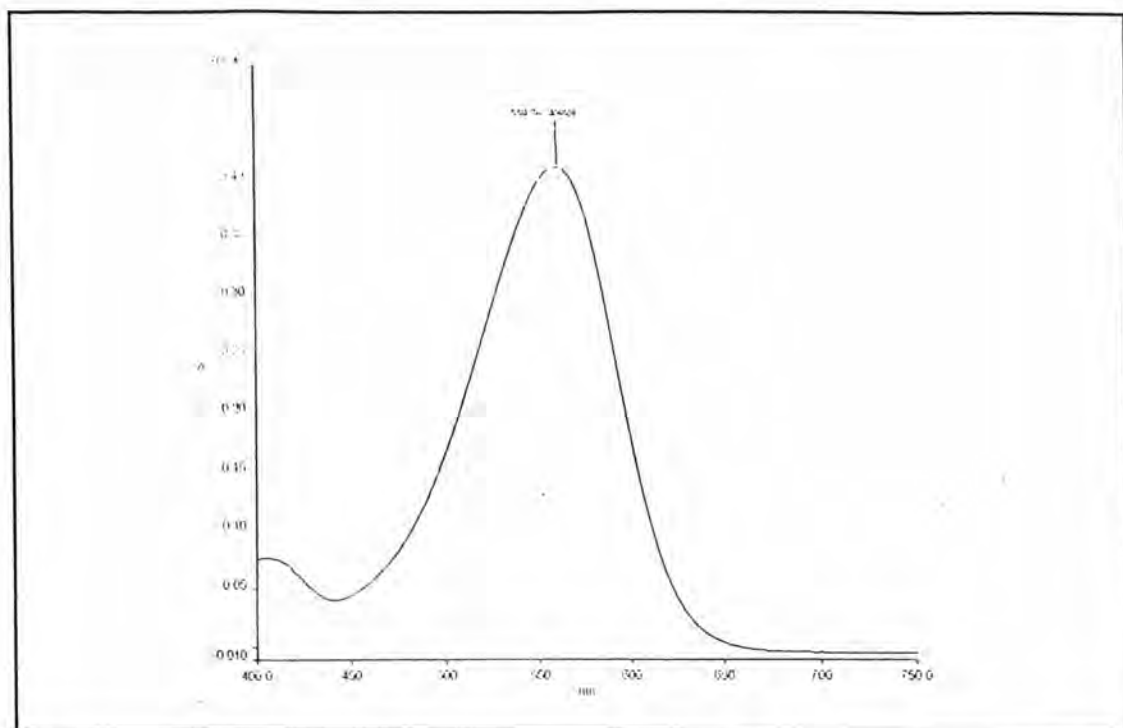


Fig. A.116 Maximum wavelength of Compound **5b** using 1:1 volume ratio of marked HSD to extractant

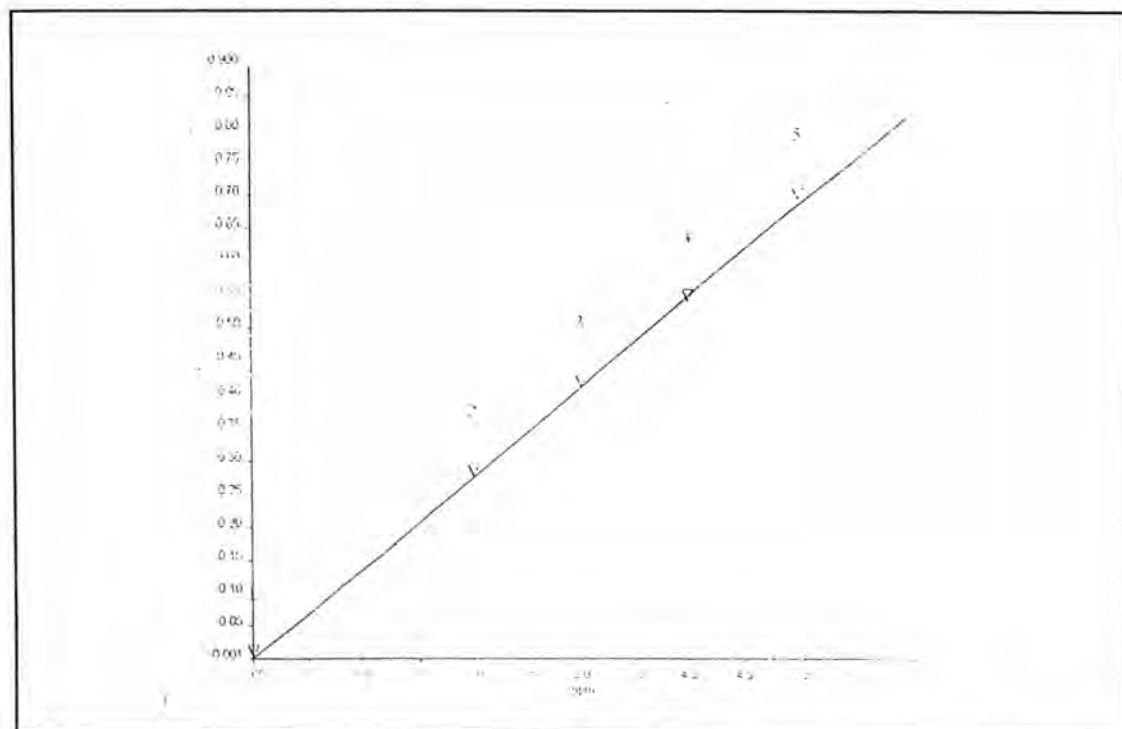


Fig. A.117 Calibration curve of Compound **5b** using 1:1 volume ratio of marked HSD to extractant

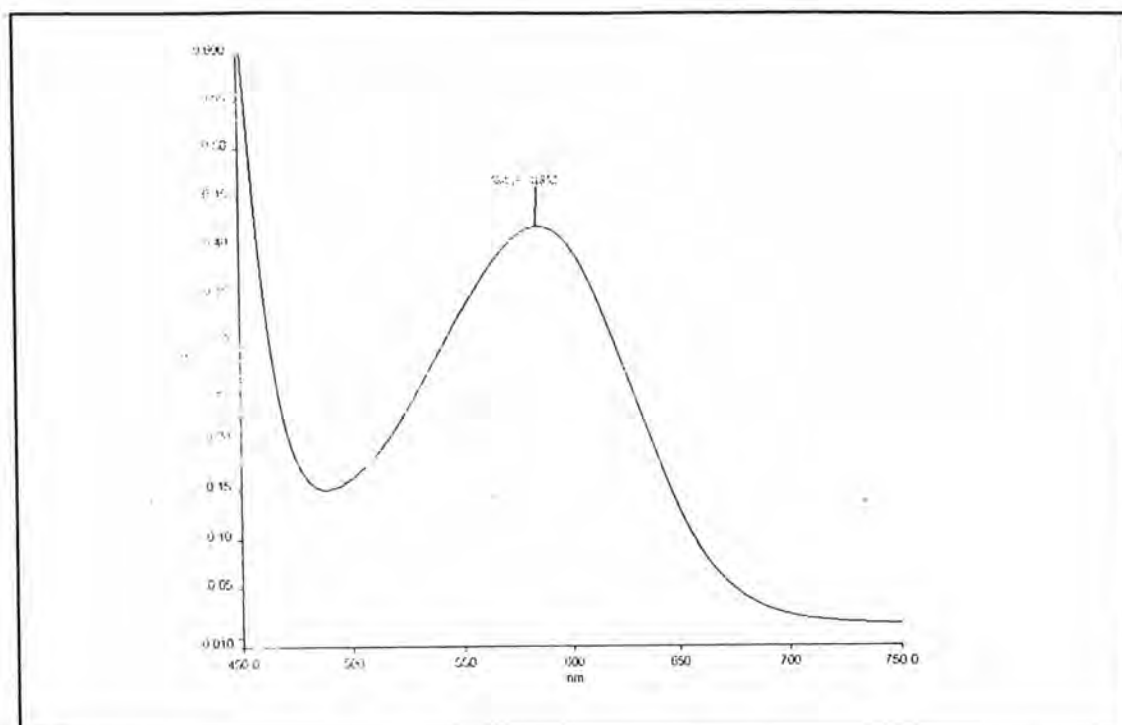


Fig. A.118 Maximum wavelength of Compound 7b using 18:1 volume ratio of marked HSD to extractant

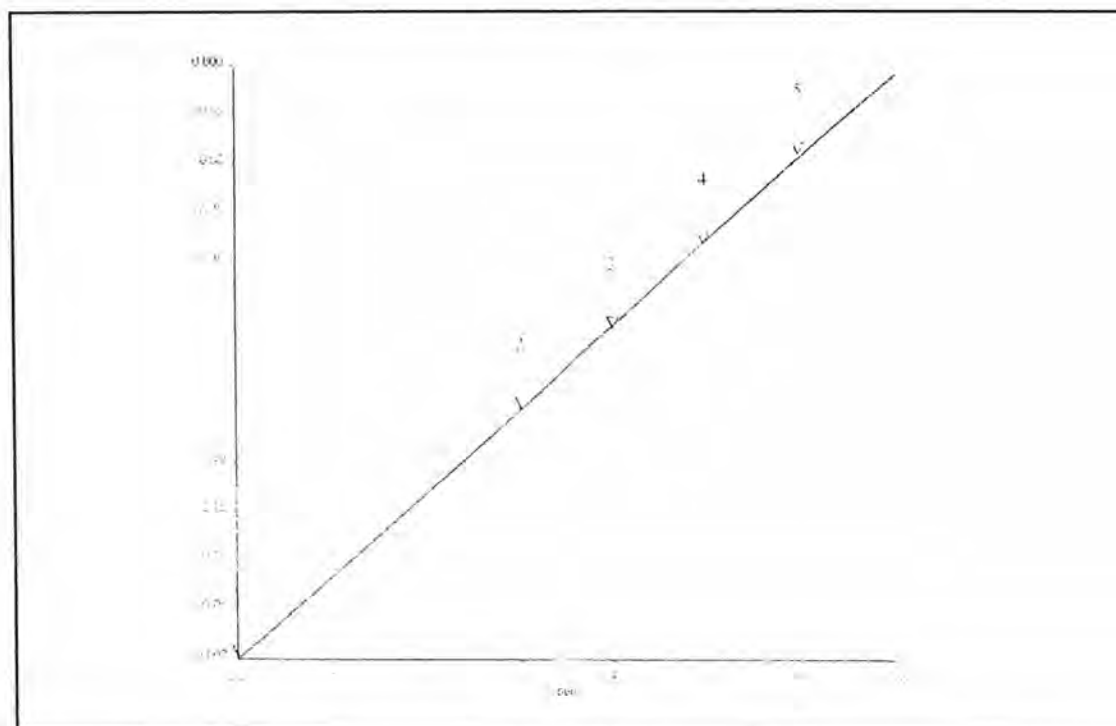


Fig. A.119 Calibration curve of Compound 7b using 18:1 volume ratio of marked HSD to extractant