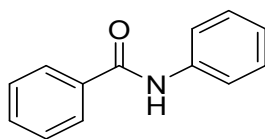
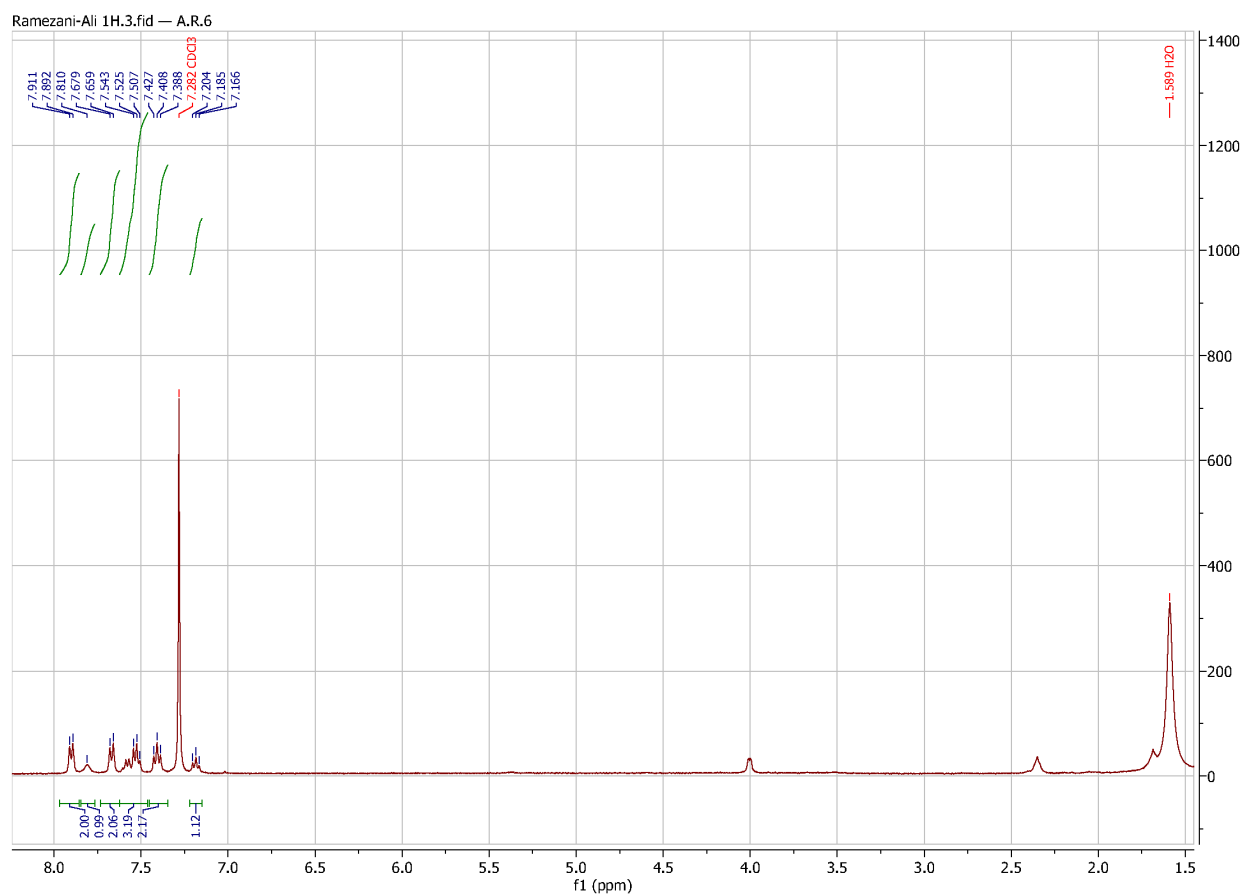


Supplementary Materials: Carbon–Heteroatom Bond Formation via Coupling Reactions Performed on a Magnetic Nanoparticle Bed

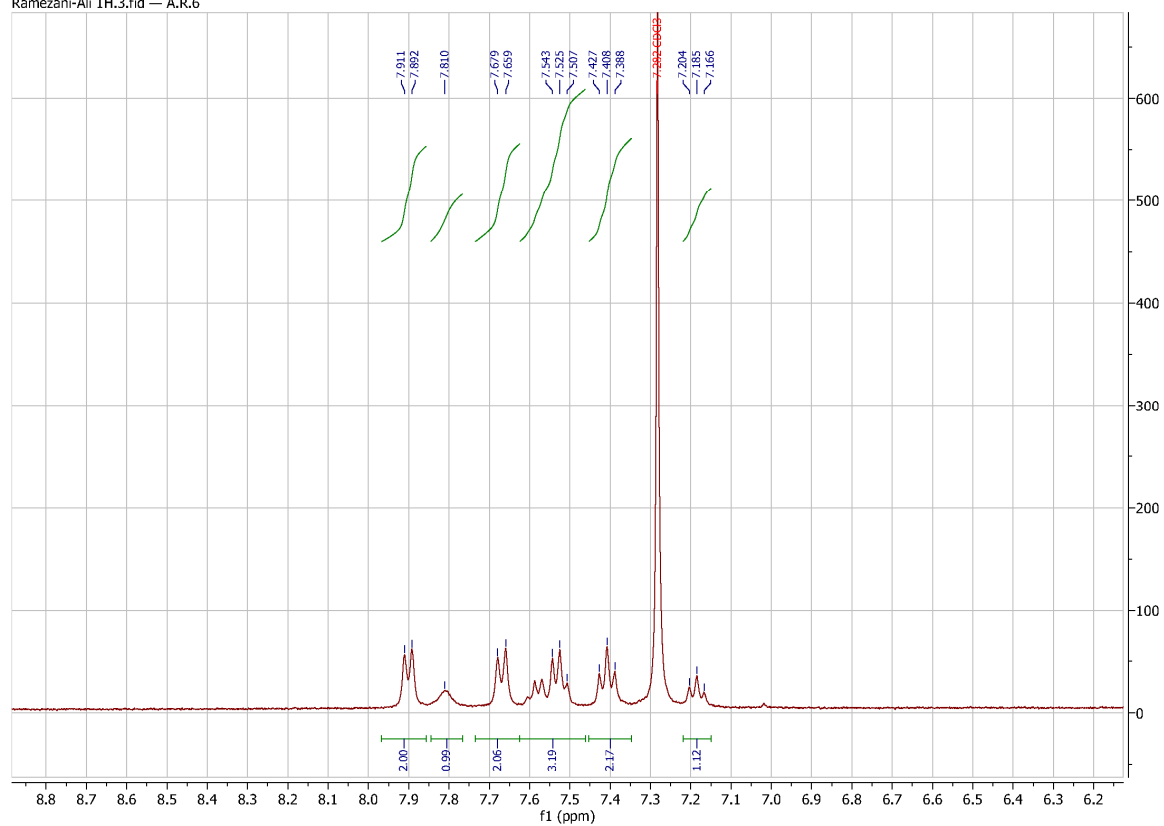
Mahmood Tajbakhsh, Ali Ramezani, Mohammad Qandalee, Mobina Falahati, Carlos J. Durán-Valle, Silvia Izquierdo and Ignacio M. López-Coca



(a)



(b)



(c)

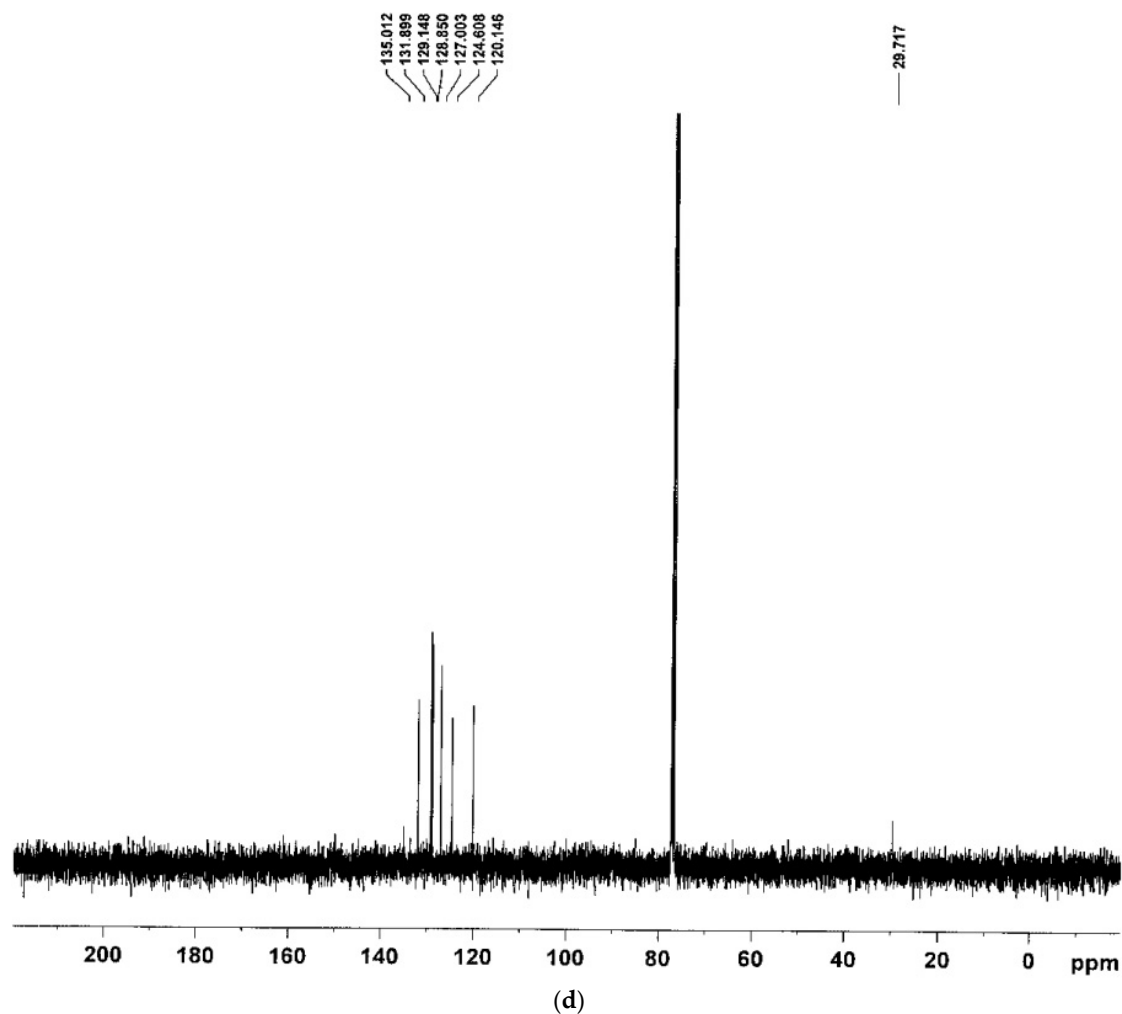
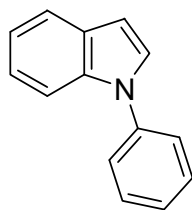
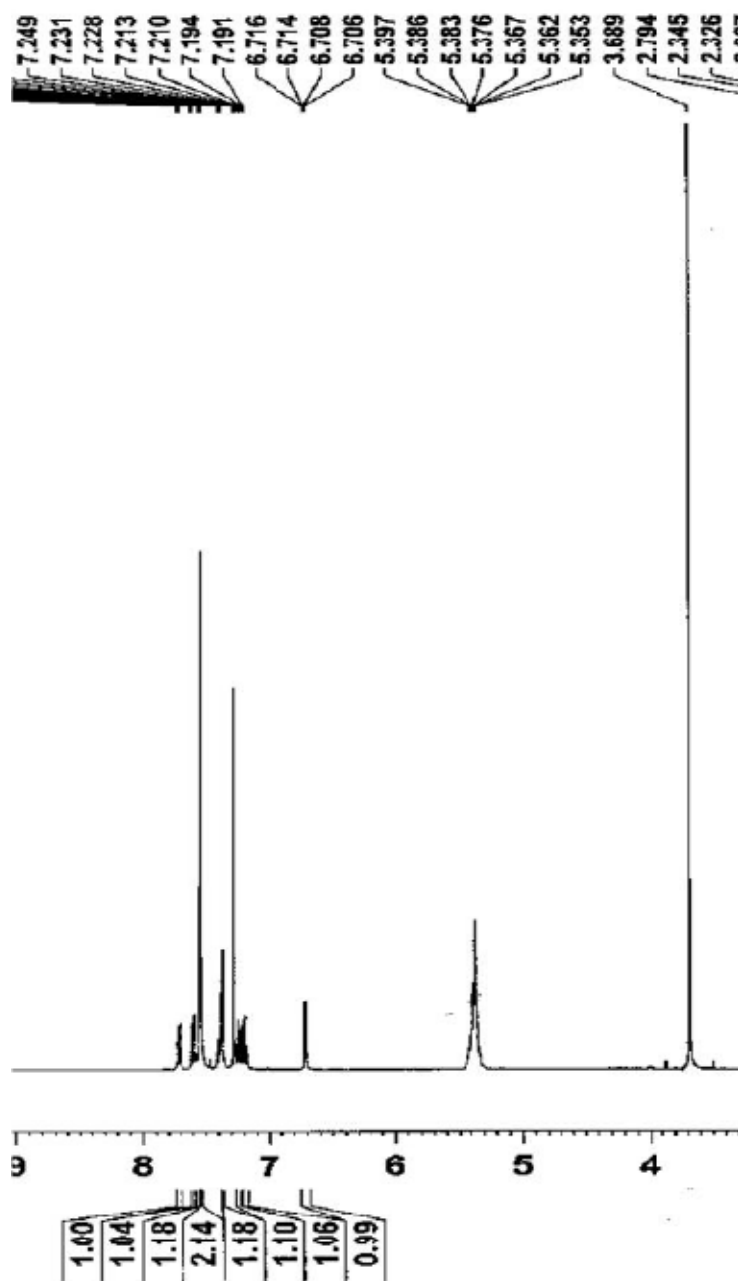


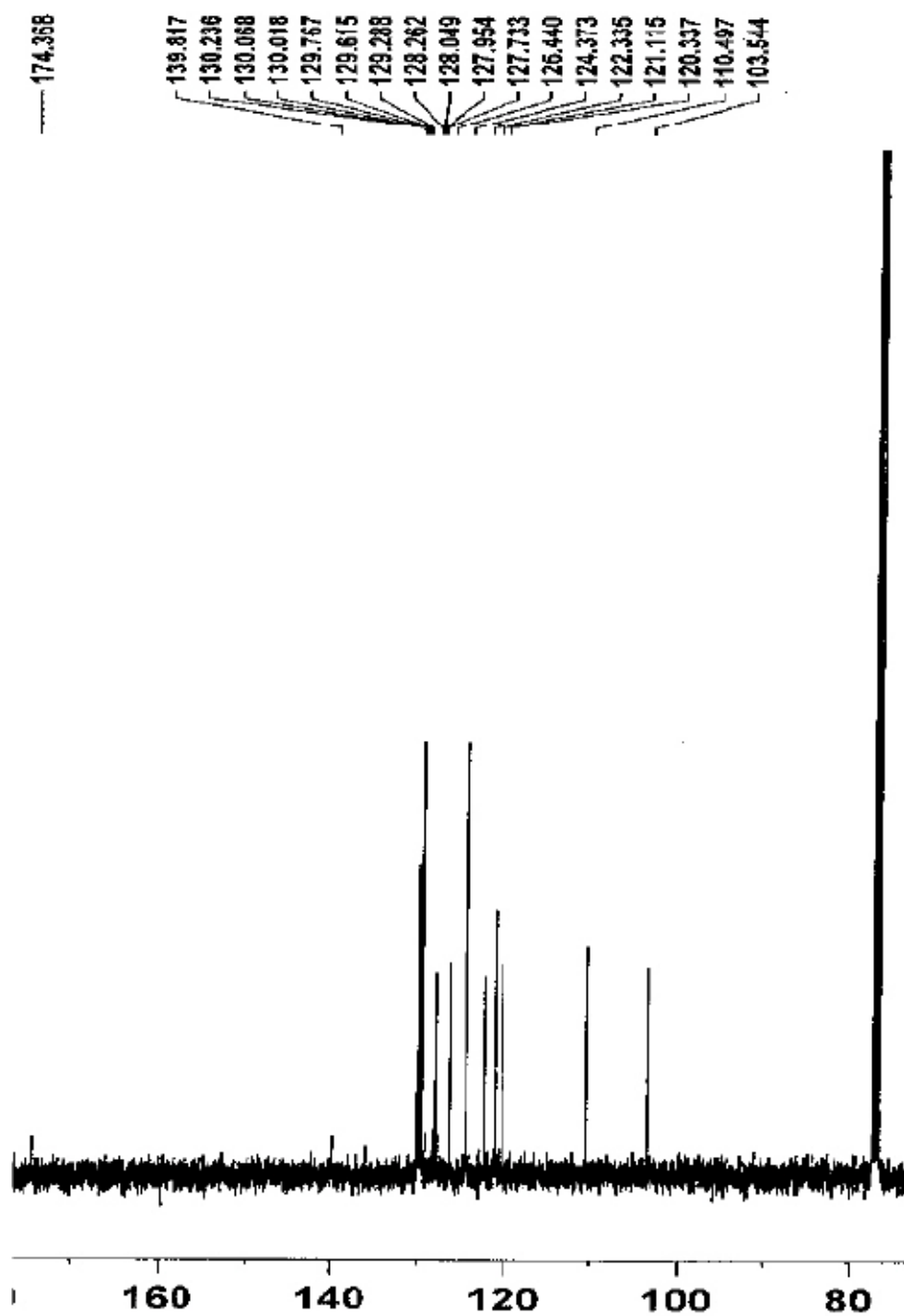
Figure S1. NMR spectra obtained for benzaldehyde (compound **3**). (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).

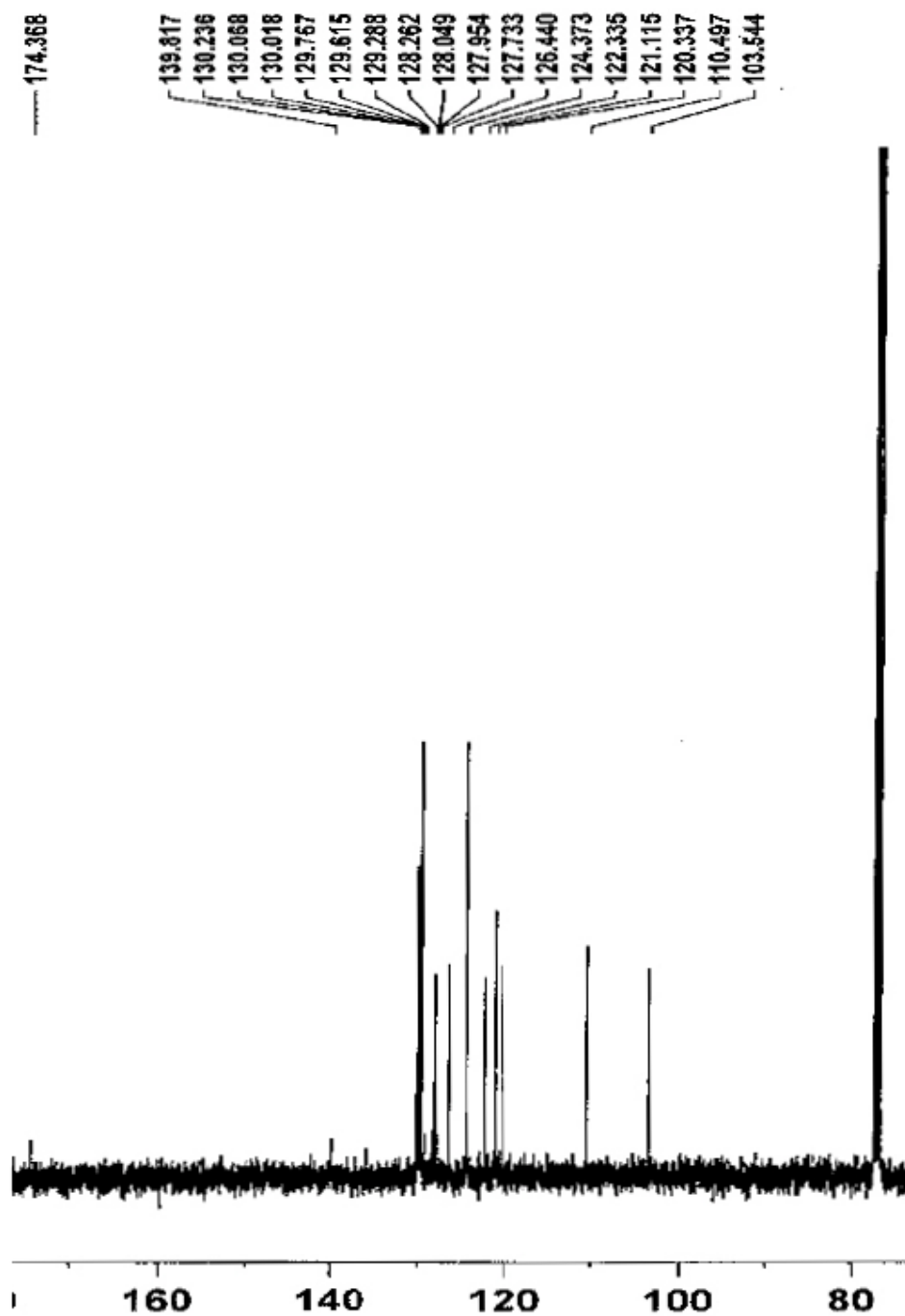


(a)



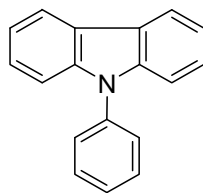
(b)





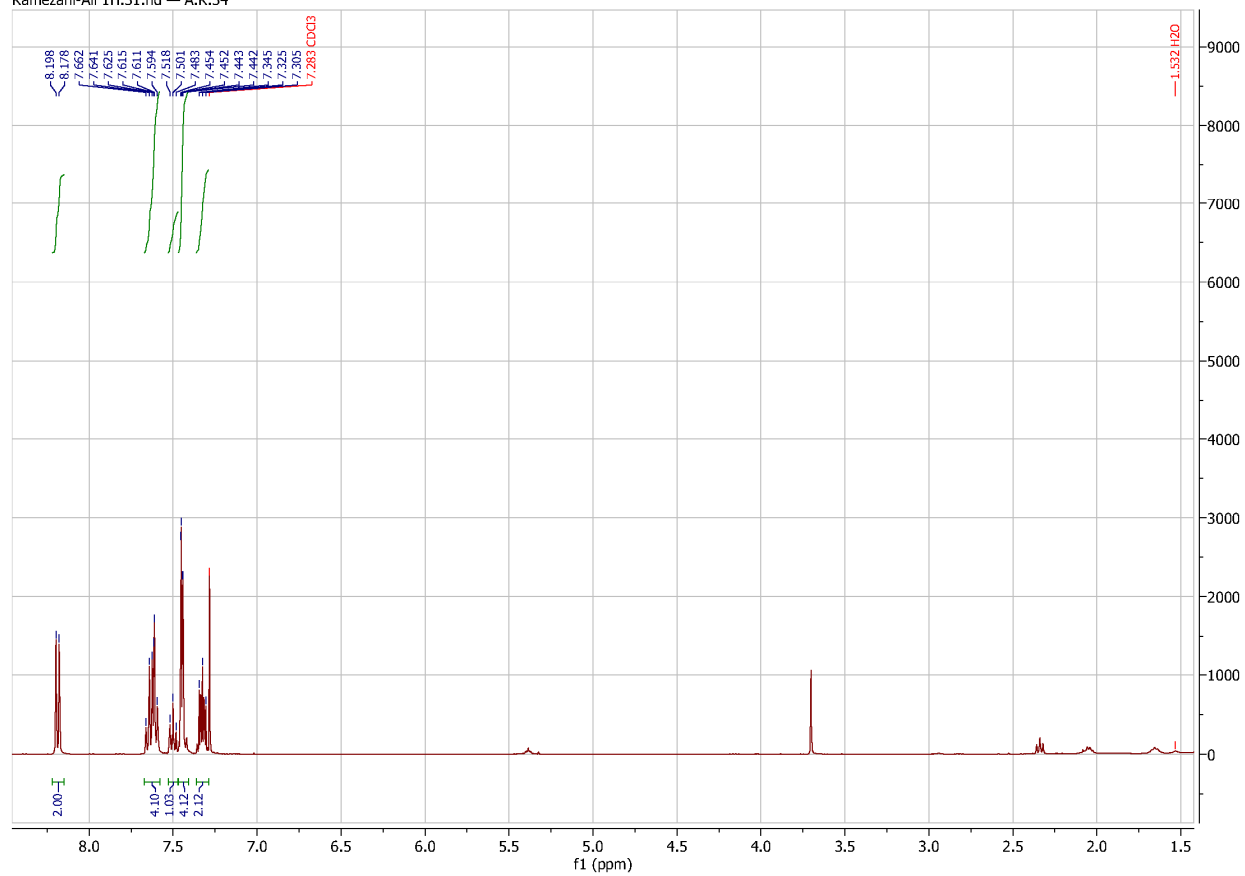
(c)

Figure S2. NMR spectra obtained for *N*-phenylindole (compound 13), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) ^{13}C NMR spectrum (100 MHz, CDCl_3).

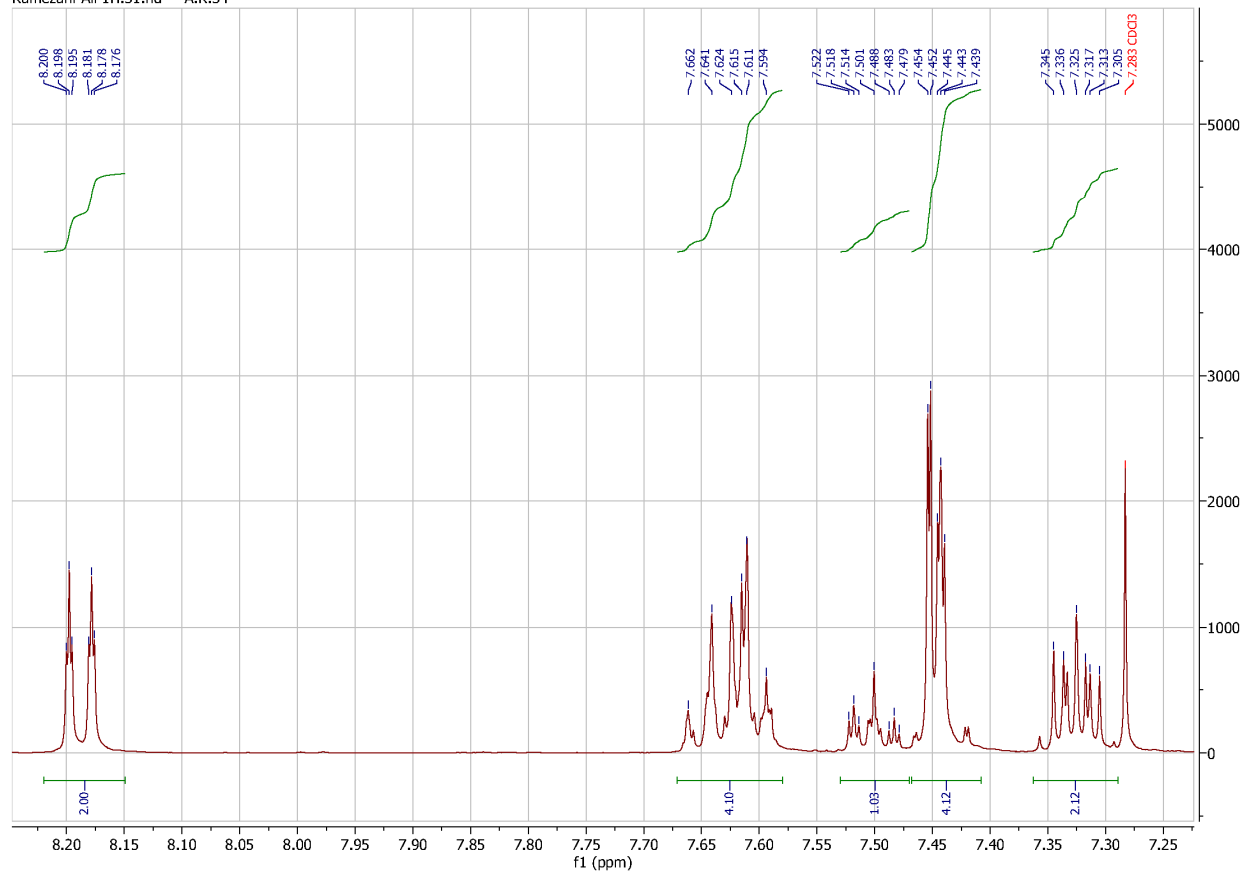


(a)

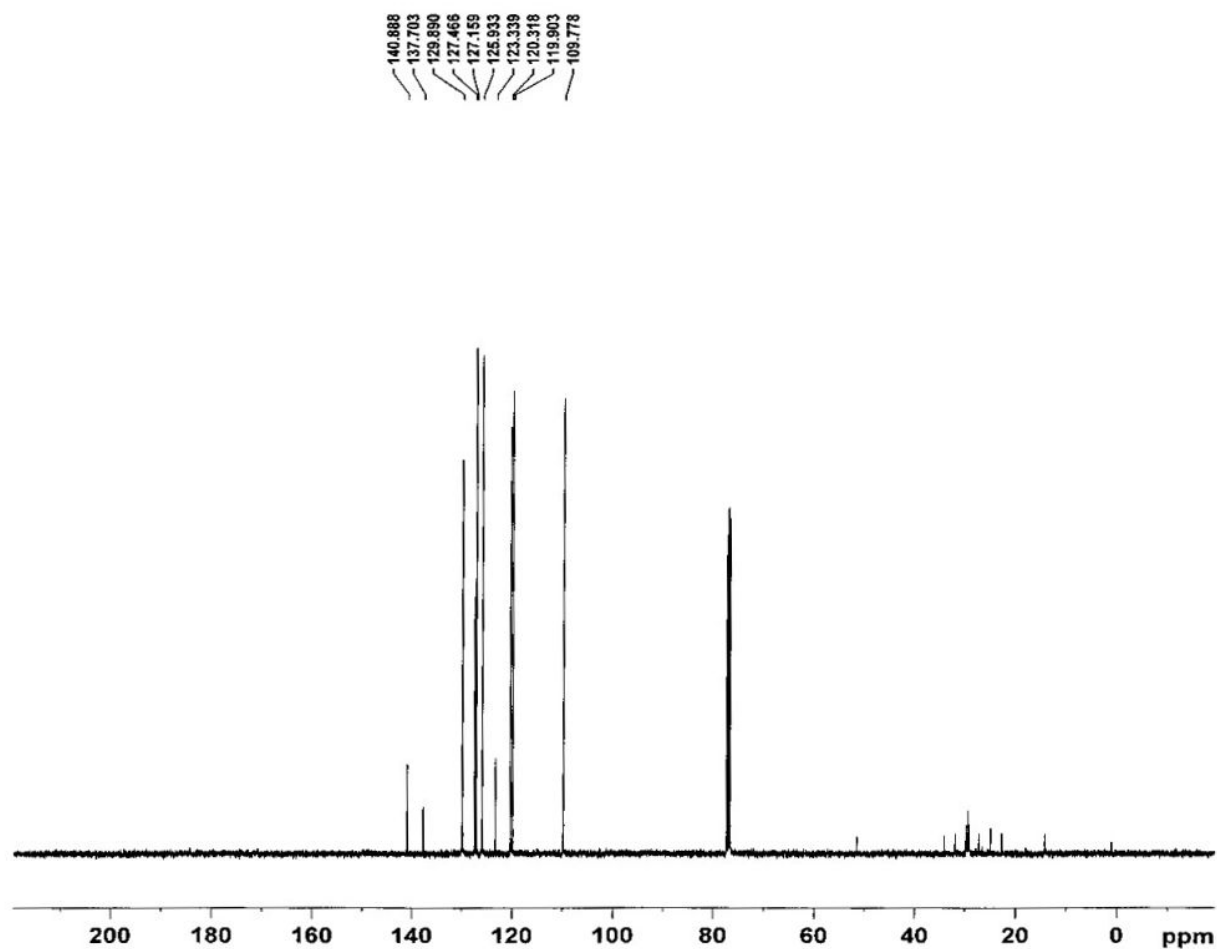
Ramezani-Ali 1H.31.fid — A.R.34



(b)

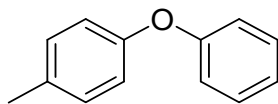


(c)



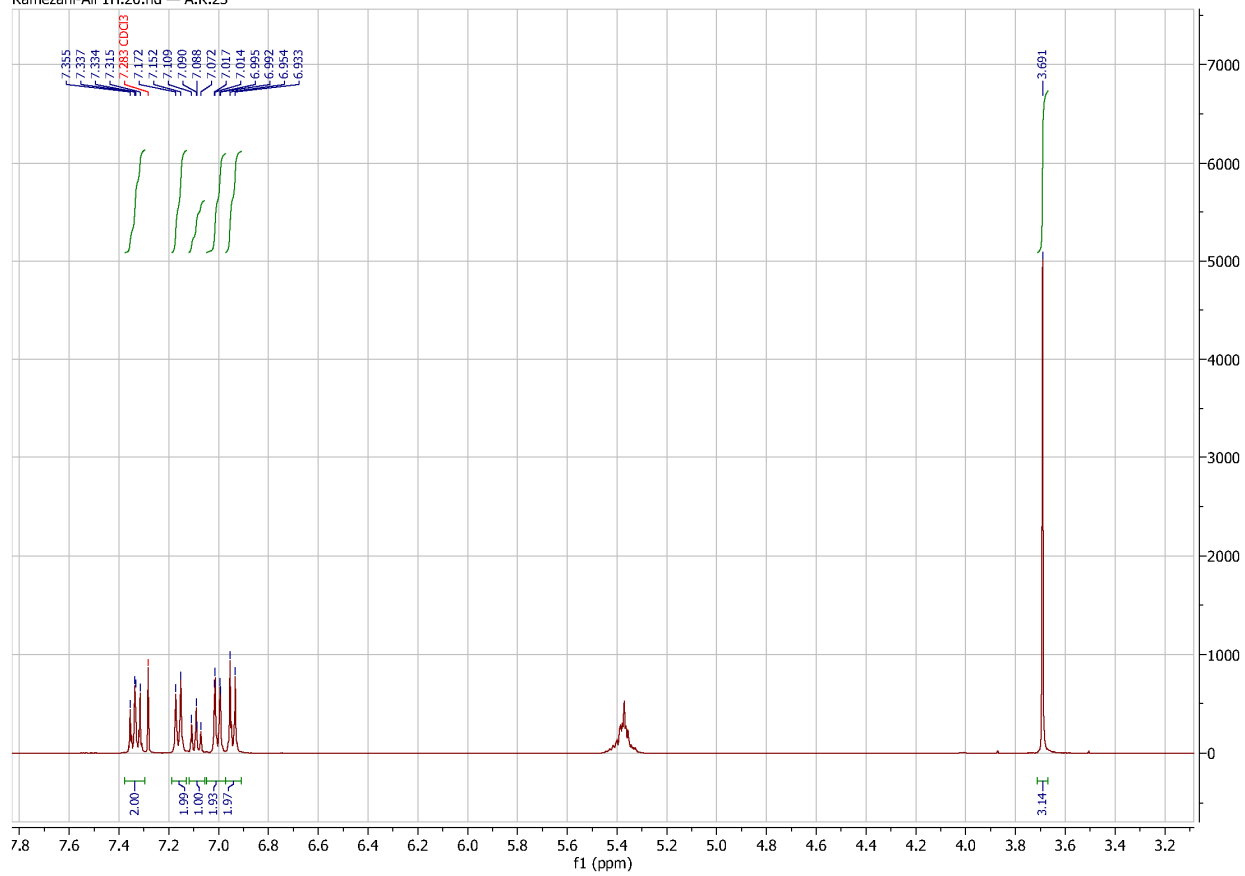
(d)

Figure S3. NMR spectra obtained for *N*-phenylcarbazole (compound **15**), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum, (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).

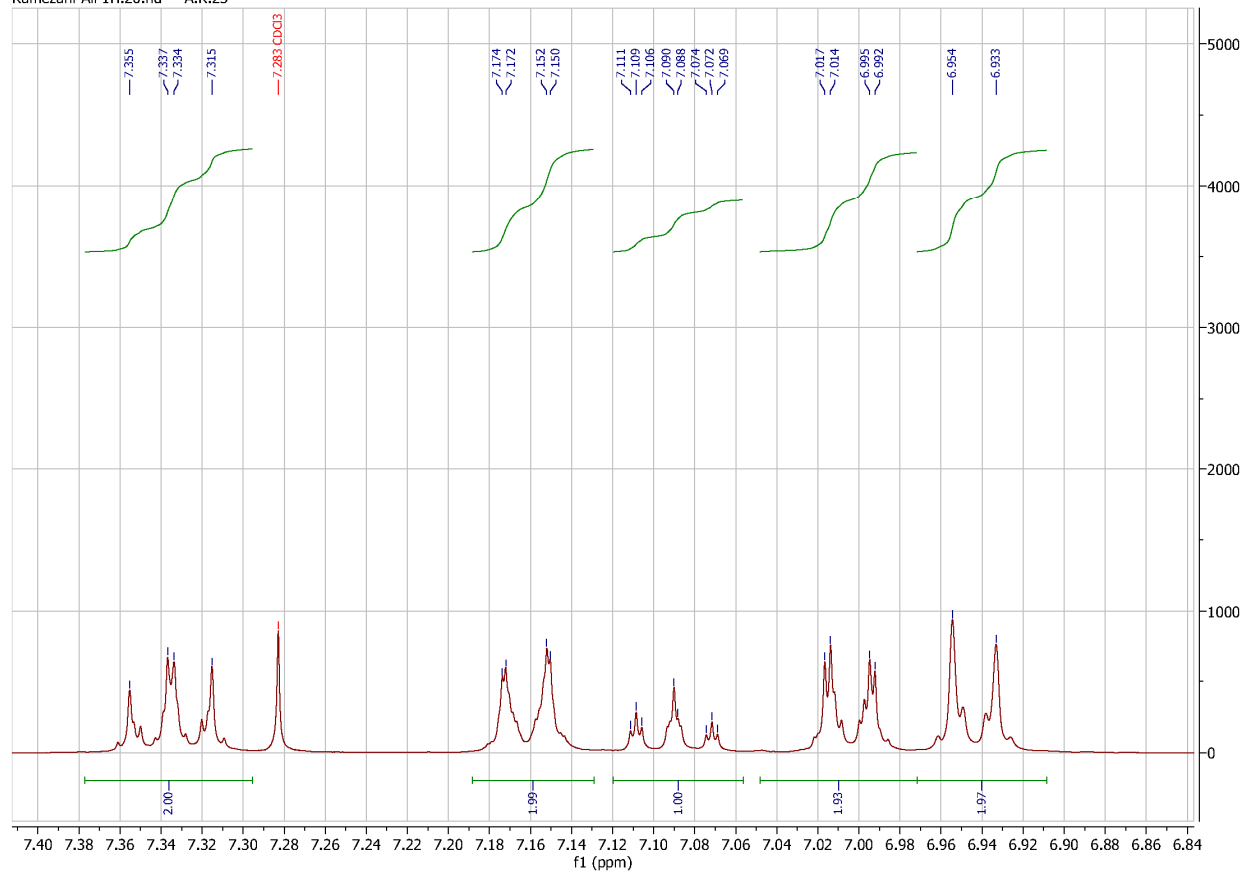


(a)

Ramezani-Ali 1H.20.fid — A.R.23



(b)



(c)

Figure S4. NMR spectra obtained for 1-methyl-4-phenoxybenzene (compound 18), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum.

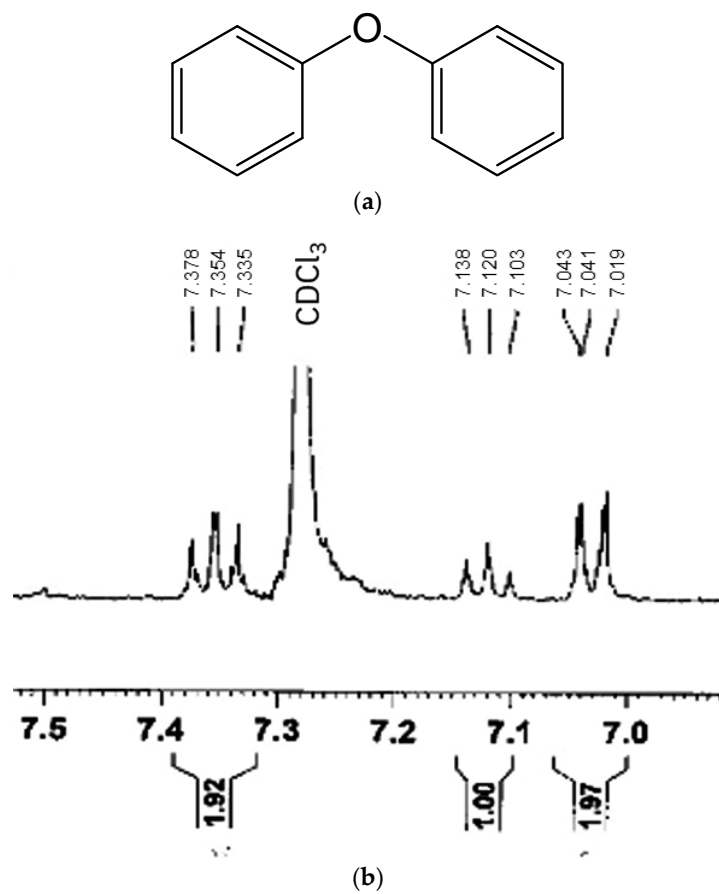
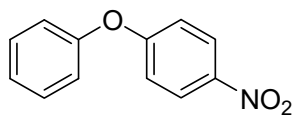
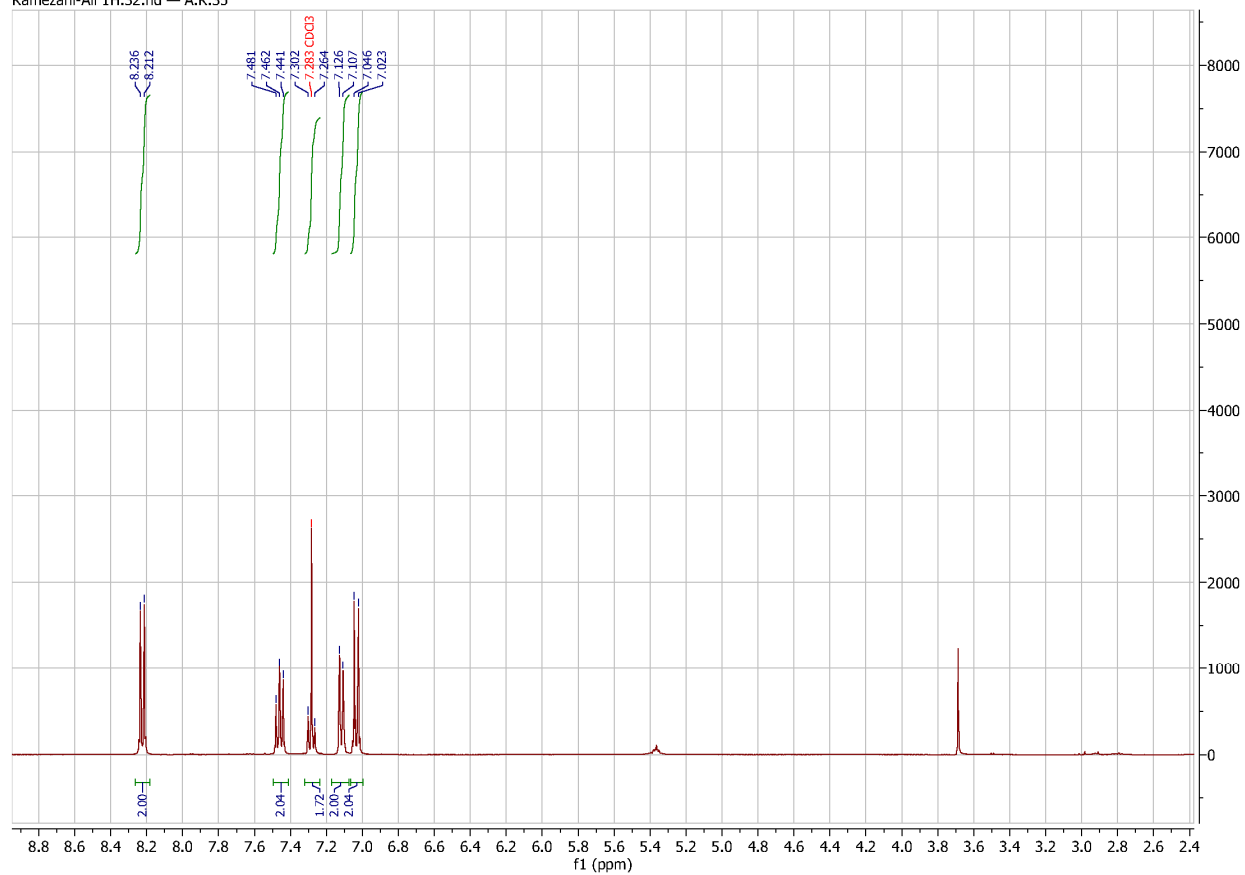


Figure S5. NMR spectrum obtained for diphenyl ether (compound 31), (a) Molecular structure, (b) ¹H NMR spectrum (400 MHz, CDCl₃).

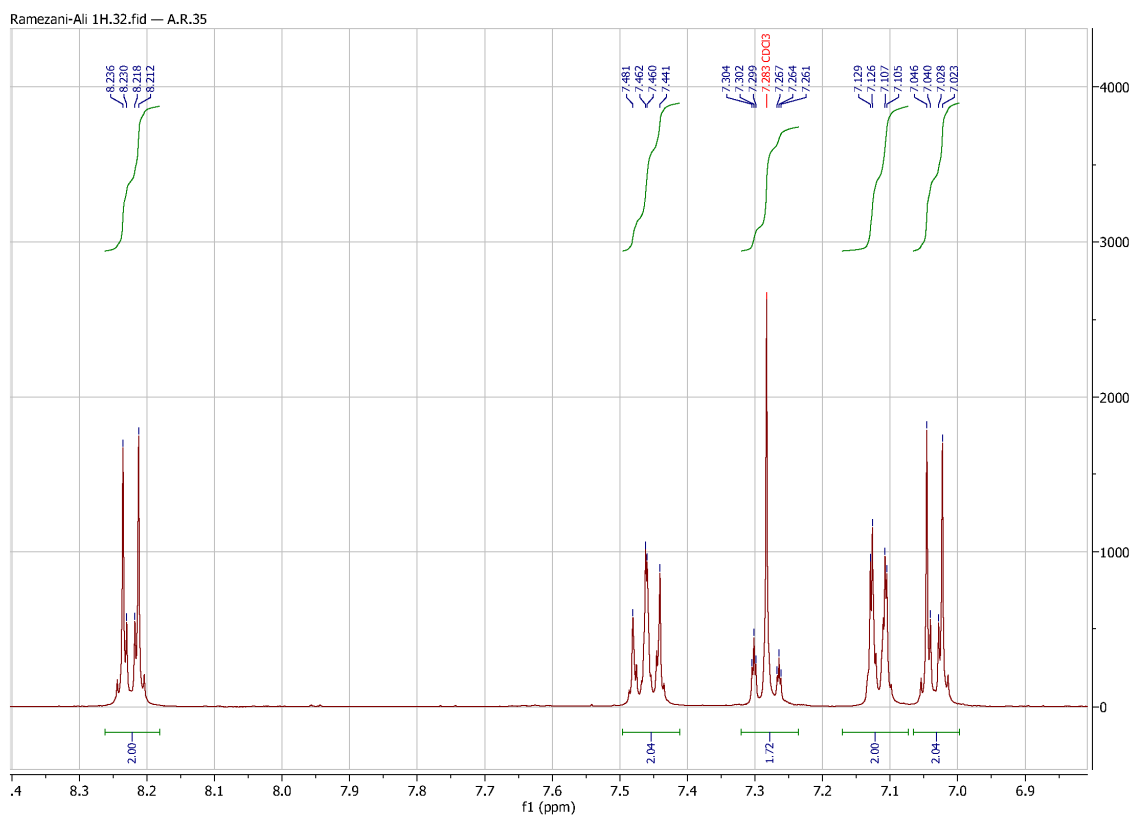


(a)

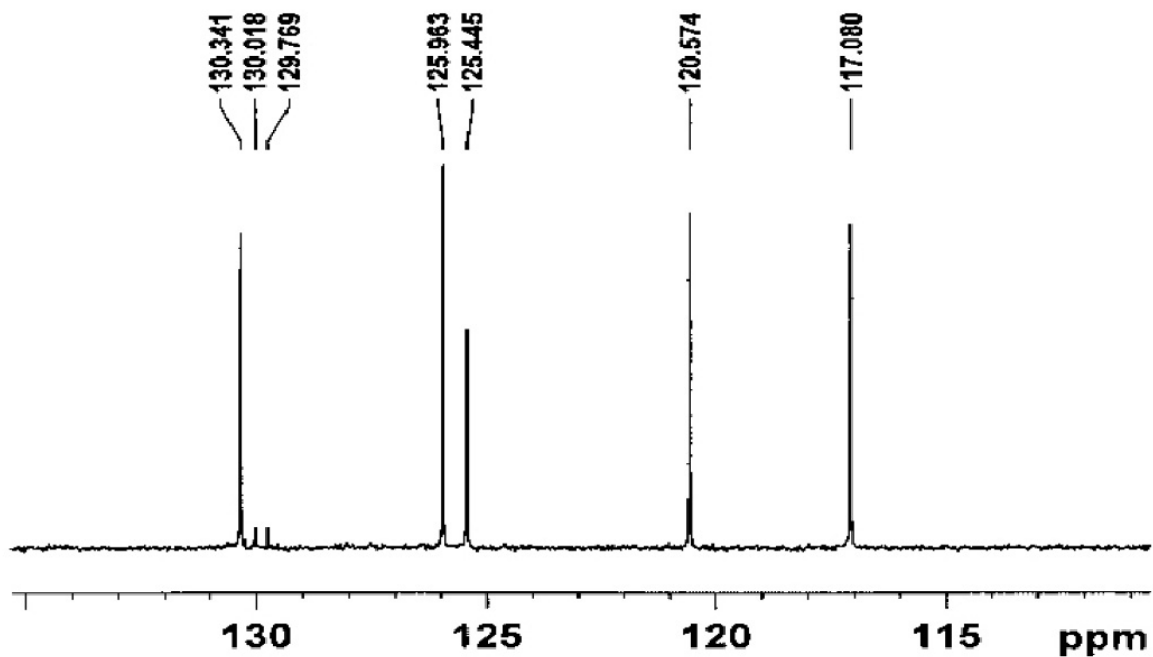
Ramezani-Ali 1H.32.fid — A.R.35



(b)

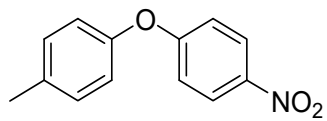


(c)



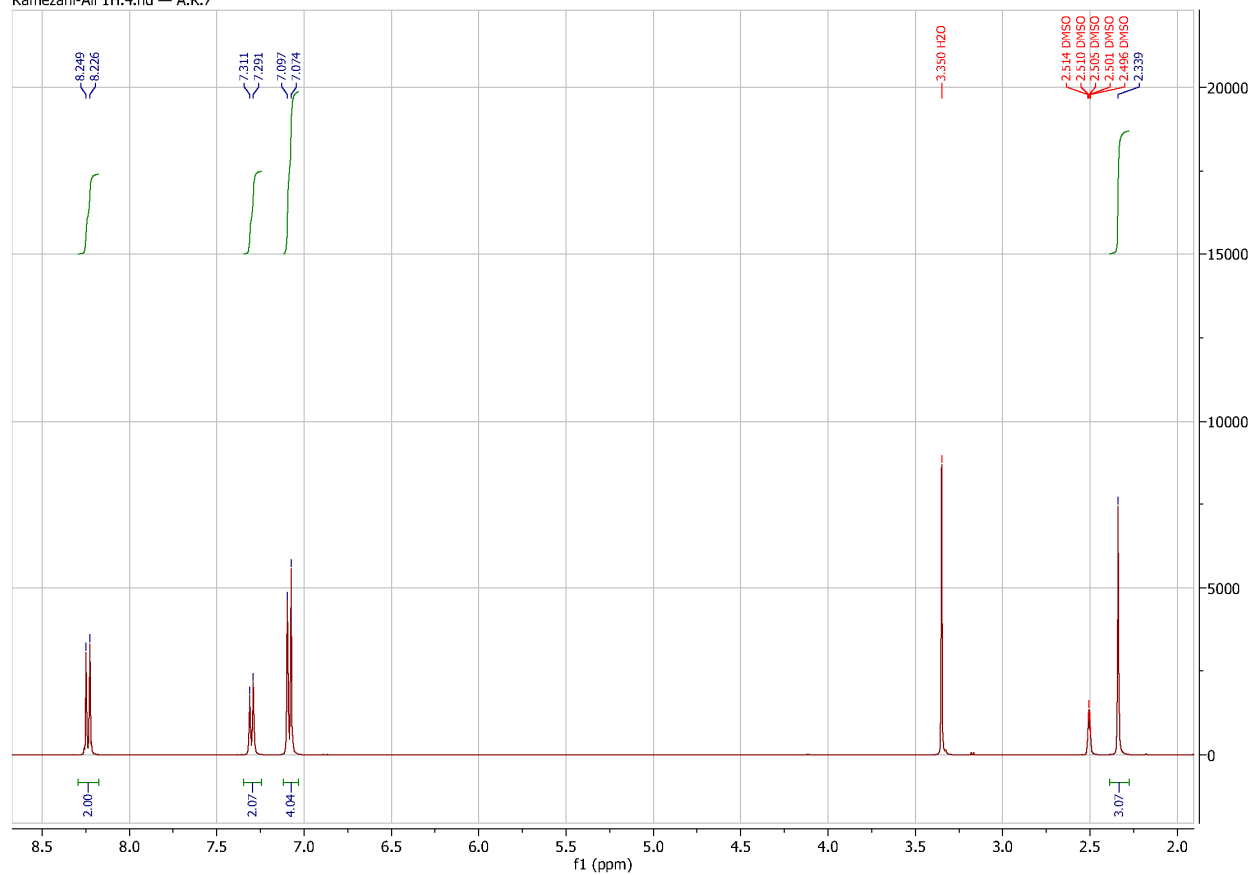
(d)

Figure S6. NMR spectra obtained for 1-nitro-4-phenoxybenzene (compound 34), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum, (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).



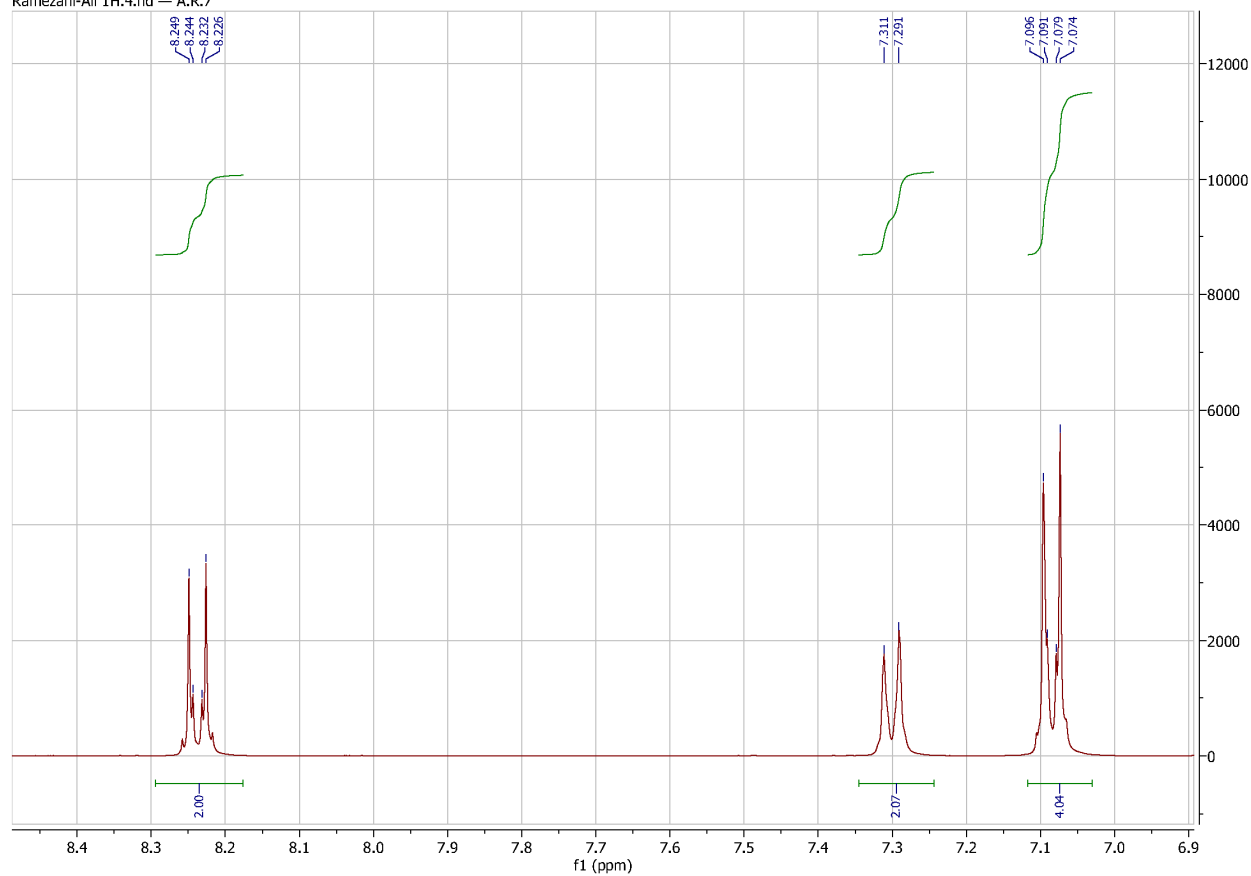
(a)

Ramezani-Ali 1H.4.fid — A.R.7



(b)

Ramezani-Ali 1H.4.fid — A.R.7



(c)

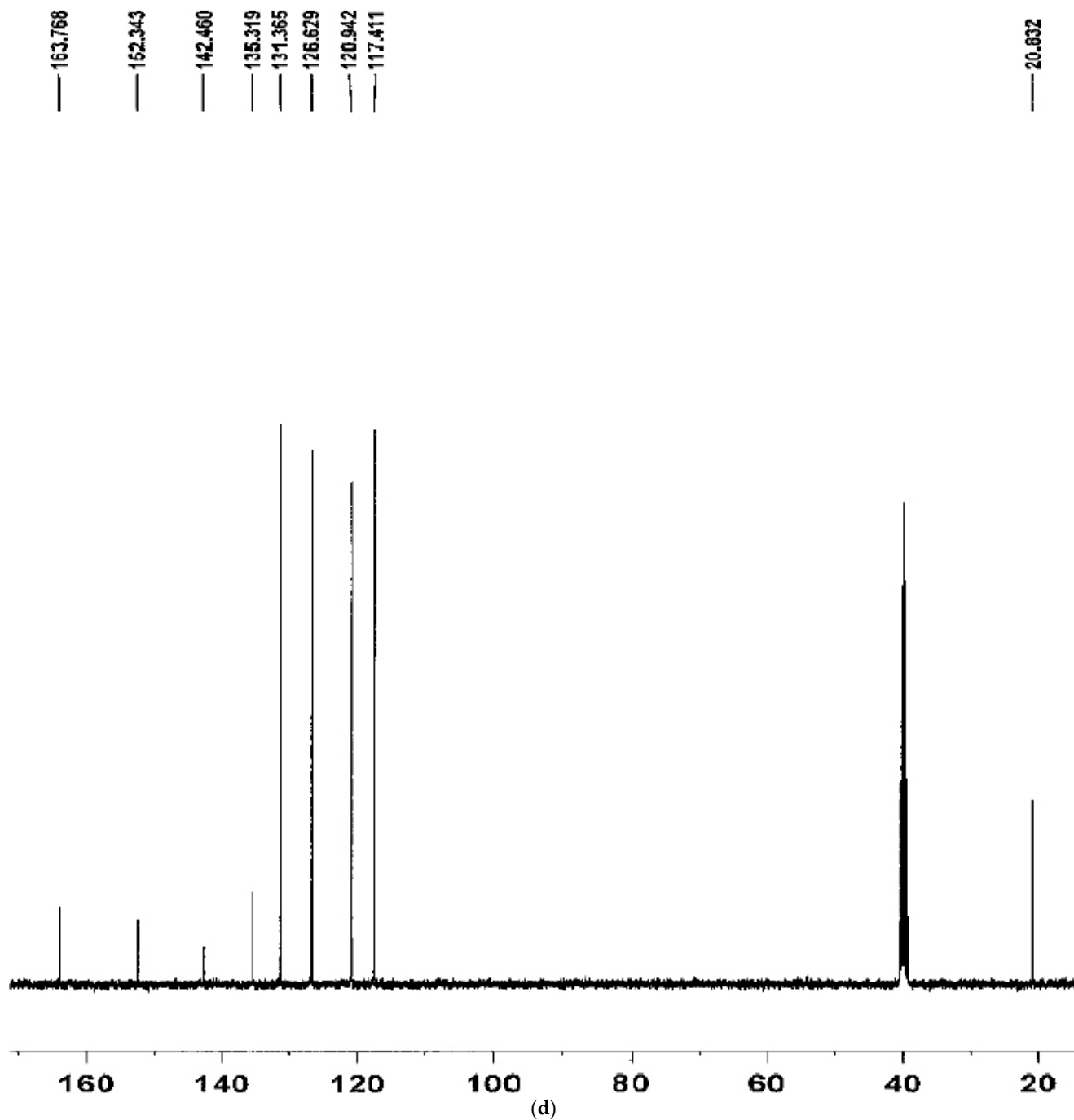
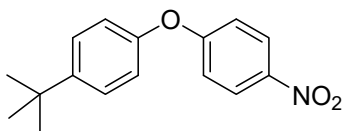
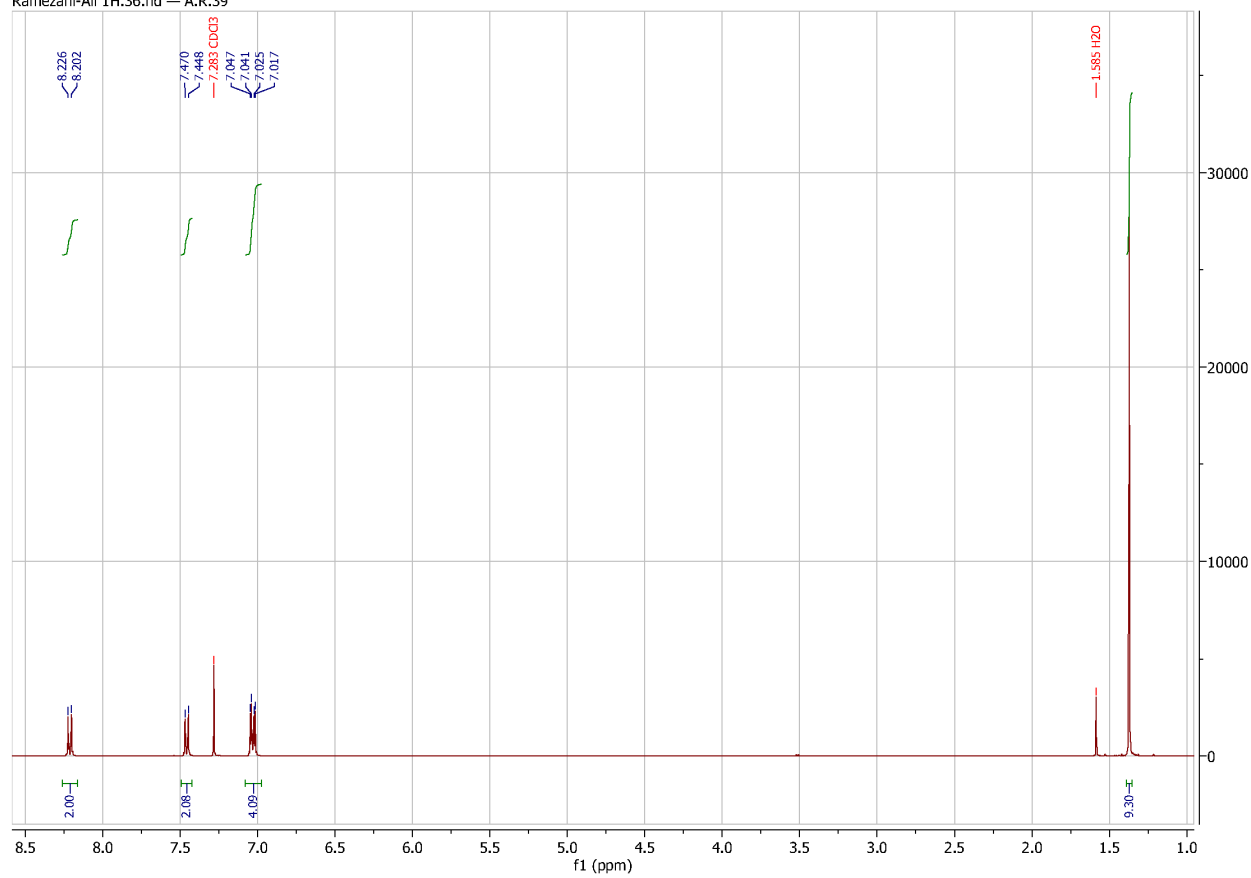


Figure S7. NMR spectra obtained for 4-methyl 4-nitro-diphenyl ether (compound 35), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum, (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).

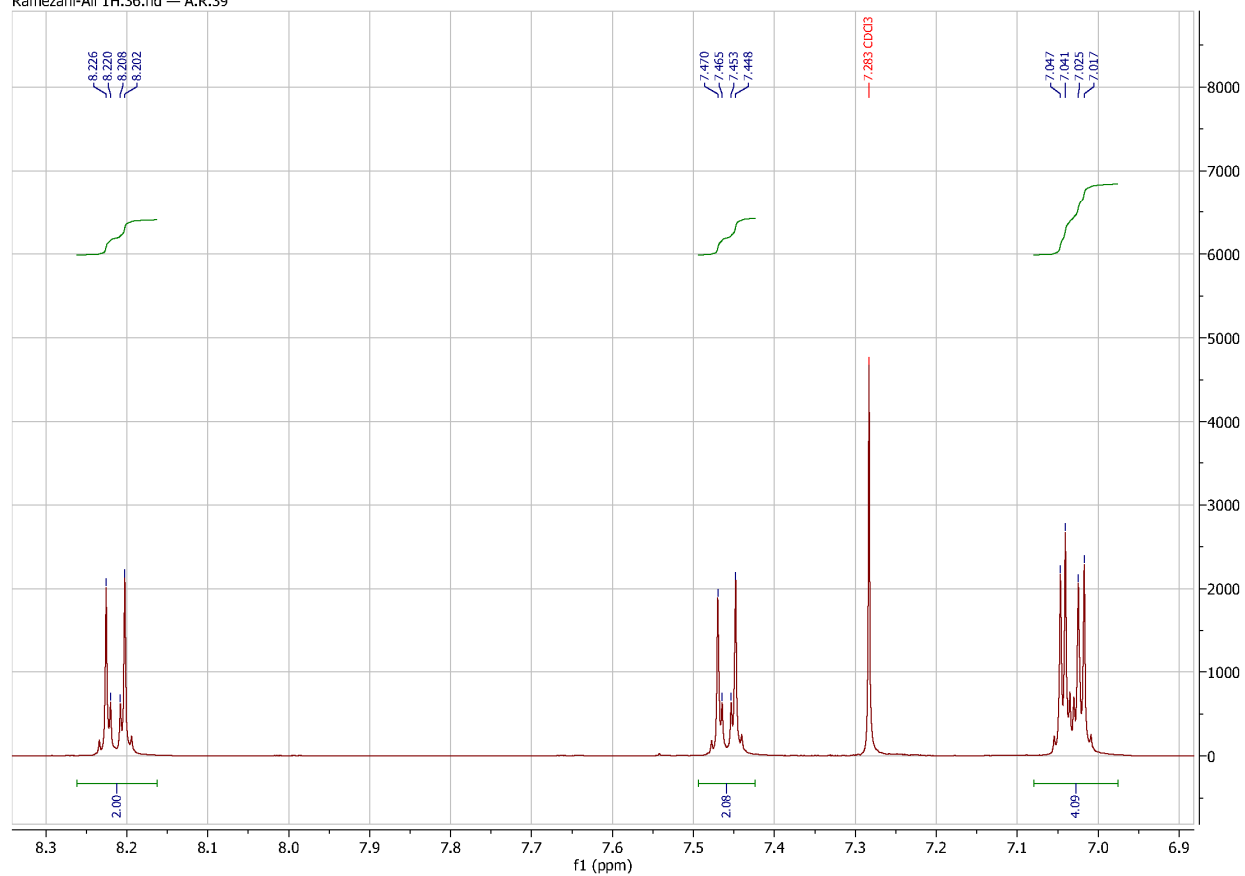


(a)

Ramezani-Ali 1H.36.fid — A.R.39



(b)



(c)

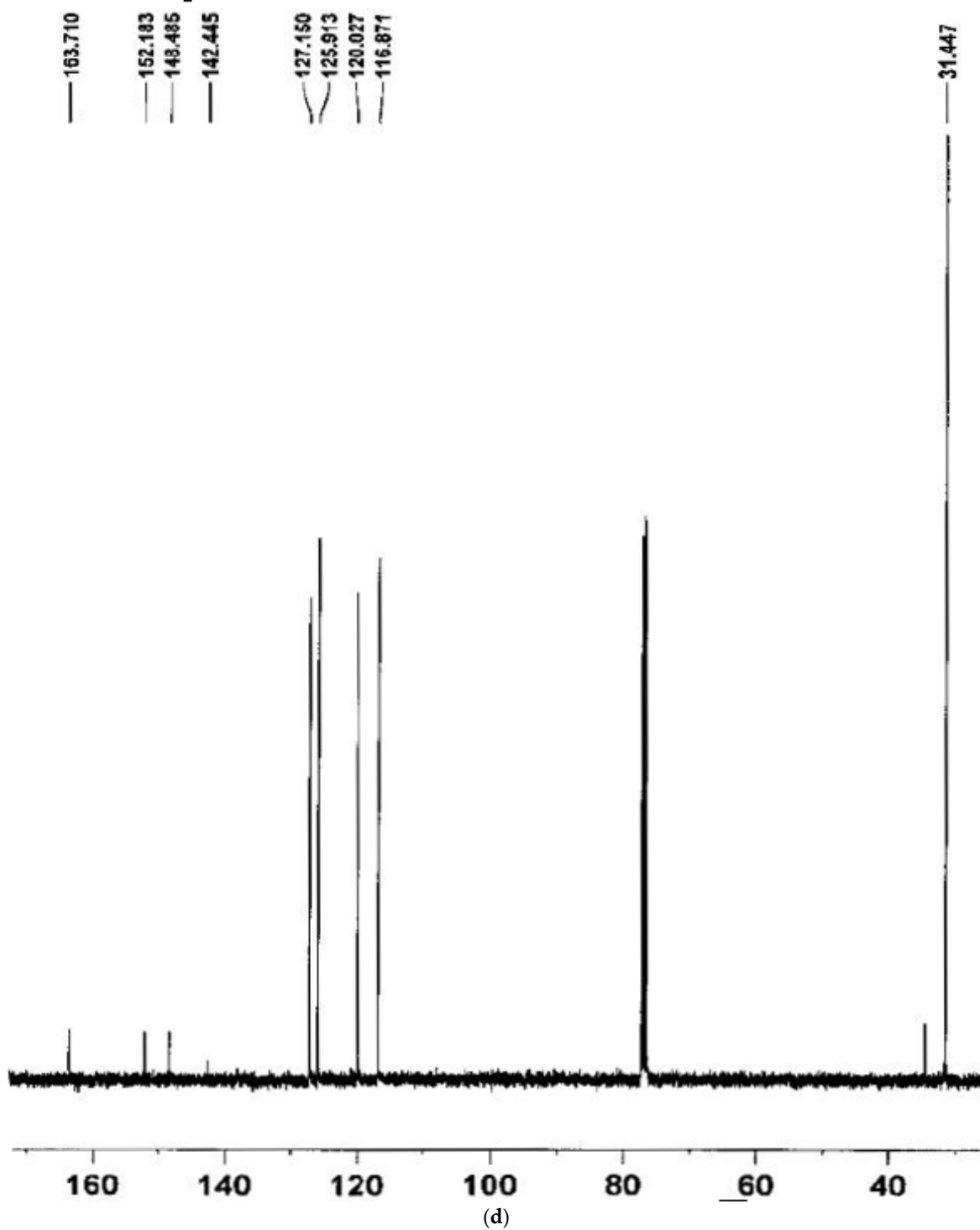
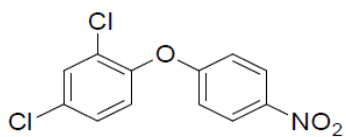
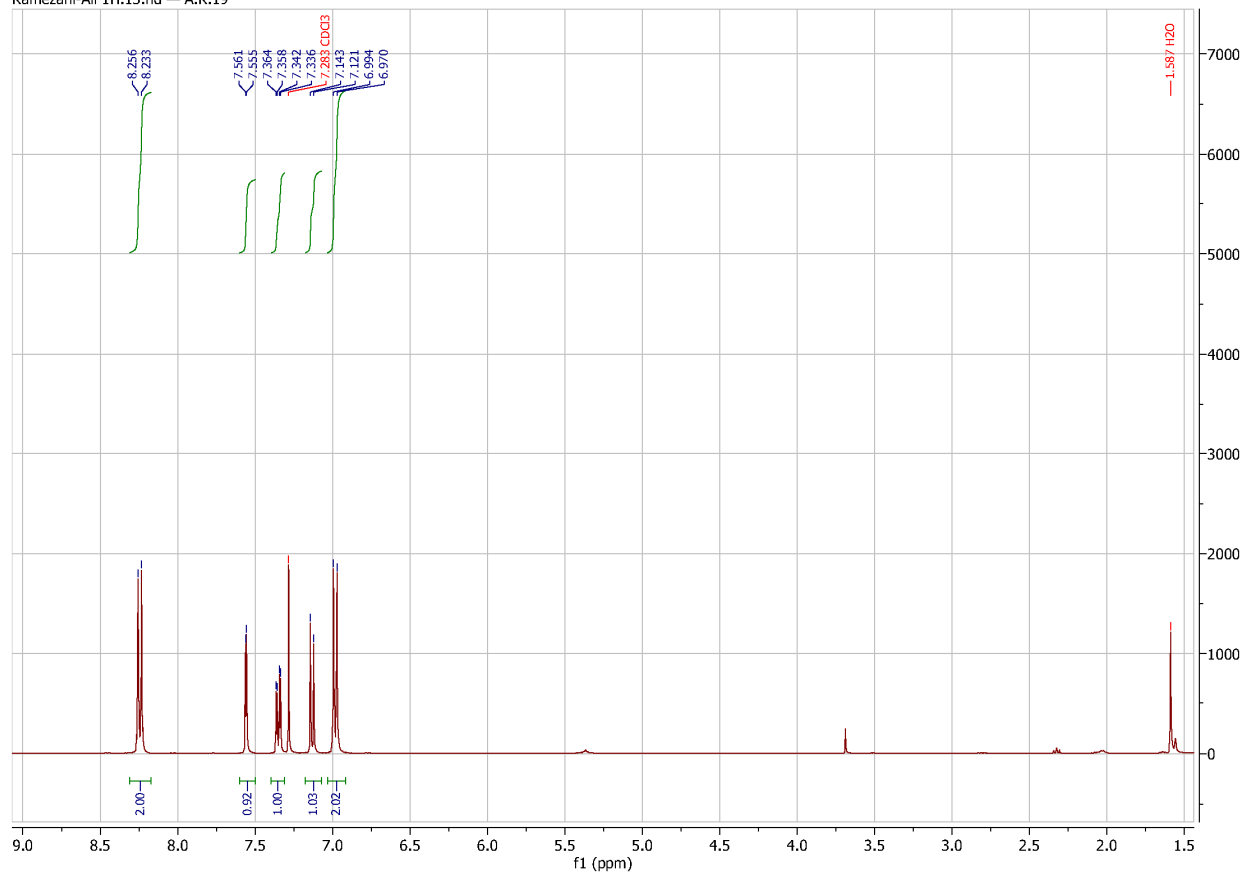


Figure S8. NMR spectra obtained for 1-(4-nitrophenoxy)-4-*tert*-butylbenzene (compound 37), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum, (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).

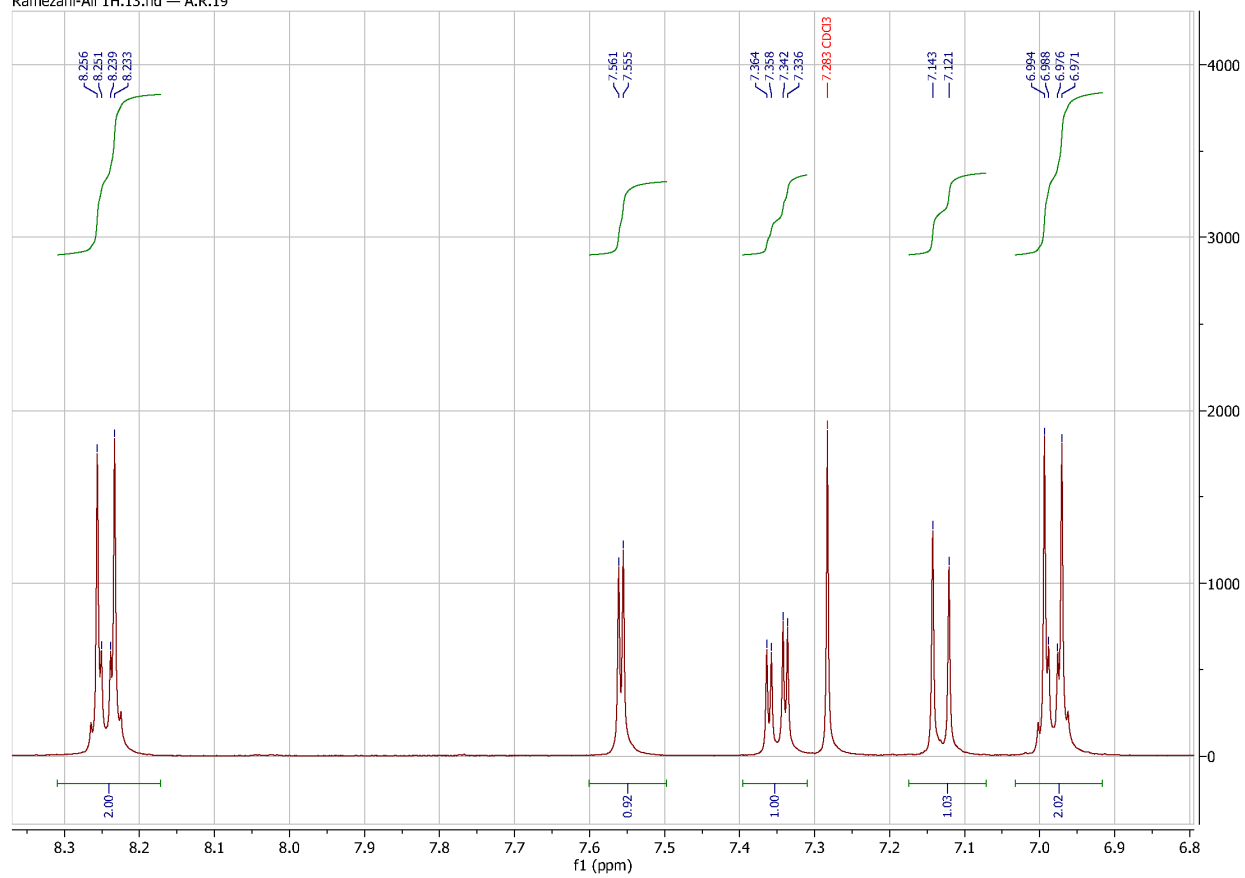


(a)

Ramezani-Ali 1H.13.fid — A.R.19



(b)



(c)

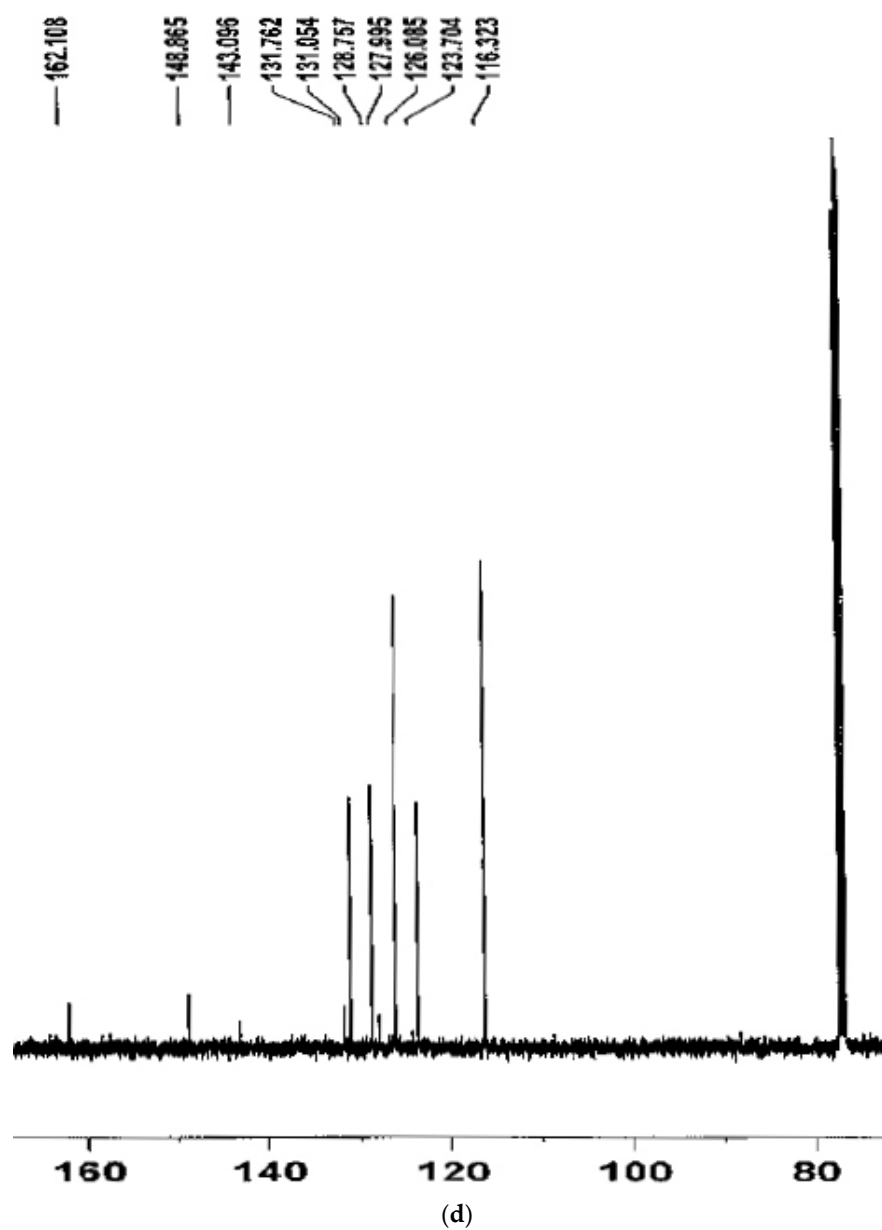
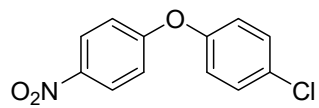
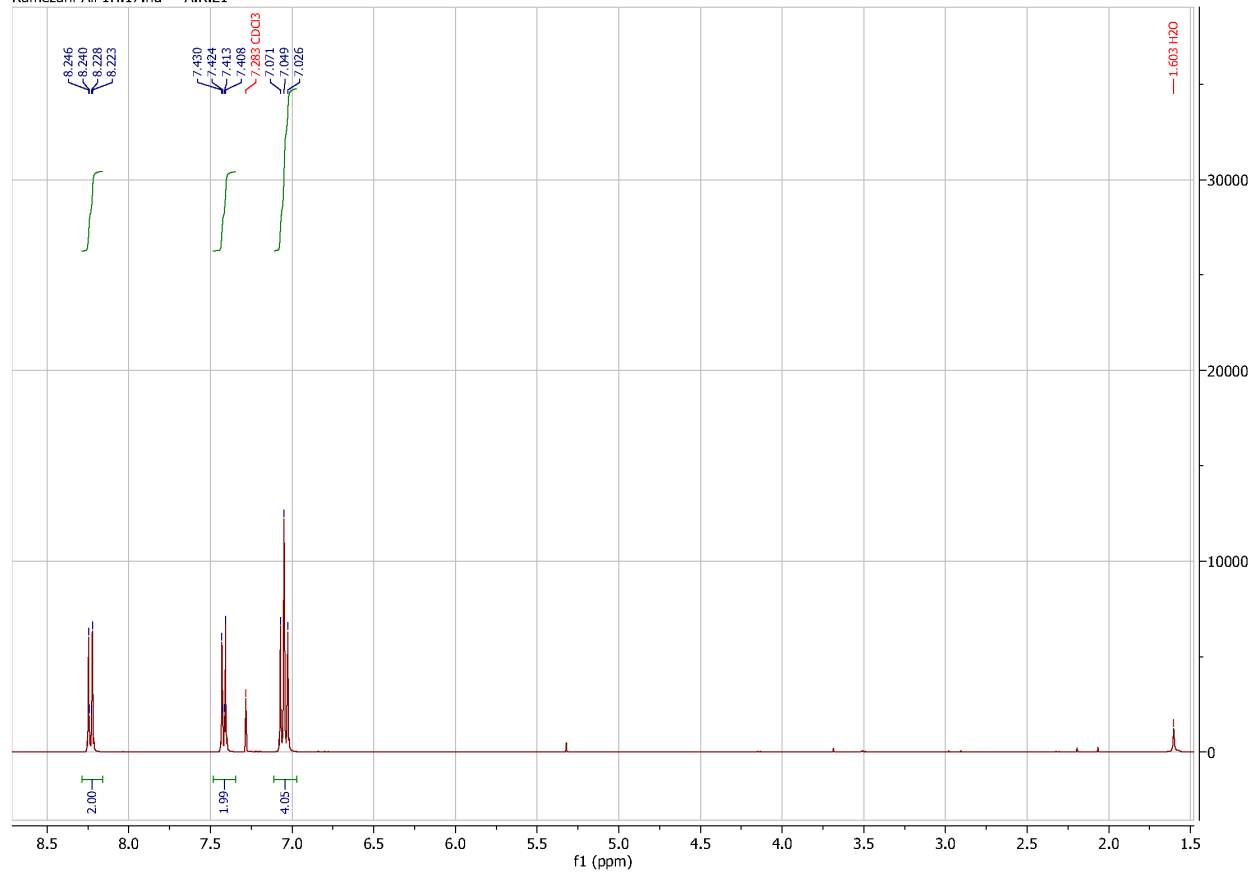


Figure S9. NMR spectra obtained for 1-(2,4 dichlorophenoxy)-4-nitrobenzene (compound **39**), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum, (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).

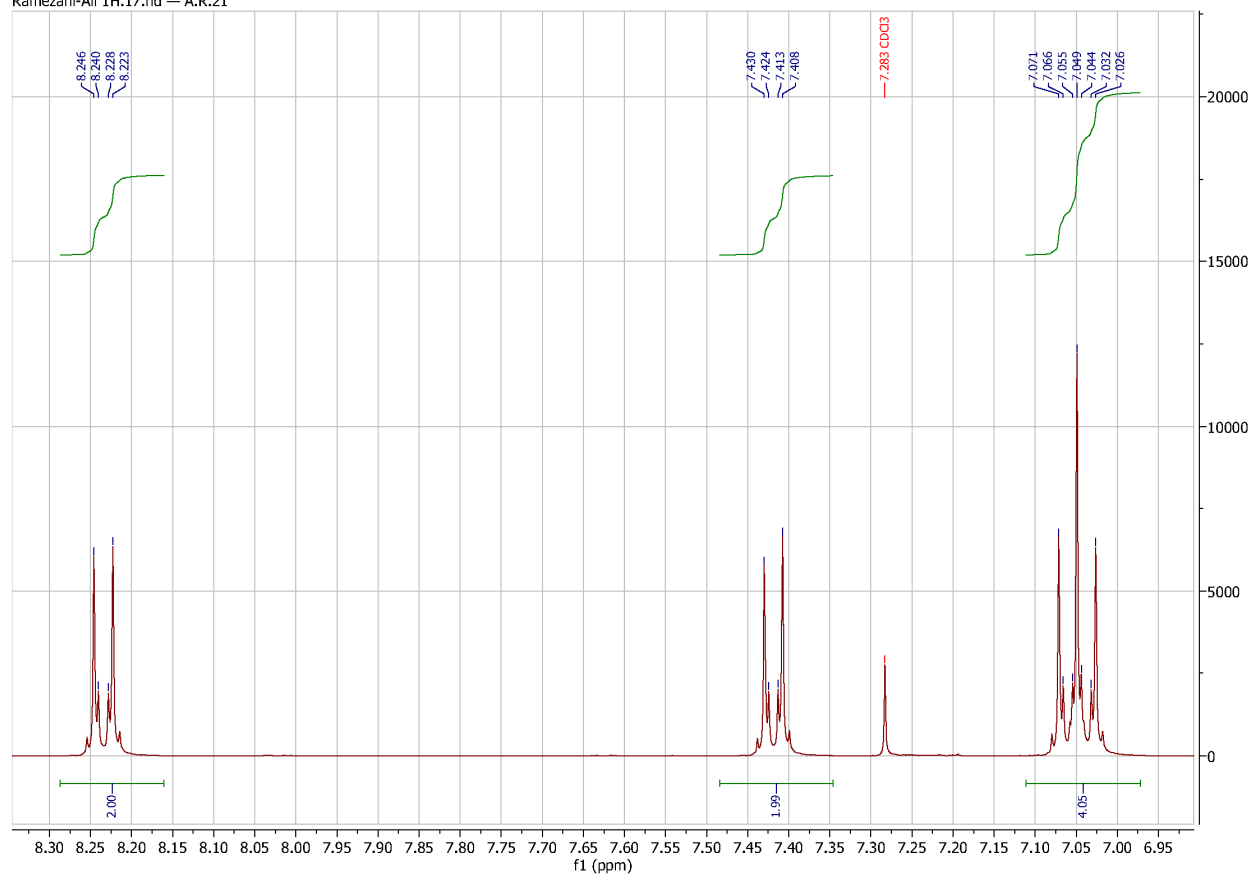


(a)

Ramezani-Ali 1H.17.fid — A.R.21



(b)



(c)

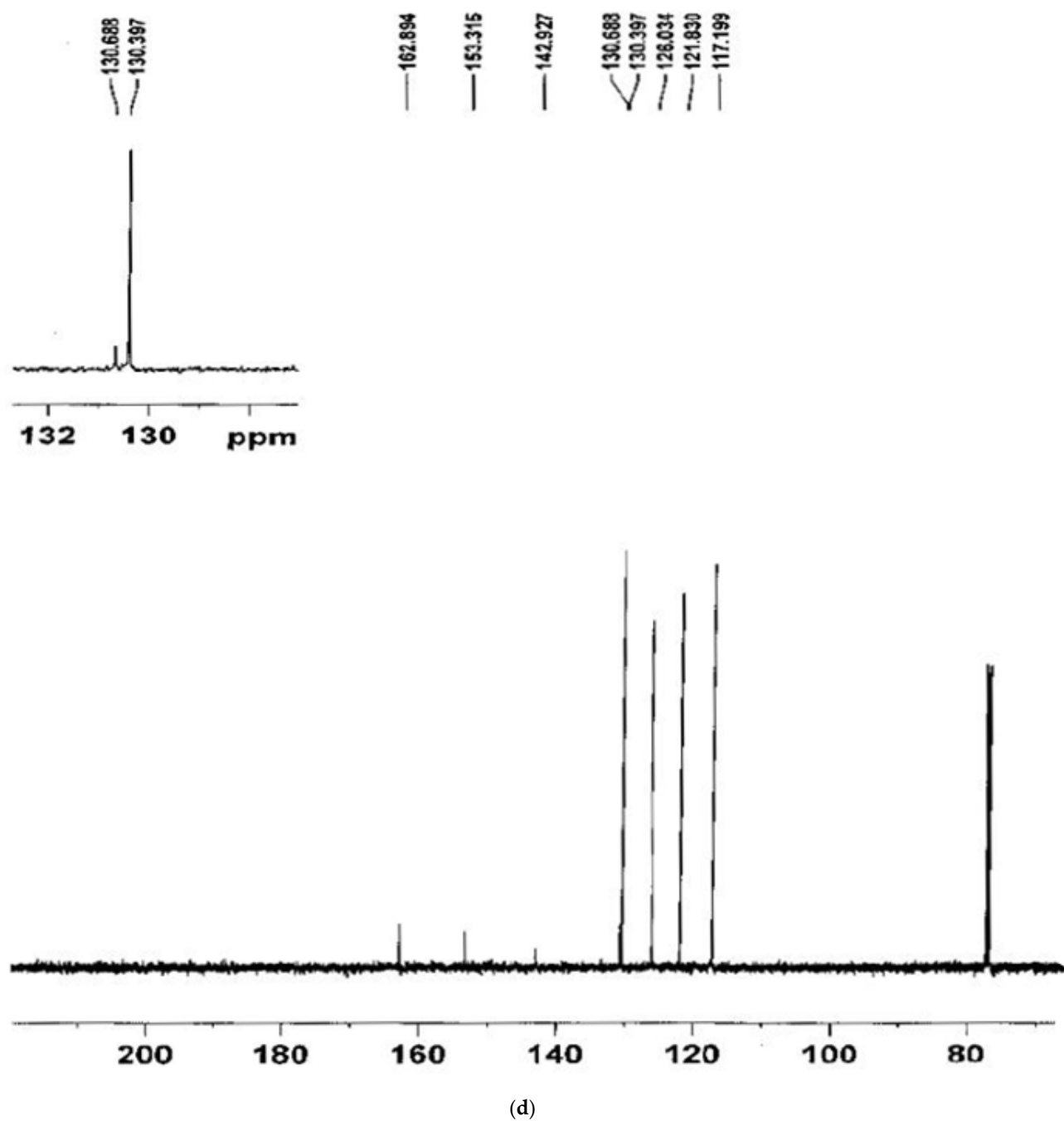
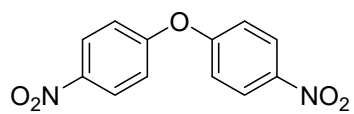
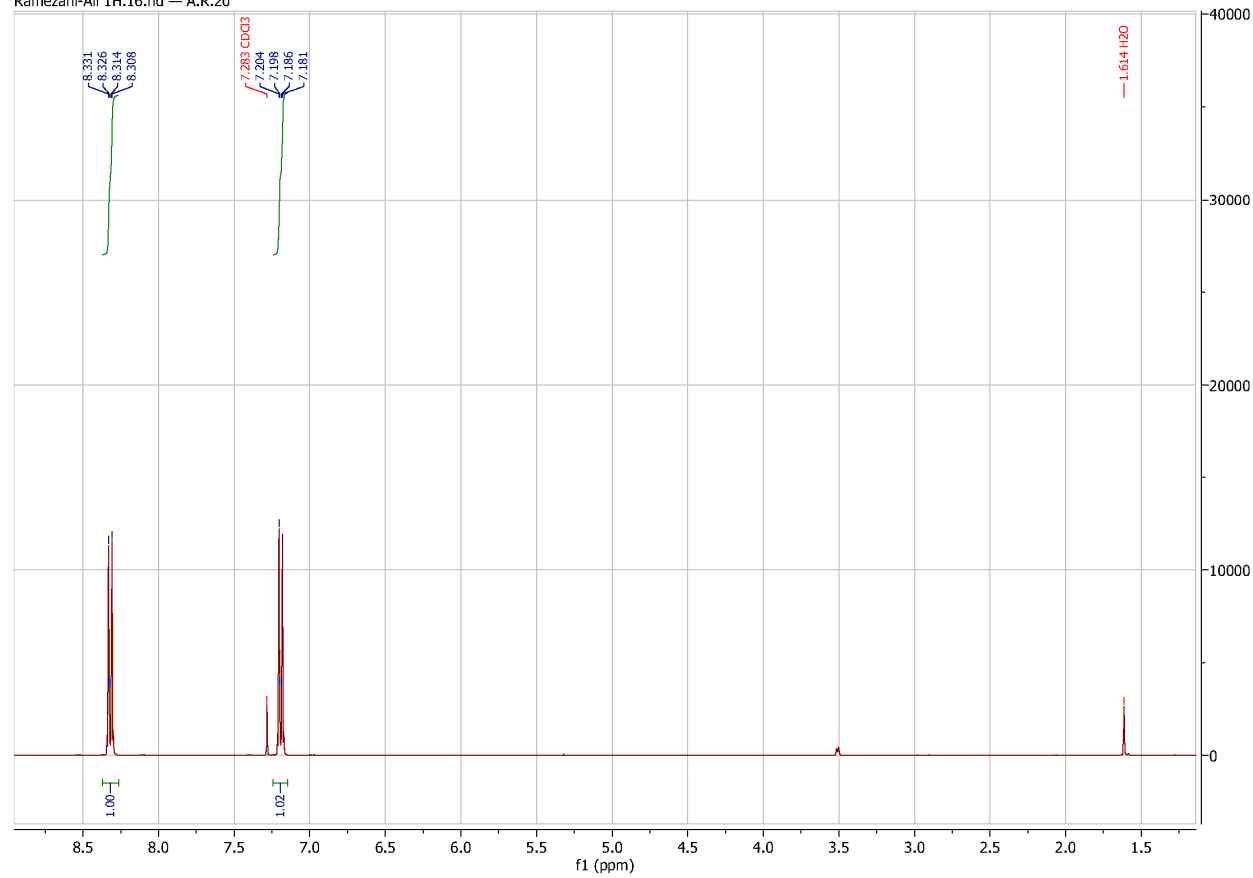


Figure S10. NMR spectra obtained for 1-(4-chlorophenoxy)-4-nitrobenzene (compound **40**), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum, (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).

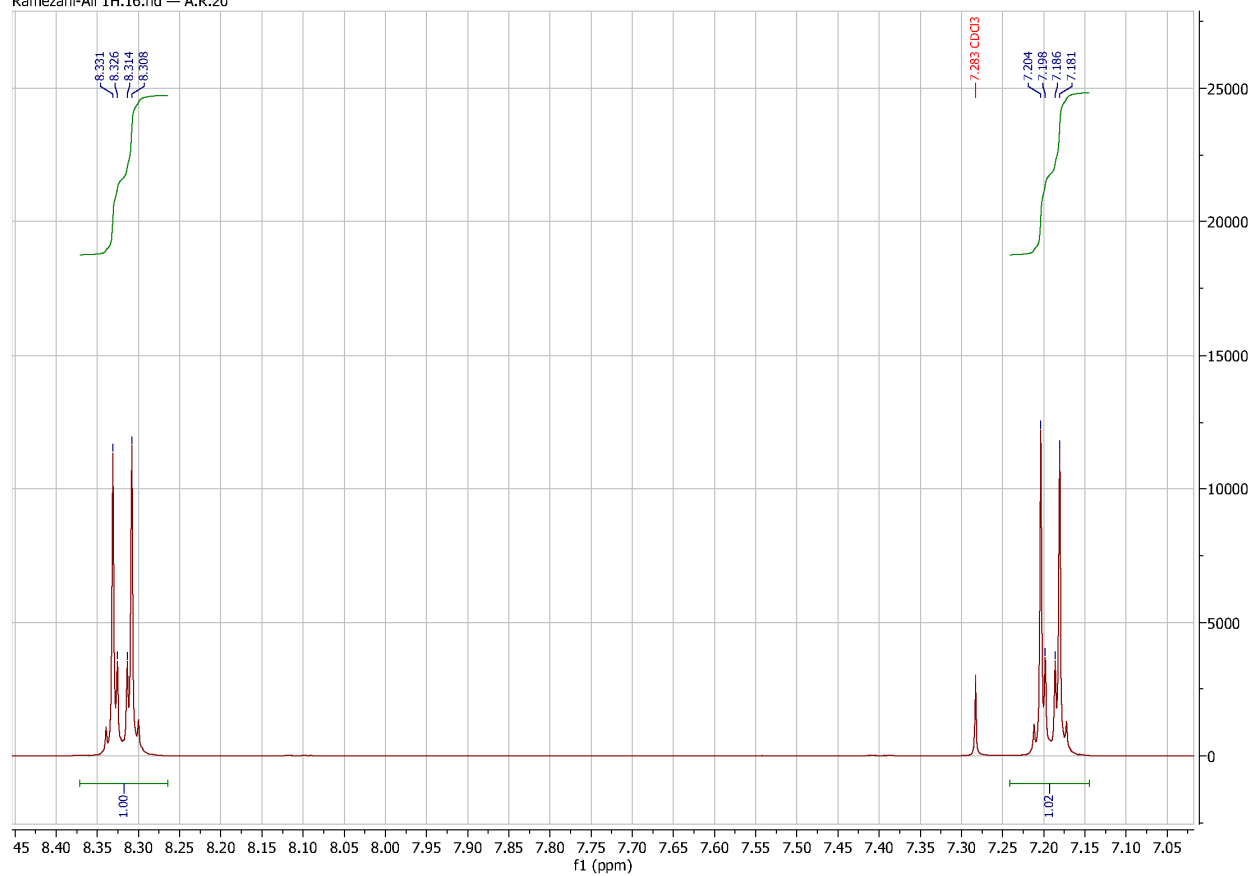


(a)

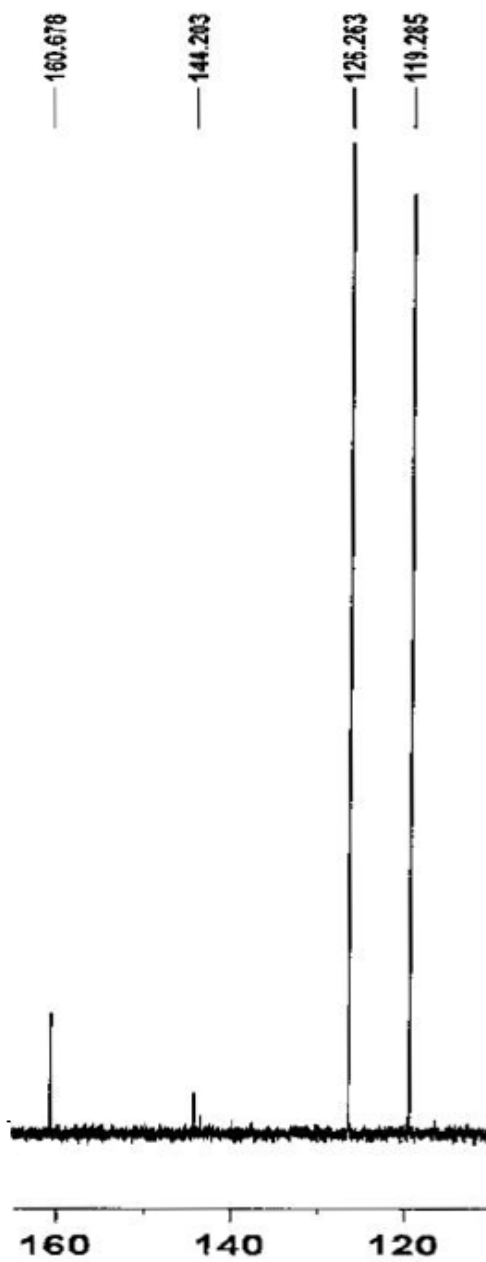
Ramezani-Ali 1H.16.fid — A.R.20



(b)

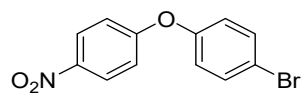


(c)



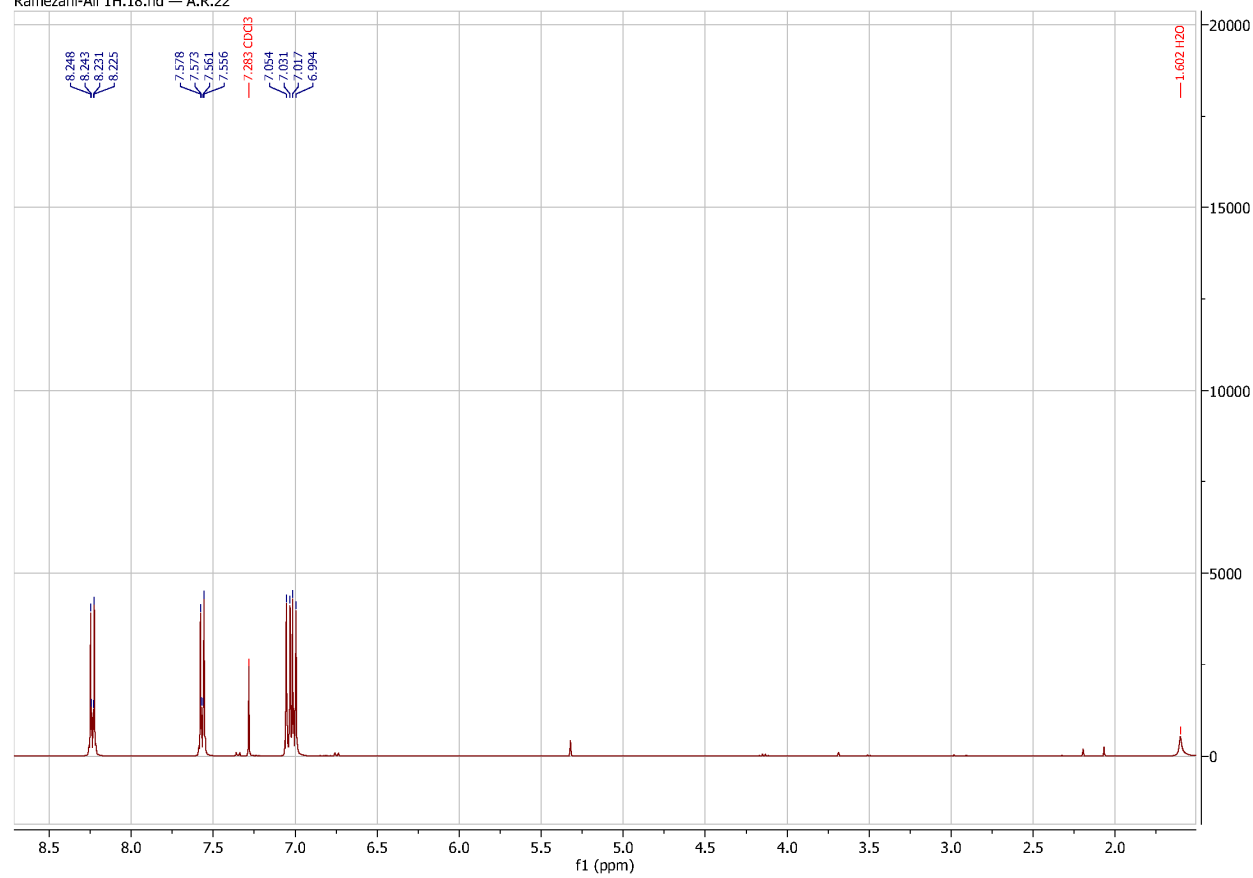
(d)

Figure S11. NMR spectra obtained for 1-(4-nitrophenoxy)-4-nitrobenzene (compound **41**), (a) Molecular structure, (b) ^1H NMR spectrum (400 MHz, CDCl_3), (c) Expanded ^1H NMR spectrum, (d) ^{13}C NMR spectrum (100 MHz, CDCl_3).

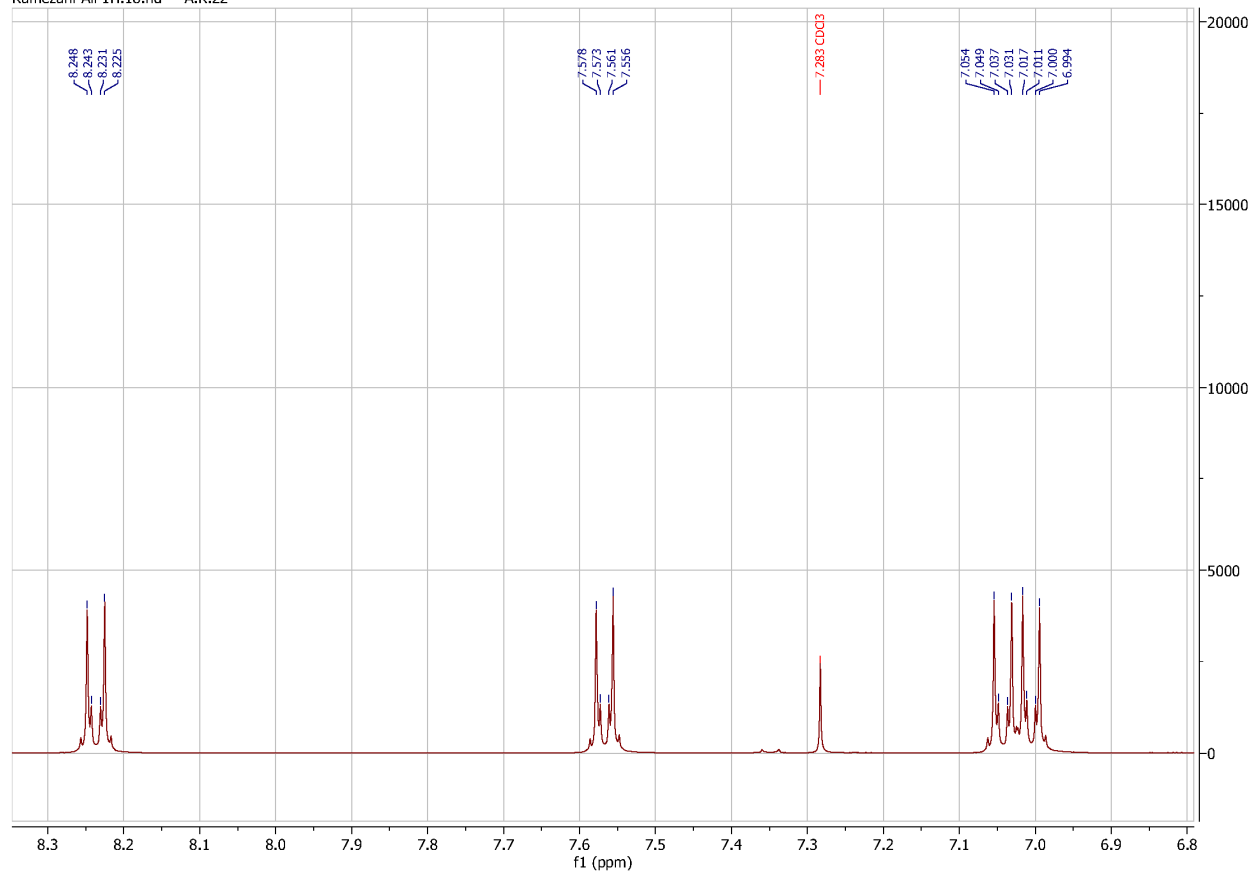


(a)

Ramezani-Ali 1H.18.fid — A.R.22



(b)



(c)

Figure S12. NMR spectra obtained for (a) 1-bromo-4-(4-nitrophenoxy)benzene (compound **42**), (a) Molecular structure, (b) ¹HNMR spectrum (400 MHz, CDCl₃), (c) Expanded ¹HNMR spectrum.