Supporting Information

Robust non-covalent and covalent anchored *N*,*N*,*N′*,*N′*-tetramethyl-*p*-phenylenediamine derivative on electrode surface via spontaneous physical immobilization and in situ generated aryldiazonium ion electro-grafting: implication for on-surface chemistry and electro-catalytic determinations

Mahsa Taleghan Ghafari[a], Fahimeh Varmaghani*[a,b], Babak Karimi[a,b], and Vahid Khakyzadeh[c]

[a]*Department of Chemistry, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, 45137-66731, Iran*

[b]*Center for Research in Basic Sciences and Contemporary Technologies, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, 45137-66731, Iran*

[c]*Department of Chemistry, K. N. Toosi University of Technology, P.O. Box 16315-1618, 15418 Tehran, Iran.*

Tel.: +98 24 33153125; Fax: +98 24 33153232.

E-mail: f.varmaghani@iasbs.ac.ir,

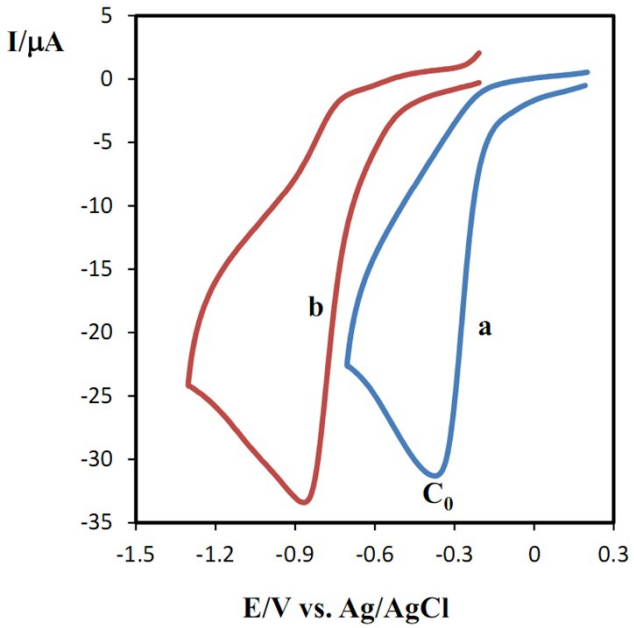

Fig. 1S: Cyclic voltammograms of 0.5 mM MNPD at a glassy carbon electrode in acetonitrile/aqueous solutions (4 ml ACN/6 ml buffer solution, 0.2 M), with *p*H values of (a) 2 and (b) 7. Scan rate: 100 mV/s.

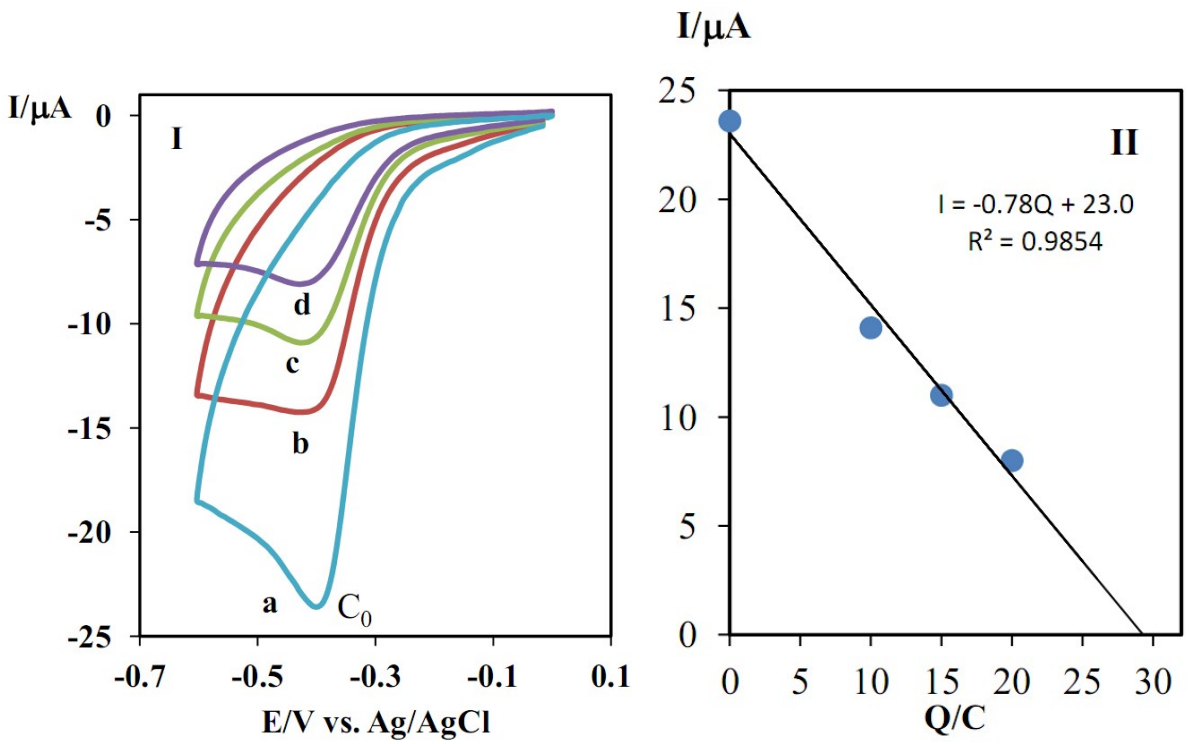

Fig. 2S. Part I: Cyclic voltammograms of 0.04 mmol MNPD, in acetonitrile/aqueous phosphate buffer solution with *p*H=2.0 (45 ml ACN/45 ml buffer solution) at glassy carbon electrode during controlled-potential coulometry at −0.6 V versus Ag/AgCl. After consumption of: (a) 0, (b) 10, (c) 15 and (d) 20 C. Part II: variation of peak current (I_{pC0}) versus charge consumed. Scan rate 100 mVs^{-1}.

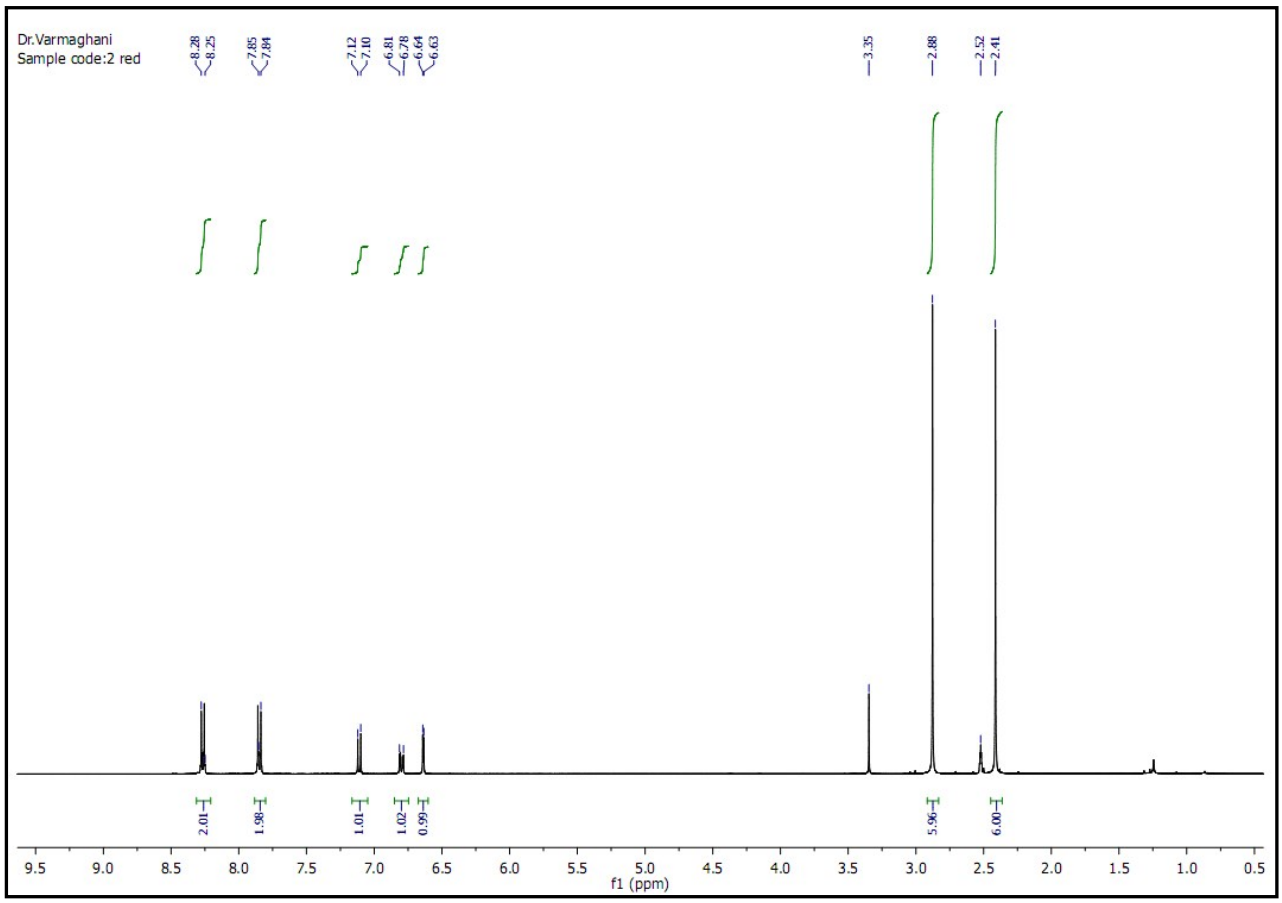

Figure 3S: [1]HNMR of MNPD.

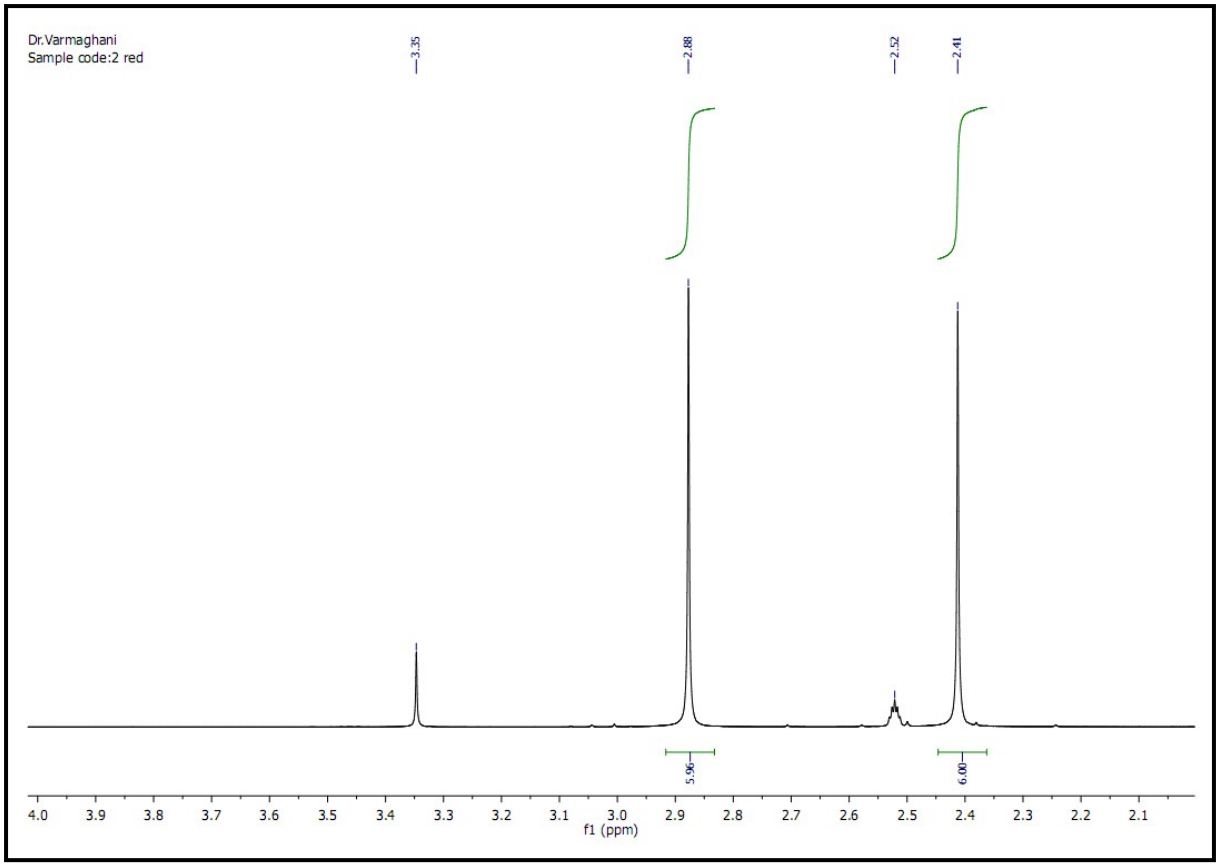

Figure 4S: Expanded ^{1}HNMR of MNPD in the range of 2-4 ppm

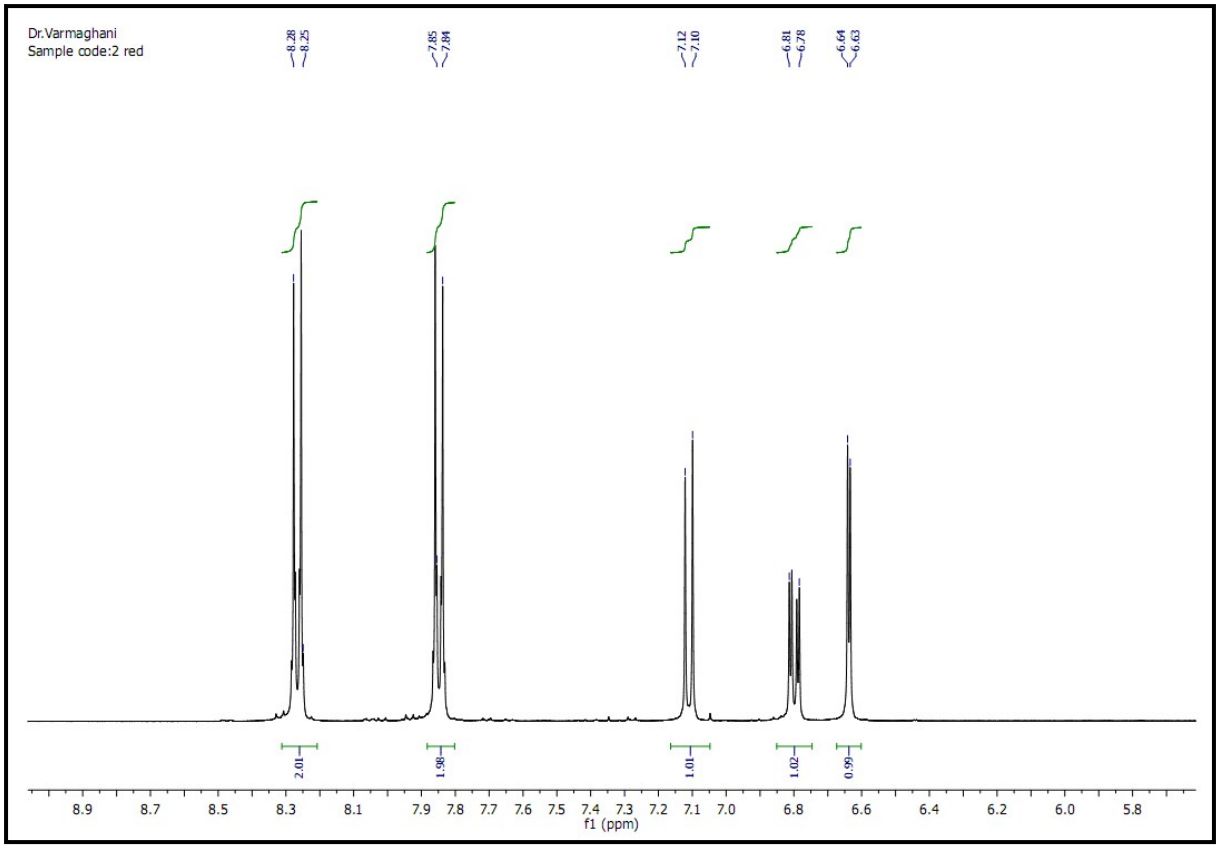

Figure 5S: Expanded ^{1}HNMR of MNPD in the range of 5-9 ppm

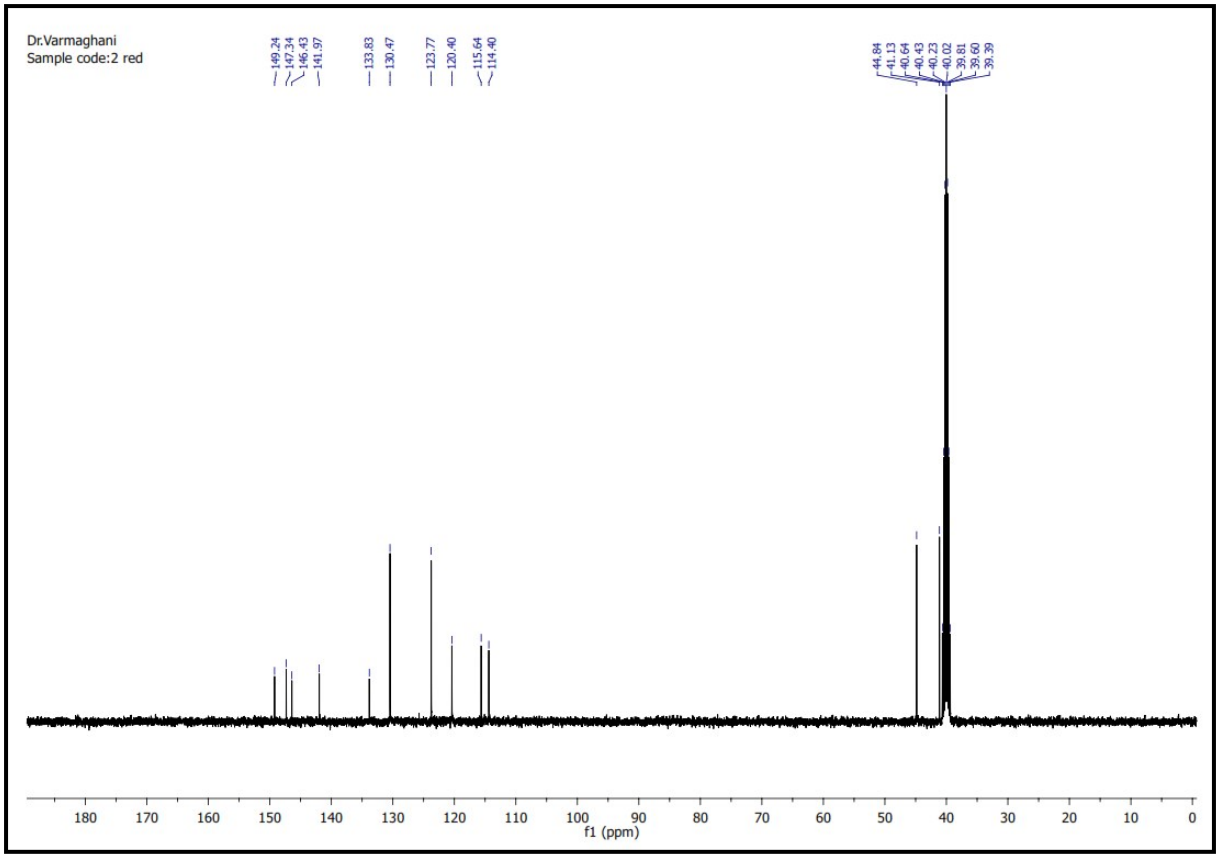

Figure 6S: ^{13}CNMR of MNPD

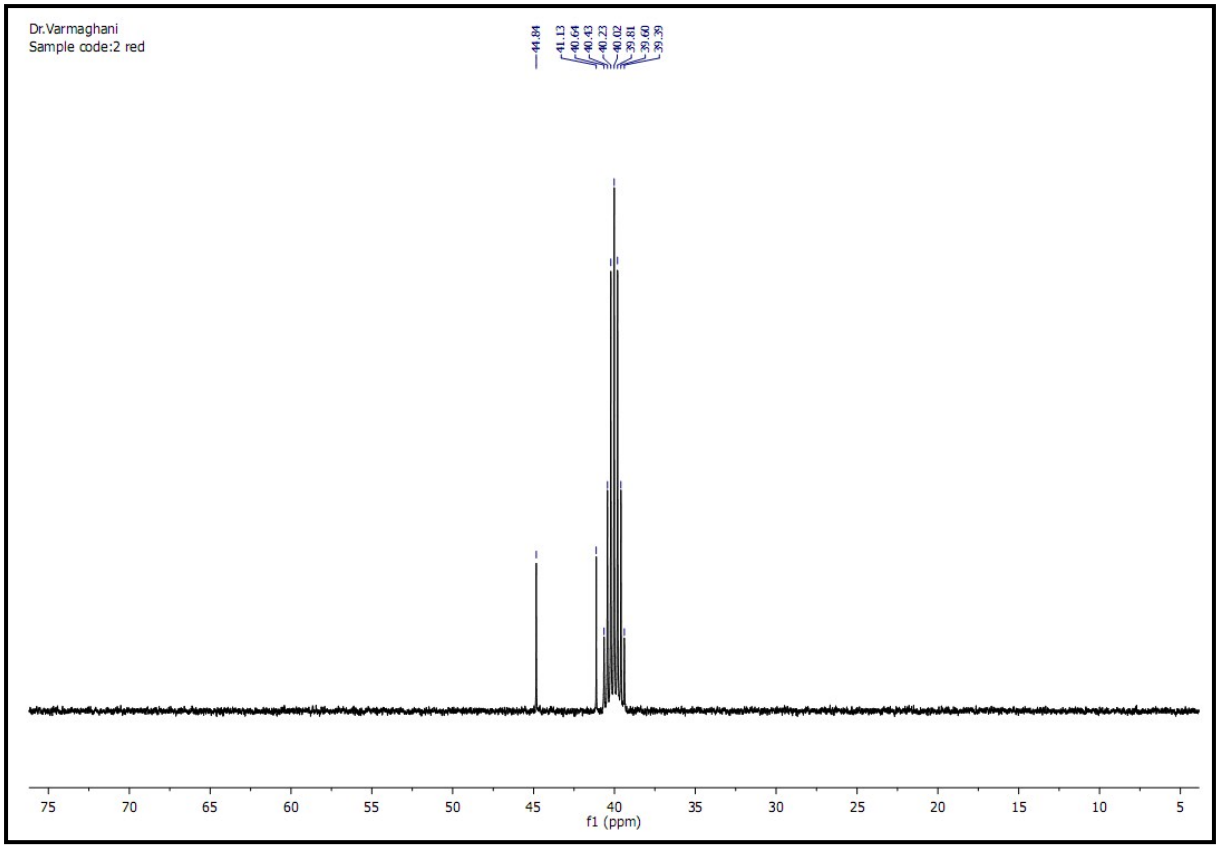

Figure 7S: Expanded ^{13}CNMR of MNPD in the range of 0 to 75 ppm

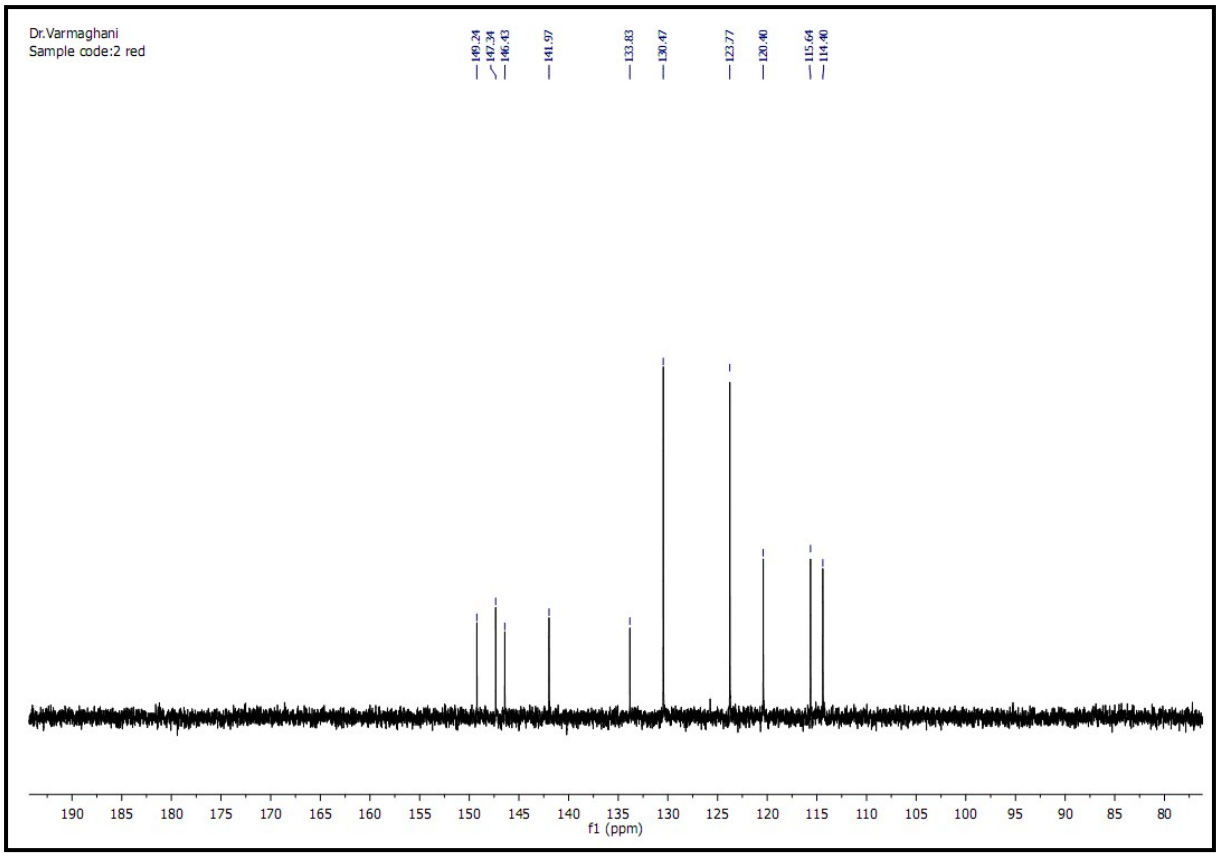

Figure 8S: Expanded ^{13}CNMR of MNPD in the range of 75 to 200 ppm

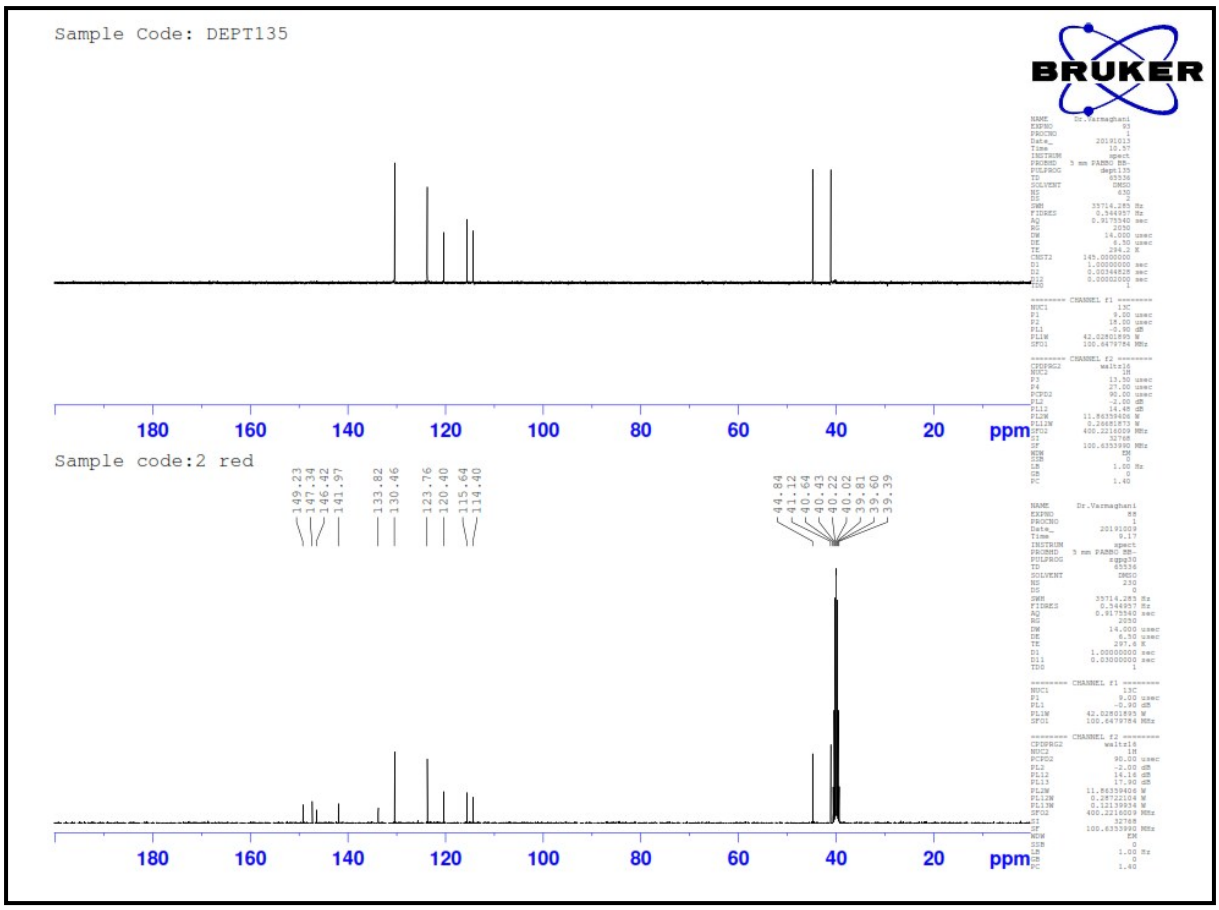

Figure 9S: Comparison of ^{13}CNMR and DEPT 135^{O} of MNPD

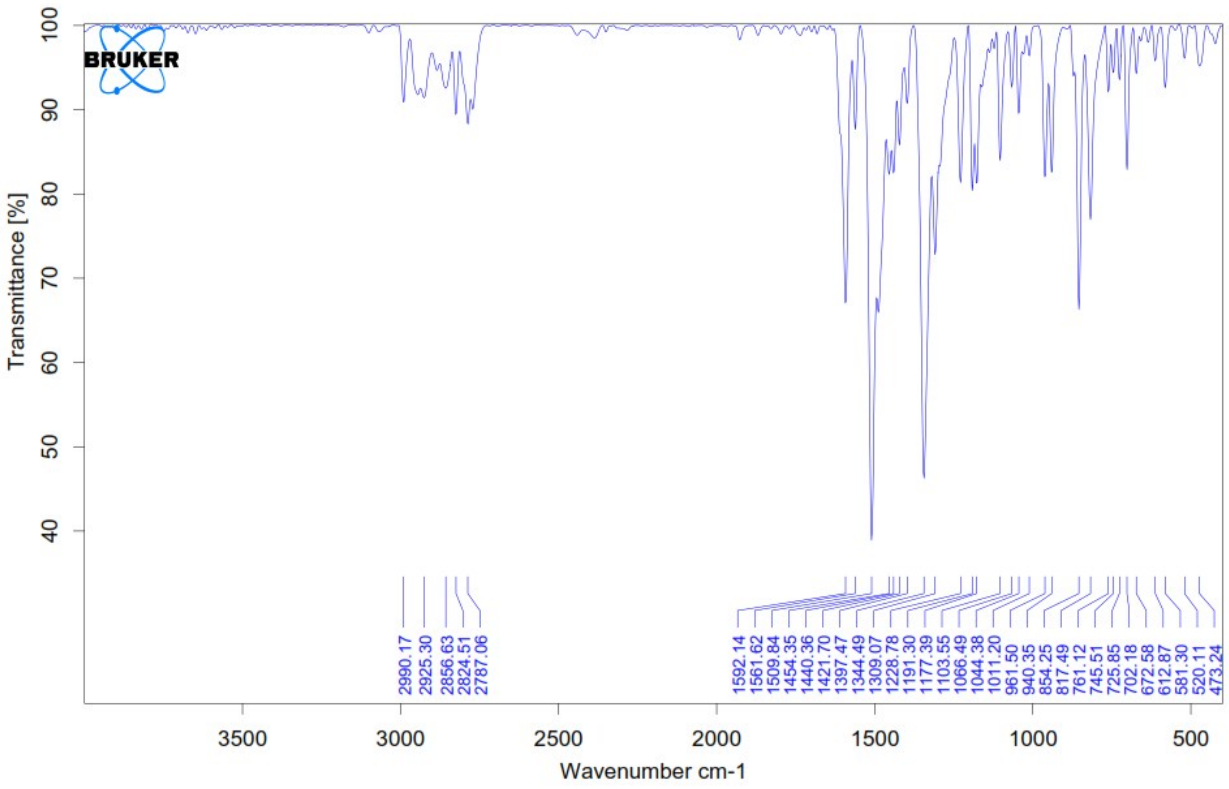

Figure 10S: FTIR of MNPD