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Appendix A

Spectra

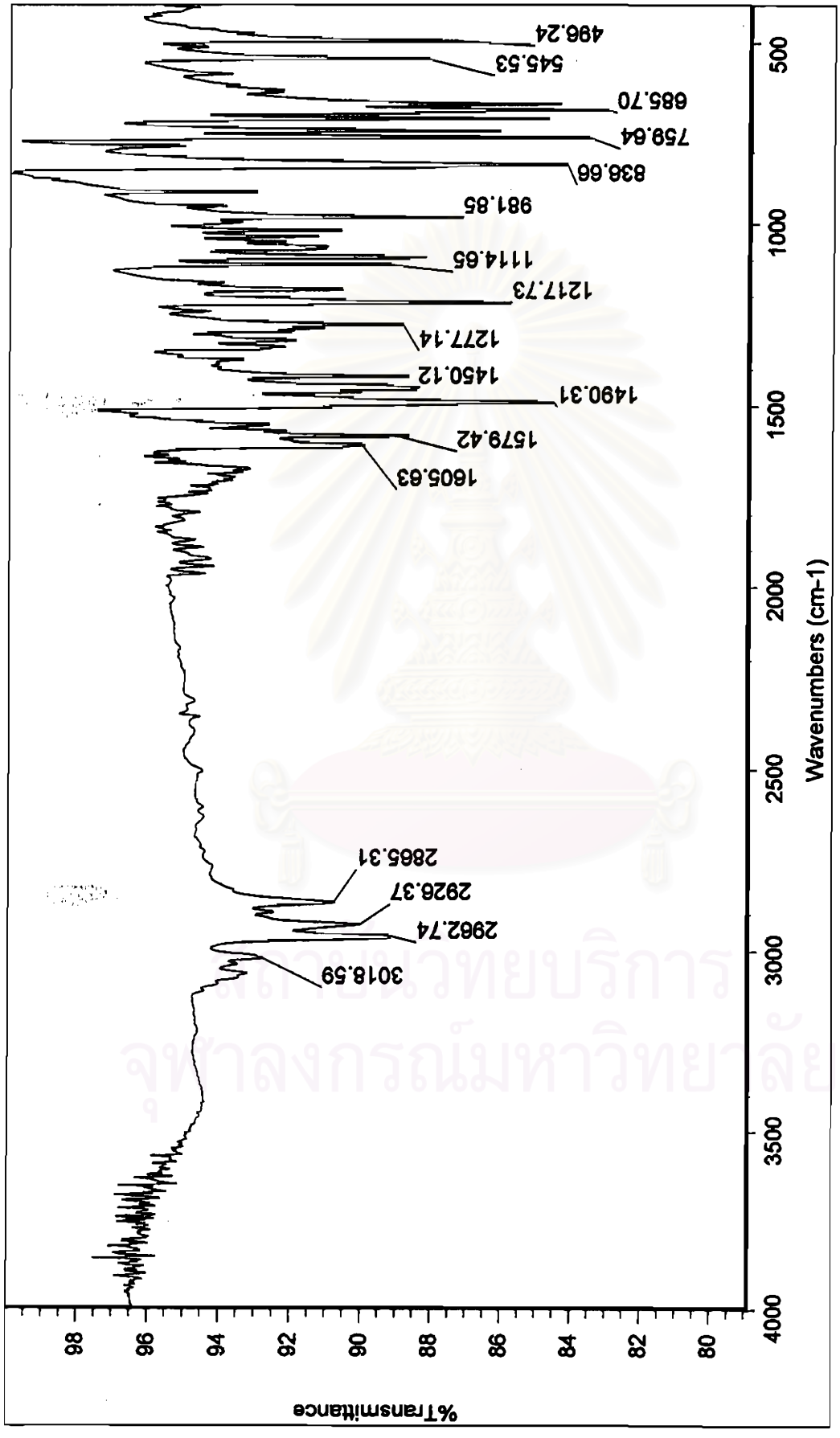

Figure A1 : IR spectrum of 4-chloro-2-(4'-ethylphenyl)-5-phenyloxazole (KBr Pellet)

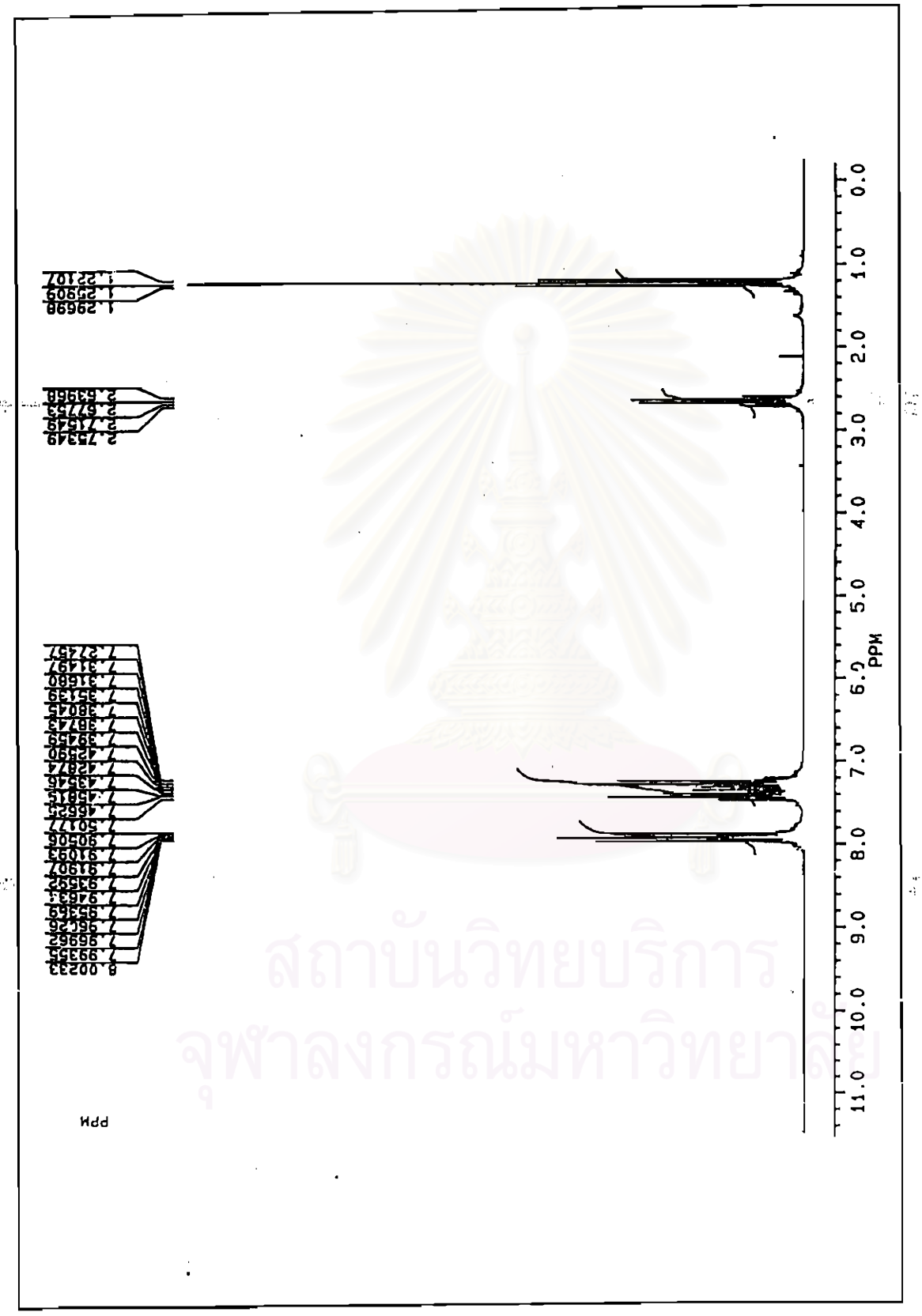

Figure A2 : ^1H NMR spectrum of 4-chloro-2-(4'-ethylphenyl)-5-phenyloxazole ($CDCl_3$)

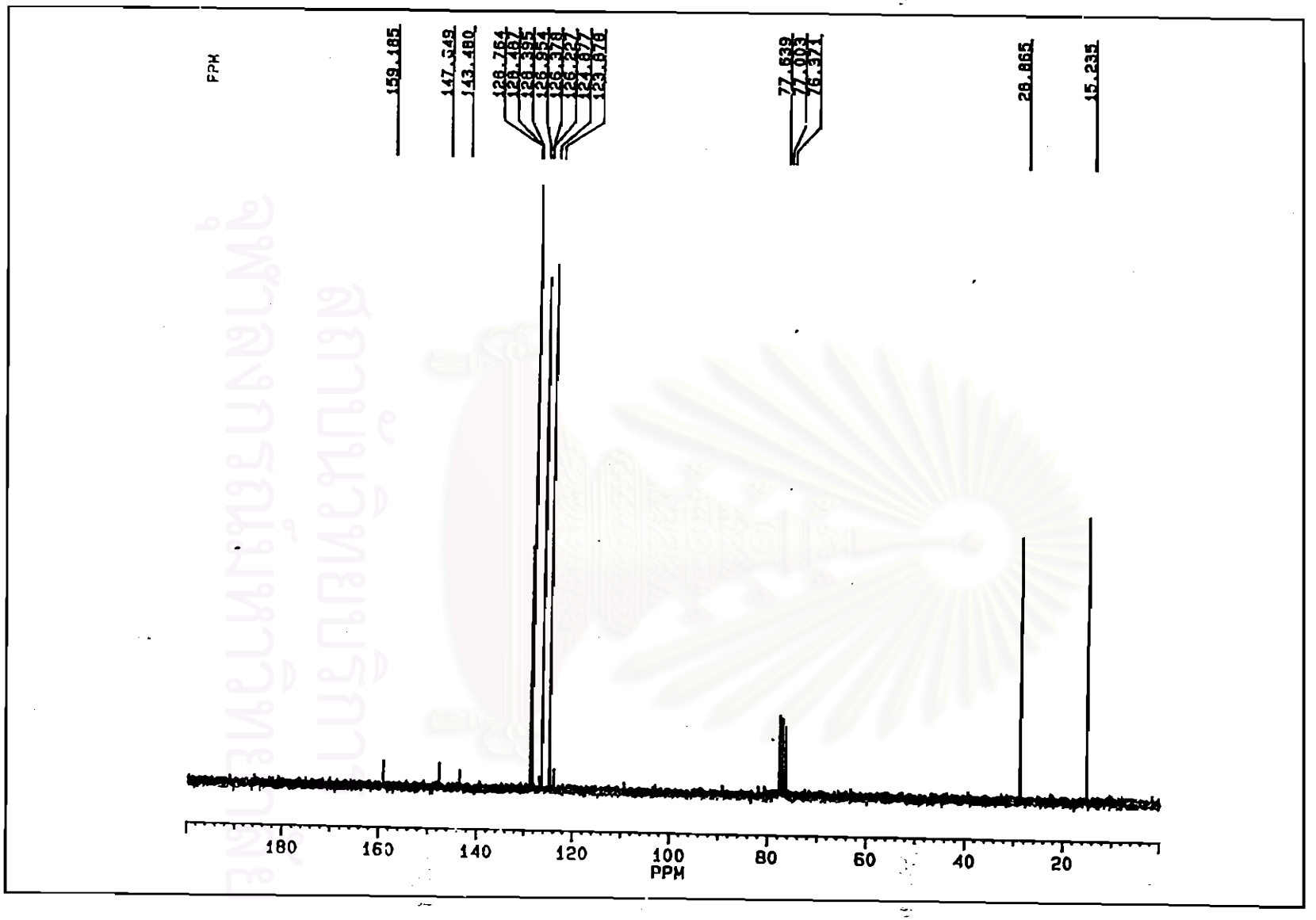

Figure A3 : ^{13}C NMR spectrum of 4-chloro-2-(4′-ethylphenyl)-5-phenyloxazole ($CDCl_3$)

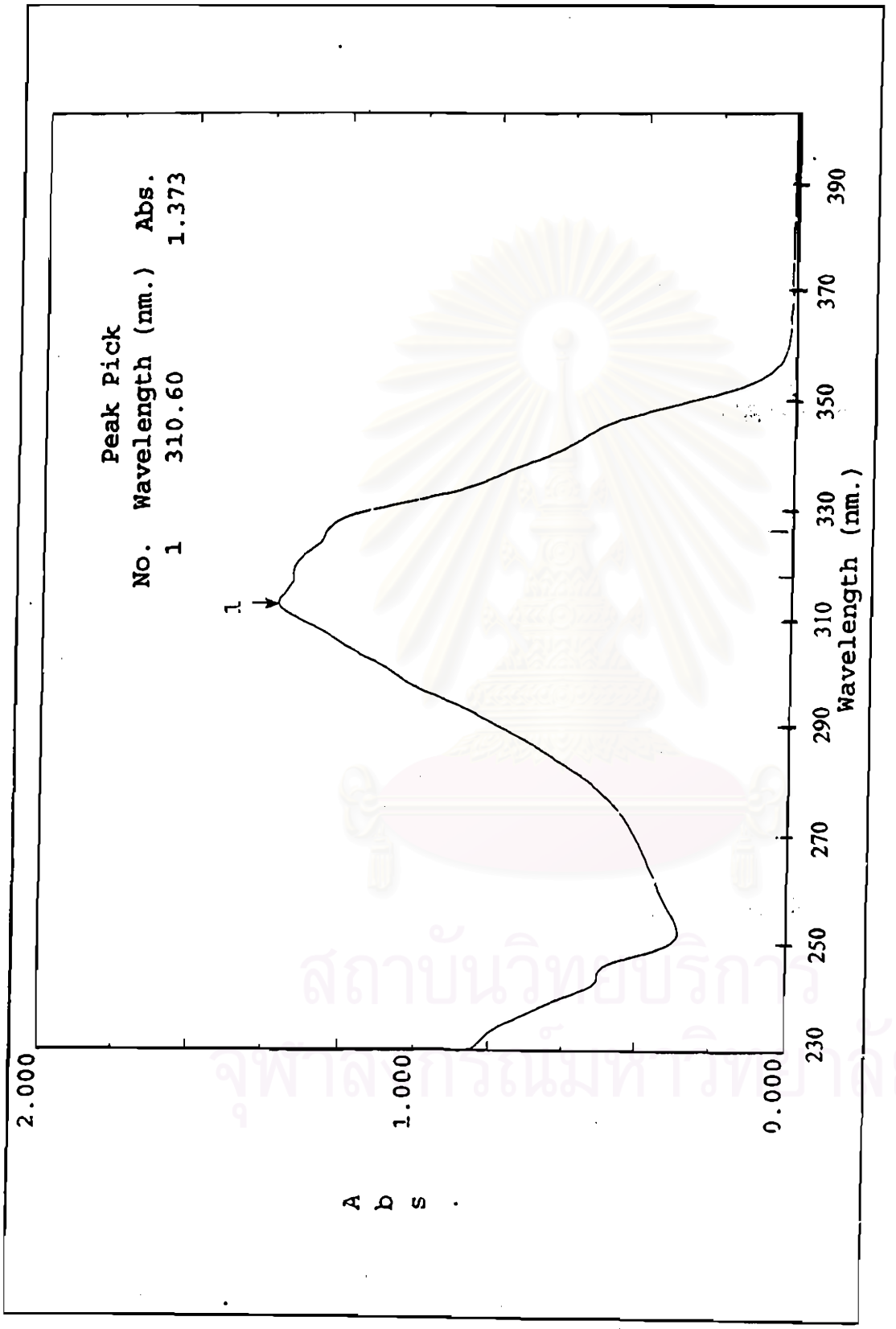

Figure A4 : UV spectrum of 4-chloro-2-(4'-ethylphenyl)-5-phenyloxazole in dichloromethane solution (air)

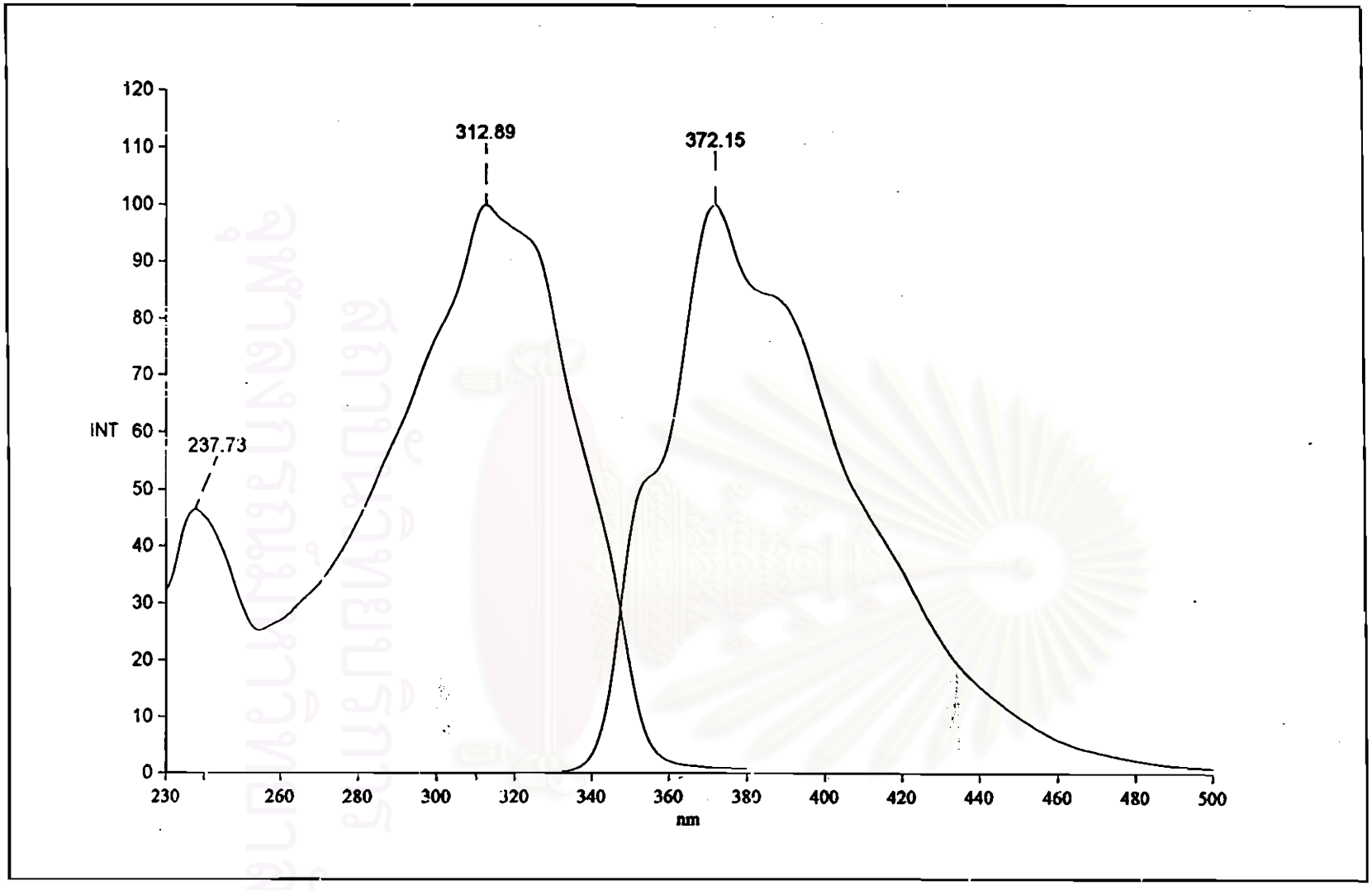

Figure A5 : Fluorescence excitation and emission spectra of 4-chloro-2-(4′-ethylphenyl)-5-phenyloxazole in dichloromethane solution (air)

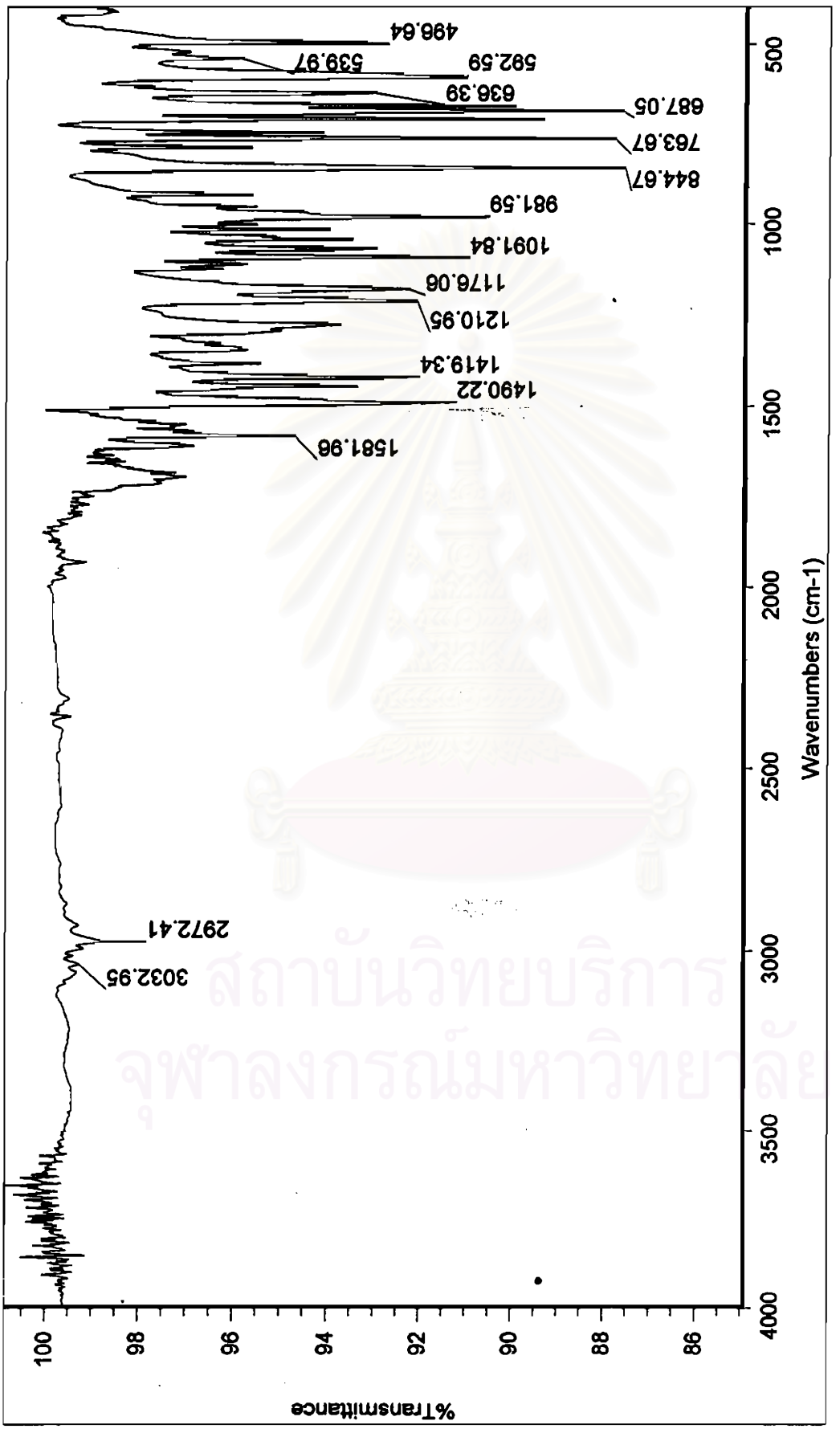

Figure A6 : IR spectrum of 4-chloro-2-4'-(α-bromoethylphenyl)-5-phenyloxazole (KBr Pellet)

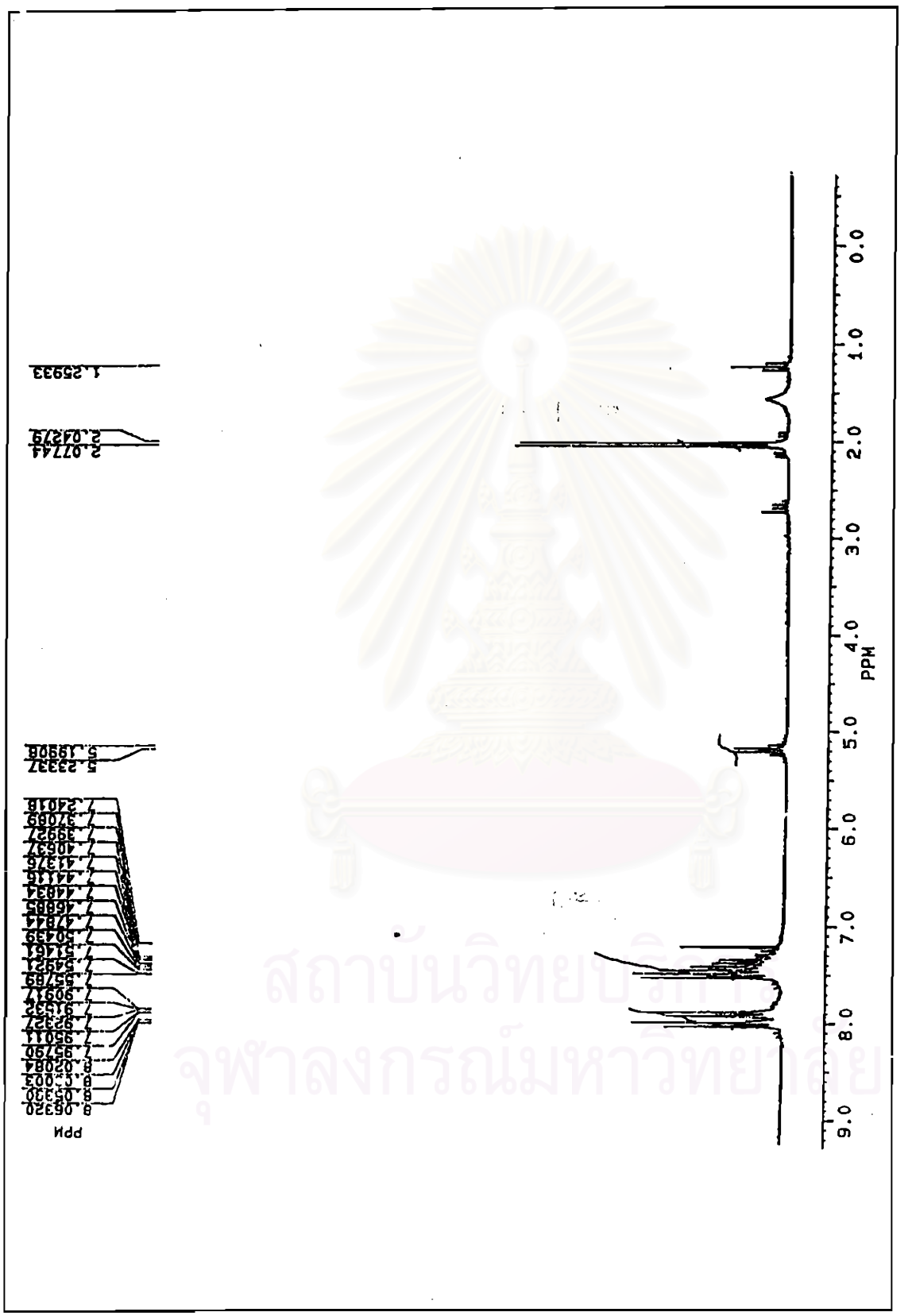

Figure A7 : ^{1}H NMR spectrum of 4-chloro-2-4'-(α-bromoethylphenyl)-5-phenyloxazole ($CDCl_3$)

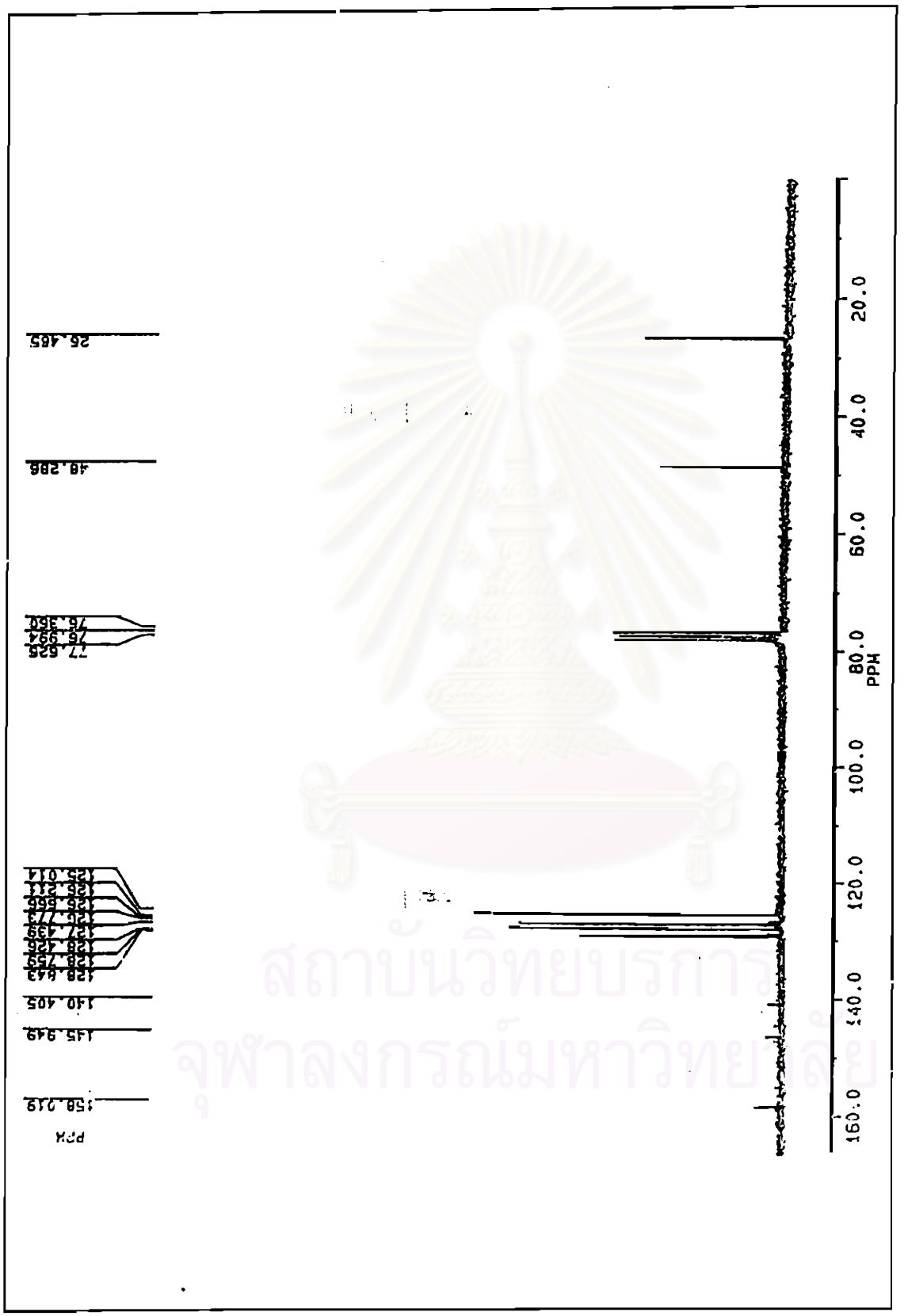

Figure A8 : ^{13}C NMR spectrum of 4-chloro-2-4′-(α-bromoethylphenyl)-5-phenyloxazole ($CDCl_3$)

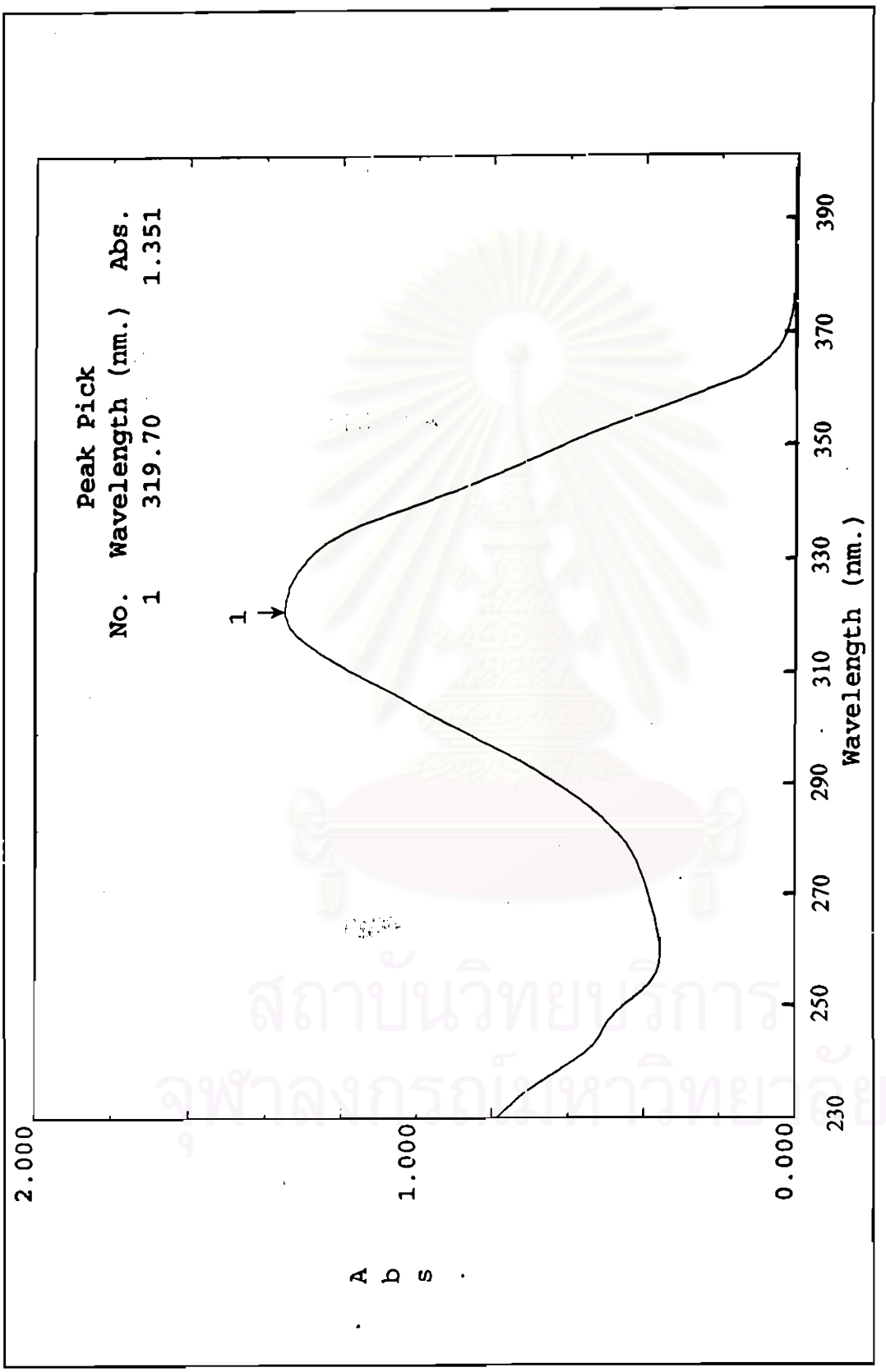

Figure A9 : UV spectrum of 4-chloro-2-4'-(α-bromoethylphenyl)-5-phenyloxazole in dichloromethane solution (air)

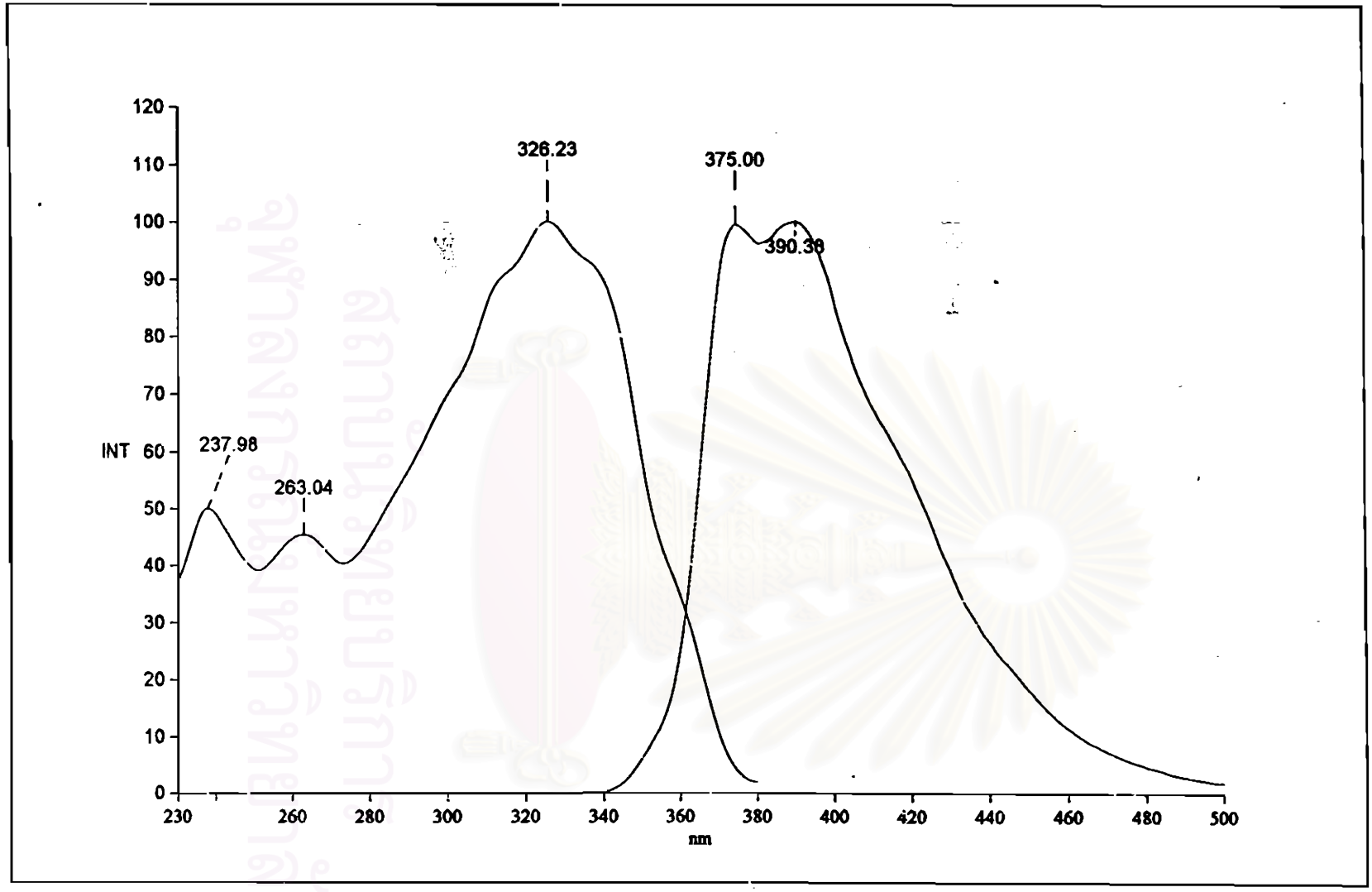

Figure A10 : Fluorescence excitation and emission spectra of 4-chloro-2-4′-(α-bromoethylphenyl)-5-phenyloxazole in dichloromethane solution (air)

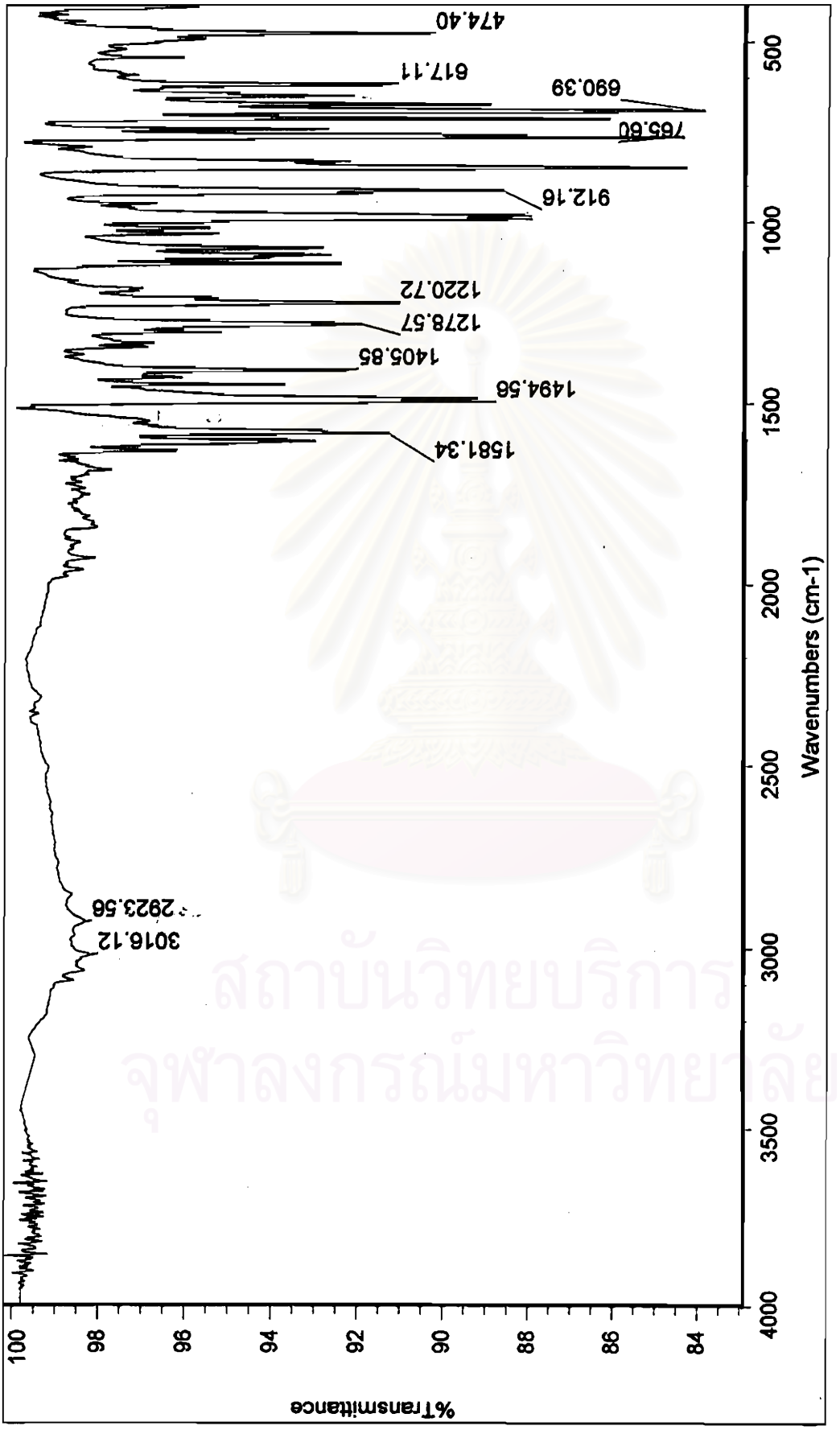

Figure A11 : IR spectrum of 4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole (KBr Pellet)

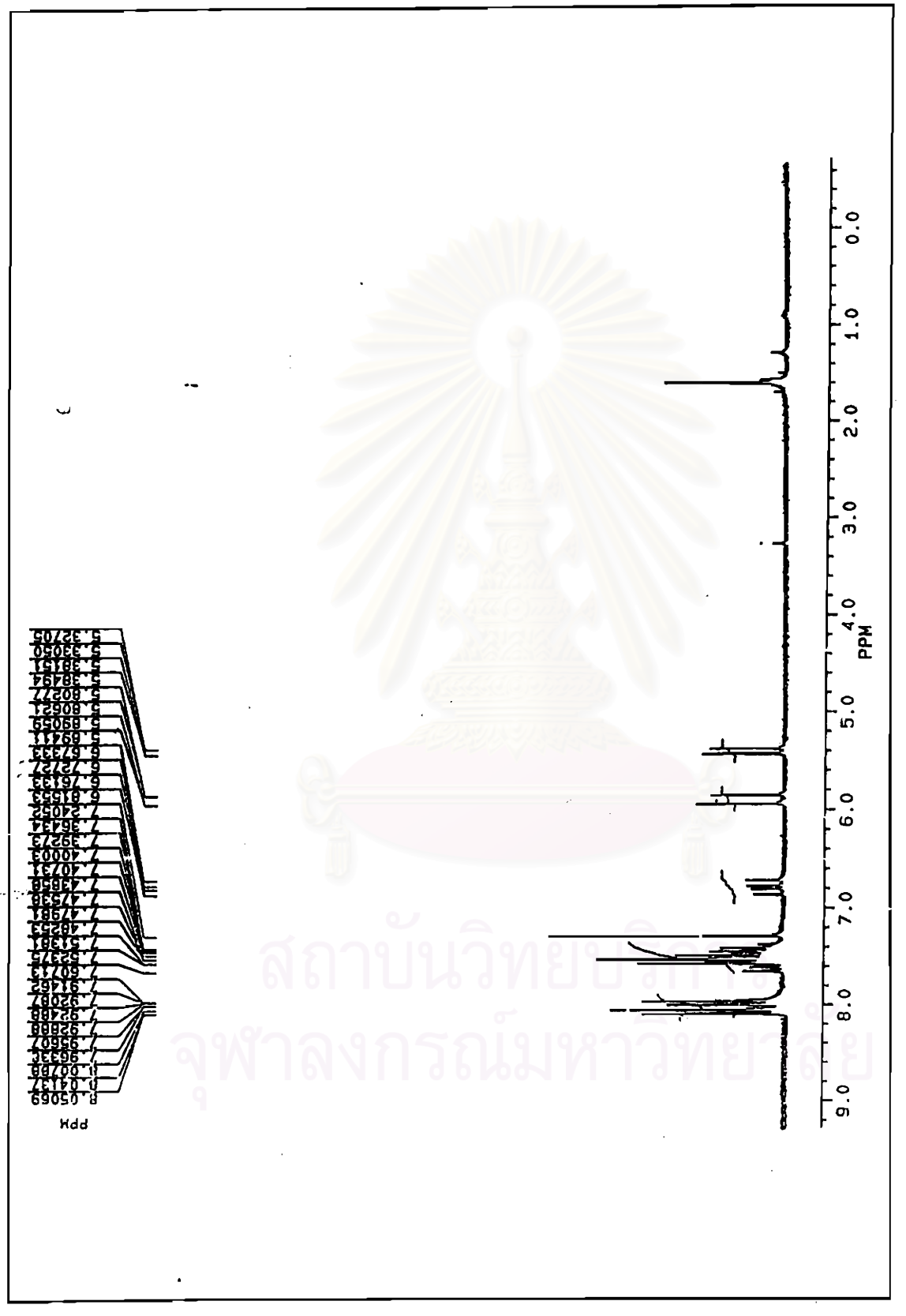

Figure A12 : ^{1}H NMR spectrum of 4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole ($CDCl_3$)

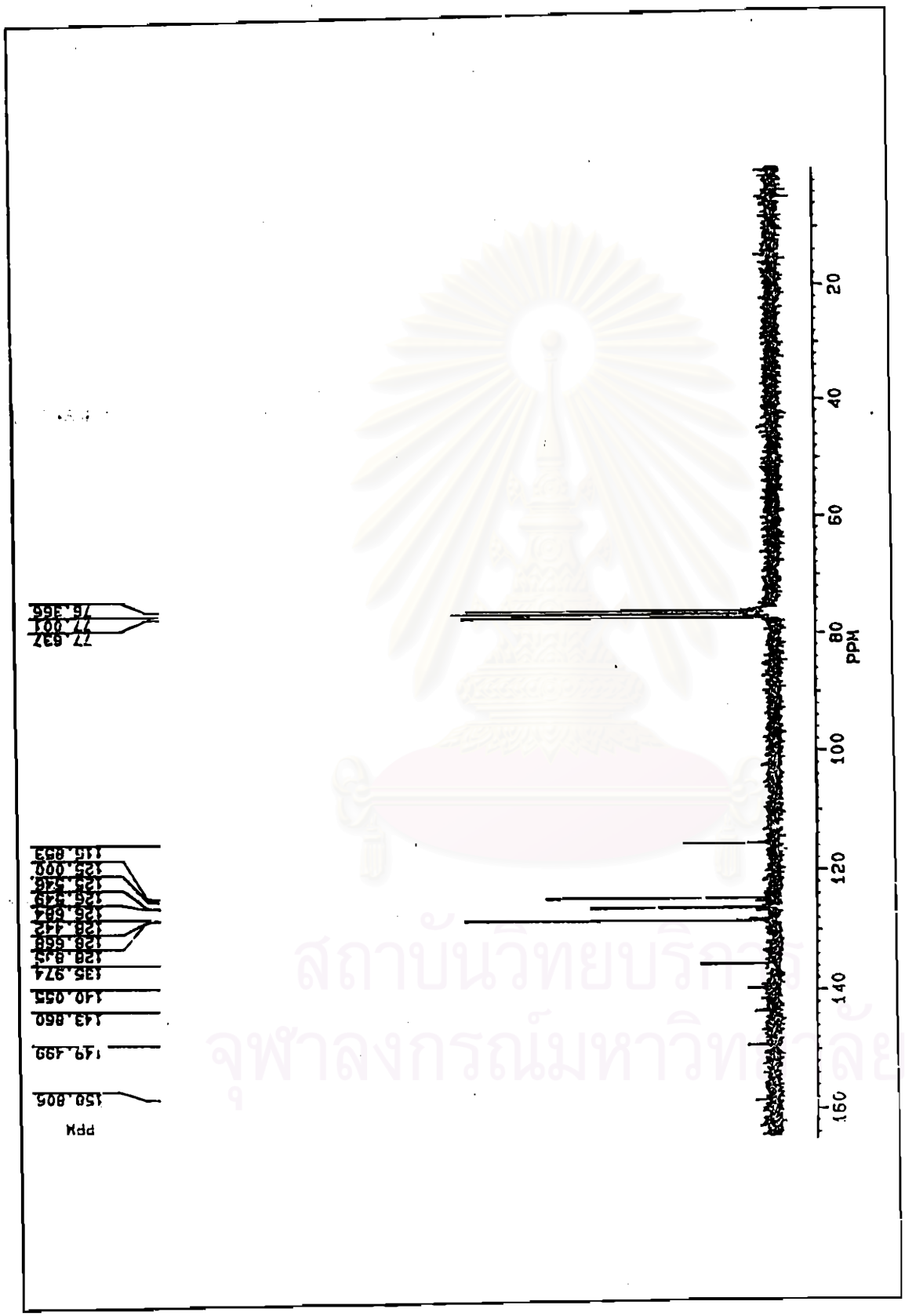

Figure A13 : ^{13}C NMR spectrum of 4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole ($CDCl_3$)

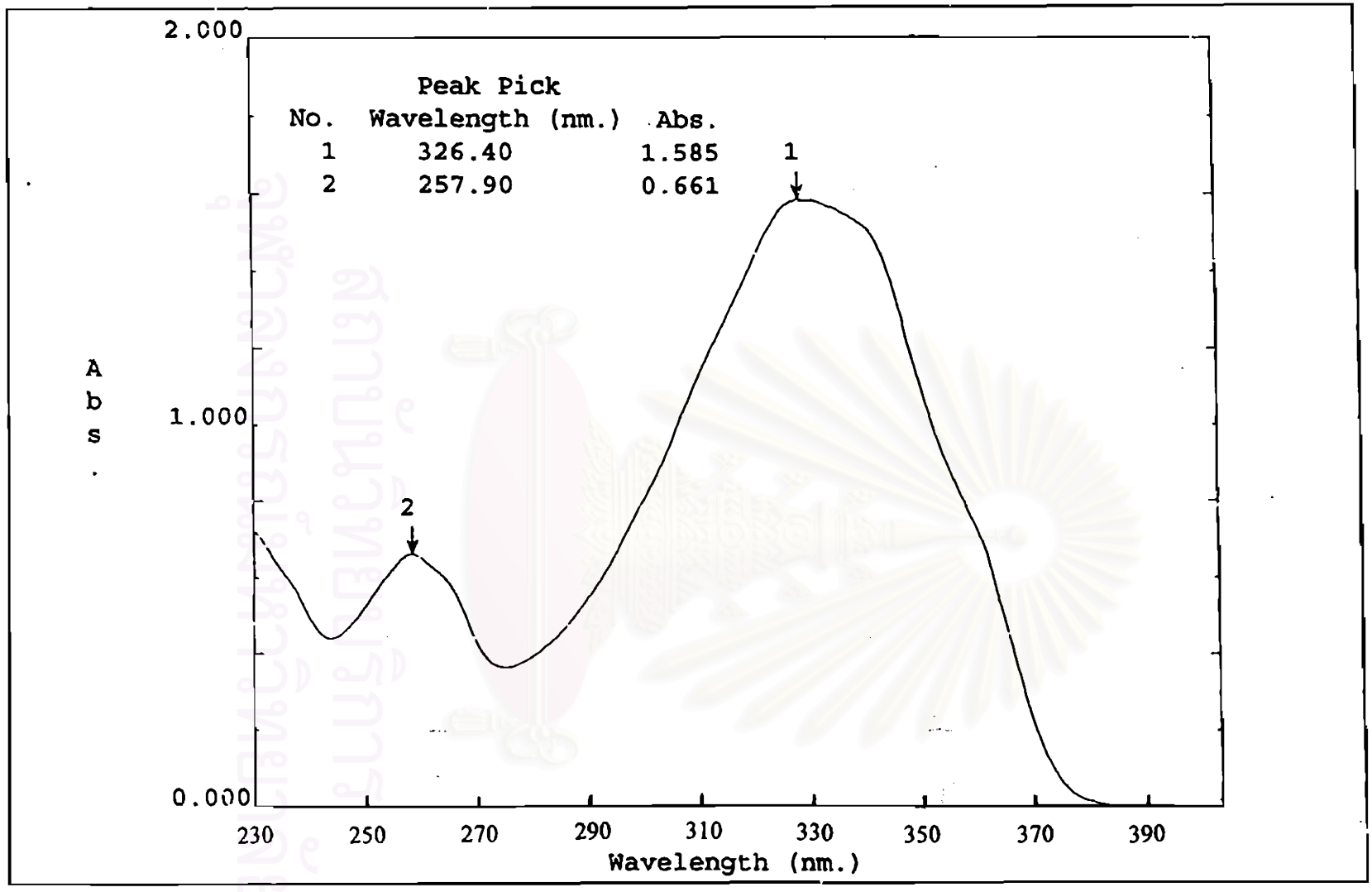

Figure A14 : UV spectrum of 4-chloro-2-(4′-vinylphenyl)-5-phenyloxazole in dichloromethane solution (air)

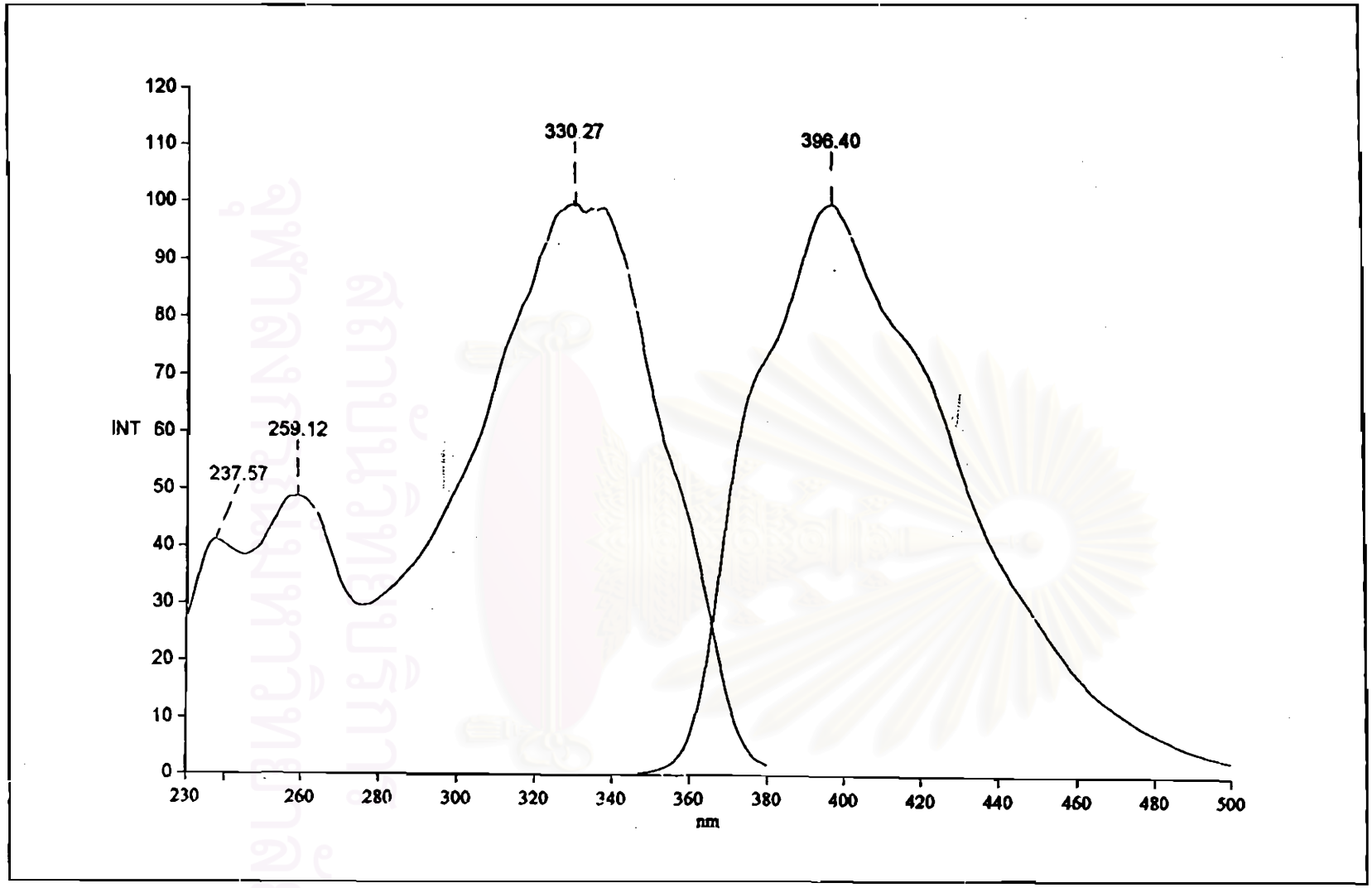

Figure A15 : Fluorescence excitation and emission spectra of 4-chloro-2-(4′-vinylphenyl)-5-phenyloxazole in dichloromethane solution (air)

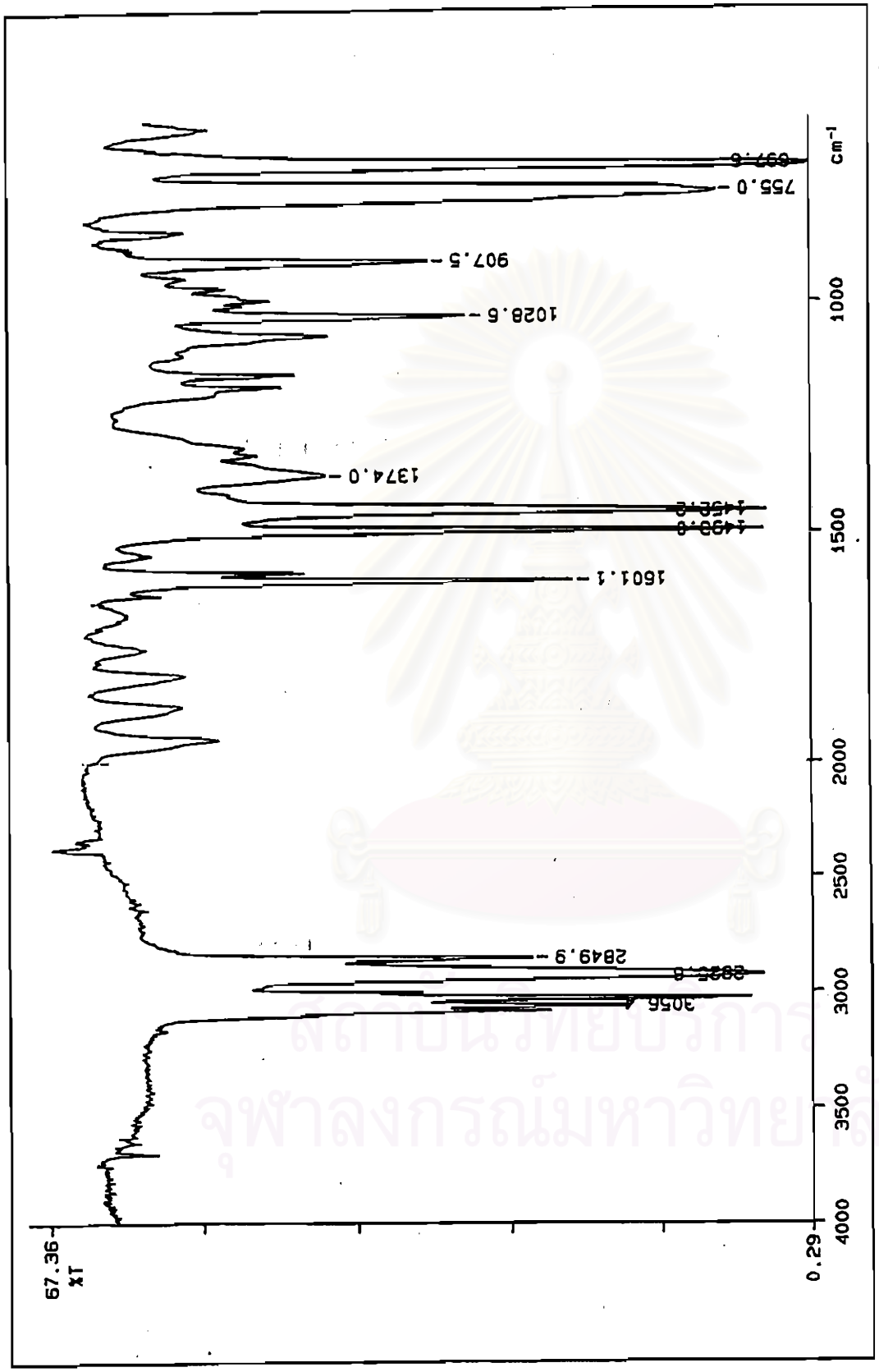

Figure A16 : IR spectrum of polystyrene (film)

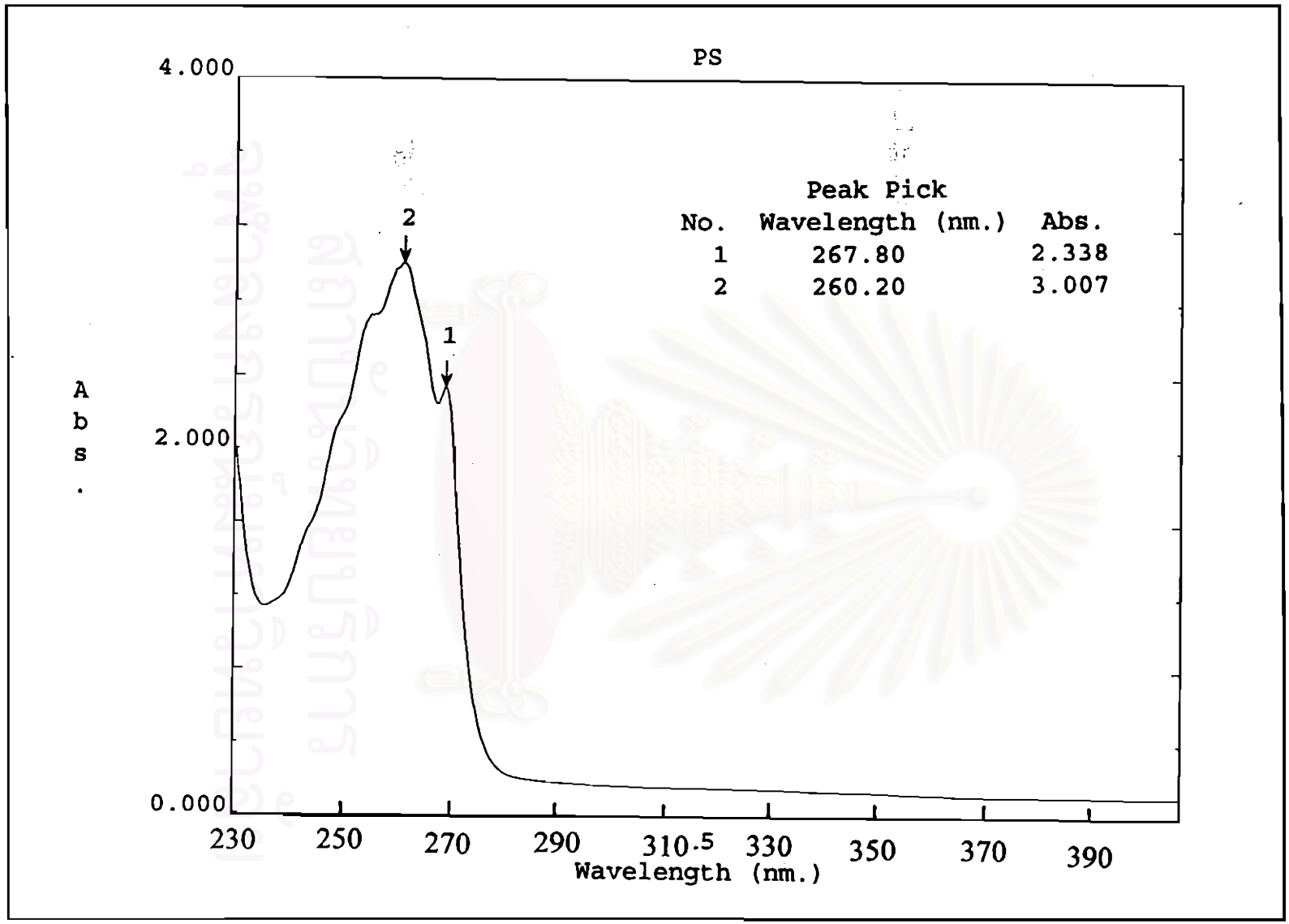

Figure A17 : UV spectrum of polystyrene (film)

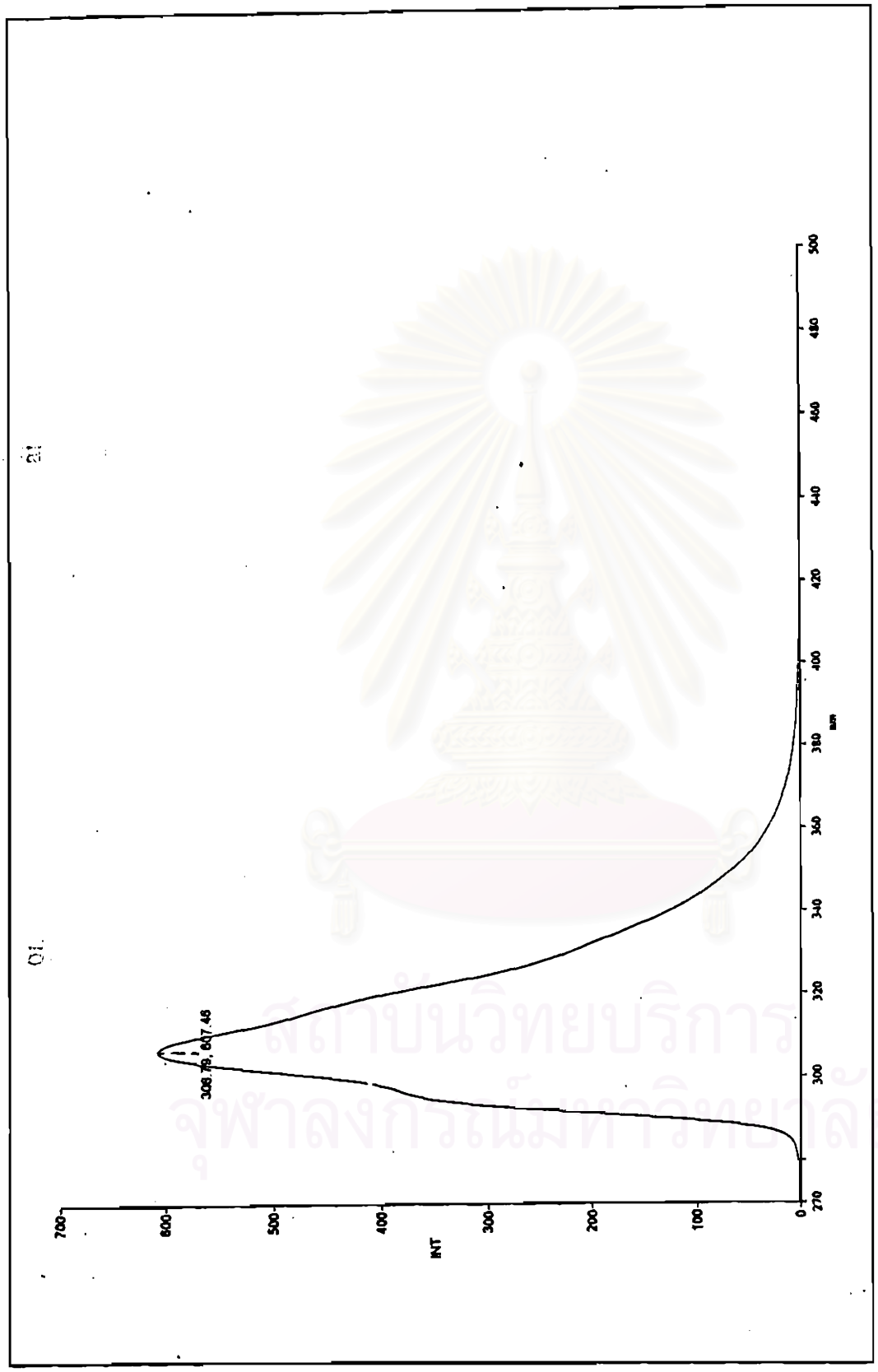

Figure A18 : Fluorescence emission spectrum of polystyrene (dichloromethane solution)

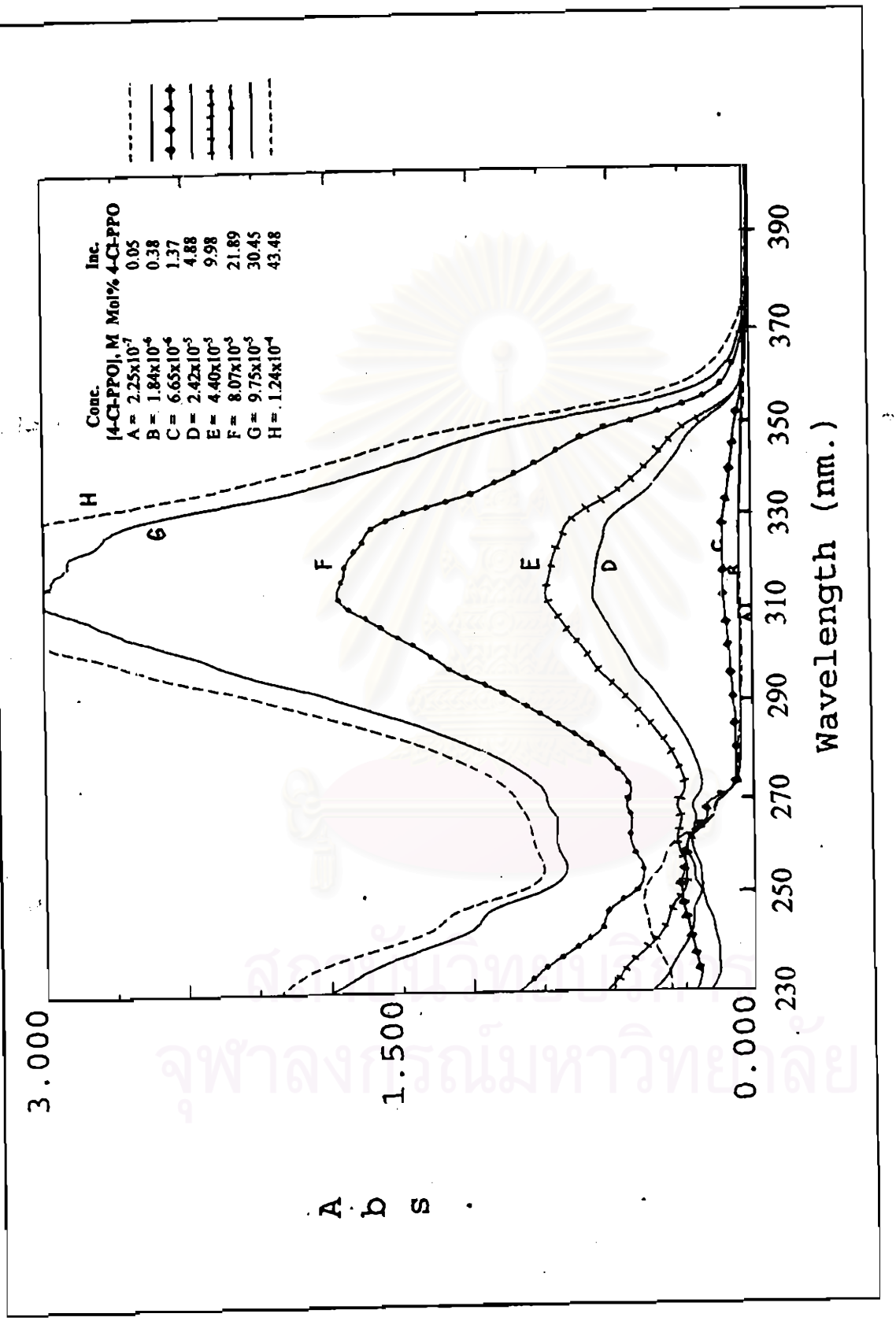

Figure A19 : UV spectra of poly[4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole-co-styrene] 5mg in 100 mL of dichloromethane solution (air)

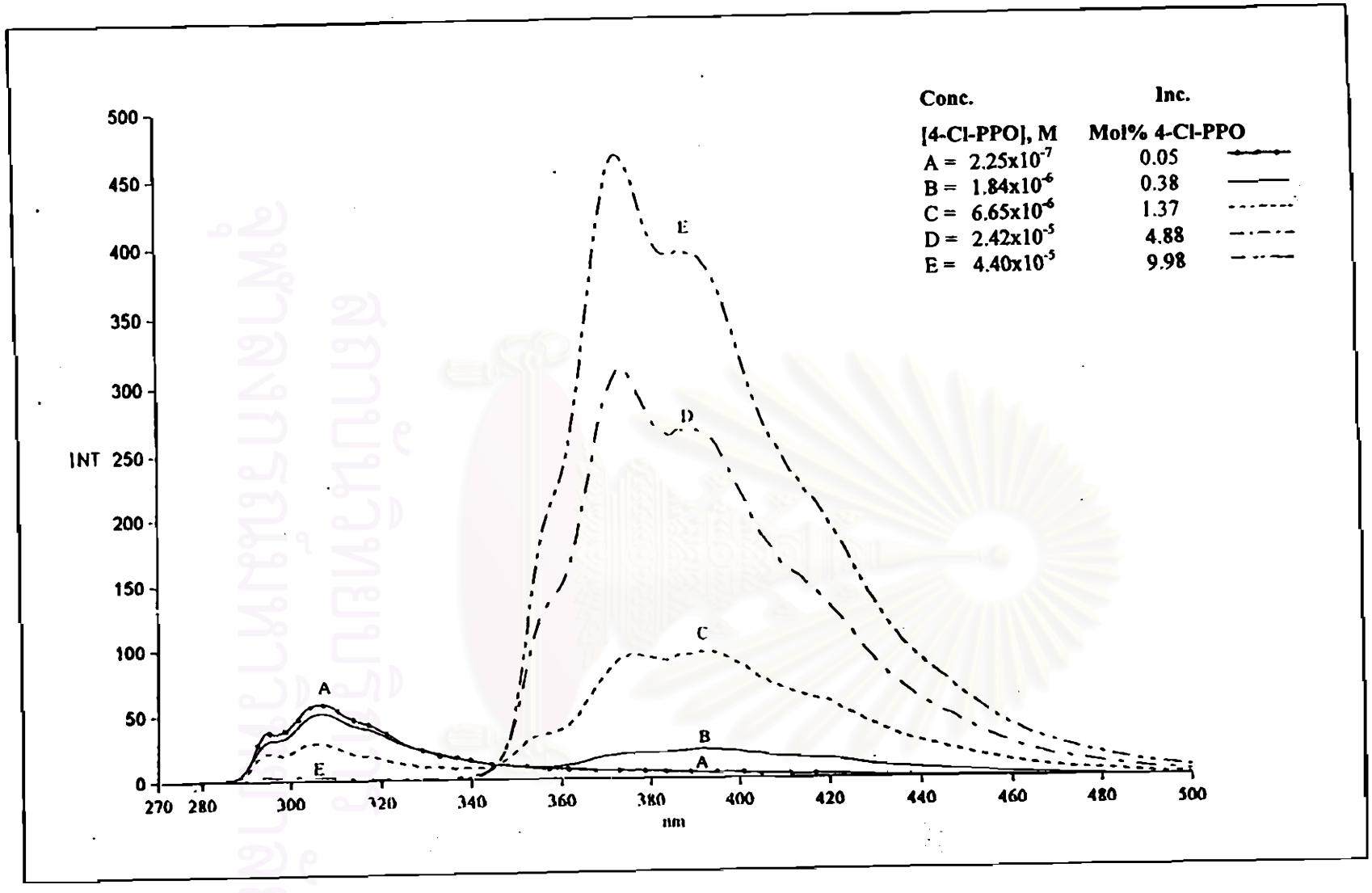

Figure A20 : Fluorescence emission spectra of poly[4-chloro-2-(4′-vinylphenyl)-5-phenyloxazole-co-styrene] 5 mg in 100 mL of dichloromethane solution when excited at 260 nm (air)

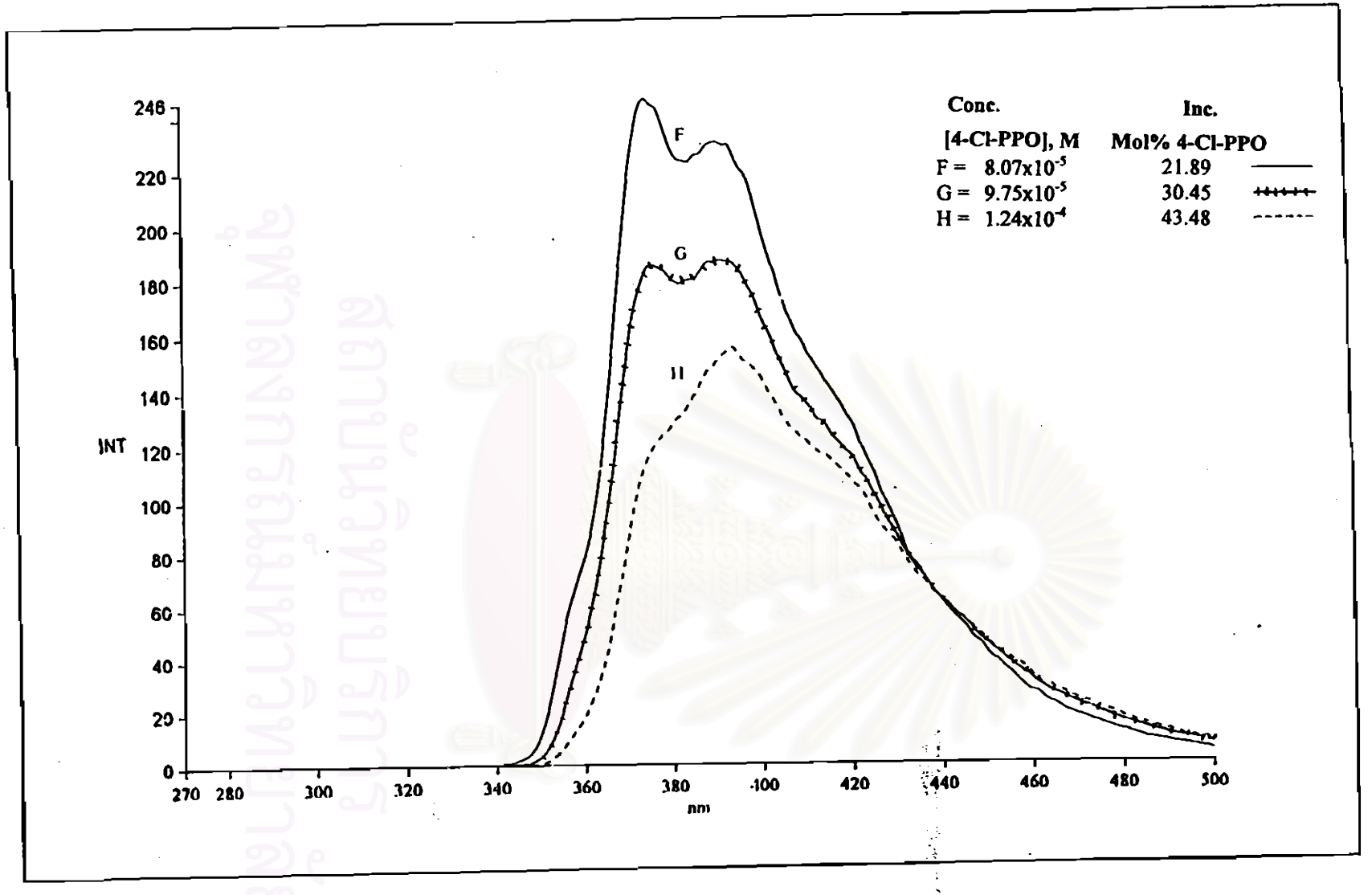

Figure A21 : Fluorescence emission spectra of poly[4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole-co-styrene] 5 mg in 100 mL of dichloromethane solution when excited at 260 nm (air)

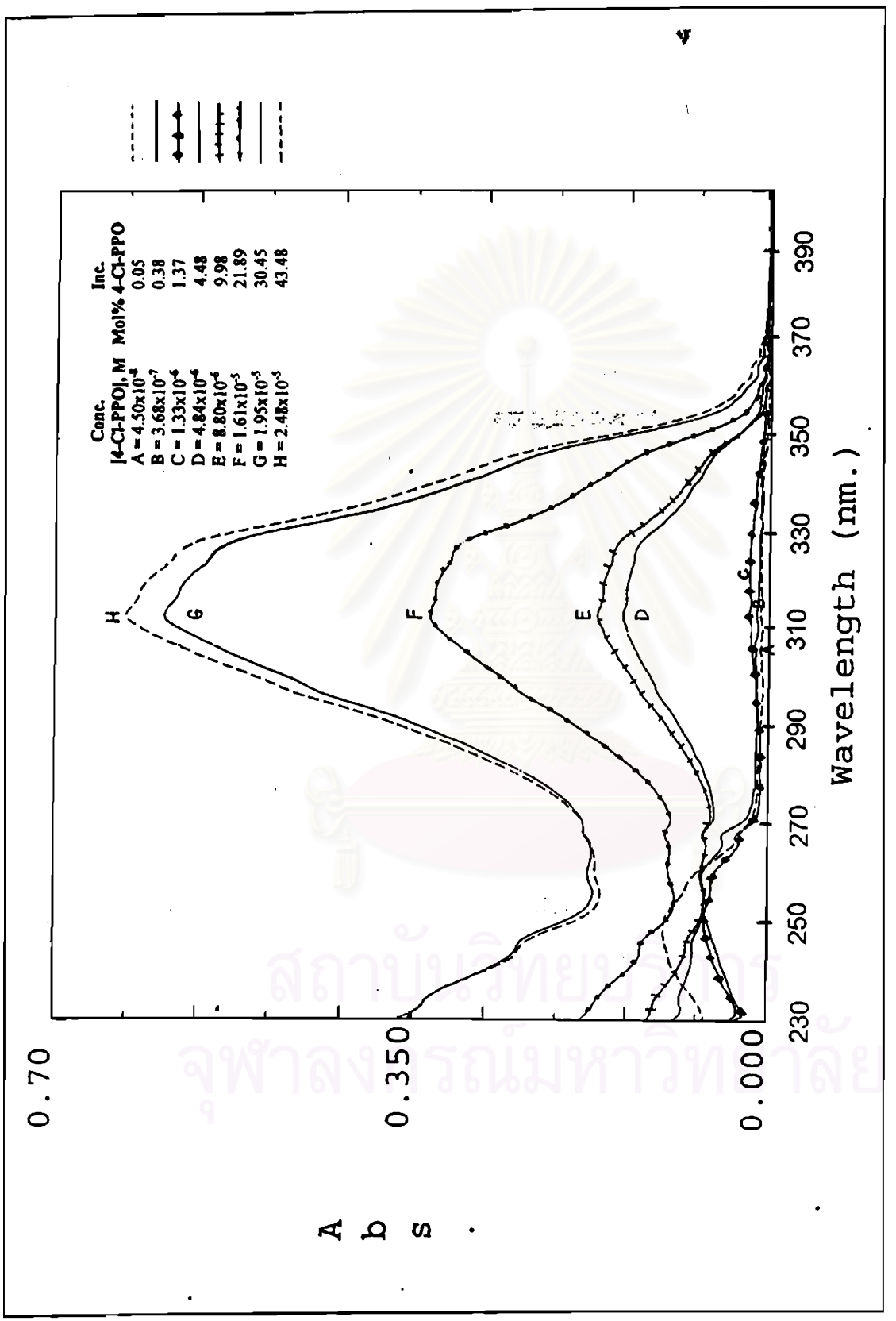

Figure A22 : UV spectra of poly[4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole-co-styrene] 1 mg in 100 mL of dichloromethane solution (air)

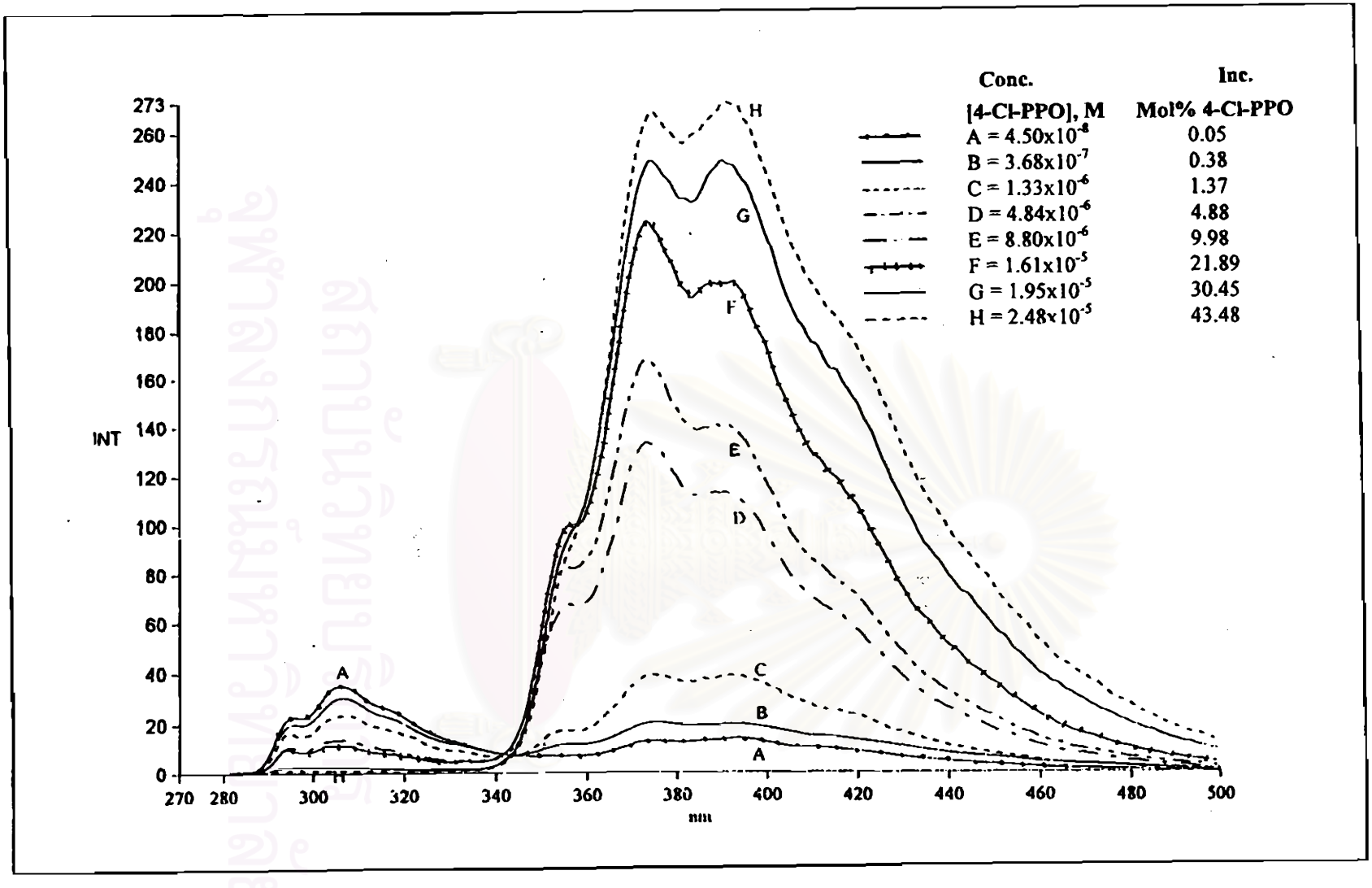

Figure A23 : Fluorescence emission spectra of poly[4-chloro-2-(4′-vinylphenyl)-5-phenyloxazole-co-styrene] 1 mg in 100 mL of dichloromethane solution when excited at 260 nm (air)

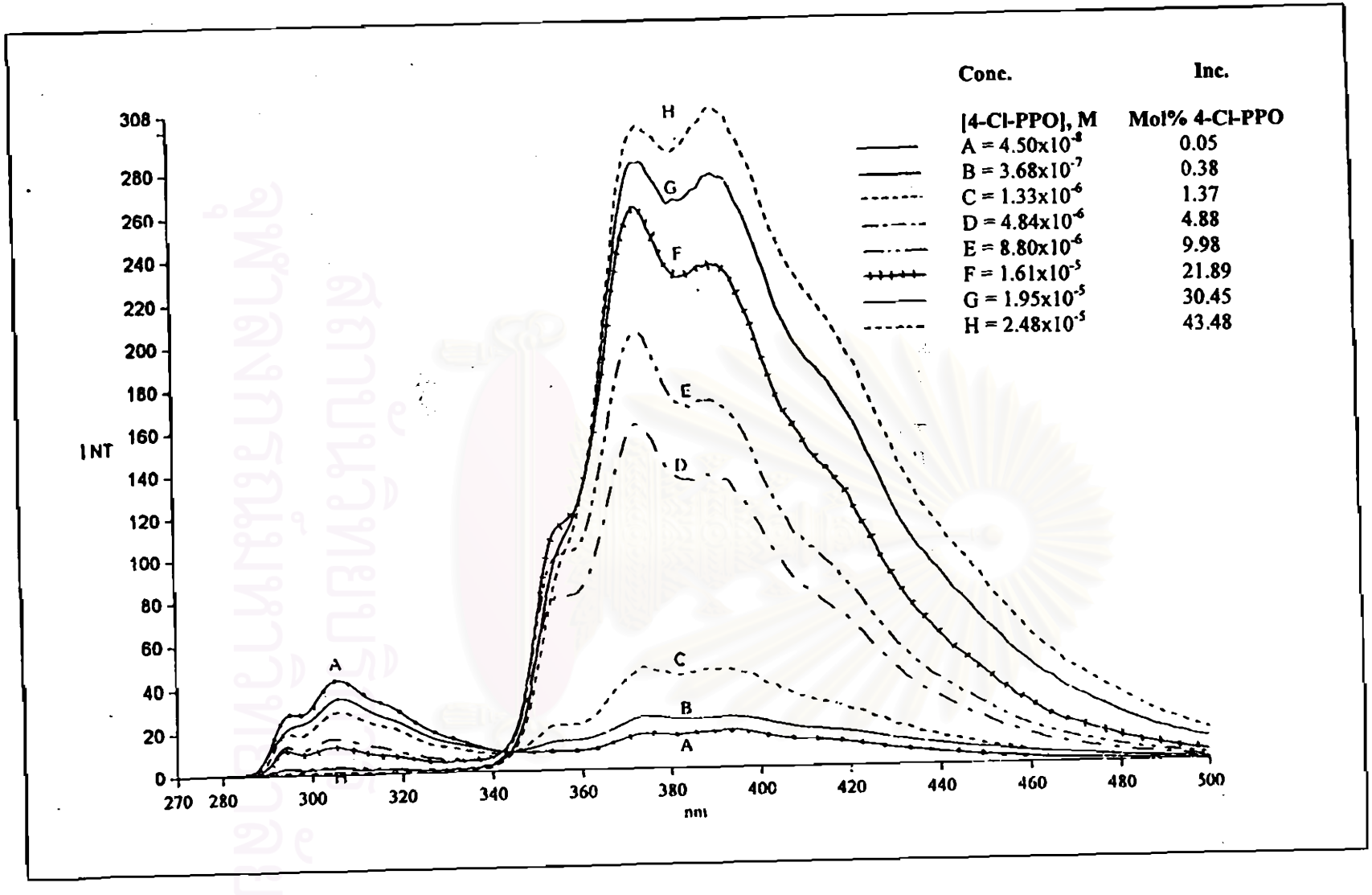

Figure A24 : Fluorescence emission spectra of poly[4-chloro-2-(4′-vinylphenyl)-5-phenyloxazole-co-styrene] 5 mg in 100 mL of dichloromethane solution when excited at 260 nm (nitrogen)

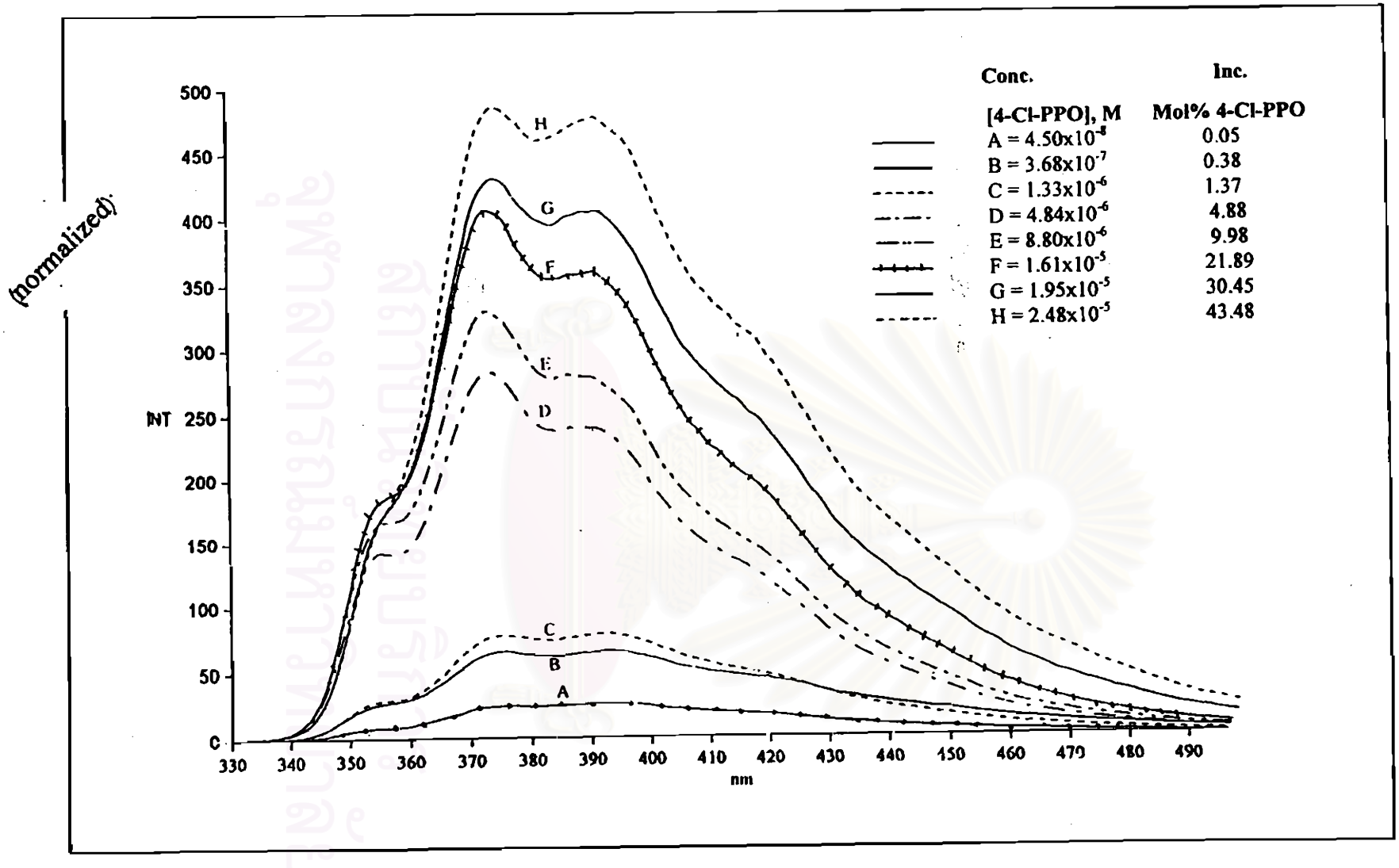

Figure A25 : Fluorescence emission spectra of poly[4-chloro-2-(4′-vinylphenyl)-5-phenyloxazole-co-styrene] 5 mg in 100 mL of dichloromethane solution when excited at 320 nm (air)

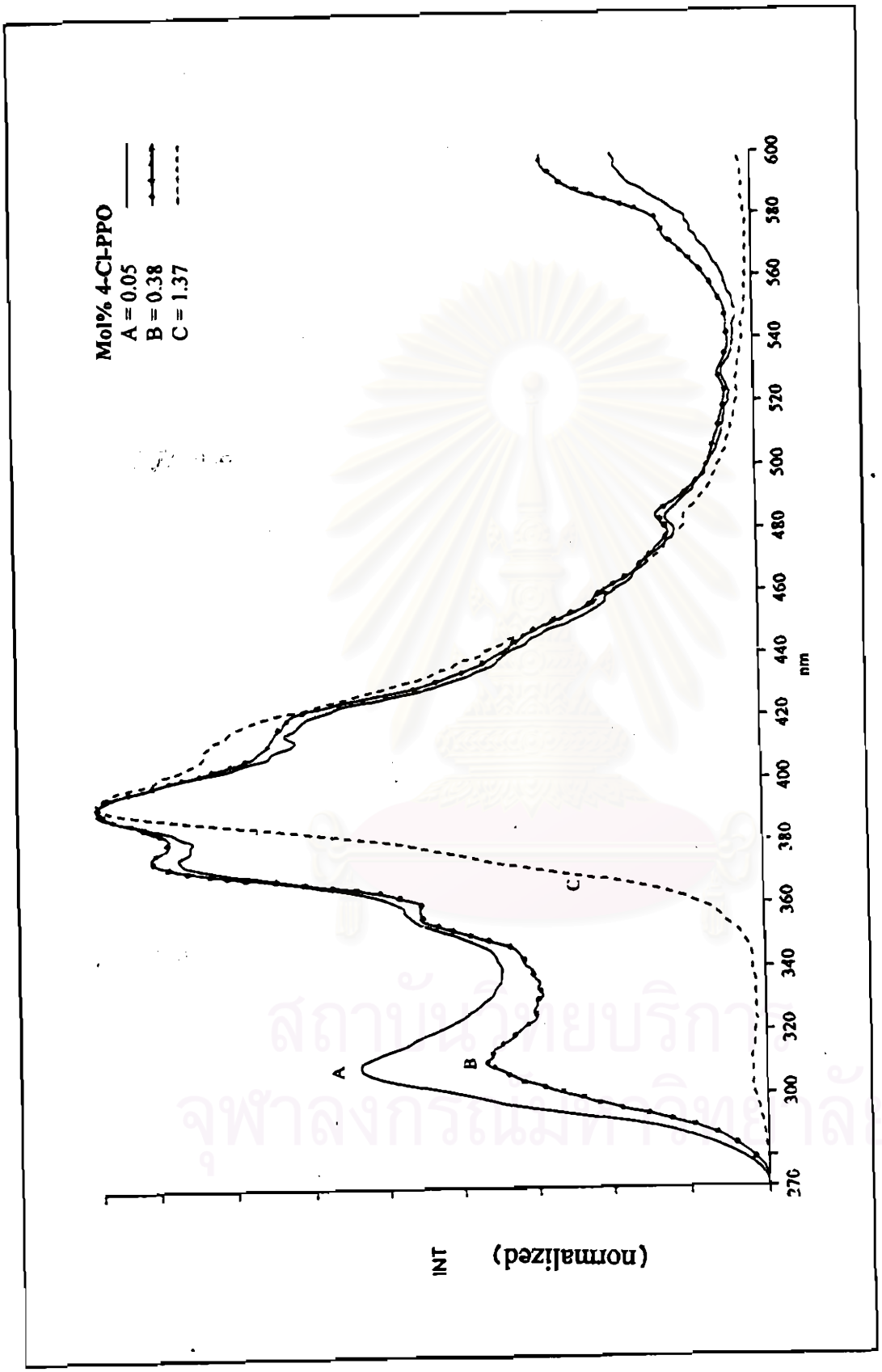

Figure A26 : Fluorescence emission spectra of poly[4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole-co-styrene] film when excited at 260 nm (air)

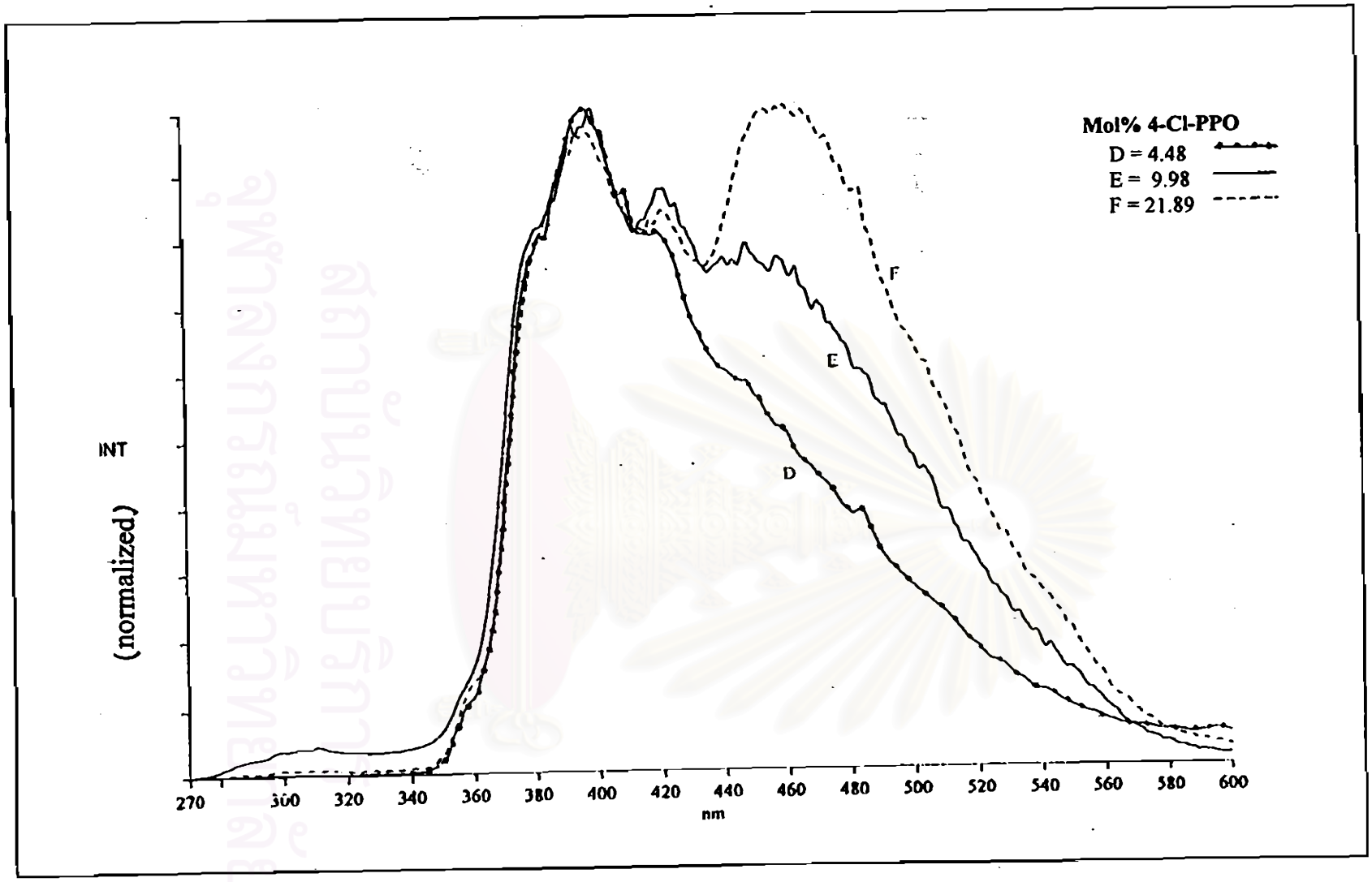

Figure A27 : Fluorescence emission spectra of poly[4-chloro-2-(4′-vinylphenyl)-5-phenyloxazole-co-styrene] film when excited at 260 nm (air)

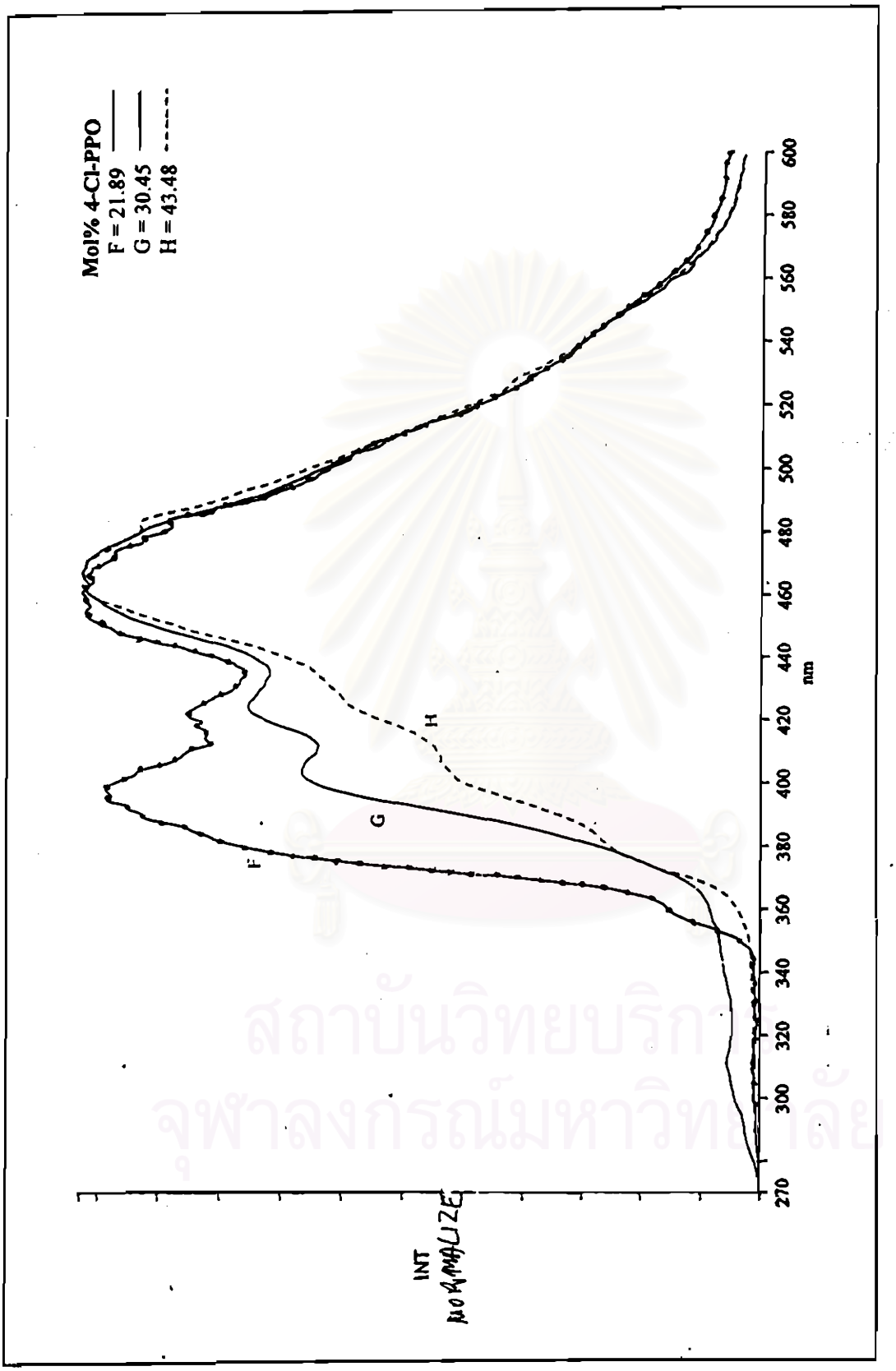

Figure A28 : Fluorescence emission spectra of poly[4-chloro-2-(4'-vinylphenyl)-5-phenyloxazole-co-styrene] film when excited at 260 nm (air)

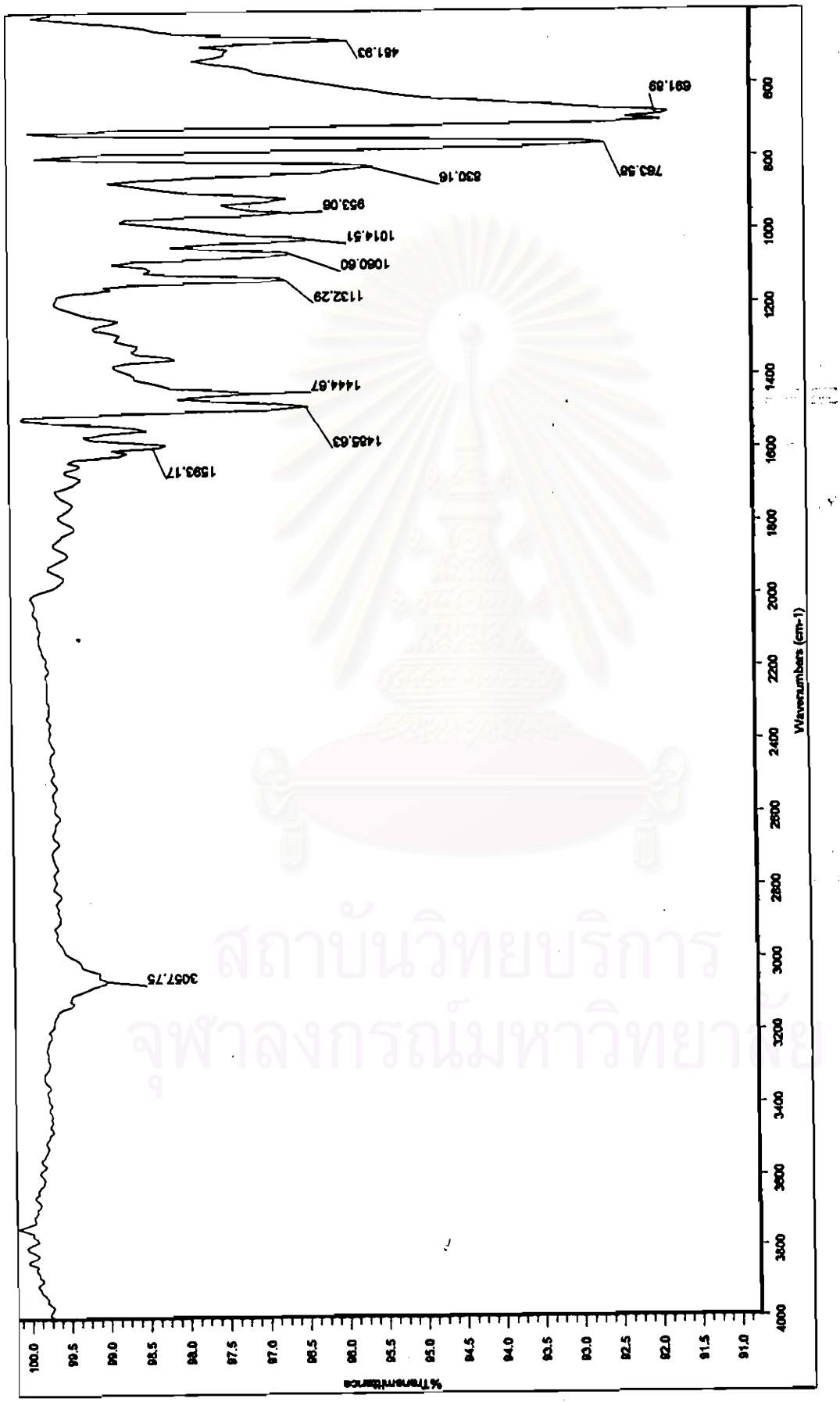

Figure A29 : IR spectrum of 2,5-diphenyloxazole (KBr Pellet)

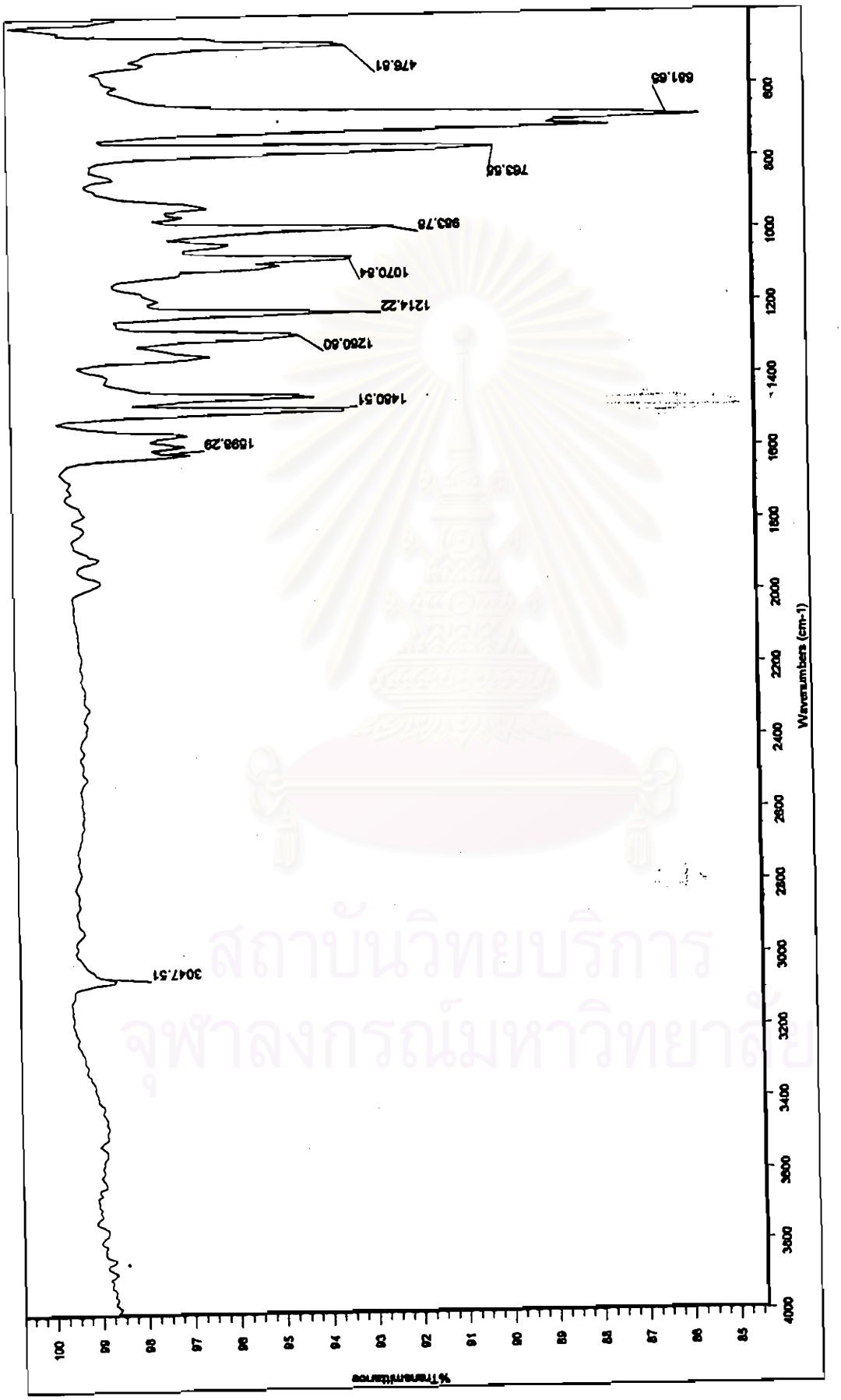

Figure A30 : IR spectrum of 4-chloro-2,5-diphenyloxazole (KBr Pellet)

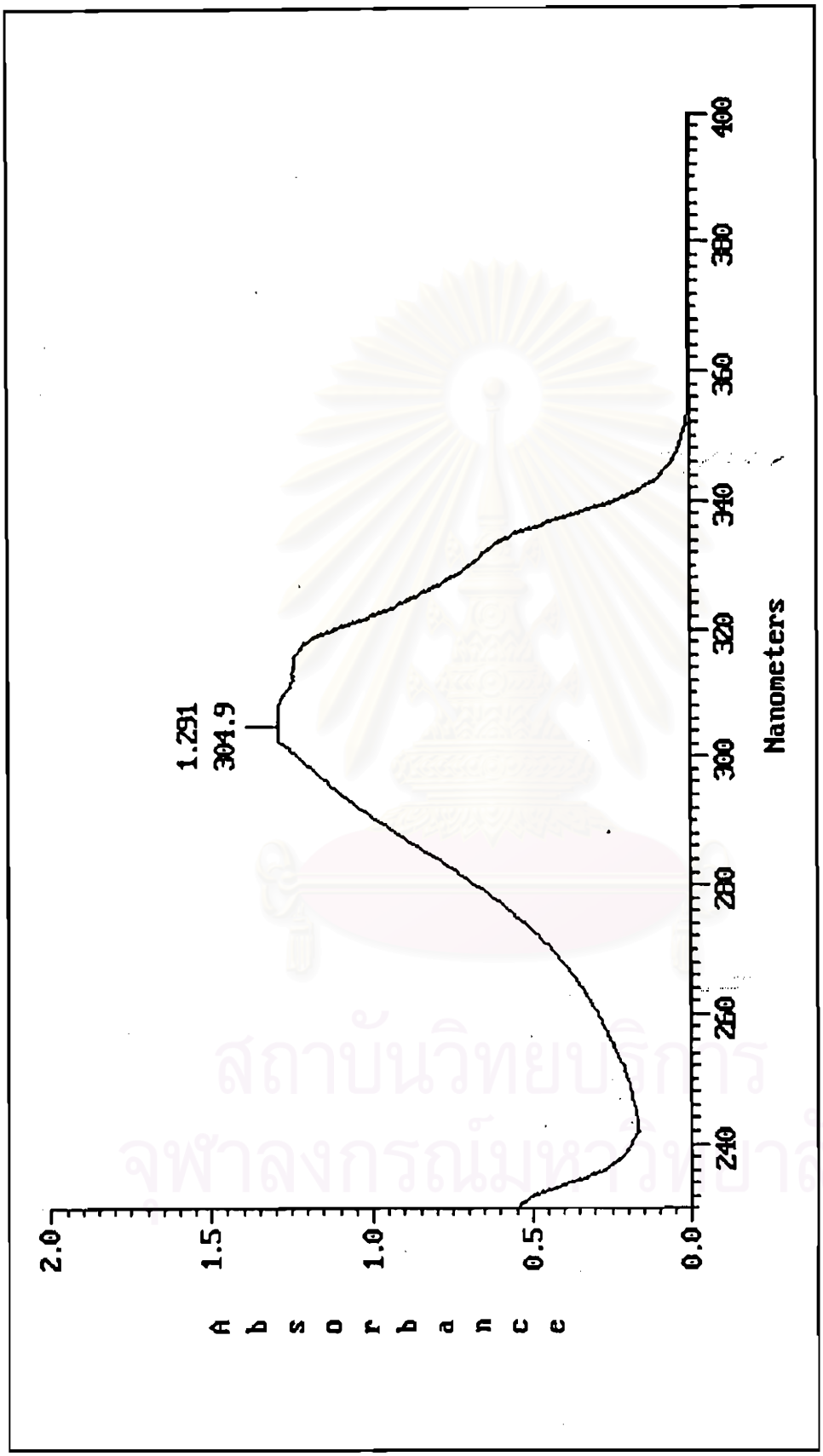

Figure A31 : UV absorption spectrum of 2,5-diphenyloxazole (in dichloromethane)

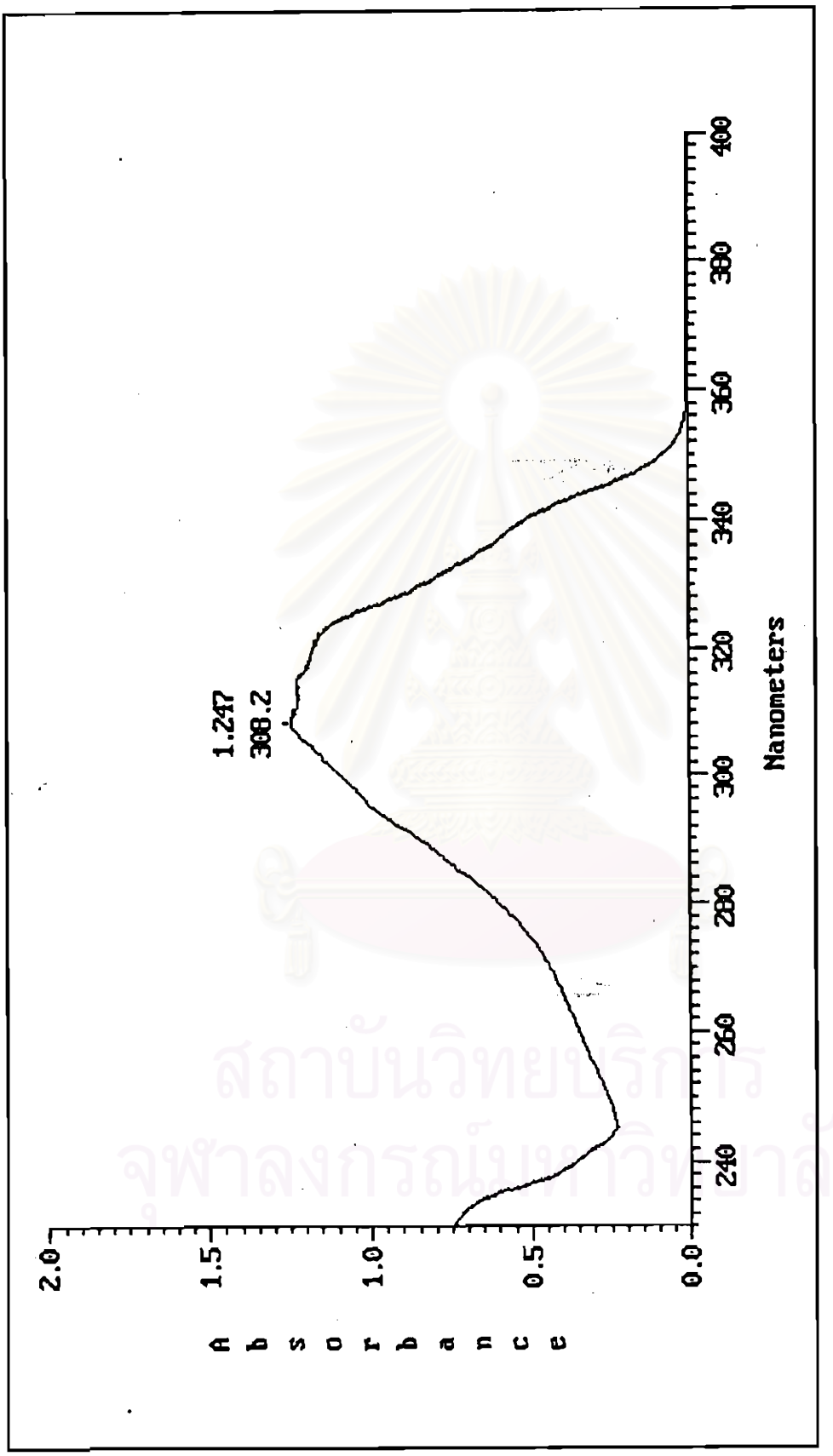

Figure A32 : UV absorption spectrum of 4-chloro-2,5-diphenyloxazole (in dichloromethane)

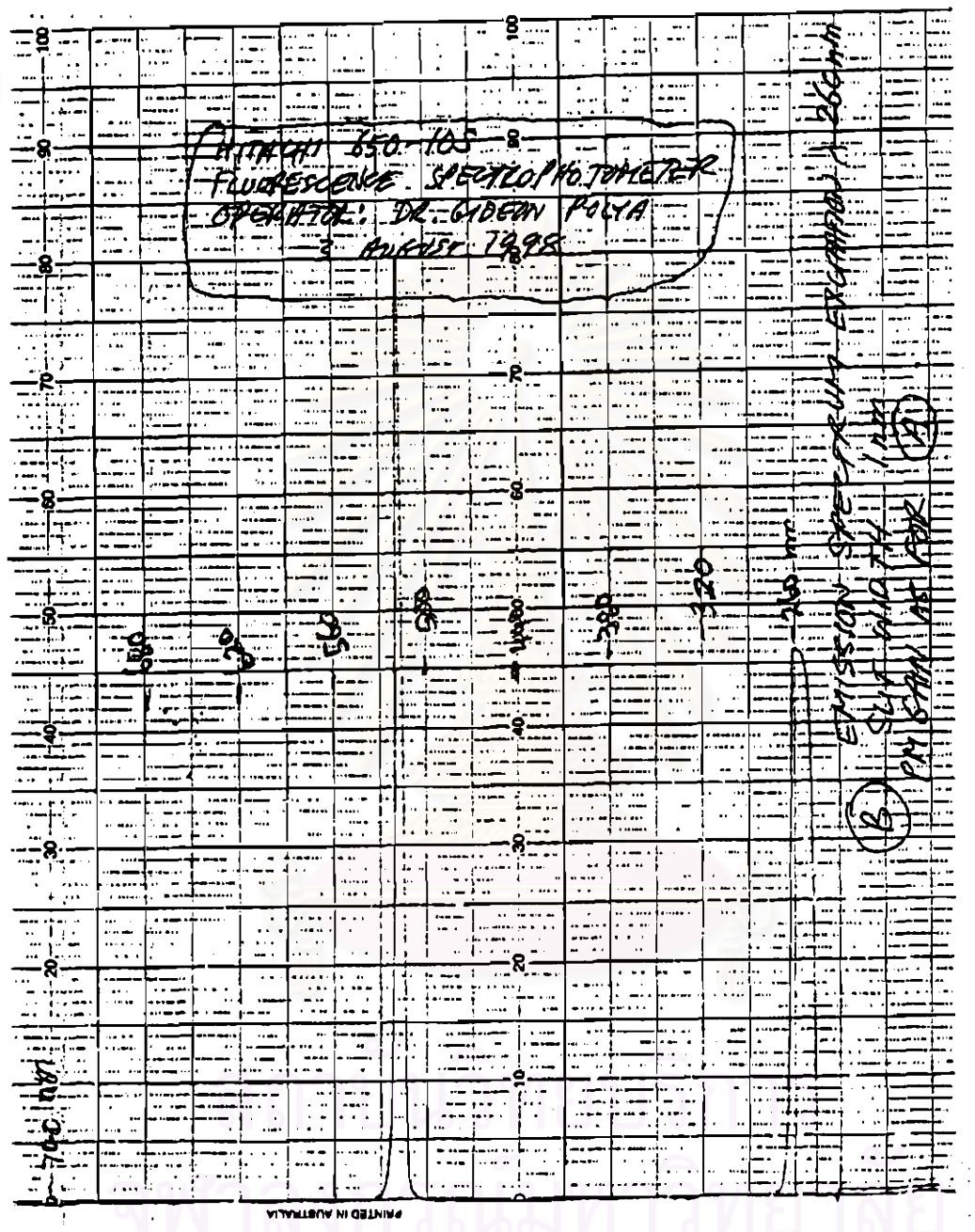

Figure A33 : Fluorescence spectrum of 4-Cl-PPO/PMMA copolymer film

Appendix B

Plots of UV and Fluorescence data

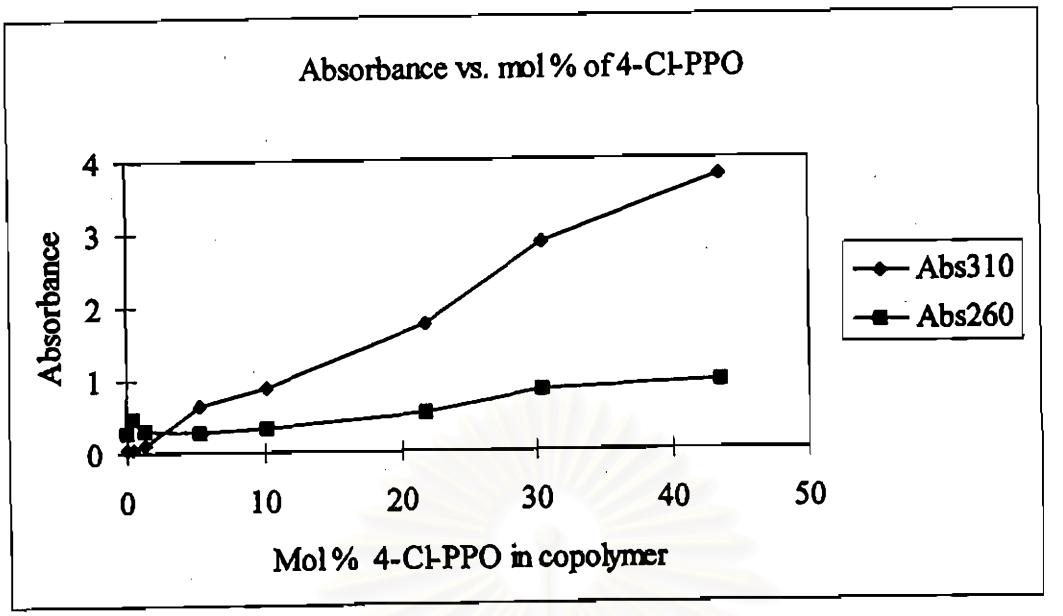

Figure B1 : The absorbances at wavelength 260 and 312 nm versus mol % of 4-Cl-PPO in the poly[4-Cl-PPO-co-styrene] 5 mg/100 mL CH_2Cl_2

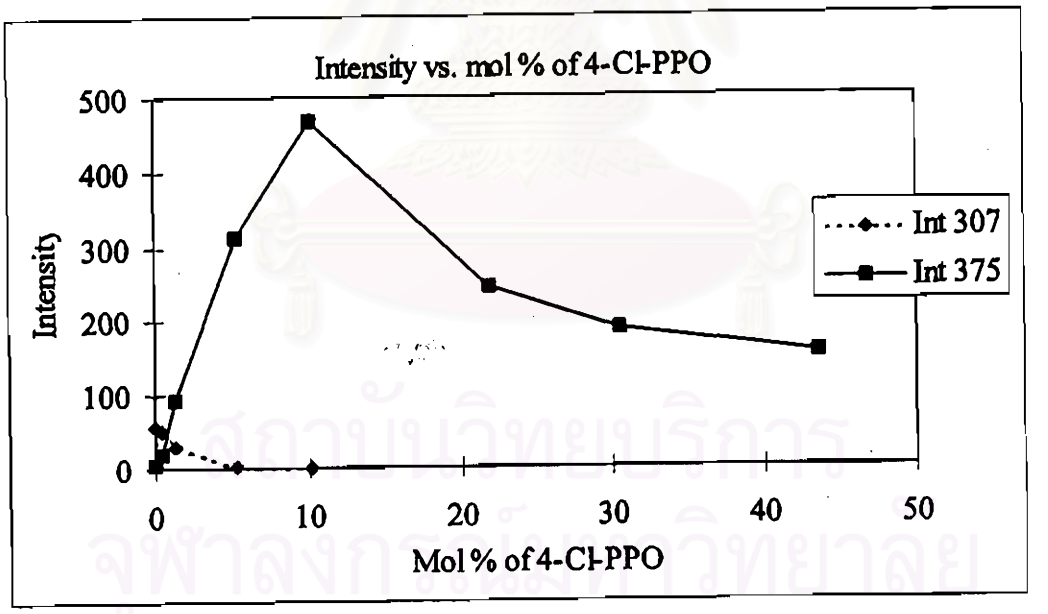

Figure B2 : The fluorescence intensities of poly[4-Cl-PPO-co-styrene] 5 mg/ 100 mL CH_2Cl_2 at wavelength of 307 nm and 375 nm, excitation at 260 nm in air-saturated solution

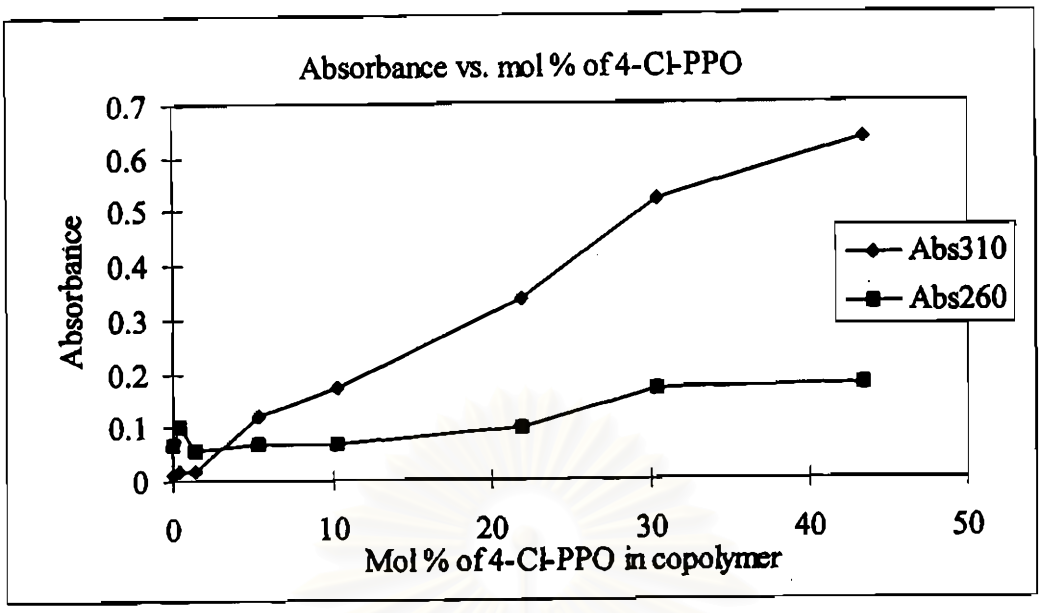

Figure B3 : The absorbances at wavelength 260 and 312 nm versus mol % of 4-Cl-PPO in the poly[4-Cl-PPO-co-styrene] 1 mg/100 mL CH_2Cl_2

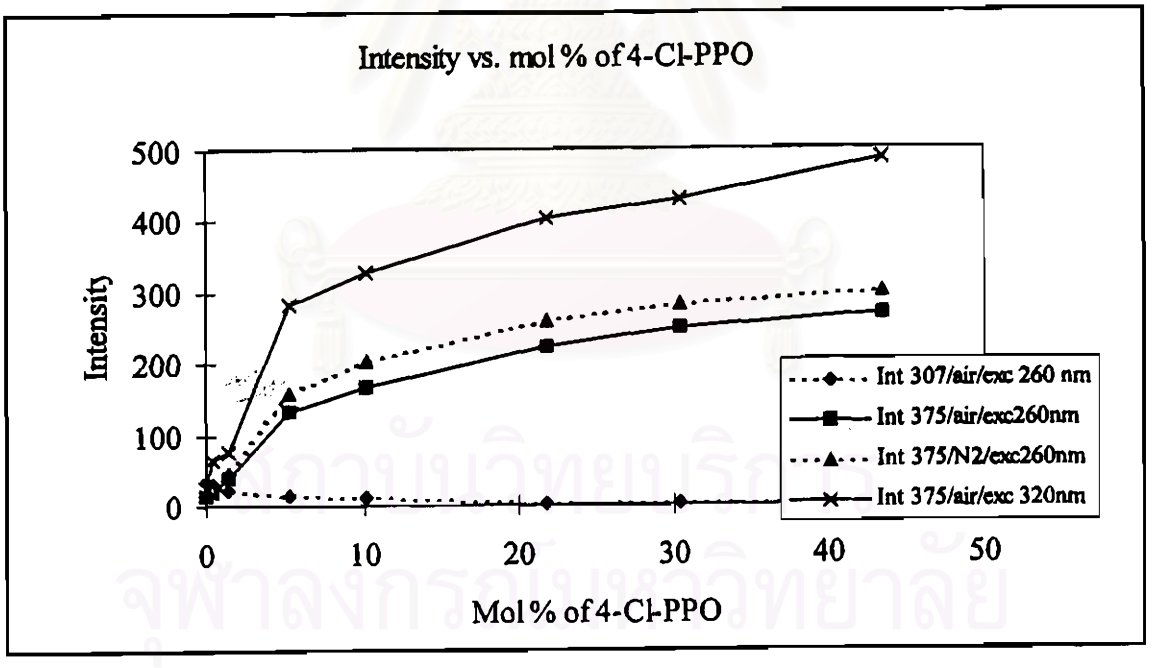

Figure B4 : The fluorescence intensities of poly[4-Cl-PPO-co-styrene] 1 mg/100 mL CH_2Cl_2 at wavelength of 307 nm and 375 nm, excitation at 260 and 320 nm in air-saturated and degassed solution

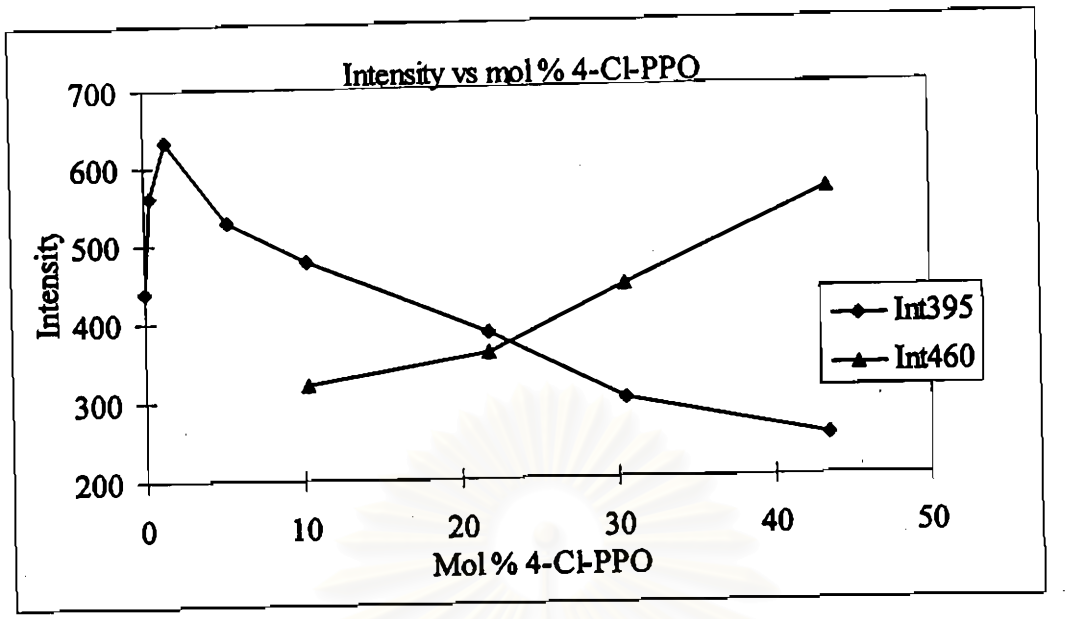

Figure B5 : The fluorescence intensities of poly[4-Cl-PPO-co-styrene] films at wavelength of 390 and 460 nm, excitation at 260 nm

Vita

Miss Athinee Viyakarn was born on September 30, 1975 in Bangkok. She graduated with a Bachelor degree of Science (Chemistry) from Chulalongkorn University in 1995. Since then she was accepted as graduate student in the program of Petrochemistry and Polymer Science, Chulalongkorn University. She received a Master's degree of Science in 1998.