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APPENDIX

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

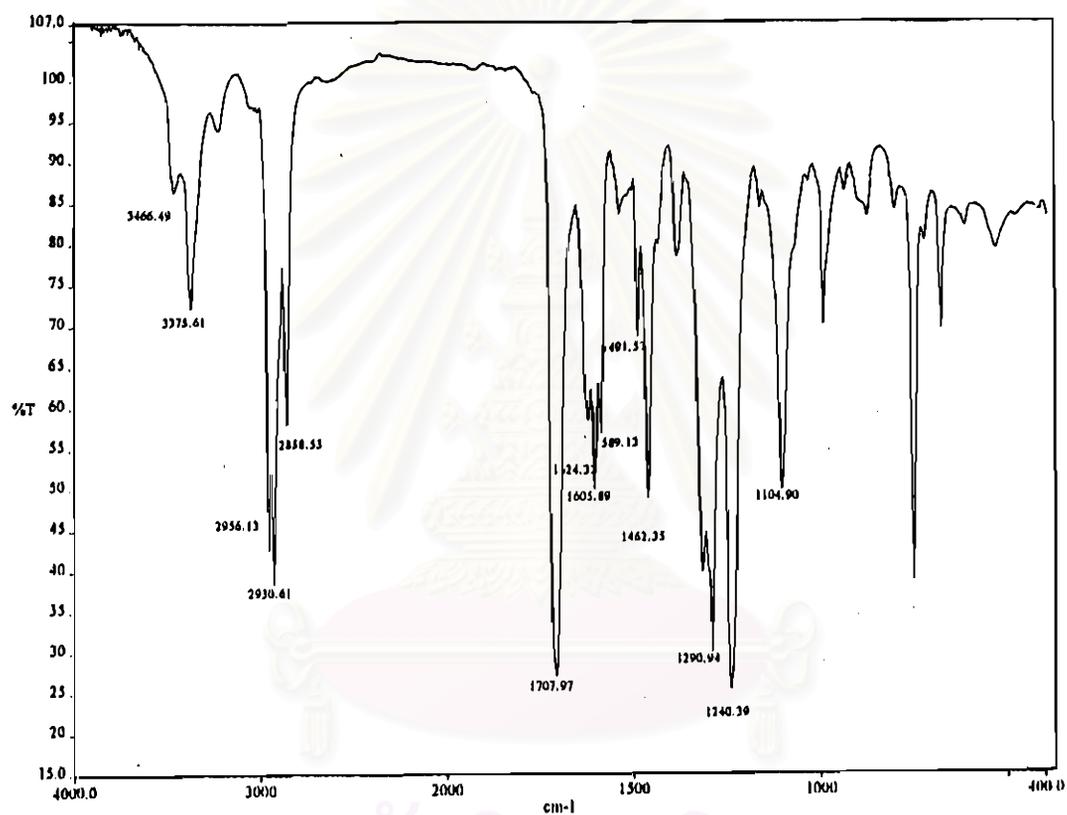


Figure 4-1 FT-IR spectrum of hexyl-3-aminobenzoate

สถาบันวิทยบริการ
จุฬาลงกรณ์มหาวิทยาลัย

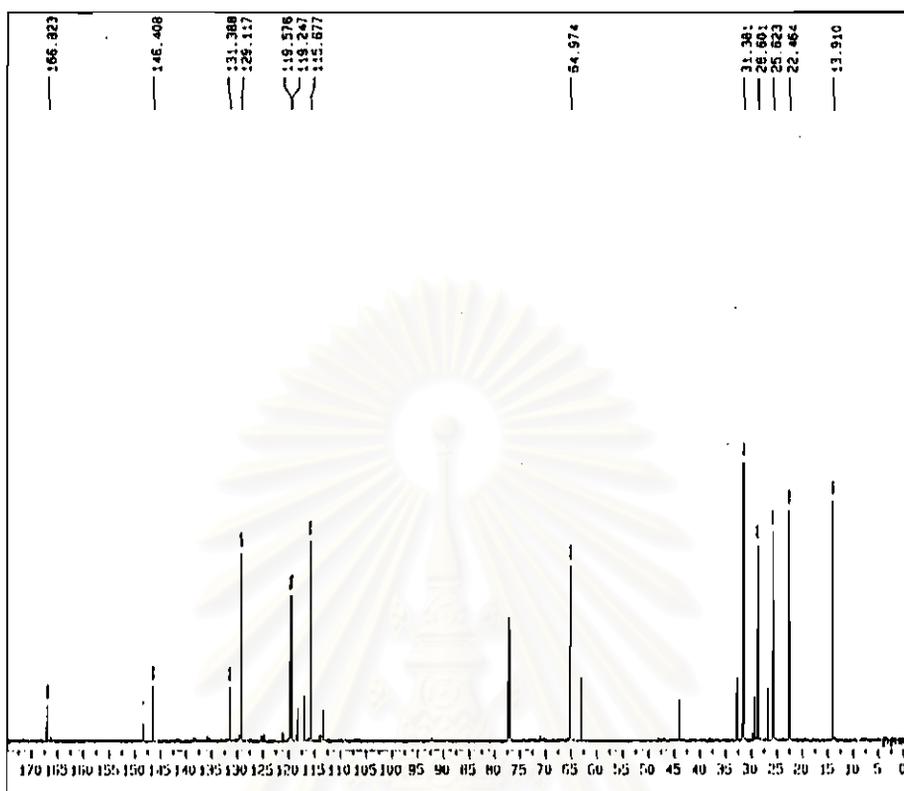


Figure 4-2 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate

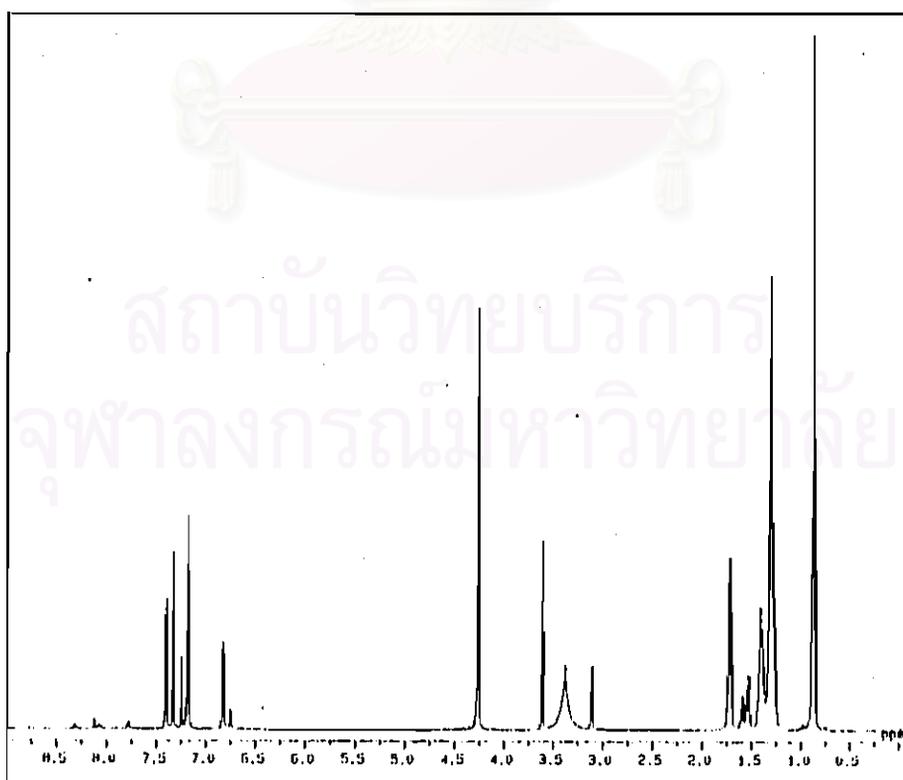


Figure 4-3 ^1H -NMR spectrum of hexyl-3-aminobenzoate

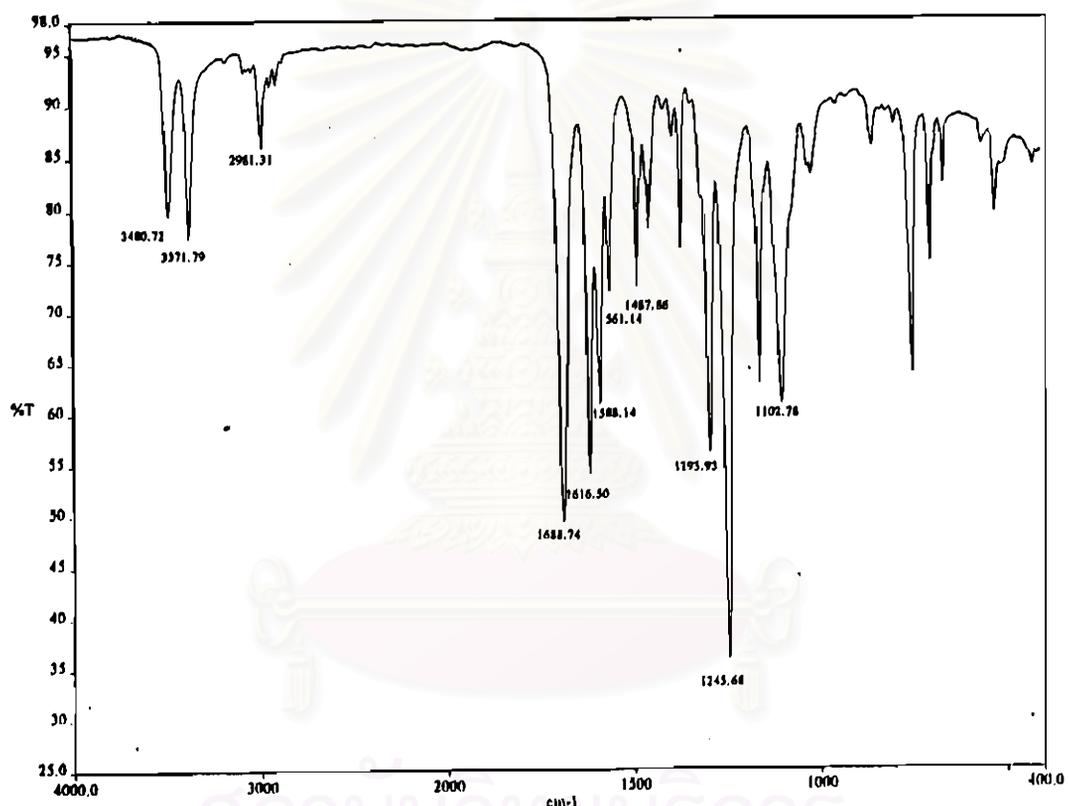


Figure 4-4 FT-IR spectrum of ethyl-2-aminobenzoate phenyl azo

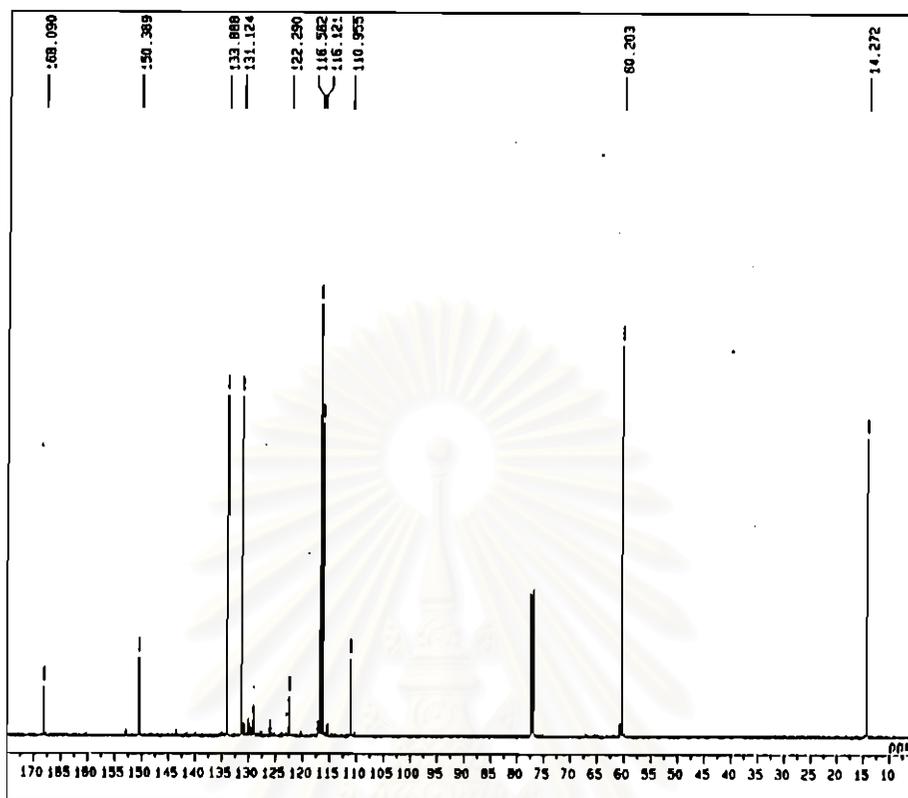


Figure 4-5 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate phenyl azo

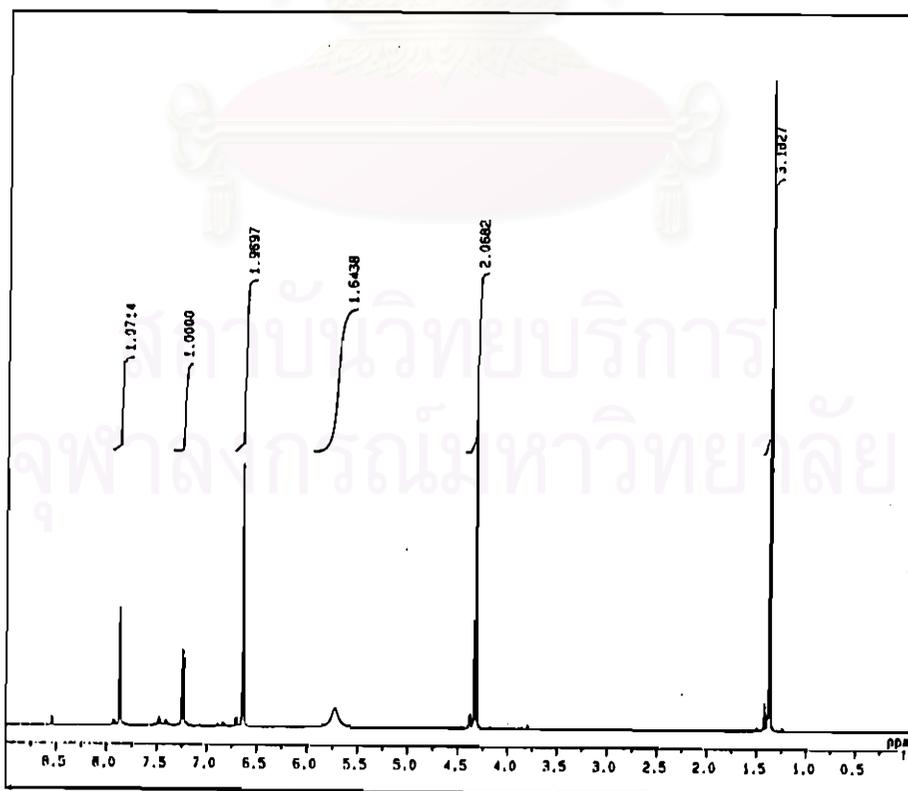


Figure 4-6 ^1H -NMR spectrum of ethyl-2-aminobenzoate phenyl azo

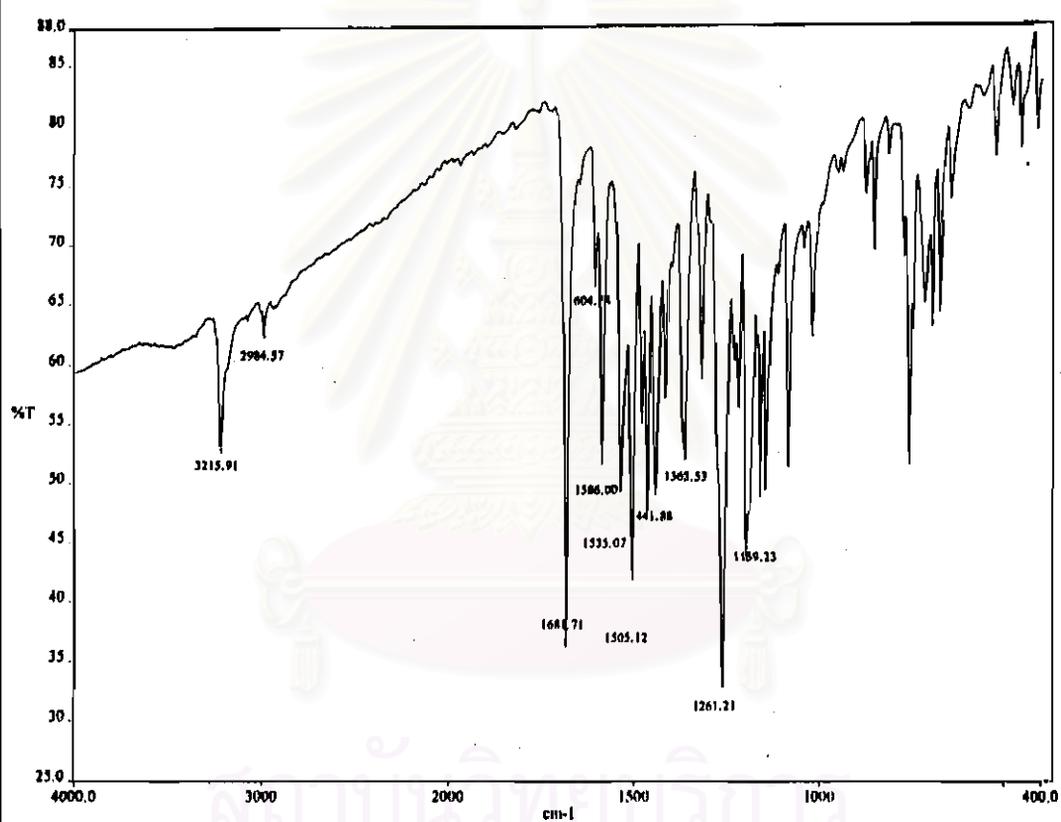


Figure 4-7 FT-IR spectrum of ethyl-2-aminobenzoate-2-nitrophenyl azo

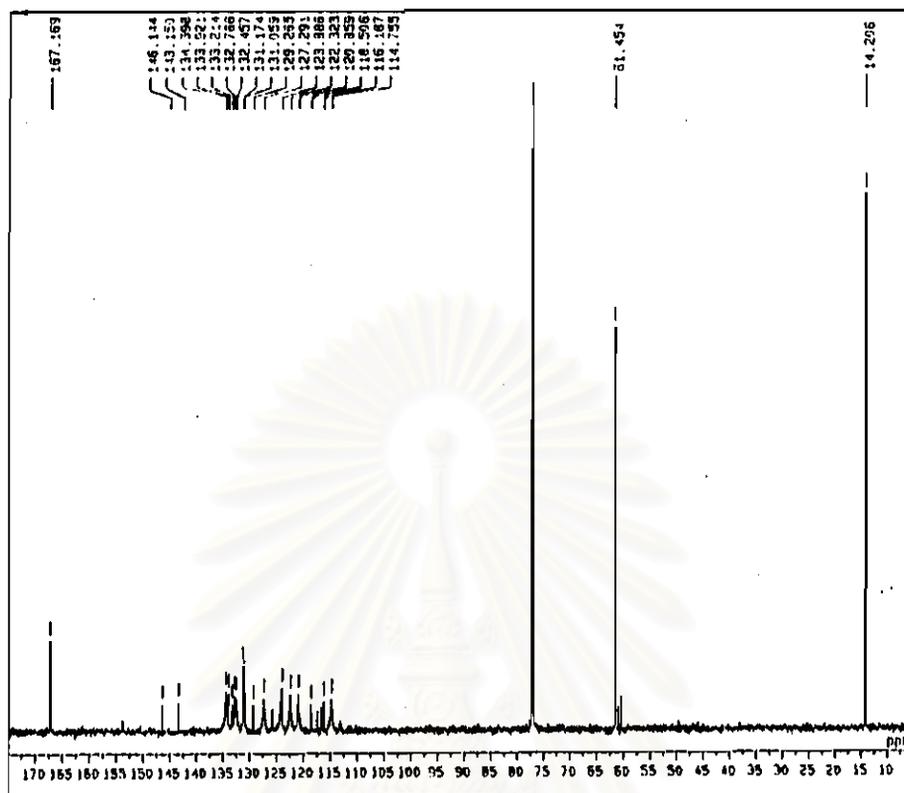


Figure 4-8 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-2-nitrophenyl azo

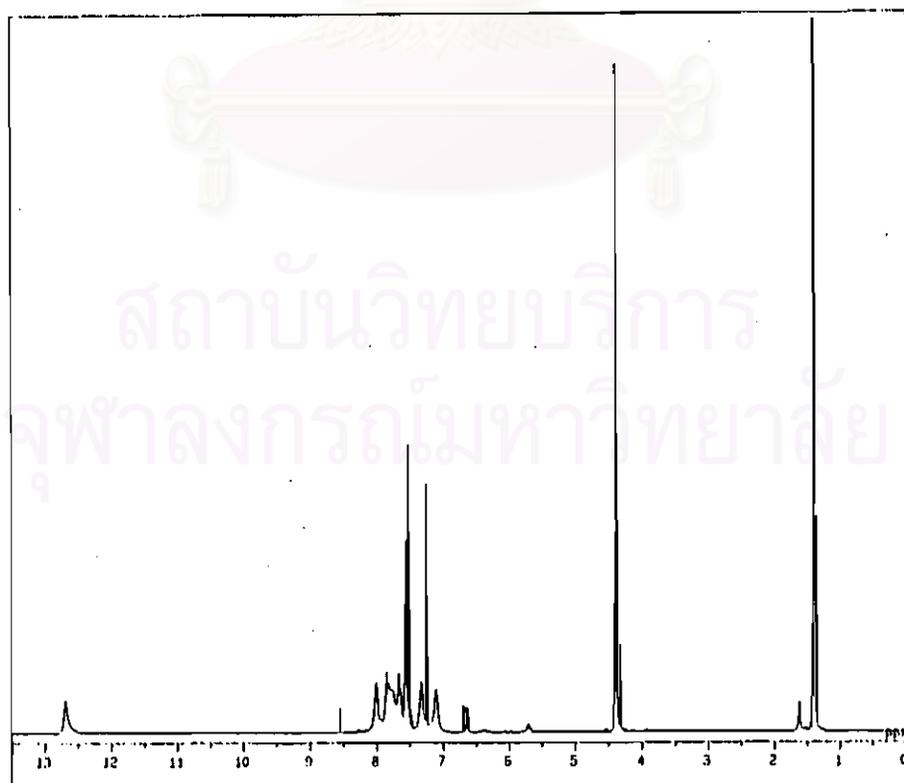


Figure 4-9 ^1H -NMR spectrum of ethyl-2-aminobenzoate-2-nitrophenyl azo

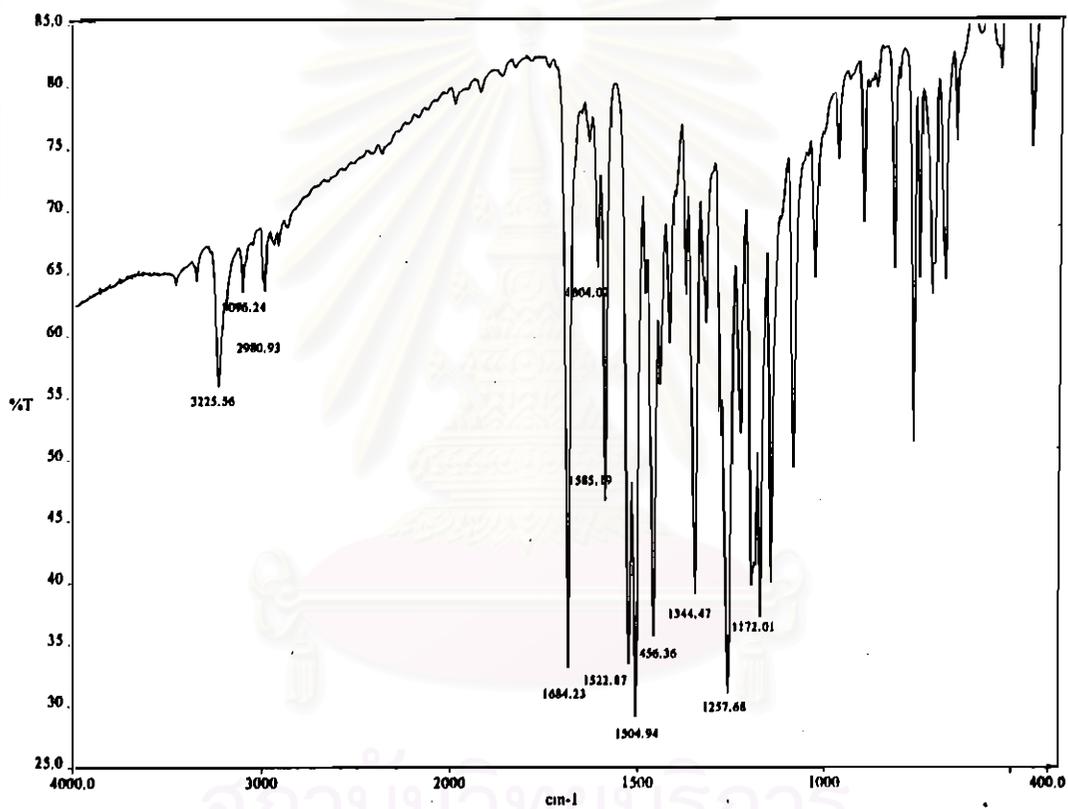


Figure 4-10 FT-IR spectrum of ethyl-2-aminobenzoate-3-nitrophenyl azo

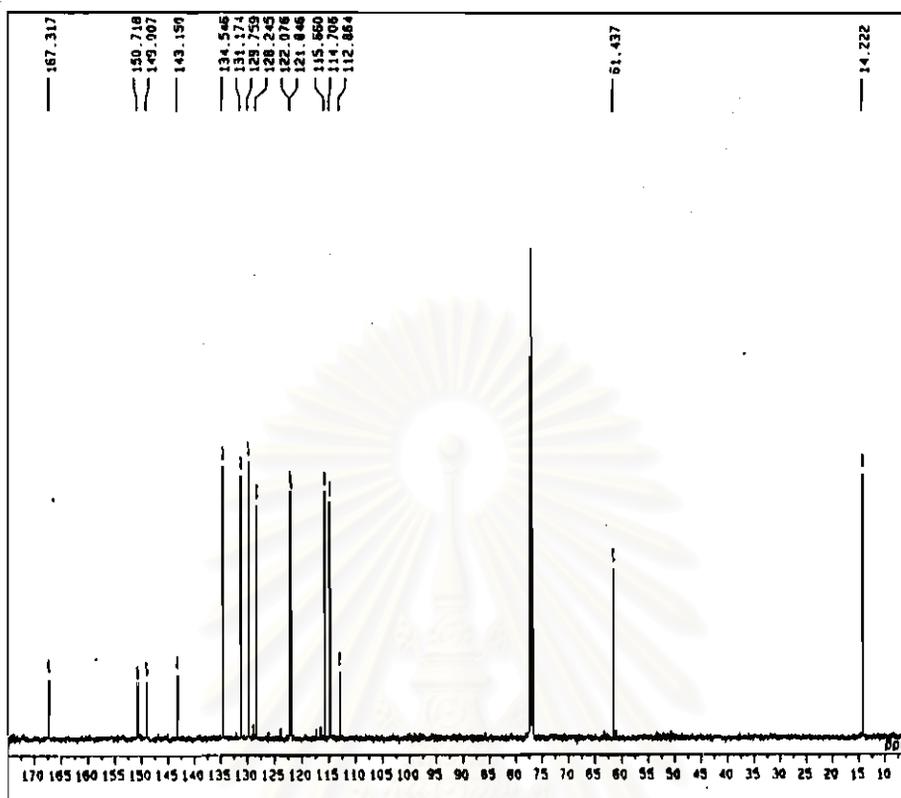


Figure 4-11 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-3-nitrophenyl azo

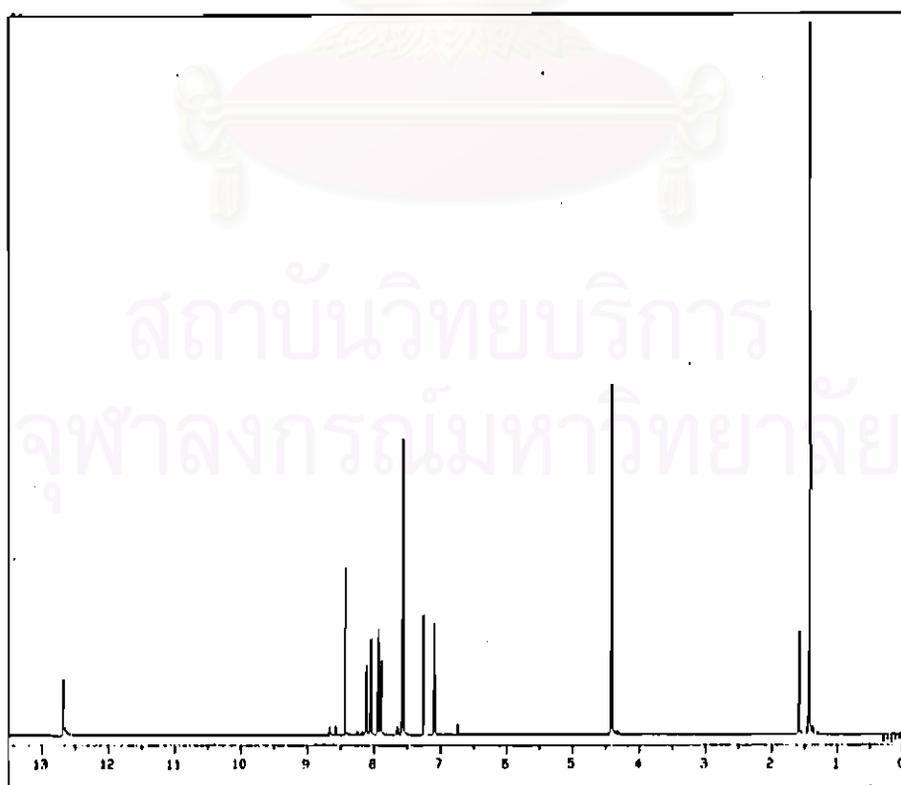


Figure 4-12 ^1H -NMR spectrum of ethyl-2-aminobenzoate-3-nitrophenyl azo

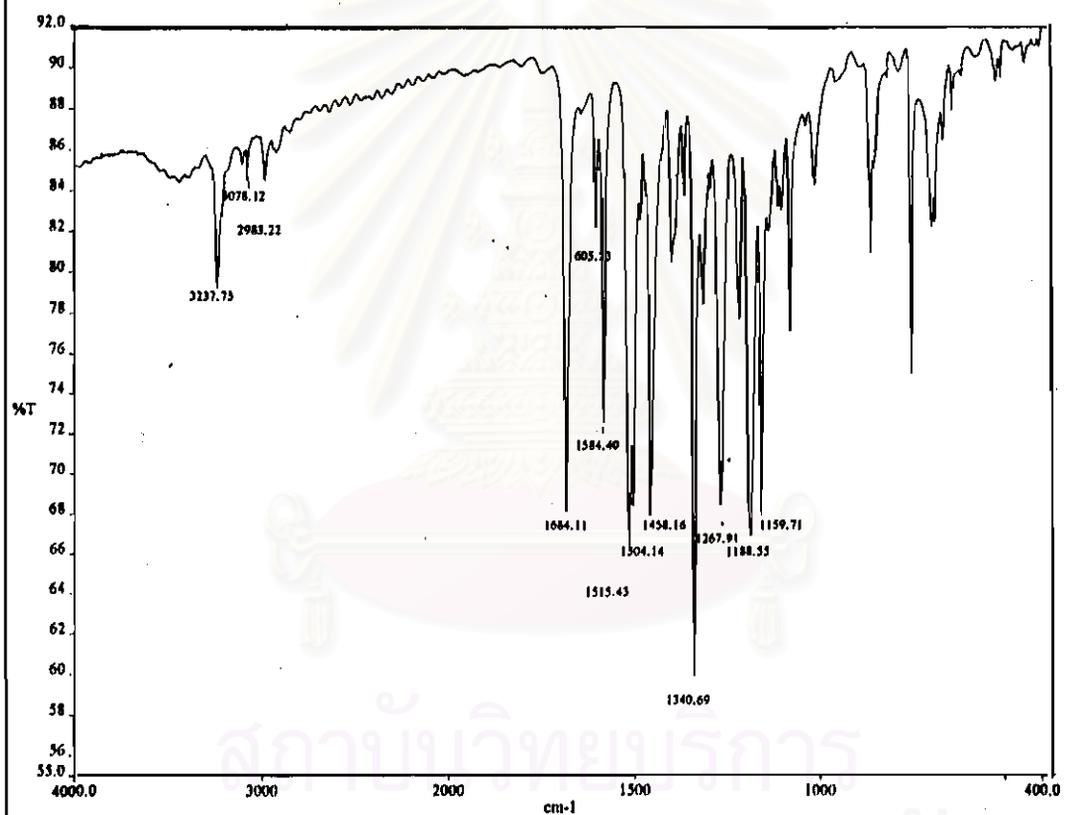


Figure 4-13 FT-IR spectrum of ethyl-2-aminobenzoate-4-nitrophenyl azo

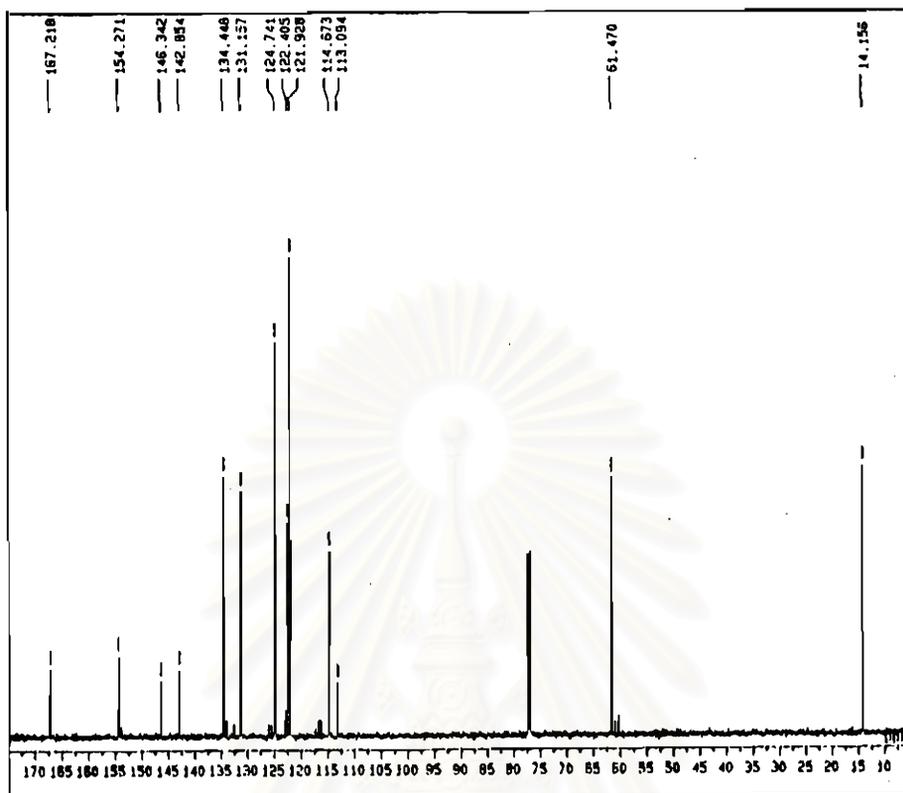


Figure 4-14 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-4-nitrophenyl azo

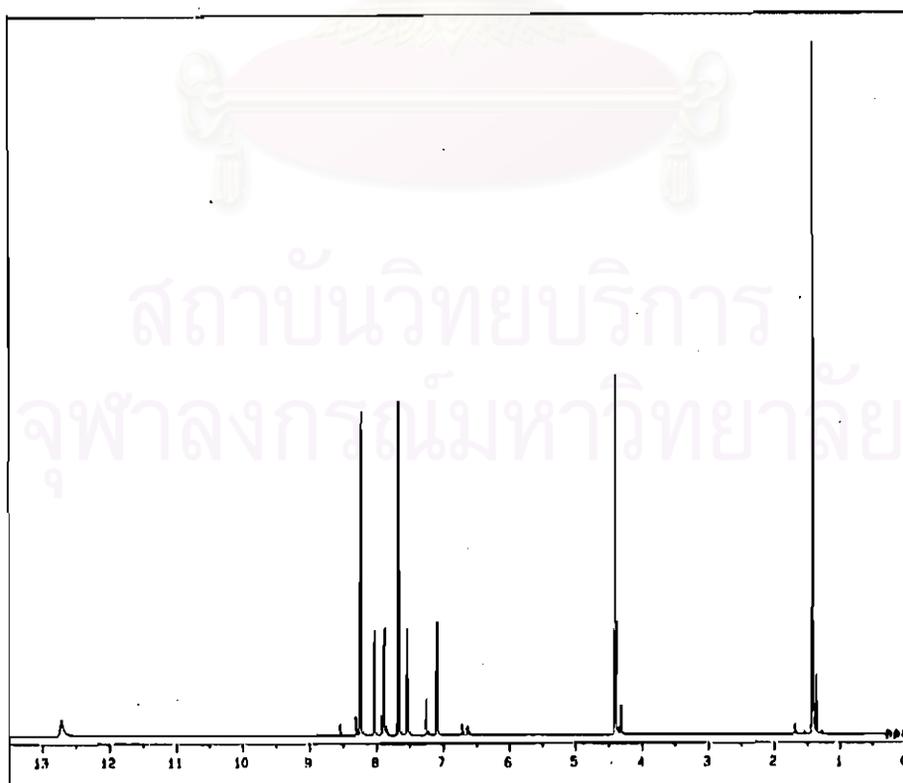


Figure 4-15 ^1H -NMR spectrum of ethyl-2-aminobenzoate-4-nitrophenyl azo

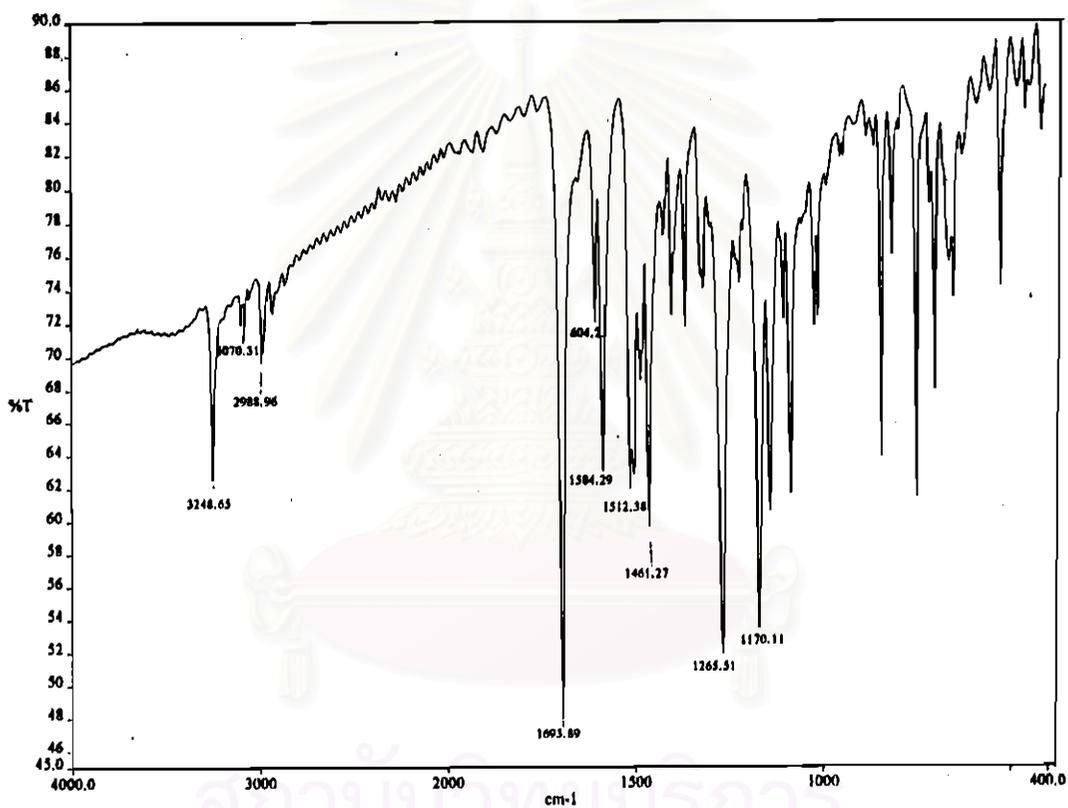


Figure 4-16 FT-IR spectrum of ethyl-2-aminobenzoate-2-chlorophenyl azo

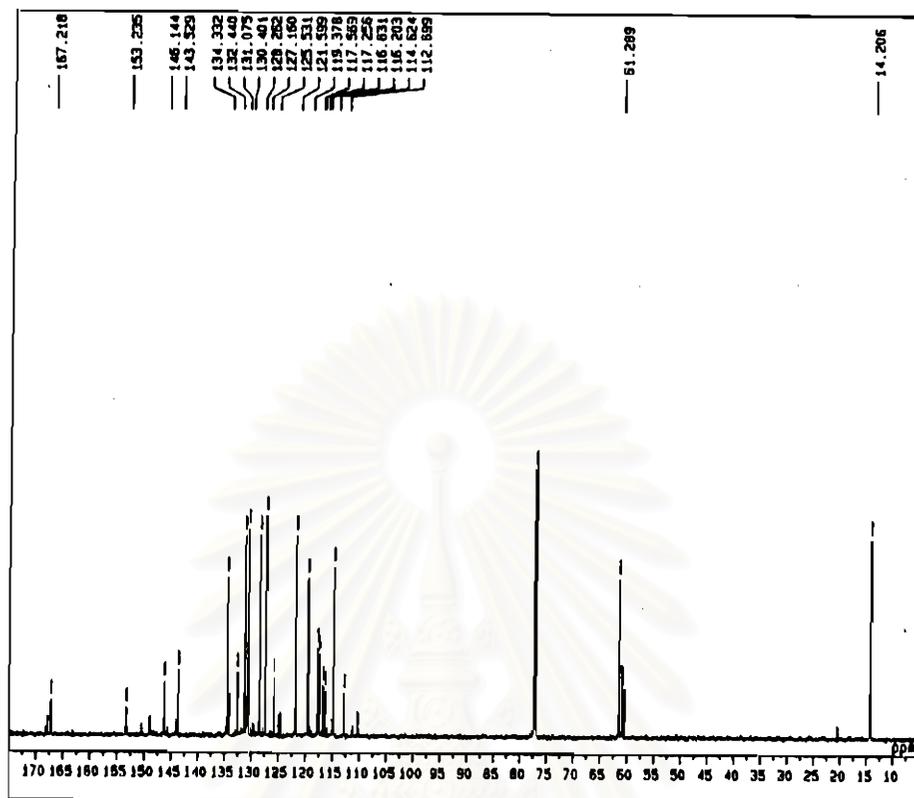


Figure 4-17 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-2-chlorophenyl azo

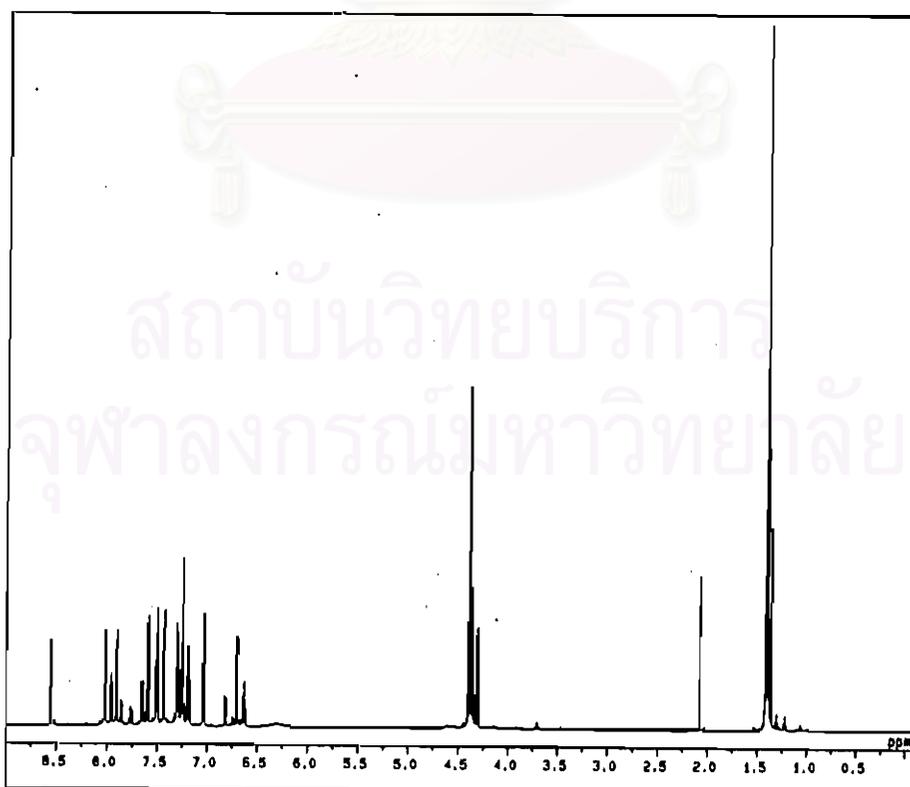


Figure 4-18 ^1H -NMR spectrum of ethyl-2-aminobenzoate-2-chlorophenyl azo

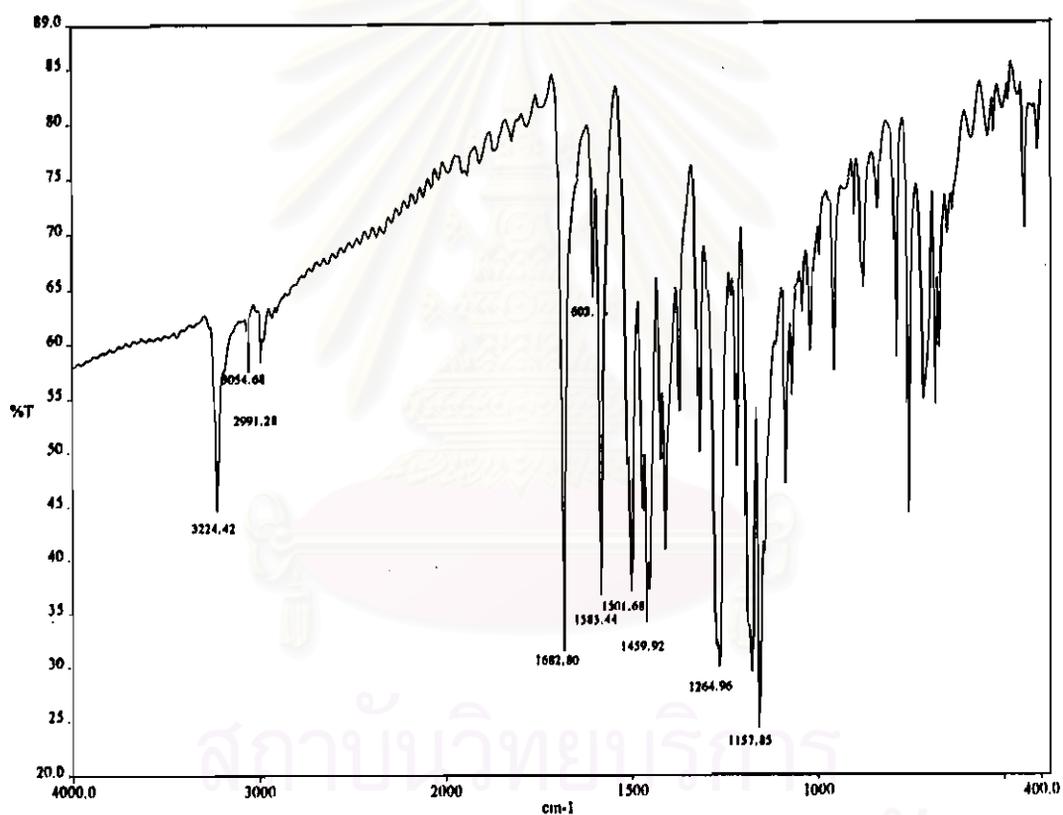


Figure 4-19 FT-IR spectrum of ethyl-2-aminobenzoate-3-chlorophenyl azo

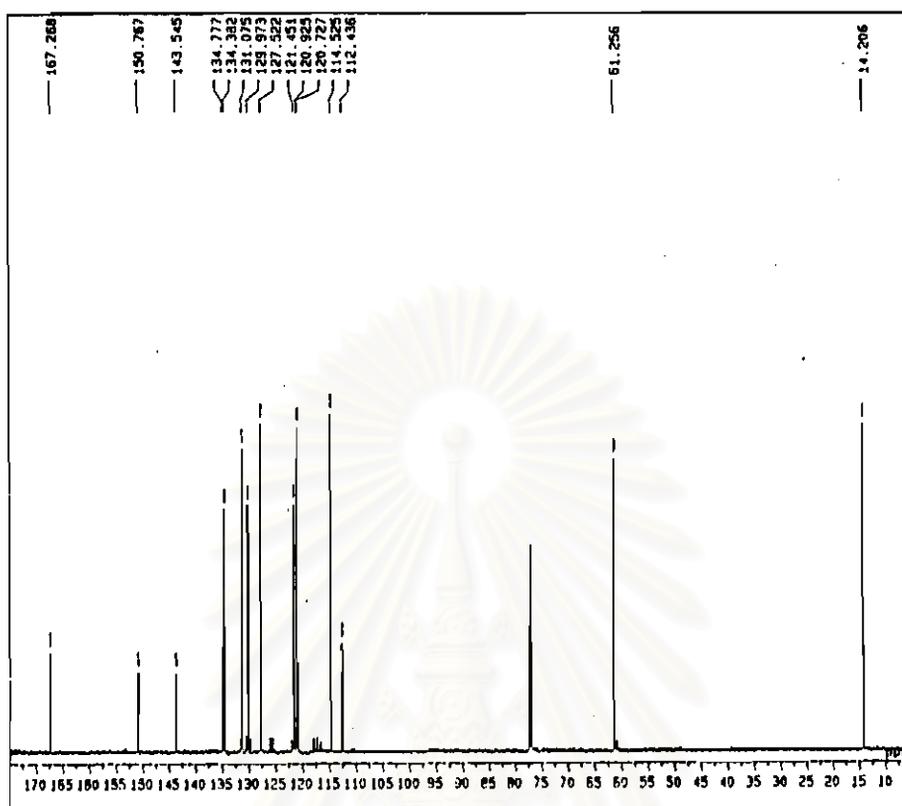


Figure 4-20 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-3-chlorophenyl azo

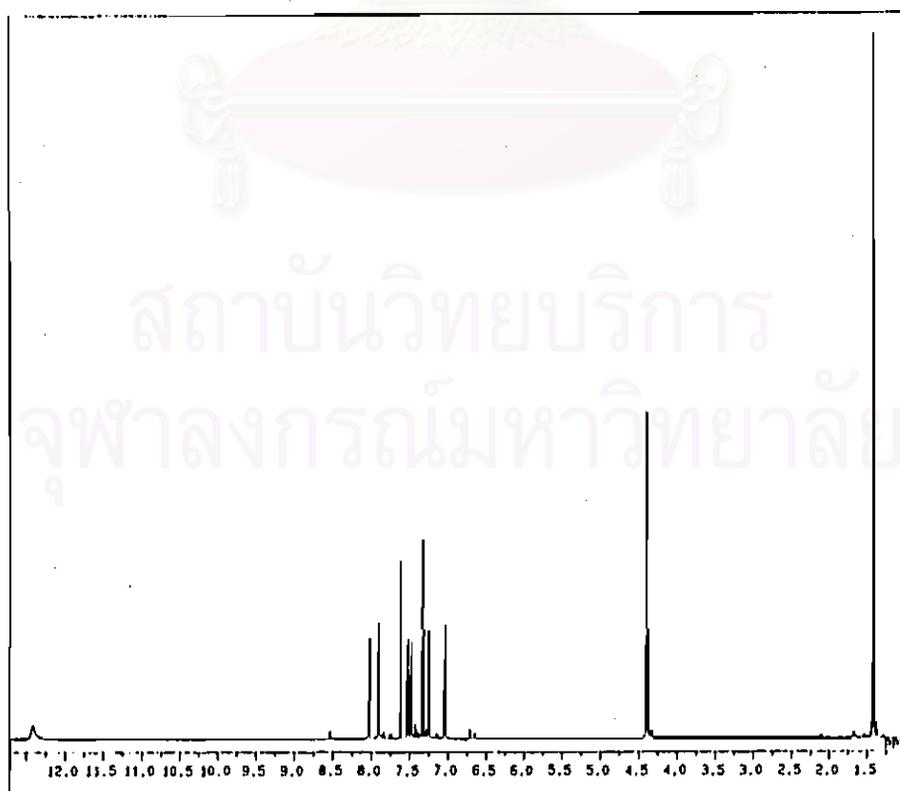


Figure 4-21 ^1H -NMR spectrum of ethyl-2-aminobenzoate-3-chlorophenyl azo

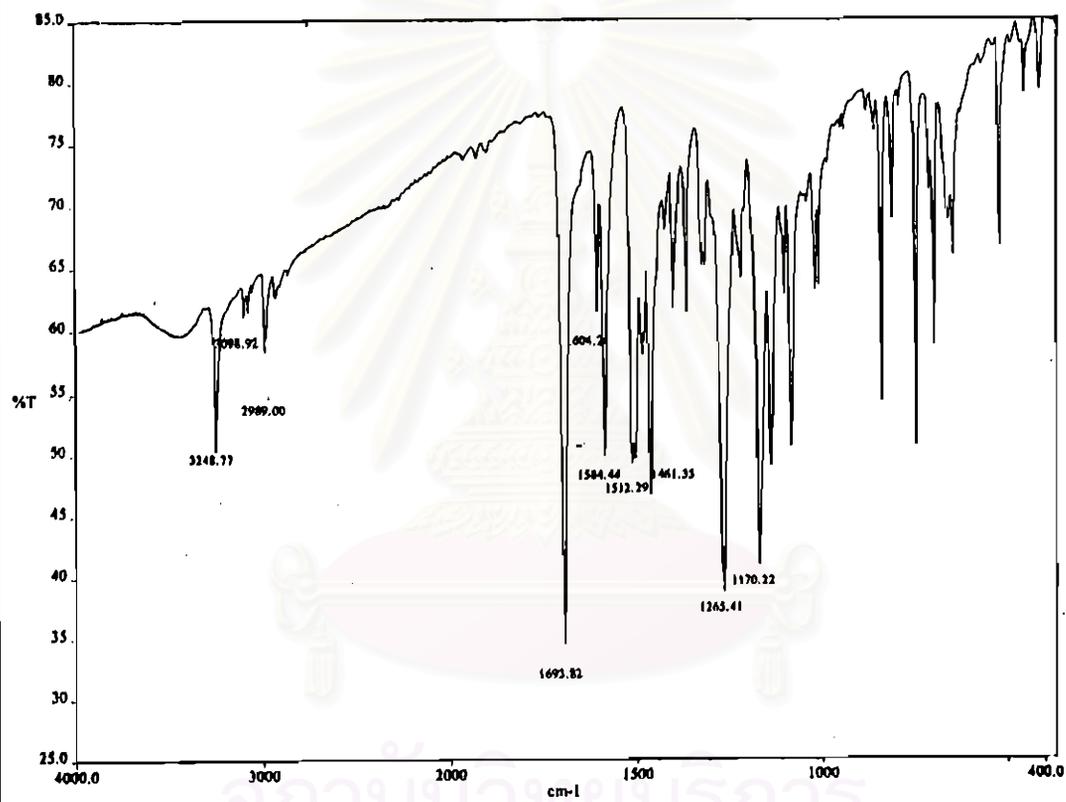


Figure 4-22 FT-IR spectrum of ethyl-2-aminobenzoate-4-chlorophenyl azo

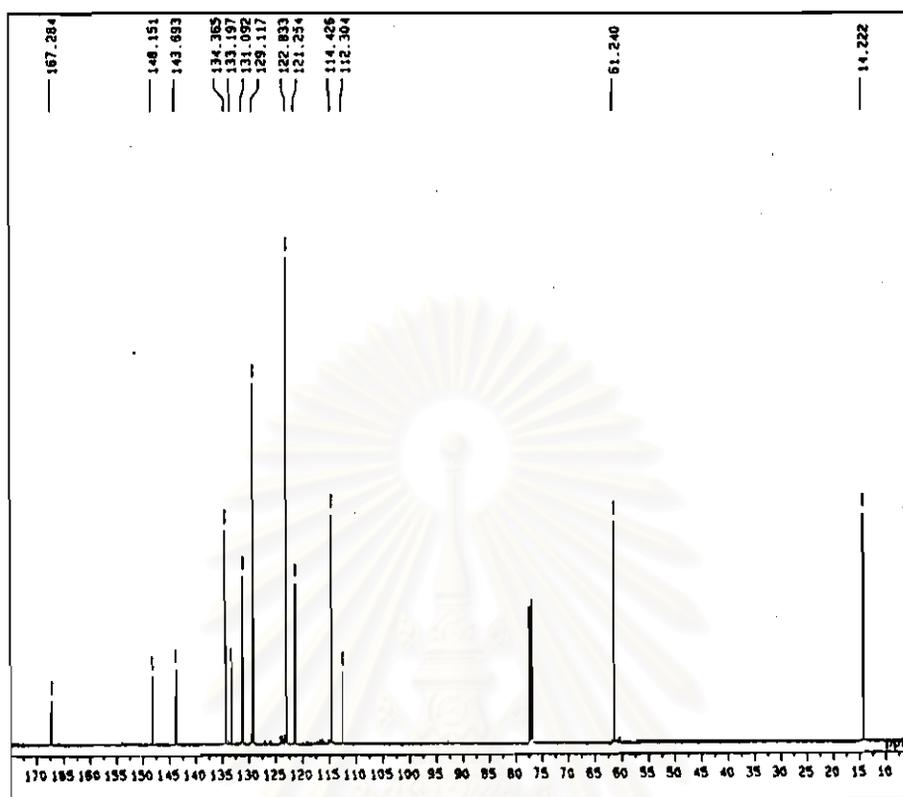


Figure 4-23 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-4-chlorophenyl azo

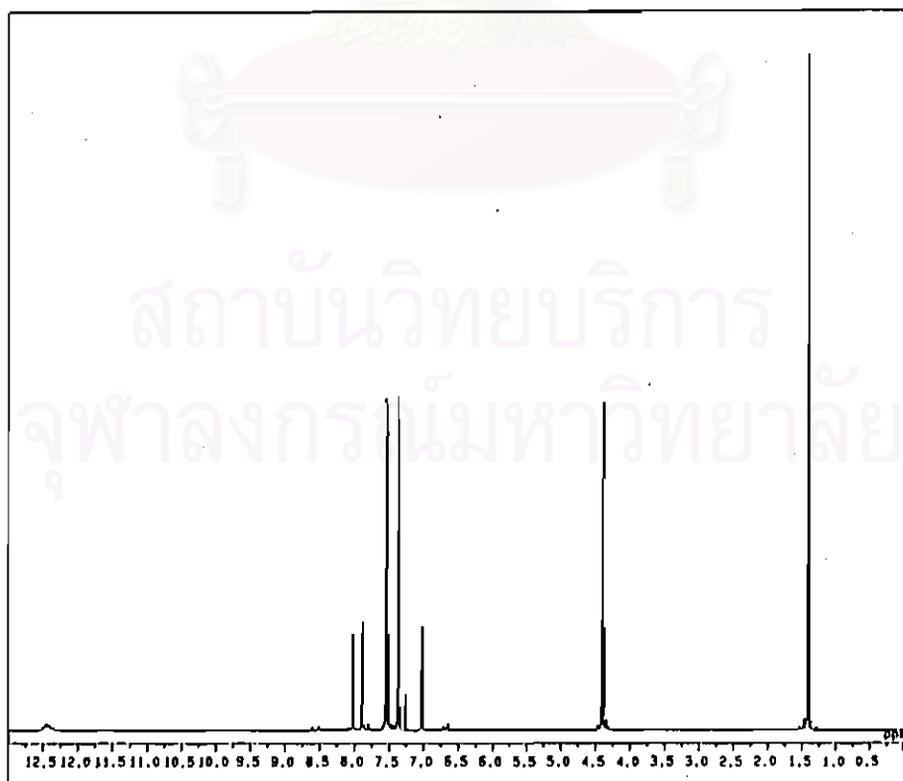


Figure 4-24 ^1H -NMR spectrum of ethyl-2-aminobenzoate-4-chlorophenyl azo

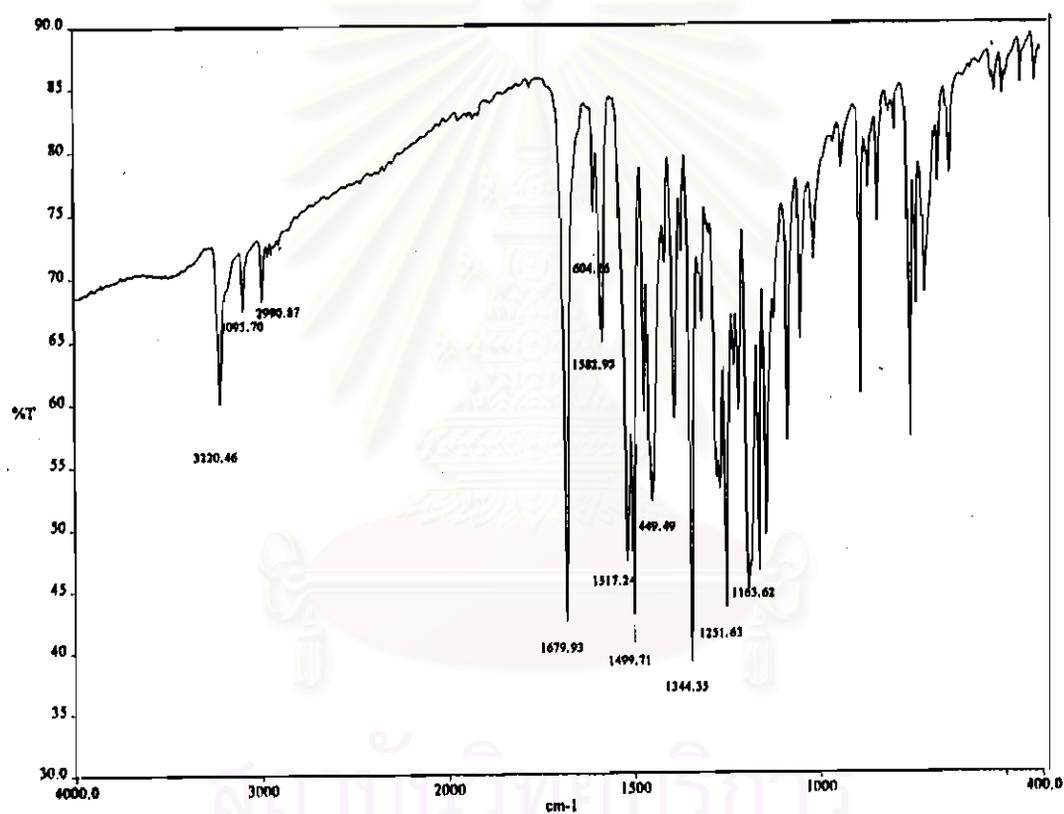


Figure 4-25 FT-IR spectrum of ethyl-2-aminobenzoate-2-chloro-4-nitrophenyl azo

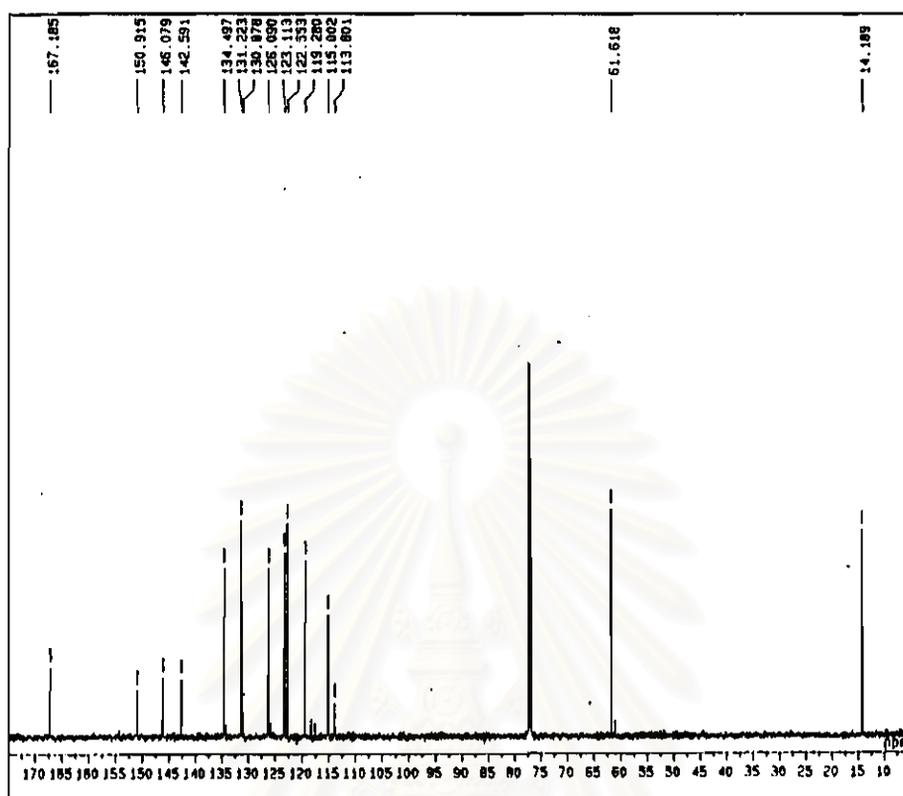


Figure 4-26 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-2-chloro-4-nitrophenyl azo

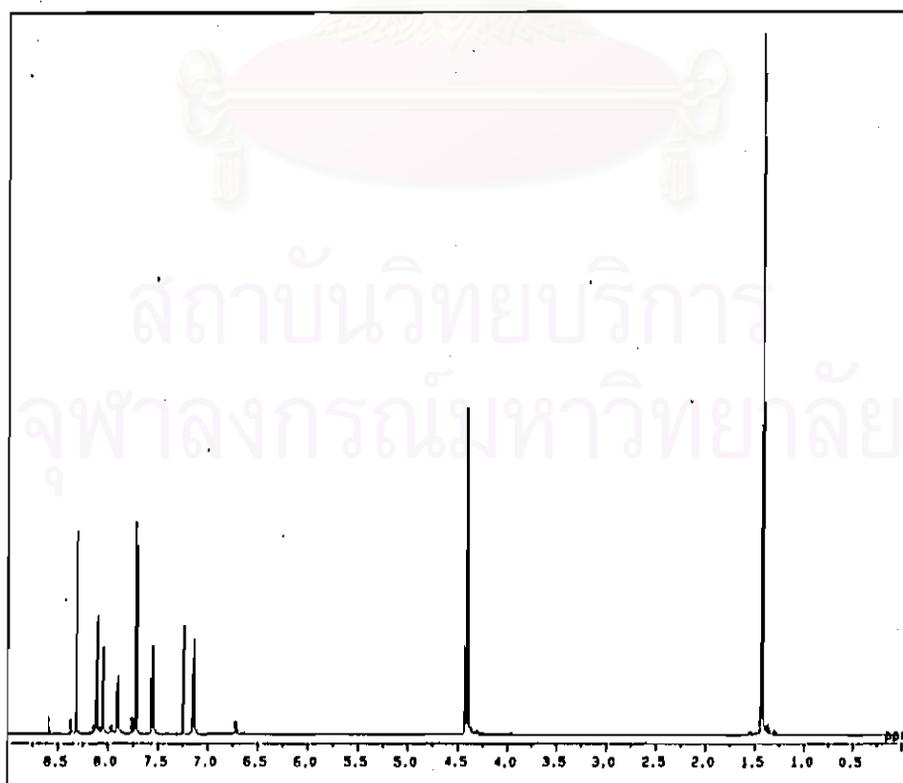


Figure 4-27 ^1H -NMR spectrum of ethyl-2-aminobenzoate-2-chloro-4-nitrophenyl azo

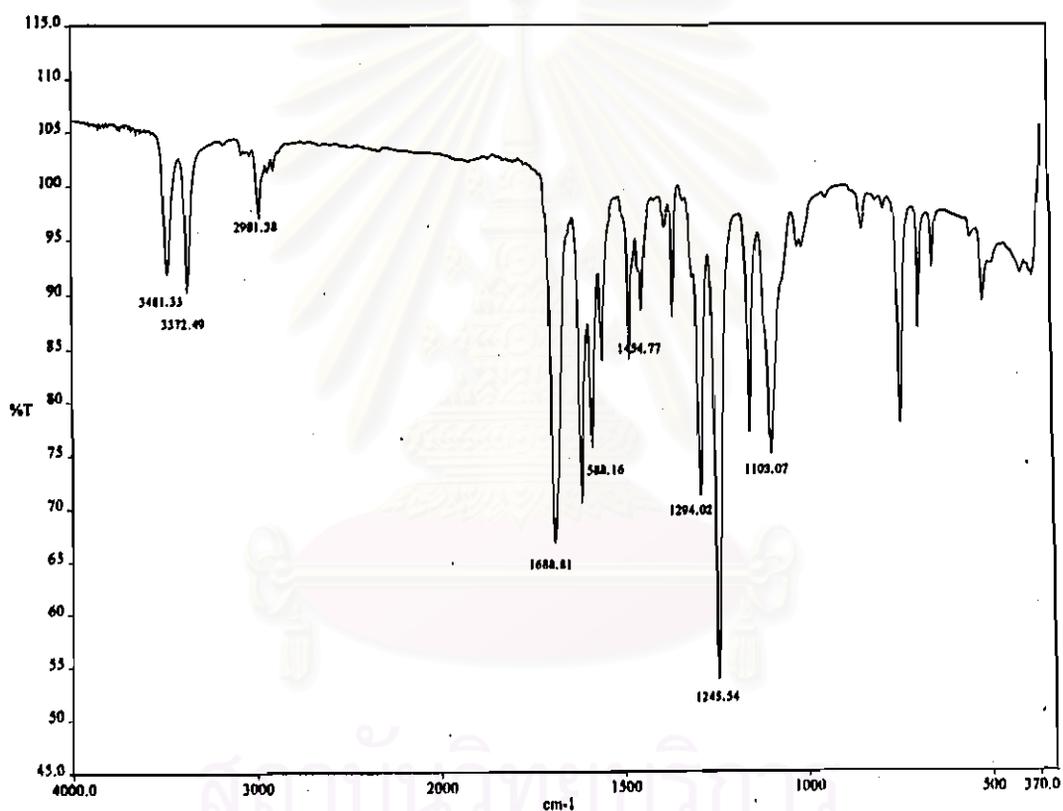


Figure 4-28 FT-IR spectrum of ethyl-2-aminobenzoate-2-methylphenyl azo

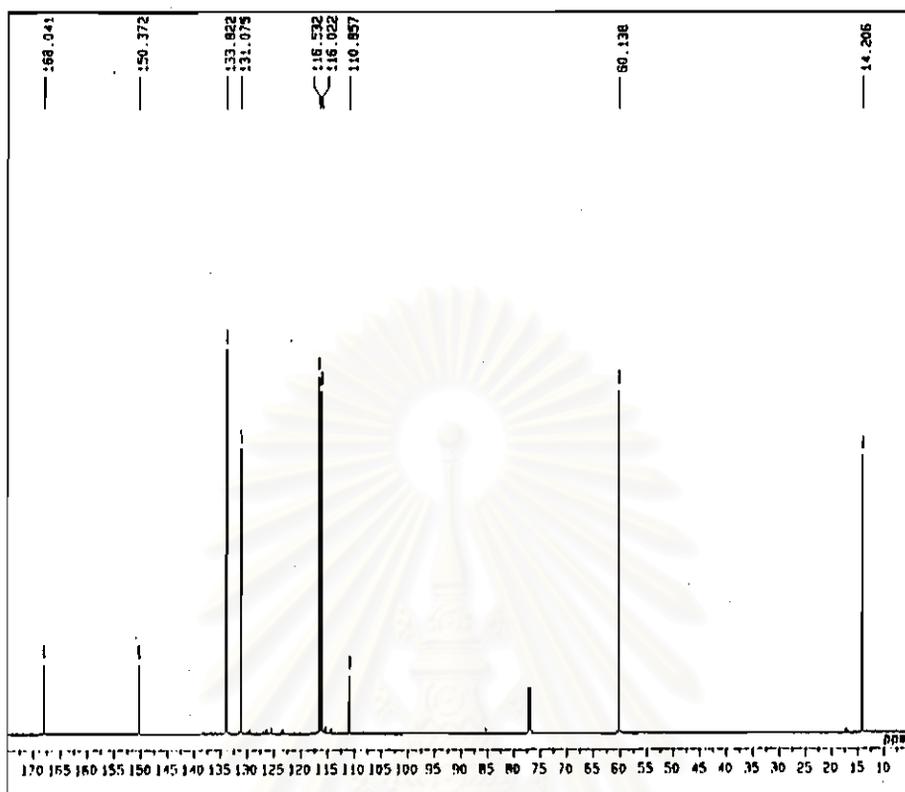


Figure 4-29 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-2-methylphenyl azo

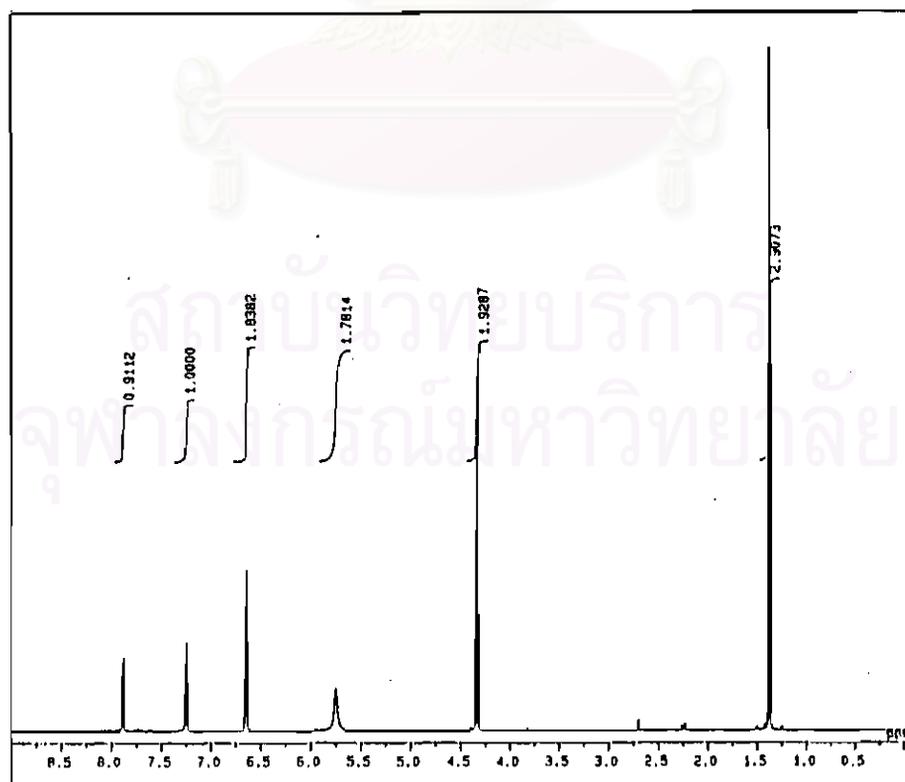


Figure 4-30 ^1H -NMR spectrum of ethyl-2-aminobenzoate-2-methylphenyl azo

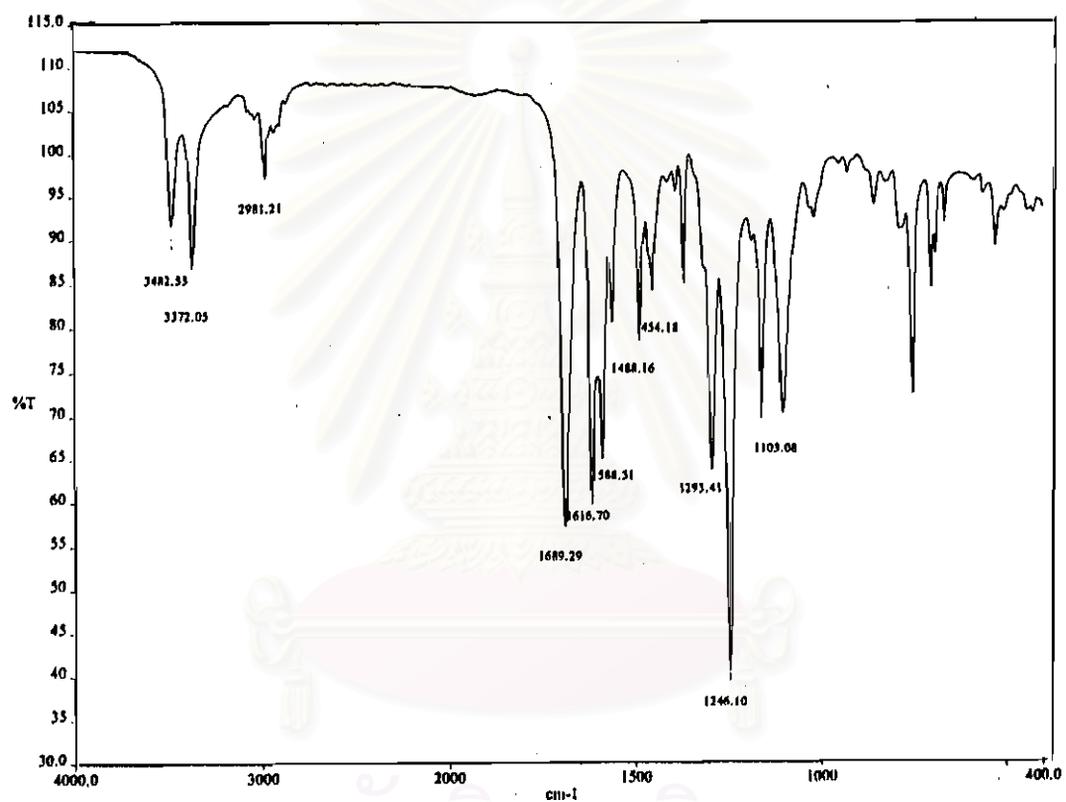


Figure 4-31 FT-IR spectrum of ethyl-2-aminobenzoate-3-methylphenyl azo

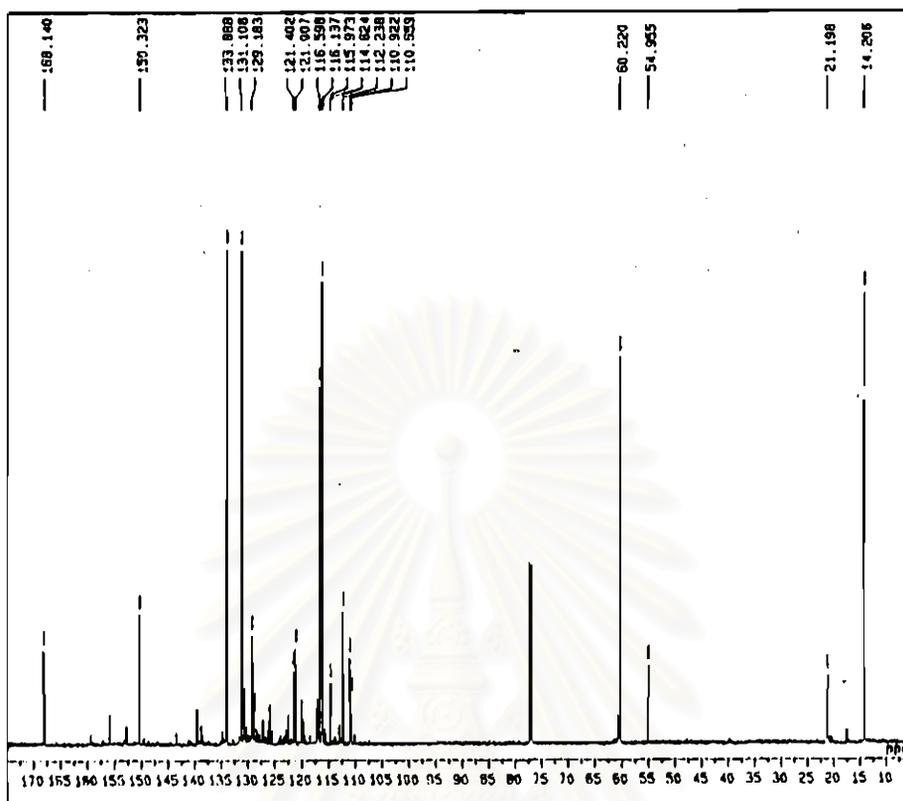


Figure 4-32 ^{13}C -NMR spectrum of ethyl-2-aminobenzoate-3-methylphenyl azo

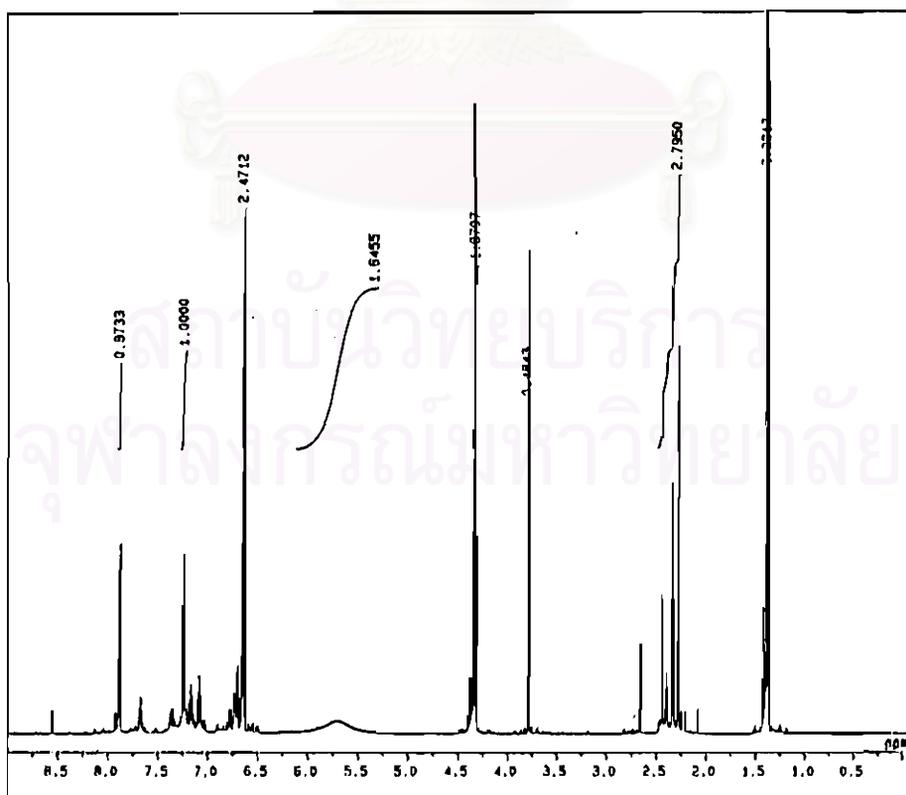


Figure 4-33 ^1H -NMR spectrum of ethyl-2-aminobenzoate-3-methylphenyl azo

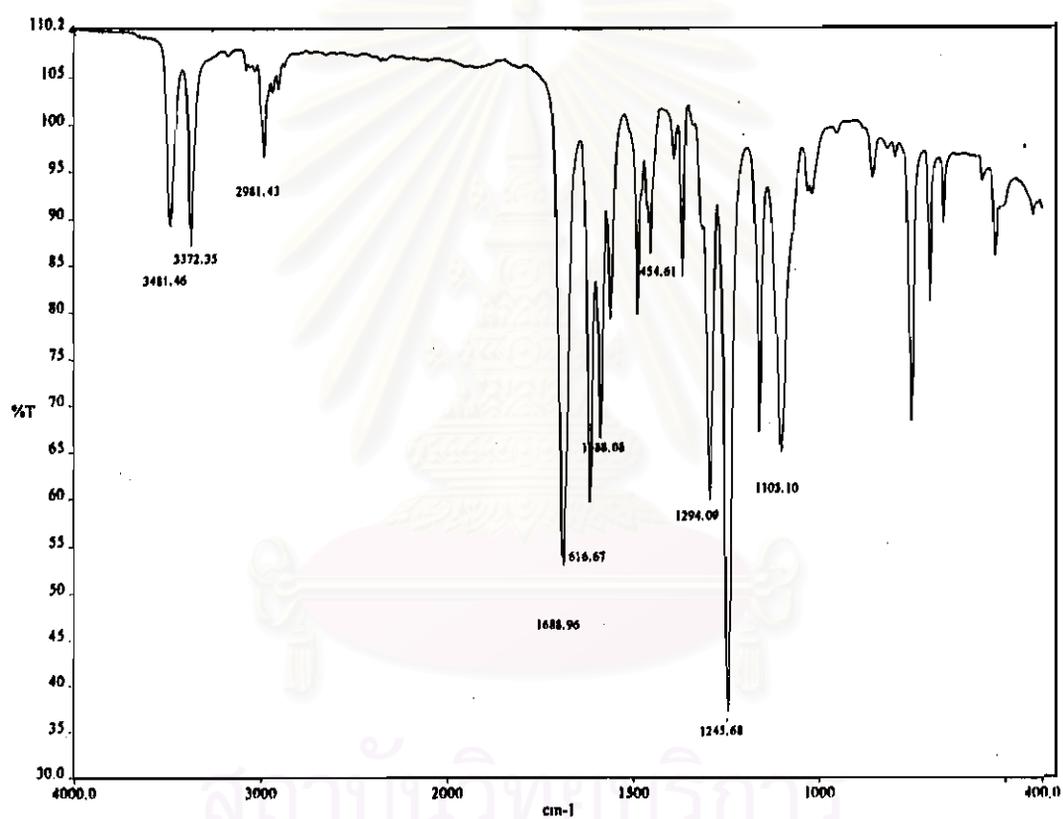


Figure 4-34 FT-IR spectrum of ethyl-2-aminobenzoate-4-methylphenyl azo

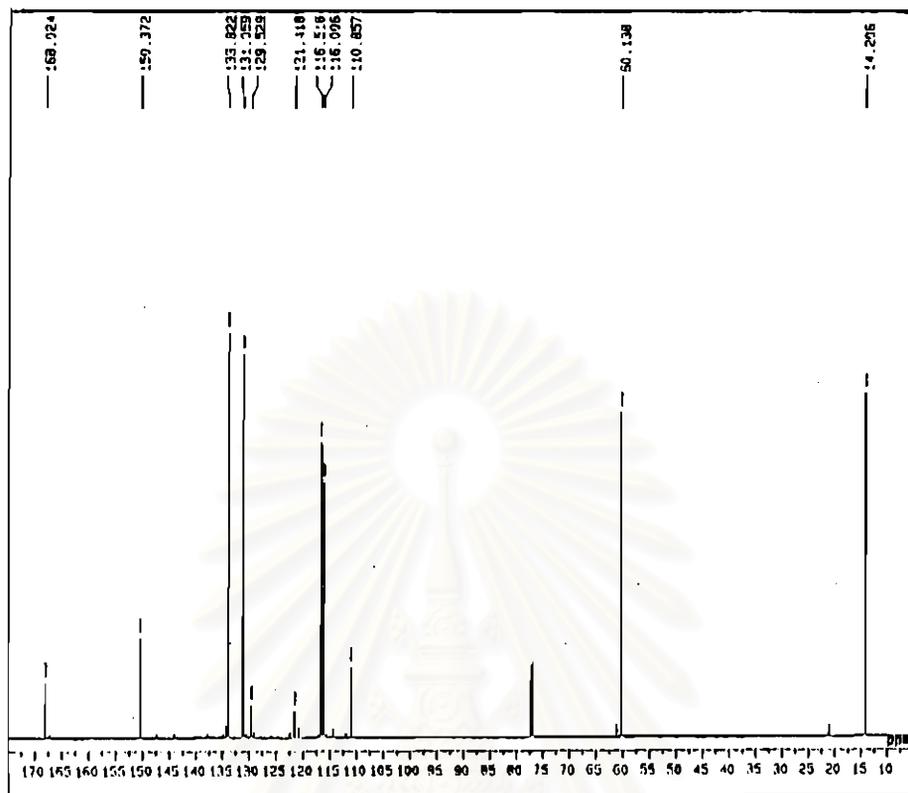


Figure 4-35 $^{13}\text{C-NMR}$ spectrum of ethyl-2-aminobenzoate-4-methylphenyl azo

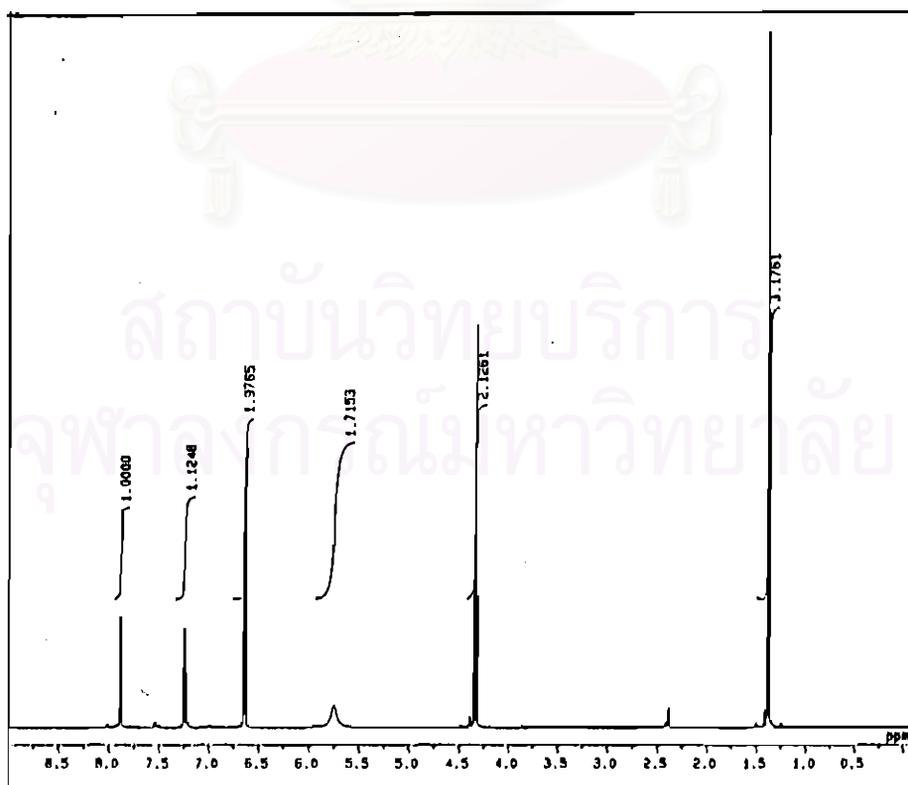


Figure 4-36 $^1\text{H-NMR}$ spectrum of ethyl-2-aminobenzoate-4-methylphenyl azo

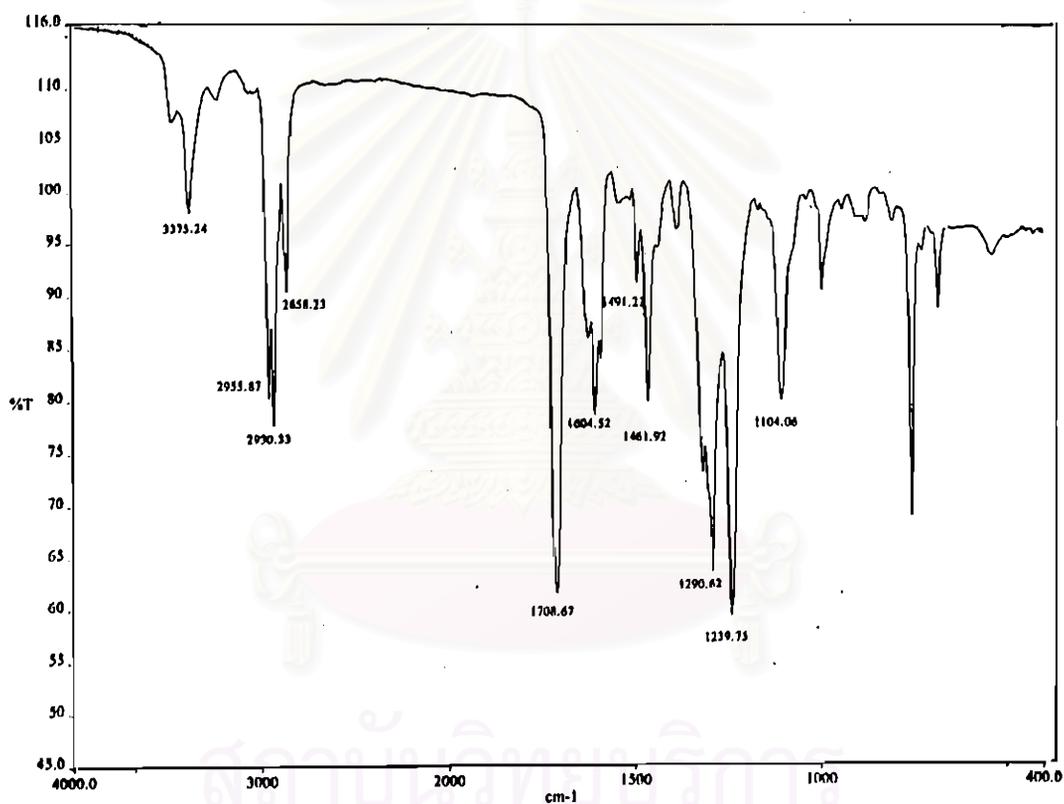


Figure 4-37 FT-IR spectrum of hexyl-3-aminobenzoate phenyl azo

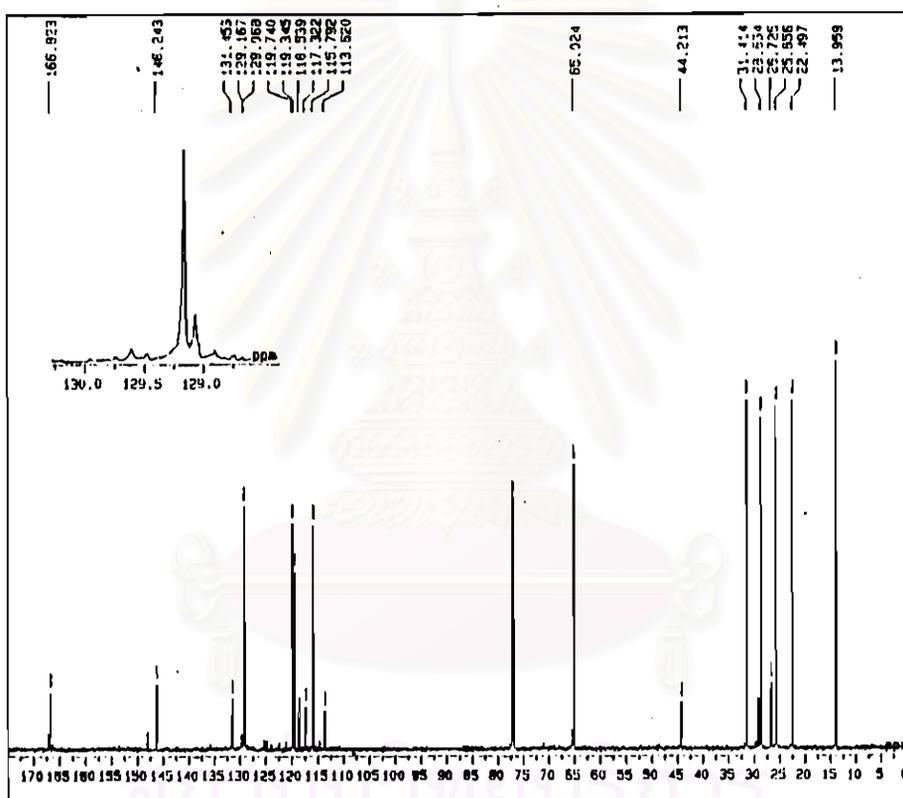


Figure 4-38 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate phenyl azo

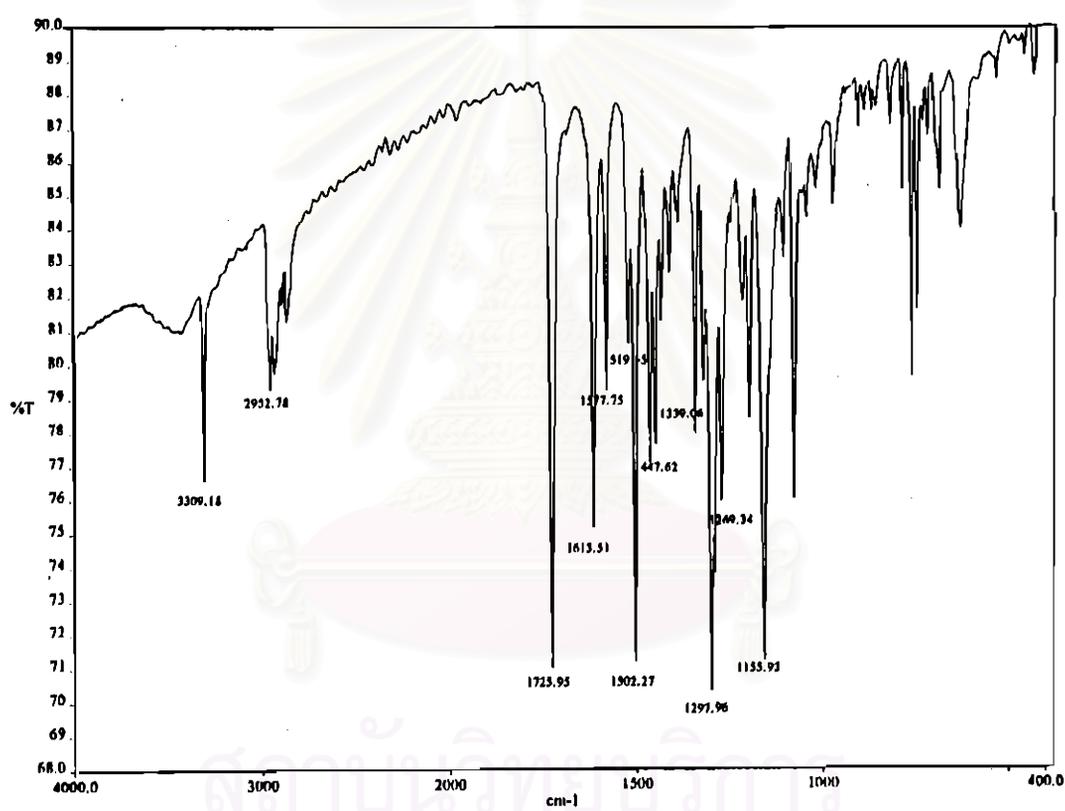


Figure 4-39 FT-IR spectrum of hexyl-3-aminobenzoate-2-nitrophenyl azo

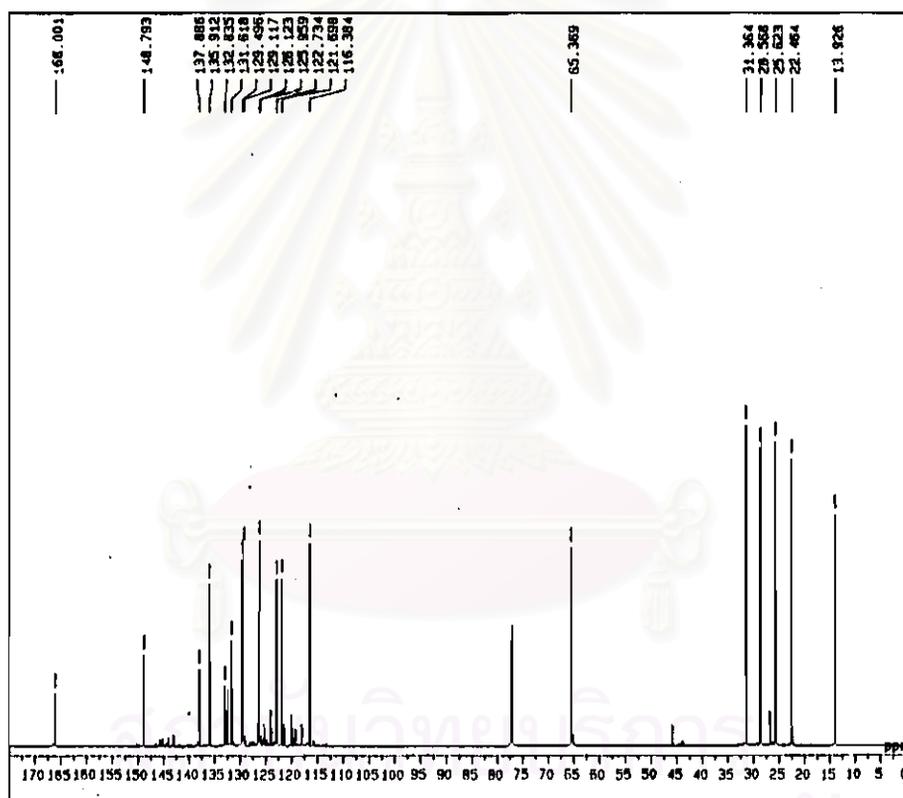


Figure 4-40 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-2-nitrophenyl azo

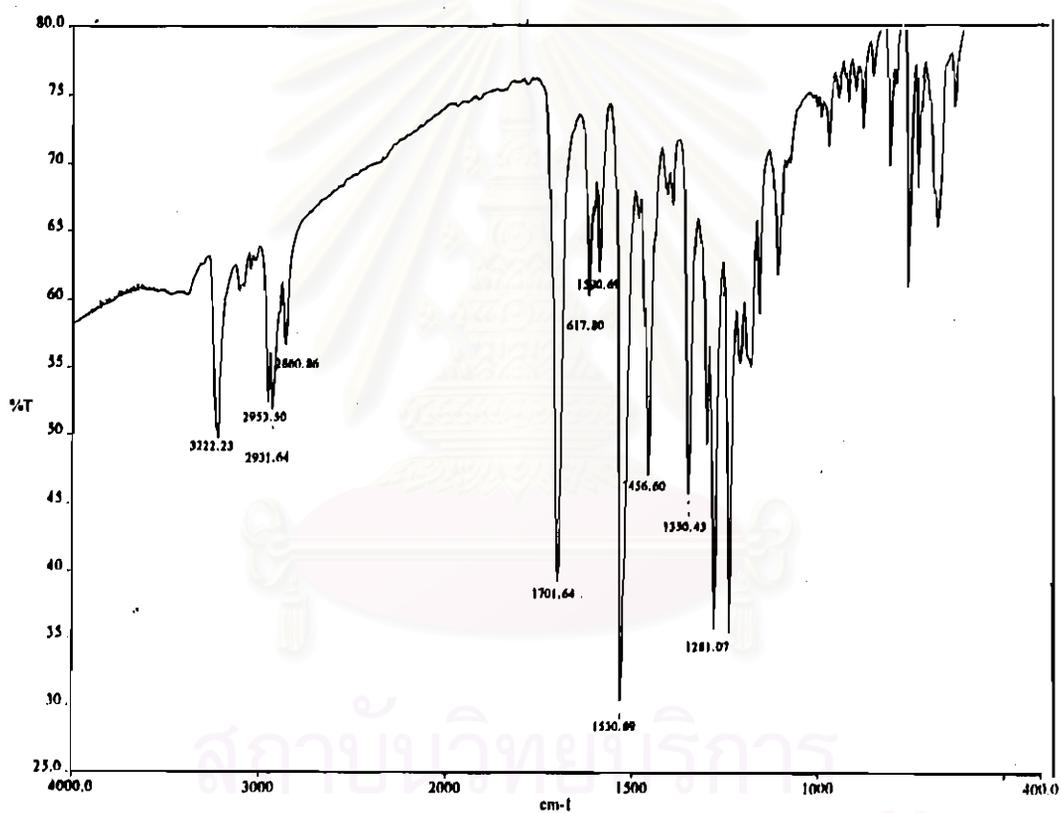


Figure 4-41 FT-IR spectrum of hexyl-3-aminobenzoate-3-nitrophenyl azo

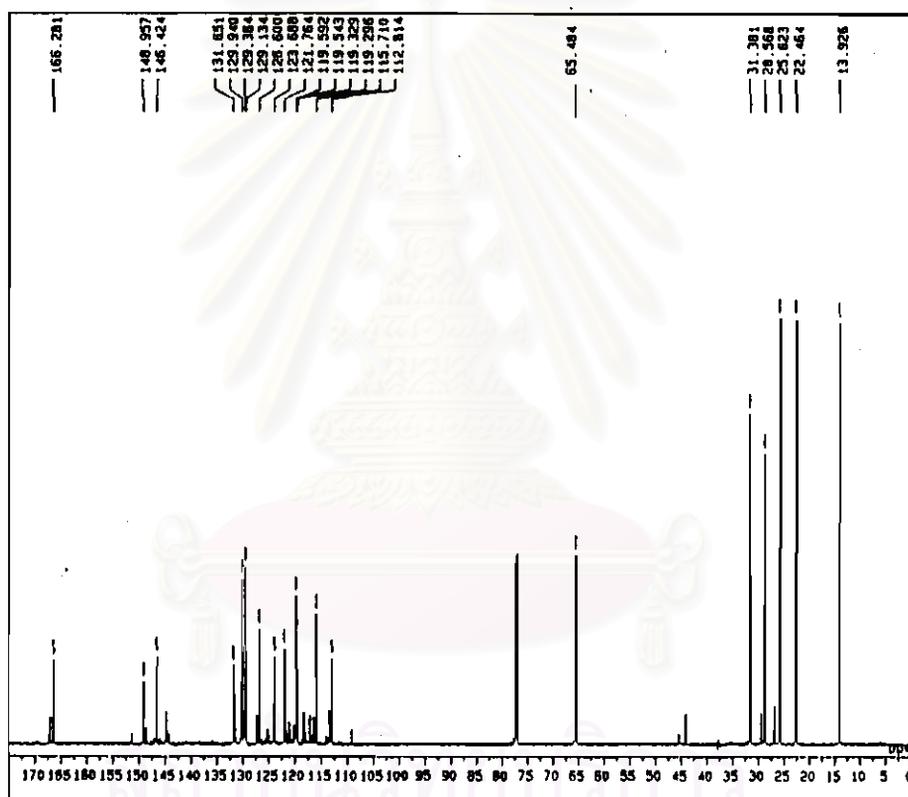


Figure 4-42 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-3-nitrophenyl azo

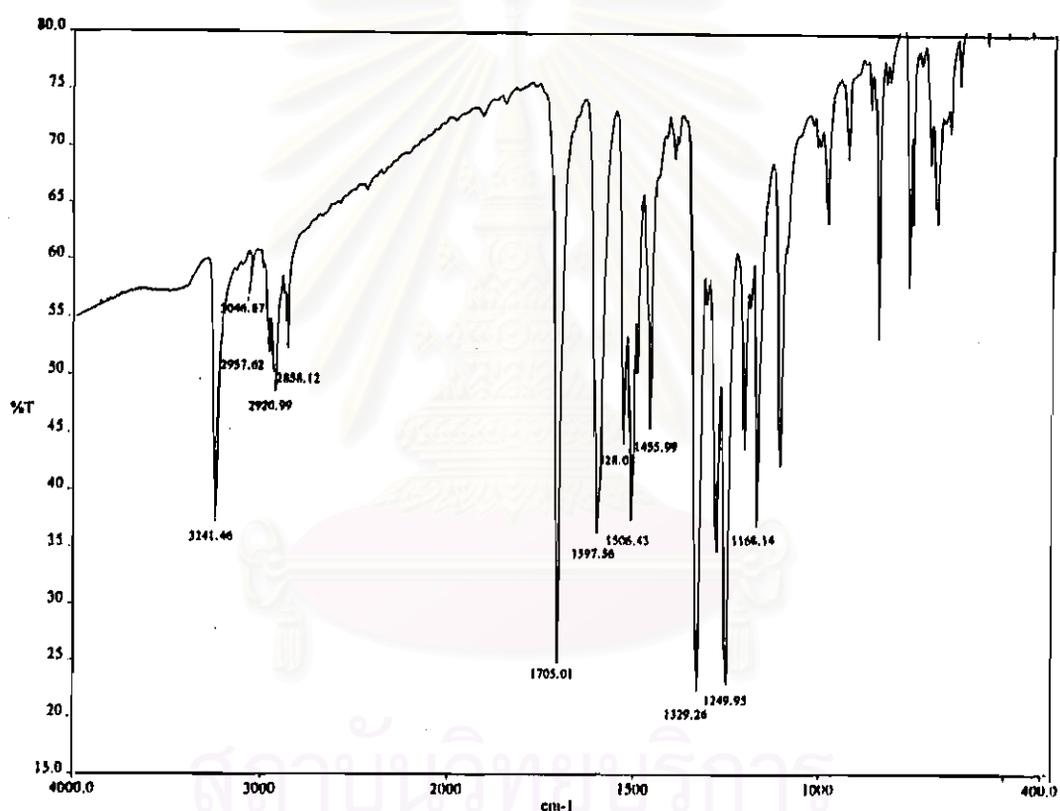


Figure 4-43 FT-IR spectrum of hexyl-3-aminobenzoate-4-nitrophenyl azo

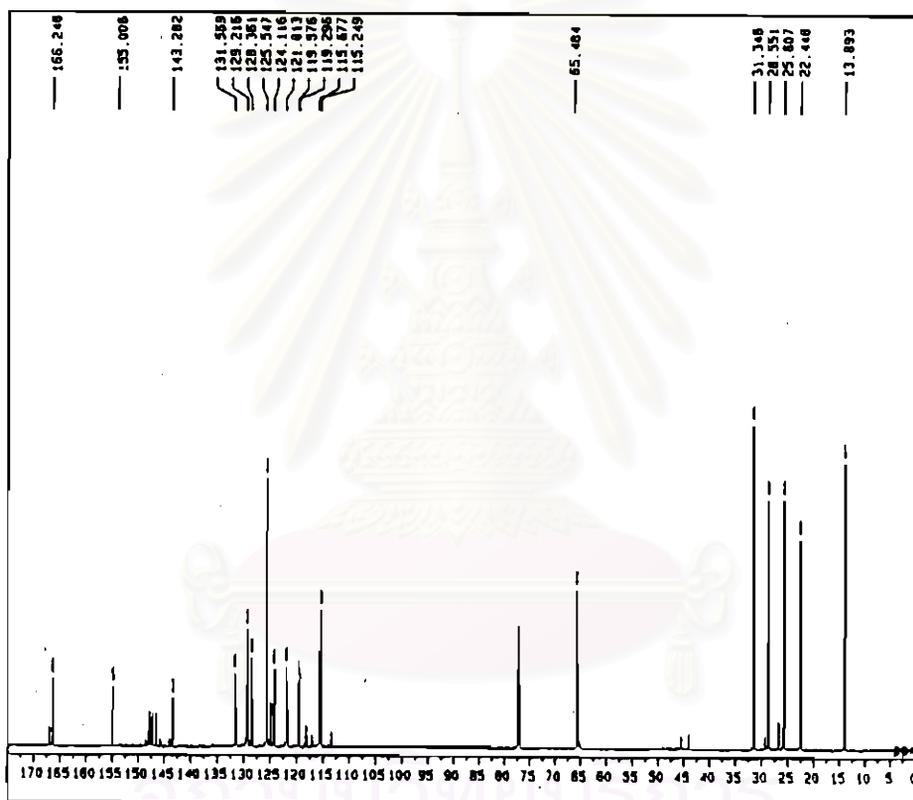


Figure 4-44 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-4-nitrophenyl azo

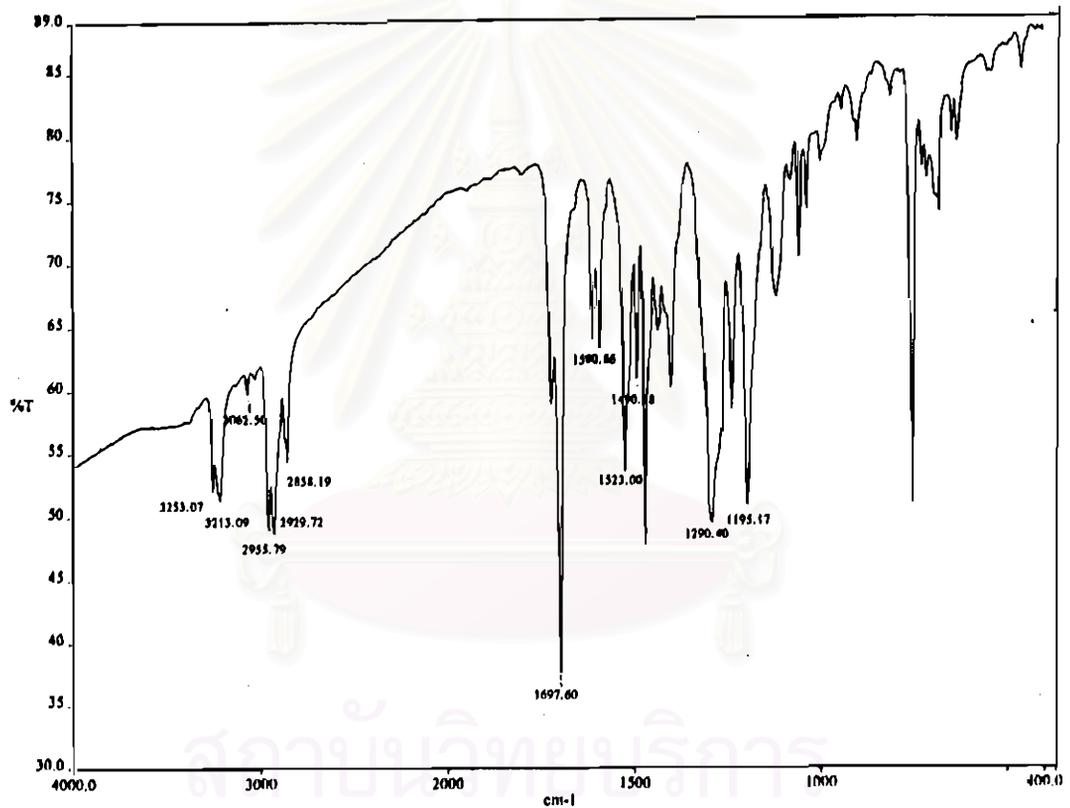


Figure 4-45 FT-IR spectrum of hexyl-3-aminobenzoate-2-chlorophenyl azo

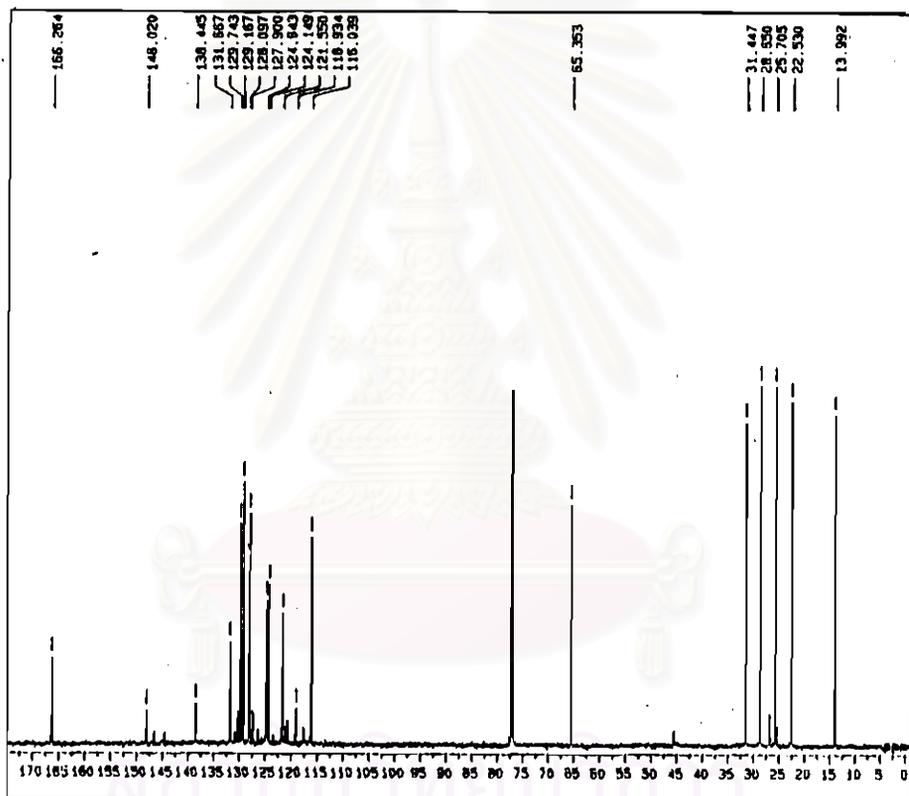


Figure 4-46 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-2-chlorophenyl azo

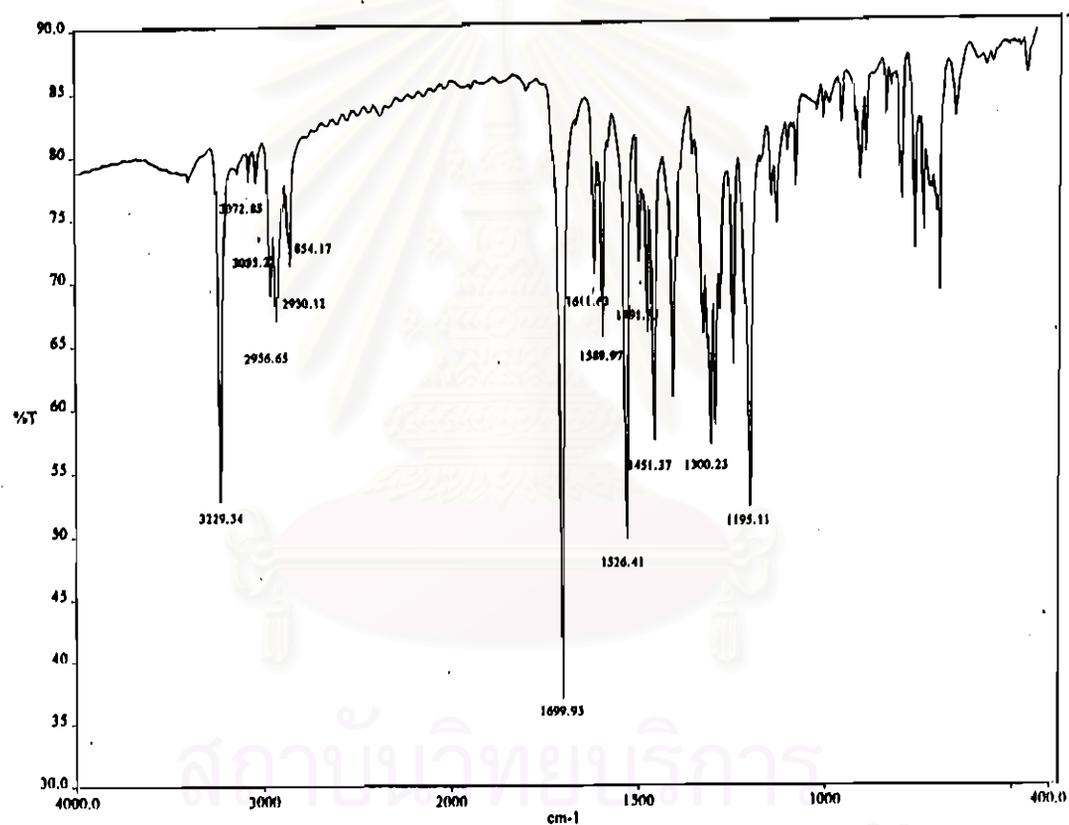


Figure 4-47 FT-IR spectrum of hexyl-3-aminobenzoate-3-chlorophenyl azo

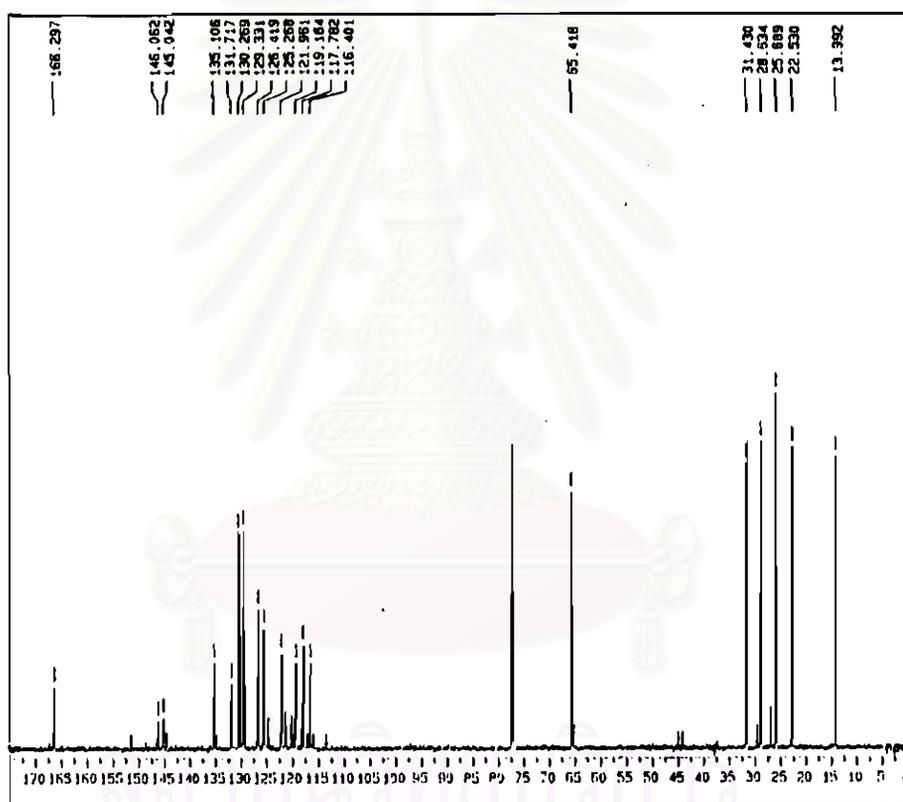


Figure 4-48 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-3-chlorophenyl azo

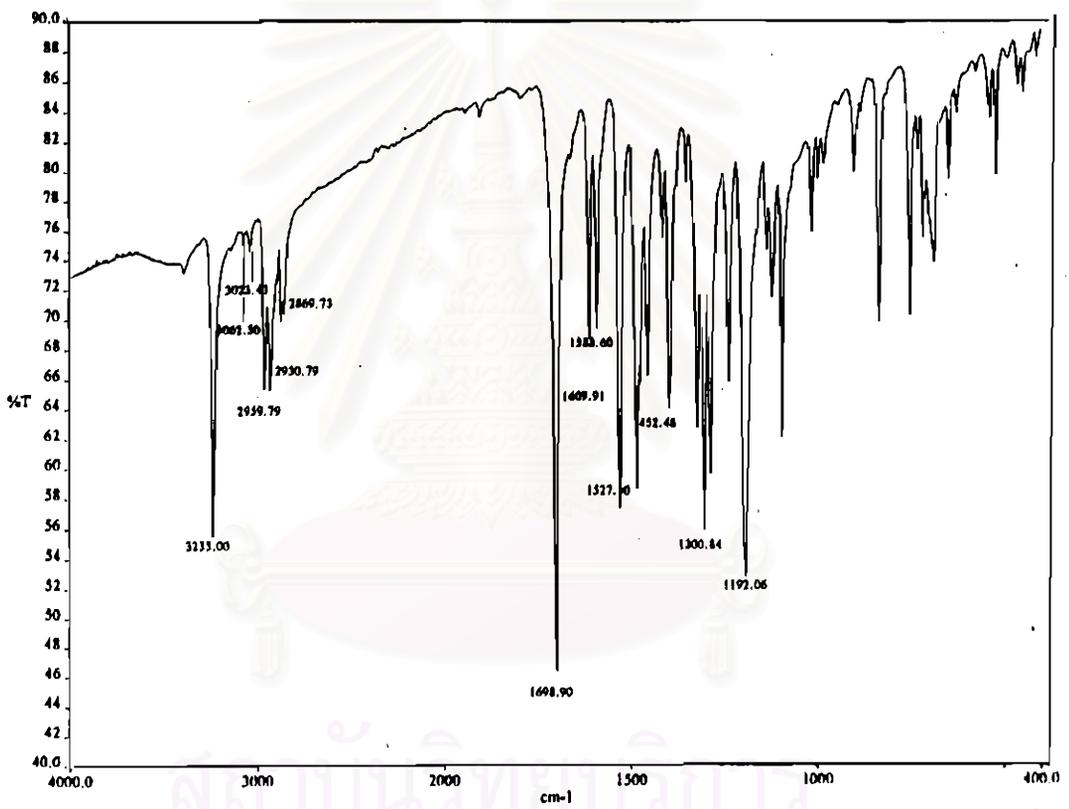


Figure 4-49 FT-IR spectrum of hexyl-3-aminobenzoate-4-chlorophenyl azo

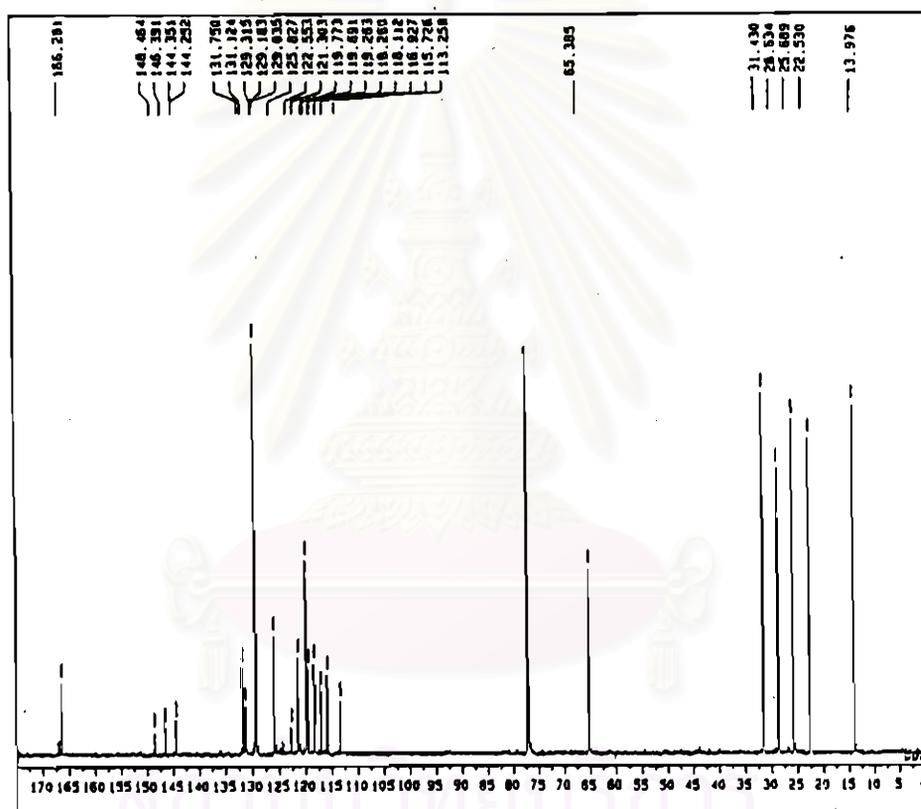


Figure 4-50 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-4-chlorophenyl azo

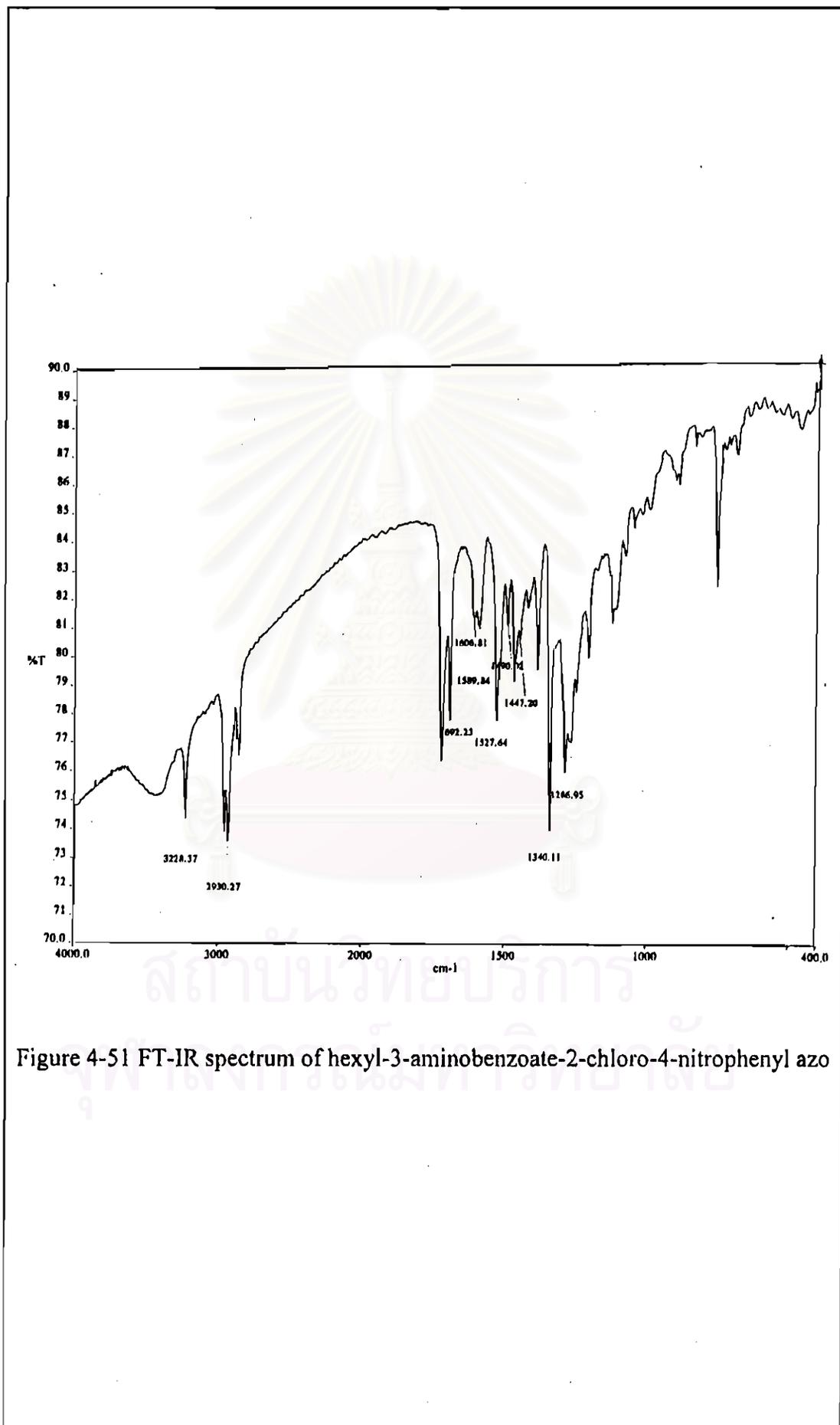


Figure 4-51 FT-IR spectrum of hexyl-3-aminobenzoate-2-chloro-4-nitrophenyl azo

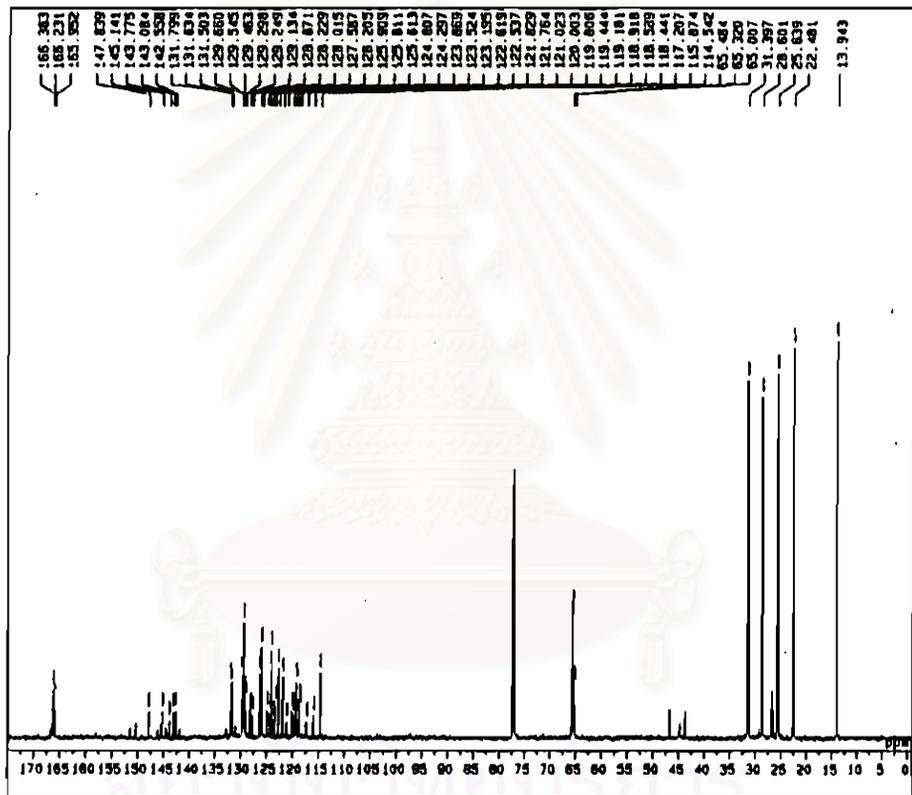


Figure 4-52 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-2-chloro-4-nitrophenyl azo

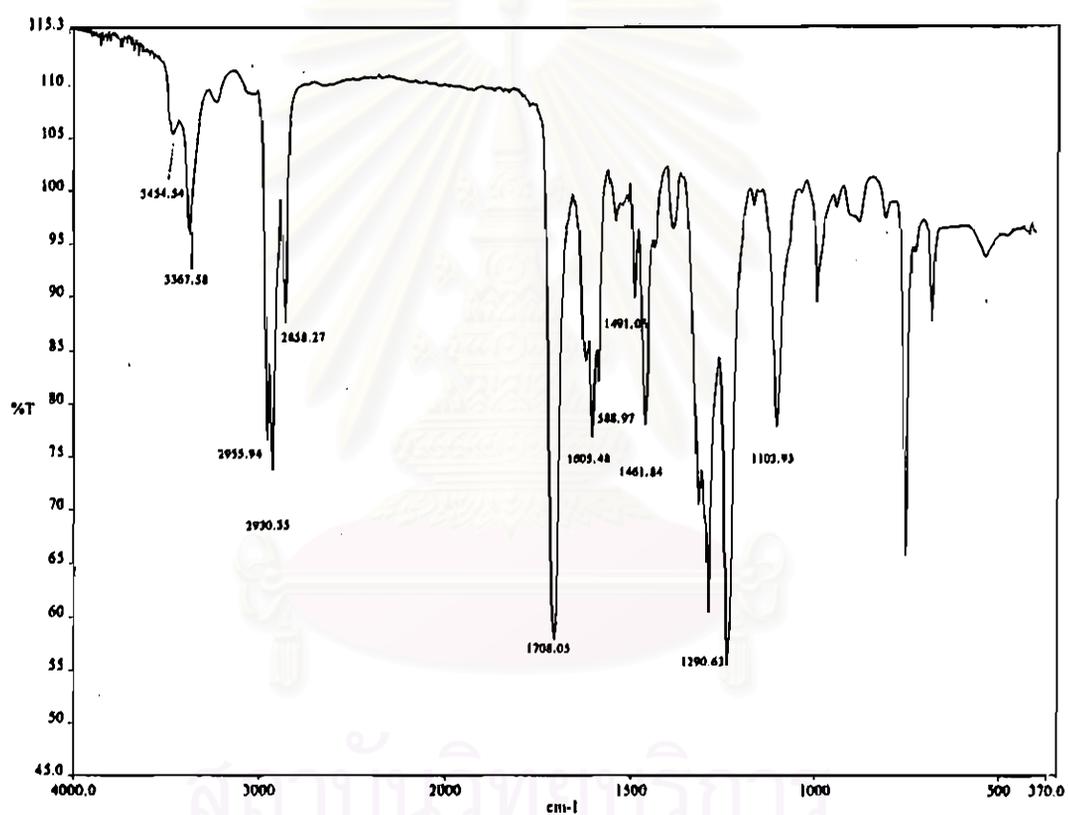


Figure 4-53 FT-IR spectrum of hexyl-3-aminobenzoate-2-methylphenyl azo

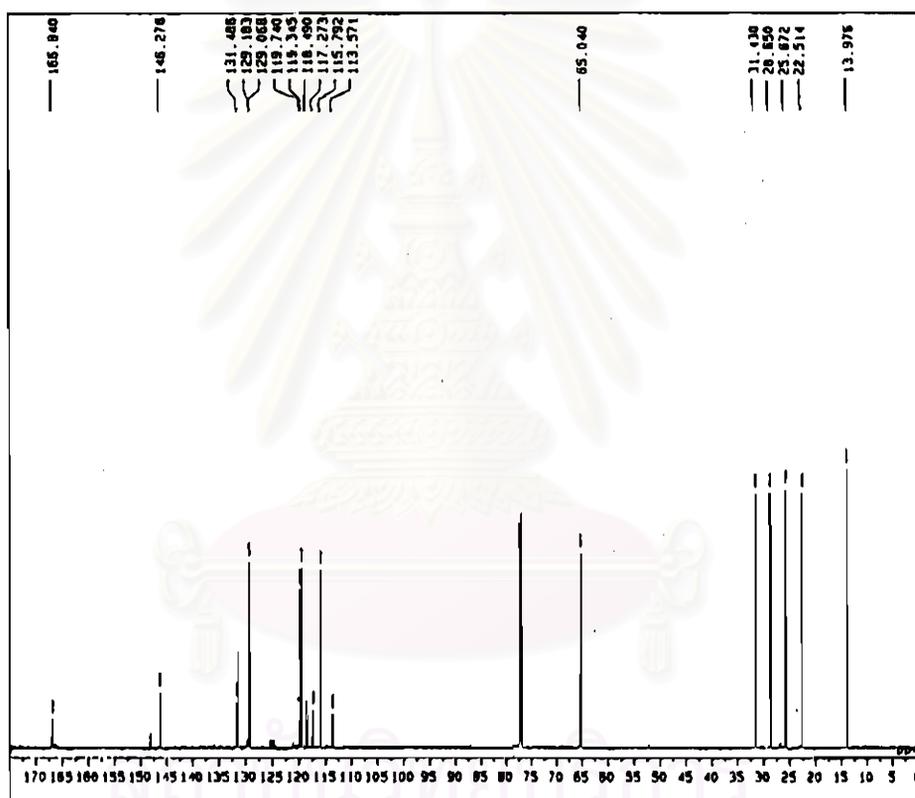


Figure 4-54 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-2-methylphenyl azo

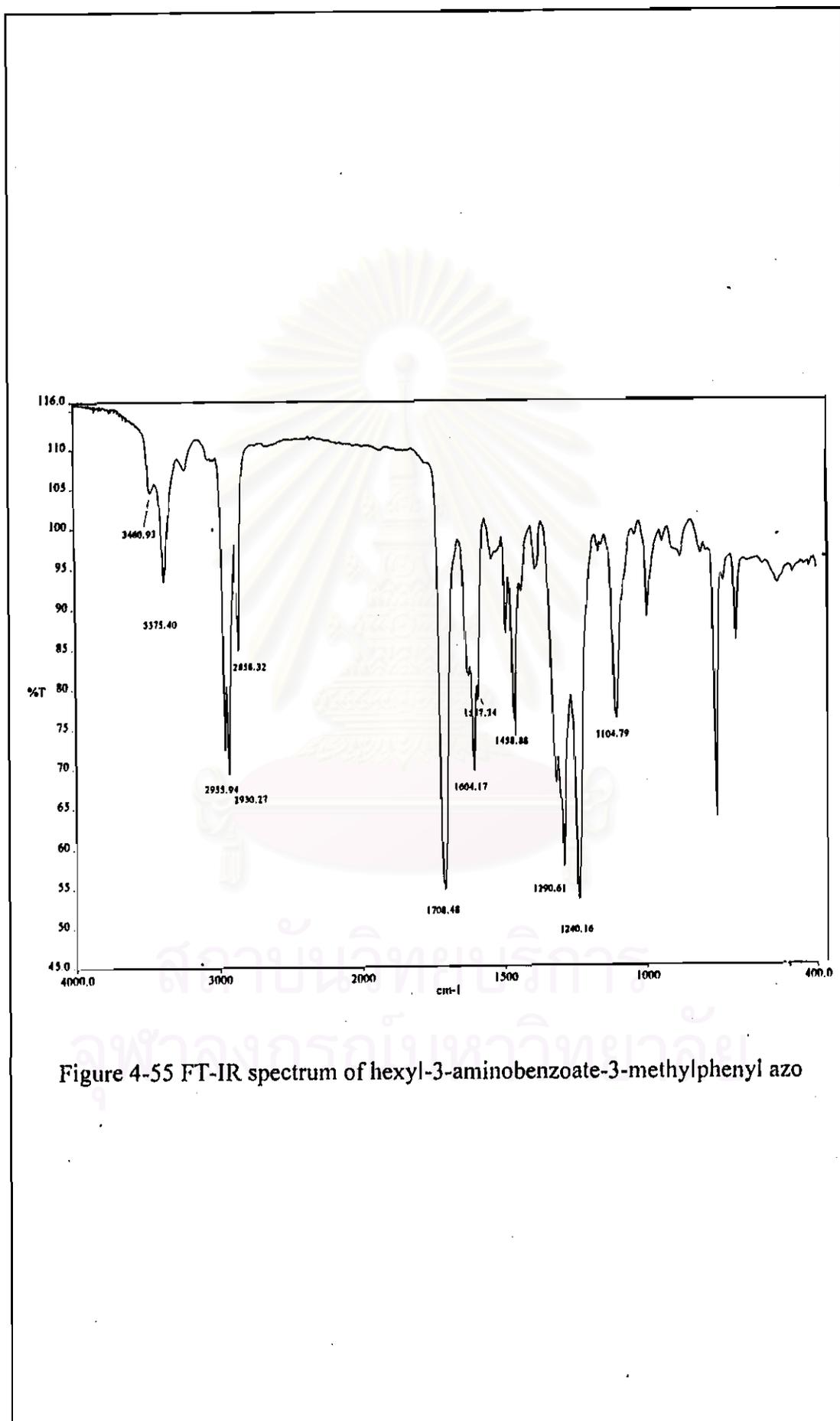


Figure 4-55 FT-IR spectrum of hexyl-3-aminobenzoate-3-methylphenyl azo

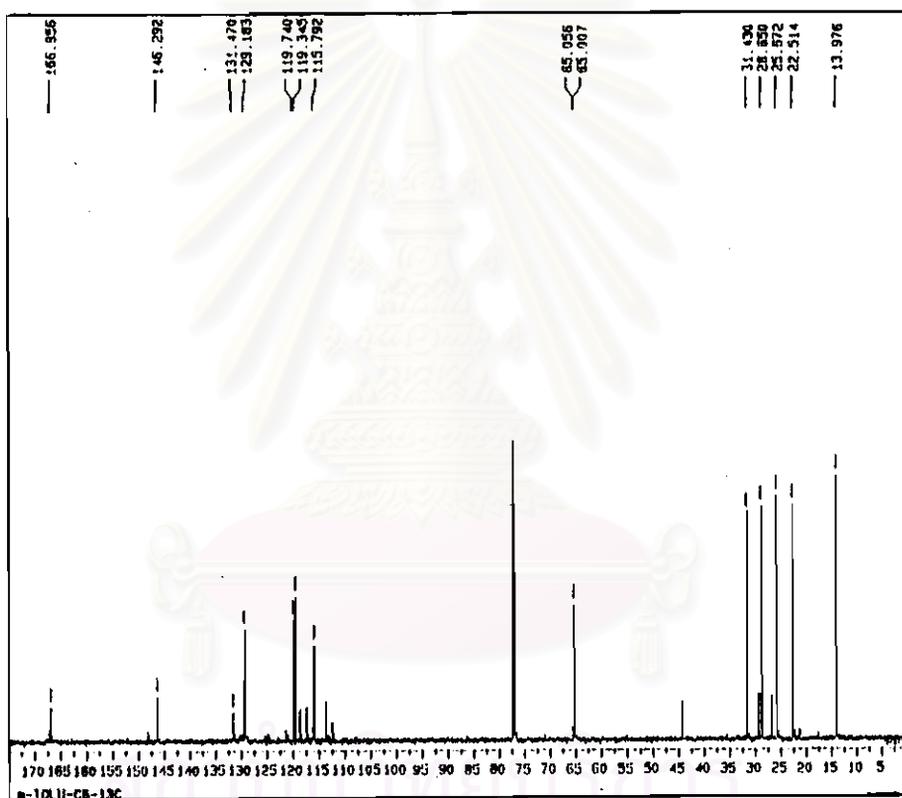


Figure 4-56 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-3-methylphenyl azo

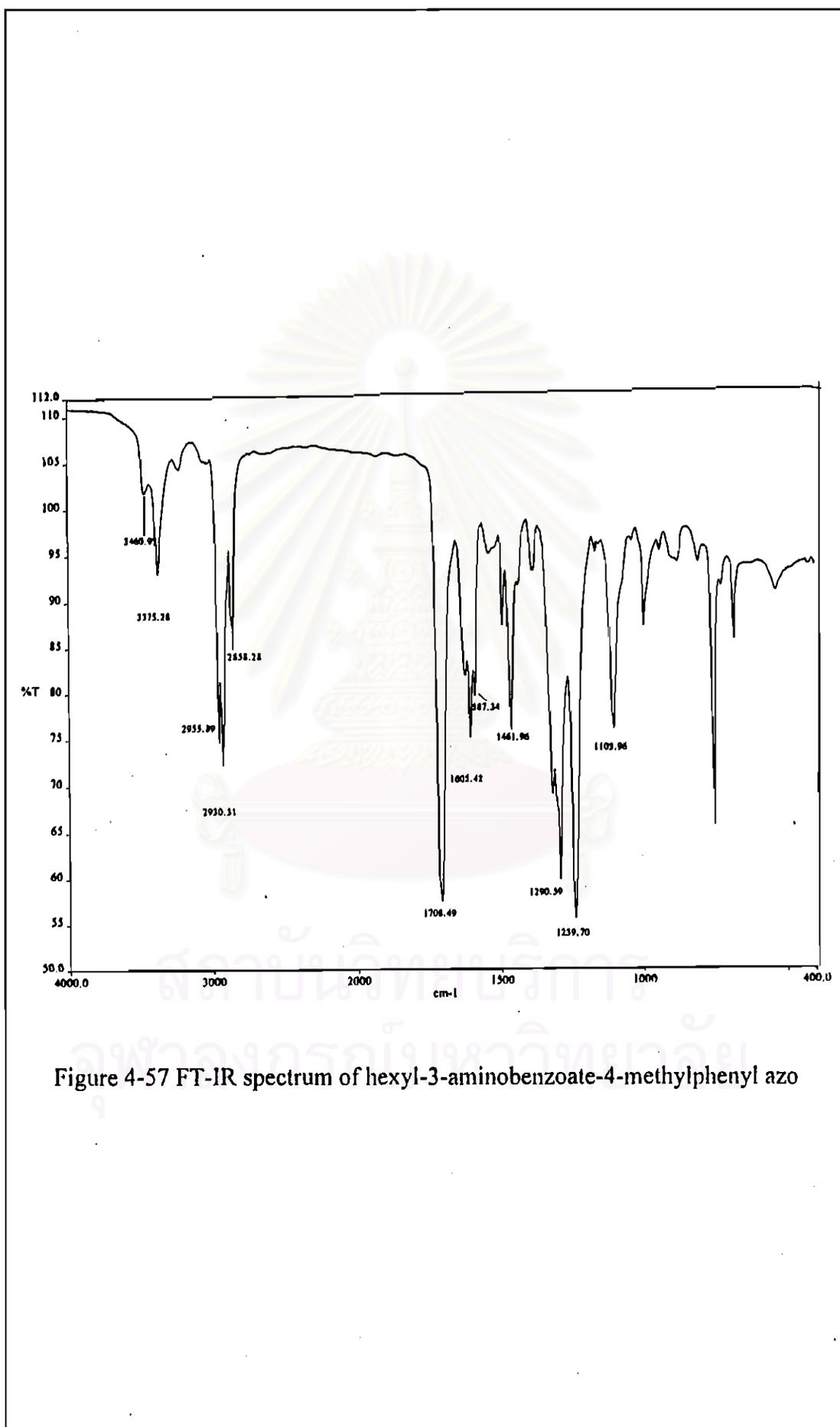


Figure 4-57 FT-IR spectrum of hexyl-3-aminobenzoate-4-methylphenyl azo

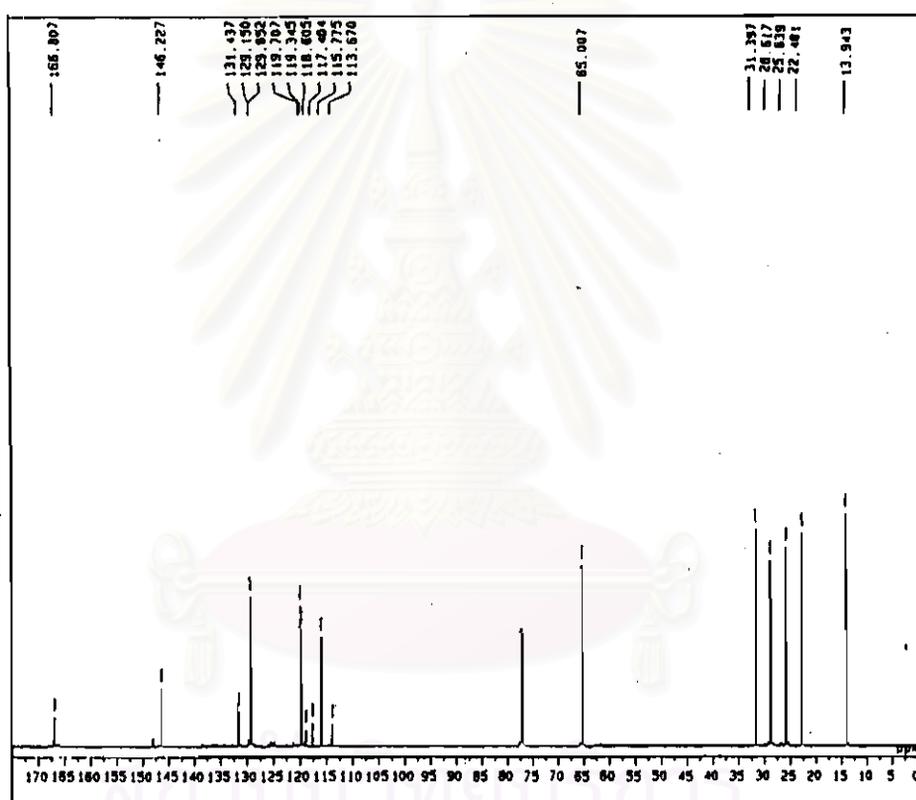


Figure 4-58 ^{13}C -NMR spectrum of hexyl-3-aminobenzoate-4-methylphenyl azo

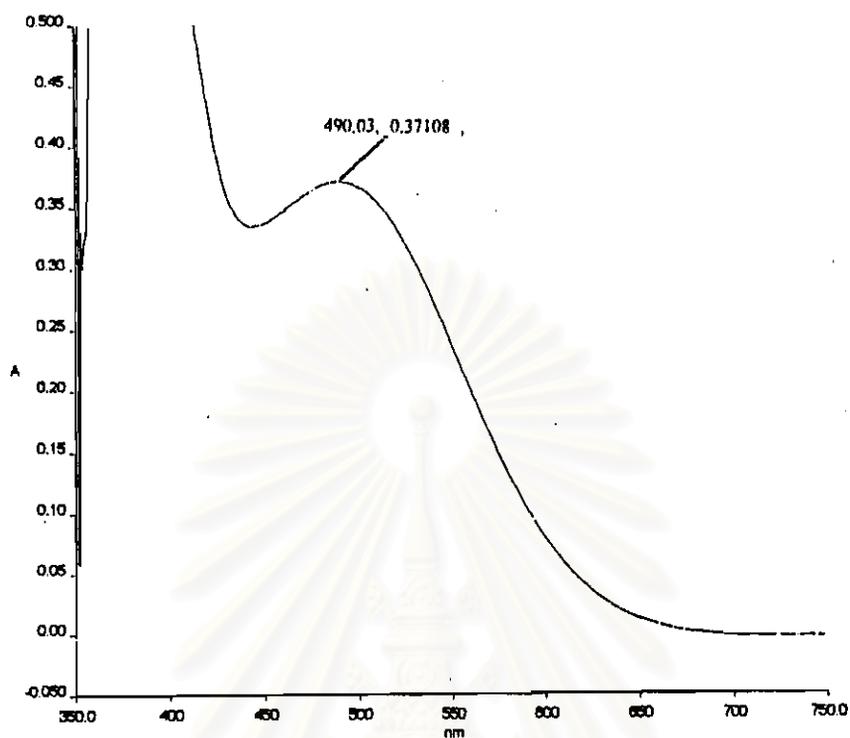


Figure 4-67 Maximum wavelength of ethyl-2-aminobenzoate-2-nitrophenyl azo

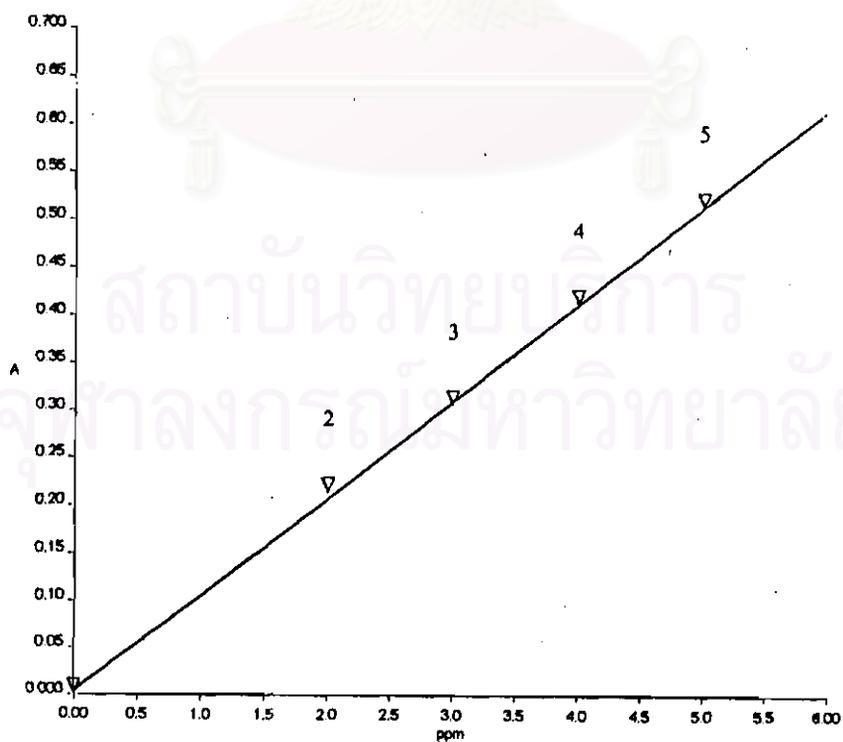


Figure 4-68 Calibration curve of ethyl-2-aminobenzoate-2-nitrophenyl azo

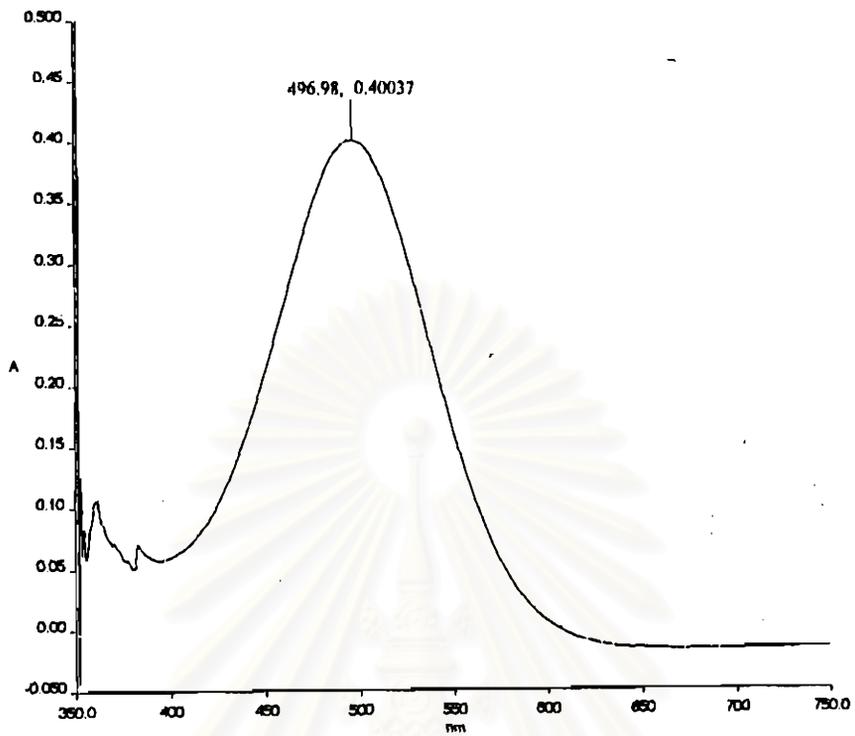


Figure 4-69 Maximum wavelength of ethyl-2-aminobenzoate-4-nitrophenyl azo

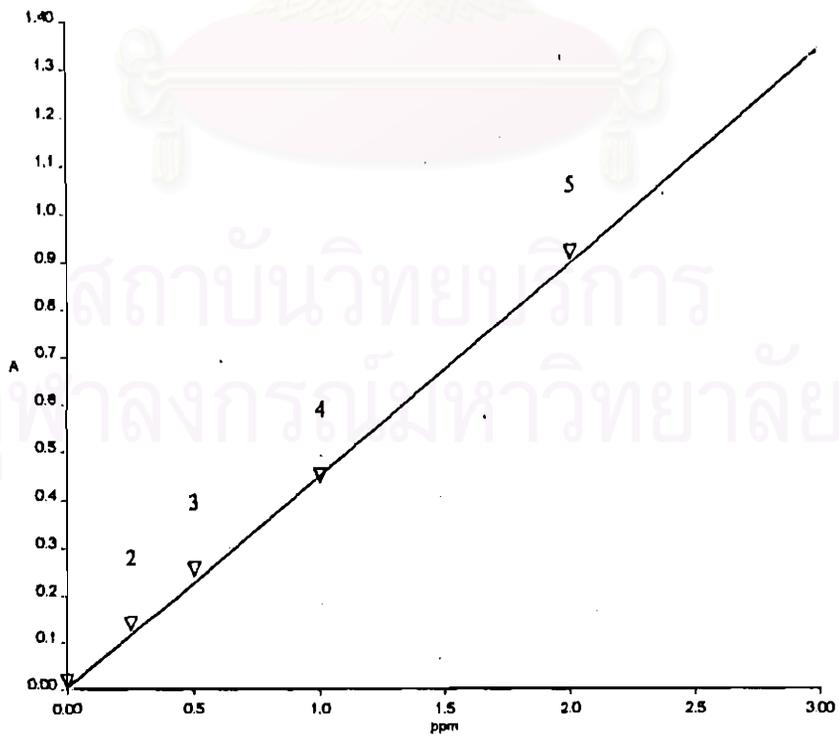


Figure 4-70 Calibration curve of ethyl-2-aminobenzoate-4-nitrophenyl azo

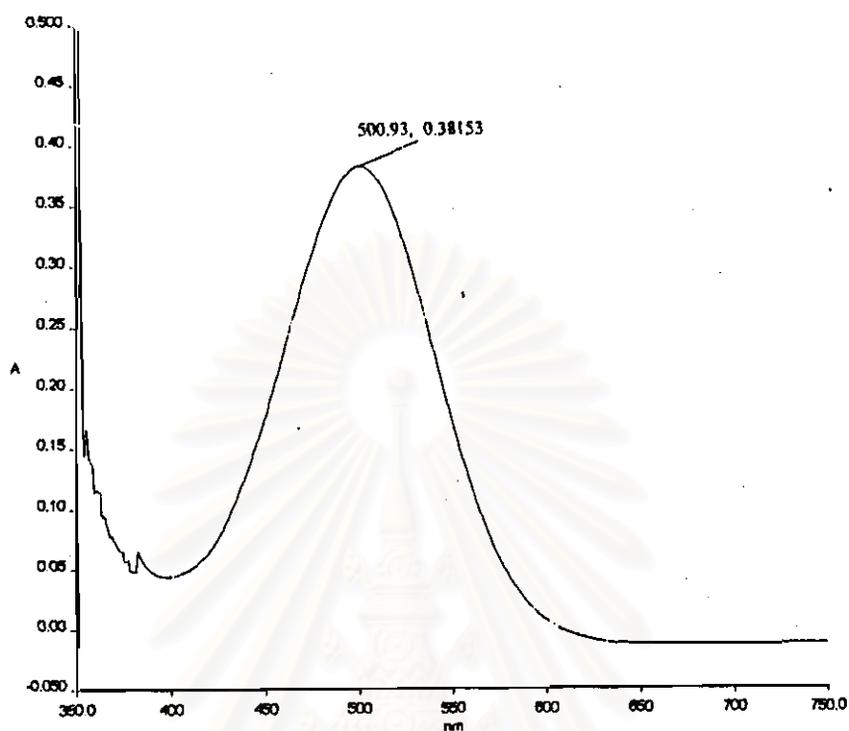


Figure 4-71 Maximum wavelength of ethyl-2-aminobenzoate-2-chloro-4-nitrophenyl azo

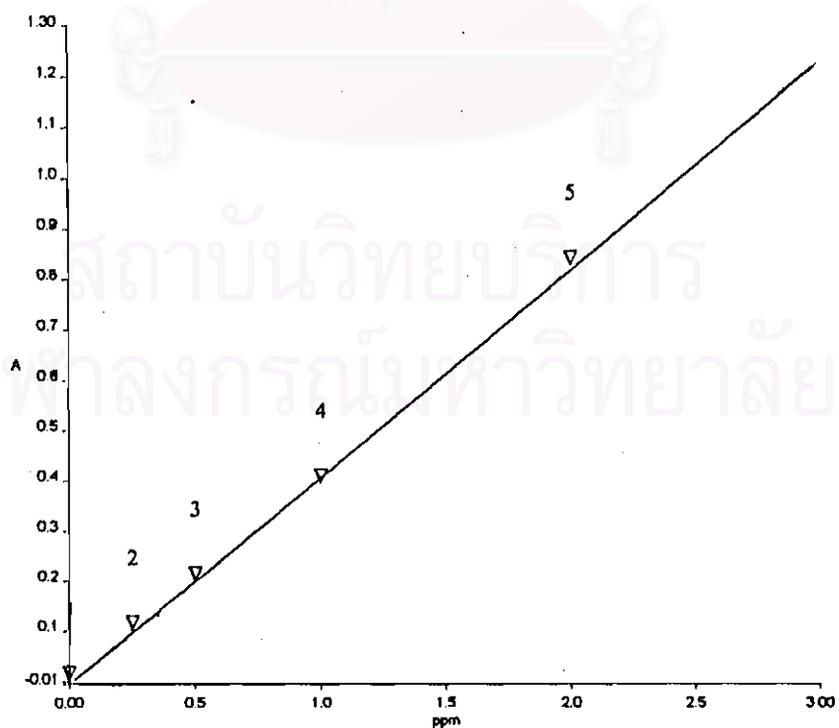


Figure 4-72 Calibration curve of ethyl-2-aminobenzoate-2-chloro-4-nitrophenyl azo

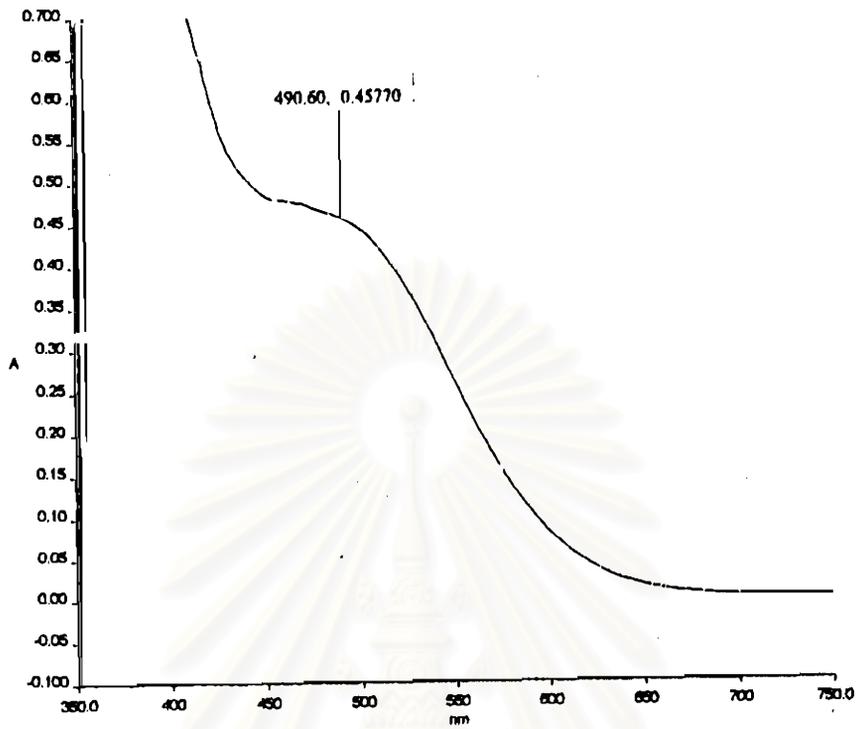


Figure 4-73 Maximum wavelength of hexyl-3-aminobenzoate-2-nitrophenyl azo

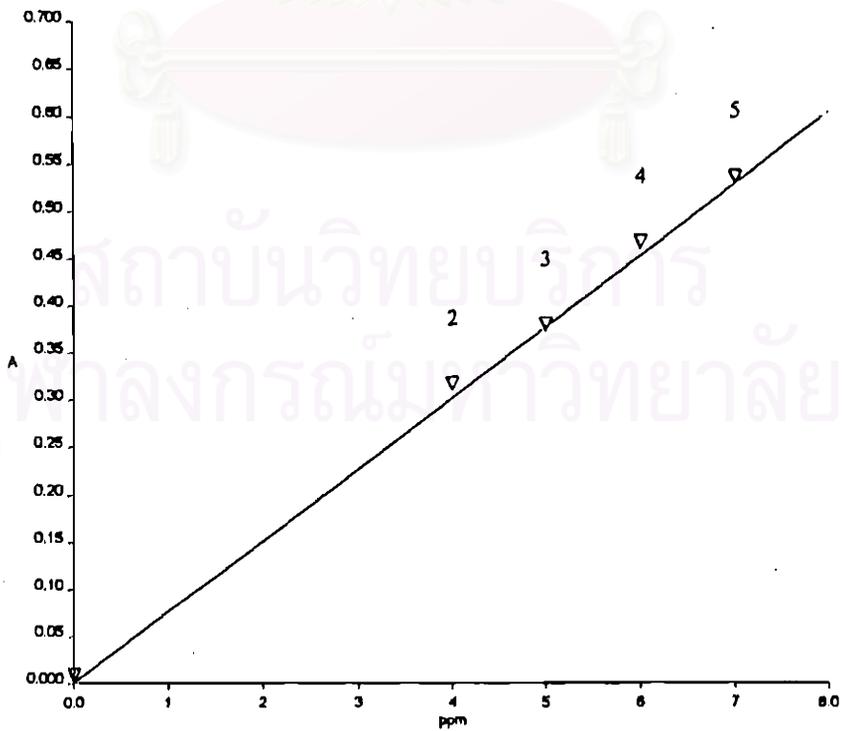


Figure 4-74 Calibration curve of hexyl-3-aminobenzoate-2-nitrophenyl azo

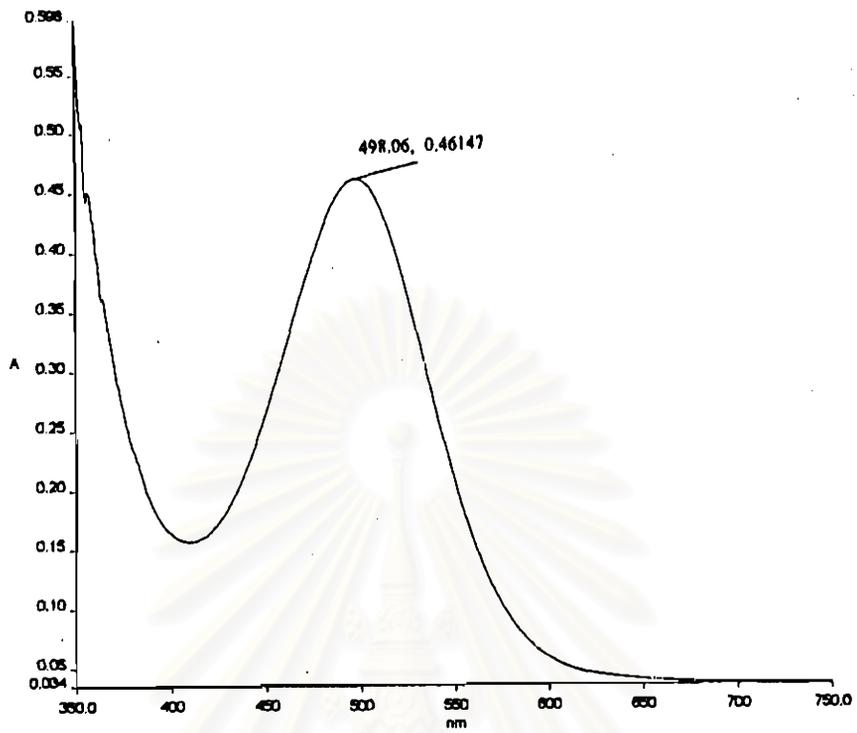


Figure 4-75 Maximum wavelength of hexyl-3-aminobenzoate-4-nitrophenyl azo

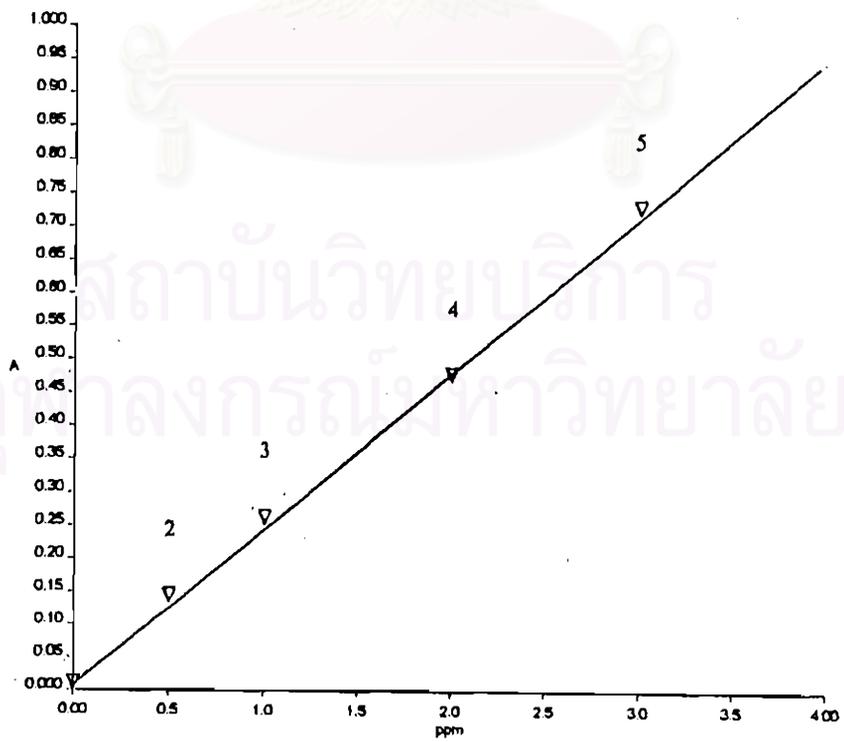


Figure 4-76 Calibration curve of hexyl-3-aminobenzoate-4-nitrophenyl azo

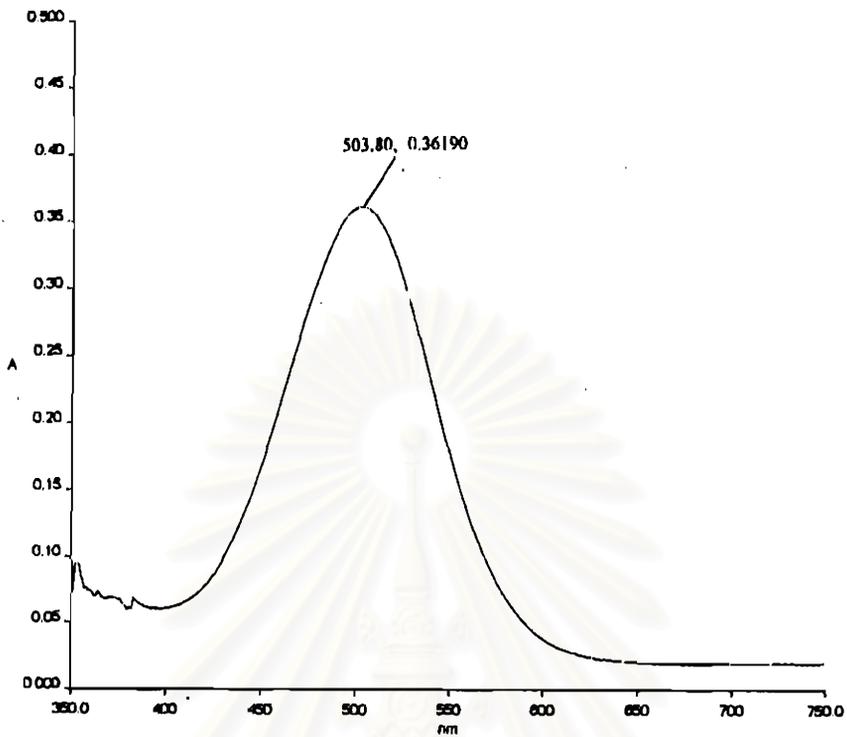


Figure 4-77 Maximum wavelength of hexyl-3-aminobenzoate-2-chloro-4-nitrophenyl azo

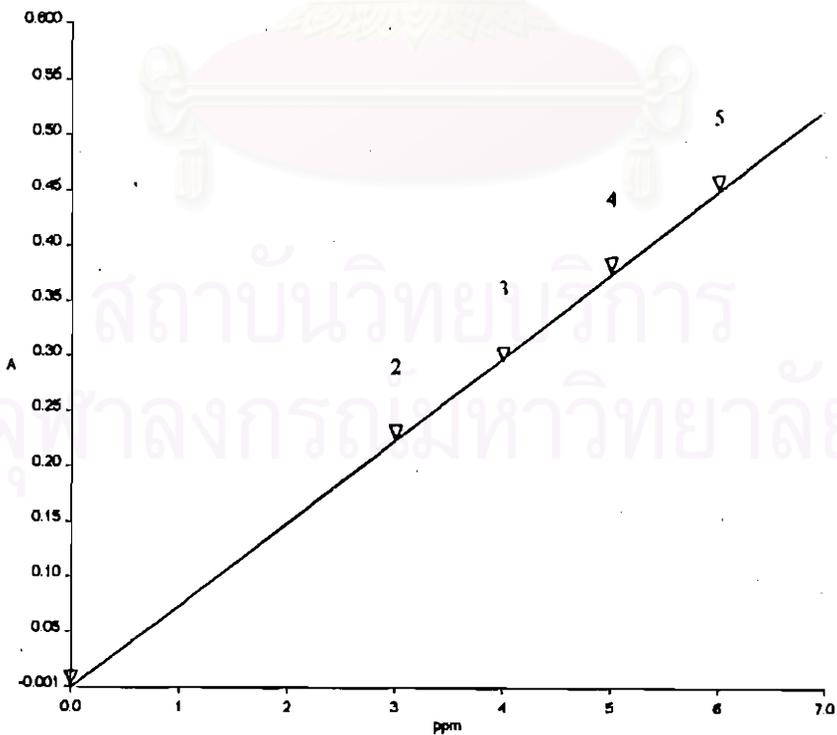


Figure 4-78 Calibration curve of hexyl-3-aminobenzoate-2-chloro-4-nitrophenyl azo



VITA

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