Living Coordination-Insertion Copolymerization of 1-Hexene and Ligated *α*-Olefins by *α*-Diimine Nickel Catalyst and Preparation of Metal-Ligand Coordination Crosslinked Polymers

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Contents

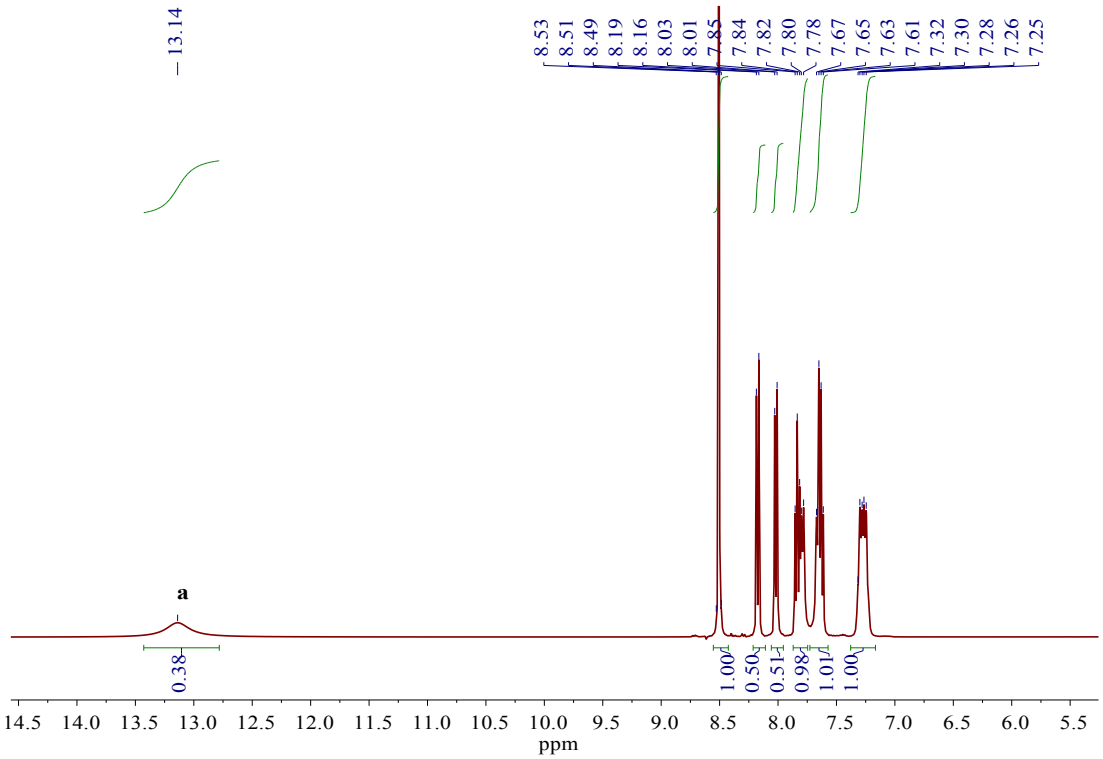

Figure **S1**. ^{1}H NMR spectrum of 2-(1H-benzimidazol-2-yl)quinolone in DMSO-d_6.

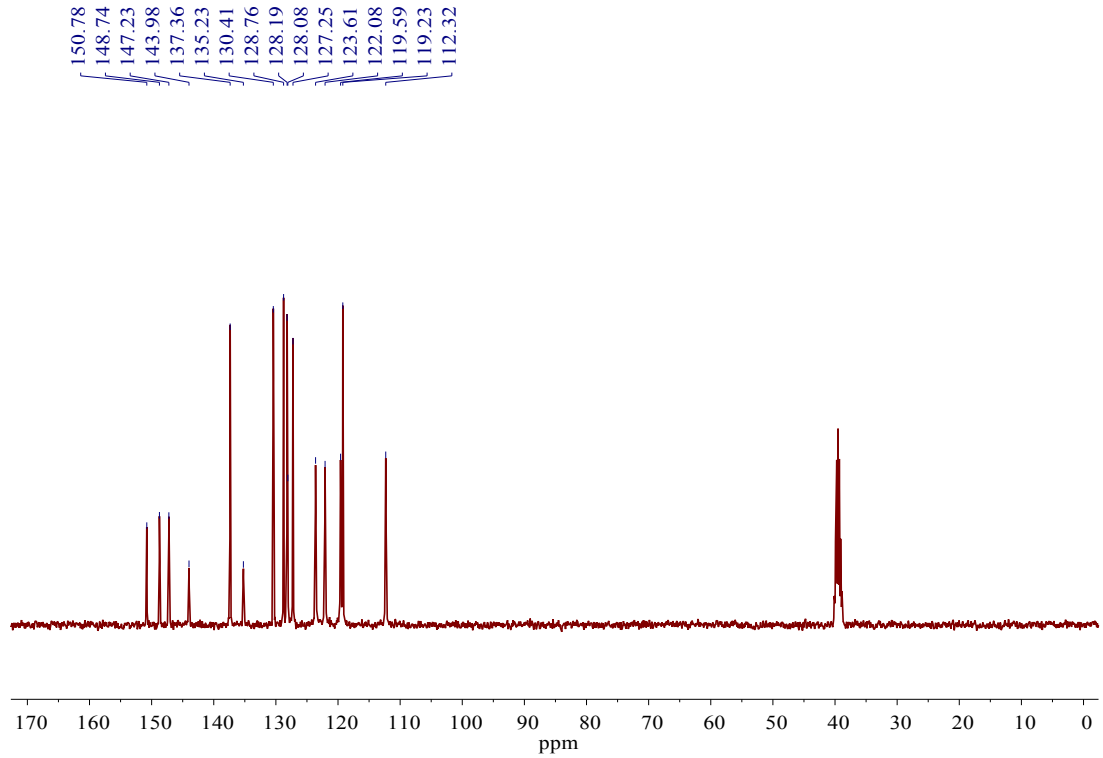

Figure **S2**.^{13}C NMR spectrum of 2-(1H-benzimidazol-2-yl)quinolone in DMSO-d_6.

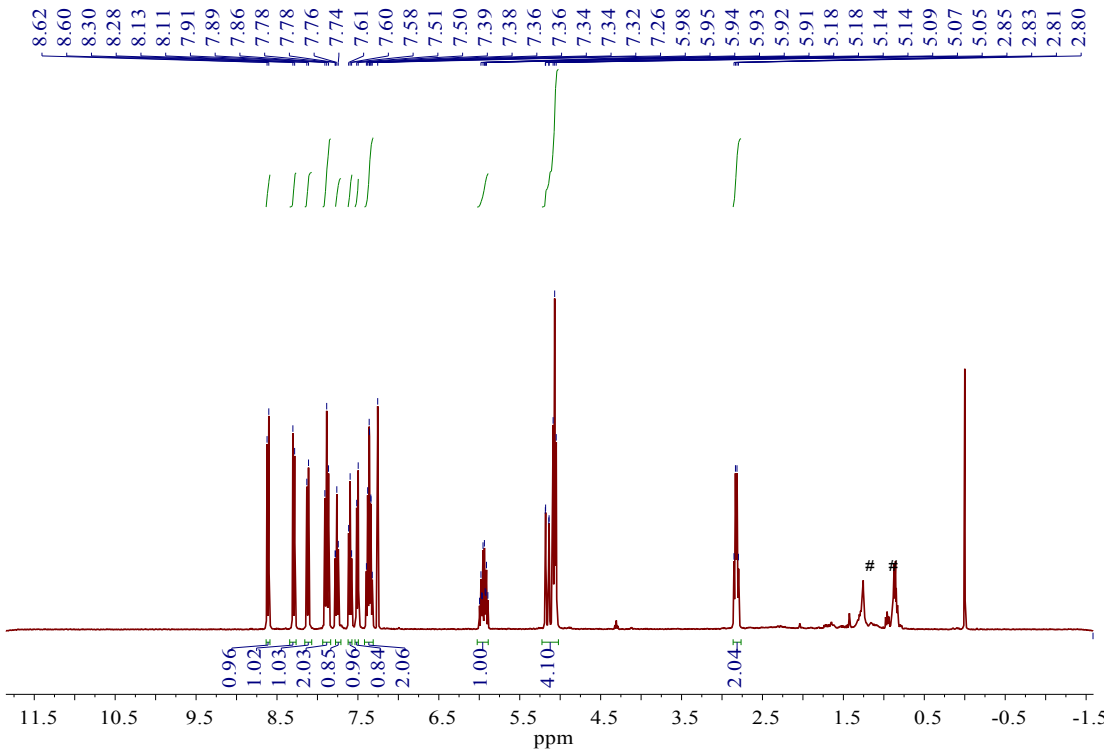

Figure **S3**. ^{1}H NMR spectrum of **M1** in $CDCl_3$. # *n*-hexane

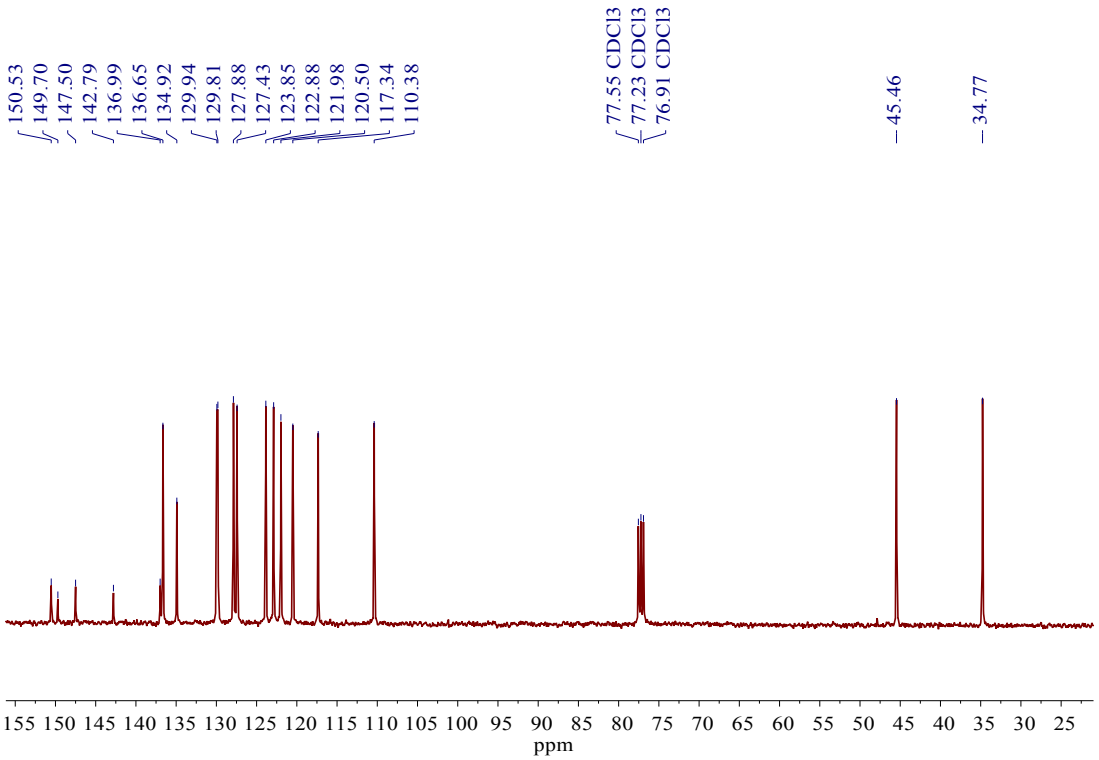

Figure **S4**.^{13}C NMR spectrum of **M1** in $CDCl_3$.

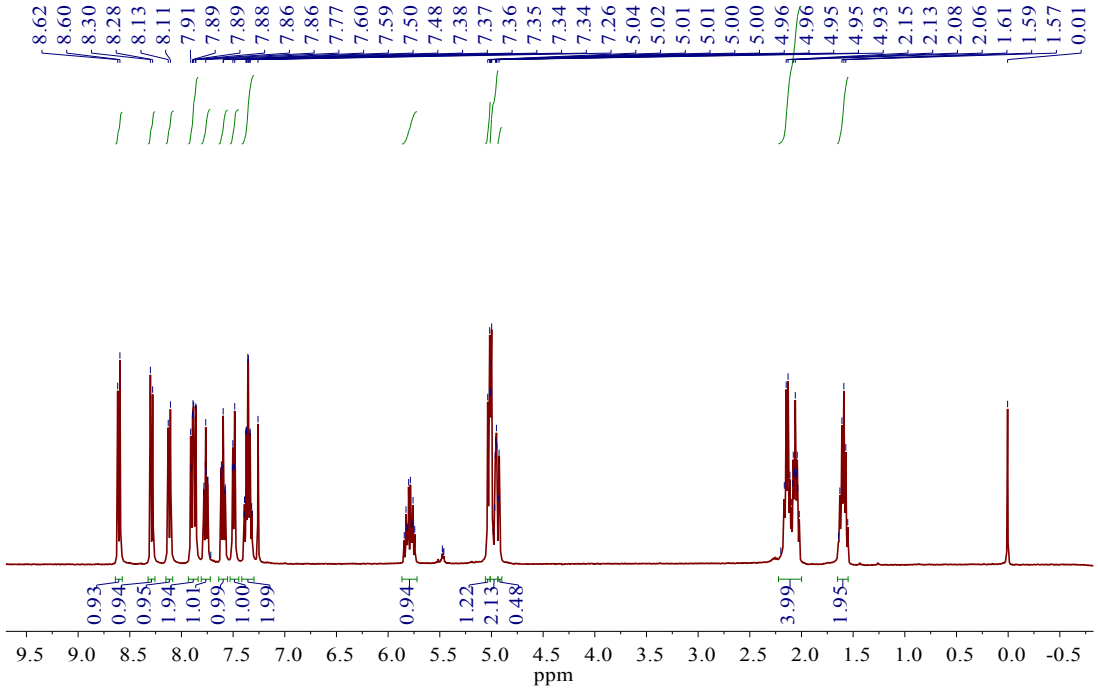

Figure **S5**. ^{1}H NMR spectrum of **M2** in $CDCl_3$.

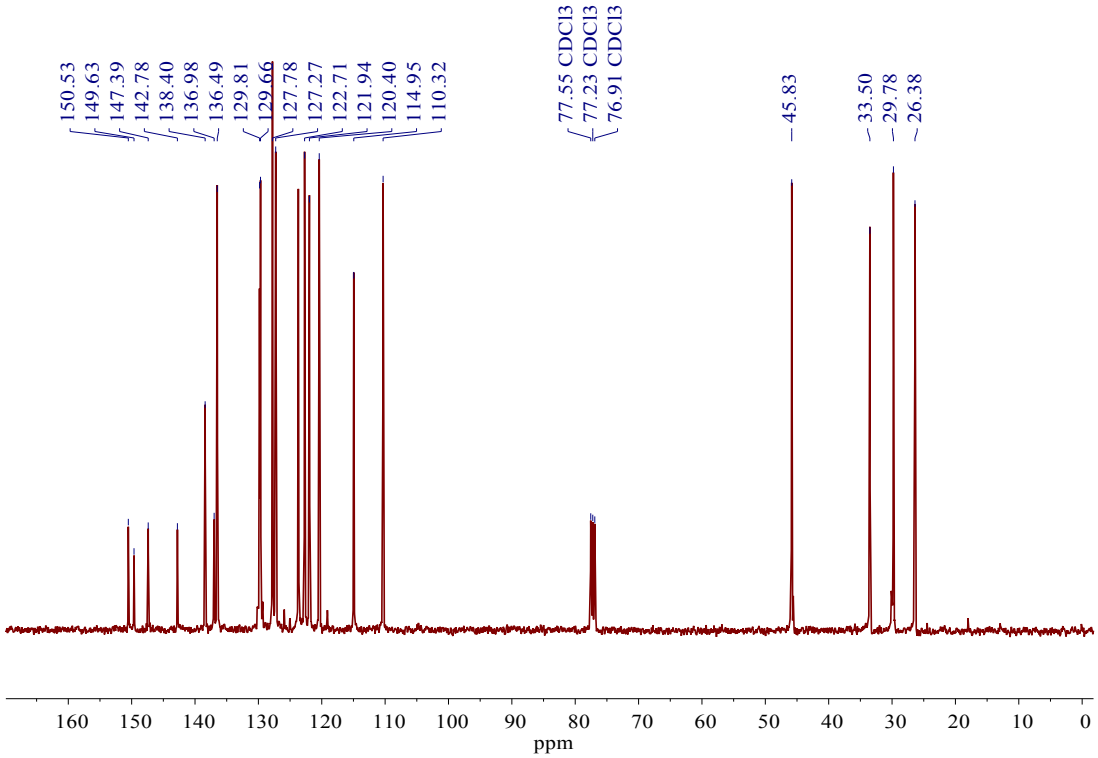

Figure **S6**.^{13}C NMR spectrum of **M2** in $CDCl_3$.

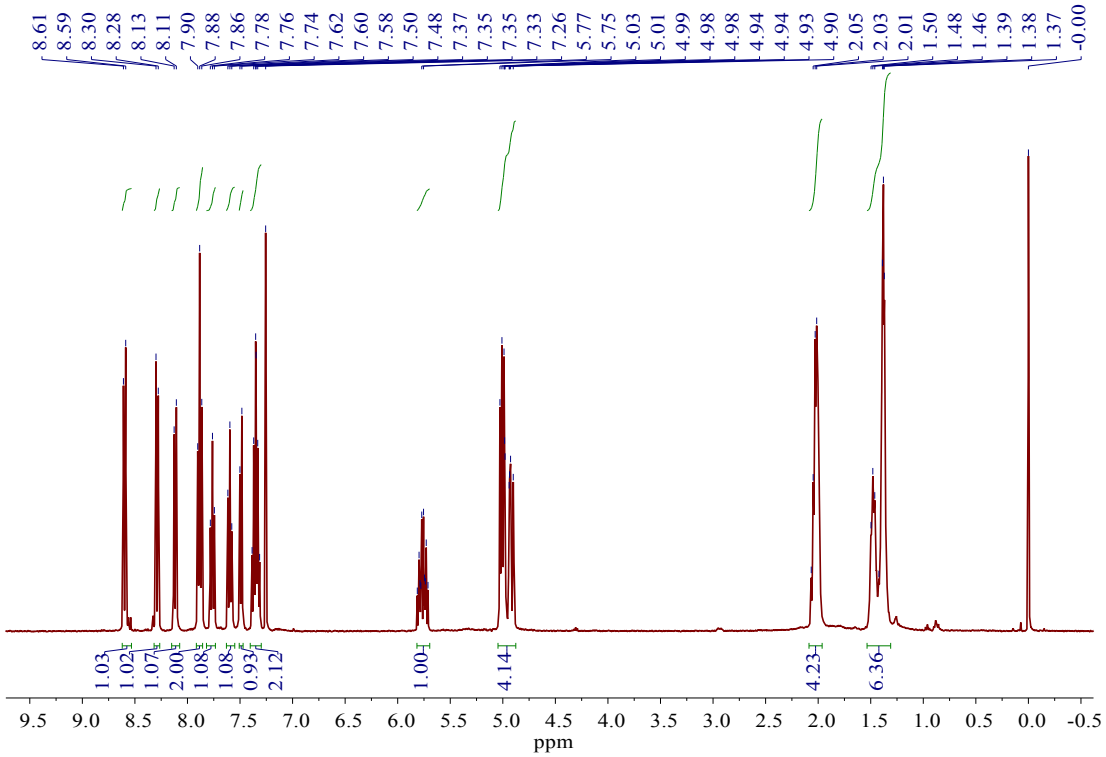

Figure **S7**. ^{1}H NMR spectrum of **M3** in $CDCl_3$.

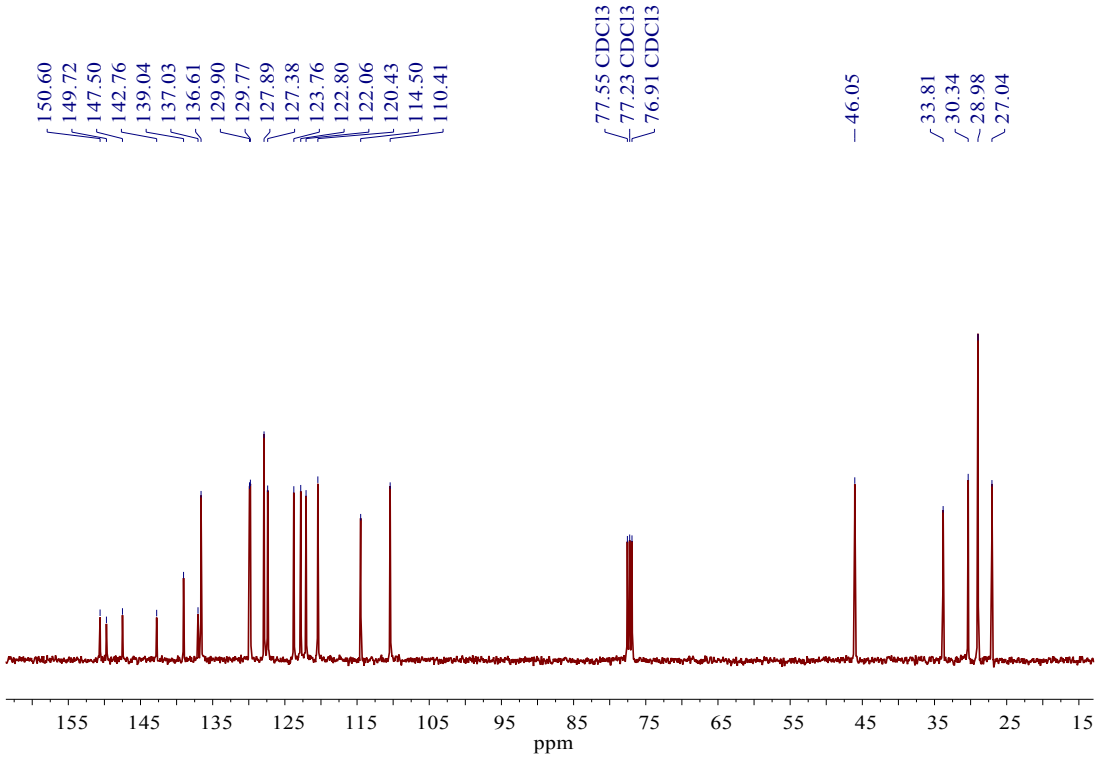

Figure **S8**.^{13}C NMR spectrum of **M3** in $CDCl_3$.

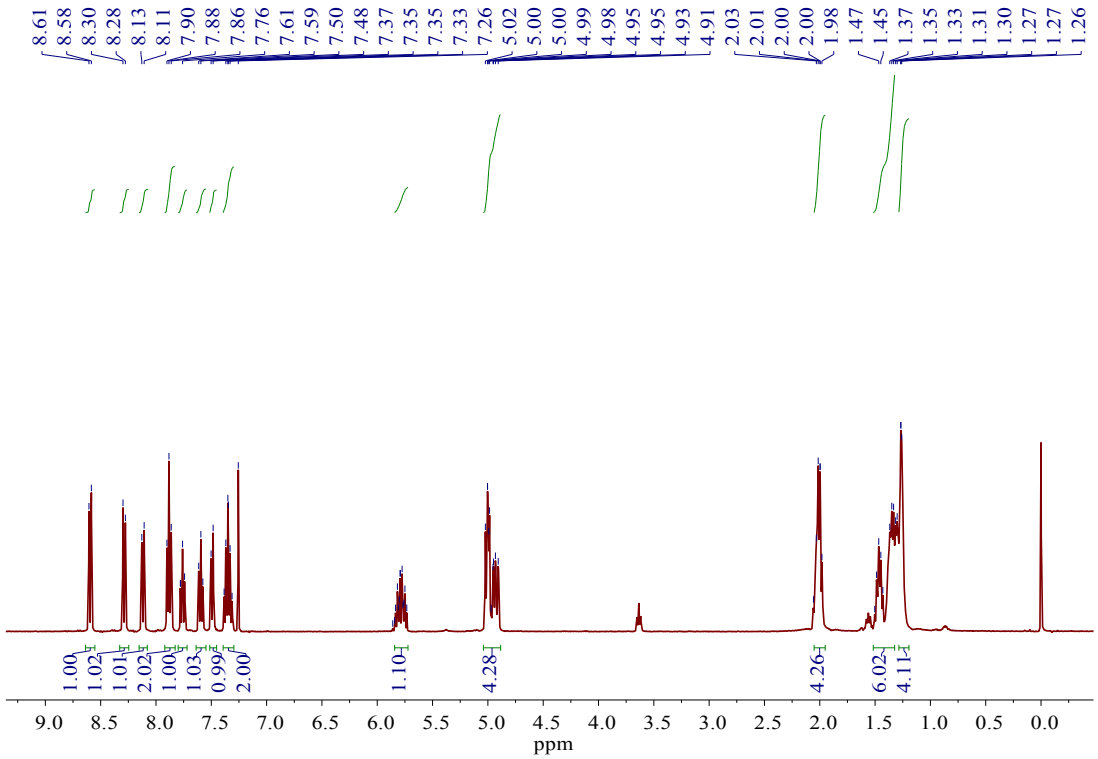

Figure **S9**. ^{1}H NMR spectrum of **M4** in $CDCl_3$.

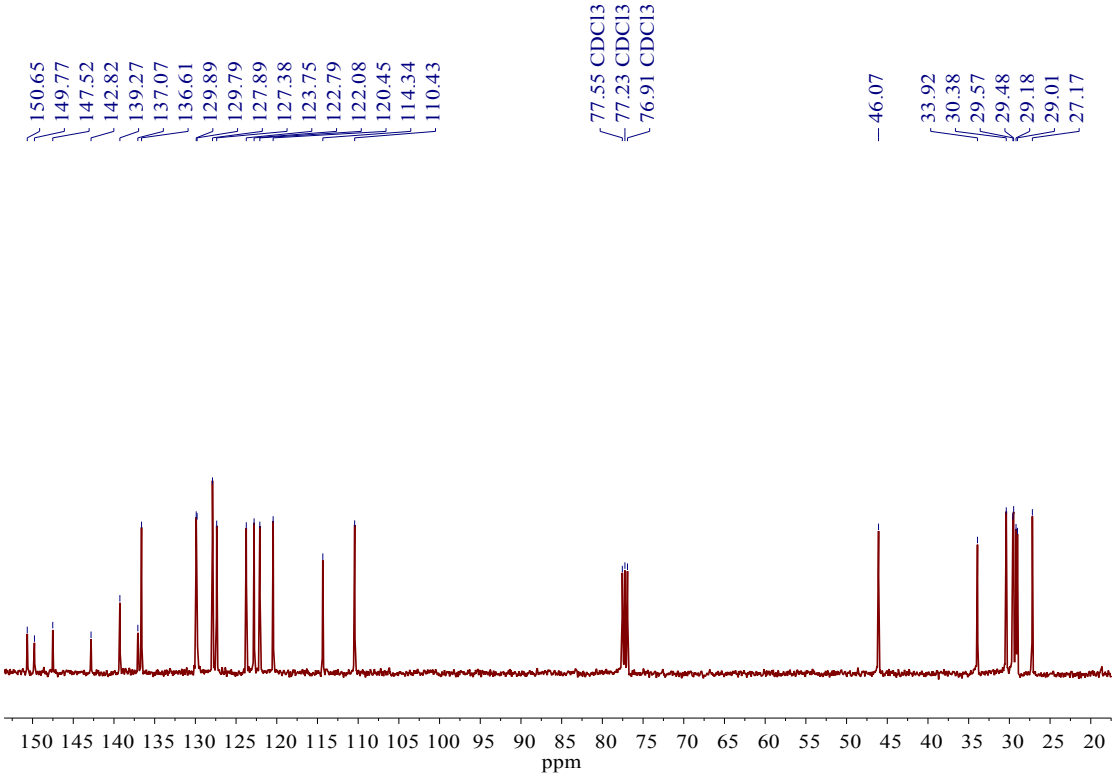

Figure **S10**.^{13}C NMR spectrum of **M4** in $CDCl_3$.

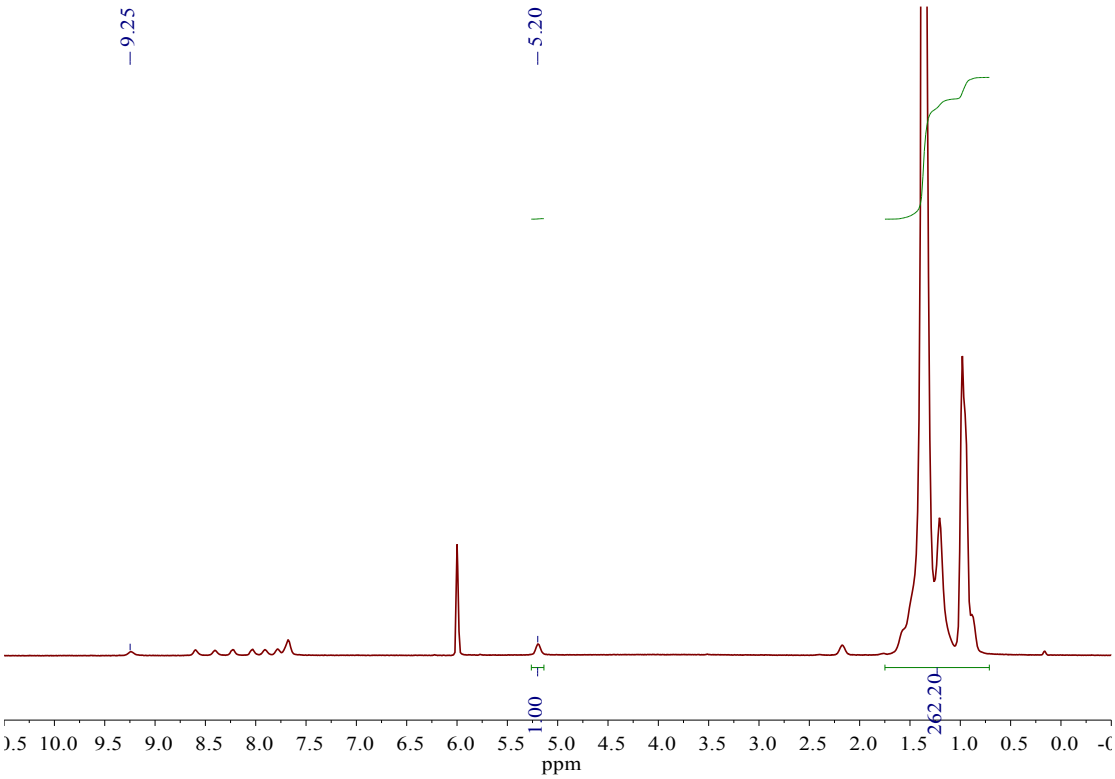

Figure **S11**. ^{1}H NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 16.

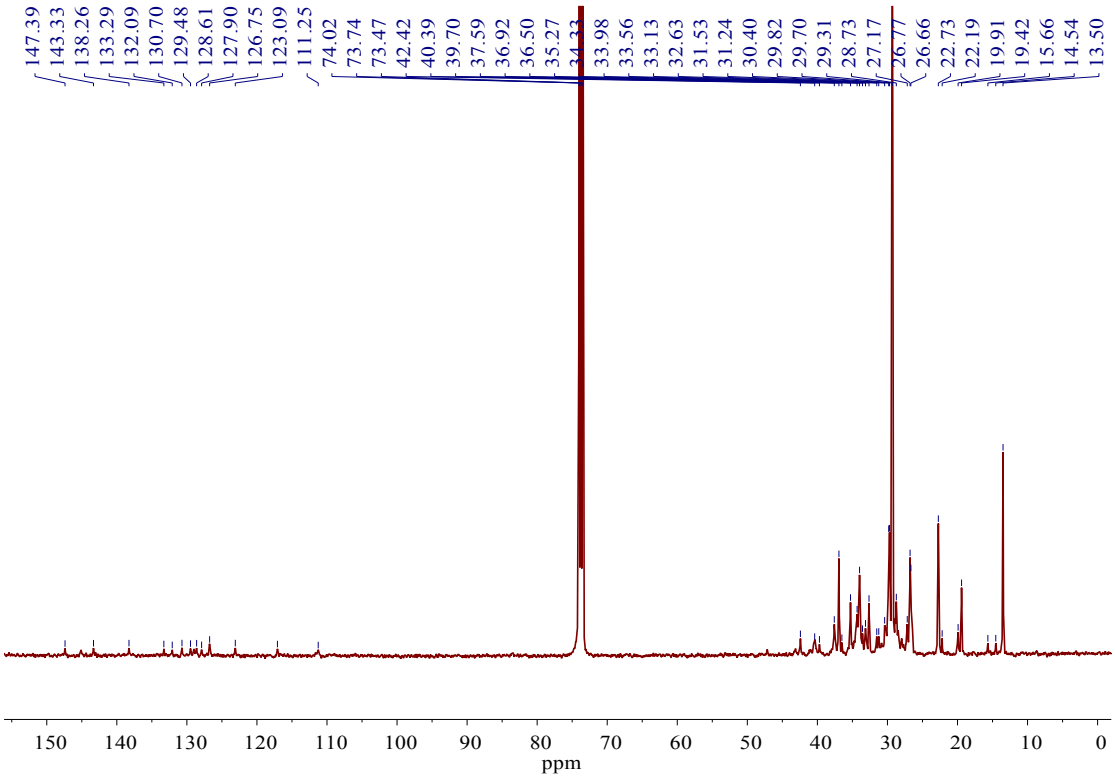

Figure **S12**. ^{13}C NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 16.

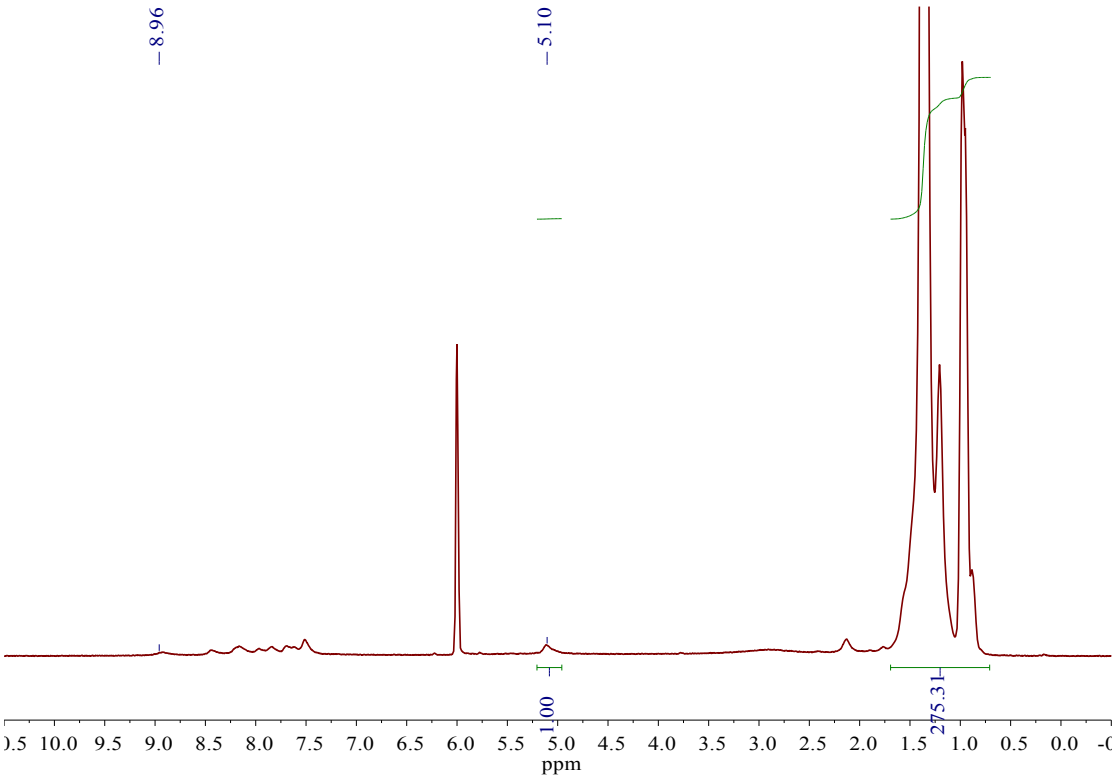

Figure **S13**. ^{1}H NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 17.

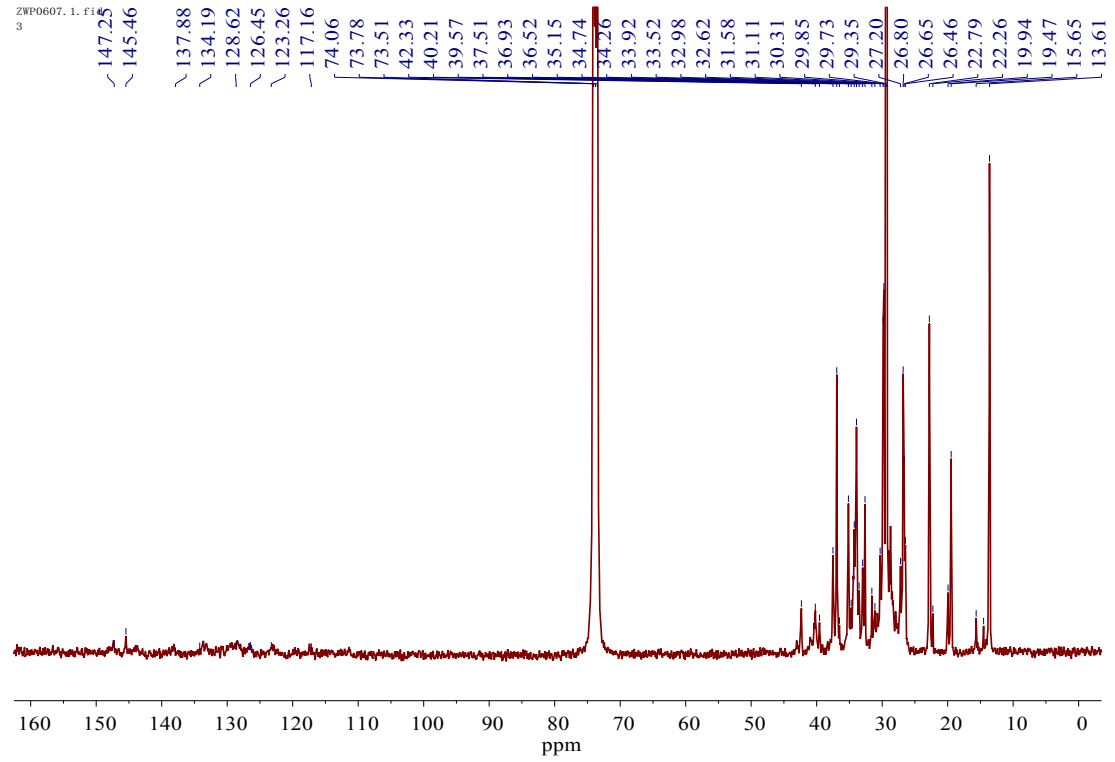

Figure **S14**. ^{13}C NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 17.

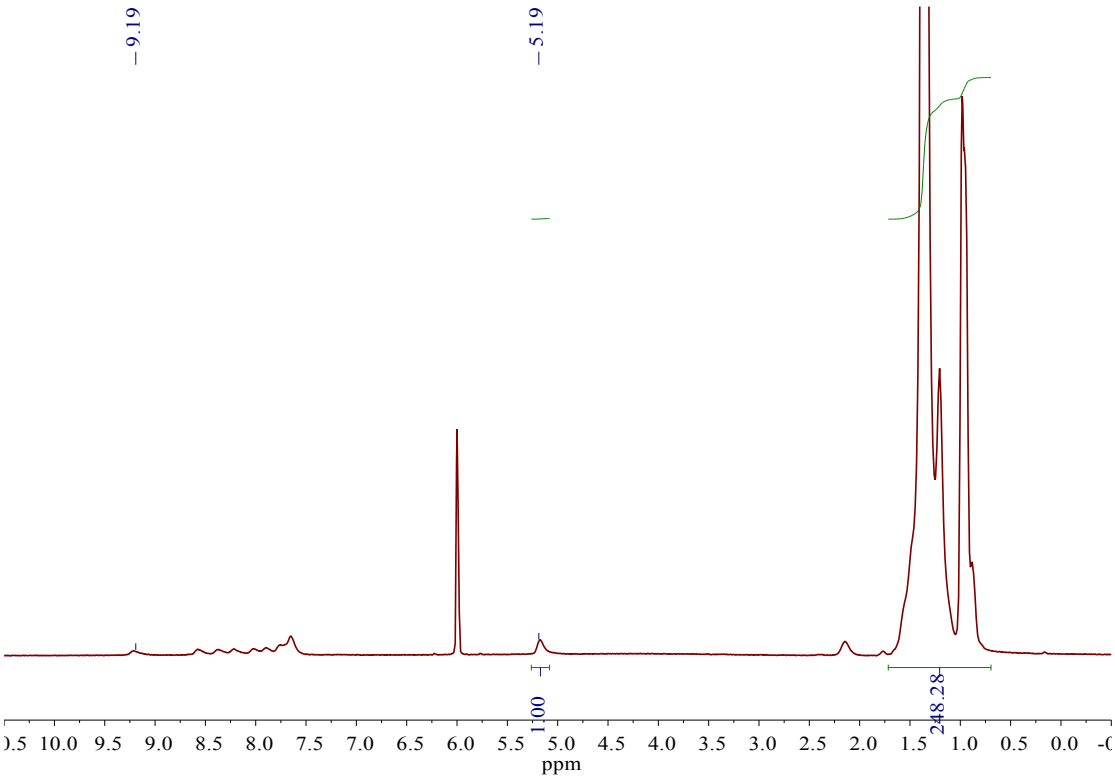

Figure **S15**. ^{1}H NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 18

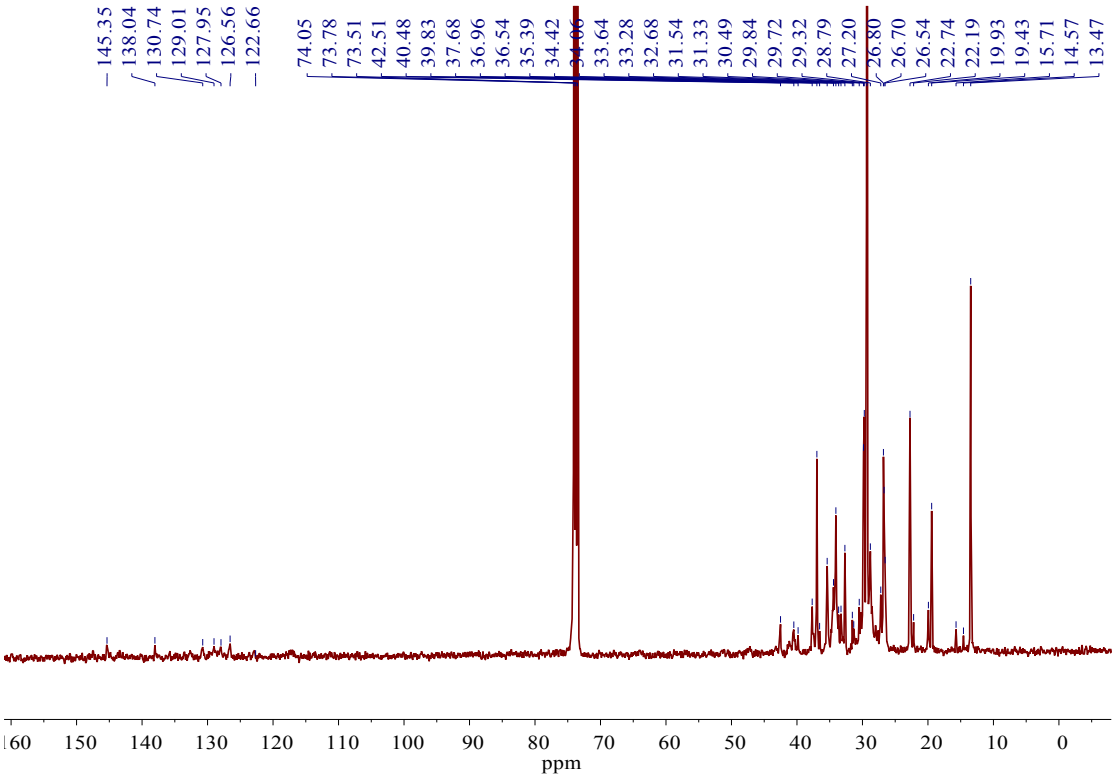

Figure **S16**. ^{13}C NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 18.

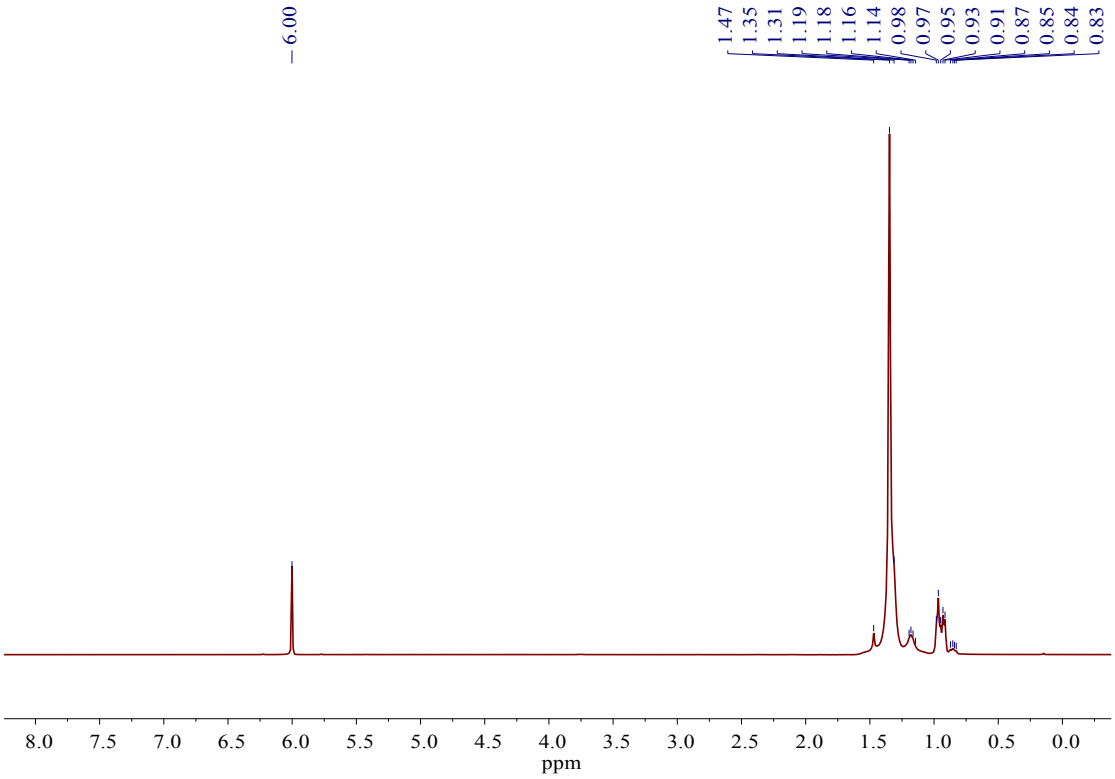

Figure **S17**. ^{1}H NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 5.

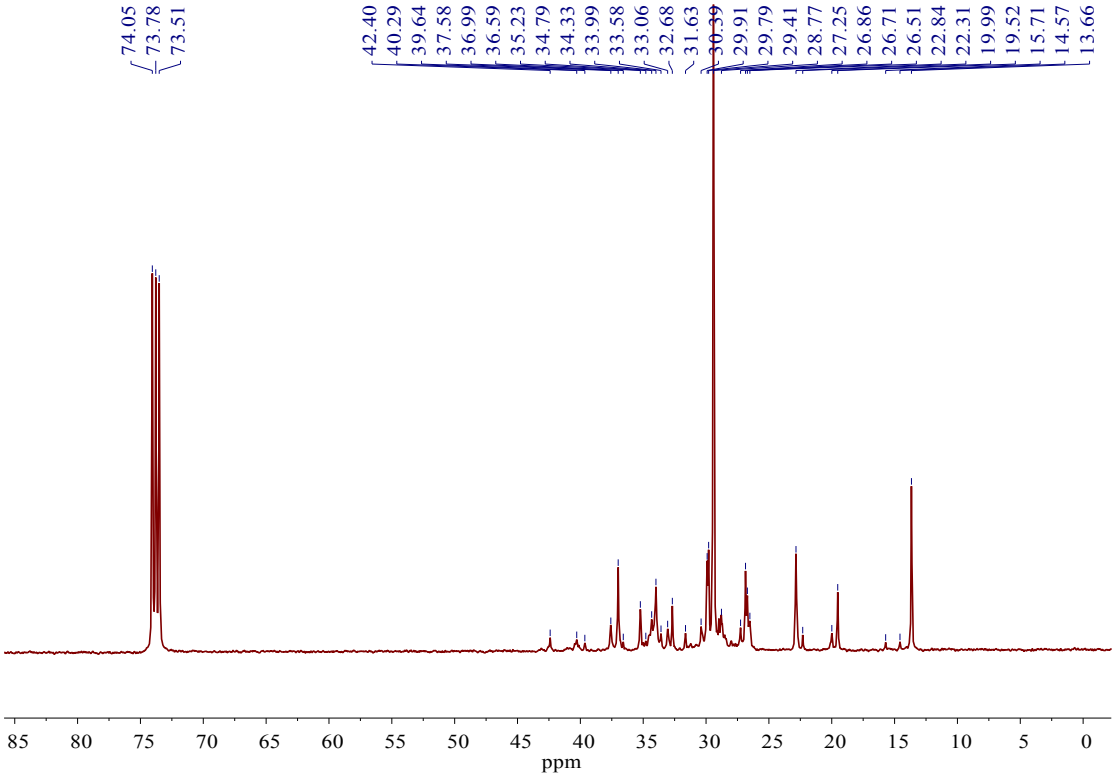

Figure **S18**. ^{13}C NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 5.

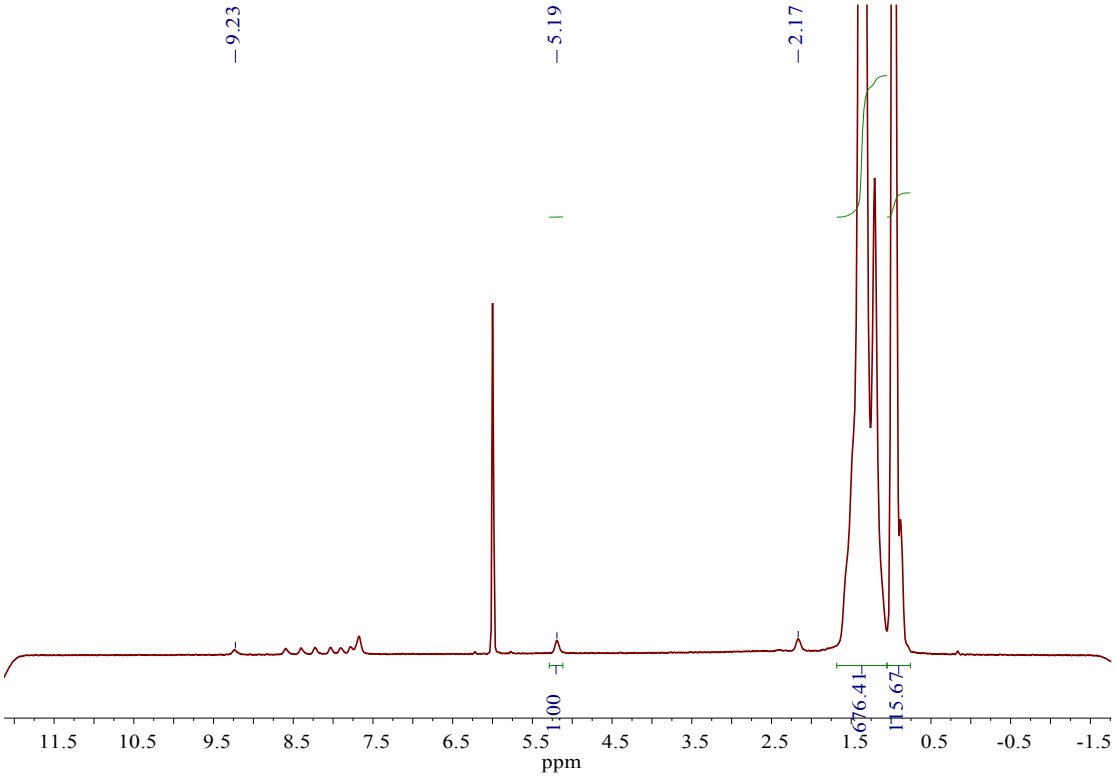

Figure **S19**. ^{1}H NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 13

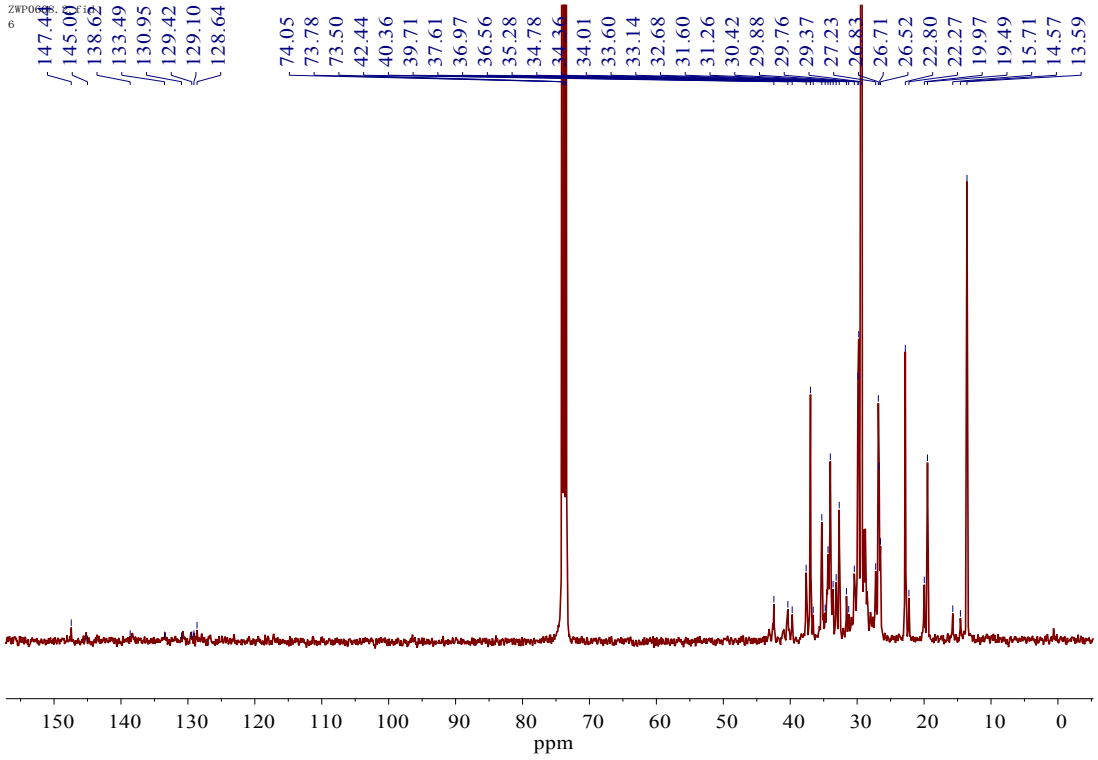

Figure **S20**. ^{13}C NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 13.

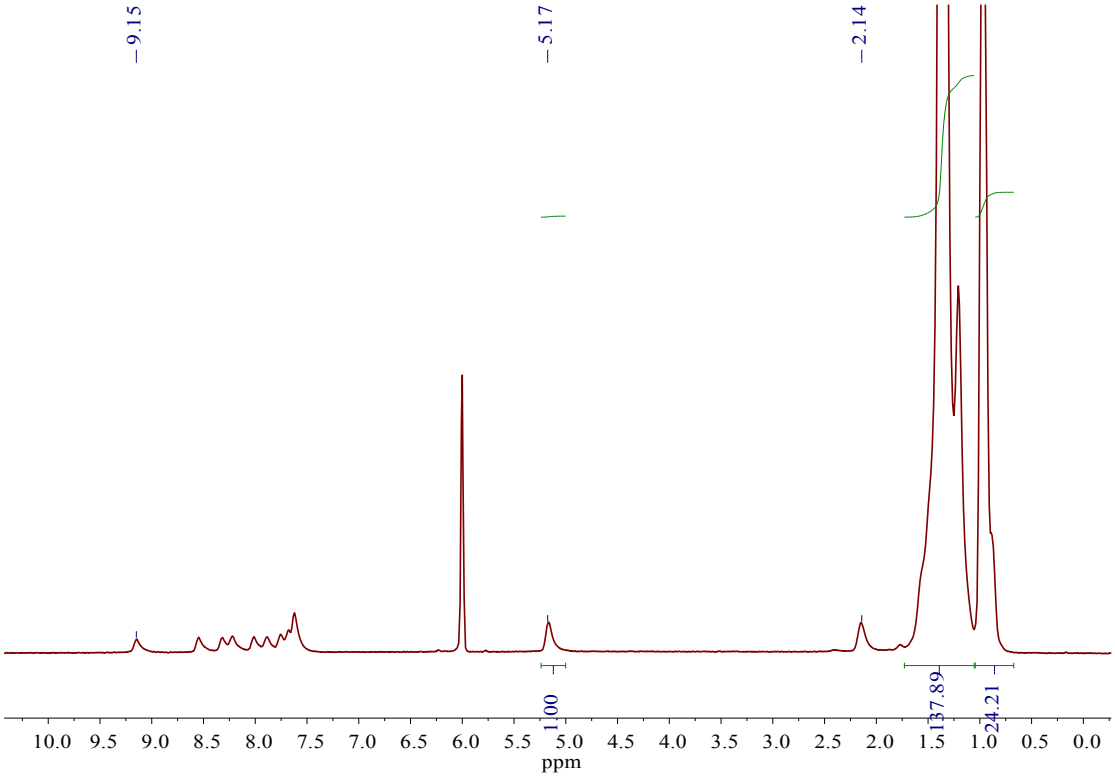

Figure **S21**. ^{1}H NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 14

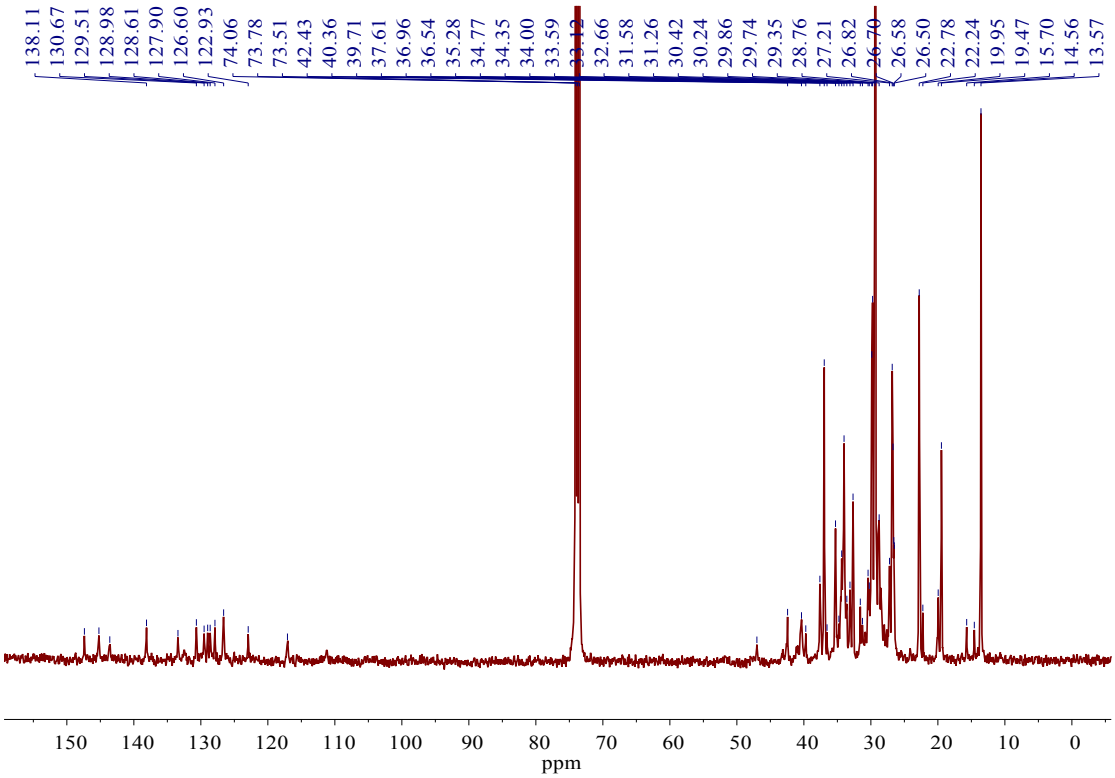

Figure **S22**. ^{13}C NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 14.

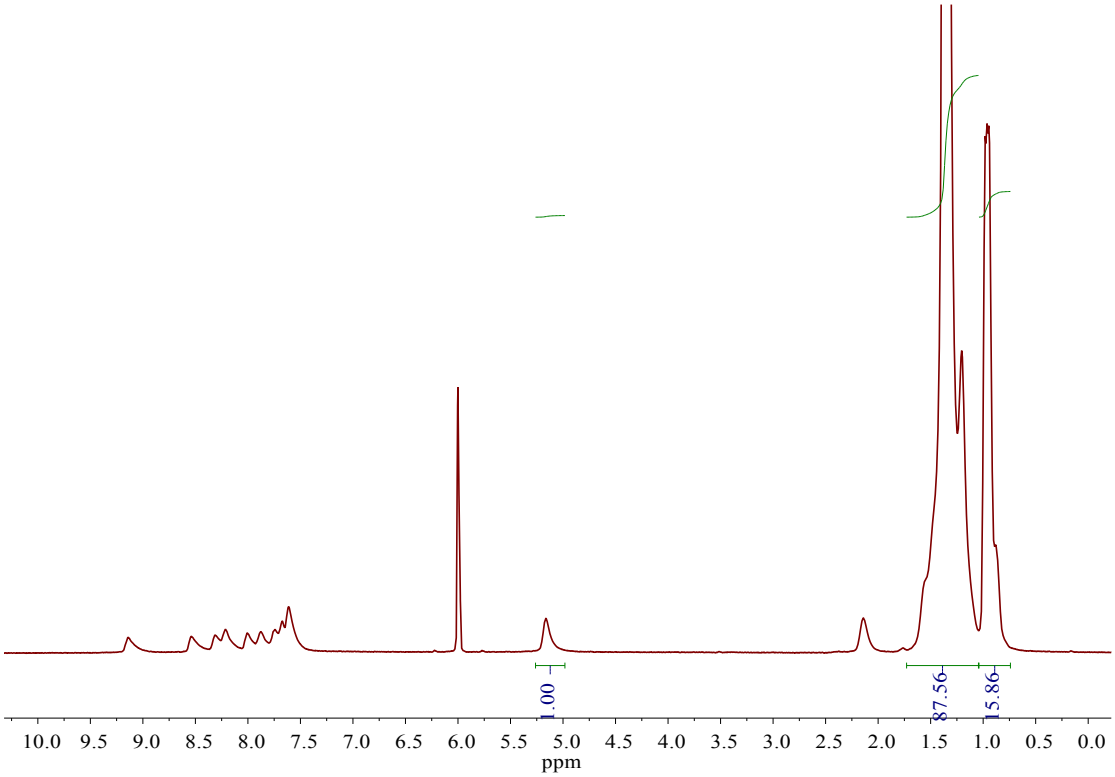

Figure **S23**. ^{1}H NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 15.

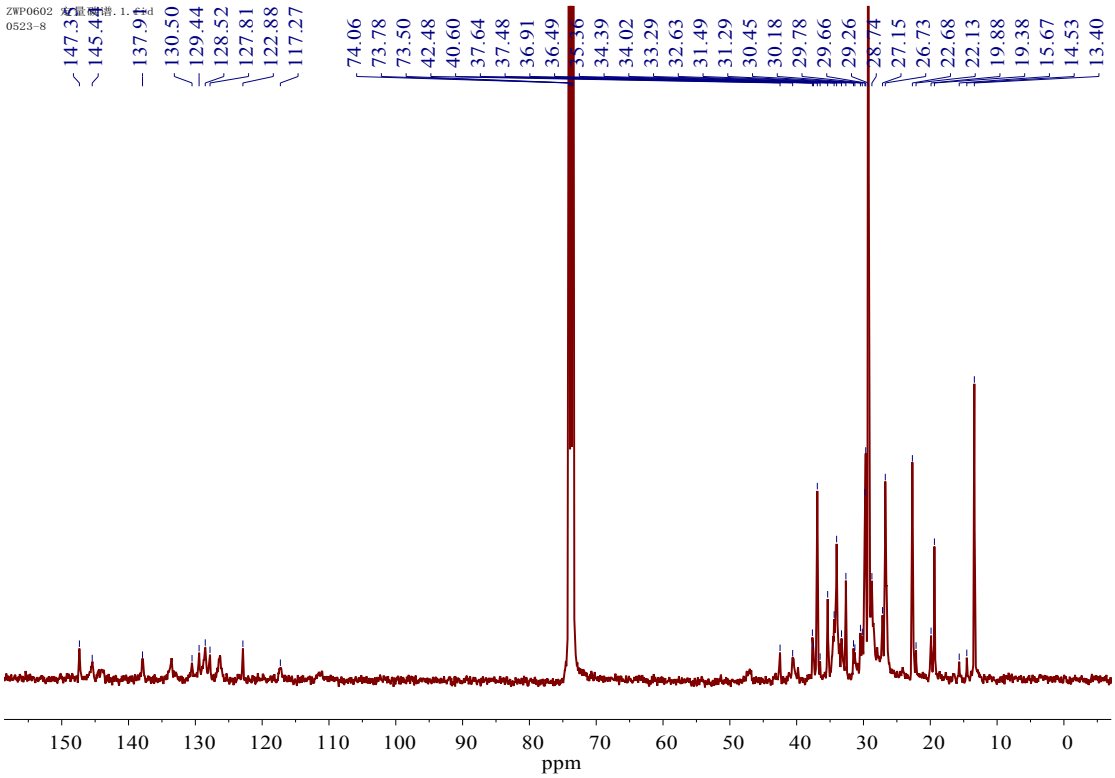

Figure **S24**. ^{13}C NMR spectrum of copolymer in $C_2D_2Cl_4$ from entry 15.

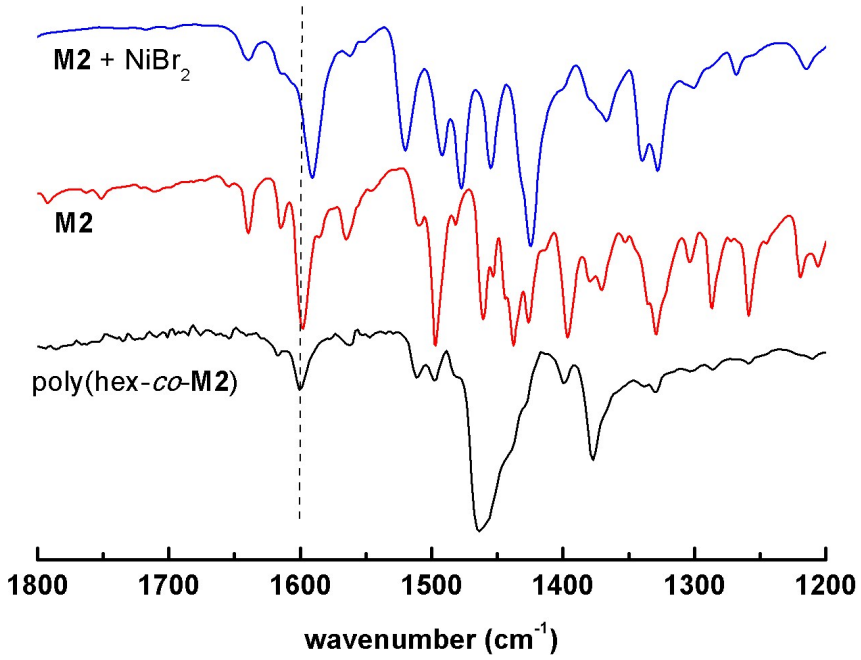

Figure S25. FTIR spectra of poly(hex-*co*-**M2**), **M2** and complex **M2**·$NiBr_2$.

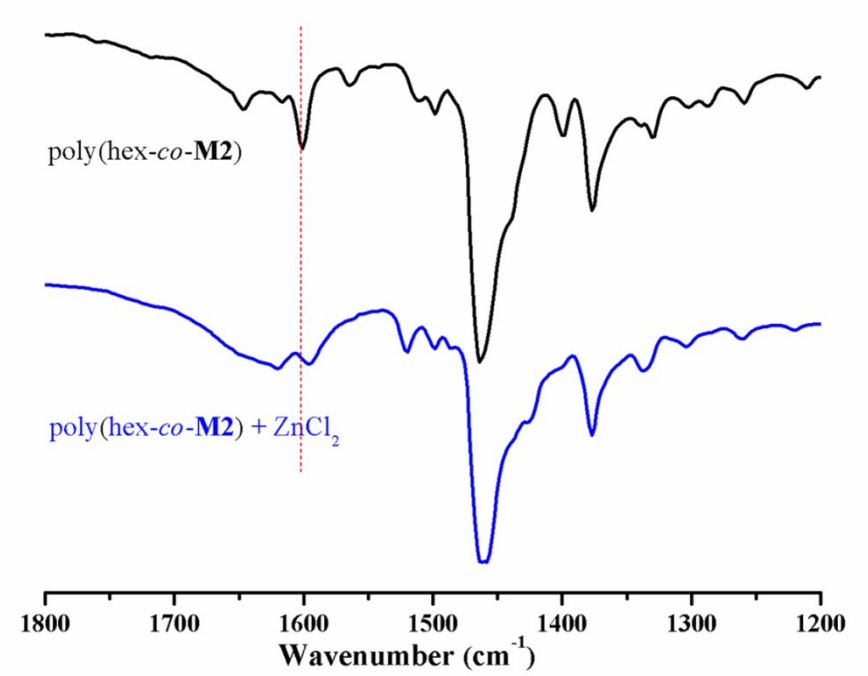

Figure S26. FTIR spectra of poly(hex-*co*-**M2**) and poly(hex-*co*-**M2**) with $ZnCl_2$.

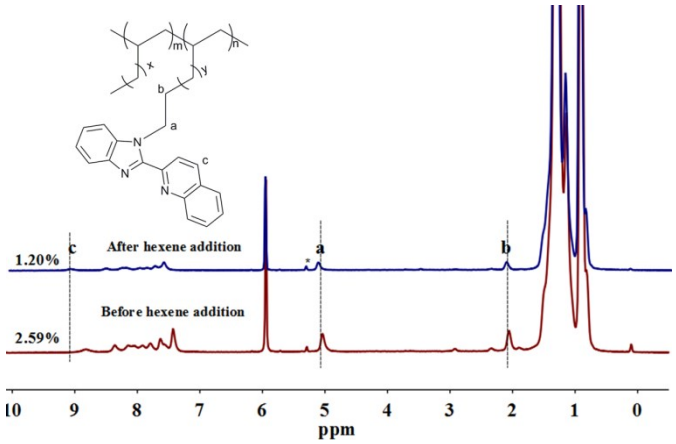

Figure S27. ^{1}H NMR spectra of the resultant copolymers obtained from two-step seeding polymerizations (*: CH_2Cl_2).

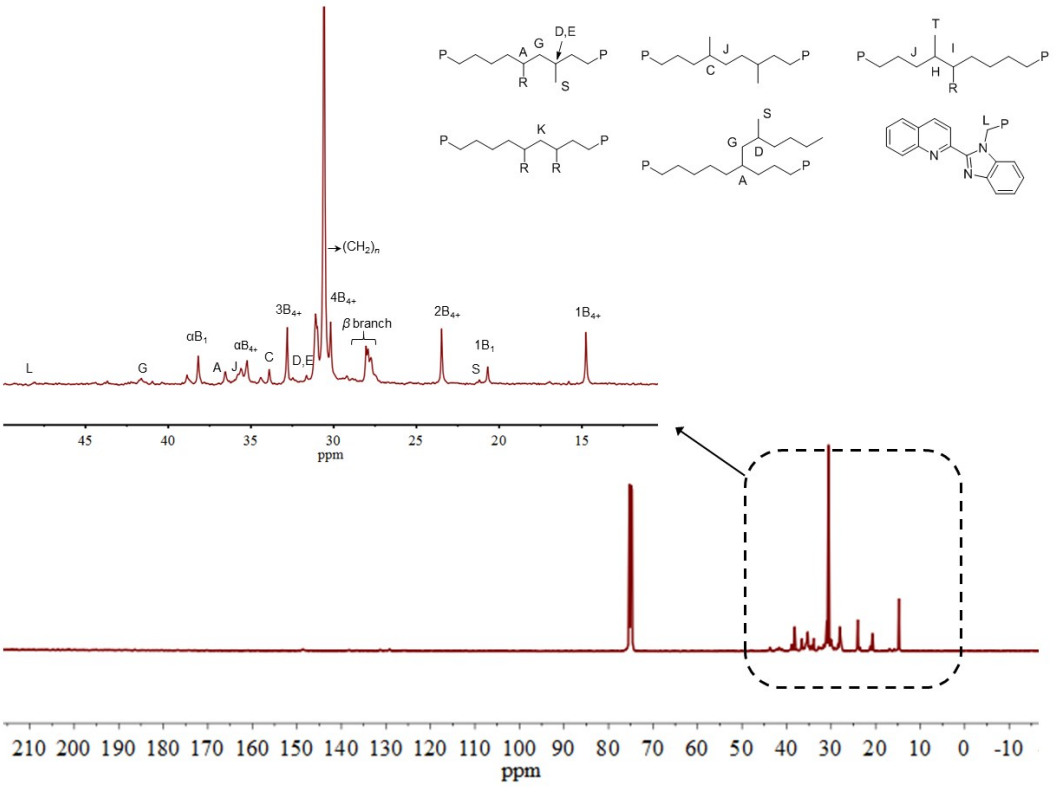

Figure S28. ^{13}C NMR spectrum of poly(octene-*co*-**M2**).

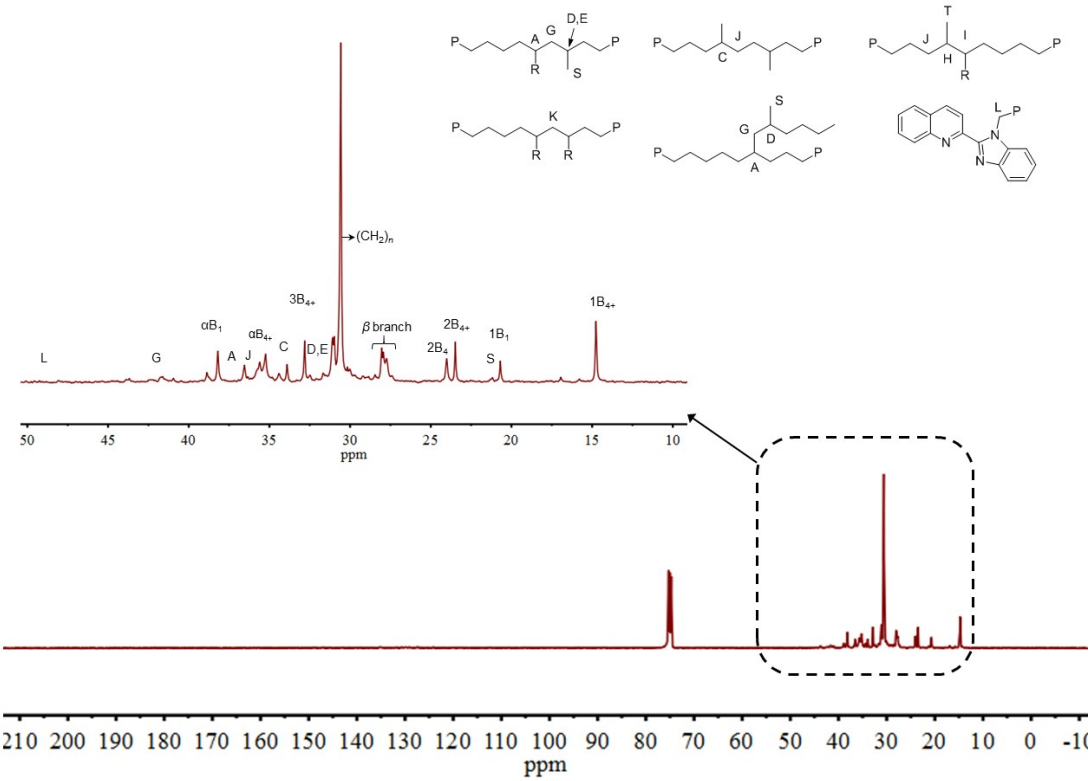

Figure S29. ^{13}C NMR spectrum of poly(decene-*co*-**M2**).

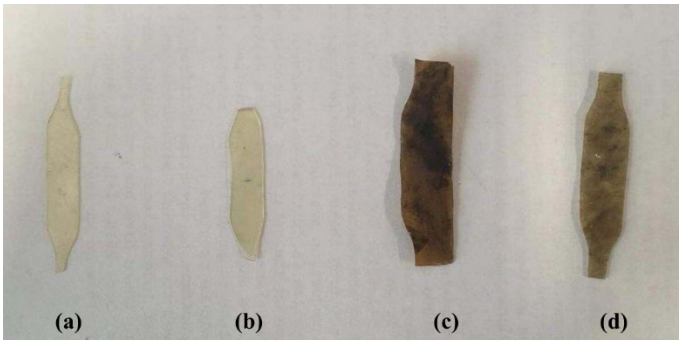

Figure S30. Photographs of the materials: (a) Poly(hex-*co*-**M2**), (b) $ZnCl_2$-crosslinked poly(hex-*co*-**M2**), (c) $Fe_2(SO_4)_3$-crosslinked poly(hex-*co*-**M2**) and (d) $La(CF_3SO_3)_3$-crosslinked poly(hex-*co*-**M2**).