Electronic Supplementary Information

An unsymmetrical covalent organic polymer for catalytic amide synthesis

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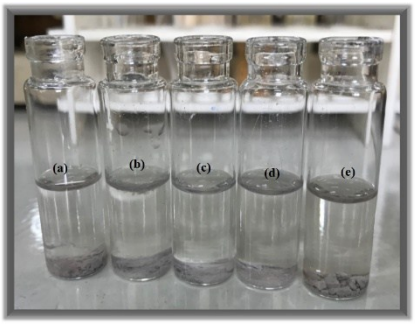


Fig. S1. Solubility of **APC-COP** in various solvents viz. (a) DMSO, (b) H_2O, (c) CH_3CN, (d) 1,4-dioxane and (e) CH_3OH.

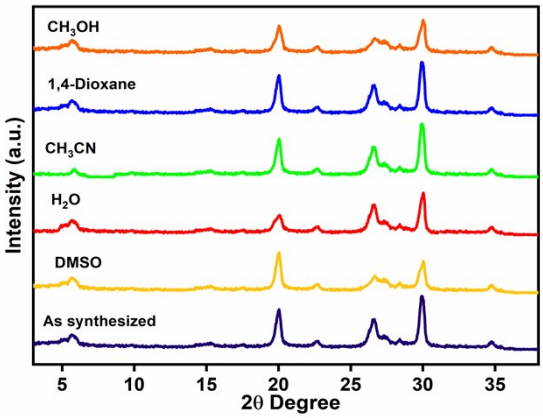


Fig. S2. PXRD patterns of **APC-COP** after successive treatments in DMSO, H_2O, CH_3CN, 1,4-Dioxane and CH_3OH for 2 days.

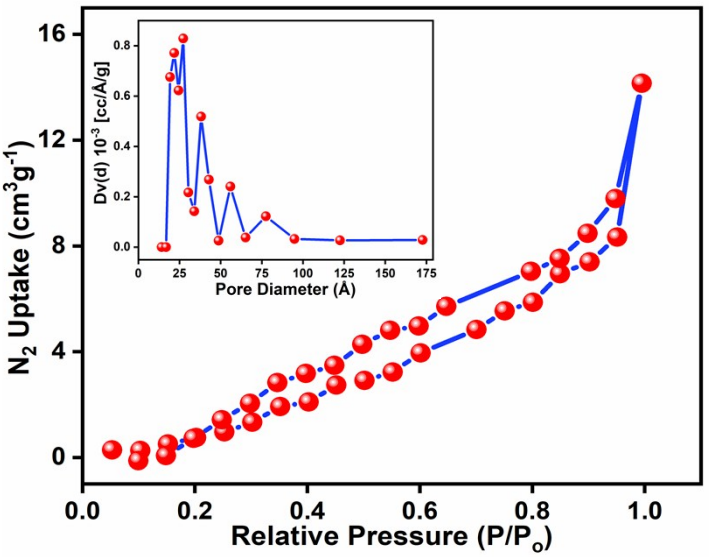


Fig. S3. N_2 adsorption/desorption isotherm and Pore size distribution of **APC-COP.**

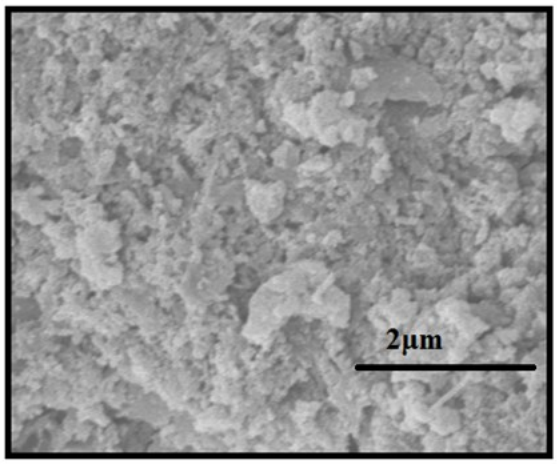


Fig. S4.FESEM image of recovered **APC-COP.**

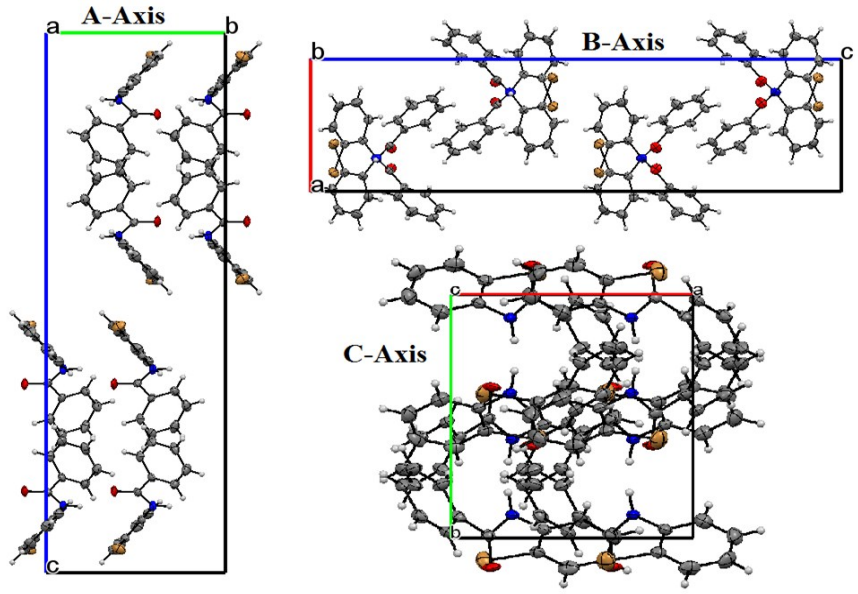


Fig. S5. Crystal packing diagram of **3f** along with a, b and c-axis, respectively. Thermal ellipsoids are at 50%probability level.

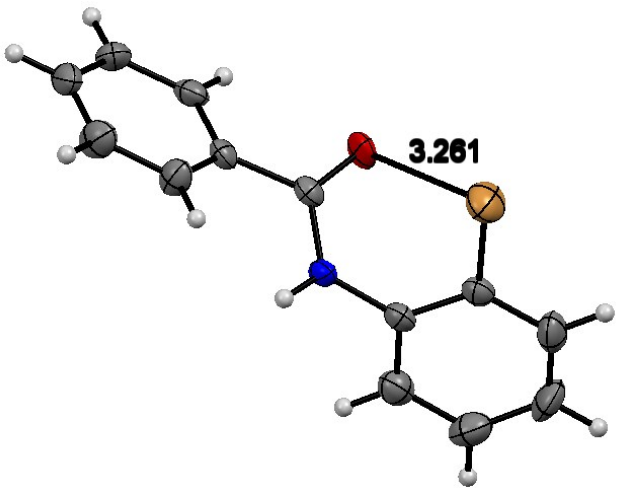


Fig. S6.ORTEP view of halogen interactions between Br…O in**3f**. Thermal ellipsoids are at 50%probability level.

Fig. S7. On-site UV-Vis reaction monitoring catalyzed by **APC-COP** over 30min.

Table S1. Crystallographic parameters for **3f**.

Identification code	***3f***
CCDC No.	*1948701*
Empirical formula	$C_{13}H_{10}BrNO$
Formula weight	*51.37*
Temperature/K	*237(80)*
Crystal system	*Orthorhombic*
Space group	*Pbca*
a/Å	*8.1837(8)*
b/Å	*9.2427(10)*
c/Å	*30.229(3)*
α/°	*90*
β/°	*90*
γ/°	*90*

Volume/Å³	*2286.5(4)*
Z	*43*
ρ_{calc}g/cm³	*1.6042*
μ/mm⁻¹	*3.571*
F(000)	*1102.2*
Crystal size/mm³	*0.5*0.5*0.5*
Radiation	*Mo Kα (λ = 0.71073)*
2Θ range for data collection/°	*6.78 to 50*
Index ranges	*$-11 \leq h \leq 10$, $-12 \leq k \leq 11$, $-40 \leq l \leq 41$*
Reflections collected	*31290*
Independent reflections	*2003 [R_{int} = 0.1663, R_{sigma} = 0.1146]*
Data/restraints/parameters	*2003/0/145*
Goodness-of-fit on F^2	*0.885*
Final R indexes [I>=2σ (I)]	*R_1 = 0.0505, wR_2 = 0.1324*
Final R indexes [all data]	*R_1 = 0.0817, wR_2 = 0.1584*
Largest diff. peak/hole / e Å⁻³	*0.62/-0.66*

Table S2. Fractional Atomic Coordinates ($\times 10^4$) and Equivalent Isotropic Displacement Parameters ($Å^2 \times 10^3$) for **3f**. U_{eq} is defined as 1/3 of the trace of the orthogonalised U_{IJ} tensor.

Atom	***X***	***y***	***z***	**U(eq)**
Br01	6411.6(8)	4049.0(7)	5435.0(2)	46.0(3)
O002	6693(4)	3791(3)	6508.2(13)	33.3(9)
N003	7541(5)	5952(4)	6235.5(13)	24.9(9)
C004	8843(6)	5345(5)	5982.3(16)	25.6(12)
C005	8571(6)	4406(5)	5636.7(18)	27.1(12)
C006	4838(6)	5242(5)	7155.0(16)	29.4(12)
C007	6562(6)	5106(5)	6489.7(16)	24.1(11)
C008	5314(6)	5879(5)	6762.9(15)	25.5(12)
C009	4615(6)	7183(5)	6640.6(17)	32.5(13)
C00A	3719(6)	5882(6)	7425.8(19)	32.8(14)
C00B	10431(7)	5694(5)	6090.1(18)	35.6(14)
C00C	3008(6)	7174(5)	7297.3(19)	37.2(14)

C00D	9859(8)	3766(6)	5416.6(17)	39.1(15)
C00E	11724(7)	5067(6)	5864(2)	43.7(15)
C00F	11416(7)	4094(6)	5530(2)	43.5(17)
C00G	3461(7)	7817(6)	6907(2)	40.0(14)

Table S3. Anisotropic Displacement Parameters ($Å^2 \times 10^3$) for **3f**. The Anisotropic displacement factor exponent takes the form: $-2\pi^2[h^2a^{*2}U_{11}+2hka^*b^*U_{12}+\ldots]$.

Atom	U_{11}	U_{22}	U_{33}	U_{12}	U_{13}	U_{23}
Br01	40.7(5)	54.9(5)	42.4(5)	-7.2(3)	-5.3(3)	-12.5(3)
O002	45(2)	12.3(19)	43(2)	5.1(15)	7.3(17)	-1.9(15)
N003	24(2)	14.2(19)	36(3)	-0.7(16)	6.8(18)	-1.0(18)
C004	28(3)	19(3)	30(3)	-4(2)	1(2)	0(2)
C005	31(3)	21(3)	29(3)	-3(2)	2(2)	2(2)
C006	28(3)	21(3)	39(3)	-7(2)	0(2)	1(2)
C007	26(3)	21(3)	25(3)	-3(2)	-4(2)	-3(2)
C008	30(3)	20(3)	27(3)	-5(2)	-1(2)	-6(2)
C009	38(3)	26(3)	33(3)	8(2)	7(2)	6(2)
C00A	34(3)	30(3)	35(3)	-8(2)	11(2)	0(2)
C00B	42(4)	33(3)	32(3)	-6(2)	0(3)	0(2)
C00C	30(3)	27(3)	54(4)	-2(2)	13(3)	-10(3)
C00D	55(4)	34(3)	28(3)	1(3)	9(3)	-7(2)
C00E	33(3)	48(4)	50(4)	-3(3)	9(3)	7(3)
C00F	42(4)	45(4)	43(4)	14(3)	21(3)	0(3)
C00G	42(3)	27(3)	51(4)	8(2)	10(3)	8(3)

Table S4. Bond Lengths for **3f**.

Atom	Atom	Length/Å	Atom	Atom	Length/Å
Br01	C005	1.898(5)	C007	C008	1.495(7)
O002	C007	1.222(5)	C008	C009	1.384(6)
N003	C004	1.427(6)	C009	C00G	1.372(7)
N003	C007	1.358(6)	C00A	C00C	1.384(7)
C004	C005	1.376(7)	C00B	C00E	1.387(8)
C004	C00B	1.378(7)	C00C	C00G	1.373(8)
C005	C00D	1.380(8)	C00D	C00F	1.354(9)
C006	C008	1.380(6)	C00E	C00F	1.374(8)
C006	C00A	1.363(7)			

Table S5. Bond Angles for **3f.**

Atom	Atom	Atom	Angle/°	Atom	Atom	Atom	Angle/°
C007	N003	C004	121.2(4)	C007	C008	C006	117.6(4)
C005	C004	N003	122.3(4)	C009	C008	C006	119.0(5)
C00B	C004	N003	119.0(4)	C009	C008	C007	123.4(4)
C00B	C004	C005	118.6(5)	C00G	C009	C008	120.0(5)
C004	C005	Br01	120.3(4)	C00C	C00A	C006	119.3(5)
C00D	C005	Br01	118.8(4)	C00E	C00B	C004	120.4(5)
C00D	C005	C004	120.9(5)	C00G	C00C	C00A	120.1(5)
C00A	C006	C008	121.3(5)	C00F	C00D	C005	120.0(5)
N003	C007	O002	123.2(4)	C00F	C00E	C00B	119.7(6)
C008	C007	O002	120.7(4)	C00E	C00F	C00D	120.4(5)
C008	C007	N003	116.1(4)	C00C	C00G	C009	120.4(5)

Table S6. Hydrogen Atom Coordinates (Å×10^4) and Isotropic Displacement Parameters (Å^2×10^3) for **3f**.

Atom	*X*	*y*	*z*	U(eq)
H00D	9658(8)	3109(6)	5189.9(17)	47.0(18)
H00F	12281(7)	3659(6)	5382(2)	52(2)
H00E	12795(7)	5304(6)	5938(2)	52.4(18)
H00B	10637(7)	6353(5)	6315.8(18)	42.7(16)
H009	4928(6)	7629(5)	6378.2(17)	39.0(15)
H00G	2983(7)	8687(6)	6822(2)	47.9(17)
H00C	2222(6)	7607(5)	7475.8(19)	44.6(17)
H00A	3437(6)	5456(6)	7693.8(19)	39.4(16)
H006	5290(6)	4358(5)	7236.3(16)	35.3(15)
H003	7373(5)	6870(4)	6227.0(13)	29.9(11)

Table S7. Reusability of **APC-COP.**[a]

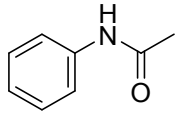
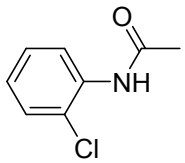
Number of Cycles	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Yield (%)	**98**	**98**	**97**	**97**	**96**	**95**	**95**	**94**	**94**
[a]Reaction conditions: benzoic acid (1 mmol), *p*-anisidine (1 mmol), **APC-COP** (10 mg), 1,4-dioxane (3 mL).									

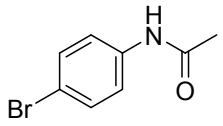
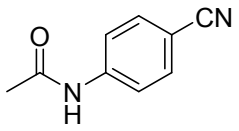
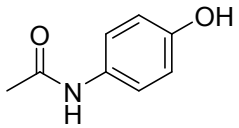
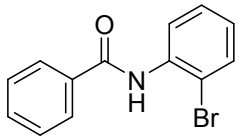
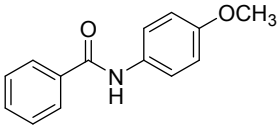
Table S8. Reaction profiles for three different carboxylic acids with different pK_a.[a]

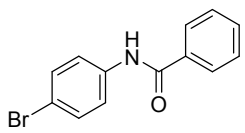
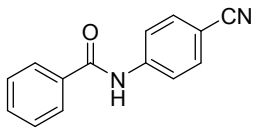
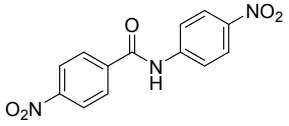
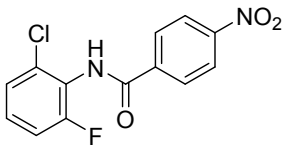
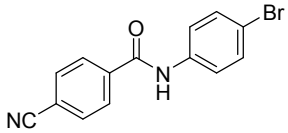
Time (min)	**% Yield[b]**		
	CCl_3COOH	**$HCCl_2COOH$**	**$ClCH_2COOH$**
0	0	0	0
5	15	55	40
10	38	69	52

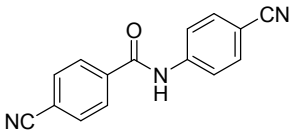
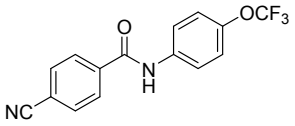
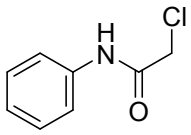
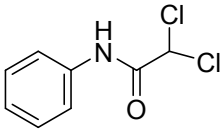
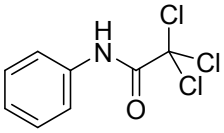
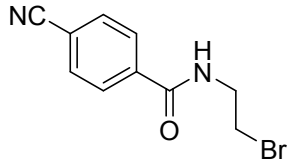
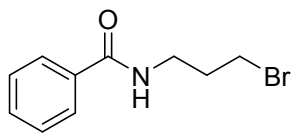
15	44	88	65
20	62	92	72
25	75	95	78
30	94	99	88
[a]Reaction conditions: Carboxylic Acid (1 mmol), *p*-aniline (1mmol), **APC-COP** (10 mg), 1,4-dioxane (3 mL).[b]% yield was calculated using ^{1}H NMR spectroscopy.			

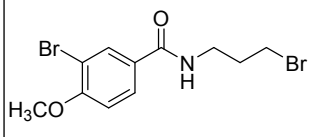
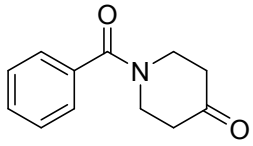
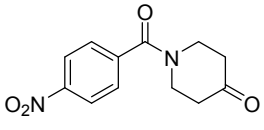
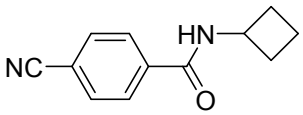
^{1}H and **^{13}C** NMR chemical shifts for **3a-w.**

3a		**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 9.74 (s, 1H), 7.33 (d, *J* = 8.0 Hz, 2H), 7.12 (d, *J* = 8.1 Hz, 2H), 7.05 (t, *J* = 8.0 Hz, 1H), 2.08 (s, 3H) **^{13}C**-NMR (101 MHz, DMSO-d_6) **δ** 169.13, 139.50, 130.29, 127.21, 122.53, 24.50
3b		**^{1}H**-NMR (400 MHz, DMSO-d_6) **δ** 9.48 (s, 1H), 7.68 (d, *J* = 7.7 Hz, 1H), 7.43 (d, *J* = 8.0 Hz, 1H), 7.26 (t, *J* = 7.7 Hz, 1H), 7.13 (t, *J* = 7.6 Hz, 1H), 2.07 (s, 3H) **^{13}C**-NMR (101 MHz, DMSO-d_6) **δ** 169.21, 135.35, 129.91, 127.81,

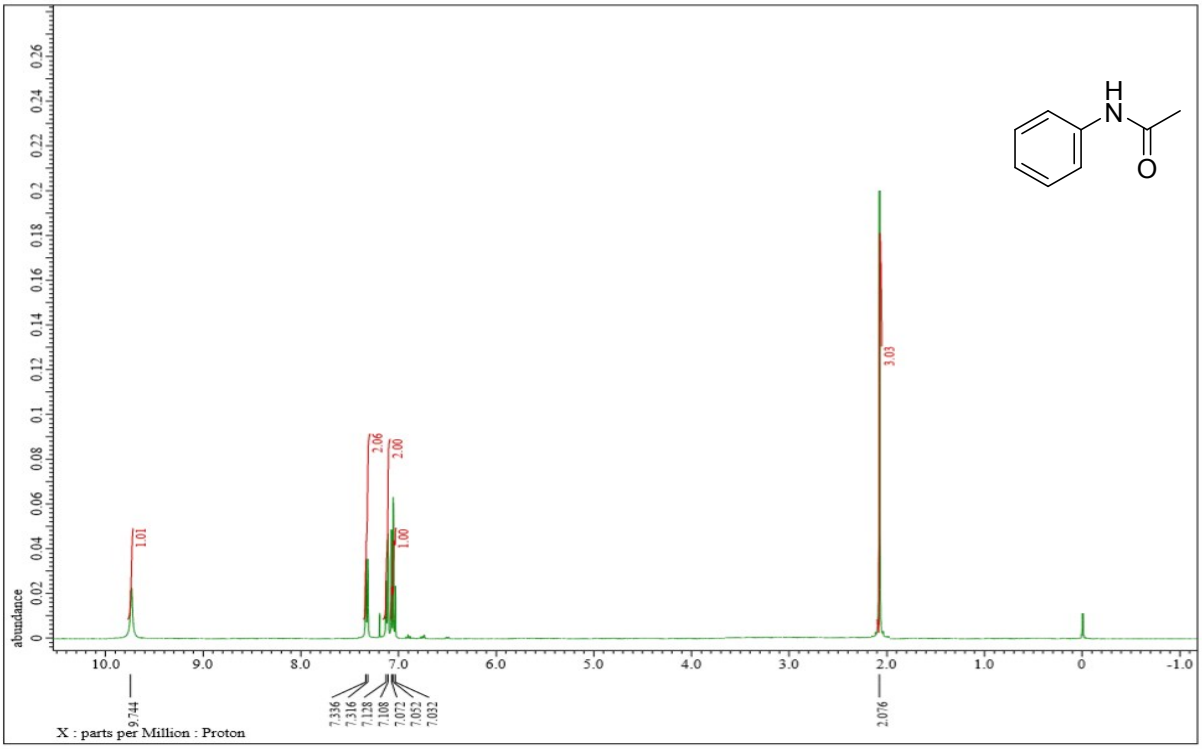
	126.93, 126.76, 126.65, 23.41
3c 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 9.38 (s, 1H), 7.79 (t, *J* = 1.6 Hz, 1H), 7.38 (d, *J* = 8.0 Hz, 1H), 7.19 (d, *J* = 8.2 Hz, 1H), 7.12 (t, *J* = 8.0 Hz, 1H), 2.16 (s, 3H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ**169.57, 139.42, 130.31, 127.33, 123.24, 122.56, 118.74, 24.51.
3d 	**^{1}H**-NMR (400 MHz, DMSO-d_6) **δ** 9.40 (s, 1H), 7.37 (d, *J* = 8.5 Hz, 2H), 6.61 (d, *J* = 8.5 Hz, 2H), 2.09 (s, 3H) **^{13}C**-NMR (101 MHz, DMSO-d_6) **δ** 153.48, 134.24, 121.21, 119.48, 113.46, 96.13, 24.37
3e 	**^{1}H-**NMR (400 MHz, $CDCl_3$) **δ** 9.56 (s, 1H), 8.93 (s, 1H), 7.19 (d, J = 7.6 Hz, 2H), 6.70 (d, J = 7.3 Hz, 2H), 2.05 (s, 3H**)** **^{13}C-**NMR (101 MHz, $CDCl_3$) **δ** 168.49, 153.36, 131.27, 122.19, 115.85, 23.52
3f 	**^{1}H-**NMR (400 MHz, $CDCl_3$) **δ** 8.54 (d, J = 8.2 Hz, 1H), 8.47 (s, 1H), 7.93 (d, J = 7.3 Hz, 2H), 7.54 (dt, J = 26.0, 7.2 Hz, 4H), 7.36 (t, J = 7.8 Hz, 1H), 7.01 (t, J = 7.6 Hz, 1H) **^{13}C-**NMR (101 MHz, $CDCl_3$) **δ** 165.34, 135.90, 134.66, 132.35, 129.05, 128.64, 127.20, 125.39, 121.86, 113.88
3g 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 9.39 (s, 1H), 8.10 (d, *J* = 7.4 Hz, 2H), 7.57 (d, *J* = 7.4 Hz, 2H), 7.44 (t, *J* = 7.7 Hz, 1H), 6.76 (d, *J* = 8.9 Hz, 2H), 6.71 (d, *J* = 8.9 Hz, 2H), 3.73 (s, 3H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ** 170.76, 153.48, 133.22, 130.66, 130.11, 128.46, 117.39, 114.92, 55.79

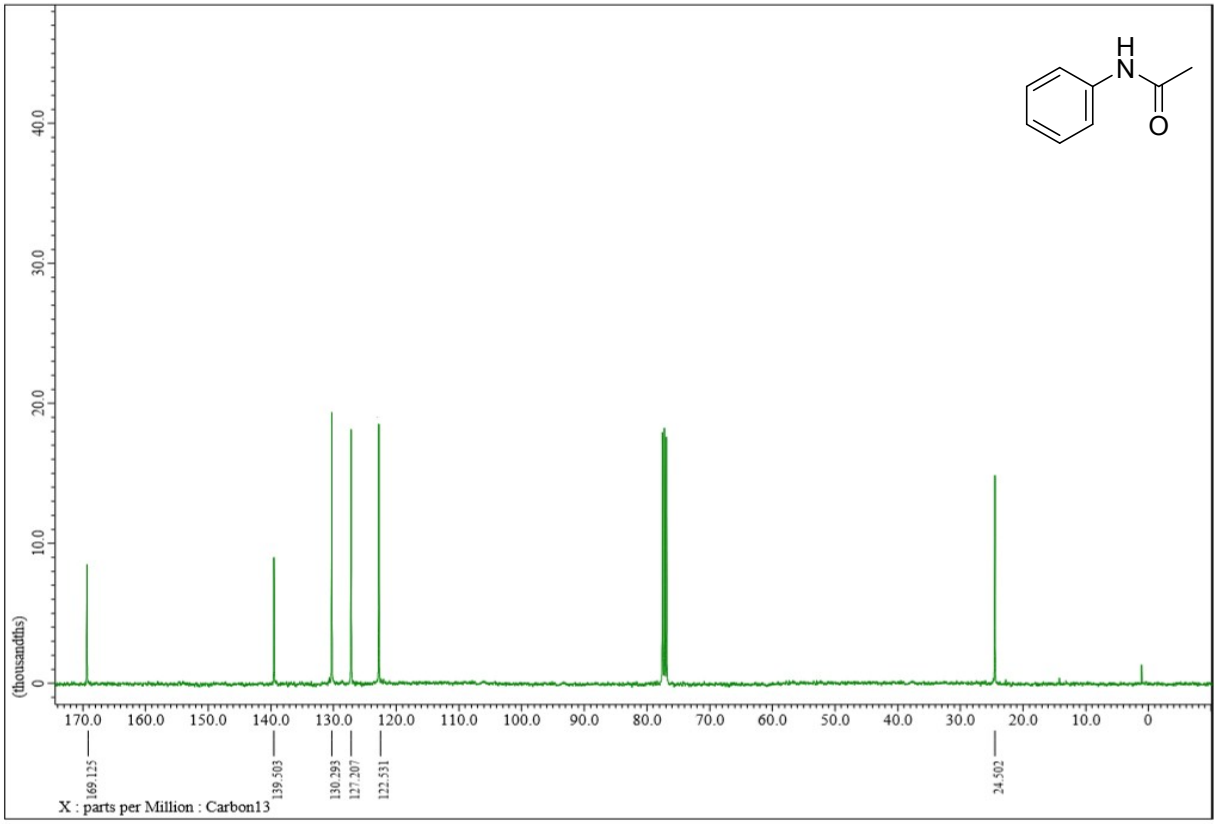
3h 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 10.06 (s, 1H),8.52 (d, *J* = 8.2 Hz, 1H), 7.94 (d, *J* = 7.4 Hz, 2H), 7.58 (t, *J* = 7.1 Hz, 2H), 7.50-7.53 (m, 2H), 7.37 (t, *J* = 7.8 Hz, 1H), 7.01 (t, *J* = 8.2 Hz, 1H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ**165.34, 135.90, 134.64, 132.31, 129.05, 128.64, 127.21, 125.39, 121.89
3i 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 10.16 (s, *J* = 8.3, 1H), 8.46 (s, 1H), 7.91 (d, *J* = 8.0 Hz, 2H), 7.46-7.57 (m, 4H), 7.31-7.35 (m, 1H), 6.96-7.00 (m, 1H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ** 165.65, 135.88, 134.79, 132.31, 129.05, 128.60, 127.21, 125.44, 121.98, 113.62
3j 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 9.67 (s, 1H), 8.19 (d, *J* = 1.9 Hz, 2H), 8.16 (d, *J* = 1.9 Hz, 2H), 8.07 (d, *J* = 8.7 Hz, 2H), 7.76 (d, *J* = 8.9 Hz, 2H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ**167.03, 150.32, 145.44, 130.89, 128.95, 123.58, 122.35, 115.64
3k 	**^{1}H**-NMR (400 MHz, DMSO-d_6) **δ** 10.14 (s, 1H),8.09-8.24 (m, 1H), 7.73-7.80 (m, 2H), 7.51-7.56 (m, 2H), 7.47 (d, *J* = 7.7 Hz, 2H) **^{13}C**-NMR (101 MHz, DMSO-d_6) **δ** 164.94, 150.45, 137.04, 136.72, 130.83, 126.69, 123.63, 115.94, 115.75, 111.54, 102.23
3l 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 10.09 (s, 1H), 8.08 (d, *J* = 8.7 Hz, 2H), 7.67 (d, *J* = 8.7 Hz, 2H), 7.15 (d, *J* = 8.8 Hz, 2H), 6.51 (d, *J* = 8.8 Hz, 2H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ** 167.17, 145.30, 134.81, 132.22, 131.99, 130.38, 118.45, 116.67, 115.99, 110.16

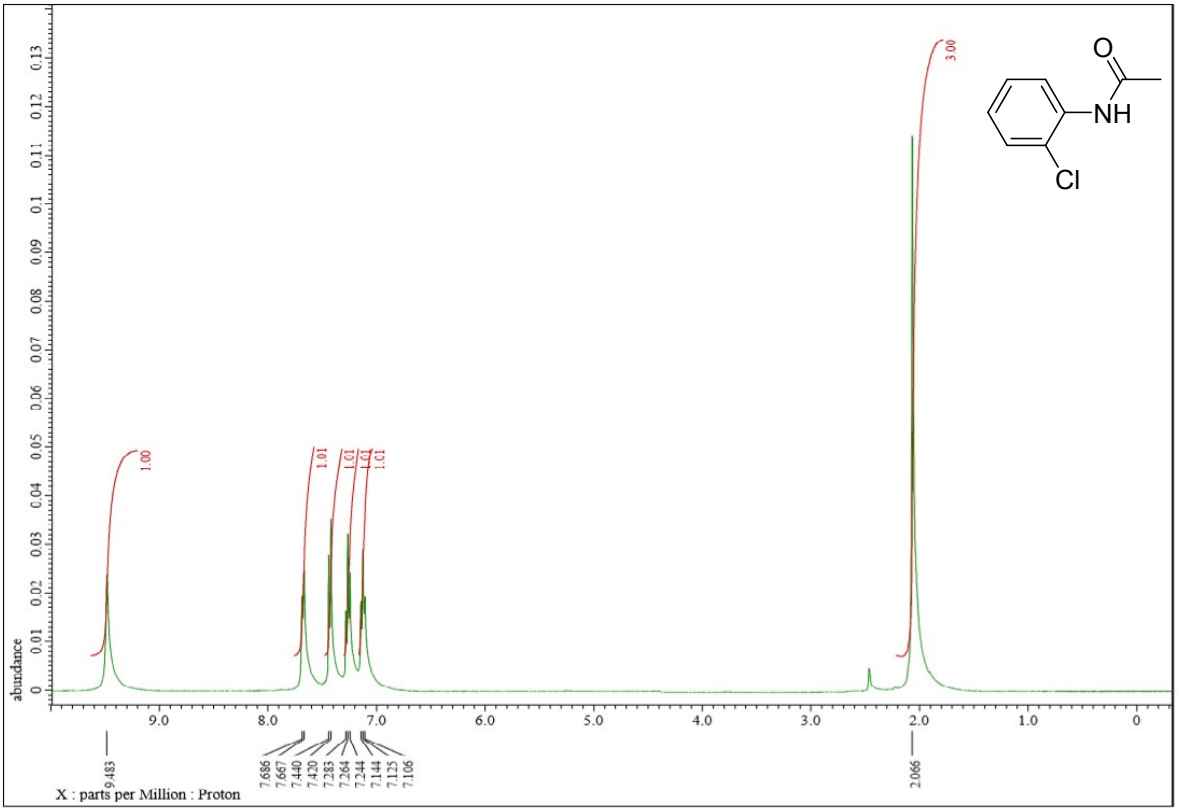
3m 	**[1]H**-NMR (400 MHz, $CDCl_3$) **δ** 10.26 (s, 1H), 7.92 (d, *J* = 8.0 Hz, 2H), 7.47-7.58 (m, 6H) **[13]C**-NMR (101 MHz, $CDCl_3$) **δ** 166.27, 141.87, 138.61, 133.91, 130.80, 128.77, 128.42, 125.30, 119.83, 114.53, 109.77
3n 	**[1]H**-NMR (400 MHz, $CDCl_3$) **δ** 9.47 (s, 1H), 8.18 (d, *J* = 51.8 Hz, 2H), 7.73-7.80 (m, 2H), 7.51-7.56 (m, 2H), 7.47 (d, *J* = 7.7 Hz, 2H) **[13]C**-NMR (101 MHz, $CDCl_3$) **δ**166.80, 145.31, 133.84, 129.59, 120.69, 117.05, 110.47, 108.61
3o 	**[1]H**-NMR (400 MHz, $CDCl_3$) **δ** 9.93 (s, 1H),7.31 (d, *J* = 8.0 Hz, 2H), 7.10 (d, *J* = 8.1 Hz, 2H), 7.04 (t, *J* = 8.0 Hz, 1H), 4.20 (s, 2H) **[13]C**-NMR (101 MHz, $CDCl_3$) **δ** 170.99, 141.37, 132.16, 129.07, 124.39, 42.77
3p 	**[1]H**-NMR (400 MHz, $CDCl_3$) **δ** 10.18 (s, 1H), 7.39 (d, *J* = 8.0 Hz, 2H), 7.18 (d, *J* = 8.1 Hz, 2H), 7.12 (t, *J* = 8.0 Hz, 1H), 6.11 (s, 1H) **[13]C**-NMR (101 MHz, $CDCl_3$) **δ** 172.48, 142.86, 133.65, 130.57, 125.89, 63.24
3q 	**[1]H**-NMR (400 MHz, $CDCl_3$) **δ** 10.45 (s, 1H), 7.42 (d, *J* = 8.0 Hz, 2H), 7.18 (d, *J* = 8.1 Hz, 2H), 7.12 (t, *J* = 8.0 Hz, 1H) **[13]C**-NMR (101 MHz, $CDCl_3$) **δ** 161.57, 138.84, 129.63, 127.11, 122.37, 89.62
3r 	**[1]H**-NMR (400 MHz, DMSO-d_6) **δ** 8.89 (s, 1H), 8.04 (d, *J* = 8.2 Hz, 2H), 7.71 (d, *J* = 8.2, 2H), 4.00 (t, *J* = 7.1 Hz, 3H), 3.71 (t, *J* = 7.1 Hz, 2H) **[13]C**-NMR (101 MHz, DMSO-d_6) **δ** 171.60, 140.24, 136.77, 134.71, 122.64, 120.48, 52.93, 28.24
3s 	**[1]H**-NMR (400 MHz, $CDCl_3$) **δ** 8.46 (s, 1H), 7.87 (d, *J* = 5.5 Hz, 2H), 7.25-7.36 (m, 3H), 3.91 (t, *J* = 7.0 Hz, 2H), 1.84 (t, *J* = 3.6 Hz, 2H), 1.05-1.08 (m, 2H) **[13]C**-NMR (101 MHz, $CDCl_3$) **δ** 168.67, 132.70, 130.83, 129.70, 128.24,

	60.19, 20.99, 14.15
3t 	**^{1}H**-NMR (400 MHz, DMSO-d_6) **δ** 8.61 (s, 1H), 7.99 (s, 1H), 7.72 (d, J = 8.7 Hz, 1H), 6.79 (d, J = 8.7 Hz, 1H), 3.96 (q, J = 7.1 Hz, 2H), 3.80-3.83 (m, 5H), 1.87-1.93 (m, 2H) **^{13}C**-NMR (101 MHz, DMSO-d_6) **δ** 167.85, 158.46, 133.07, 129.18, 126.70, 124.41, 111.38, 56.40, 34.18, 29.27, 20.65
3u 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 8.12 (d, J = 8.7 Hz, 2H), 7.52-7.57 (m, 1H), 7.45 (d, J = 7.8 Hz, 2H), 4.01 (t, J = 6.1 Hz, 4H), 2.40 (t, J = 6.1 Hz, 4H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ** 208.40, 171.13, 133.62, 130.20, 128.67, 128.52, 46.62, 40.47
3v 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ** 8.01 (d, J = 8.5 Hz, 2H), 7.74 (d, J = 8.7 Hz, 2H), 3.77 (t, J = 8.8 Hz, 4H), 2.39 (t, J = 8.6 Hz, 4H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ** 206.62, 170.80, 153.42, 141.46, 133.81, 121.08, 54.66, 43.60
3w 	**^{1}H**-NMR (400 MHz, $CDCl_3$) **δ**8.47 (s, 1H), 8.08 (d, J = 6.7 Hz, 2H), 7.67 (d, J = 6.7 Hz, 2H), 2.99 (d, J = 8.2 Hz, 1H), 1.74-1.78 (m, 2H), 1.08-1.33 (m, 4H) **^{13}C**-NMR (101 MHz, $CDCl_3$) **δ** 170.43, 142.12, 131.27, 129.44, 118.49, 112.96, 47.68, 32.75, 13.91

^{1}H and **^{13}C** NMR spectra






abundance
X : parts per Million : Proton
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7.667
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7.420
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7.264
7.244
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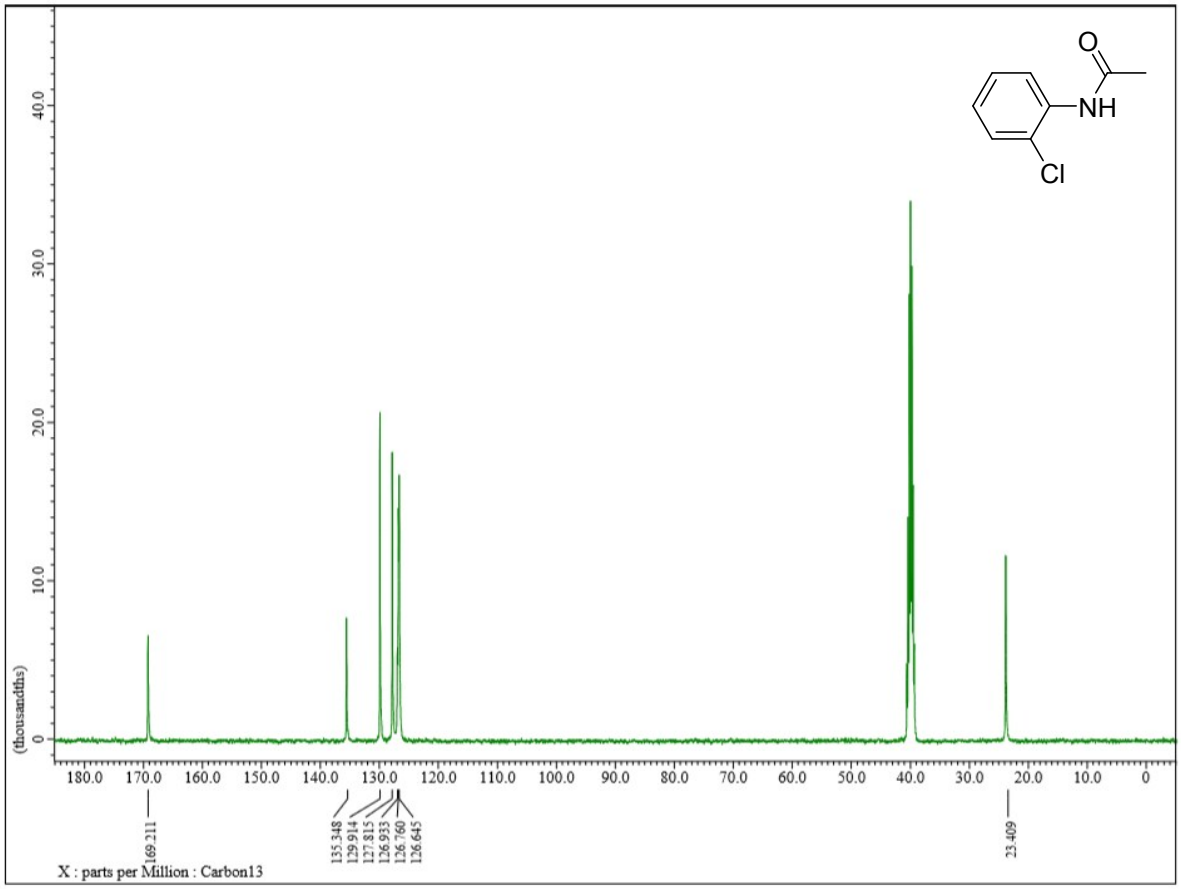
1.01
1.01
1.01
3.00
O
NH
Cl


(thousandths)
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126.760
126.645
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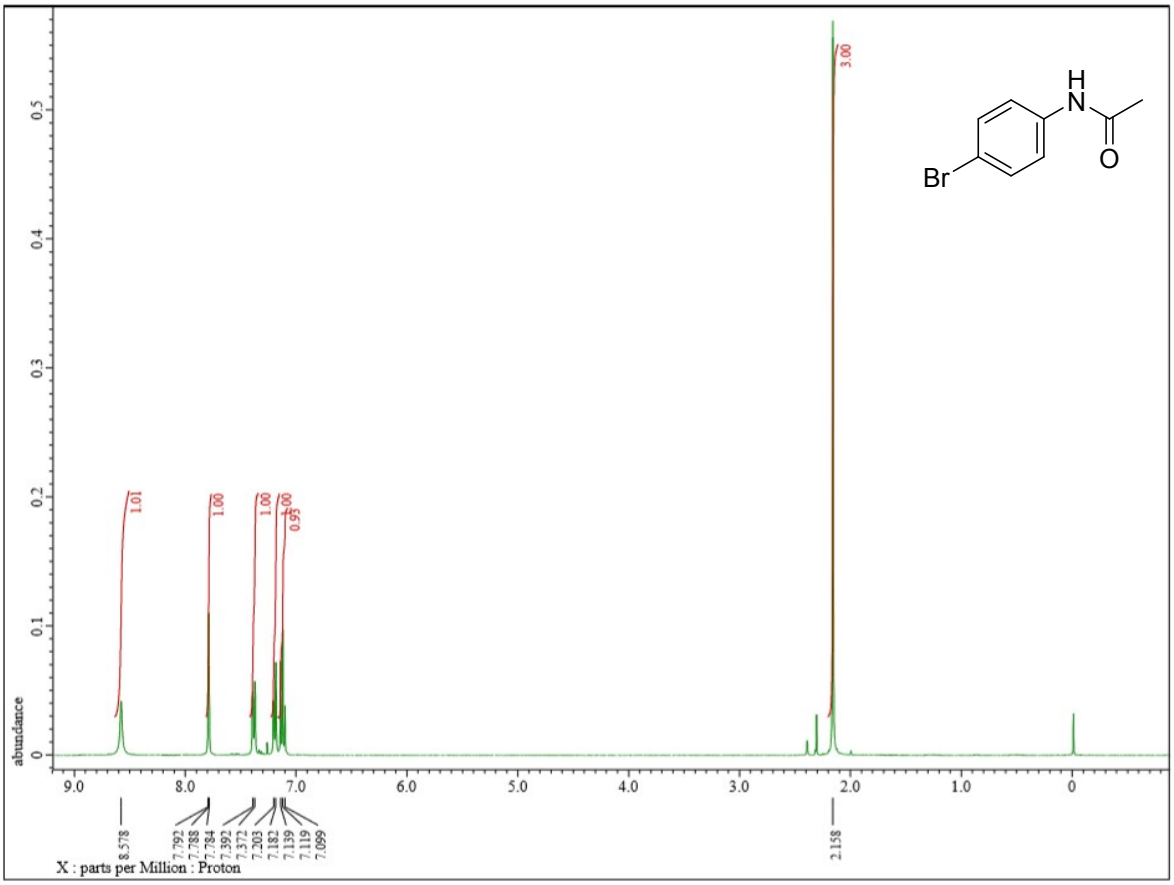
O
NH
Cl


abundance
X : parts per Million : Proton
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7.788
7.784
7.393
7.372
7.203
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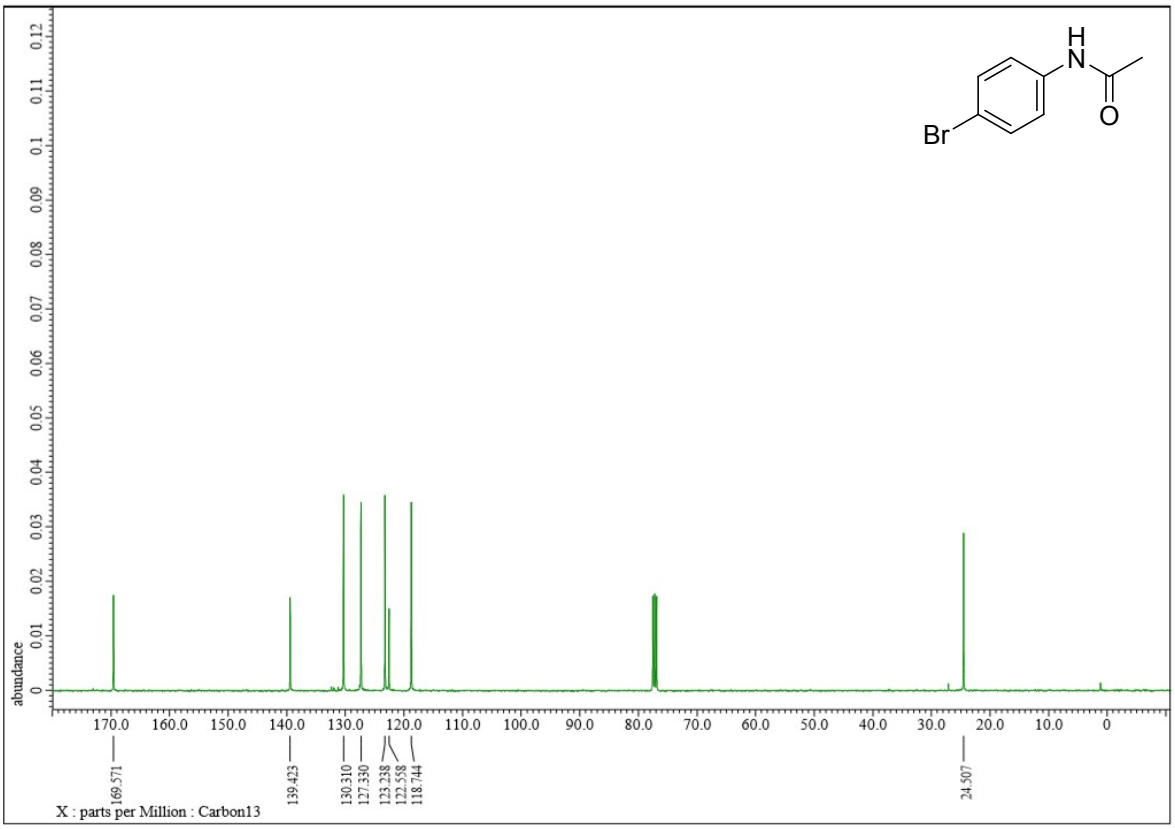
7.139
7.119
7.099
2.158
1.01
1.00
1.00
0.96
3.00
Br
H
N
O


abundance
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130.310
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123.238
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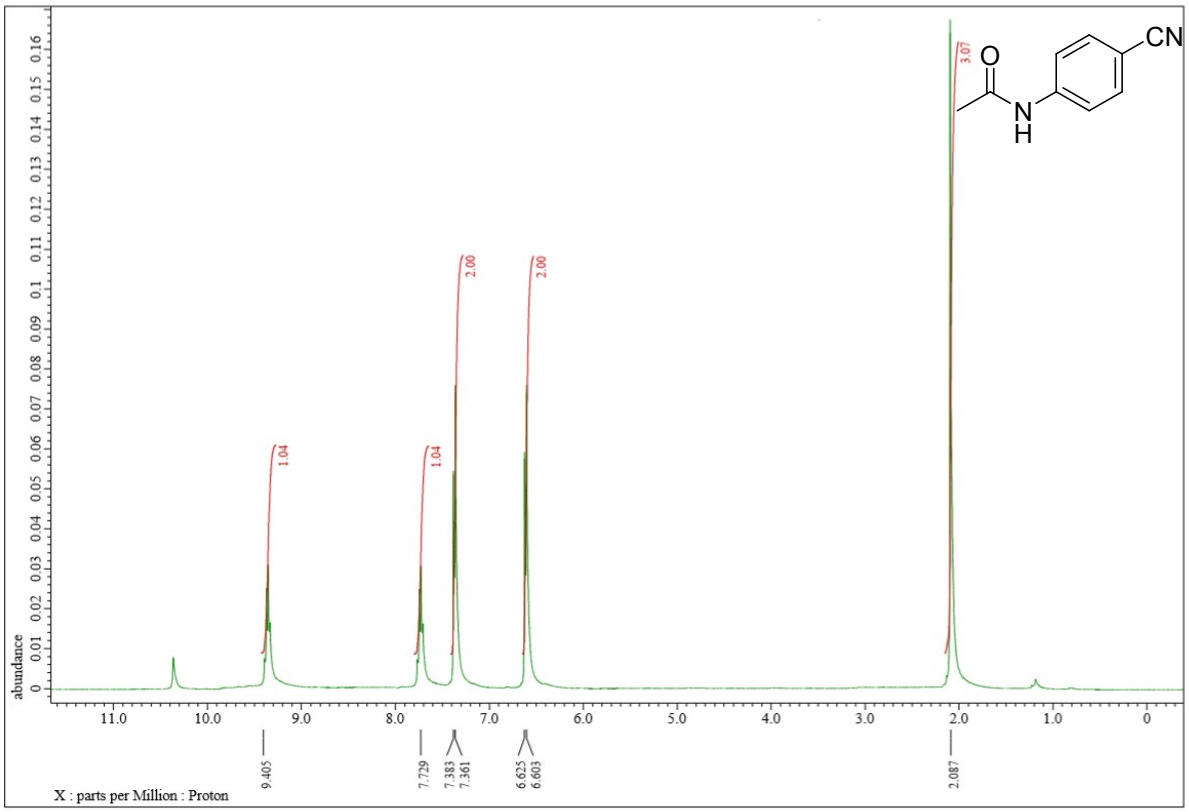
118.744
24.507
Br
H
N
O


abundance
X : parts per Million : Proton
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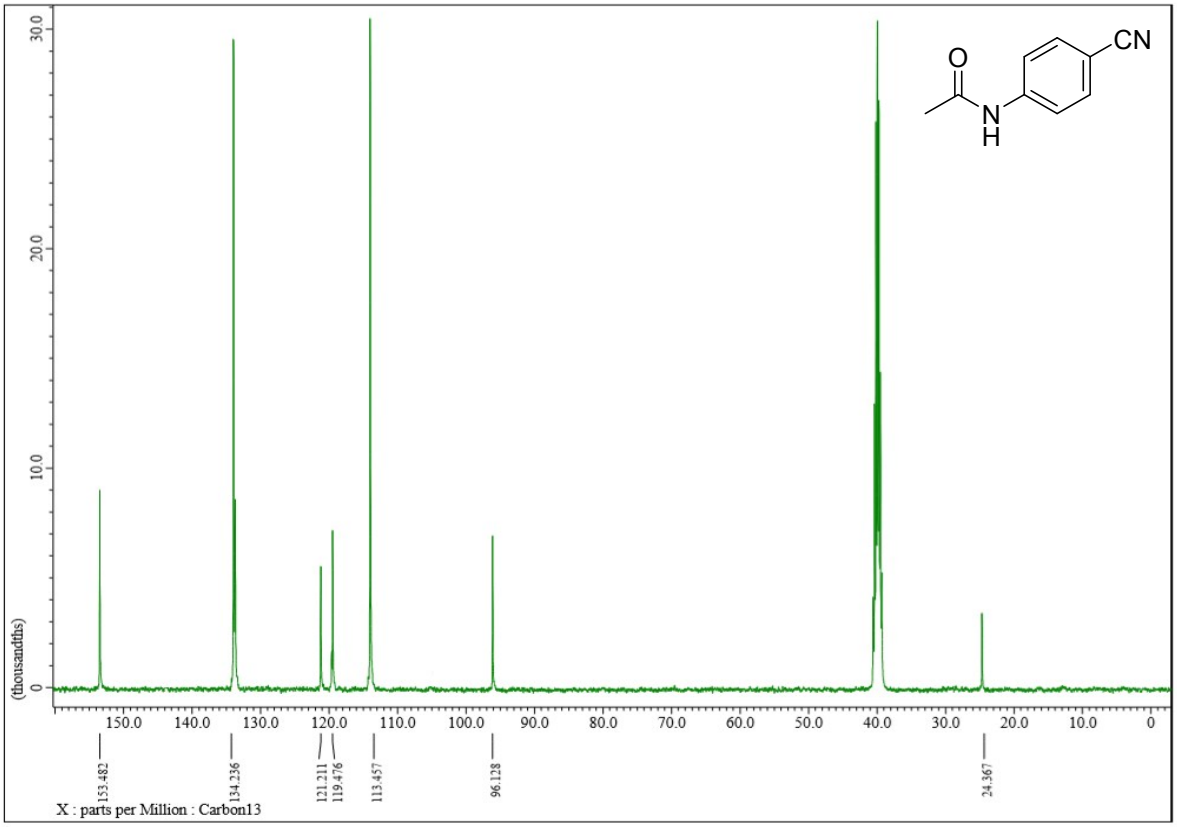
2.087
1.04
1.04
2.00
2.00
3.07
O
N
H
CN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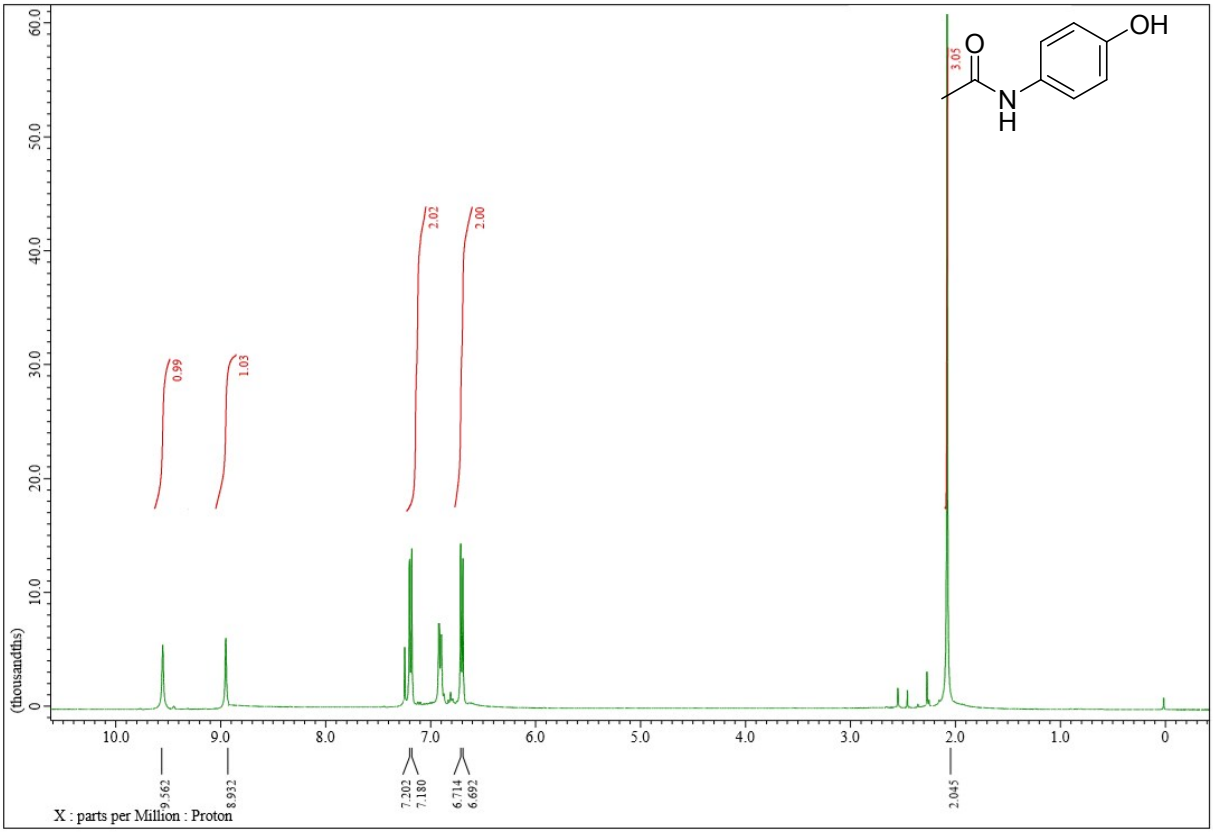
CN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O
N
H
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0.99
1.03
2.02
2.00
(thousandths)
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50.0
40.0
30.0
20.0
10.0
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
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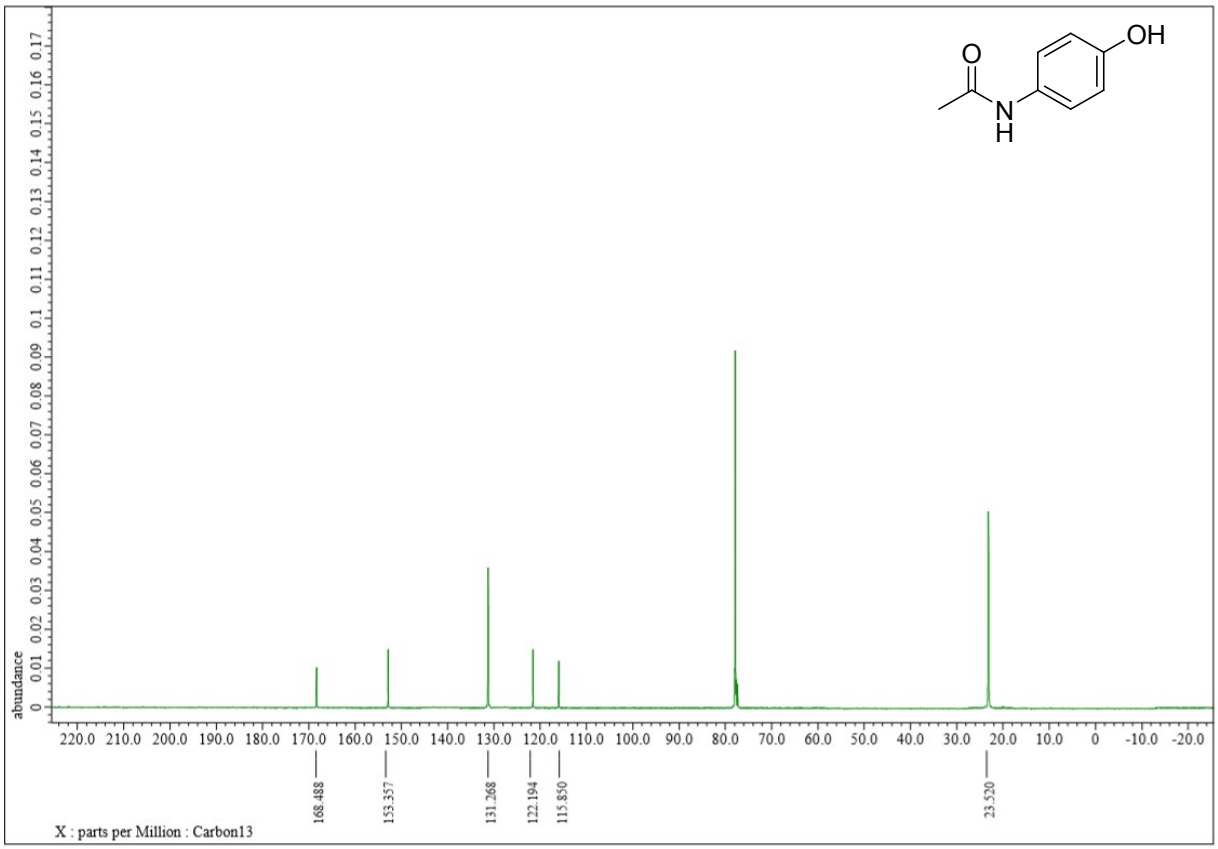
7.202
7.180
6.714
6.692
2.045
X : parts per Million : Proton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O
N
H
abundance
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0.08
0.07
0.06
0.05
0.04
0.03
0.02
0.01
0
220.0 210.0 200.0 190.0 180.0 170.0 160.0 150.0 140.0 130.0 120.0 110.0 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0 0 -10.0 -20.0
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122.194
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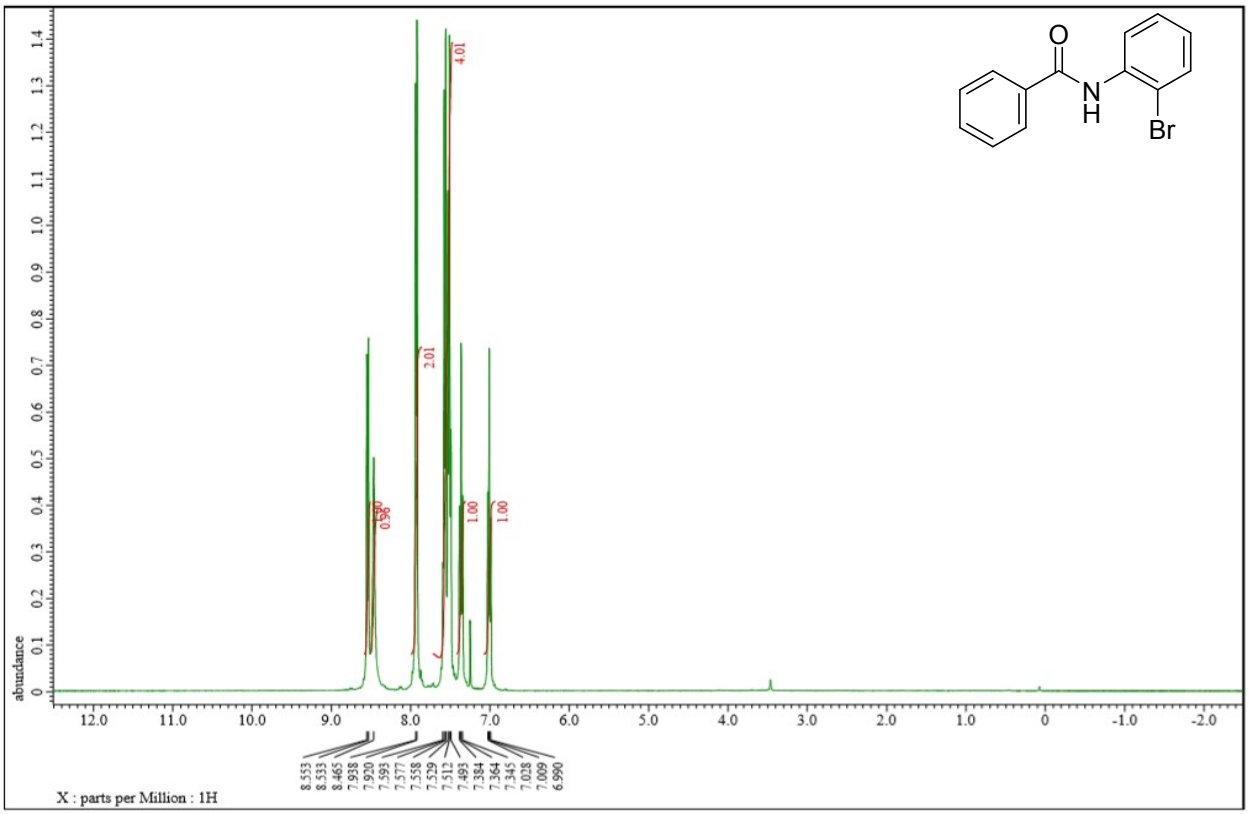
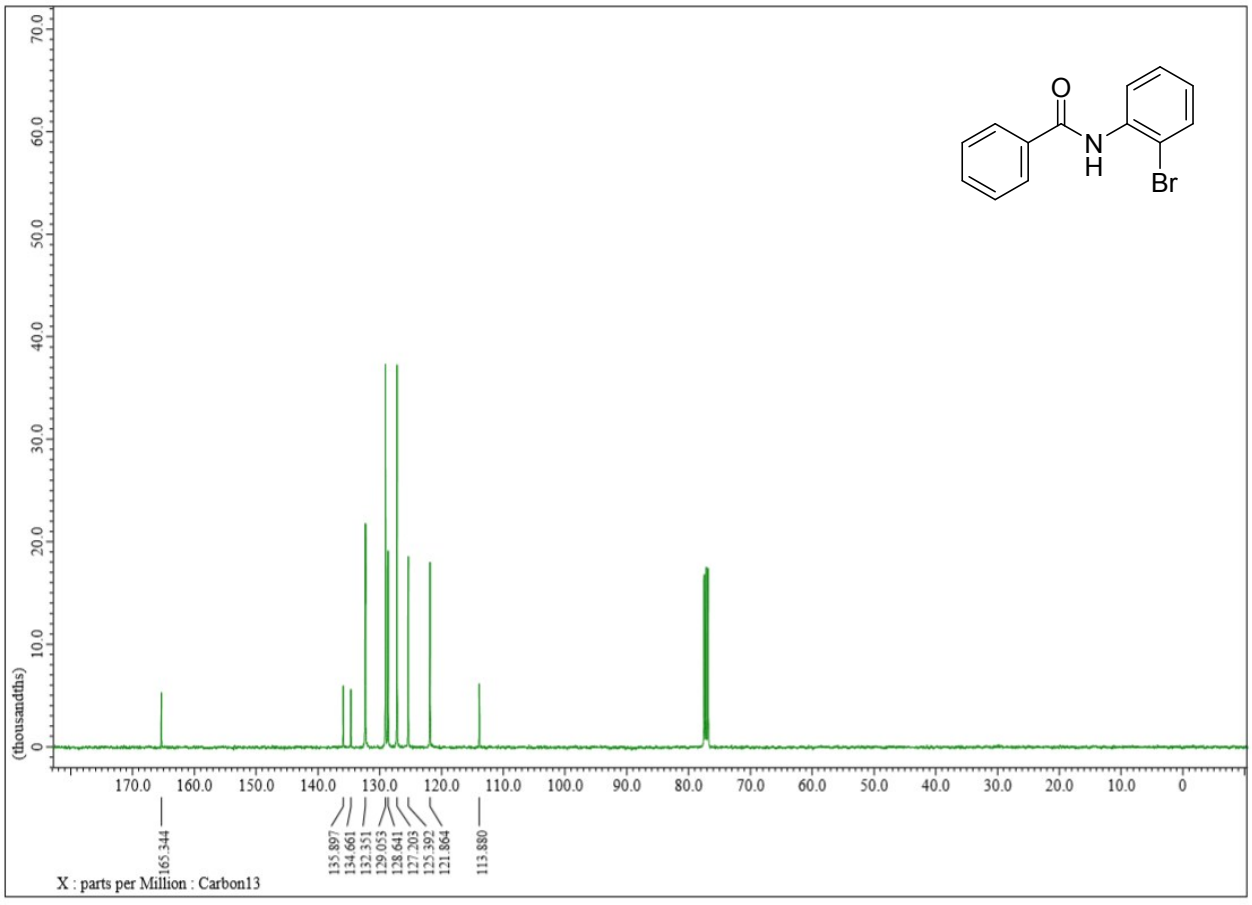
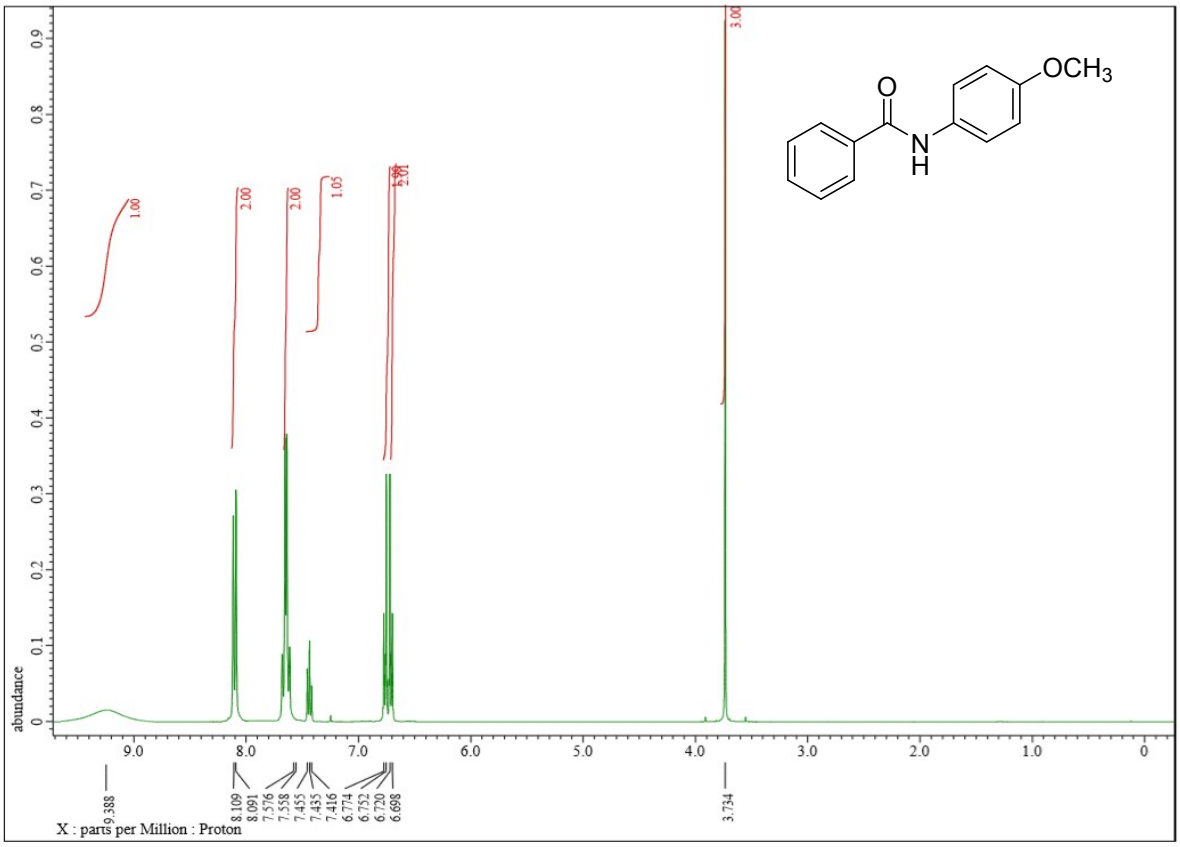
23.520
X : parts per Million : Carbon13


O
N
H
Br
abundance
X : parts per Million : 1H


O
N
H
Br
(thousandths)
X : parts per Million : Carbon13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O
N
H
abundance
X : parts per Million : Proton
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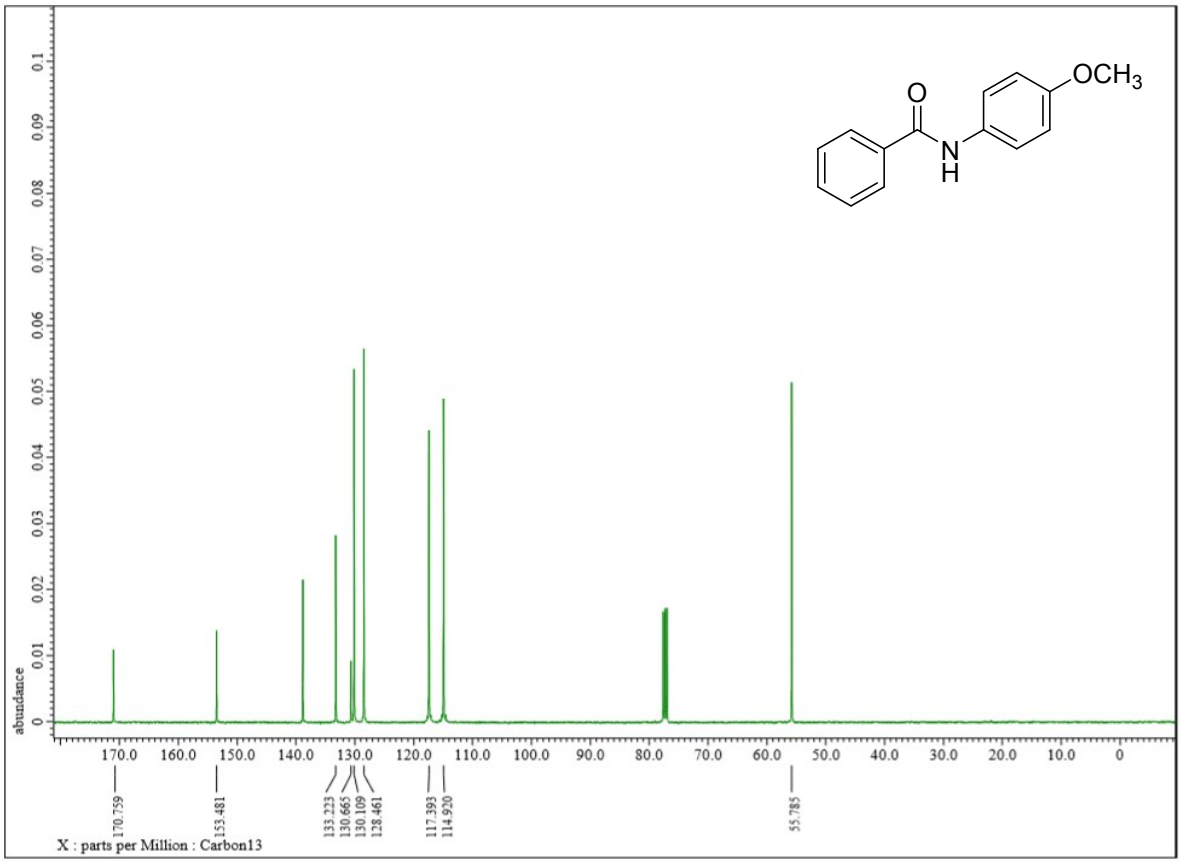
6.774
6.752
6.720
6.698
3.734


OCH3
O
N
H
abundance
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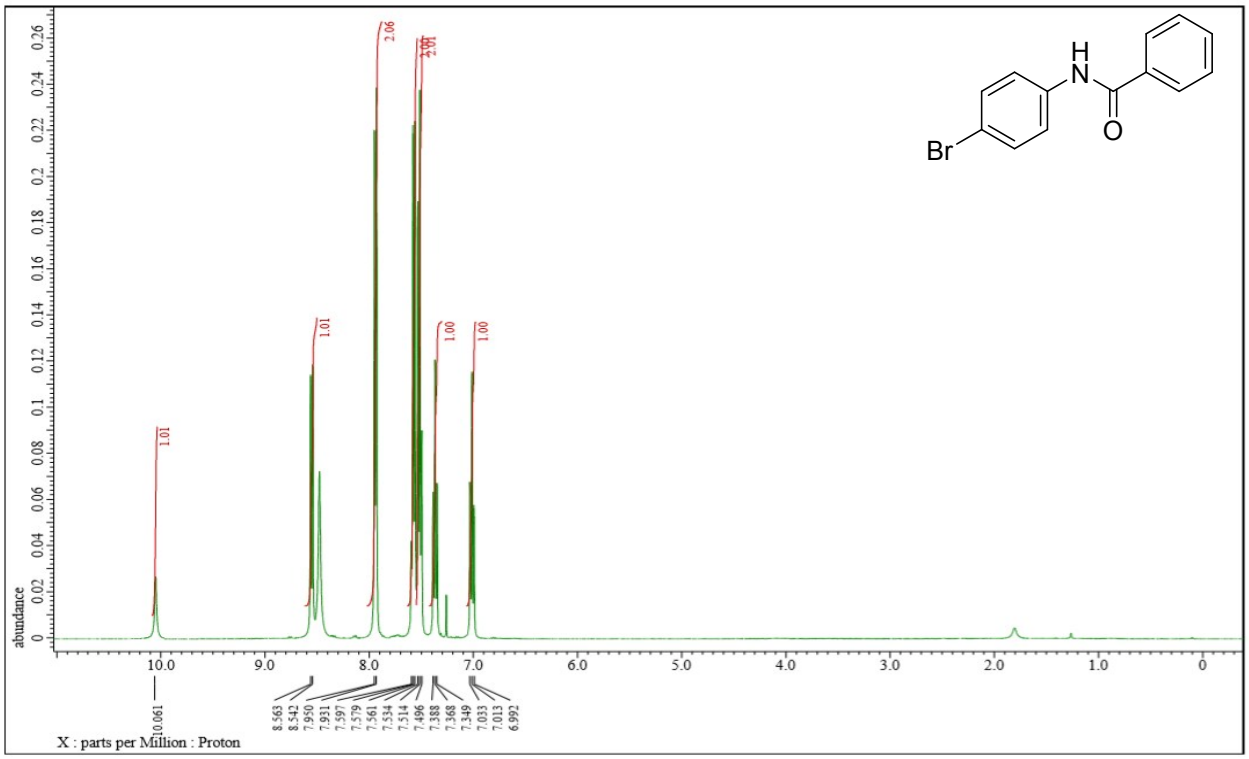
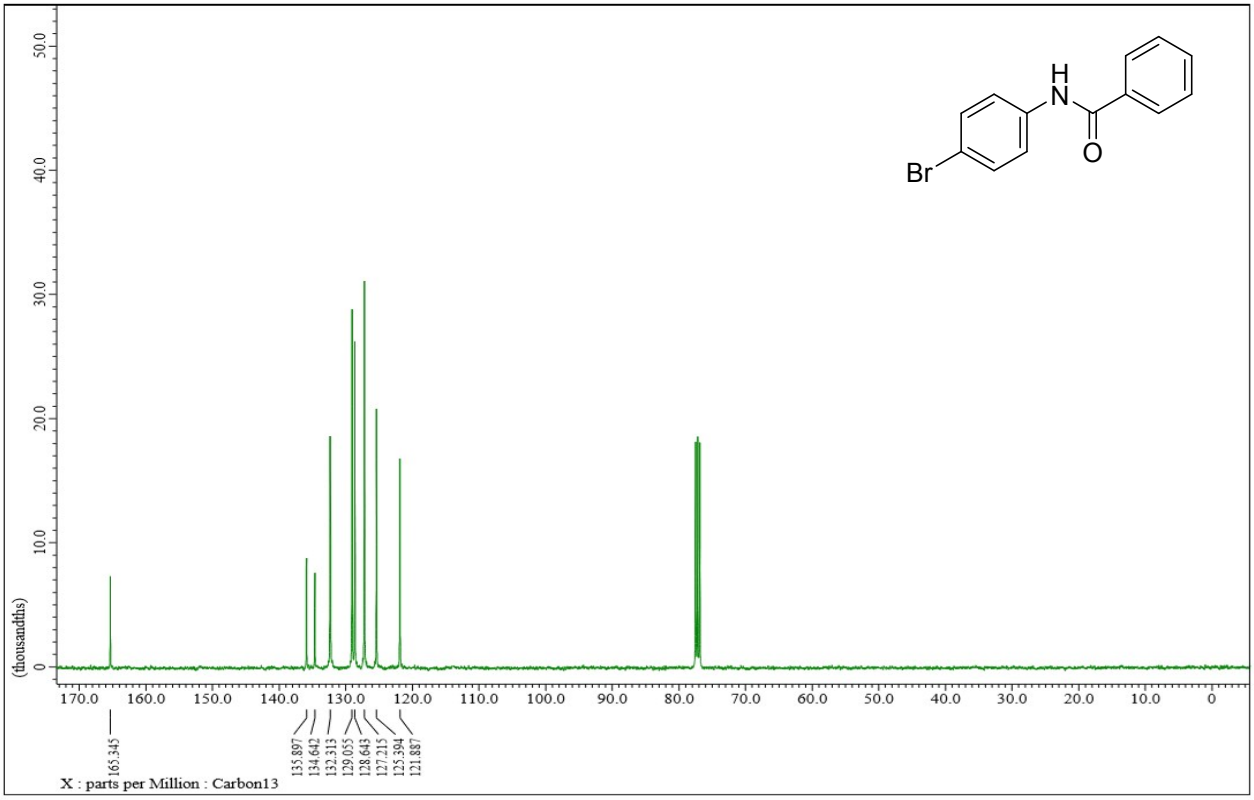
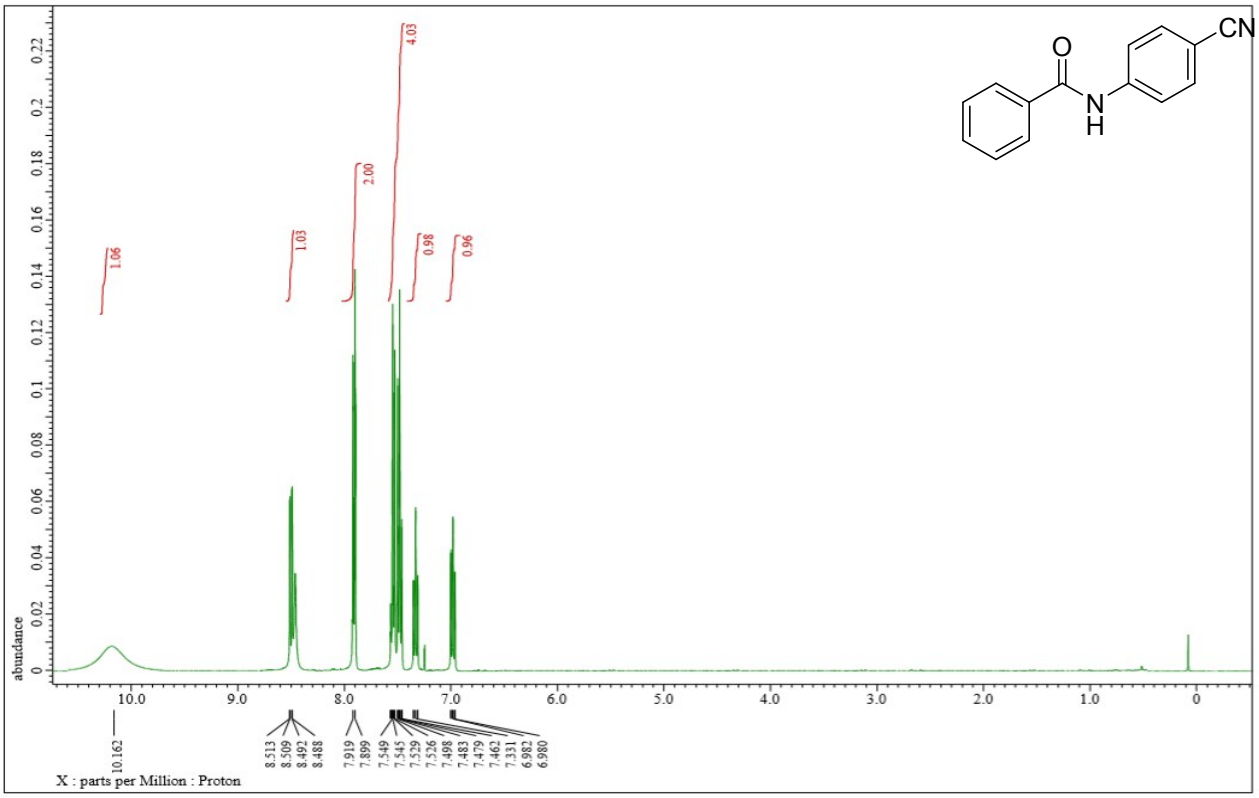
117.393
114.920
55.785


abundance
X : parts per Million : Proton
Br
H
N
O


(thousandths)
X : parts per Million : Carbon13
Br
H
N
O


abundance
X : parts per Million : Proton
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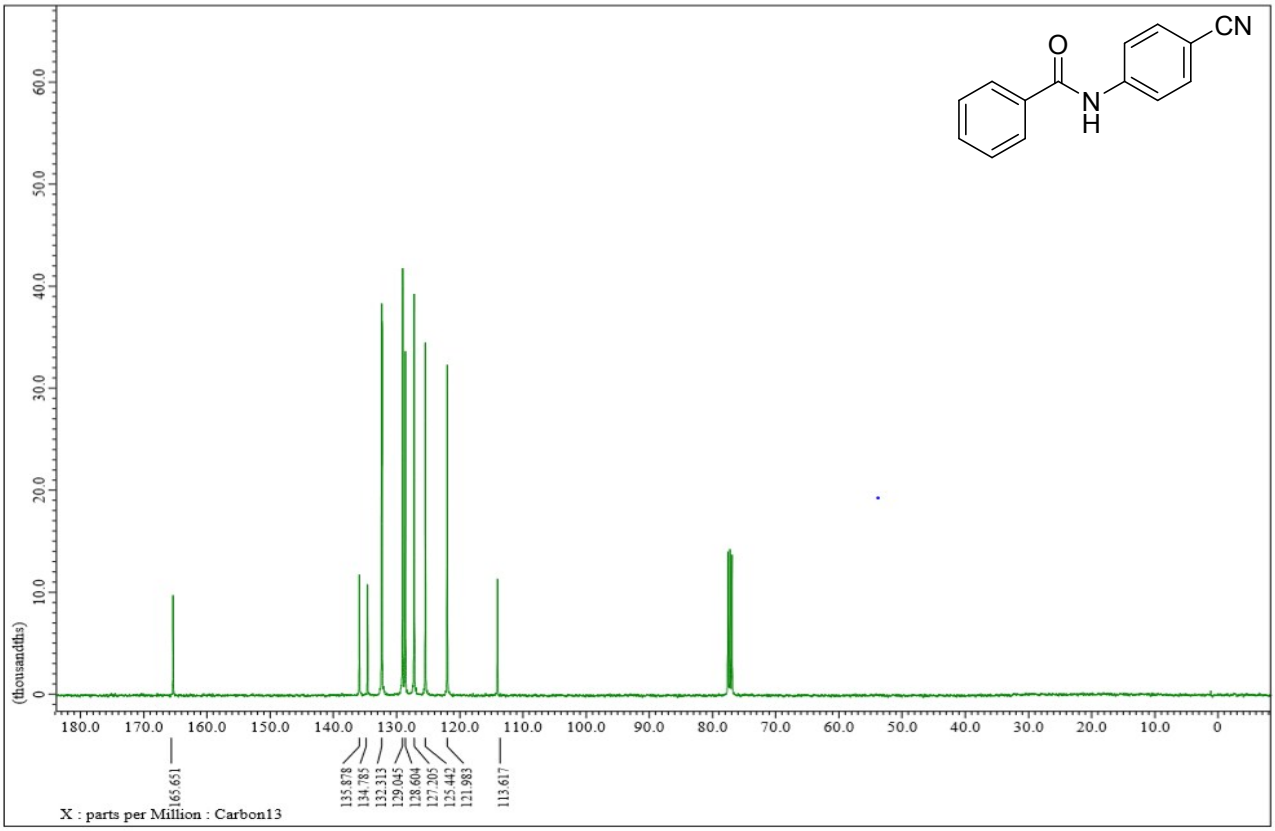
2.00
4.03
0.98
0.96
O
N
H
CN


(thousandths)
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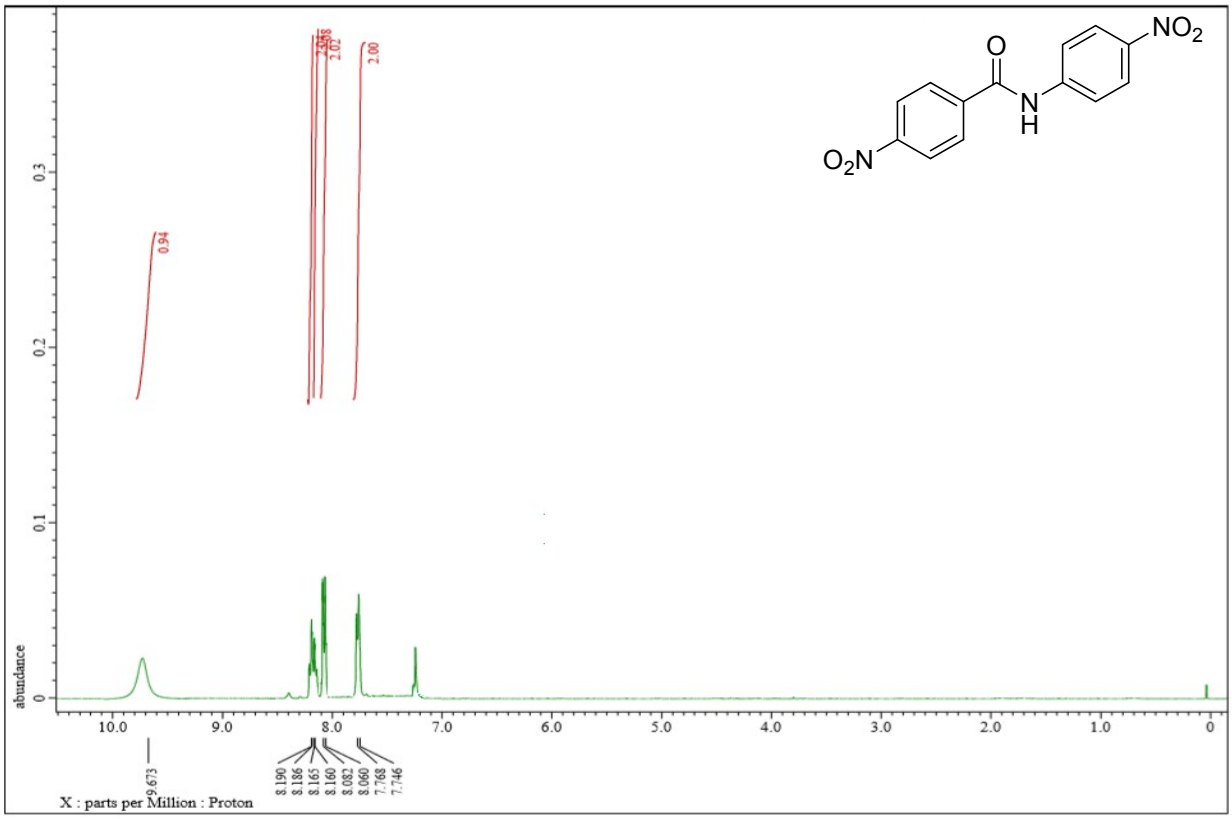
O
N
H
CN


abundance
X : parts per Million : Proton
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2.00
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7.746
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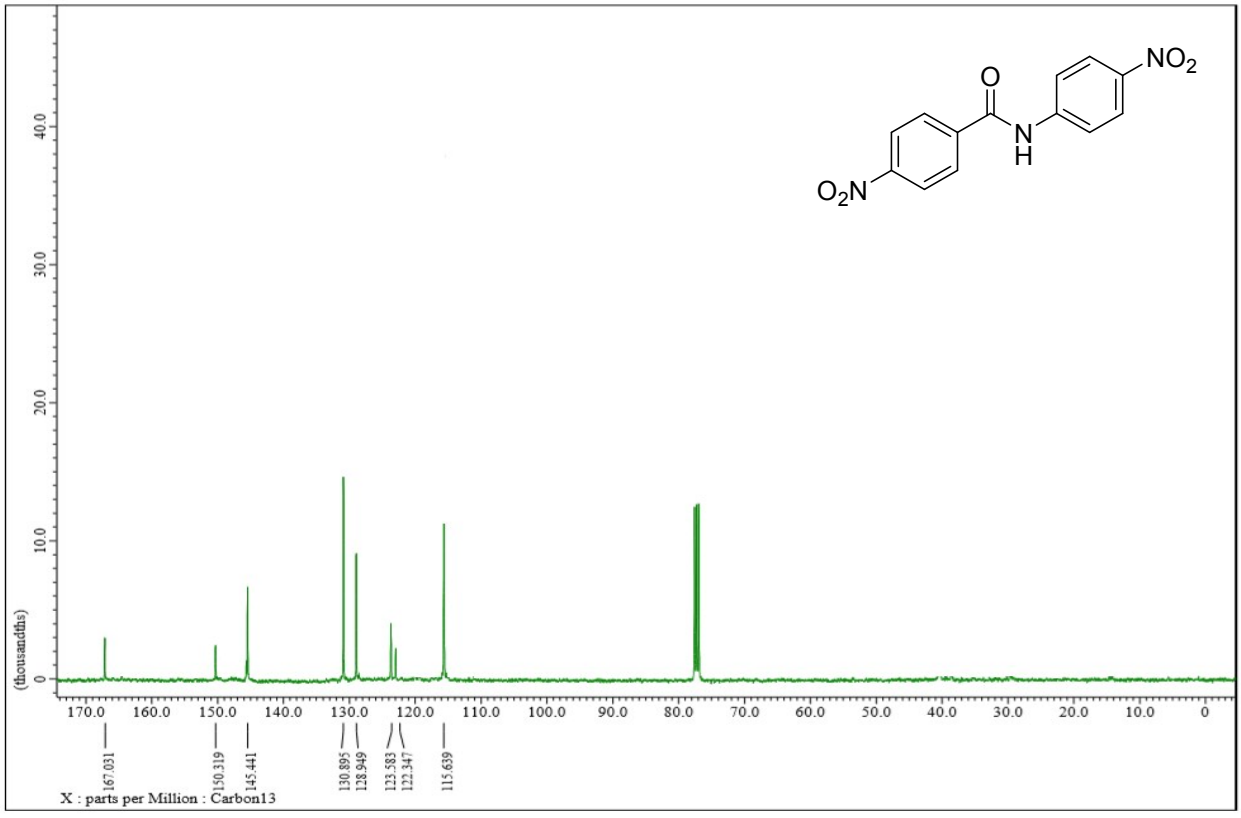
N
H
NO_2
O_2N


(thousandths)
X : parts per Million : Carbon13
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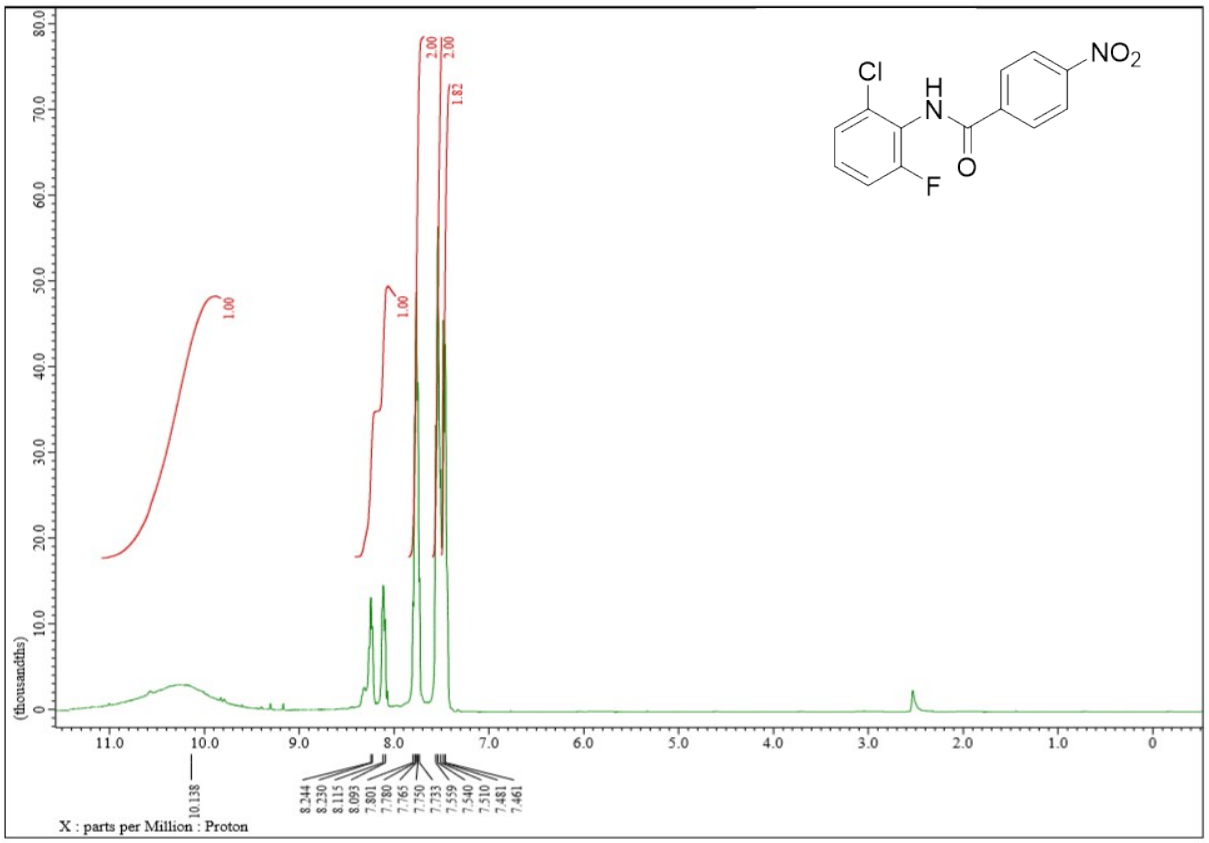
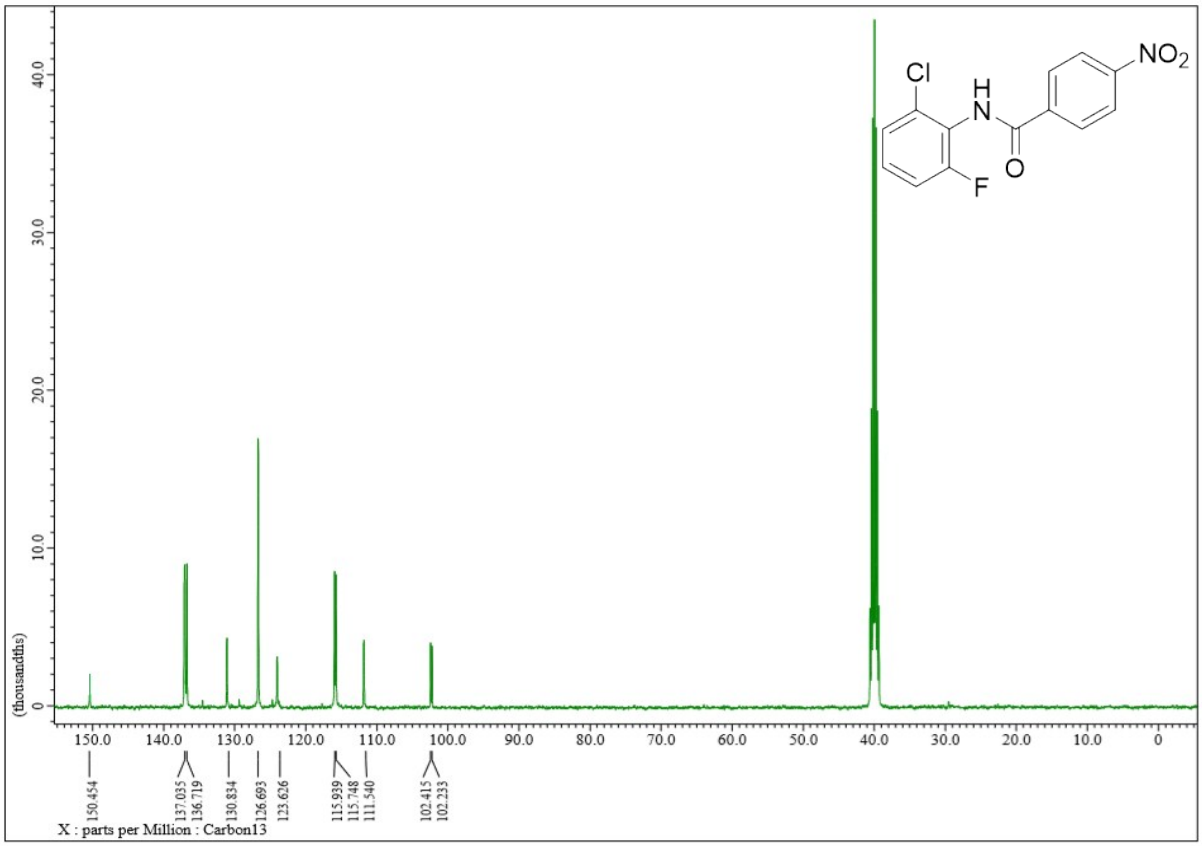
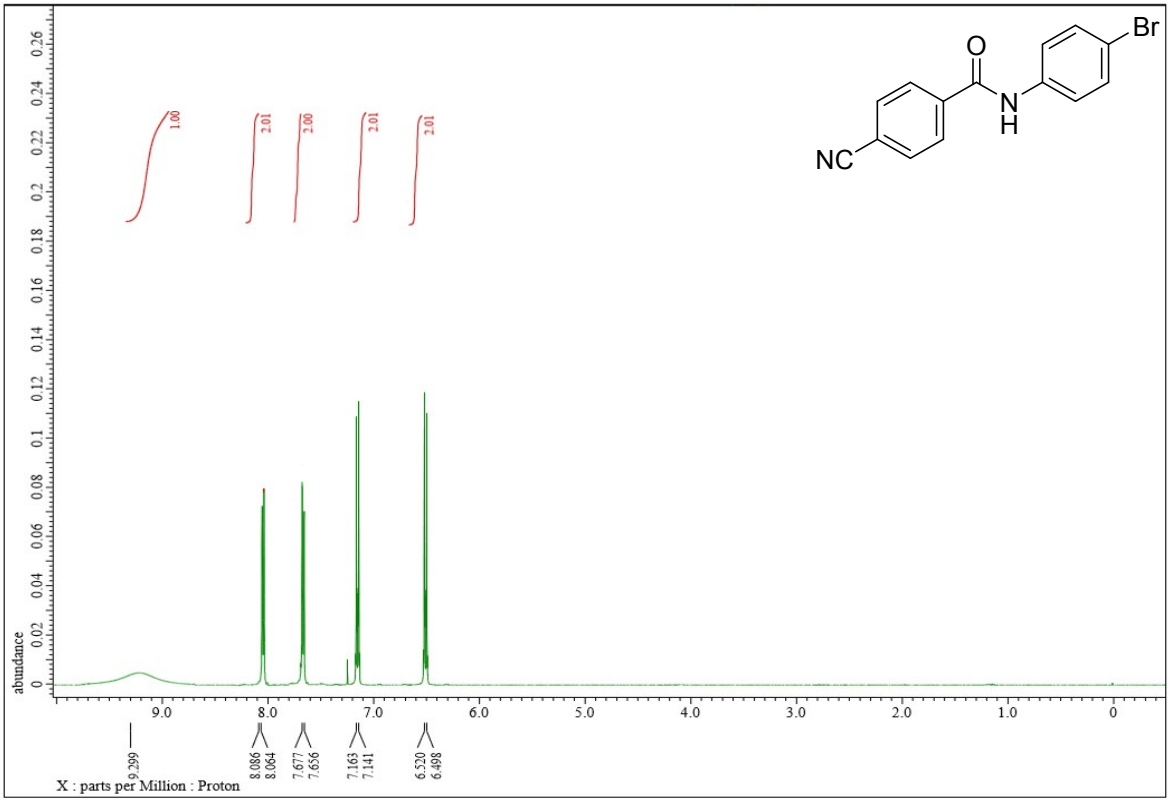
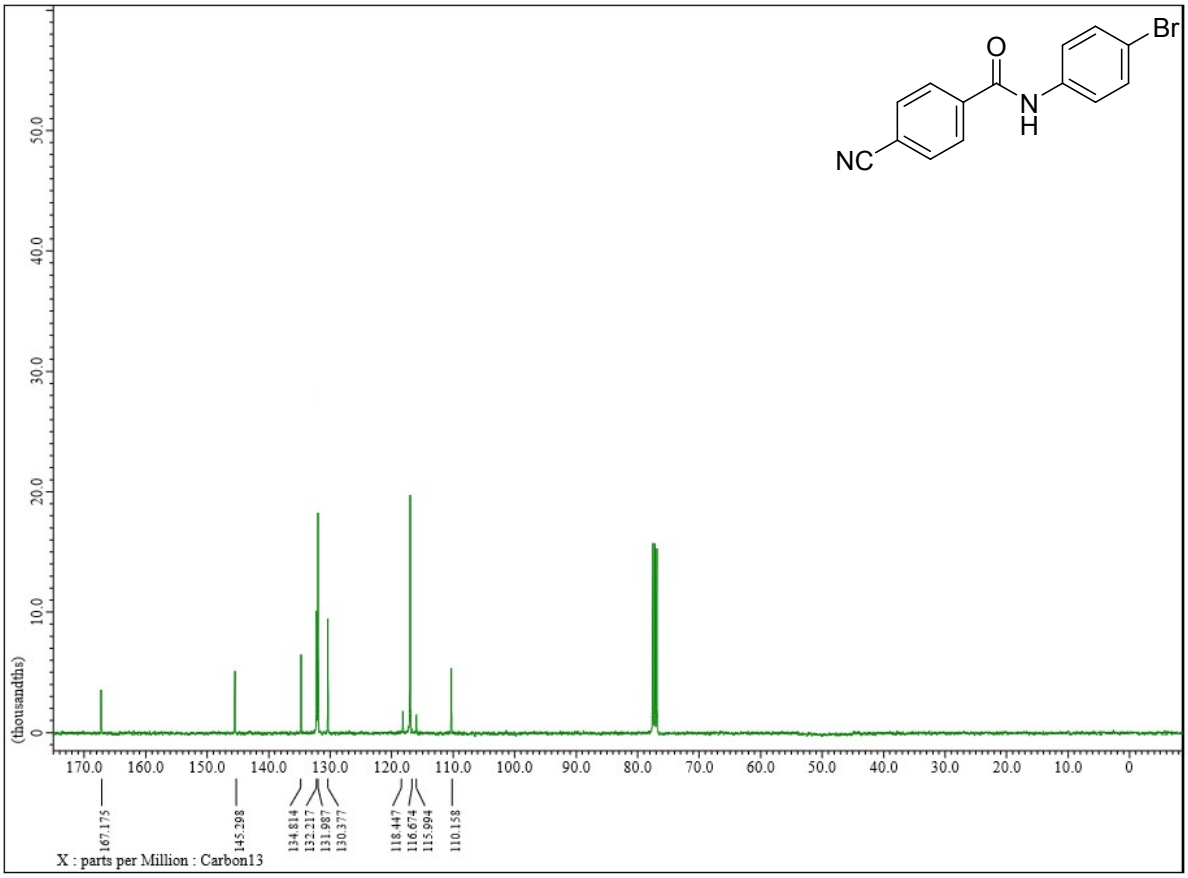
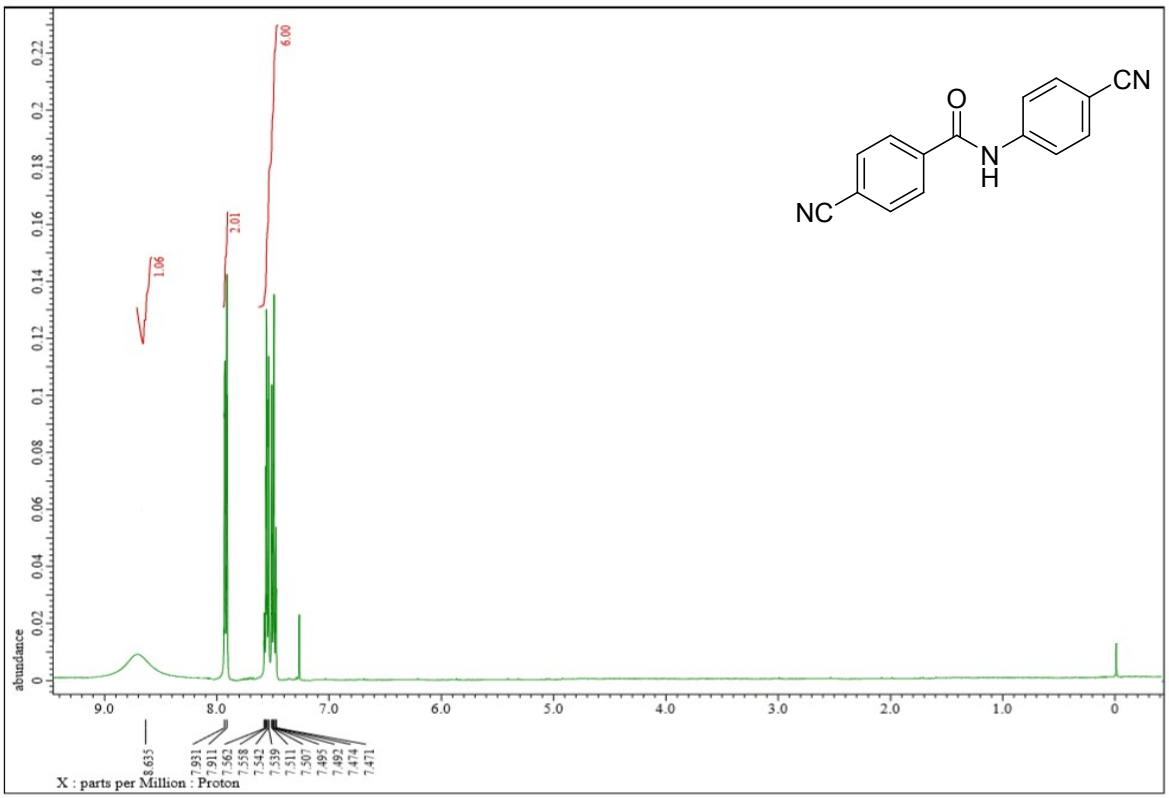
O_2N

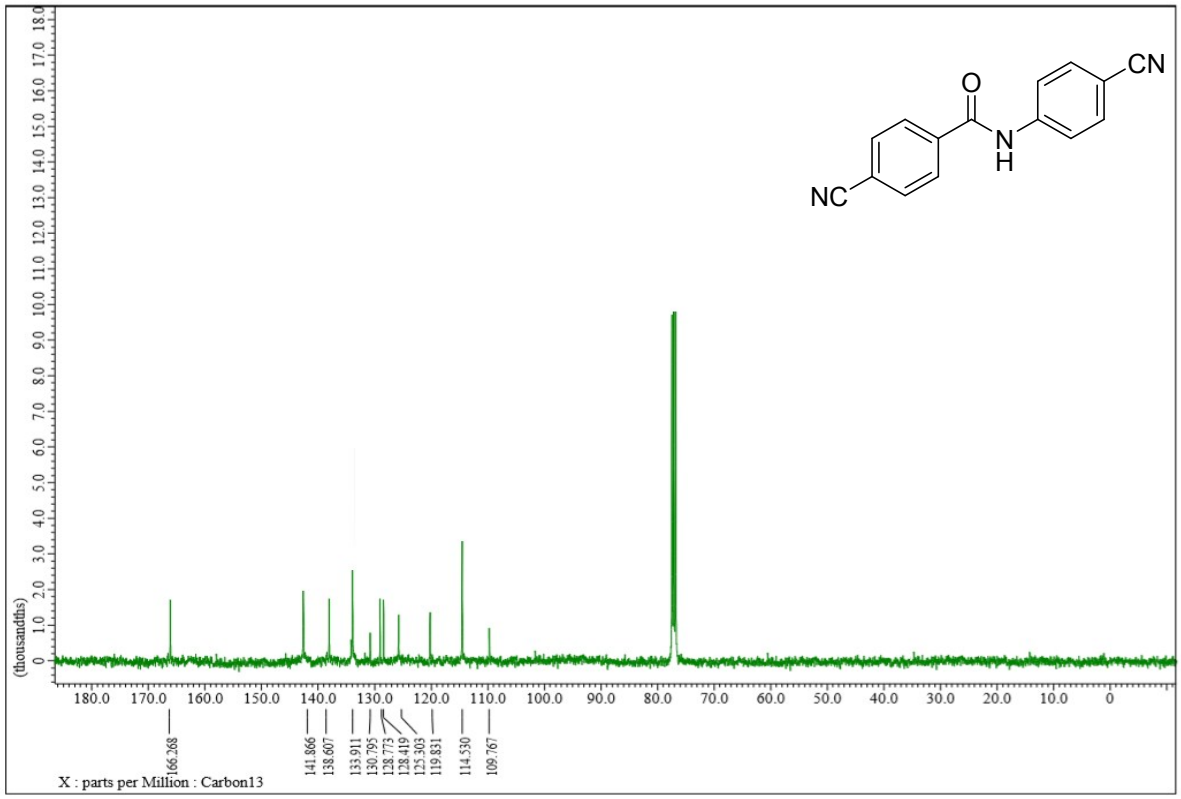

Cl
H
N
O
F
NO2
2.00
2.00
1.82
1.00
1.00
(thousandths)
X : parts per Million : Proton
10.138
8.244
8.230
8.115
8.093
7.801
7.780
7.765
7.750
7.733
7.559
7.540
7.510
7.481
7.461

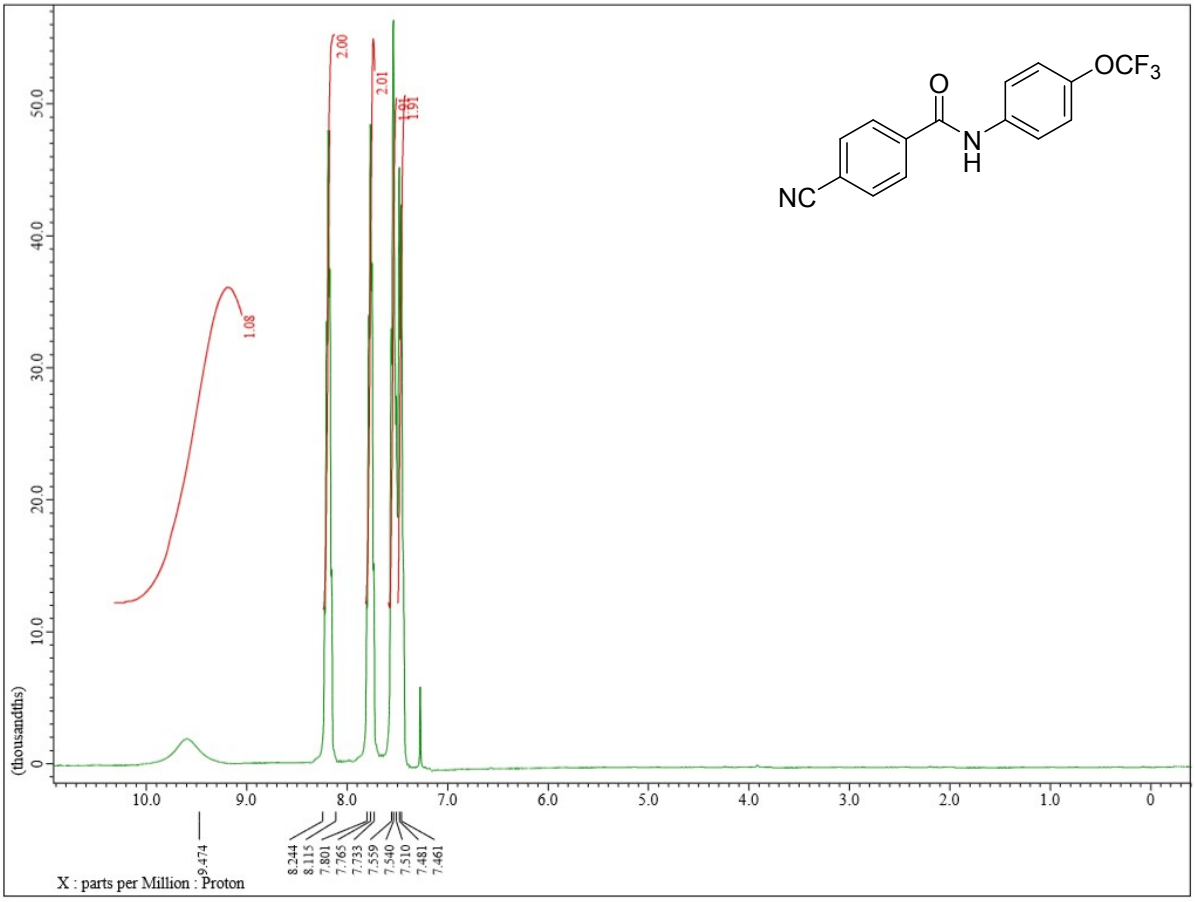

Cl
H
N
O
F
NO2
(thousandths)
X : parts per Million : Carbon13
150.454
137.035
136.719
130.834
126.693
123.626
115.939
115.748
111.540
102.415
102.233

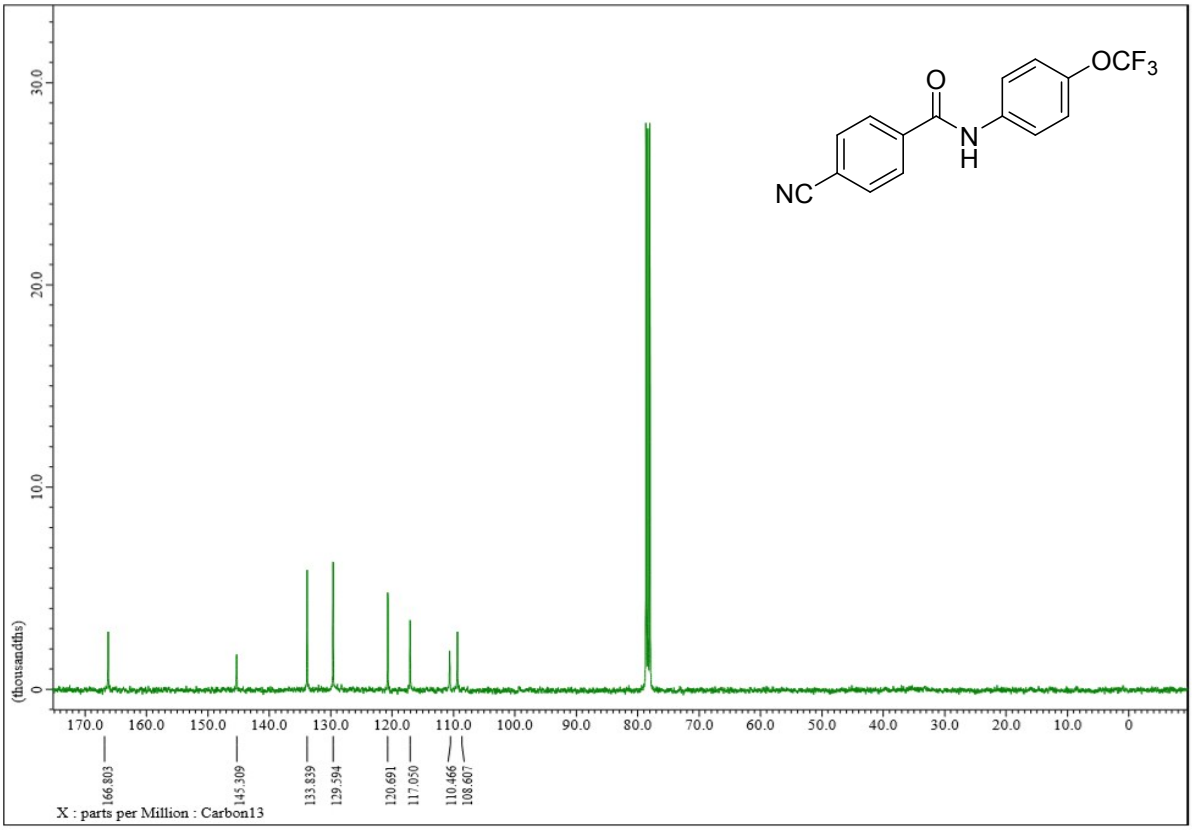

Br
O
N
H
NC
1.00
2.01
2.00
2.01
2.01
abundance
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
9.399
8.086
8.064
7.677
7.656
7.163
7.141
6.520
6.498
X : parts per Million : Proton

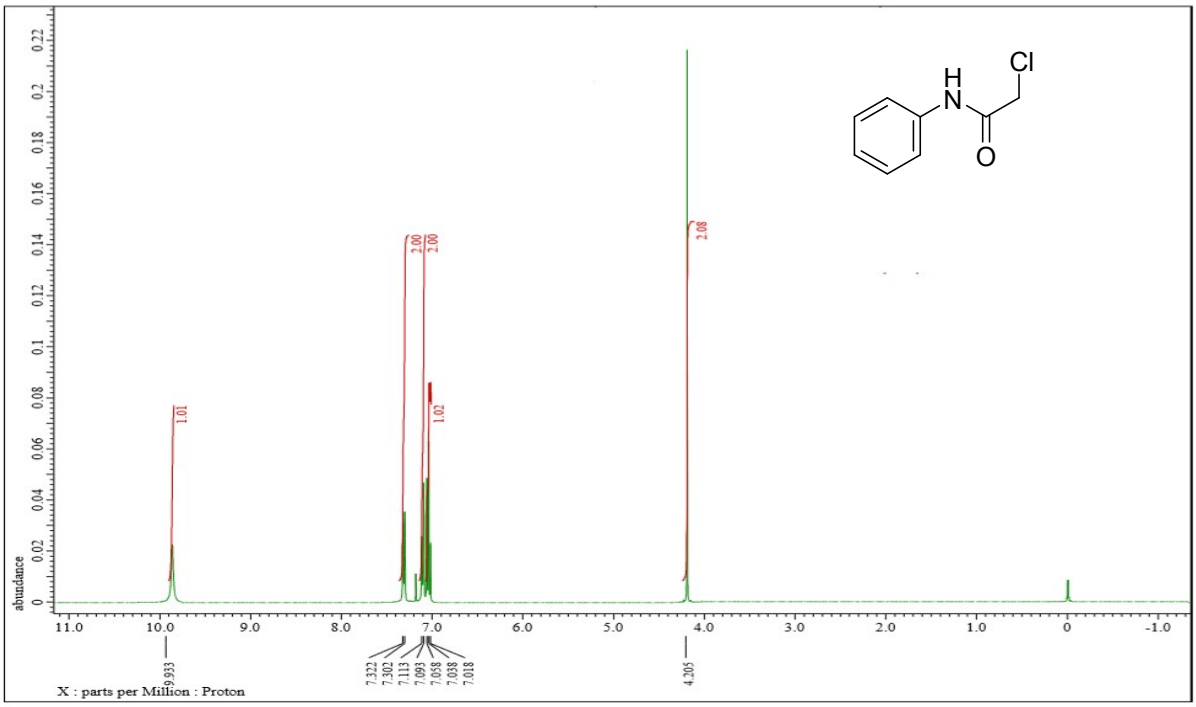

Br
O
N
H
NC
(thousandths)
170.0
160.0
150.0
140.0
130.0
120.0
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
167.175
145.298
134.814
132.217
131.987
130.377
118.447
116.674
115.994
110.158
X : parts per Million : Carbon13

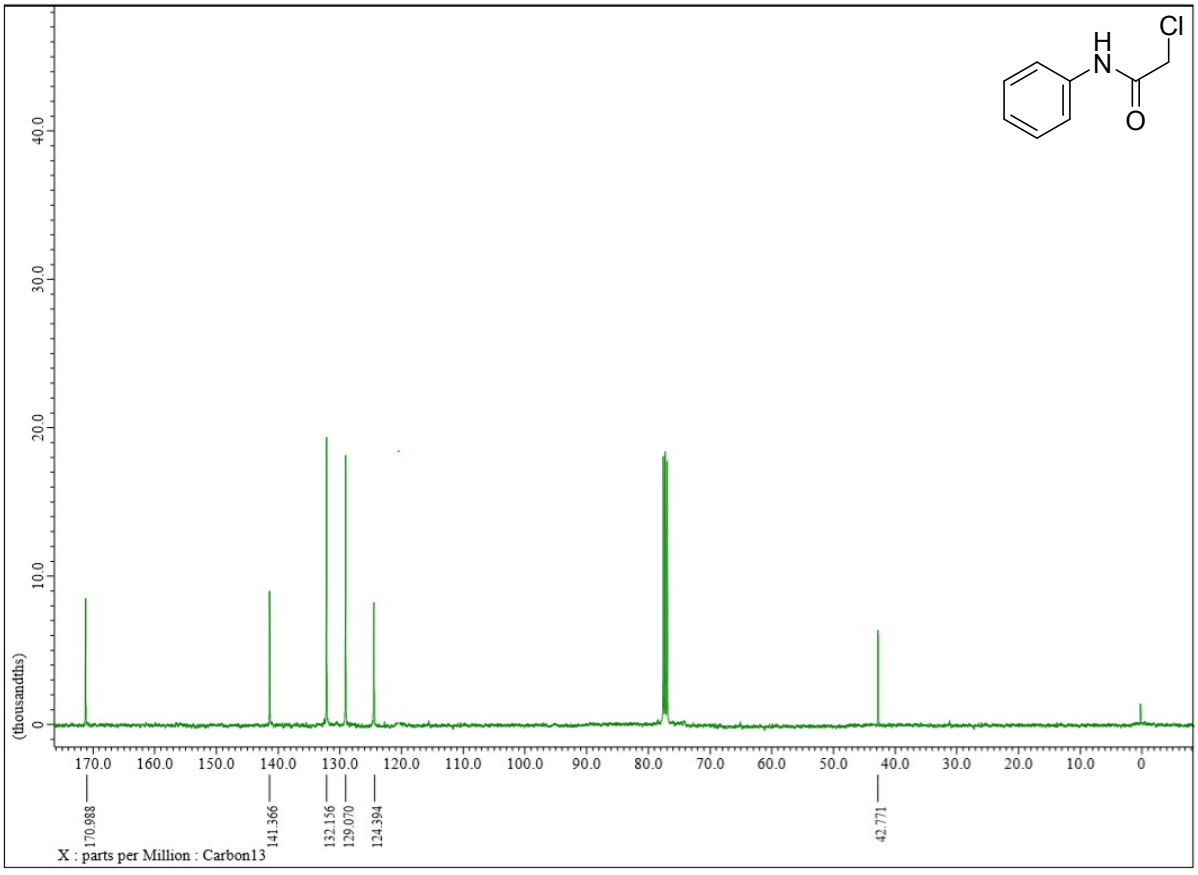

abundance
X : parts per Million : Proton
6.00
2.01
1.06
8.635
7.931
7.911
7.562
7.558
7.542
7.539
7.511
7.507
7.495
7.492
7.474
7.471
O
N
H
CN
NC

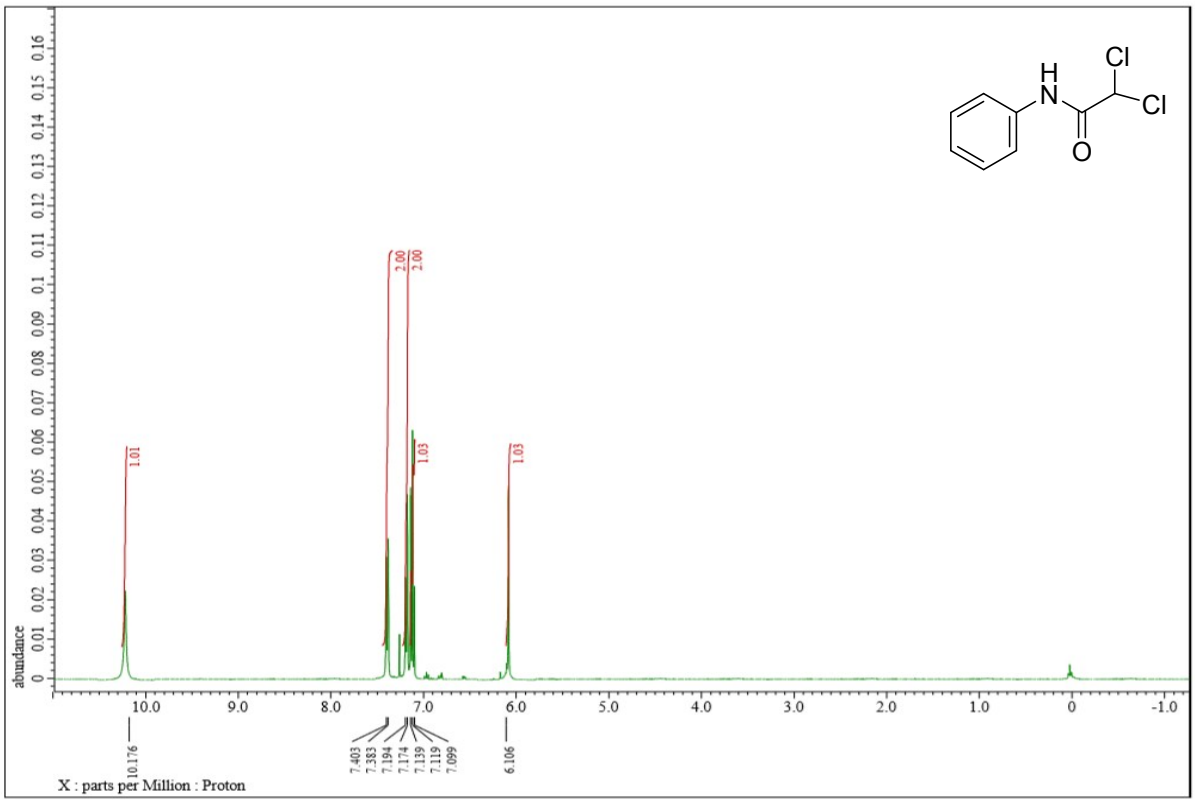

(thousandths)
X : parts per Million : Carbon13
166.268
141.866
138.607
133.911
130.795
128.773
128.419
125.303
119.831
114.530
109.767
O
N
H
CN
NC

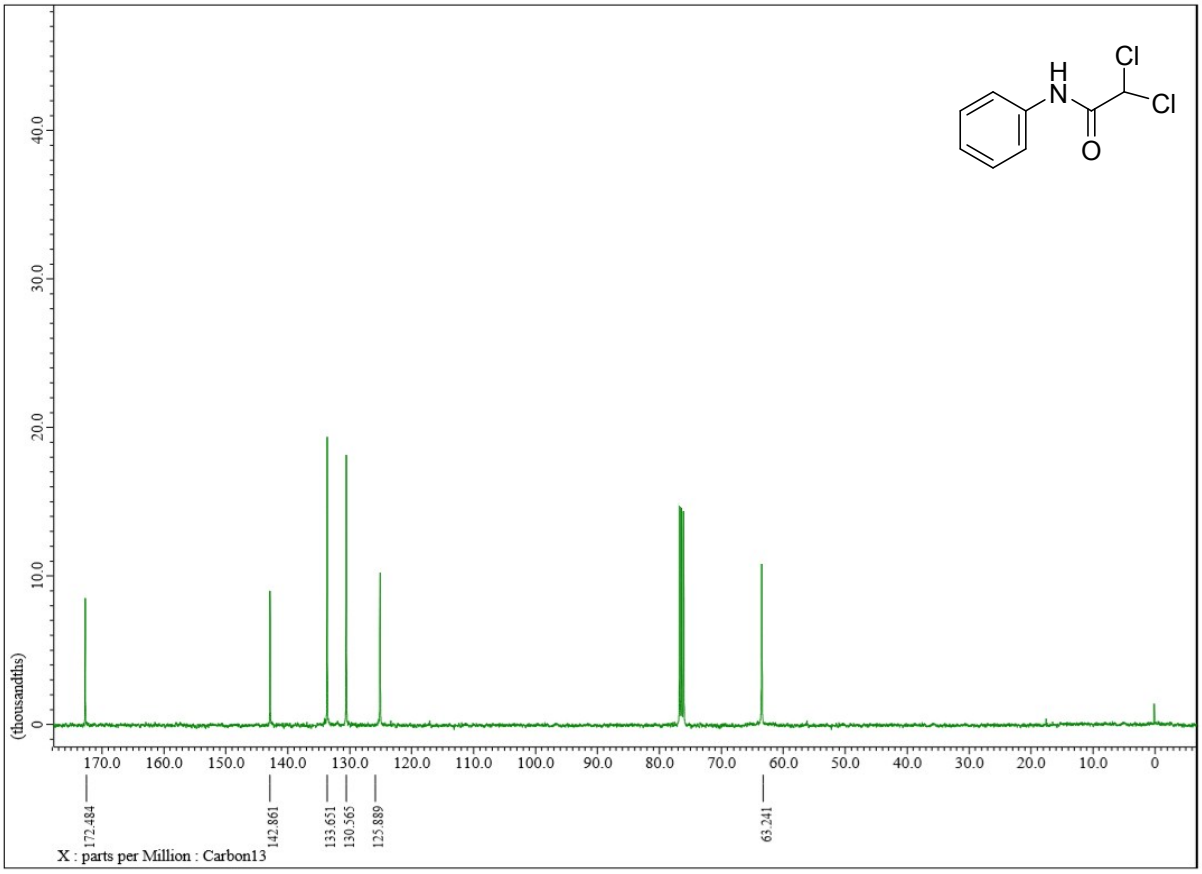

2.00
2.01
1.91
1.08
(thousandths)
50.0
40.0
30.0
20.0
10.0
0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
9.474
8.244
8.115
7.801
7.765
7.733
7.559
7.540
7.510
7.481
7.461
X : parts per Million : Proton
O
N
H
NC
OCF3

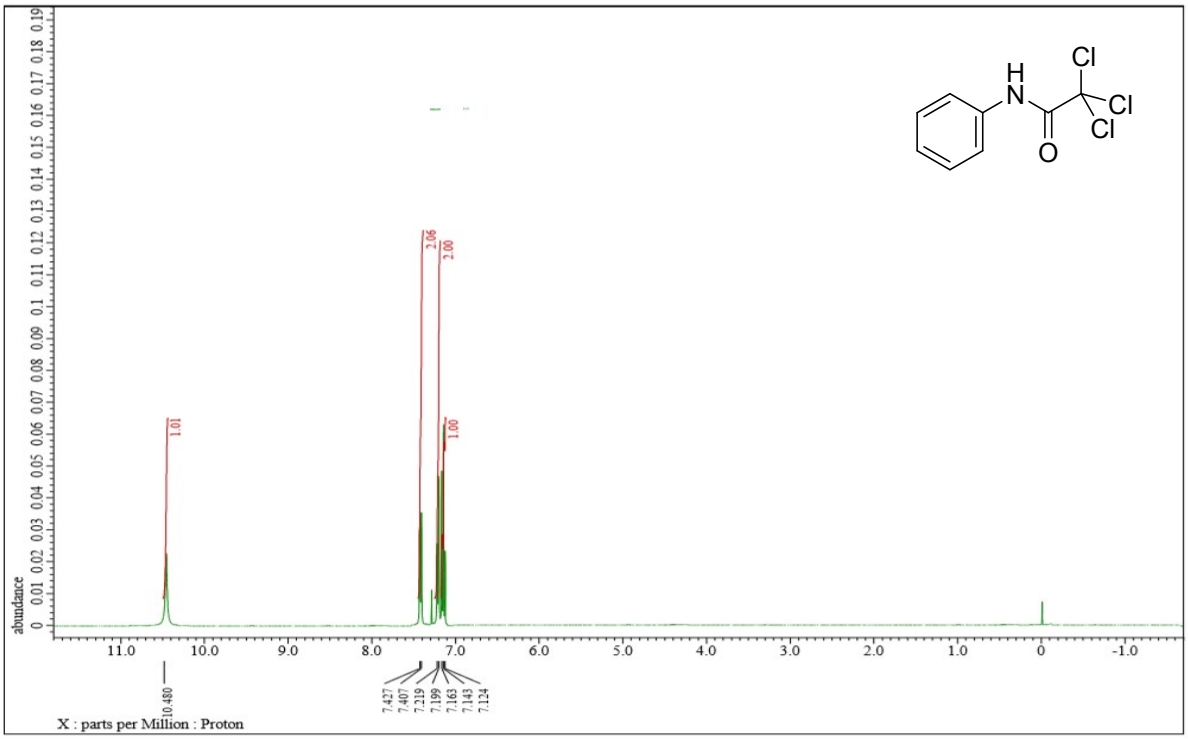

(thousandths)
30.0
20.0
10.0
0
170.0
160.0
150.0
140.0
130.0
120.0
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
166.803
145.309
133.839
129.594
120.691
117.050
110.466
108.607
X : parts per Million : Carbon13
O
N
H
NC
OCF3

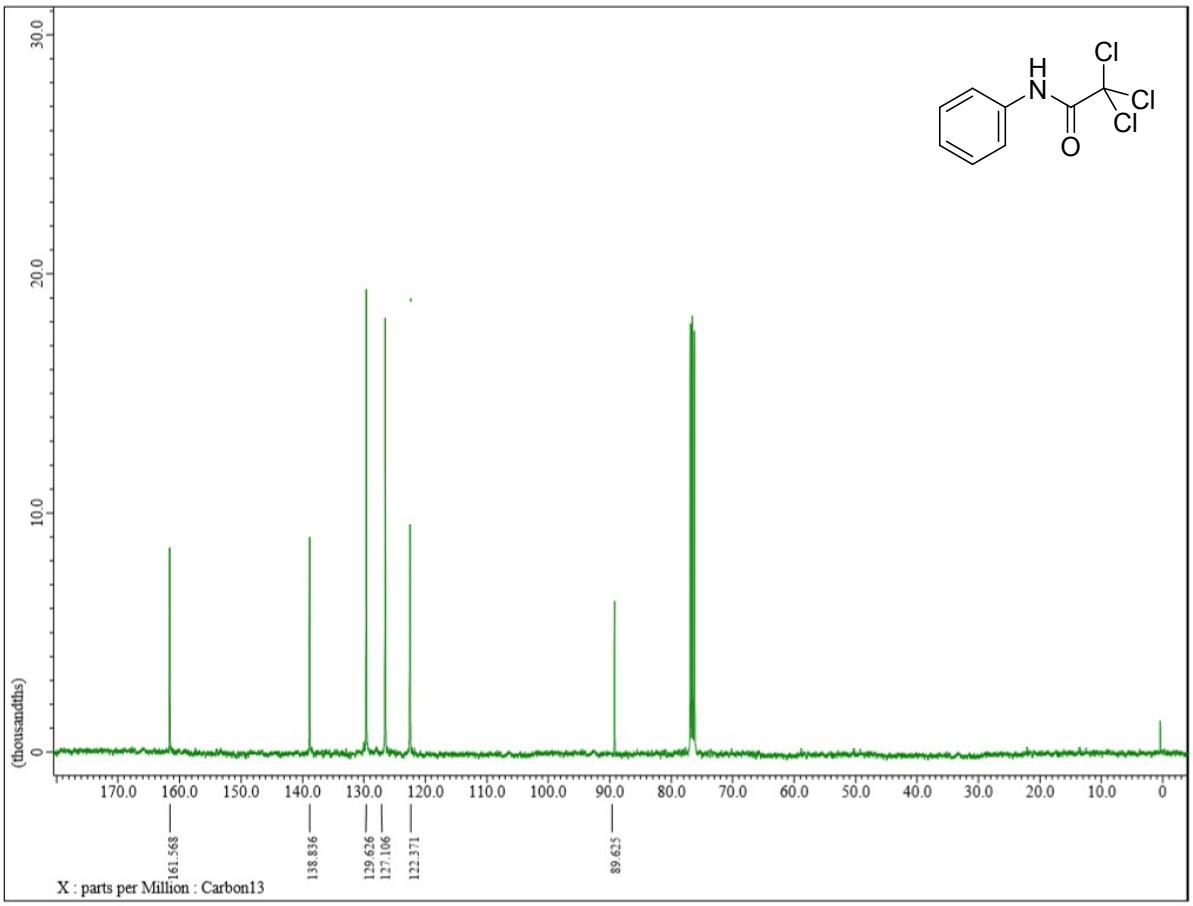

abundance
X : parts per Million : Proton
9.933
7.332
7.302
7.113
7.093
7.058
7.038
7.018
4.205
1.01
2.00
2.00
1.02
2.08

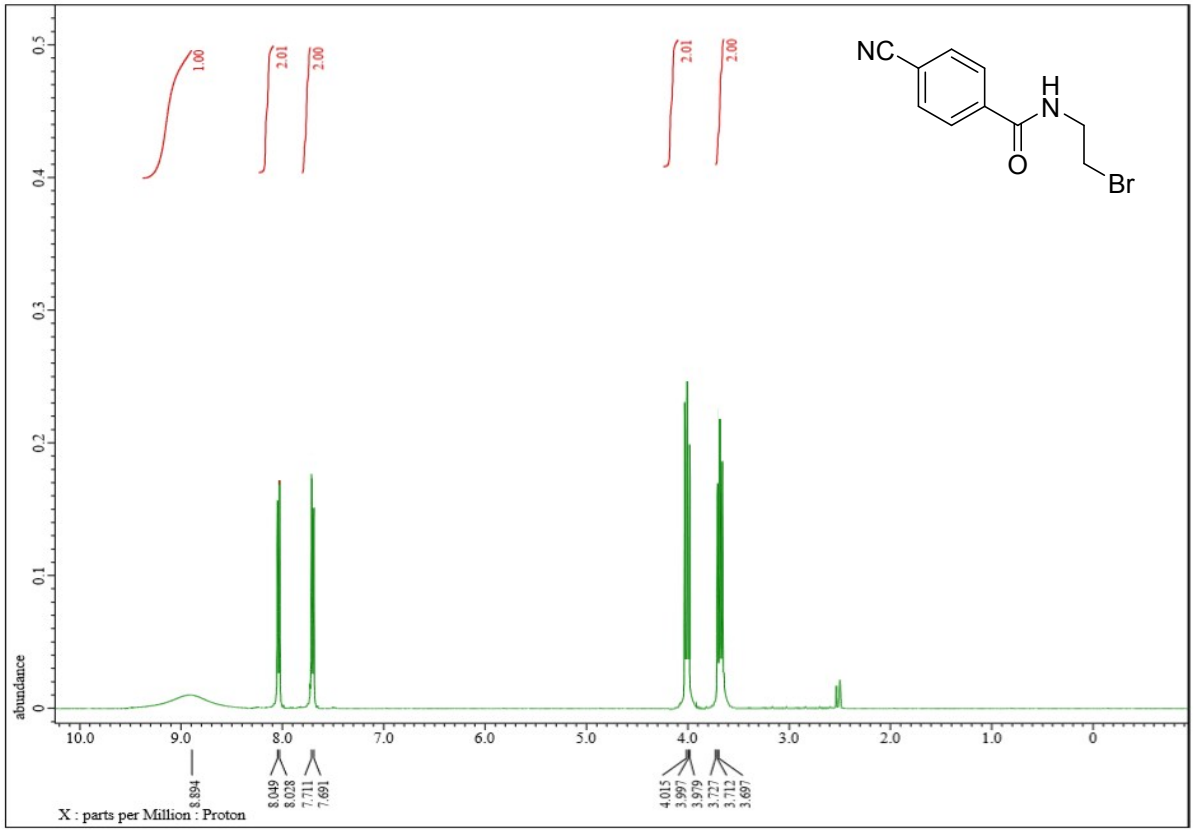

(thousandths)
X : parts per Million : Carbon13
170.988
141.366
132.156
129.070
124.394
42.771

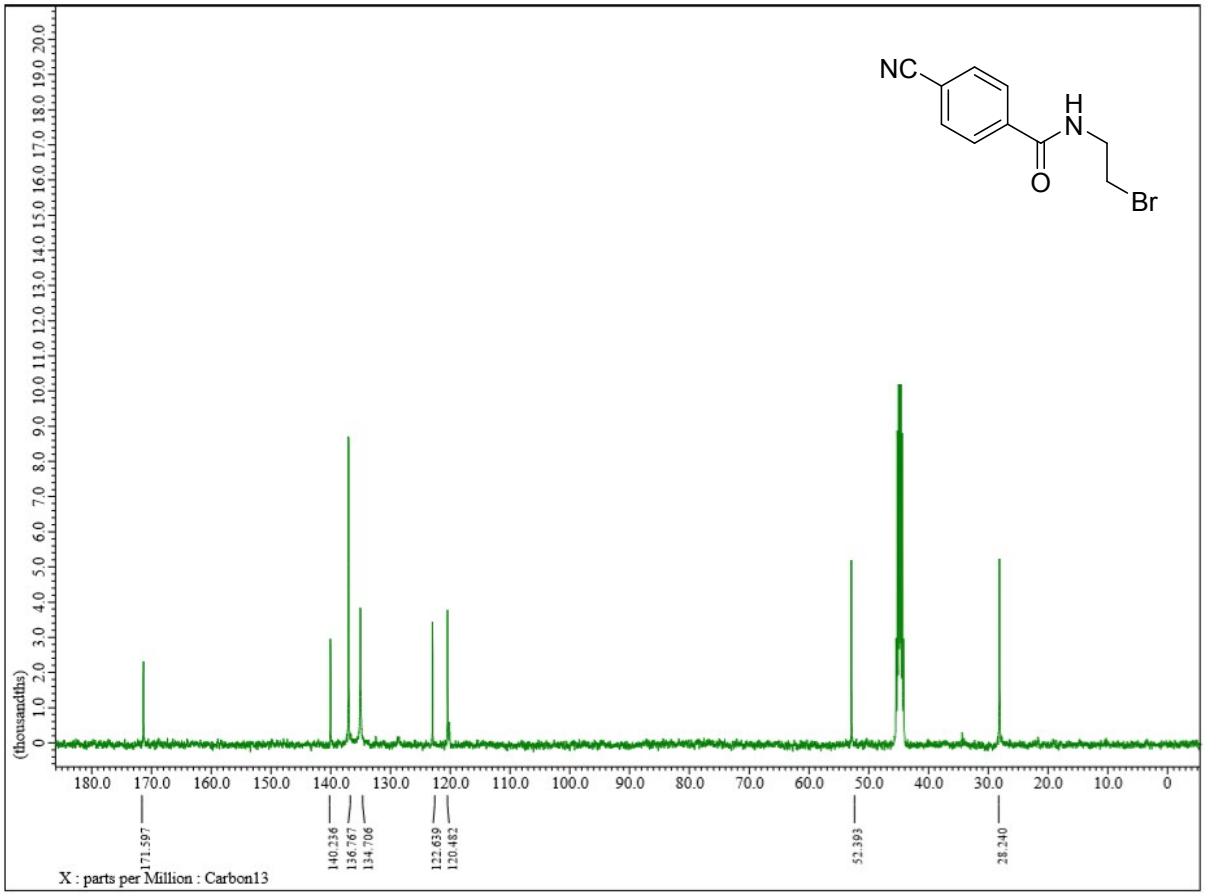

abundance
X : parts per Million : Proton
10.176
7.403
7.383
7.194
7.174
7.139
7.119
7.099
6.106
1.01
2.00
2.00
1.03
1.03
Cl
H
N
Cl
O

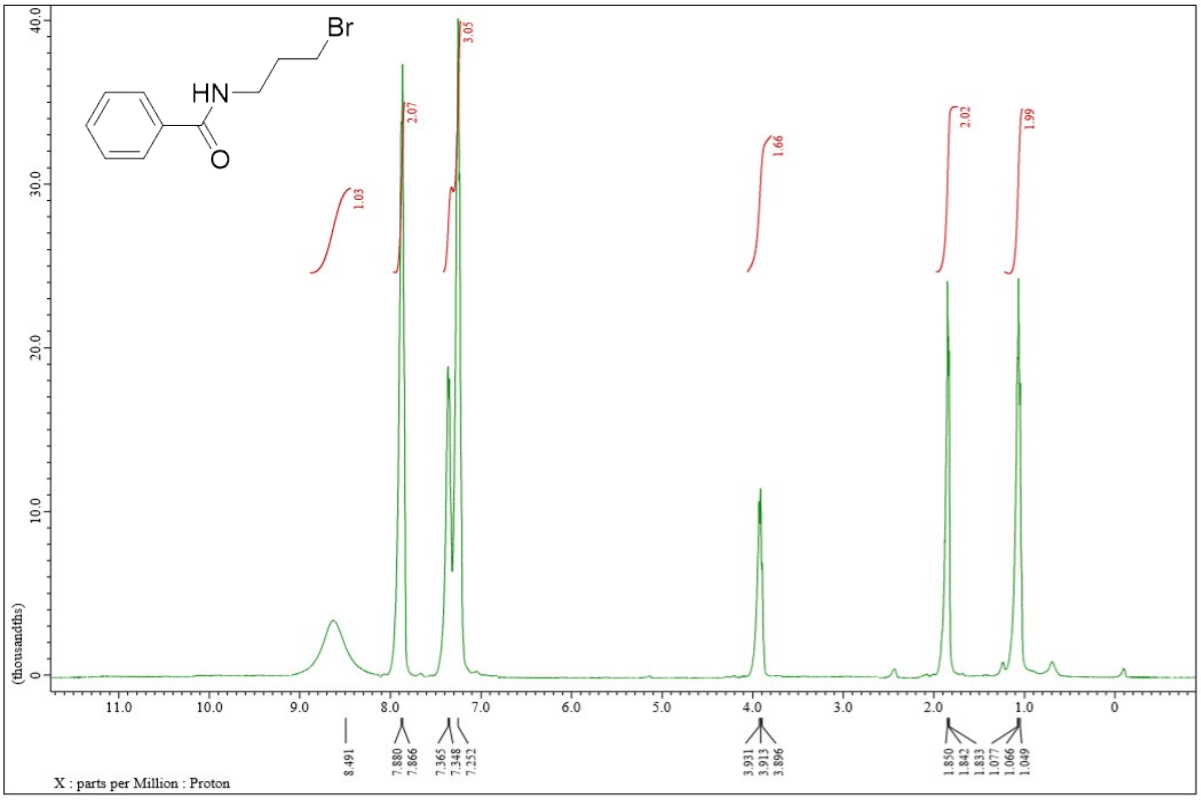

(thousandths)
X : parts per Million : Carbon13
172.484
142.861
133.651
130.565
125.889
63.241
Cl
H
N
Cl
O

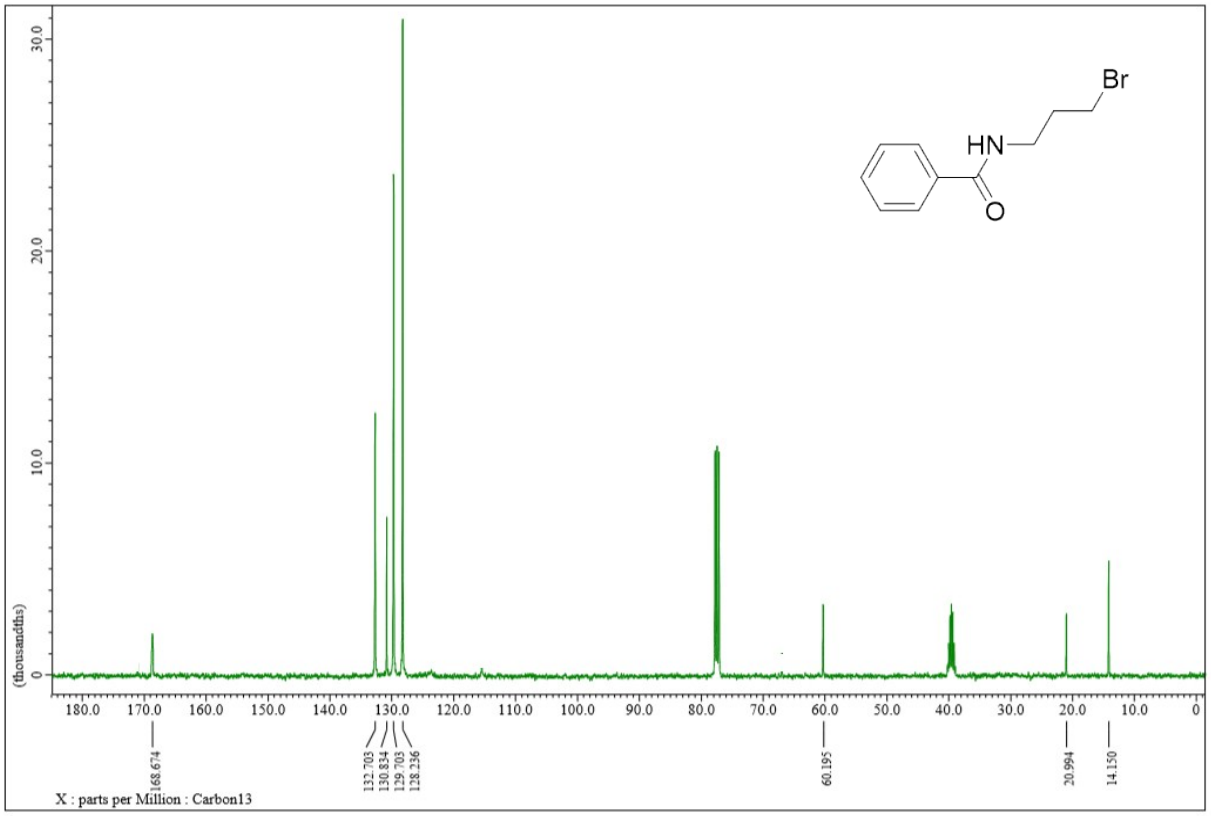

abundance
X : parts per Million : Proton
10.480
7.427
7.407
7.219
7.199
7.163
7.143
7.124
1.01
2.06
2.00
1.00

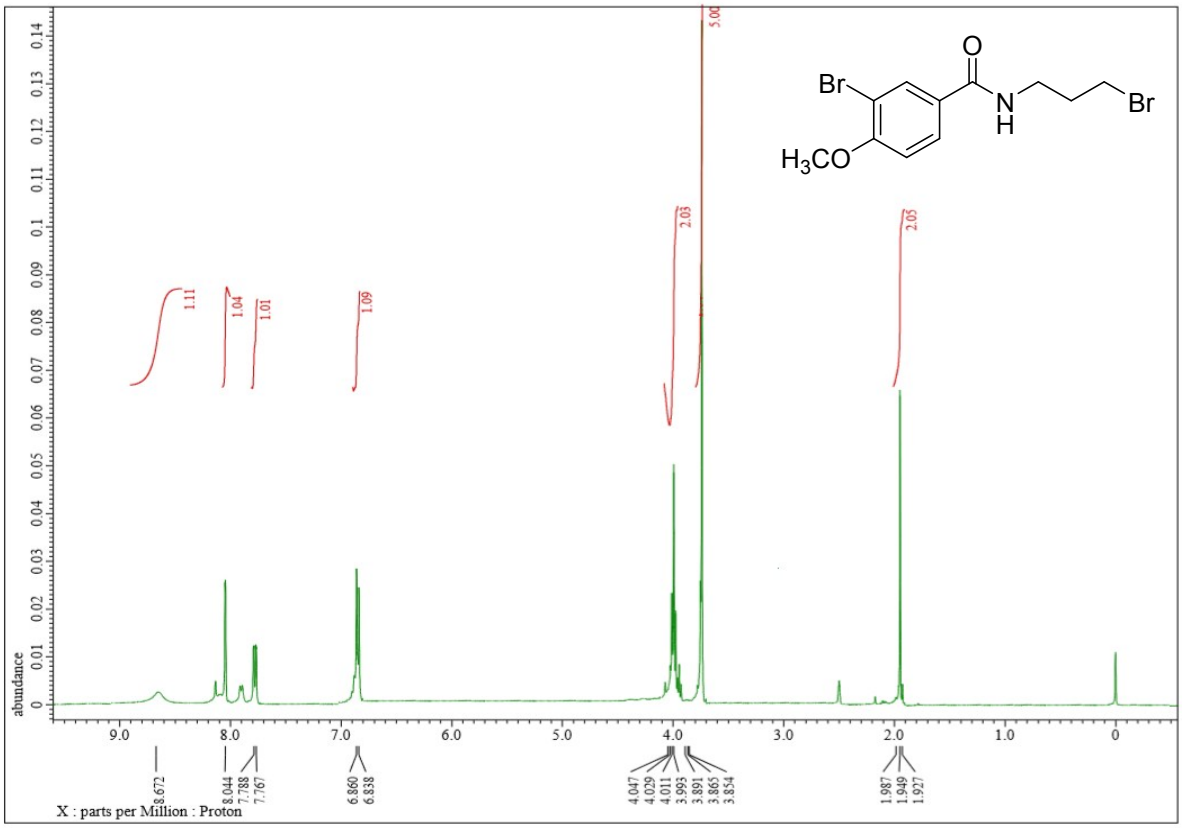

(thousandths)
X : parts per Million : Carbon13
161.568
138.836
129.626
127.106
122.371
89.625

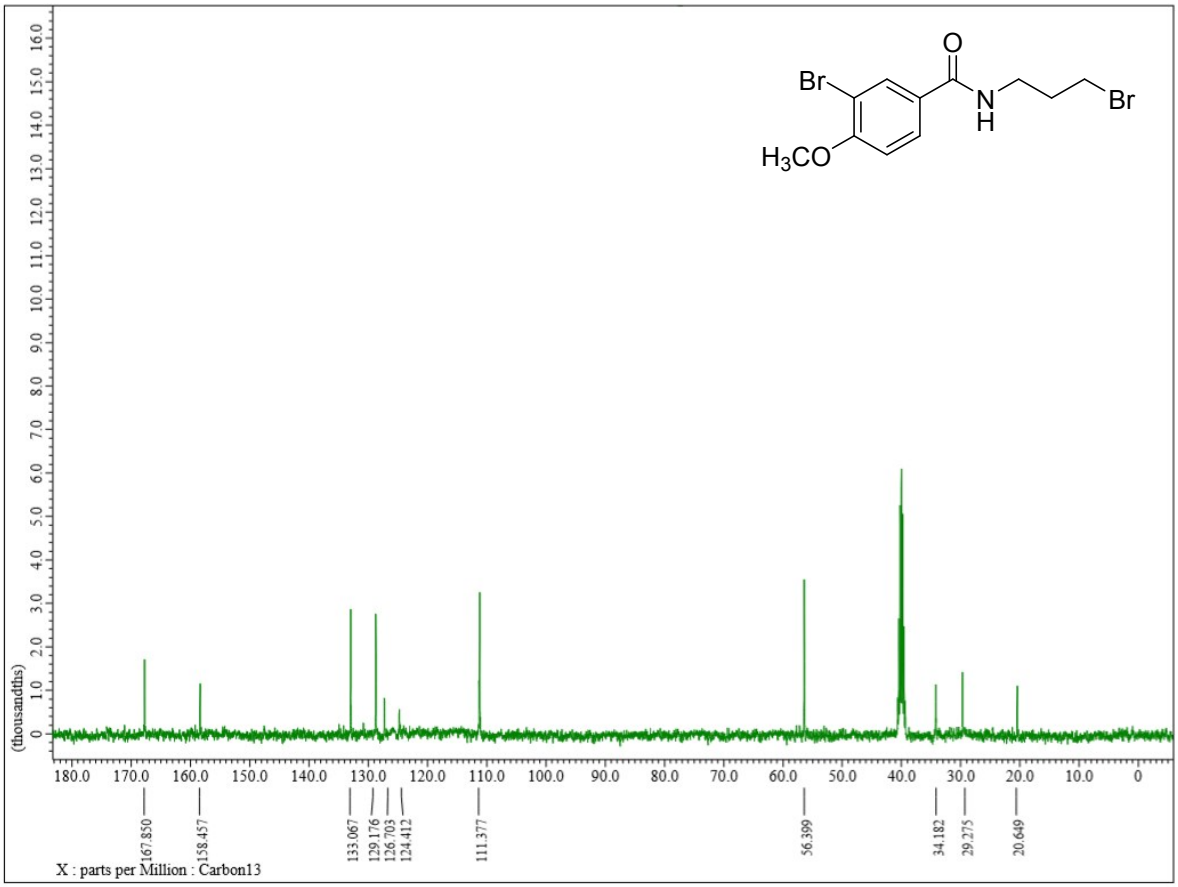

1.00
2.01
2.00
2.01
2.00
NC
H
N
O
Br
abundance
8.894
8.049
8.028
7.711
7.691
4.015
3.997
3.979
3.727
3.712
3.697
X : parts per Million : Proton

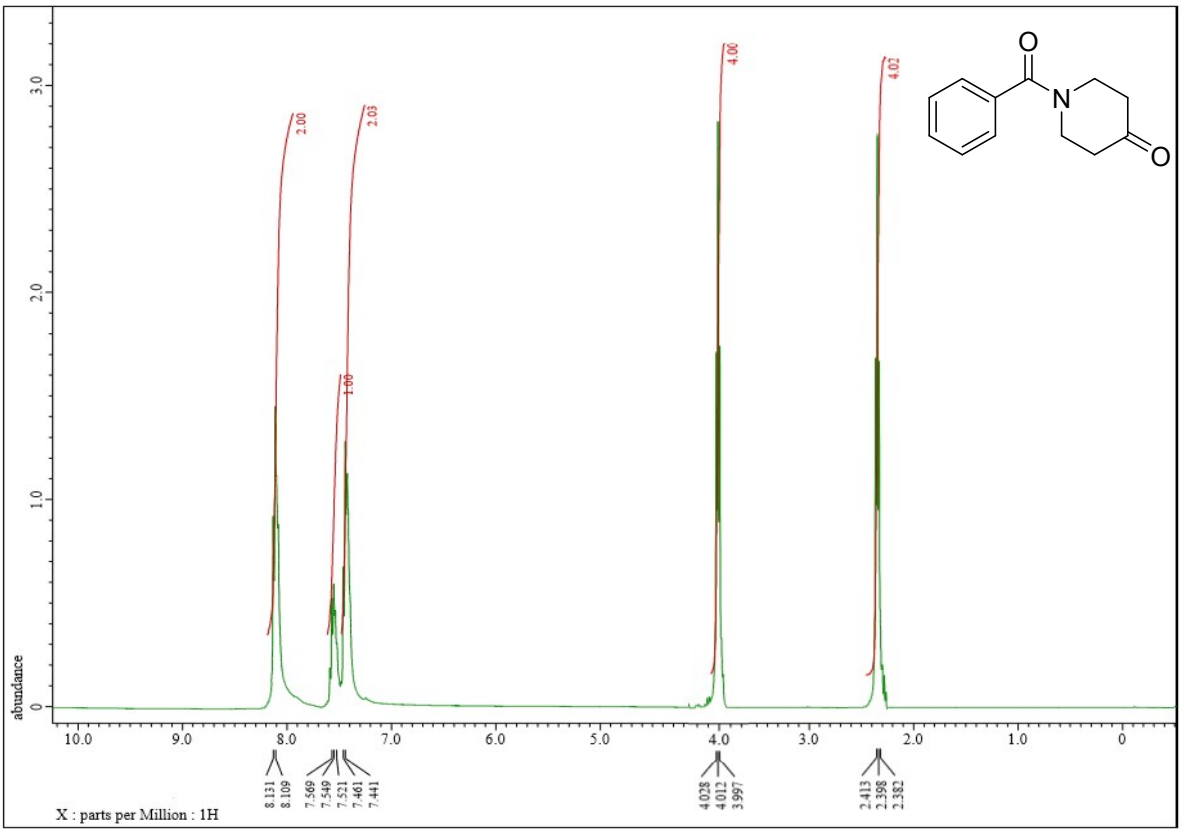

NC
H
N
O
Br
(thousandths)
171.597
140.236
136.767
134.706
122.639
120.482
52.393
28.240
X : parts per Million : Carbon13

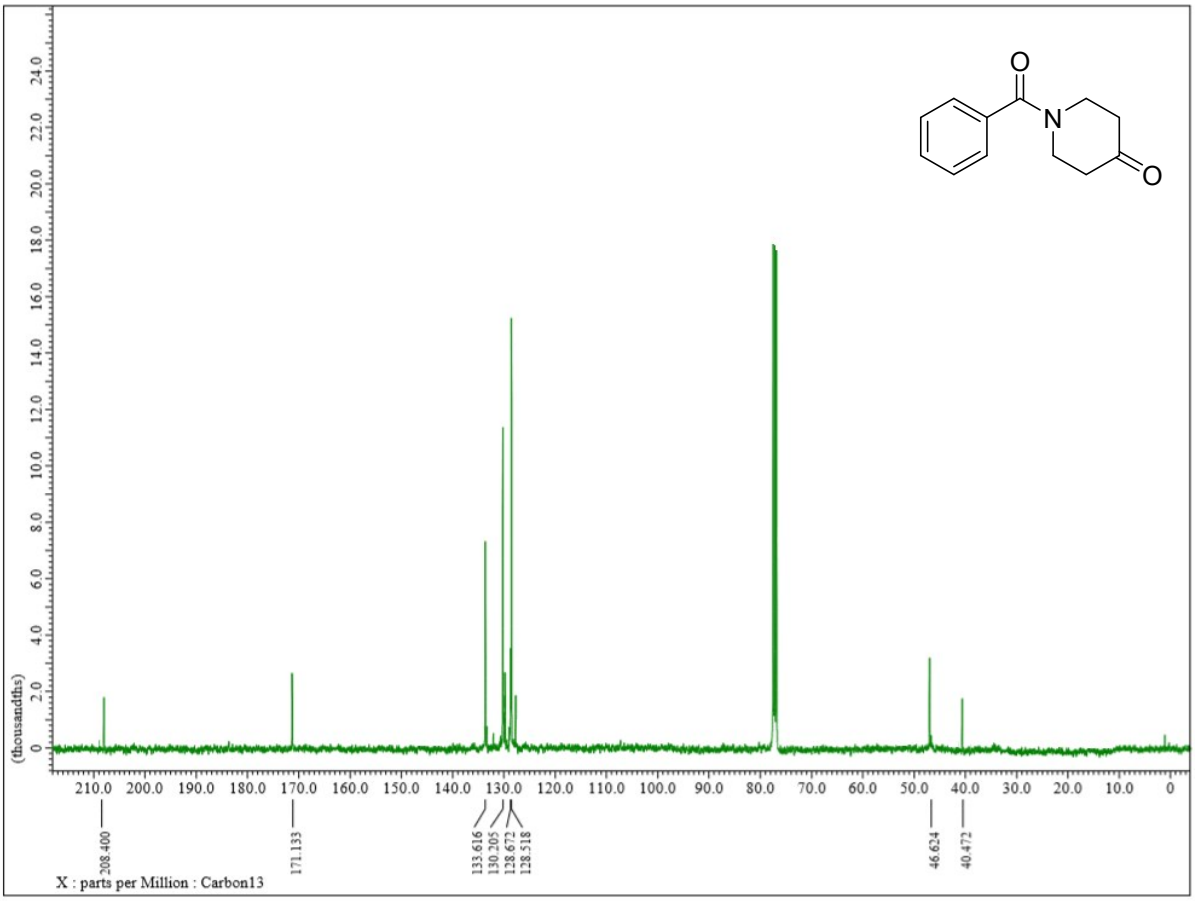

Br
HN
O
1.03
2.07
3.05
1.66
2.02
1.99
(thousandths)
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
8.491
7.880
7.866
7.365
7.348
7.252
3.931
3.913
3.896
1.850
1.842
1.833
1.077
1.066
1.049
X : parts per Million : Proton

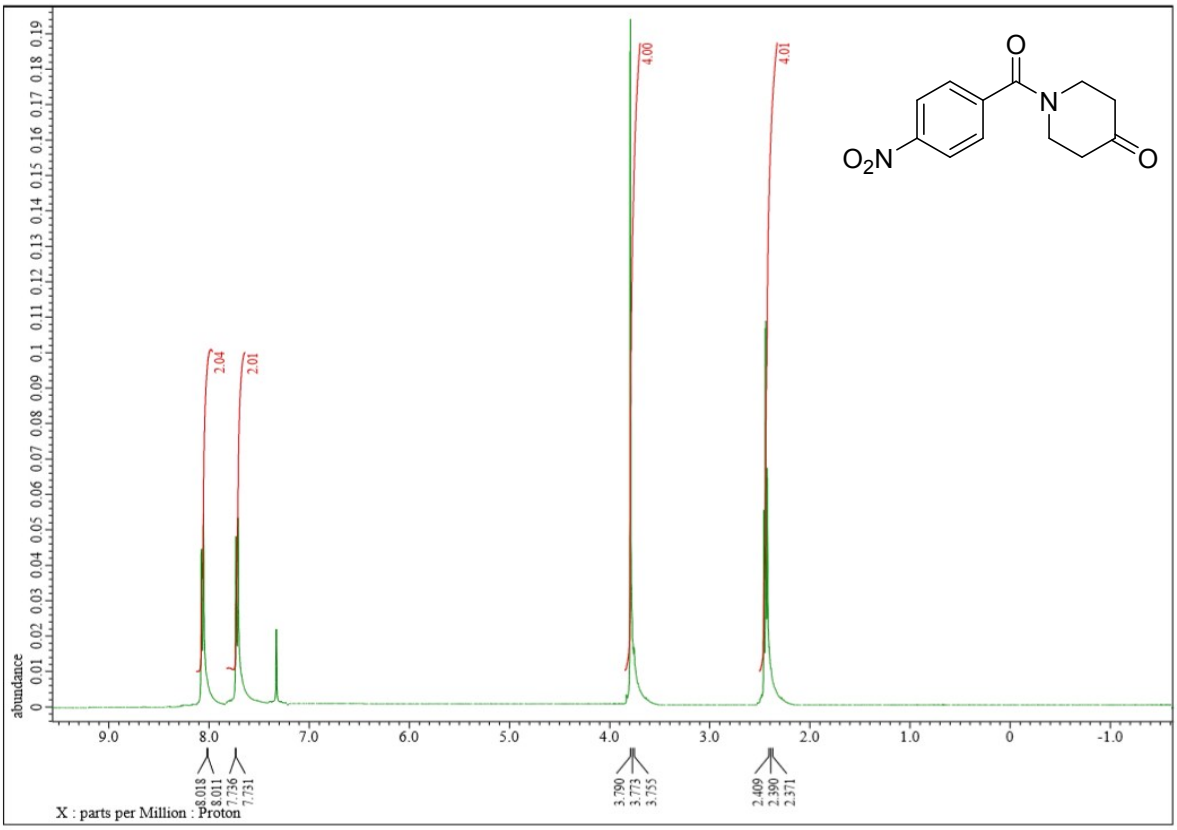

Br
HN
O
(thousandths)
180.0
170.0
160.0
150.0
140.0
130.0
120.0
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0
168.674
132.703
130.834
129.703
128.236
60.195
20.994
14.150
X : parts per Million : Carbon13

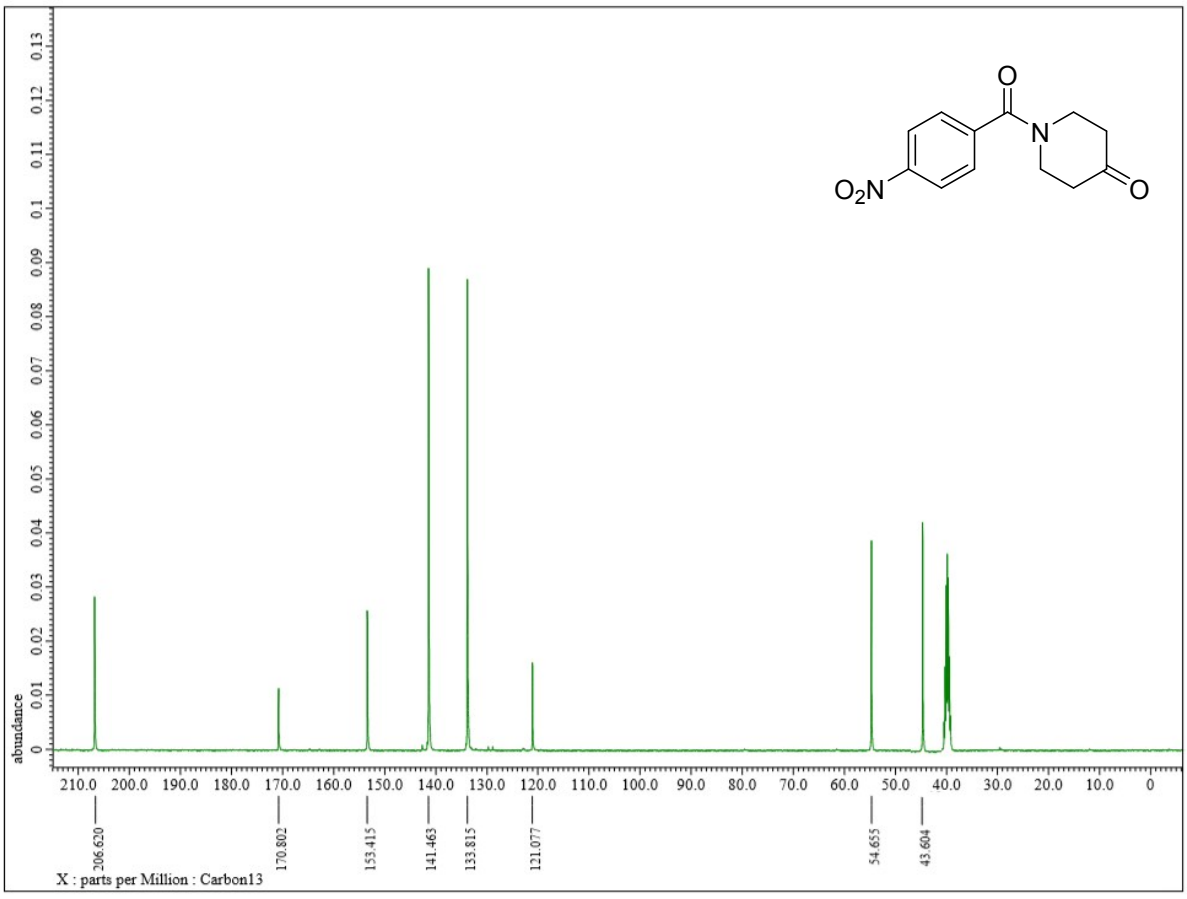

Br
O
N
H
Br
H3CO
1.11
1.04
1.01
1.09
2.03
5.00
2.05
abundance
X : parts per Million : Proton

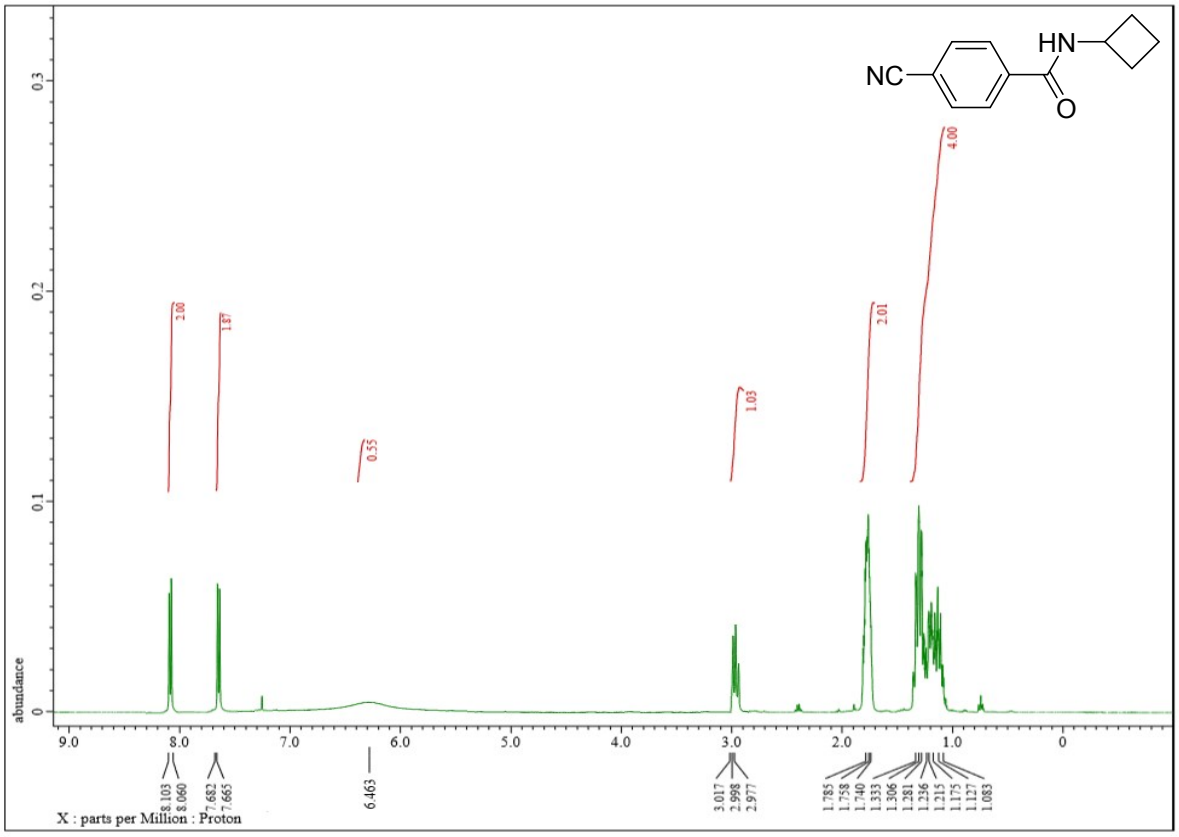

Br
O
N
H
Br
H3CO
(thousandths)
X : parts per Million : Carbon13

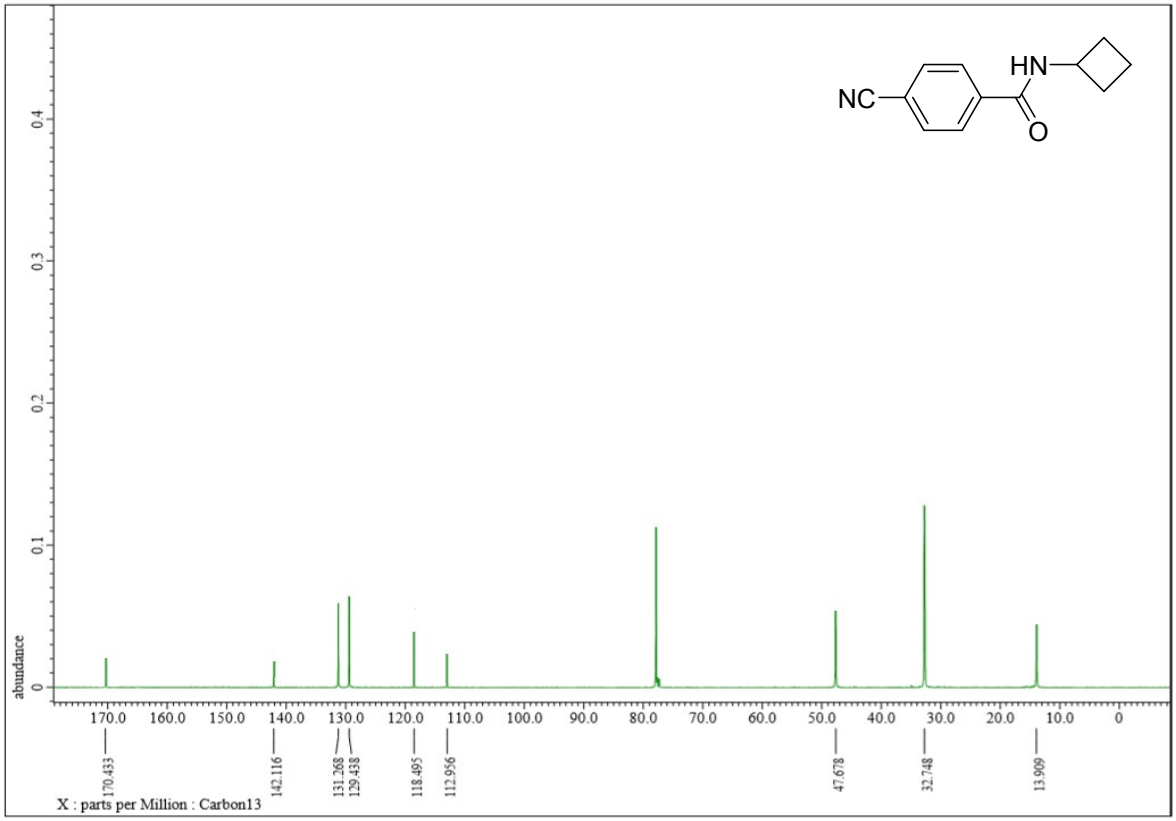

abundance
X : parts per Million : 1H
8.131
8.109
7.569
7.549
7.521
7.461
7.441
4.028
4.012
3.997
2.413
2.398
2.382
2.00
2.03
1.00
4.00
4.02
O
N
O


(thousandths)
X : parts per Million : Carbon13
208.400
171.133
133.616
130.205
128.672
128.518
46.624
40.472
O
N
O


abundance
2.04
2.01
4.00
4.01
8.018
8.011
7.736
7.731
3.790
3.773
3.755
2.409
2.390
2.371
X : parts per Million : Proton
O
N
O2N
O


abundance
206.620
170.802
153.415
141.463
133.815
121.077
54.655
43.604
X : parts per Million : Carbon13
O
N
O2N
O


NC
HN
O
abundance
X : parts per Million : Proton
8.103
8.060
7.682
7.665
6.463
3.017
2.998
2.977
1.785
1.758
1.740
1.333
1.306
1.281
1.236
1.215
1.175
1.127
1.083


NC
HN
O
abundance
X : parts per Million : Carbon13
170.433
142.116
131.268
129.438
118.495
112.956
47.678
32.748
13.909