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APPENDICES

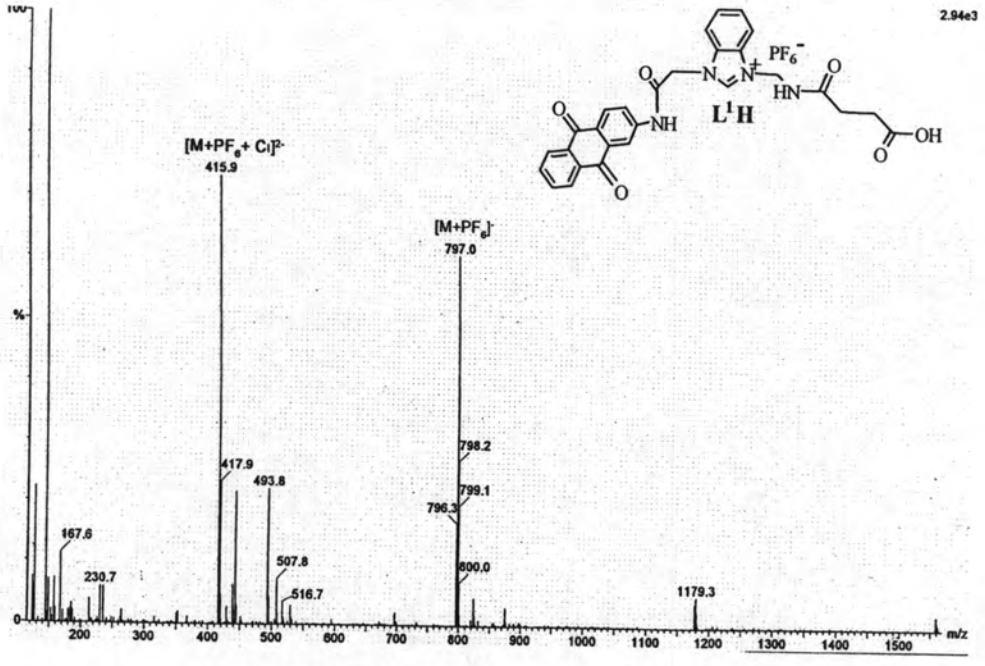

Figure A1 ESI MS (ES^-) result of L^1H **(M= L^1H)**

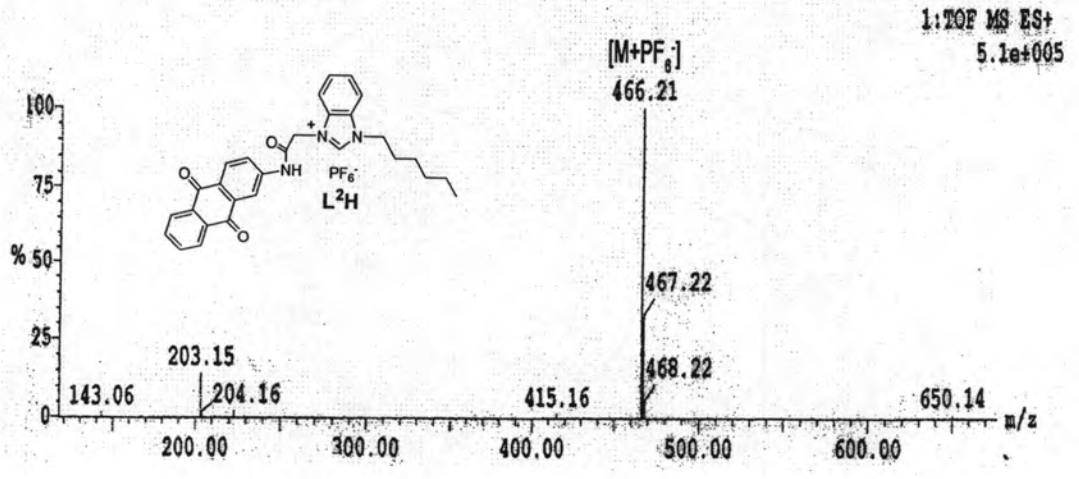

Figure A2 ESI MS (ES^+) result of L^2H **(M= L^2H)**

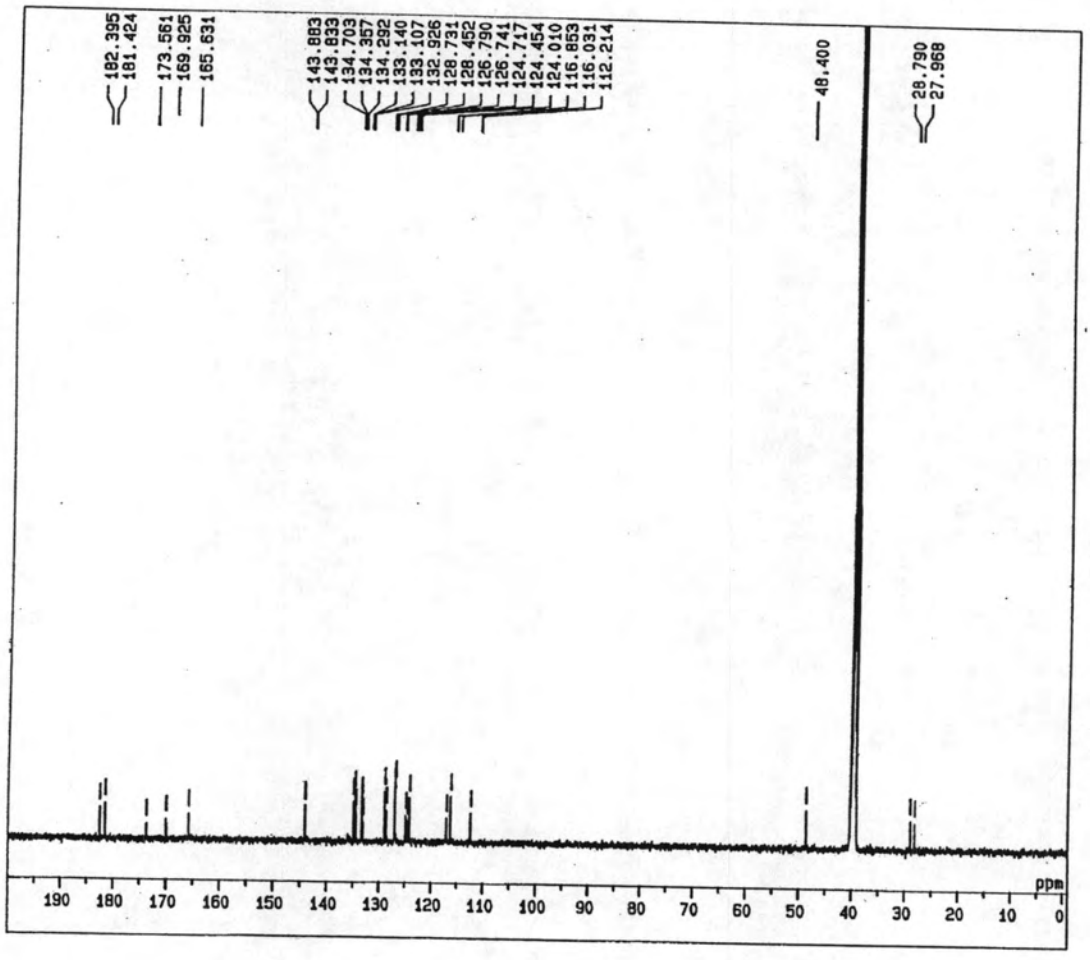

Figure A3 ^{13}C NMR spectrum of $\mathbf{L^1H}$ in DMSO-d_6.

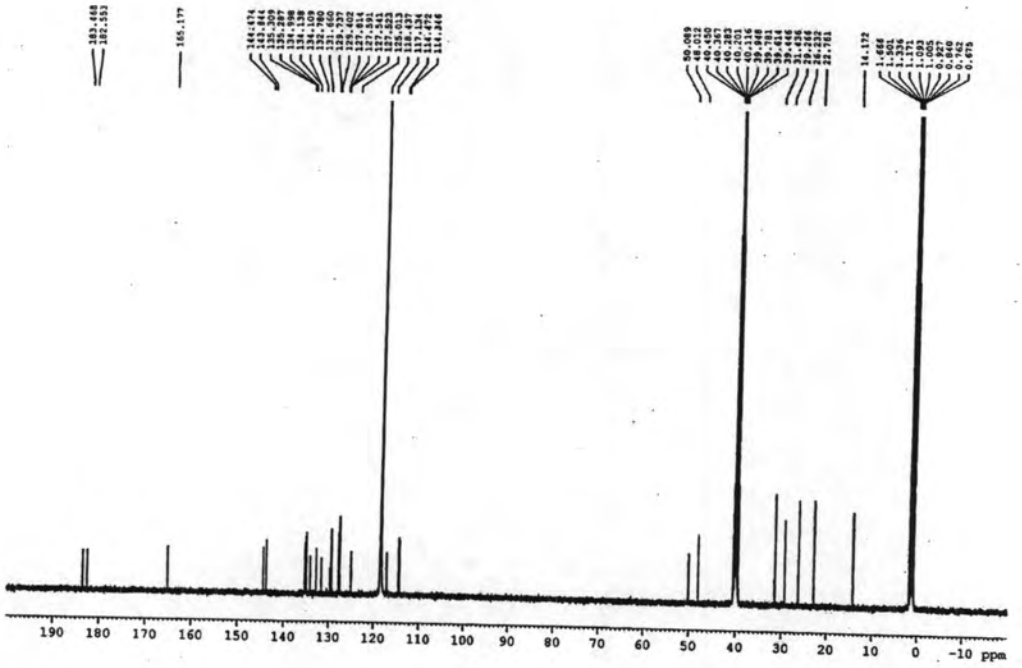

Figure A4 ^{13}C NMR spectrum of L^2H in DMSO-d_6

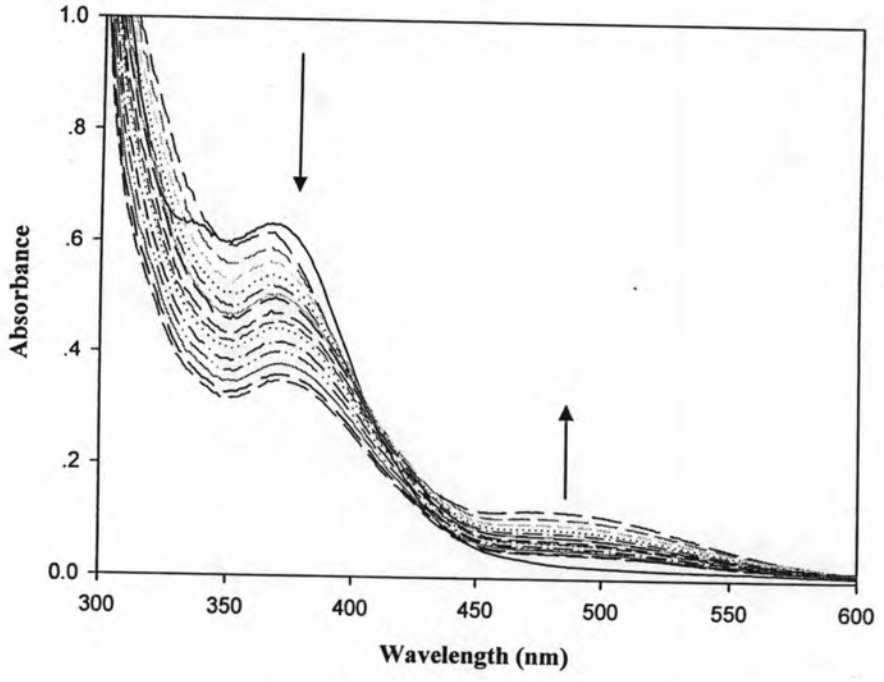

Figure A5 UV titration of $\mathbf{L^2H}$ with Bu_4NCH_3COO in DMSO. $[\mathbf{L^2H}] = 7.5 * 10^{-4}$ M and $[Bu_4NCH_3COO] = 0\text{-}0.02$ M.

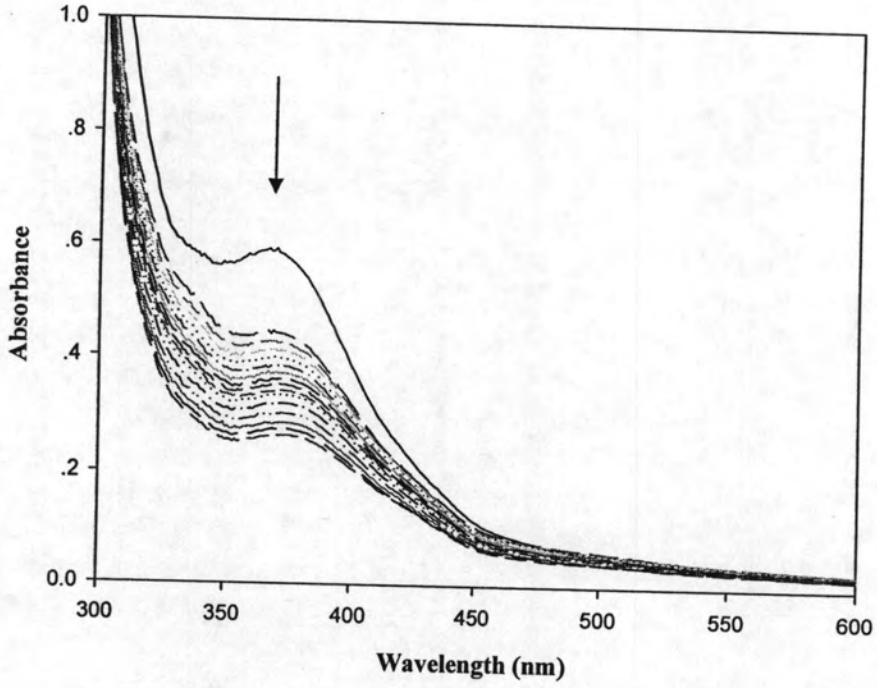

Figure A6 UV titration of $\mathbf{L^2H}$ with $Bu_4NC_6H_5COO$ in DMSO. $[\mathbf{L^2H}] = 7.5 * 10^{-4}$ M and $[Bu_4NC_6H_5COO] = 0\text{-}0.02$ M.

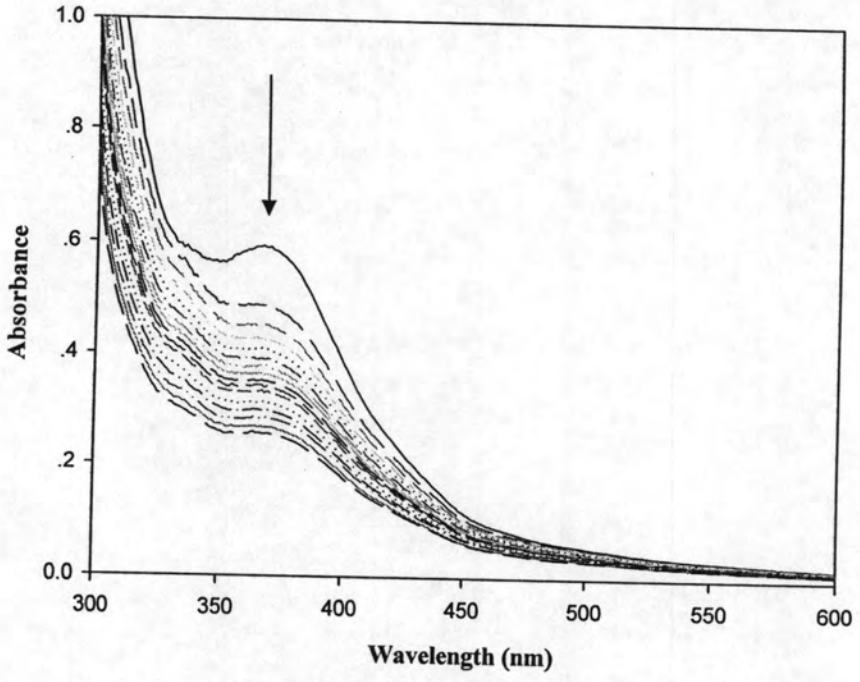

Figure A7 UV titration of $\mathbf{L^2H}$ with Bu_4NBr in DMSO. $[\mathbf{L^2H}] = 7.5 * 10^{-4}$ M and $[Bu_4NBr] = 0\text{-}0.02$ M.

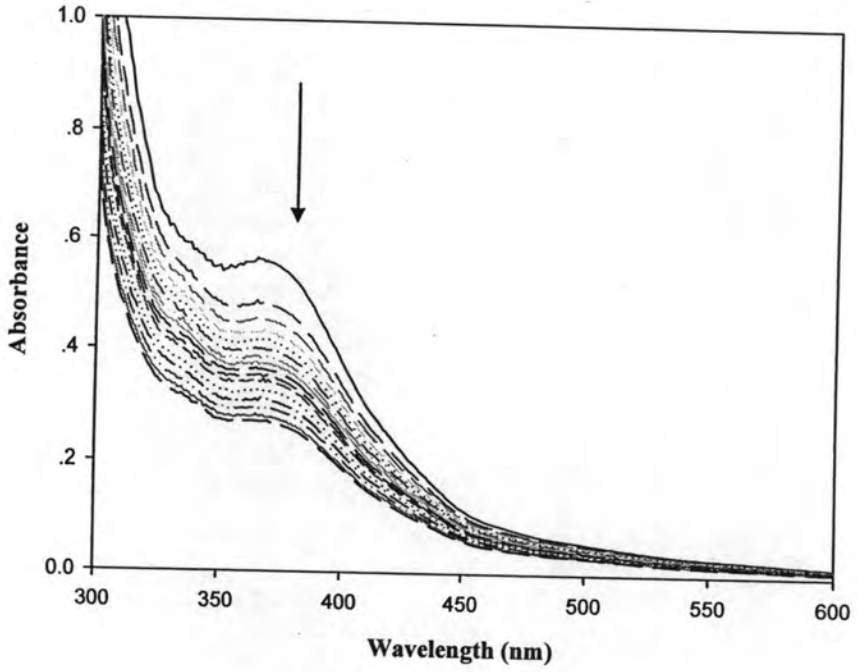

Figure A8 UV titration of $\mathbf{L^2H}$ with Bu_4NCl in DMSO. $[\mathbf{L^2H}]$ = 7.5 * 10^{-4} M and $[Bu_4NCl]$ = 0-0.02 M.

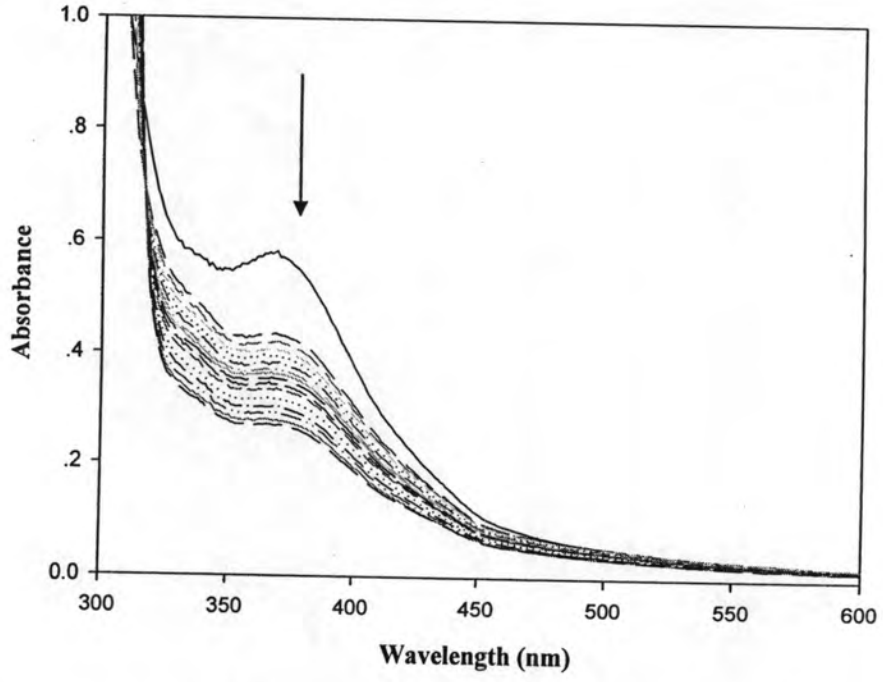

Figure A9 UV titration of $\mathbf{L^2H}$ with Trp in DMSO. $[\mathbf{L^2H}]$ = 7.5 * 10^{-4} M and [Trp] = 0-0.02 M.

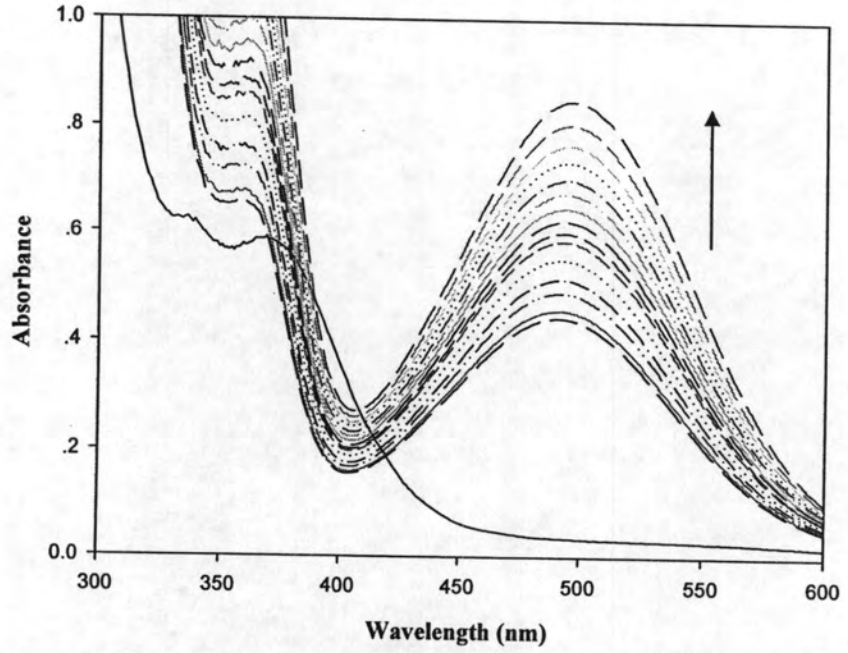

Figure A10 UV titration of $\mathbf{L^2H}$ with Bu_4NOH in DMSO. $[\mathbf{L^2H}] = 7.5 * 10^{-4}$ M and $[Bu_4NOH] = 0\text{-}0.02$ M.

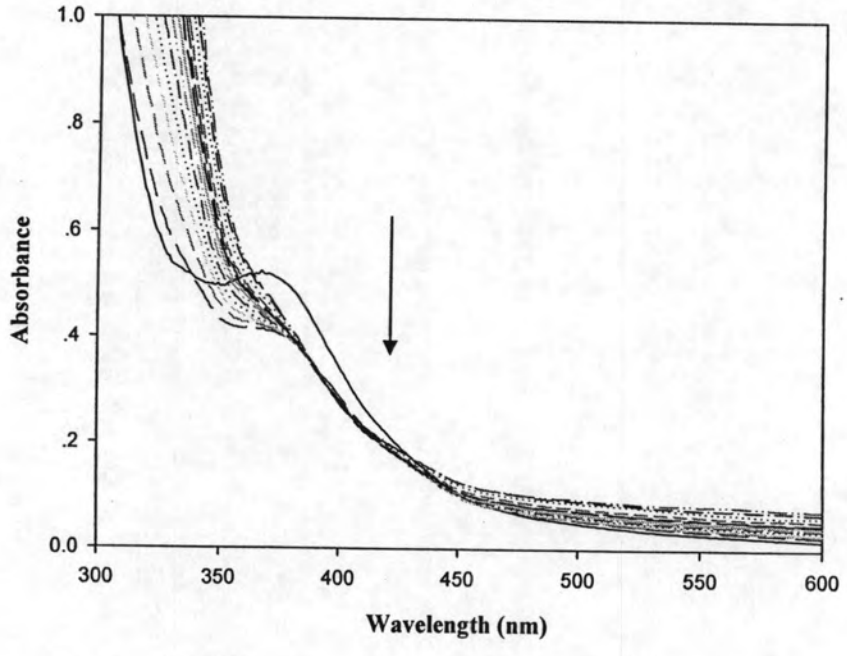

Figure A11 UV titration of $\mathbf{L^2H}$ with Phe in DMSO. $[\mathbf{L^2H}] = 7.5 * 10^{-4}$ M and [Phe] = 0-0.02 M.

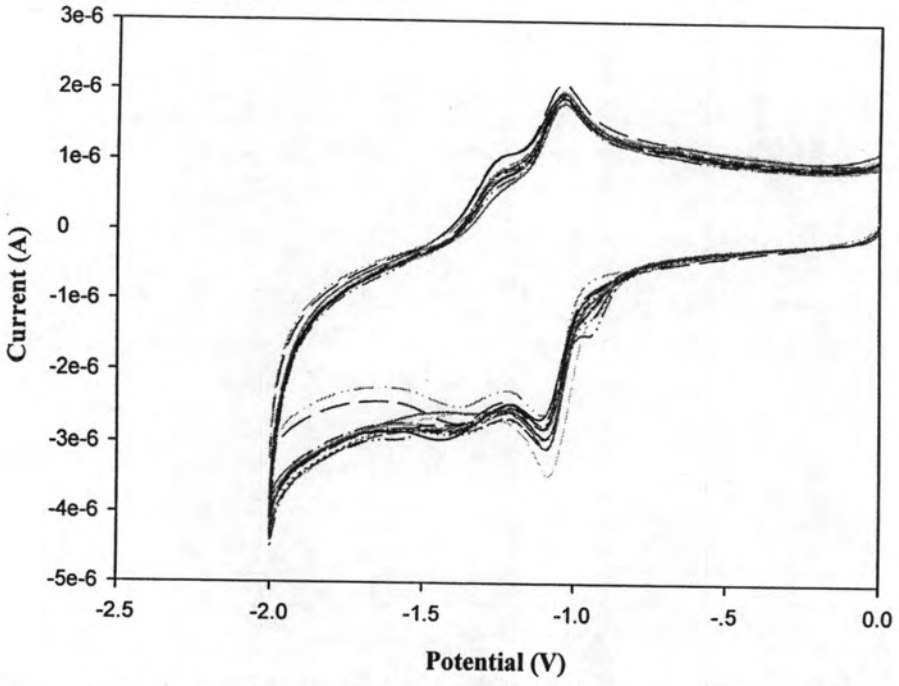

Figure A12 CV titration of $\mathbf{L^2H}$ with Bu_4NCl in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NCl] = 0.1$ M.

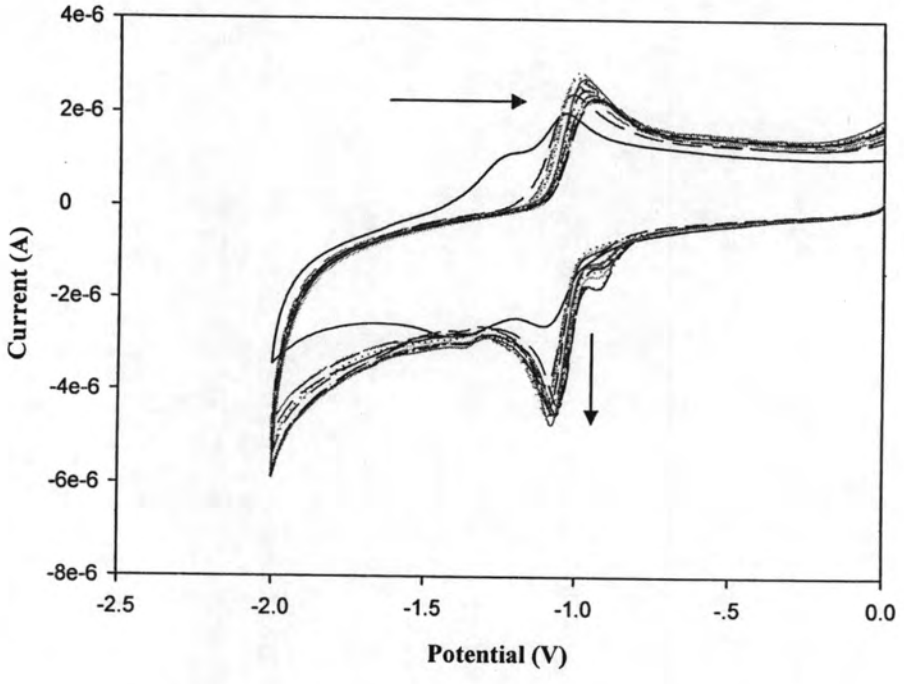

Figure A13 CV titration of $\mathbf{L^2H}$ with Bu_4NCH_3COO in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NCH_3COO] = 0.1$ M.

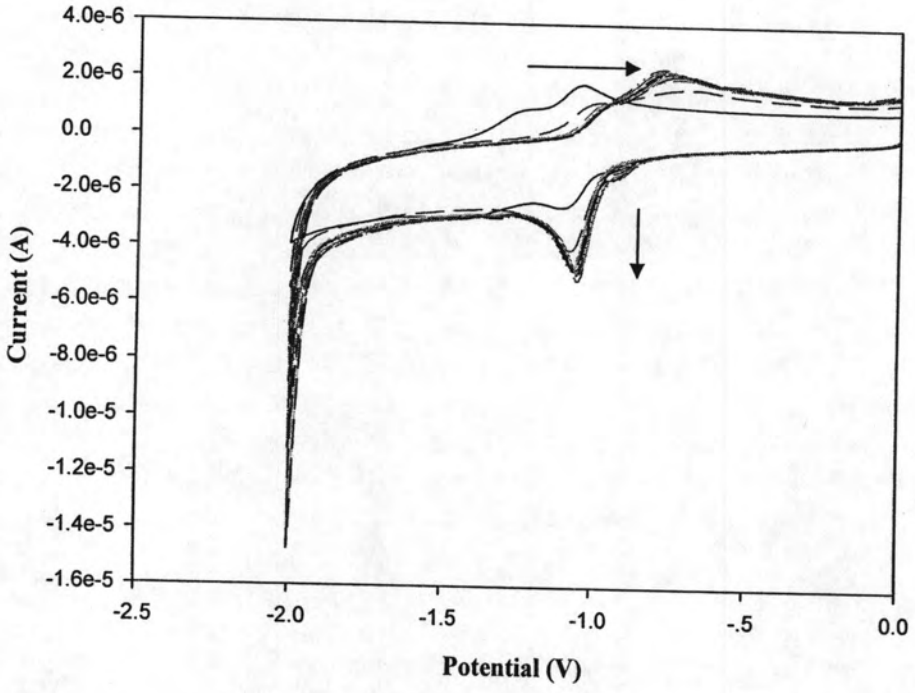

Figure A14 CV titration of $\mathbf{L^2H}$ with $Bu_4NC_6H_5COO$ in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NC_6H_5COO] = 0.1$ M.

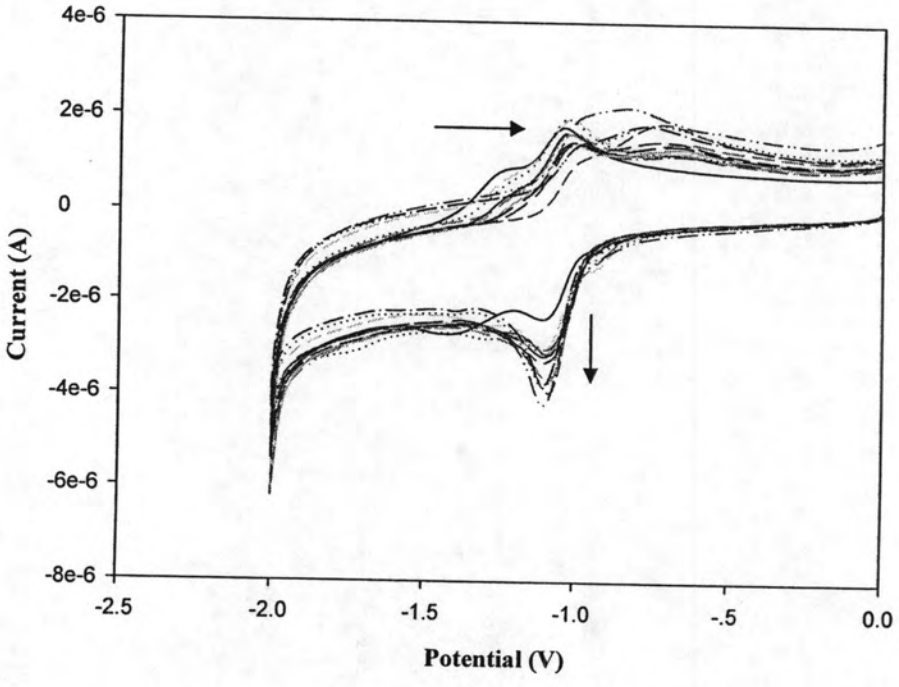

Figure A15 CV titration of $\mathbf{L^2H}$ with $Bu_4NH_2PO_4$ in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NH_2PO_4] = 0.1$ M.

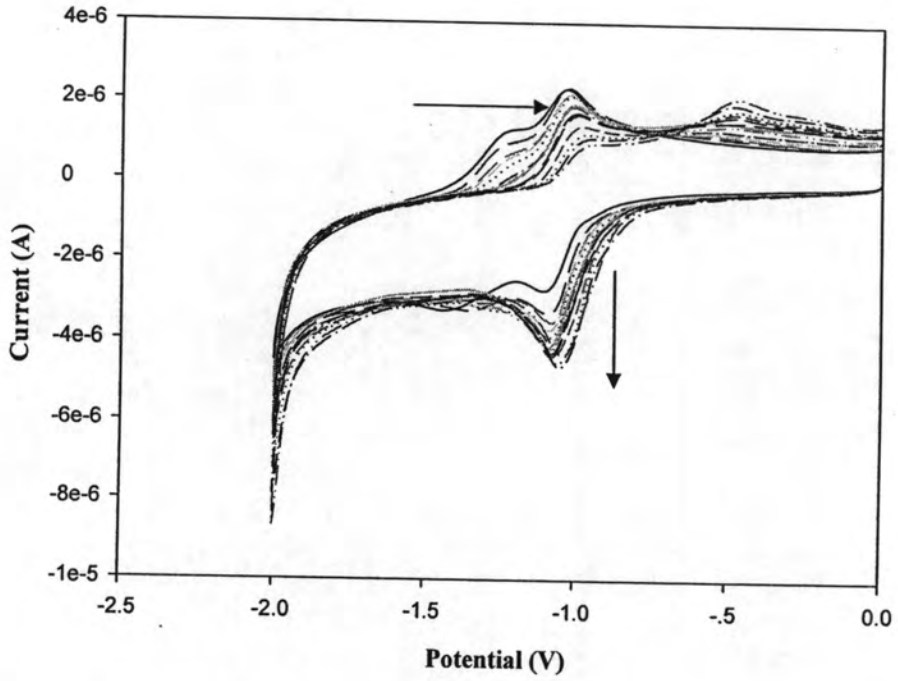

Figure A16 CV titration of L^2H with Phe in DMSO. $[L^2H] = 1 * 10^{-3}$ M and [Phe] = 0.1 M.

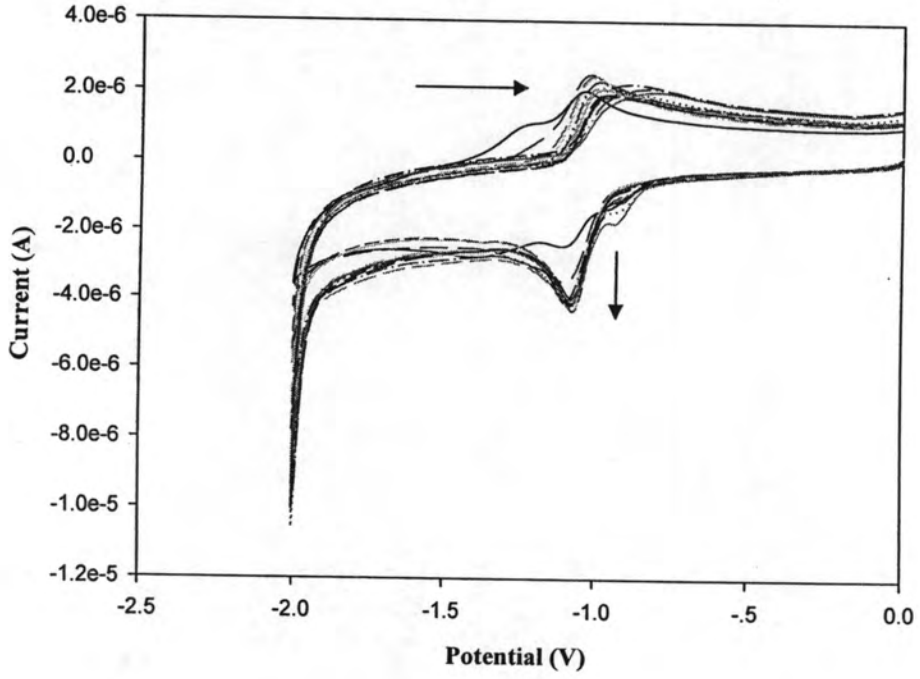

Figure A17 CV titration of L^2H with Trp in DMSO. $[L^2H] = 1 * 10^{-3}$ M and [Trp] = 0.1 M.

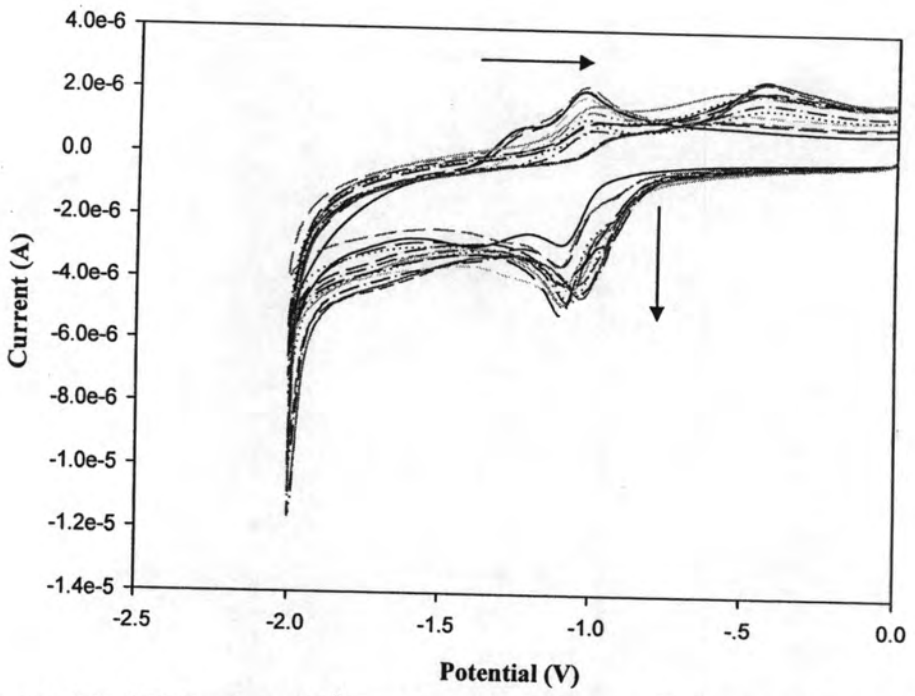

Figure A18 CV titration of $\mathbf{L^2H}$ with Ala in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and [Ala] = 0.1 M.

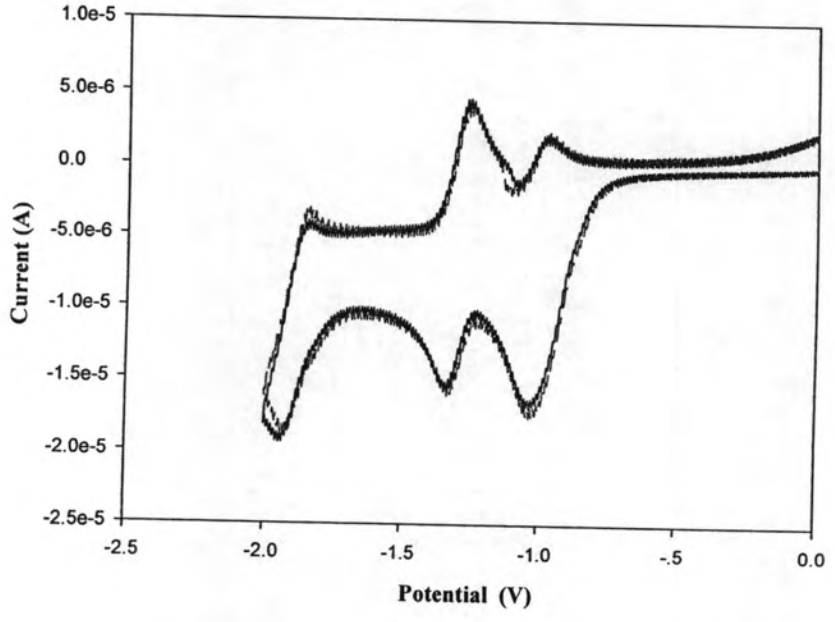

Figure A19 CV titration of $\mathbf{L^3H}$ with 4 equiv. Bu_4NCl in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NCl] = 0.1$ M.

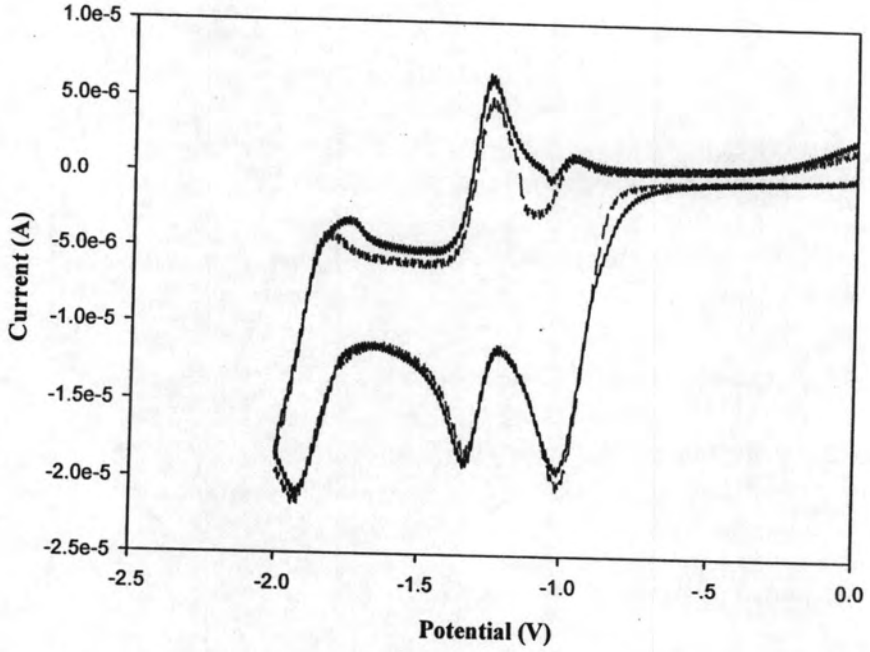

Figure A20 CV titration of $\mathbf{L^3H}$ with 4 equiv. Bu_4NCH_3COO in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NCH_3COO] = 0.1$ M.

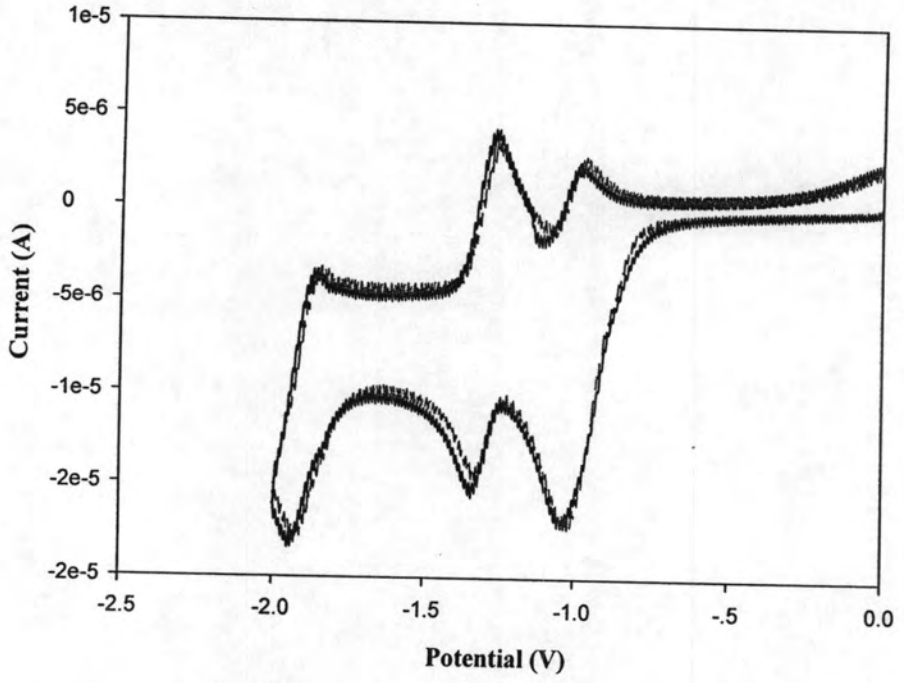

Figure A21 CV titration of $\mathbf{L^3H}$ with 4 equiv. $Bu_4NC_6H_5COO$ in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NC_6H_5COO] =$ M mol/L.

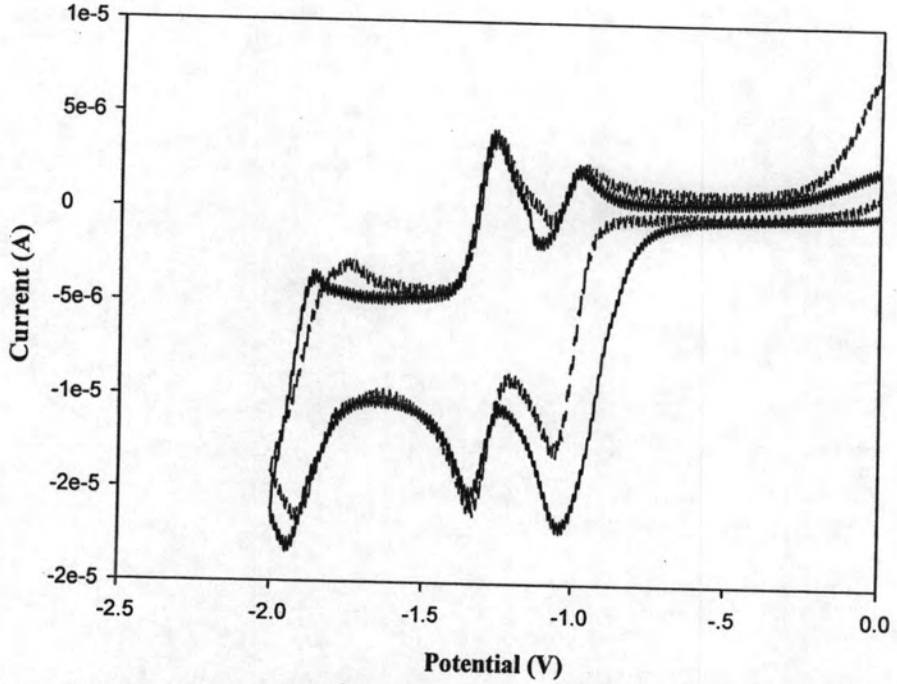

Figure A22 CV titration of $\mathbf{L^3H}$ with 4 equiv. Bu_4NF in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Bu_4NF] = 0.1$ M.

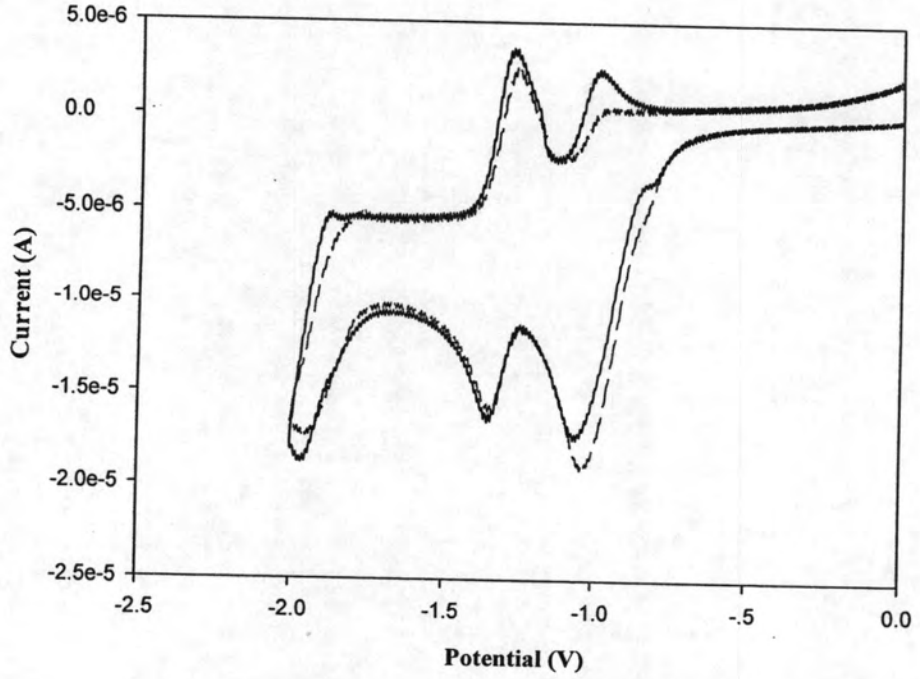

Figure A23 CV titration of $\mathbf{L^3H}$ with 4 equiv. Ala in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and $[Ala] = 0.1$ M.

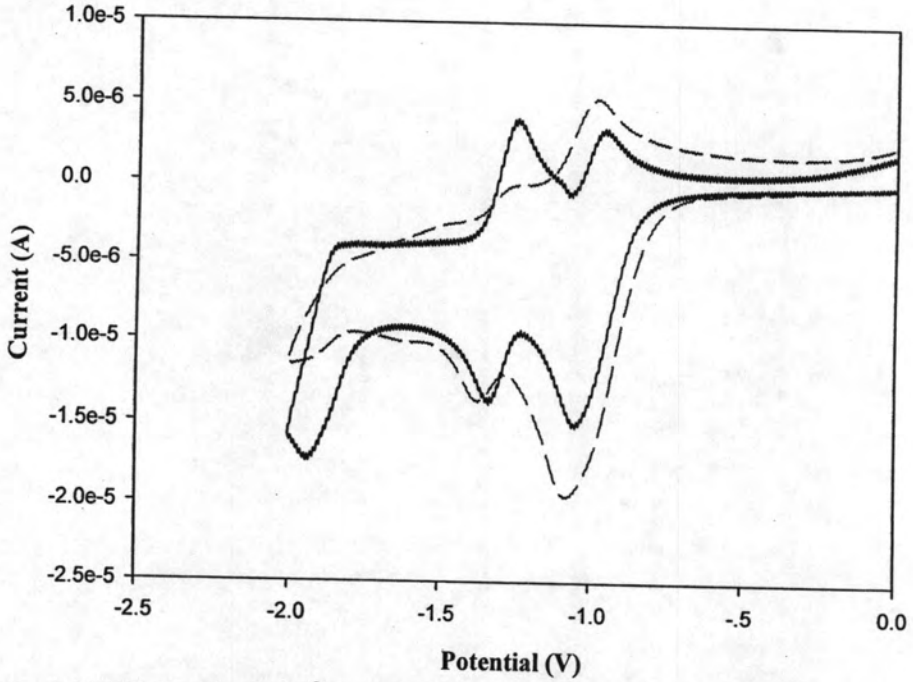

Figure A24 CV titration of $\mathbf{L^3H}$ with 4 equiv. Phe in DMSO. $[\mathbf{L^2H}] = 1 * 10^{-3}$ M and [Phe] = 0.1 M.

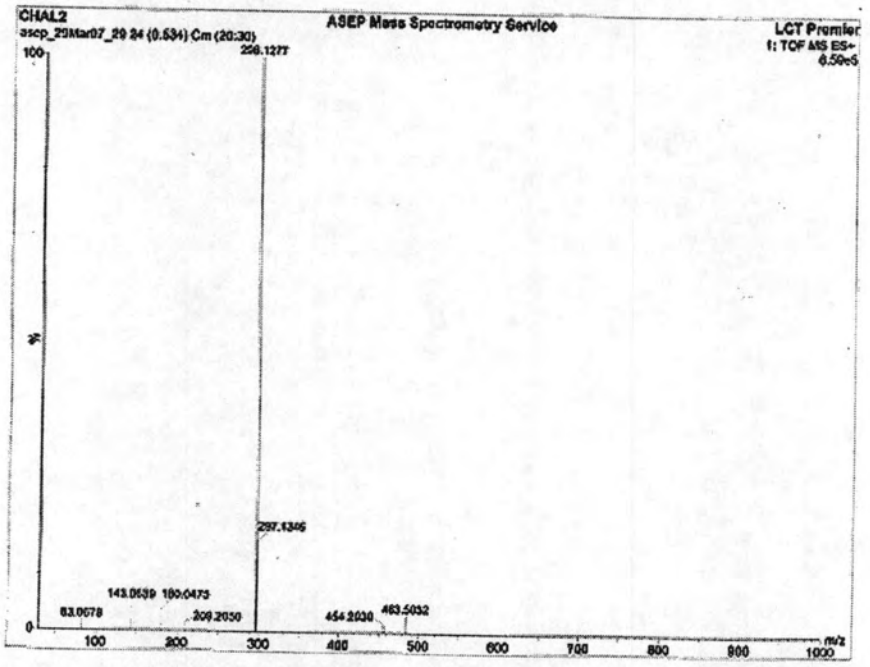

Figure A25 ESI MS (ES^+) result of compound **11b**

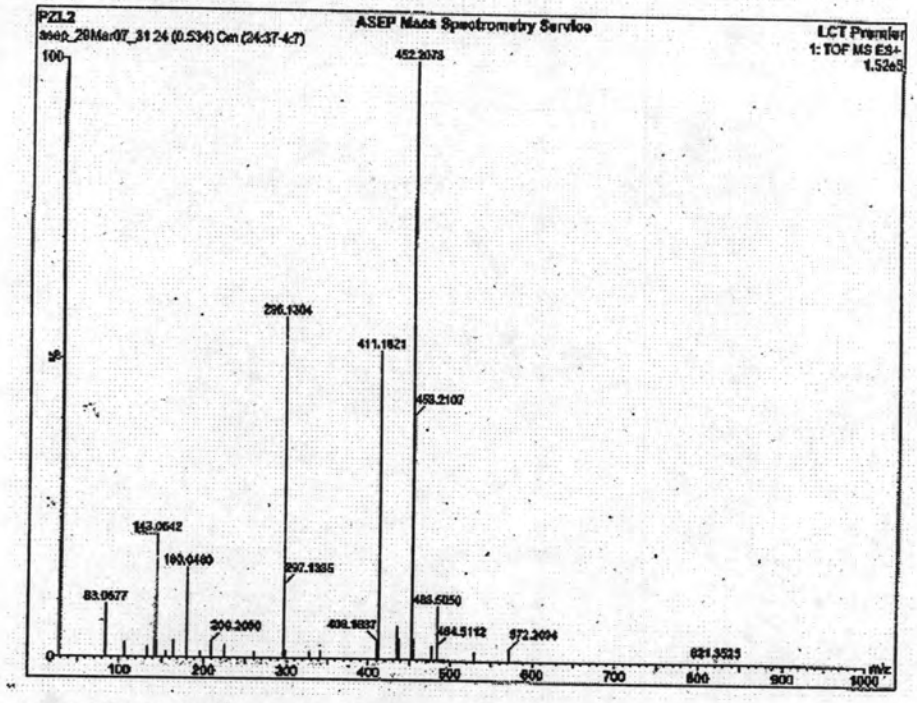

Figure A26 ESI MS (ES^+) result of compound **12b**

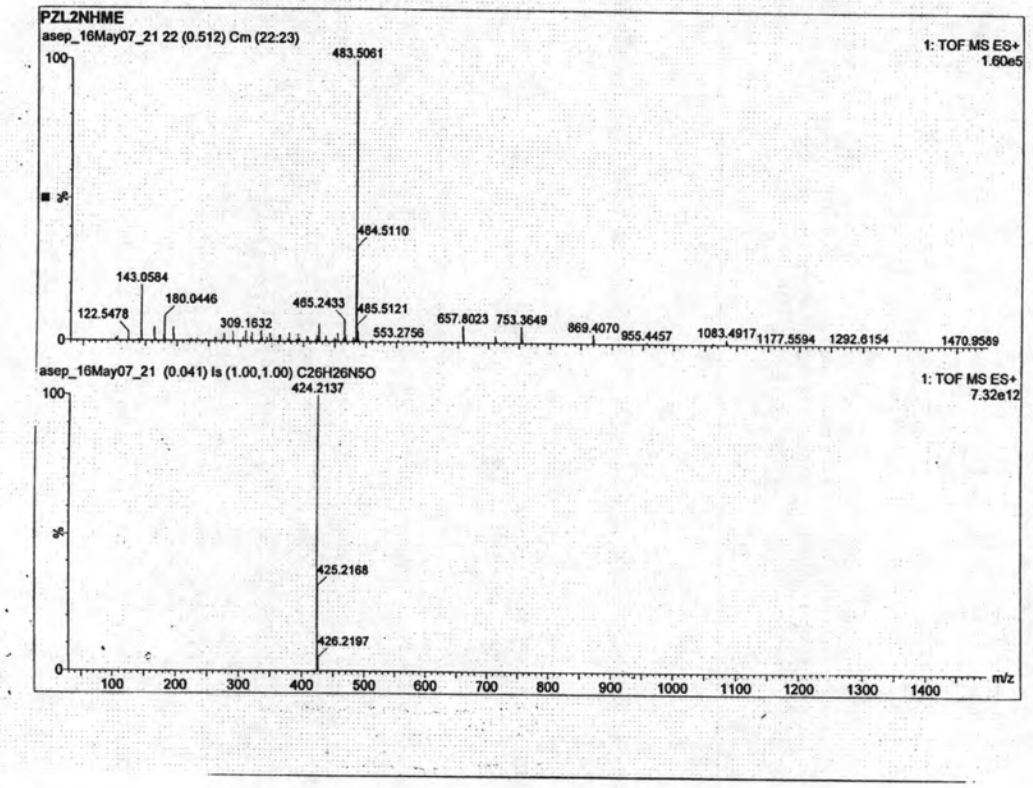

Figure A27 ESI MS (ES^+) result of compound **13b**

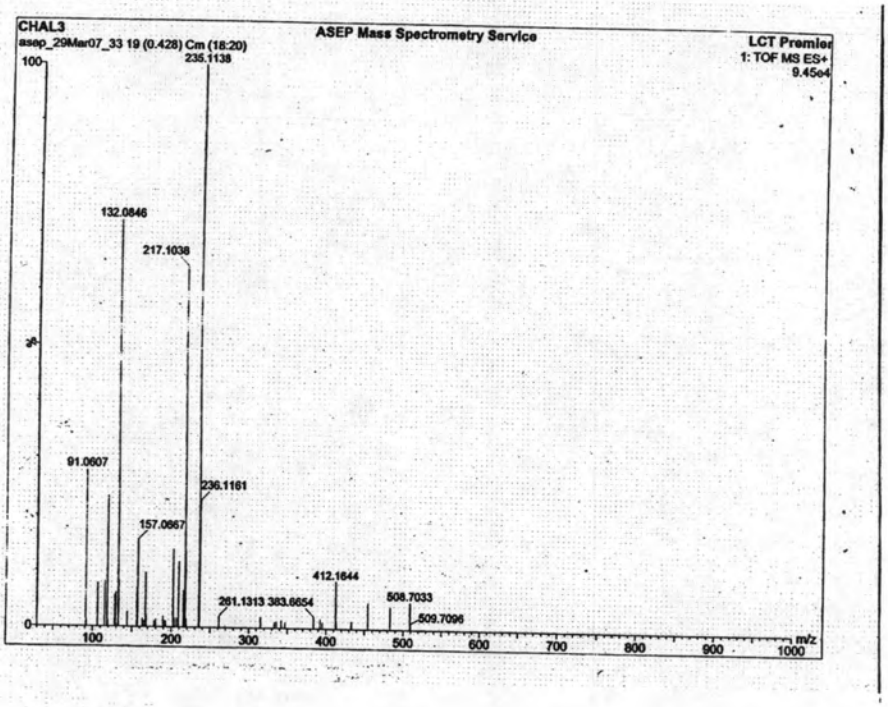

Figure A28 ESI MS (ES^+) result of compound **17b**

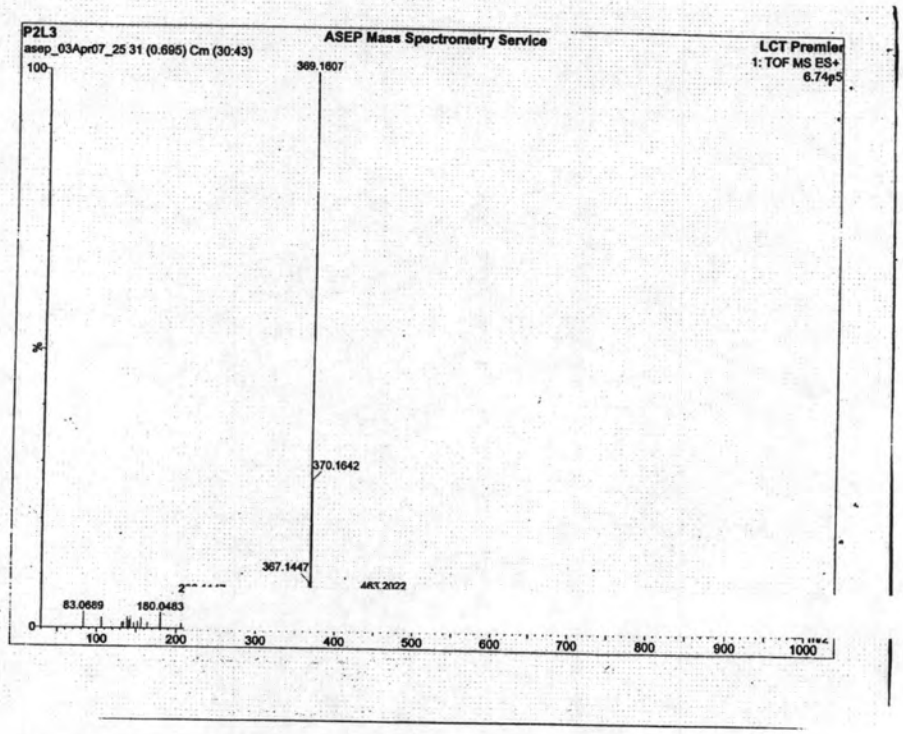

Figure A29 ESI MS (ES^+) result of compound **18b**

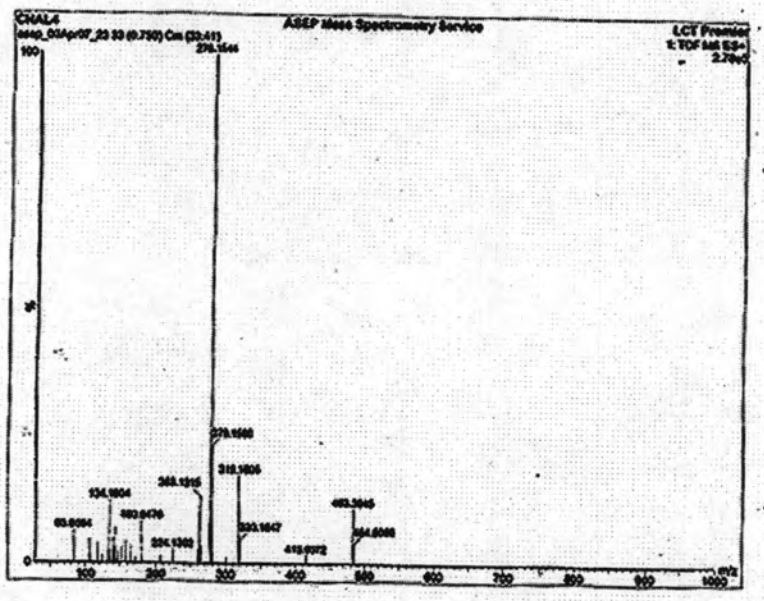

Figure A30 ESI MS (ES^+) result of compound **19b**

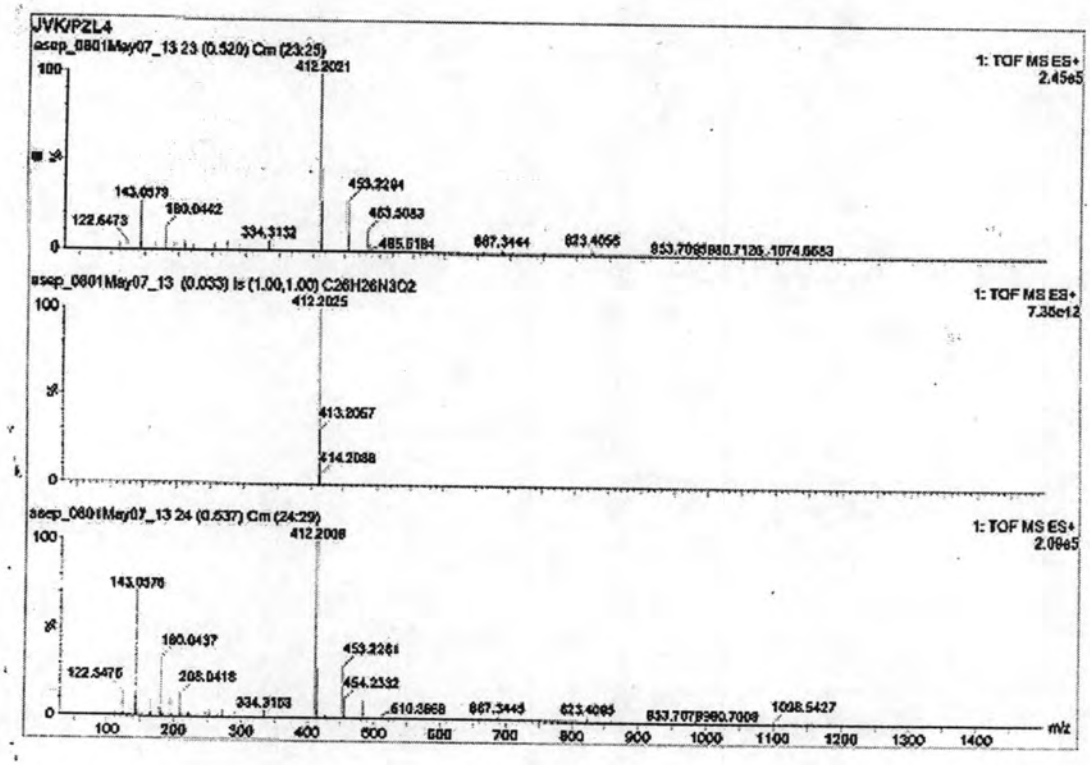

Figure A31 ESI MS (ES^+) result of compound **20b**

VITA

Mr. Boontana Wannalerse was born on April 7, 1978 in Chiang mai, Thailand. He graduated with high school degree from The Prince Royal College, Chiang mai in 1995. He received his Bachelor's and Master's degree of Science in Chemistry from Chiang mai University in 1999 and 2002, respectively. Since then, he has been a postgraduate student studying in inorganic chemistry and become a member of Supramolecular Chemistry Research Unit under the supervision of Assoc. Prof. Thawatchai Tuntulani and co-supervision of Assist Prof. Boosayarat Tomapatanaget. During this period, his financial support is granted by "The Commission on Higher Education". This scholarship gave his an opportunity to do the research under the supervision of Prof. A. Prasanna de Silva at Queen's University. Northern Ireland, United Kingdom during 2006-2007. He graduated with a doctorate degree in chemistry in the academic year 2007.

Publication

1. de Silva, A., P.; Uchiyama, S.; Vance, T., P.; Wannalerse, B., A Supramolecular Chemistry Basis for Molecular Logic and Computation, *Coord. Chem. Rev.*, 251 (2007): 1023-1032.