Electronic Supplementary Information

Pd NPs confined novel covalent organic polymer for catalytic application

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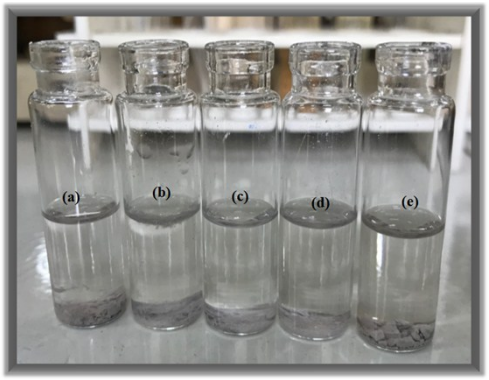


Figure S1. Solubility of **1** in various solvents viz. (a) DMSO, (b) H_2O, (c) CH_3CN, (d) 1,4-dioxane and (e) CH_3OH.

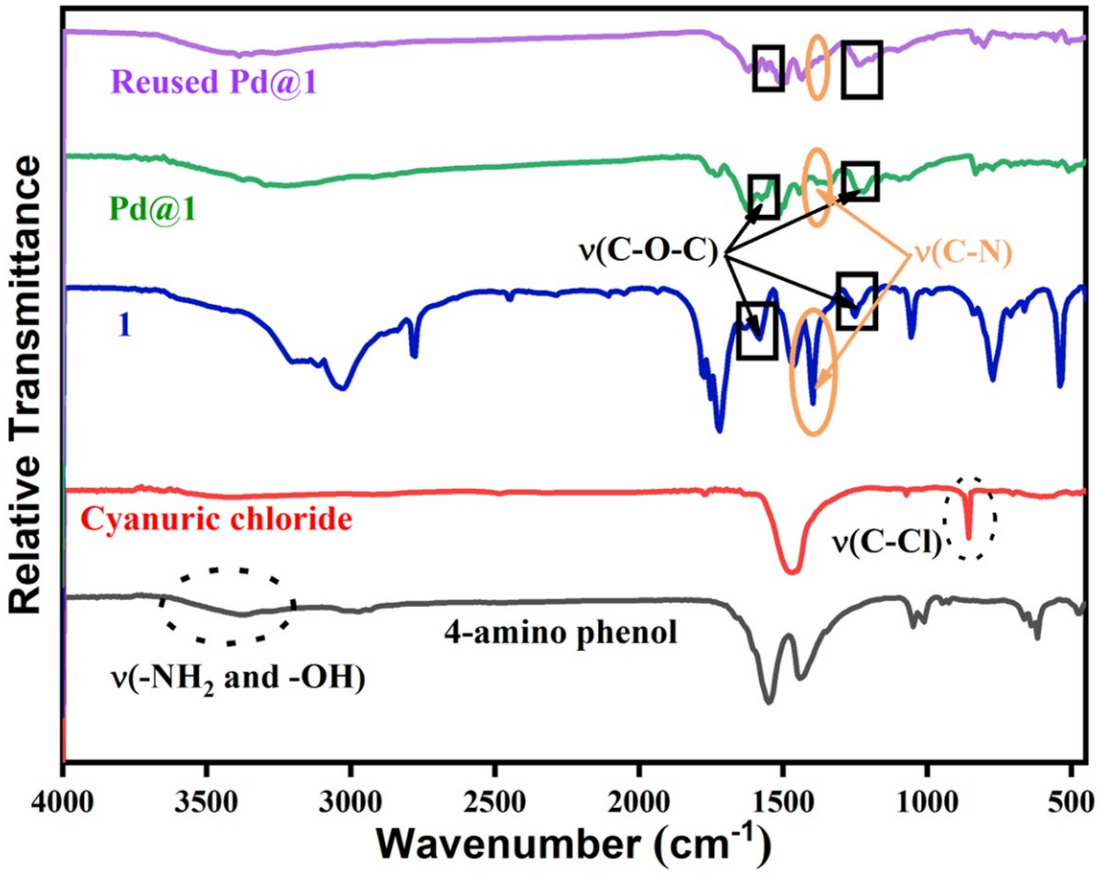


Figure S2. FT-IR Spectra of *p*-amino phenol, cyanuric chloride, **1**, Pd@**1** and reused Pd@**1**.

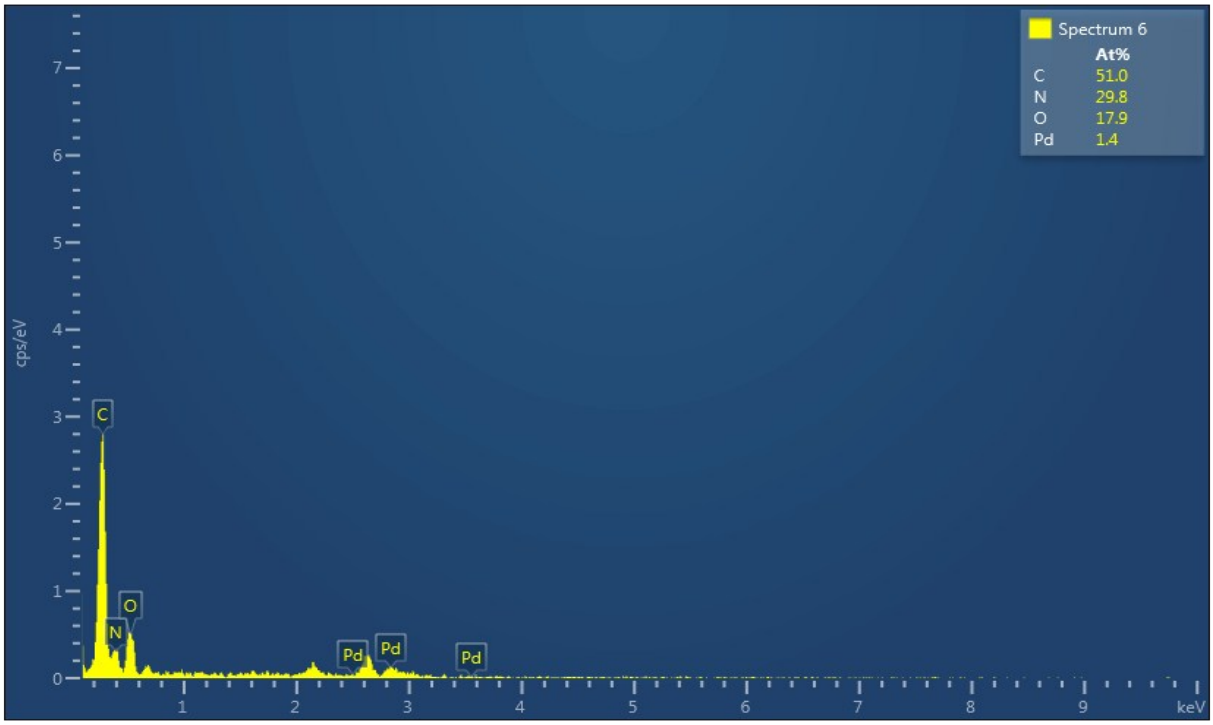


Figure S3. EDX spectra of Pd@**1**.

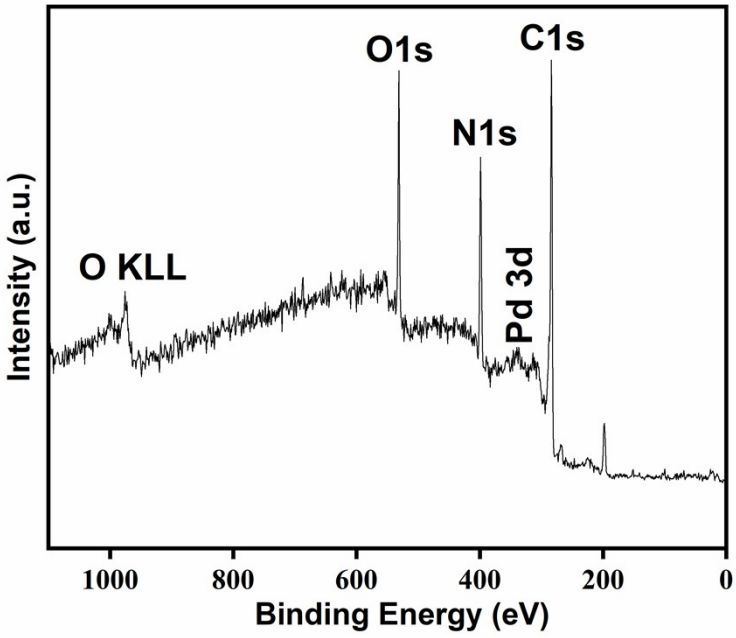


Figure S4. XPS Complete survey scan spectrum of Pd@**1**.

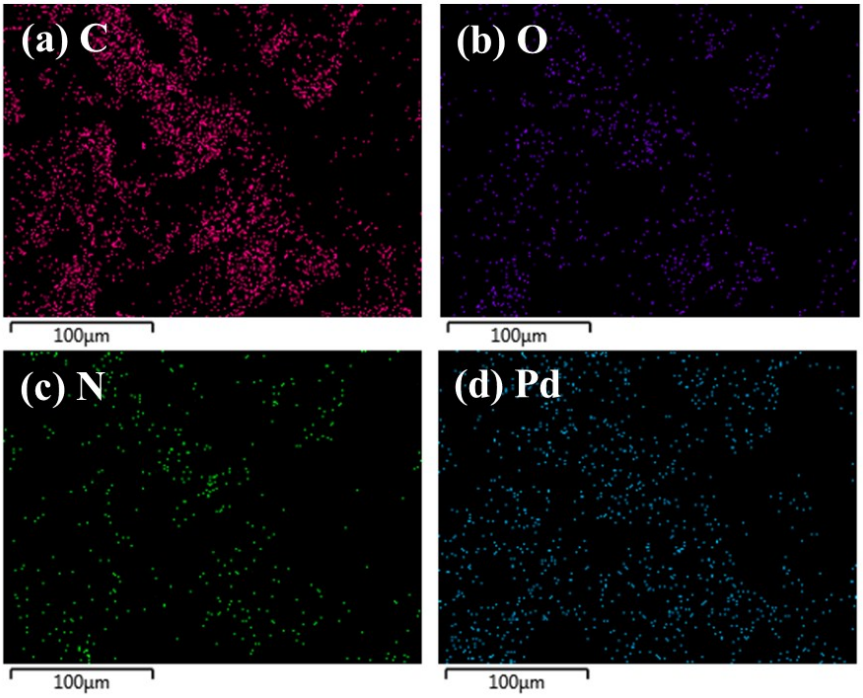


Figure S5. Elemental mapping of Pd@**1**.

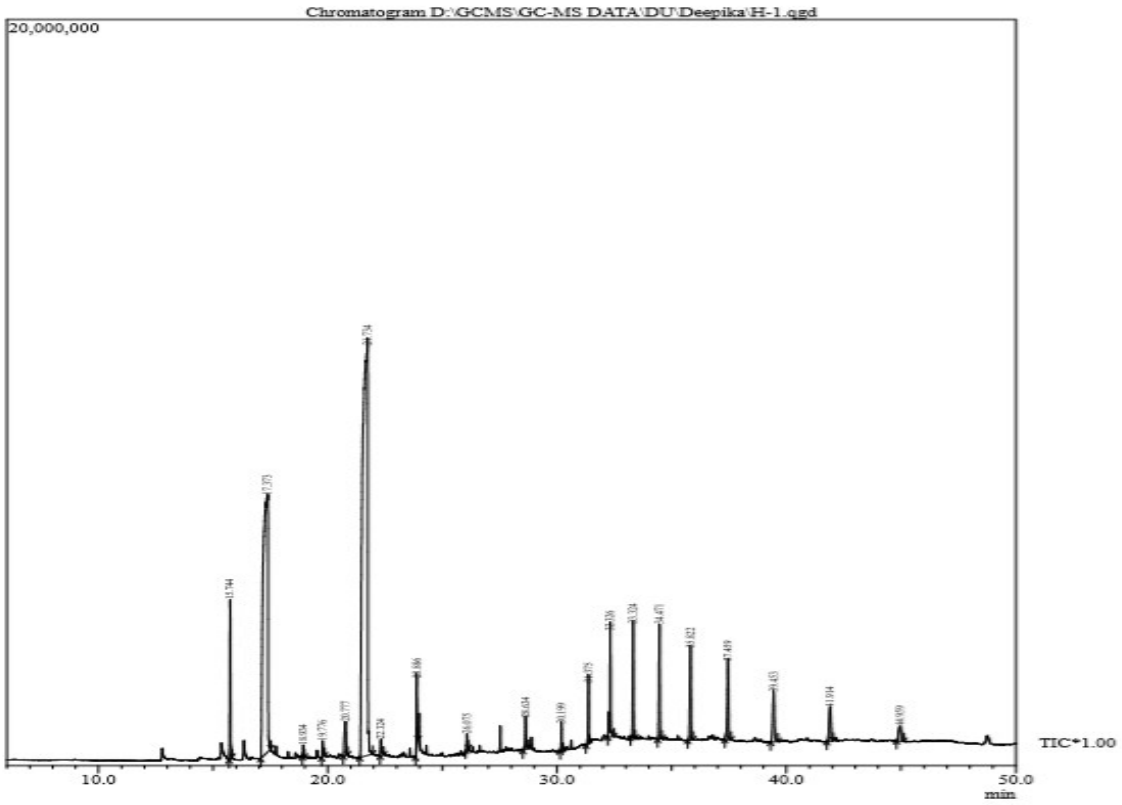


Figure S6. Gas Chromatograph of hot filtration test.

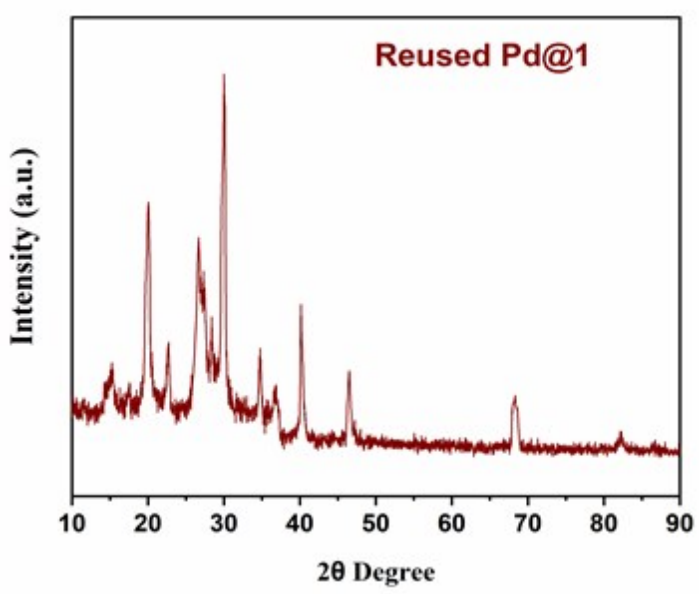


Figure S7. Powder XRD pattern for reused Pd@**1**.

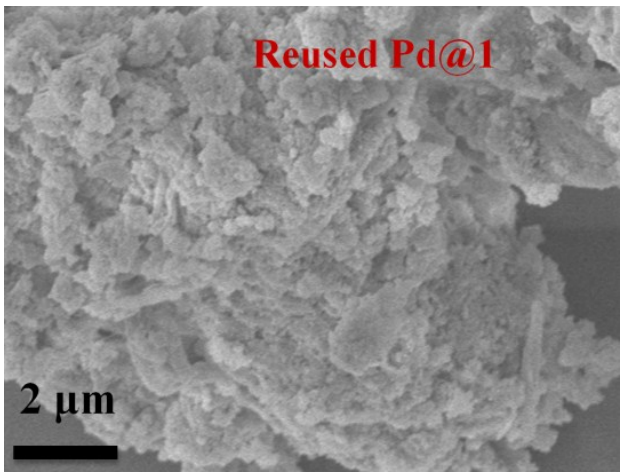


Figure S8. FE-SEM image of reused Pd@**1.**

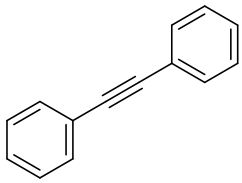
Table S1. Reusability of Pd@**1**.[a]

Number of Cycle	1	2	3	4	5	6	7	8
Yield (%)	96	96	95	94	94	92	92	90

[a]Reaction conditions: aryl halide (1.2 mmol), alkyne (1 mmol), CuI (5 mg), catalyst (10 mg), base (1.5 mmol) solvent (3 mL).

^{1}H and ^{13}C NMR chemical shift for 3a-3x

3a. 1,2-diphenylethyne

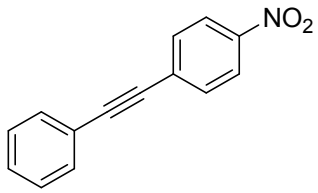


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.54 (d, *J* = 7.8 Hz, 5H), 7.37 (d, *J* = 6.9 Hz, 5H).

^{13}C-NMR (101 MHz, $CDCl_3$) δ 133.77, 132.88, 130.49, 129.54, 123.05.

HRMS-ESI: calculated: 178.0783 [$C_{14}H_{10}$], Observed: 179.0846 [$C_{14}H_{10}$ +H].

3b. 1-nitro-4-(phenylethynyl)benzene

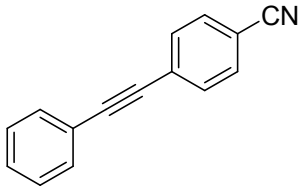


^{1}H-NMR (400 MHz, $CDCl_3$) δ 8.22 (d, *J* = 8.7 Hz, 2H), 7.66 (d, *J* = 8.7 Hz, 2H), 7.52-7.57 (m, 2H), 7.39 (dd, *J* = 4.8, 1.1 Hz, 3H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 147.94, 139.72, 132.81, 125.80, 124.61, 123.07, 95.62, 88.53

HRMS-ESI: 223.0633 [$C_{14}H_9NO_2$], Observed: 224.0123 [$C_{14}H_9NO_2$ +H].

3c. 4-(phenylethynyl)benzonitrile

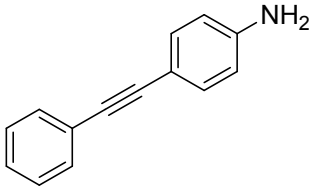


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.84 (d, *J* = 8.7 Hz, 2H), 7.59-7.62 (dd, 2H), 7.53 (d, *J* = 7.8 Hz, 2H), 7.35 (d, *J* = 7.3 Hz, 3H).

^{13}C-NMR (101 MHz, $CDCl_3$) δ 139.44, 134.09, 133.45, 132.99, 132.74, 130.07, 129.39, 122.71, 119.37, 112.83, 100.77.

HRMS-ESI: calculated: 203.0745 [$C_{15}H_9N$], Observed: 204.0818 [$C_{15}H_9N$ +H].

3d. 4-(phenylethynyl)aniline

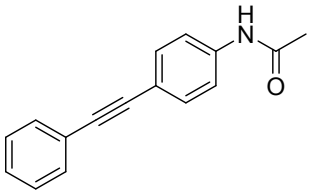


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.40 (d, *J* = 9.4 Hz, 2H), 7.10 (t, *J* = 8.2 Hz, 2H), 6.76 (d, *J* = 7.7 Hz, 2H), 6.60-6.64 (t, *J* = 8.4 Hz, 2H), 6.12 (s, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 145.31, 136.90, 133.84, 129.59, 120.69, 117.05, 110.47, 95.75, 89.83

HRMS-ESI: calculated: 193.0889 [$C_{14}H_{11}N$], Observed: 194.0961 [$C_{14}H_{11}N$ +H].

3e. N-(4-(phenylethynyl)phenyl)acetamide

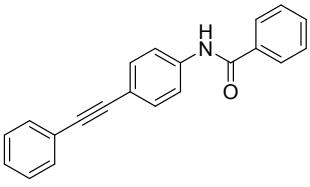


^{1}H-NMR (400 MHz, $CDCl_3$) δ 9.84 (s, 1H), 7.84 (d, J = 7.3 Hz, 2H), 7.52-7.57 (m, 4H), 7.45-7.50 (m, 3H), 2.04 (s, 3H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 164.38, 136.91, 133.84, 129.59, 124.81, 120.69, 117.05, 110.47, 95.75, 89.83

HRMS-ESI: calculated: 235.0997 [$C_{16}H_{13}NO$], Observed: 236.1078 [$C_{16}H_{13}NO$ +H].

3f. N-(4-(phenylethynyl)phenyl)benzamide

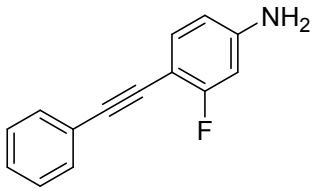


^{1}H-NMR (400 MHz, DMSO-D_6) δ 10.36 (s, 1H), 7.94 (d, J = 7.4 Hz, 2H), 7.78 (d, J = 8.8 Hz, 2H), 7.44-7.55 (m, 4H), 7.34-7.38 (m, 6H)

^{13}C-NMR (101 MHz, DMSO-D_6) δ 166.22, 139.16, 135.29, 132.22, 131.95, 129.45, 129.16, 128.91, 128.23, 122.77, 122.32, 115.68, 83.99, 81.17

HRMS-ESI: calculated: 296.9771 [$C_{21}H_{15}NO$], Observed: 297.9844 [$C_{21}H_{15}NO$ +H].

3g. 3-fluoro-4-(phenylethynyl)aniline

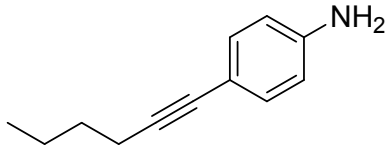


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.48-7.50 (m, 1H), 7.29-7.35 (m, 2H), 7.16 (dd, J = 8.1, 2.9 Hz, 2H), 6.82-6.86 (m, 1H), 6.69 (dd, J = 8.8, 5.1 Hz, 2H), 3.91 (s, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) 156.61, 154.23, 140.67, 132.23, 128.91, 128.42, 119.41, 119.16, 115.97, 115.23, 108.75, 83.54

HRMS-ESI: calculated: 211.0194 [$C_{14}H_{10}FN$], Observed: 212.0121 [$C_{14}H_{10}FN$ +H].

3h. 4-(hex-1-yn-1-yl)aniline

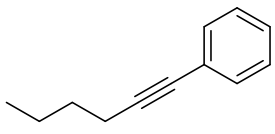


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.40 (d, *J* = 9.3 Hz, 2H), 6.51 (d, *J* = 9.3 Hz, 2H), 6.10 (s, 2H), 2.41 (t, *J* = 7.2, 2H), 1.42 (m, 2H), 1.24-1.29 (m, 2H), 0.90 (t, *J* = 7.5 Hz, 3H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 144.26, 132.47, 127.71, 119.51, 115.44, 109.43, 29.47, 22.71

HRMS-ESI: calculated: 173.1265[$C_{12}H_{15}N$], Observed: 174.1277 [$C_{12}H_{15}N$ +H].

3i. hex-1-yn-1-ylbenzene

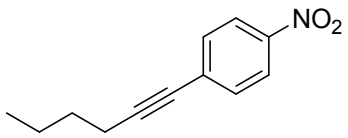


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.53 (d, *J* = 8.2 Hz, 2H), 7.44-7.41 (d, 3H), 2.41 (t, *J* = 7.1 Hz, 2H), 1.65 (m, 2H), (m, 3H), 1.49 (m, 2H), .93 (t, *J* = 6.9 Hz, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 145.06, 132.06, 131.03, 122.77, 97.14, 79.34, 30.24, 20.71, 18.87, 12.57

HRMS-ESI: calculated: 158.1096 [$C_{12}H_{14}$], Observed: 159.0311 [$C_{12}H_{14}$ +H].

3j. 4-(hex-1-yn-1-yl)-4-nitrobenzene

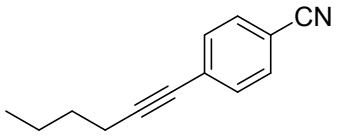


^{1}H-NMR (400 MHz, $CDCl_3$) δ 8.13 (d, *J* = 8.2 Hz, 2H), 7.49 (d, *J* = 8.7 Hz, 2H), 2.44 (t, *J* = 7.1 Hz, 2H), 1.56-1.63 (m, 2H), 1.42-1.50 (m, 2H), 0.94 (t, *J* = 7.3 Hz, 3H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 147.56, 139.79, 133.51, 124.44, 103.75, 97.62, 31.72, 23.13, 20.16, 14.90

HRMS-ESI: calculated: 203.0938 [$C_{12}H_{13}NO_2$], Observed: 204.1017 [$C_{12}H_{13}NO_2$ +H].

3k. 4-(hex-1-yn-1-yl)benzonitrile

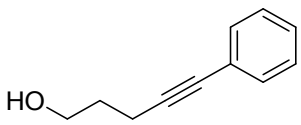


^{1}H-NMR (400 MHz, $CDCl_3$) δ 8.12 (d, *J* = 8.3 Hz, 2H), 7.90 (d, *J* = 5.5 Hz, 2H), 2.43 (t, *J* = 7.1 Hz, 2H), 1.55-1.62 (m, 2H), 1.43-1.51 (m, 2H), 0.93 (t, *J* = 7.5 Hz, 3H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 138.59, 133.07, 132.16, 131.98, 118.30, 111.77, 100.41, 40.85, 30.55, 29.76, 21.70

HRMS-ESI: calculated: 204.1197 [$C_{13}H_{13}N$], Observed: 205.1169 [$C_{13}H_{13}N$ +H].

3l. 5-phenylpent-4-yn-1-ol

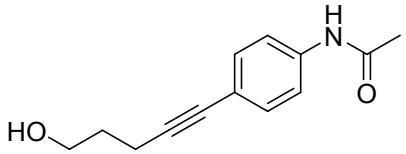


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.60 (d, *J* = 8.7 Hz, 2H), 7.40 (dd, *J* = 14.2, 8.7 Hz, 3H), 4.478 (s, 1H), 3.423-3.403 (t, *J* = 7.3 Hz, 2H), 2.455-2.419 (t, *J* = 7.1 Hz, 2H), 1.632-1.560 (q, *J* = 7.3 Hz, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 133.51, 126.12, 103.75, 85.11, 61.99, 31.88, 14.94

HRMS-ESI: calculated: 146.0723 [$C_{11}H_{12}O$], Observed: 147.0723 [$C_{11}H_{12}$ +H].

3m. N-(4-(5-hydroxypent-1-yn-1-yl)phenyl)acetamide

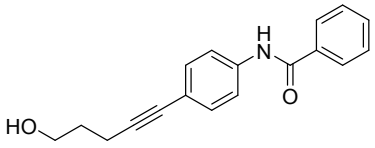


^{1}H-NMR (400 MHz, $CDCl_3$) δ 9.69 (s, 1H), 7.73 (t, *J* = 1.9 Hz, 1H), 7.35 (d, *J* = 9.8 Hz, 1H), 7.04-7.13 (m, 2H), 4.40 (s, 1H), 4.05 (q, *J* = 7.1 Hz, 2H), 3.64 (t, *J* = 6.3 Hz, 2H), 2.08 (s, 2H), 1.19 (t, *J* = 7.1 Hz, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 169.69, 139.63, 130.21, 123.01, 118.57, 98.67, 85.13, 65.70, 31.05, 24.31, 15.89

HRMS-ESI: calculated: 217.1103 [$C_{13}H_{15}NO_2$], Observed: 218.1782 [$C_{13}H_{15}NO_2$ +H].

3n. N-(4-(5-hydroxypent-1-yn-1-yl)phenyl)benzamide

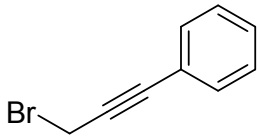


^{1}H-NMR (400 MHz, $CDCl_3$) δ 10.05 (s, 1H), 7.91 (d, *J* = 8.0 Hz, 2H), 7.46-7.55 (m, 6H), 7.33 (t, *J* = 7.1 Hz, 1H), 3.60 (t, *J* = 6.3 Hz, 2H), 3.23 (s, 1H), 2.19 (d, *J* = 7.0, 2.7 Hz, 2H), 1.62-1.69 (m, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 165.66, 136.17, 134.90, 132.70, 129.34, 128.01, 127.20, 125.25, 103.38, 88.01, 82.68, 66.85, 24.27, 18.20

HRMS-ESI: calculated: 279.1259 [$C_{18}H_{17}NO_2$], Observed: 280.1395 [$C_{18}H_{17}NO_2$ +H].

3o. 4-(3-bromoprop-1-yn-1-yl)benzene

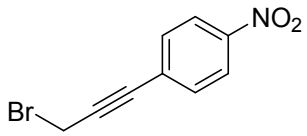


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.35 (d, *J* = 7.3 Hz, 2H), 7.00 (t, *J* = 7.6 Hz, 1H), 6.78 (t, *J* = 7.8 Hz, 2H), 4.08 (S, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 137.61, 131.92, 130.07, 127.62, 94.44, 88.92, 41.16

HRMS-ESI: calculated: 193.9731 [C_9H_7Br], Observed: 194.8495 [C_9H_7Br+H].

3p. 4-(3-bromoprop-1-yn-1-yl)-4-nitrobenzene

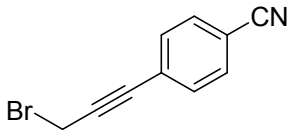


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.88-7.94 (m, 4H), 4.27(s, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 147.94, 139.32, 125.65, 120.74, 111.15, 102.93, 29.62

HRMS-ESI: calculated: 238.9582 [$C_9H_6BrNO_2$], Observed: 239.8180 [$C_9H_6BrNO_2$+H].

3q. 4-(3-bromoprop-1-yn-1-yl)benzonitrile

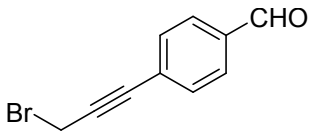


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.72 (d, *J* = 7.8 Hz, 2H), 7.53 (d, *J* = 7.3 Hz, 2H), 4.34 (s, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 132.59, 129.30, 128.54, 121.87, 106.28, 81.64, 74.10, 29.68

HRMS-ESI: calculated: 218.9684 [$C_{10}H_6BrN$], Observed: 219.8721 [$C_{10}H_6BrN$+H].

3r. 4-(3-bromoprop-1-yn-1-yl)benzaldehyde

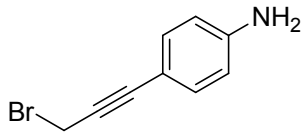


^{1}H-NMR (400 MHz, $CDCl_3$) δ 9.92 (s, 1H), 7.70 (d, *J* = 8.5 Hz, 2H), 7.63 (d, *J* = 8.5 Hz, 2H), 4.04 (s,2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 191.19, 135.11, 132.50, 131.05, 129.62, 90.27, 86.58, 14.28

HRMS-ESI: calculated: 221.9680 [$C_{10}H_7BrO$], Observed: 222.8180 [$C_{10}H_7BrO$+H].

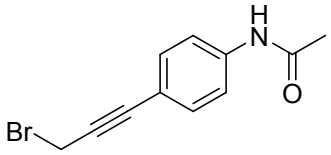
3s. 4-(3-bromoprop-1-yn-1-yl)aniline



^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.24 (d, *J* = 8.8 Hz, 2H), 6.54 (d, *J* = 8.8 Hz, 2H), 6.05 (s, 2H), 3.78 (s, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 133.45, 130.18, 129.40, 122.71, 82.52, 74.88, 30.54 HRMS-ESI: calculated: 208.9789 [C_9H_6BrN], Observed: 209.9735 [C_9H_6BrN+H].

3t. N-(4-(3-bromoprop-1-yn-1-yl)phenyl)acetamide

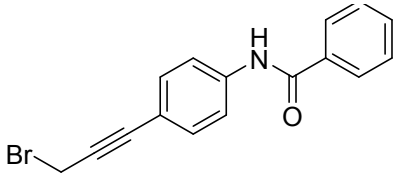


^{1}H-NMR (400 MHz, $CDCl_3$) δ 8.92 (s, 1H), 7.79 (t, *J* = 1.9 Hz, 1H), 7.36 (d, *J* = 8.1 Hz, 1H), 7.16 (d, *J* = 6.9 Hz, 1H), 7.09 (t, *J* = 8.1 Hz, 1H), 4.09 (s, 2H), 2.13 (s, 3H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 169.85, 139.54, 130.29, 127.26, 123.29, 122.50, 118.82, 90.26, 85.19, 24.45, 14.13

HRMS-ESI: calculated: 250.9946 [$C_{11}H_{10}BrNO$], Observed: 251.8180 [$C_{11}H_{10}BrNO$+H].

3u. N-(4-(3-bromoprop-1-yn-1-yl)phenyl)benzamide

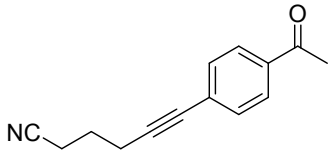


^{1}H-NMR (400 MHz, $CDCl_3$) δ 10.16 (s, 1H), 7.91 (d, *J* = 8.0 Hz, 2H), 7.46-7.55 (m, 6H), 7.33 (t, *J* = 7.1 Hz, 1H), 4.080 (s, 2H)

^{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, 91.12, 85.63, 15.75

HRMS-ESI: calculated: 313.0102 [$C_{16}H_{12}BrNO$], Observed: 314.0239 [$C_{16}H_{12}BrNO$+H].

3v. 6-(4-acetylphenyl)hex-5-ynenitrile

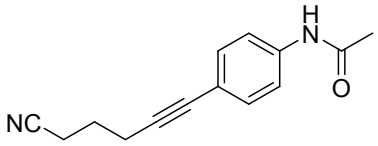


^{1}H-NMR (400 MHz, $CDCl_3$) δ 7.88 (d, *J* = 7.0 Hz, 2H), 7.69 (d, *J* = 7.0 Hz, 2H), 2.88 (s, 3H), 2.24-2.28 (q, 2H), 1.99 (t, *J* = 2.7 Hz, 2H), 1.74-1.78 (m, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 196.68, 151.88, 130.85, 127.27, 118.98, 113.63, 81.87, 70.49, 26.12, 24.30, 17.51, 16.00

HRMS-ESI: calculated: 211.0997 [$C_{14}H_{13}NO$], Observed: 212.0187 [$C_{14}H_{13}NO$+H].

3w. N-(4-(5-cyanopent-1-yn-1-yl)phenyl)acetamide

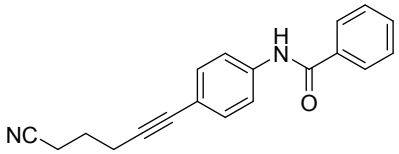


^{1}H-NMR (400 MHz, $CDCl_3$) δ 9.84 (s, 1H), 7.76 (t, J = 1.8 Hz, 1H), 7.37 (d, J = 8.0 Hz, 1H), 7.16 (d, J = 6.9 Hz, 1H), 7.10 (t, J = 8.0 Hz, 1H), 2.40-2.49 (m, 4H), 2.17-2.11 (s, 3H), 1.81-1.91 (m, 2H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 169.47, 139.22, 130.29, 127.19, 123.06, 118.40, 110.32, 100.94, 75.55, 29.77, 24.47, 18.54, 16.51

HRMS-ESI: calculated: 226.1106 [$C_{14}H_{14}N_2O$], Observed: 227.1251 [$C_{14}H_{14}N_2O$ +H].

3x. N-(4-(5-cyanopent-1-yn-1-yl)phenyl)benzamide

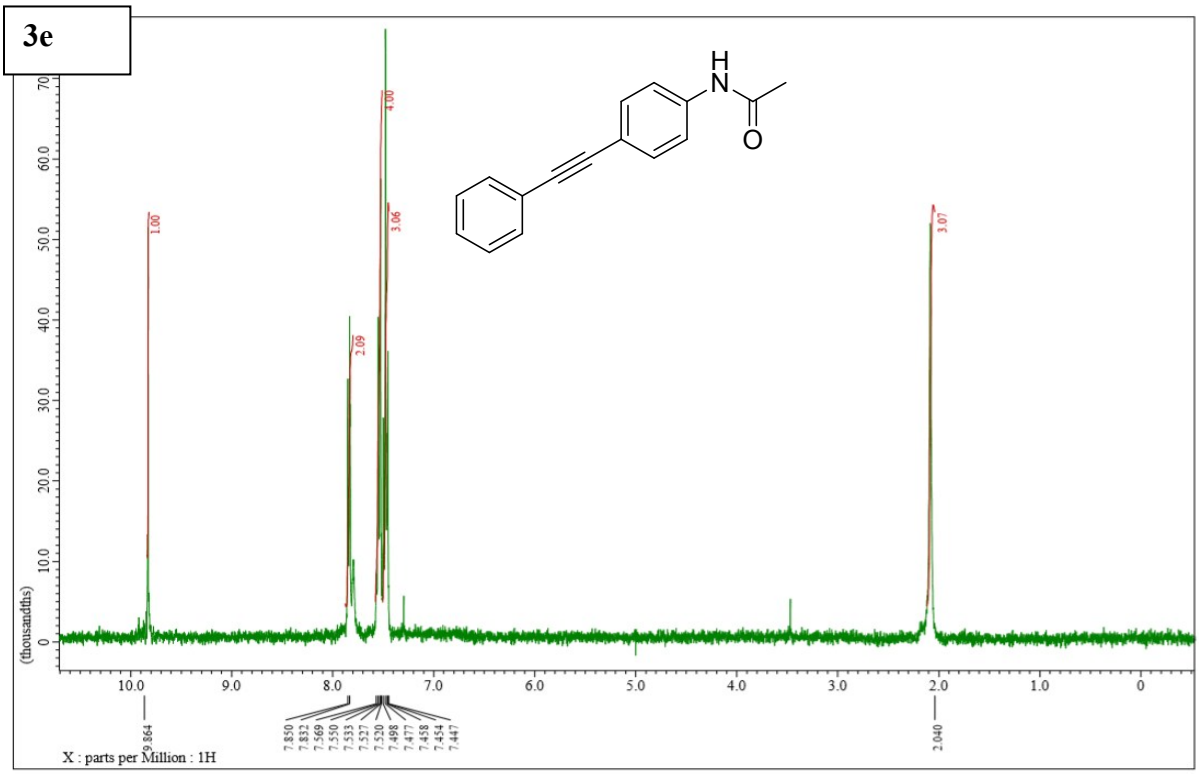


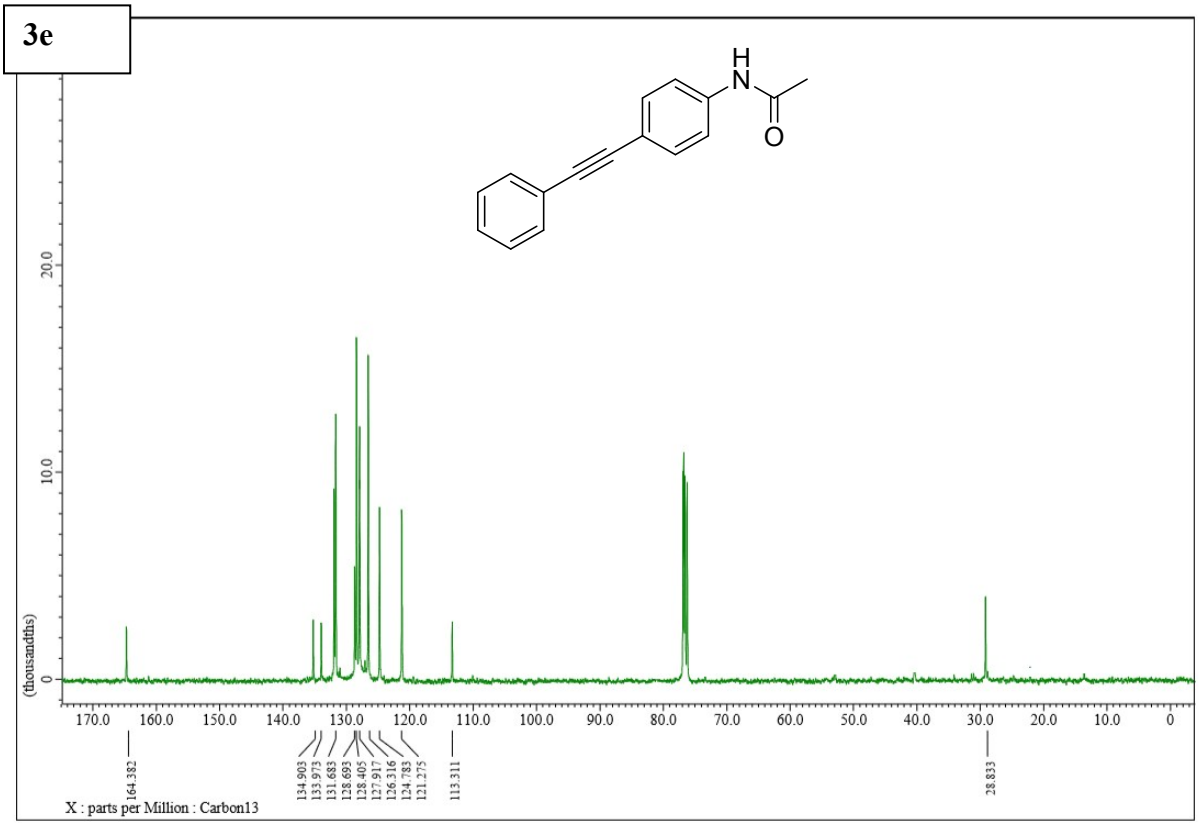
^{1}H-NMR (400 MHz, $CDCl_3$) δ 10.27 (s, 1H), 7.89 (d, *J* = 7.3 Hz, 2H), 7.78 (d, *J* = 7.3Hz, 2H) 7.51-7.55 (m, 2H), 7.44-7.48 (m, 2H), 7.29-7.33 (t, *J* = 7.3 Hz, 1H), 2.37-2.45 (m, 2H), 1.78-1.85 (m, 4H)

^{13}C-NMR (101 MHz, $CDCl_3$) δ 165.33, 135.87, 134.55, 132.38, 129.04, 128.58, 127.20, 125.25, 119.02, 114.12, 102.99, 75.37, 29.79, 24.27, 18.20

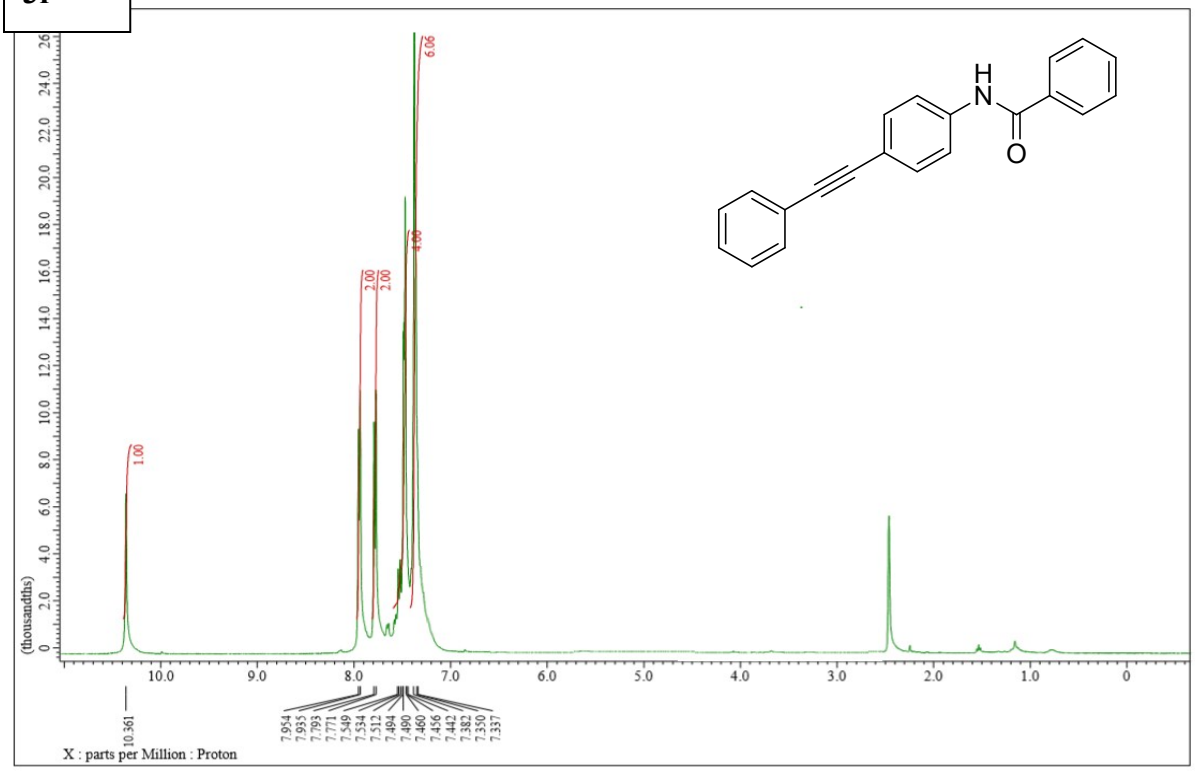
HRMS-ESI: calculated: 288.1263 [$C_{19}H_{16}N_2O$], Observed: 289.1310 [$C_{19}H_{16}N_2O$ +H].

^{1}H and ^{13}C Spectra

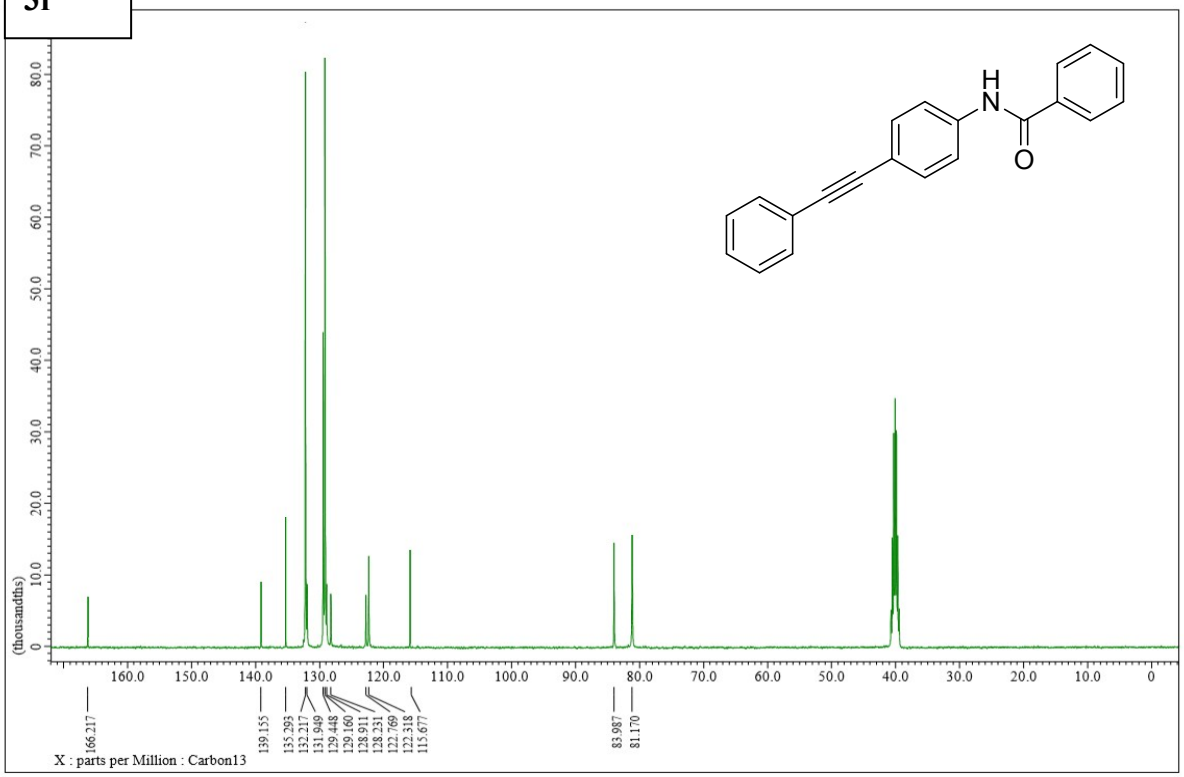




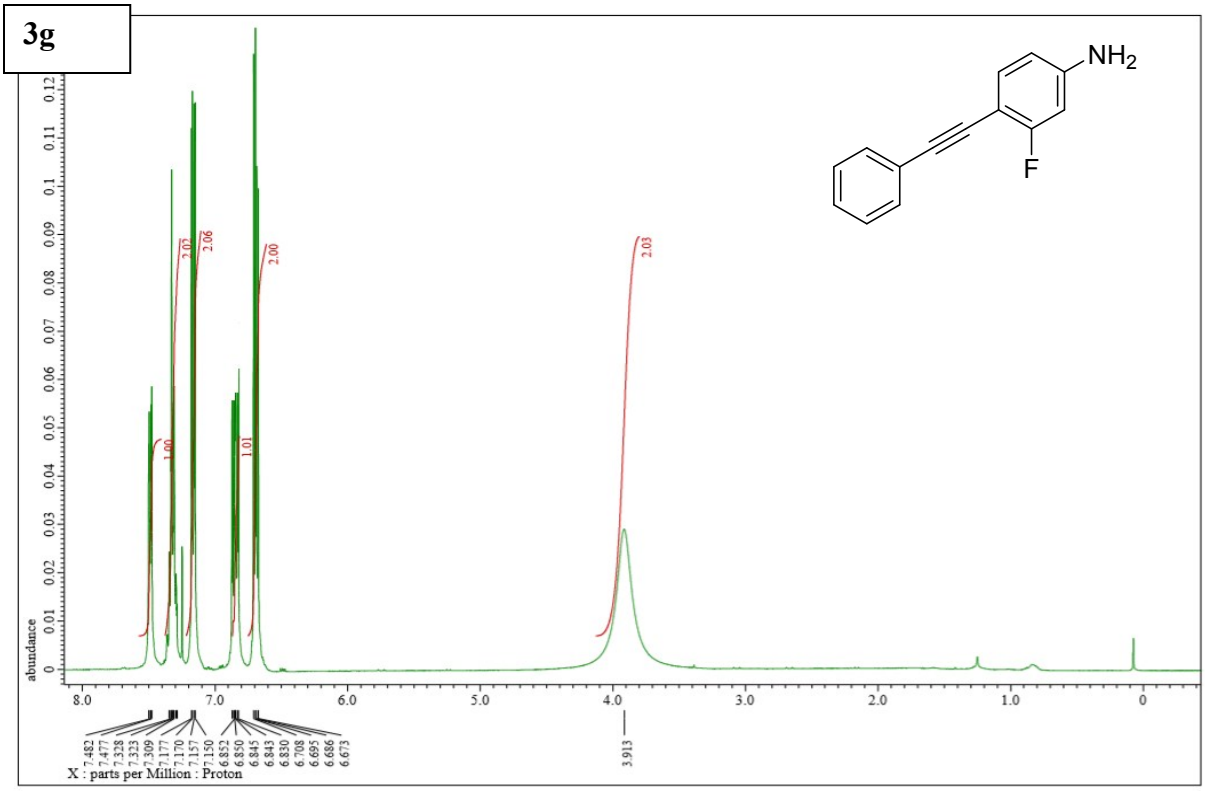
3f


(thousandths)
X : parts per Million : Proton
10.361
7.954
7.935
7.793
7.771
7.549
7.534
7.512
7.494
7.490
7.460
7.456
7.442
7.382
7.350
7.337
1.00
2.00
2.00
4.00
6.06
H
N
O

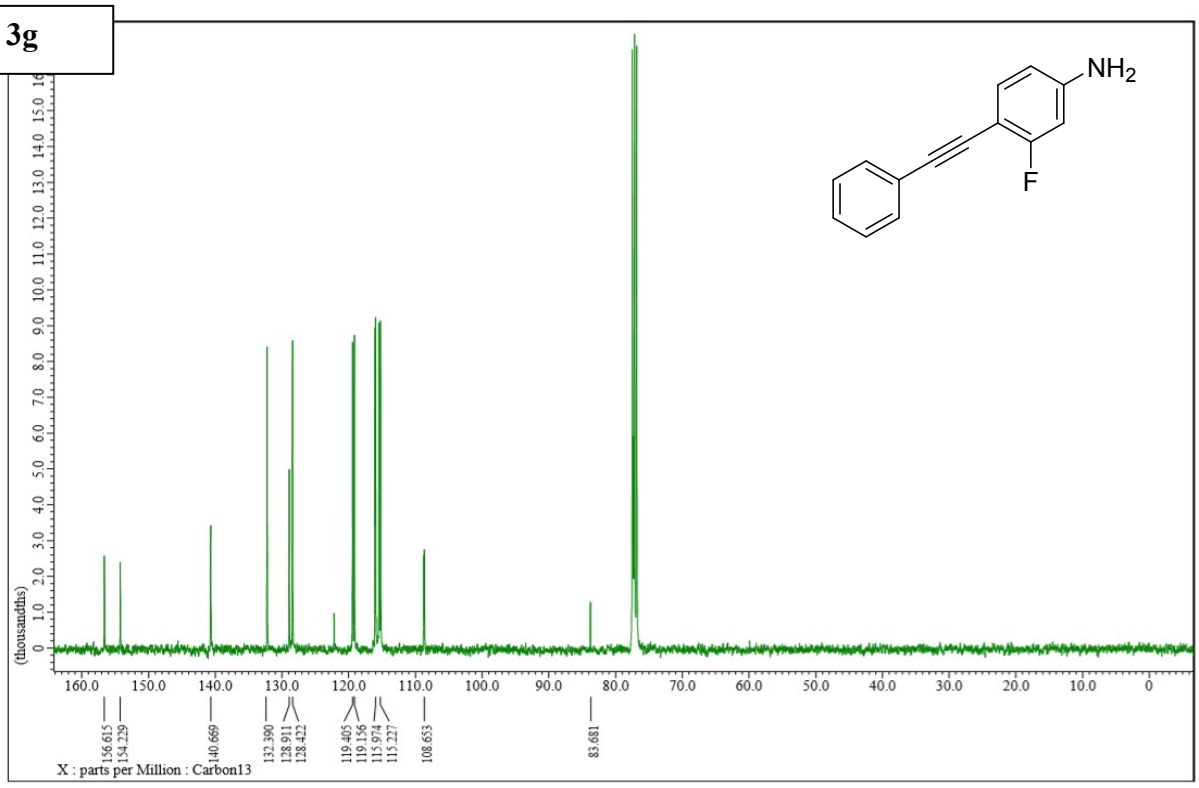
3f


(thousandths)
X : parts per Million : Carbon13
166.217
139.155
135.293
132.217
131.949
129.448
129.160
128.911
128.231
122.769
122.318
115.677
83.987
81.170
H
N
O

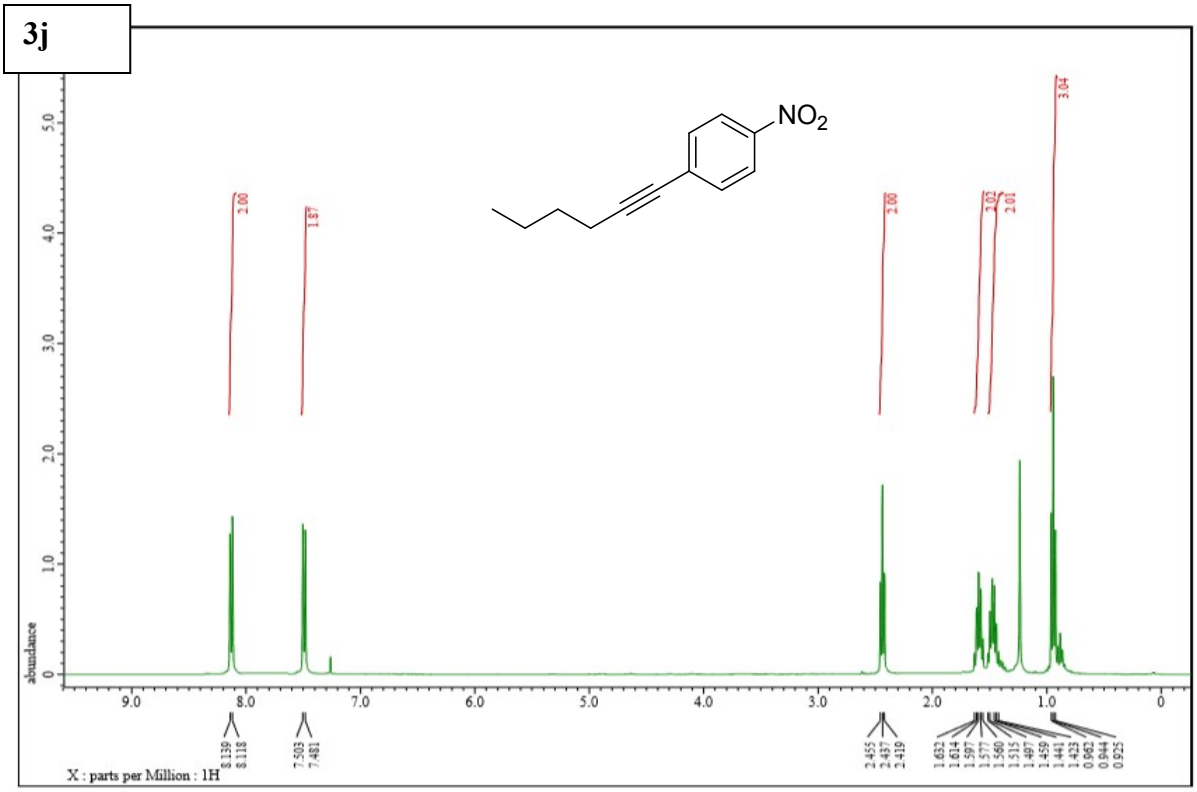
3g


NH2
F
abundance
X : parts per Million : Proton

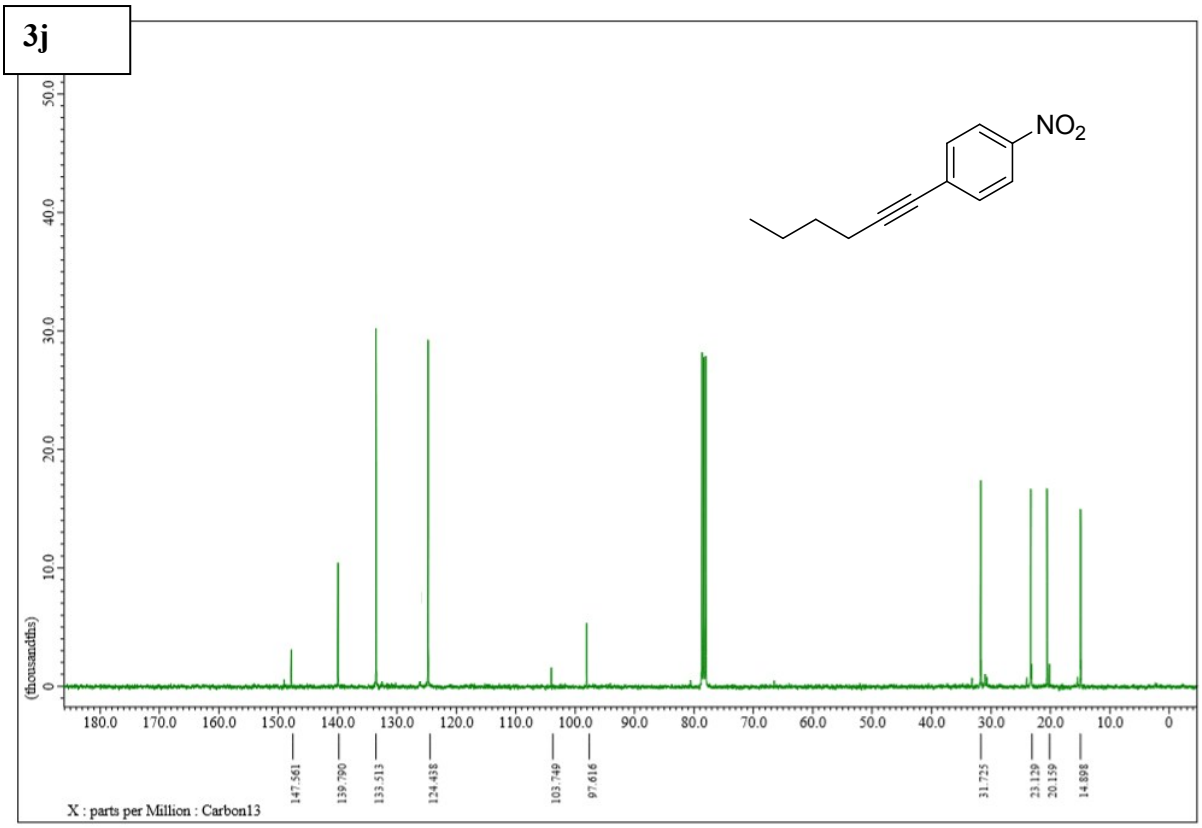
3g


NH2
F
(thousandths)
X : parts per Million : Carbon13

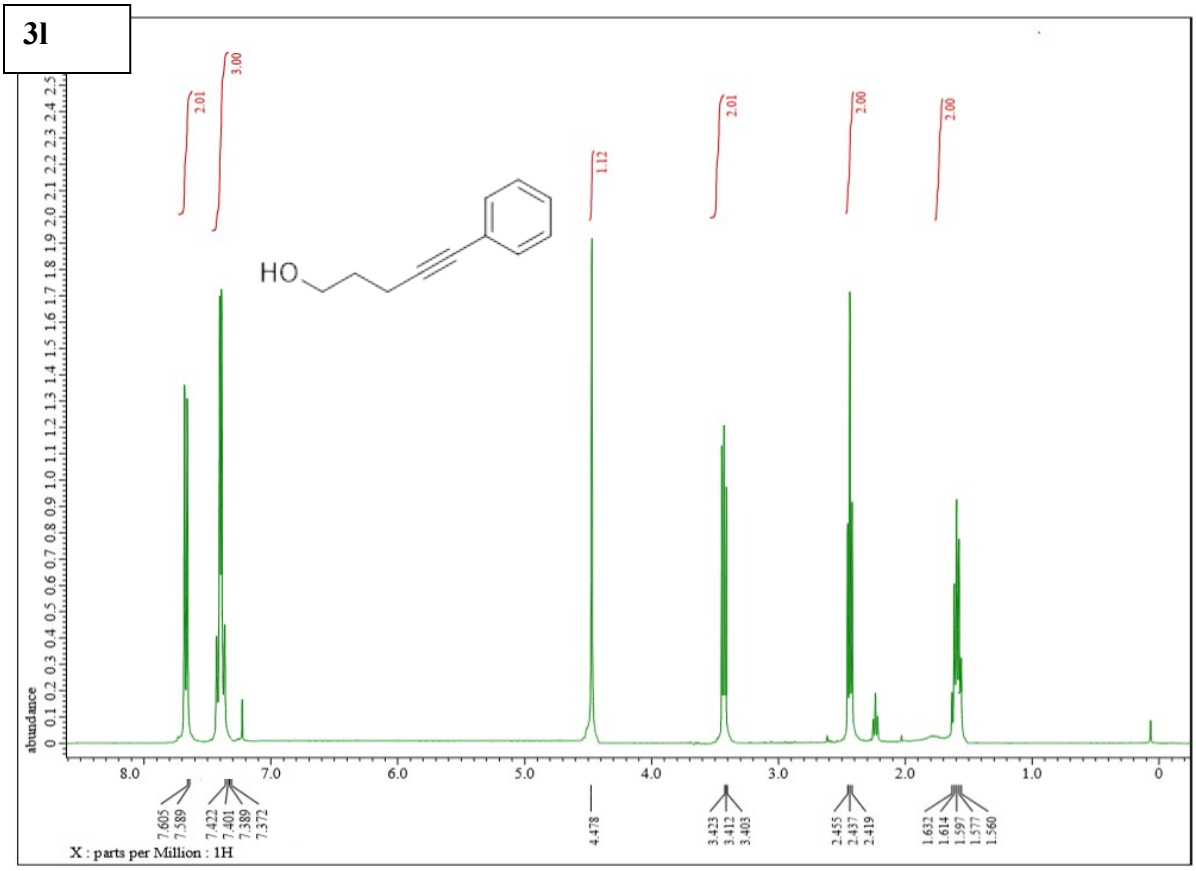
3j


NO2
abundance
X : parts per Million : 1H

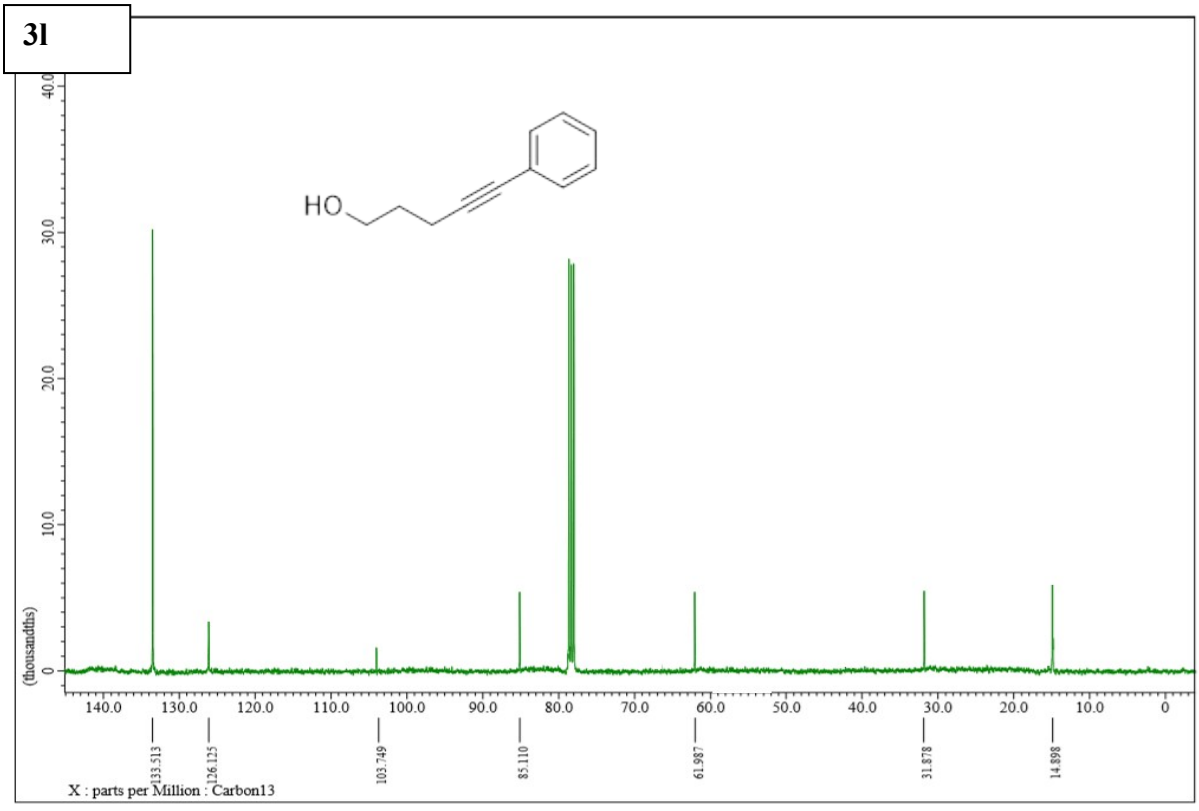
3j

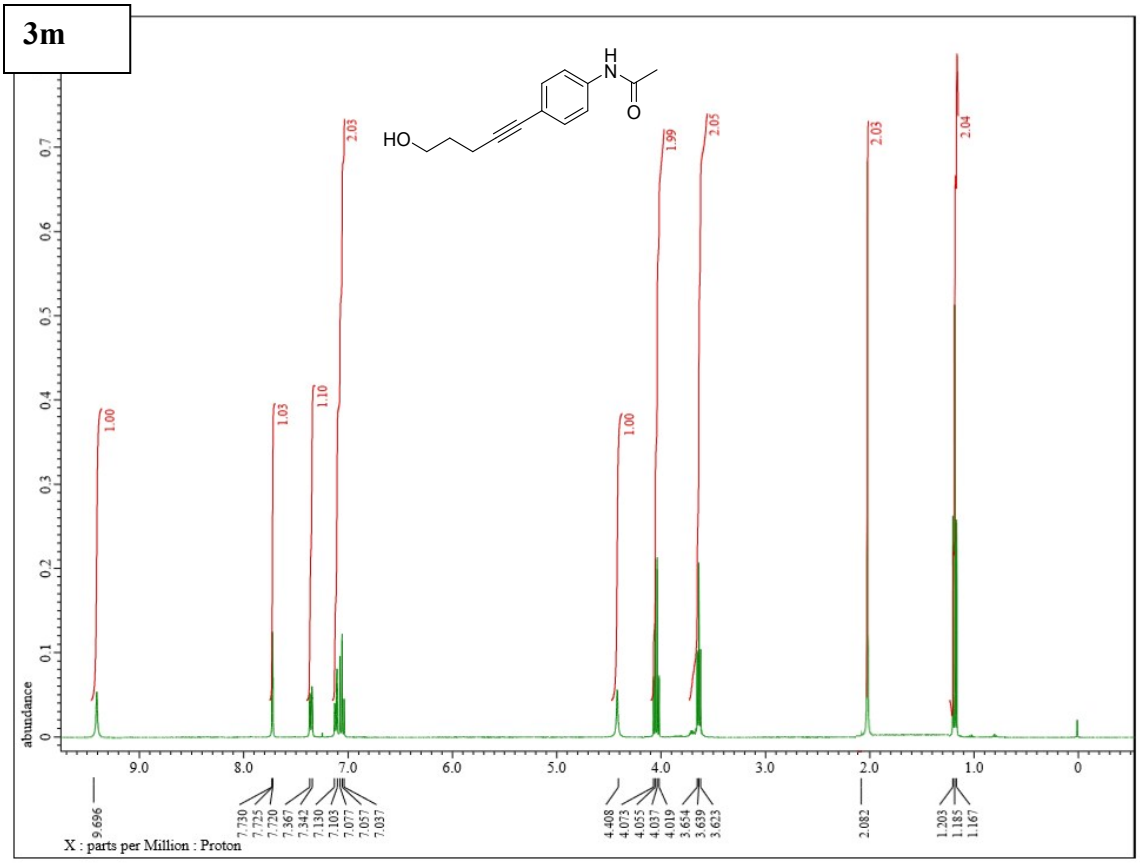

NO2
(thousandths)
X : parts per Million : Carbon13

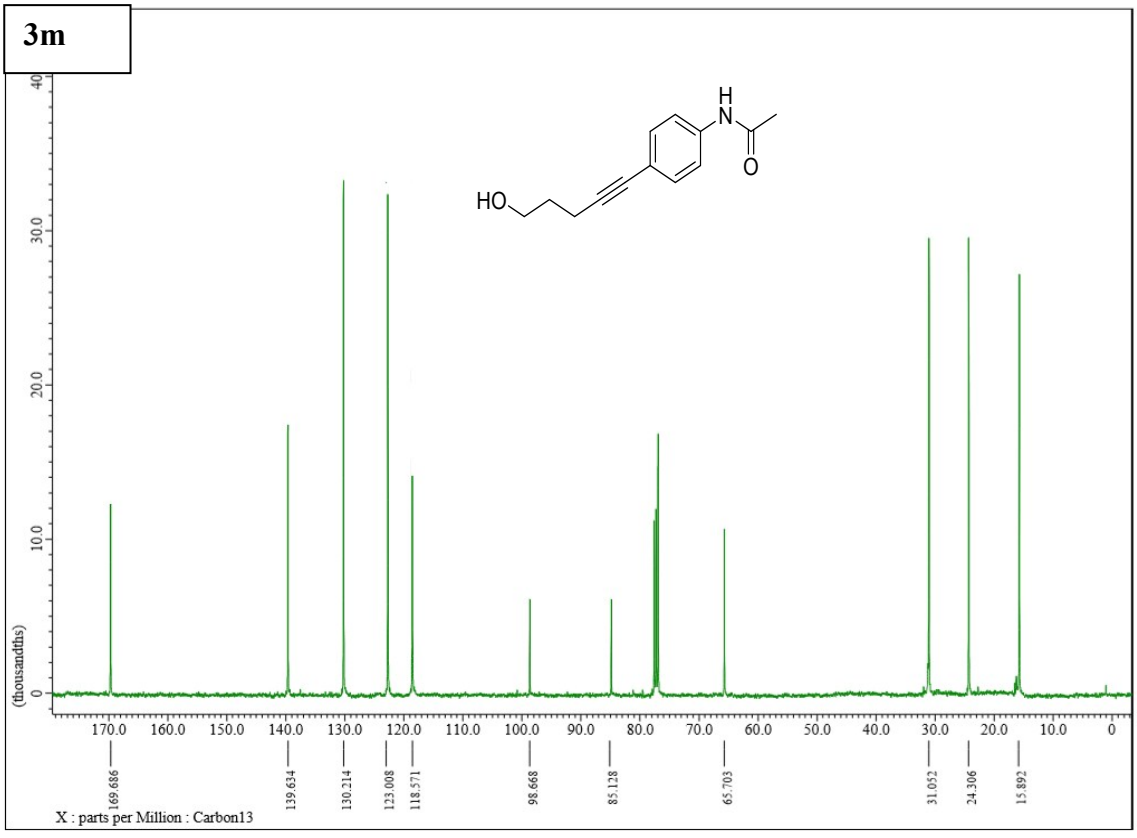
3l


HO
abundance
X : parts per Million : 1H

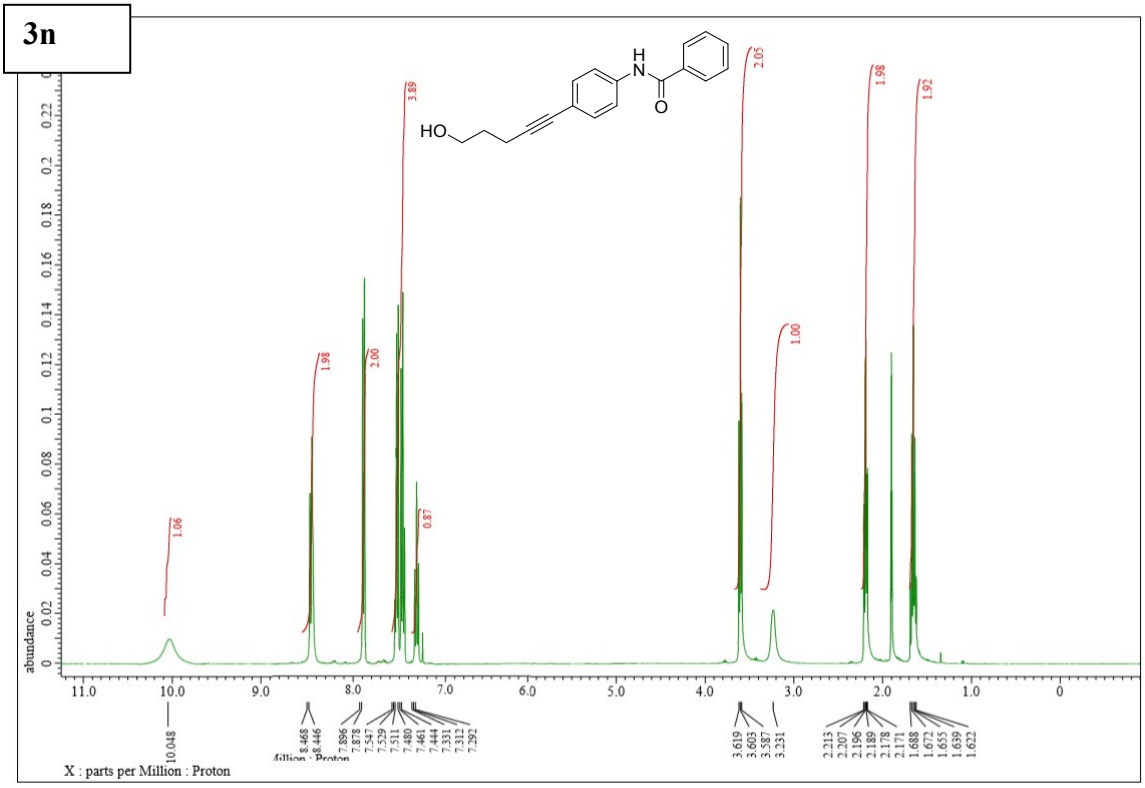
3l


HO
(thousandths)
X : parts per Million : Carbon13

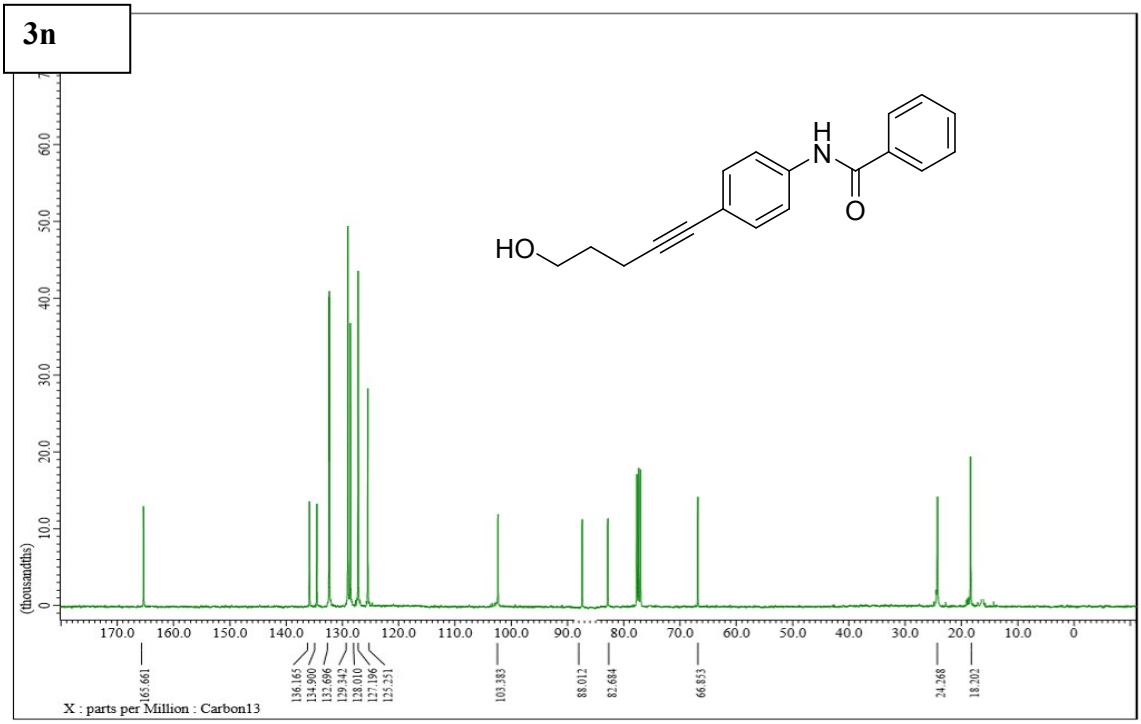

3m
HO
H
N
O
abundance
X : parts per Million : Proton

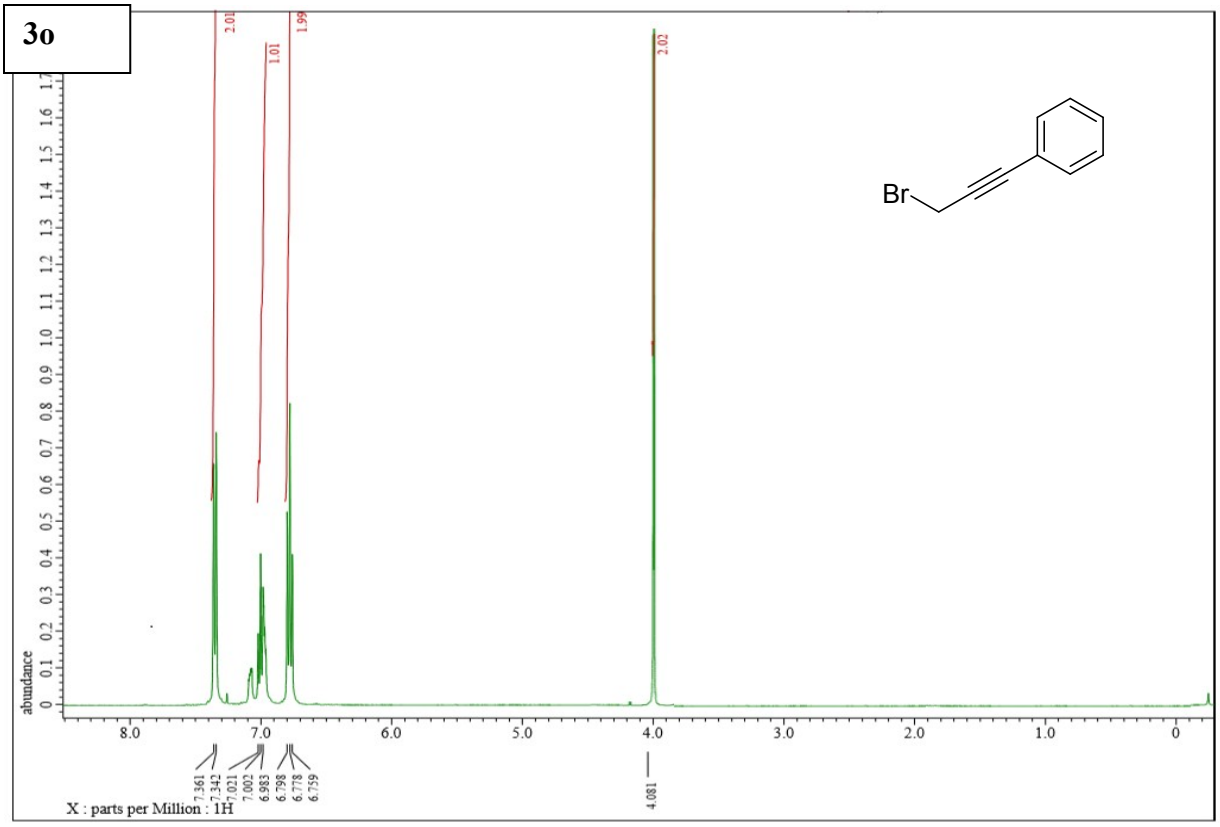

3m
HO
H
N
O
(thousandths)
X : parts per Million : Carbon13

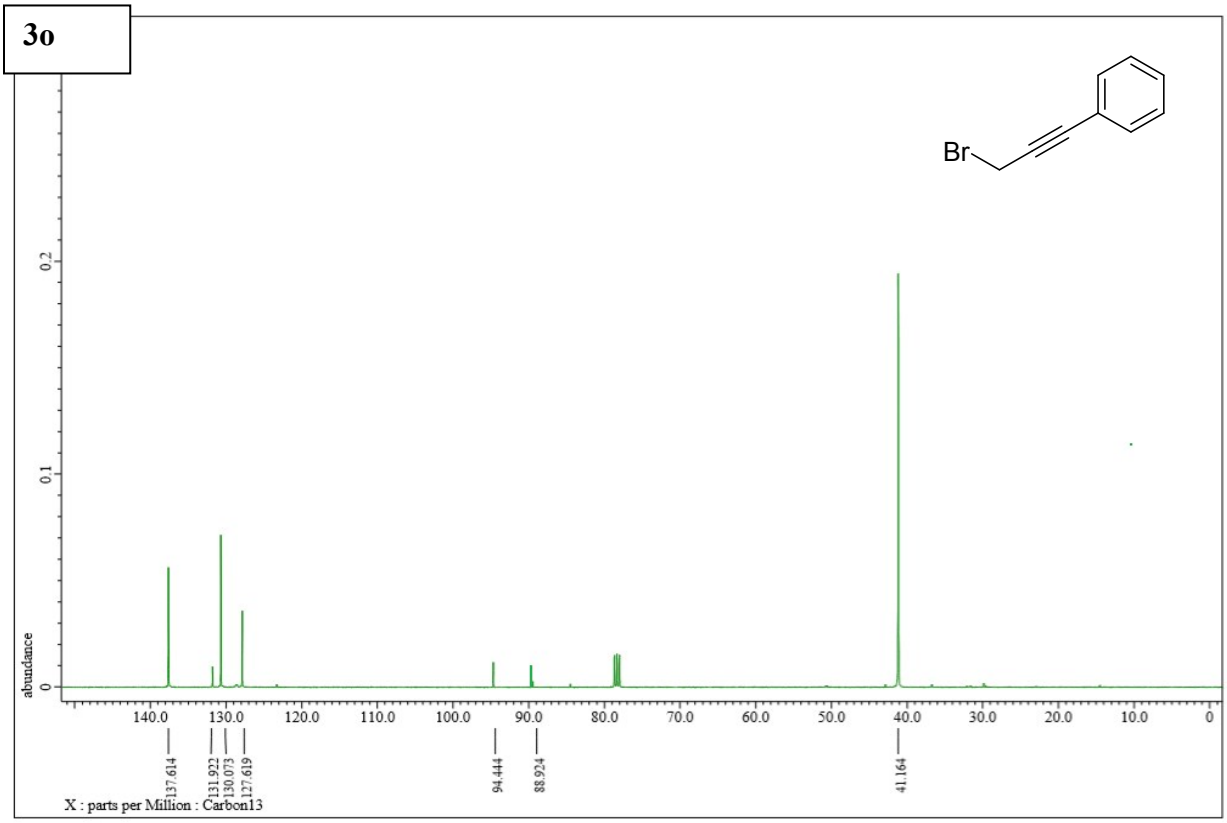
3n

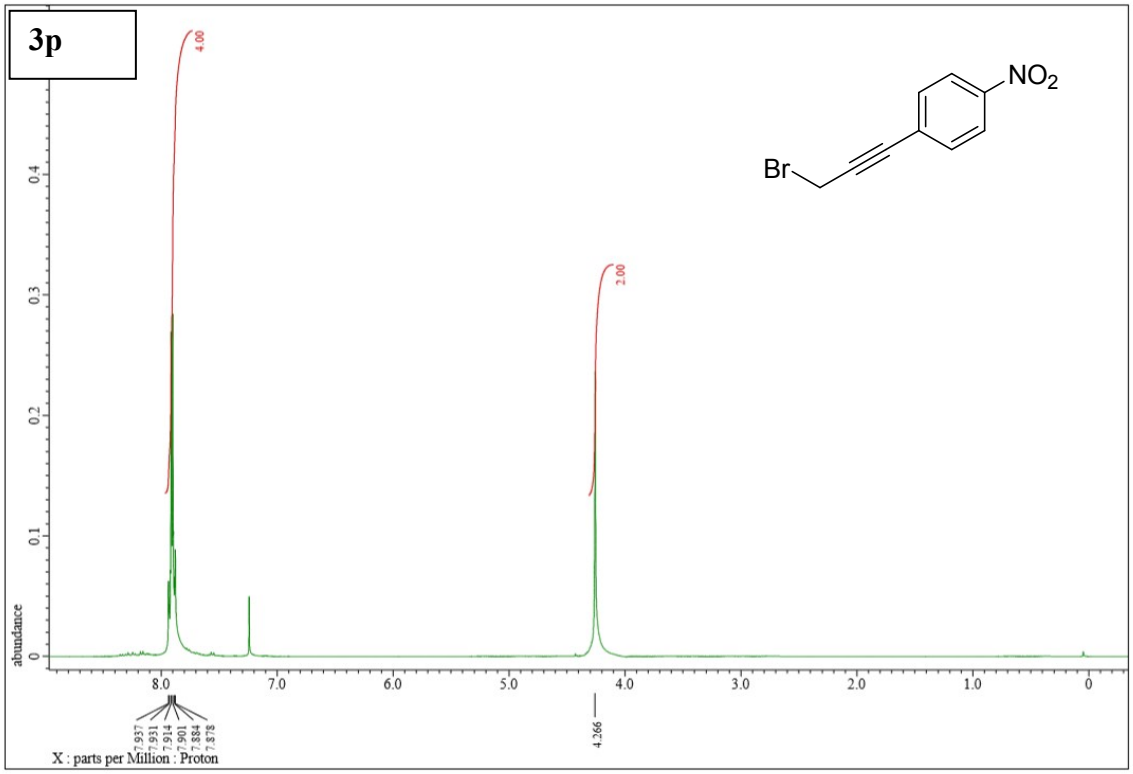

HO
H
N
O
abundance
X : parts per Million : Proton

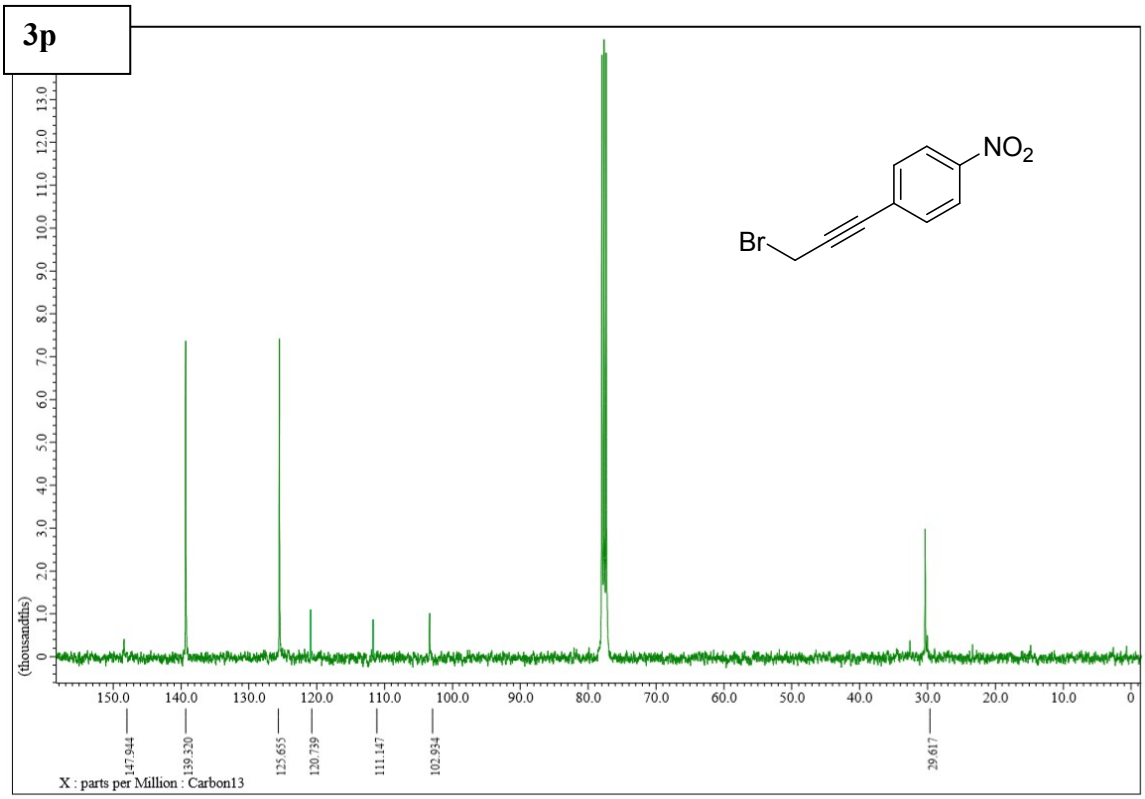
3n


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

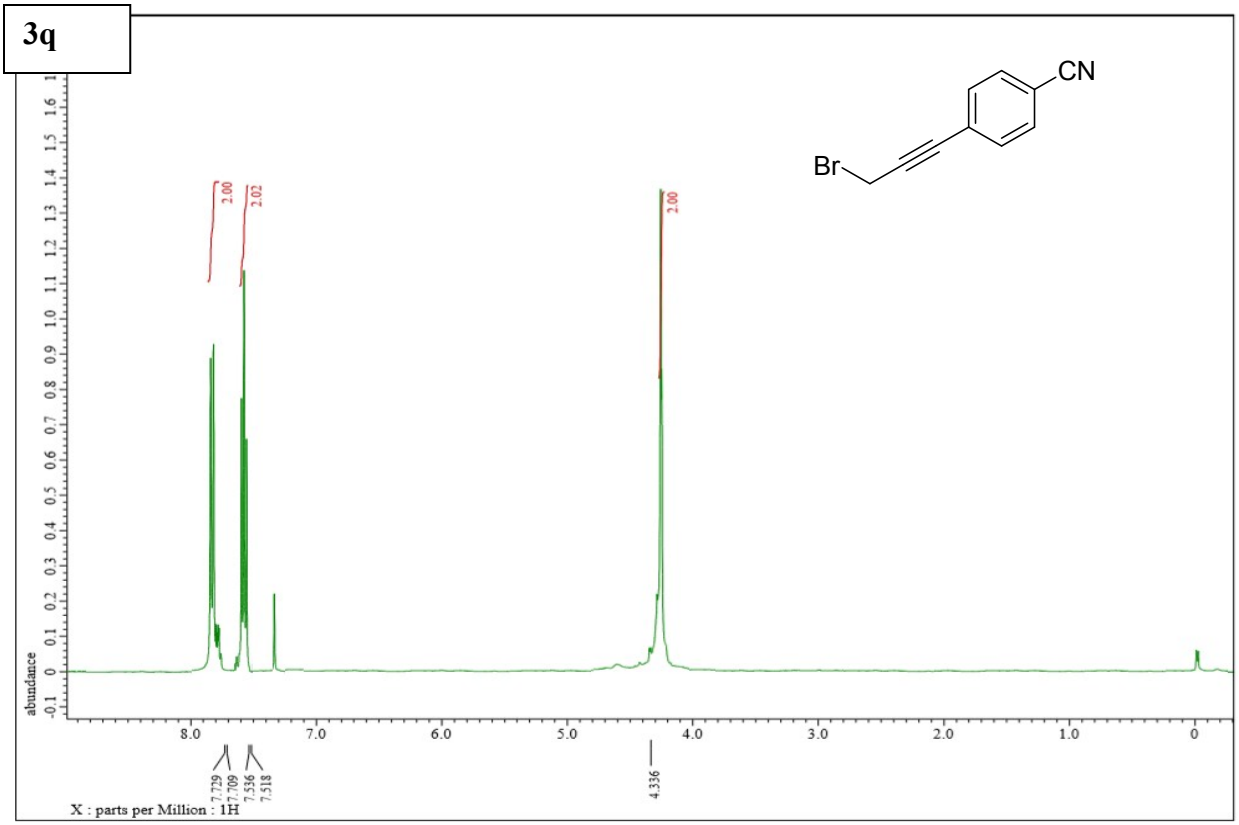

3o
2.01
1.99
1.01
2.02
Br
abundance
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
7.361
7.342
7.021
7.002
6.983
6.798
6.778
6.759
4.081
X : parts per Million : 1H


3o
Br
abundance
0.2
0.1
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
137.614
131.922
130.073
127.619
94.444
88.924
41.164
X : parts per Million : Carbon13

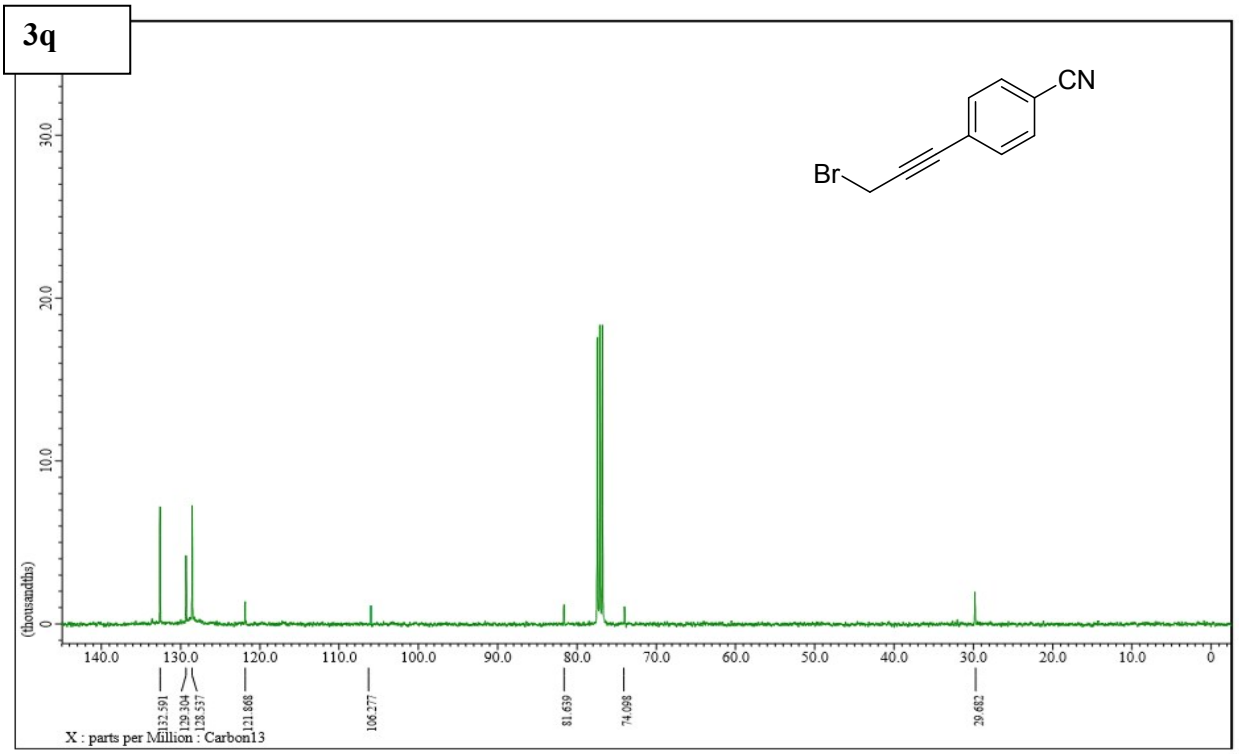

3p
4.00
2.00
NO2
Br
abundance
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
7.937
7.931
7.914
7.901
7.884
7.878
4.266
X : parts per Million : Proton


3p
NO2
Br
(thousandths)
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
147.944
139.320
125.655
120.739
111.147
102.934
29.617
X : parts per Million : Carbon13

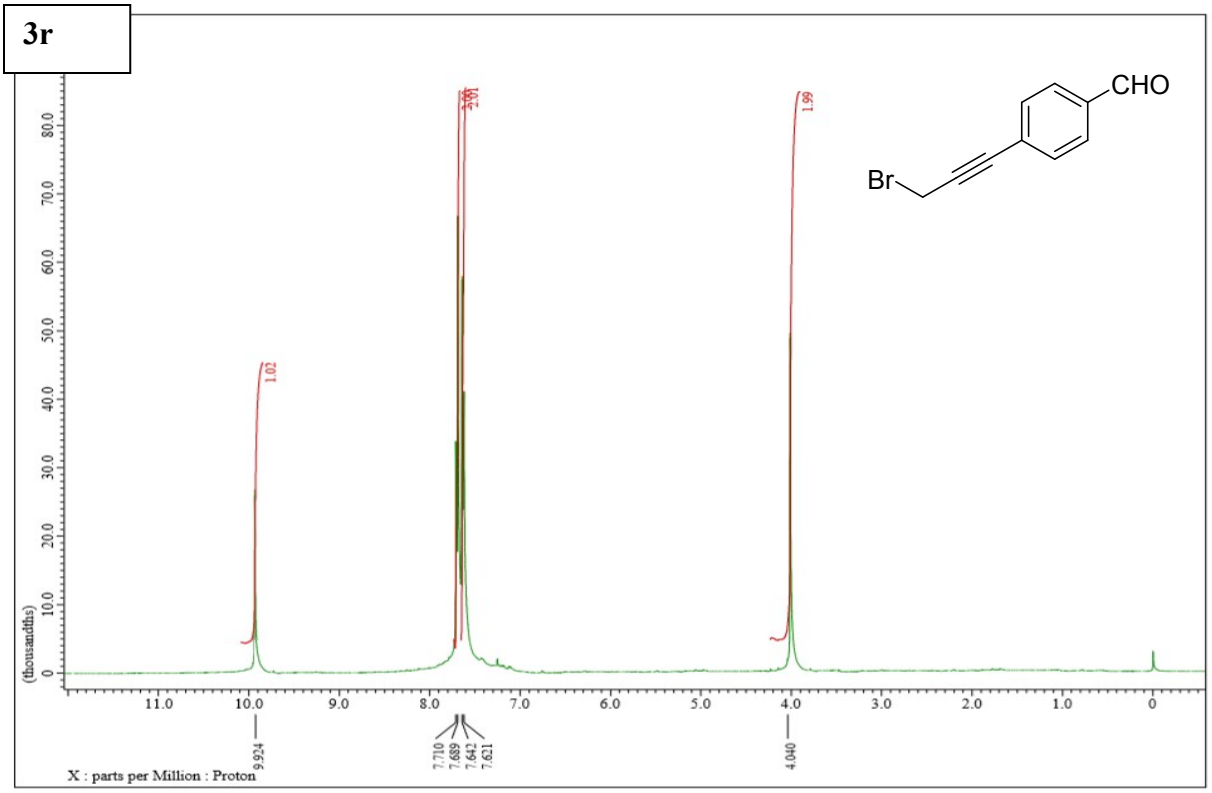
3q


CN
Br
2.00
2.02
2.00
abundance
7.729
7.709
7.536
7.518
4.336
X : parts per Million : 1H

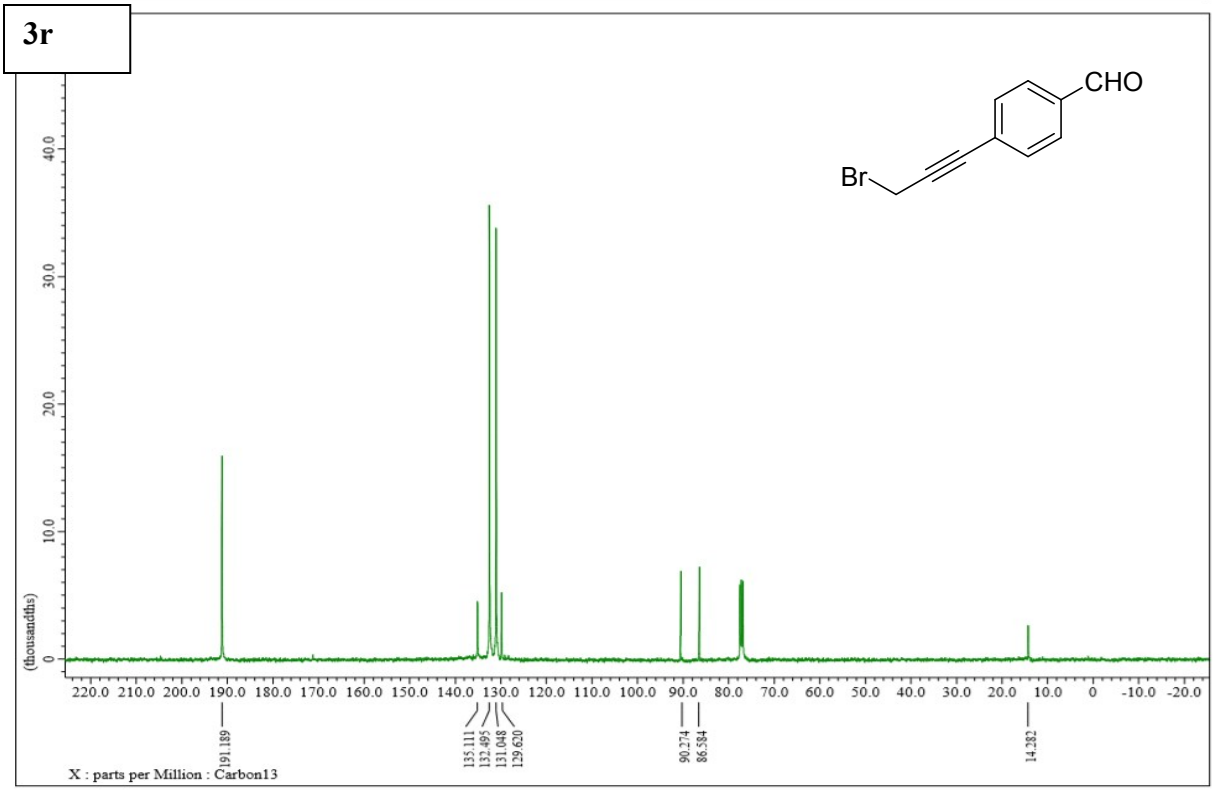
3q


CN
Br
(thousandths)
132.591
129.304
128.537
121.868
106.277
81.639
74.098
29.682
X : parts per Million : Carbon13

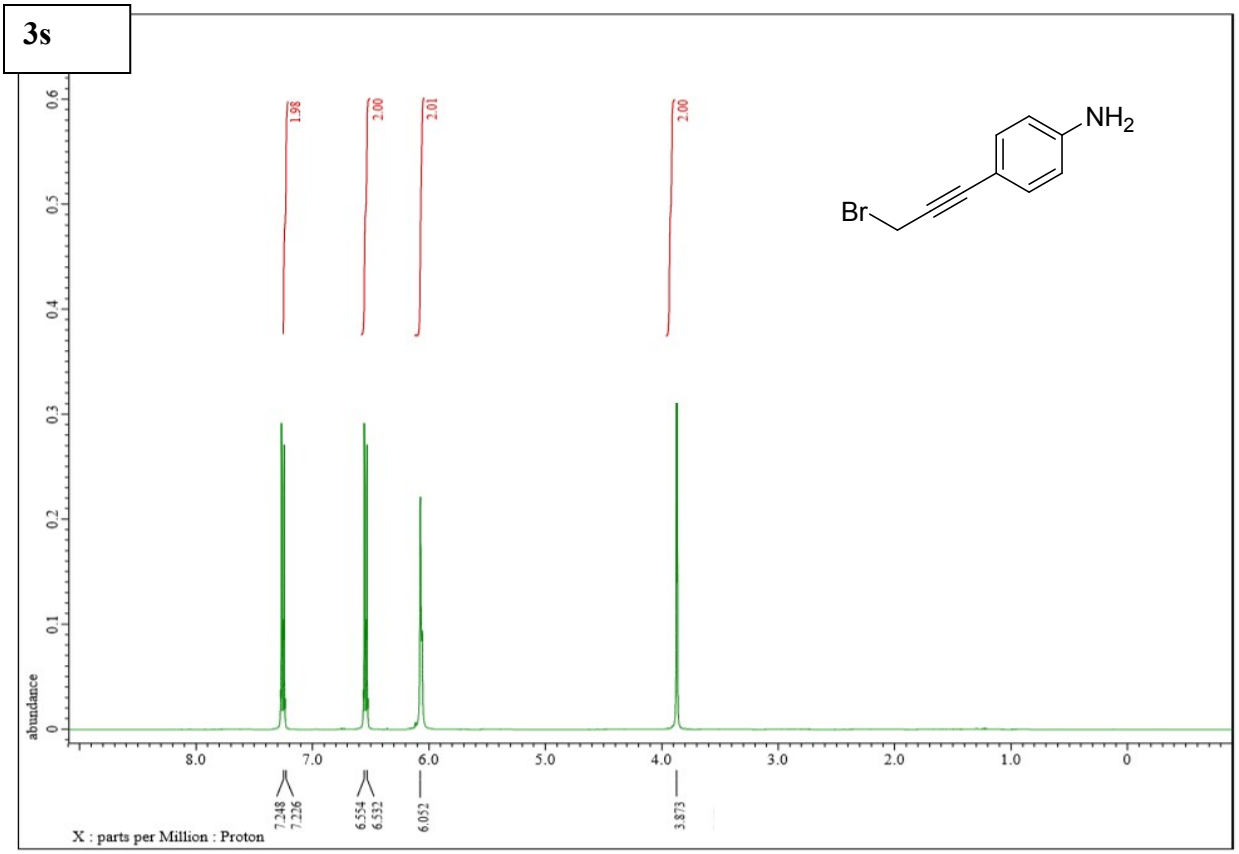
3r


CHO
Br
1.02
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
9.924
7.710
7.689
7.642
7.621
4.040
X : parts per Million : Proton

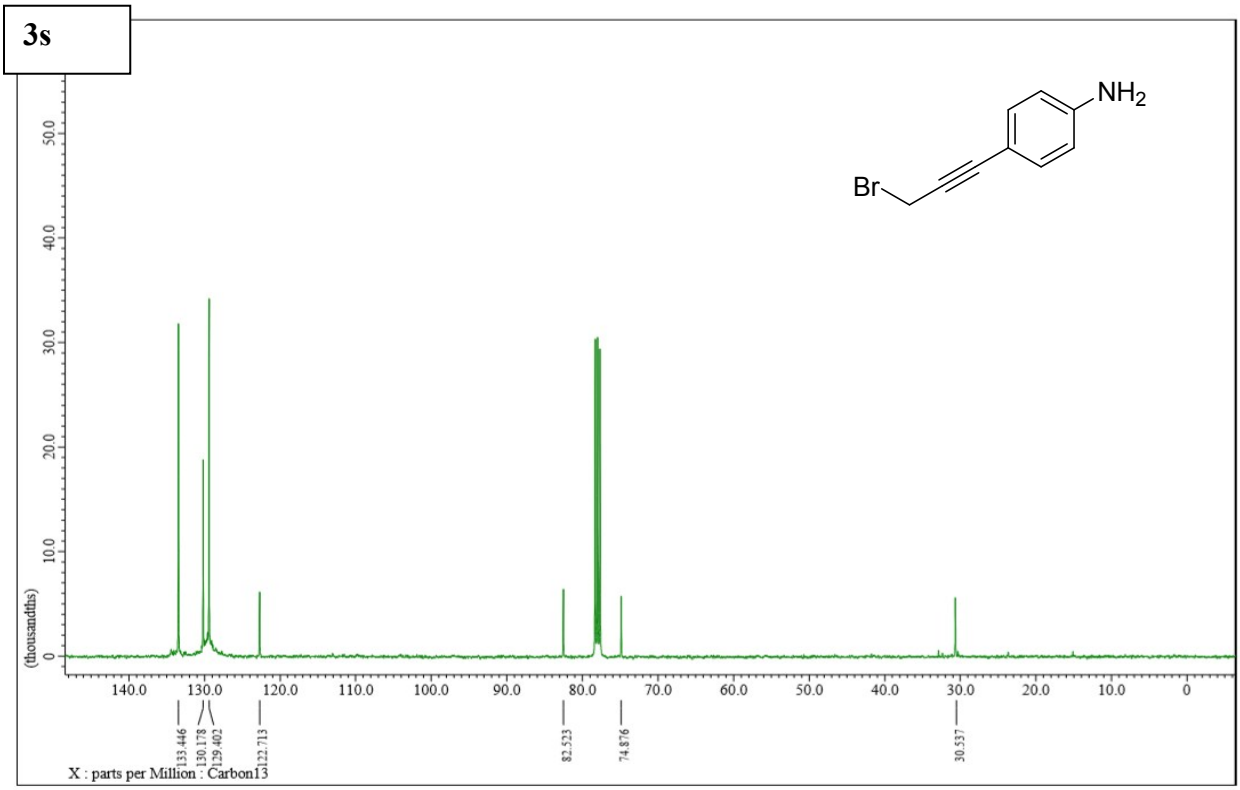
3r

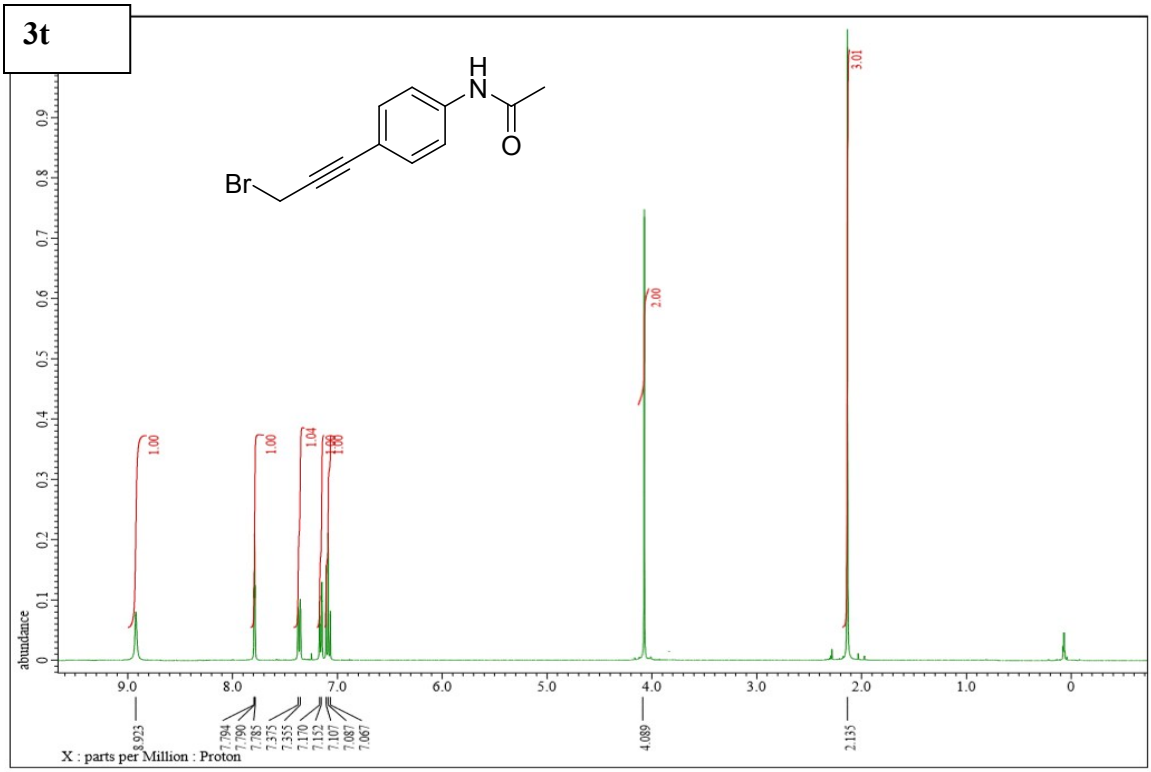

CHO
Br
(thousandths)
220.0 210.0 200.0 190.0 180.0 170.0 160.0 150.0 140.0 130.0 120.0 110.0 100.0 90.0 80.0 70.0 60.0 50.0 40.0 30.0 20.0 10.0 0 -10.0 -20.0
191.189
135.111
132.495
131.048
129.620
90.274
86.584
14.282
X : parts per Million : Carbon13

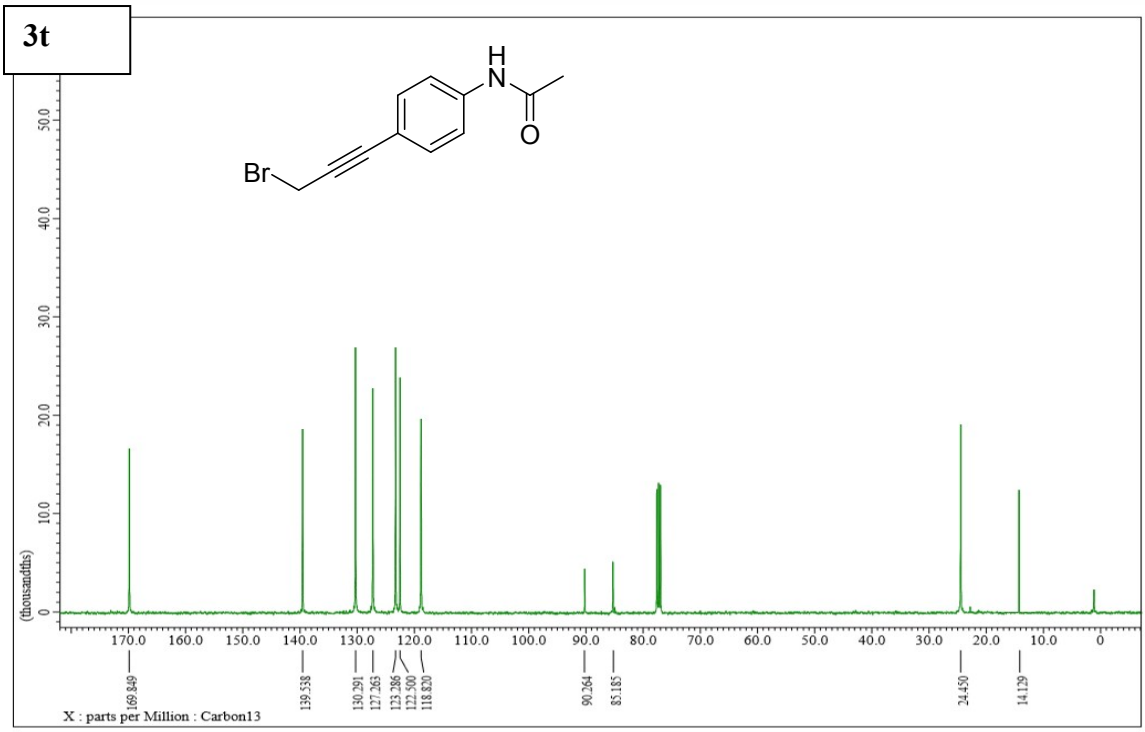
3s


1.98
2.00
2.01
2.00
NH2
Br
abundance
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
7.248
7.226
6.554
6.532
6.052
3.873
X : parts per Million : Proton

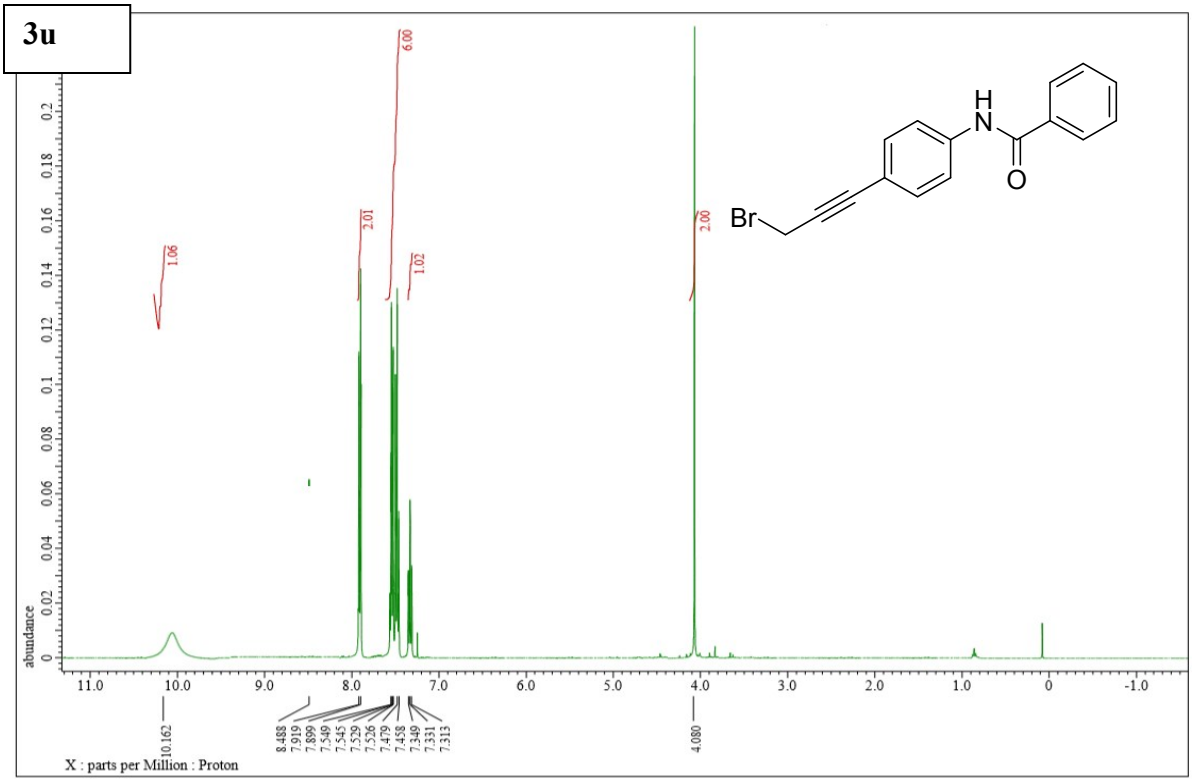
3s


NH2
Br
(thousandths)
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
133.446
130.178
129.402
122.713
82.523
74.876
30.537
X : parts per Million : Carbon13

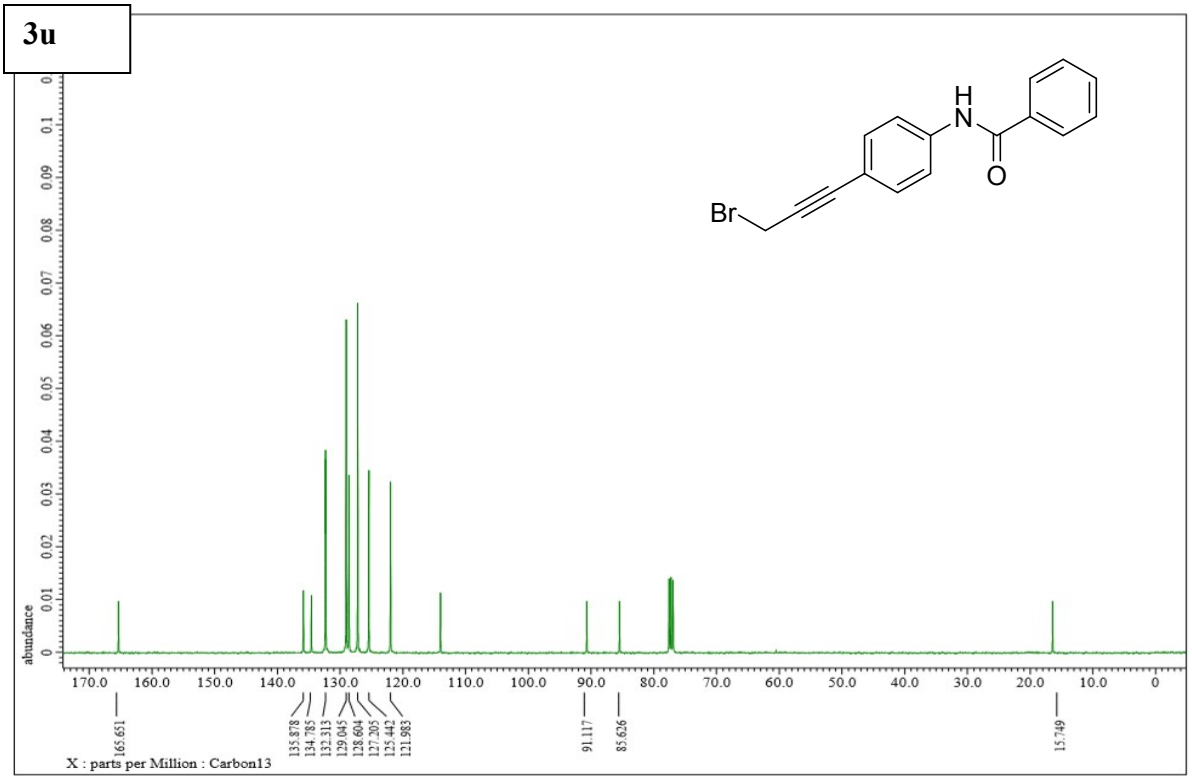

3t
H
N
O
Br
abundance
X : parts per Million : Proton

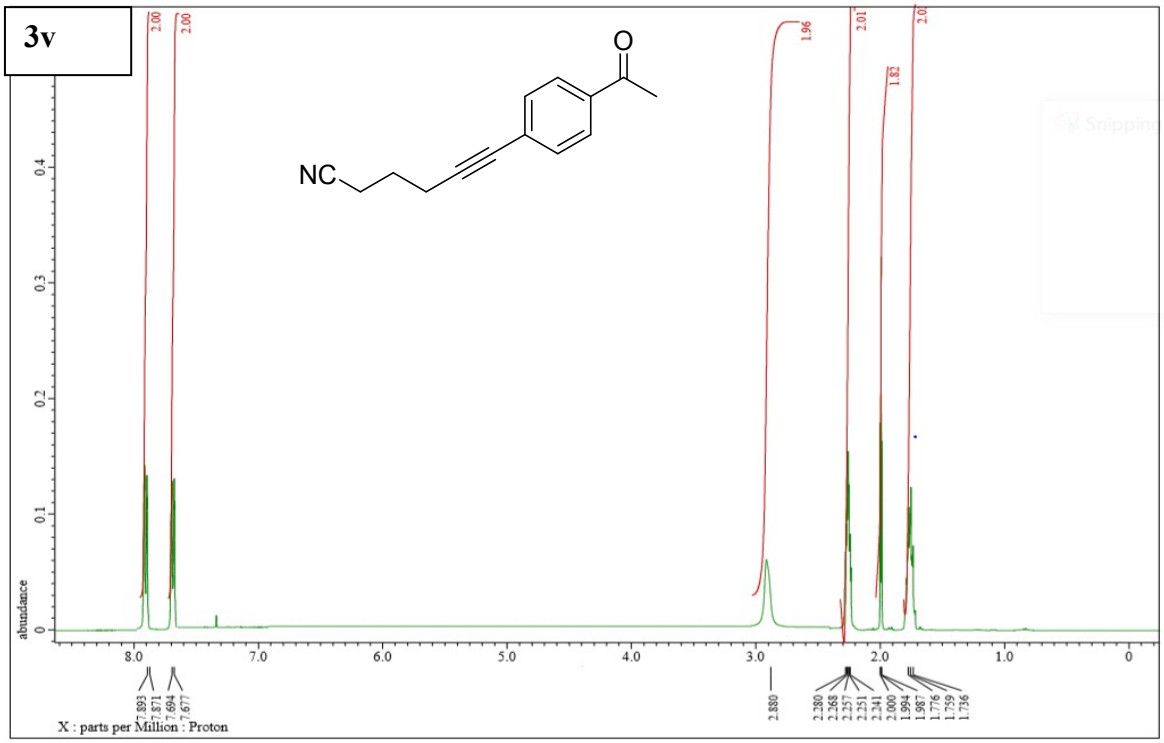

3t
H
N
O
Br
(thousandths)
X : parts per Million : Carbon13

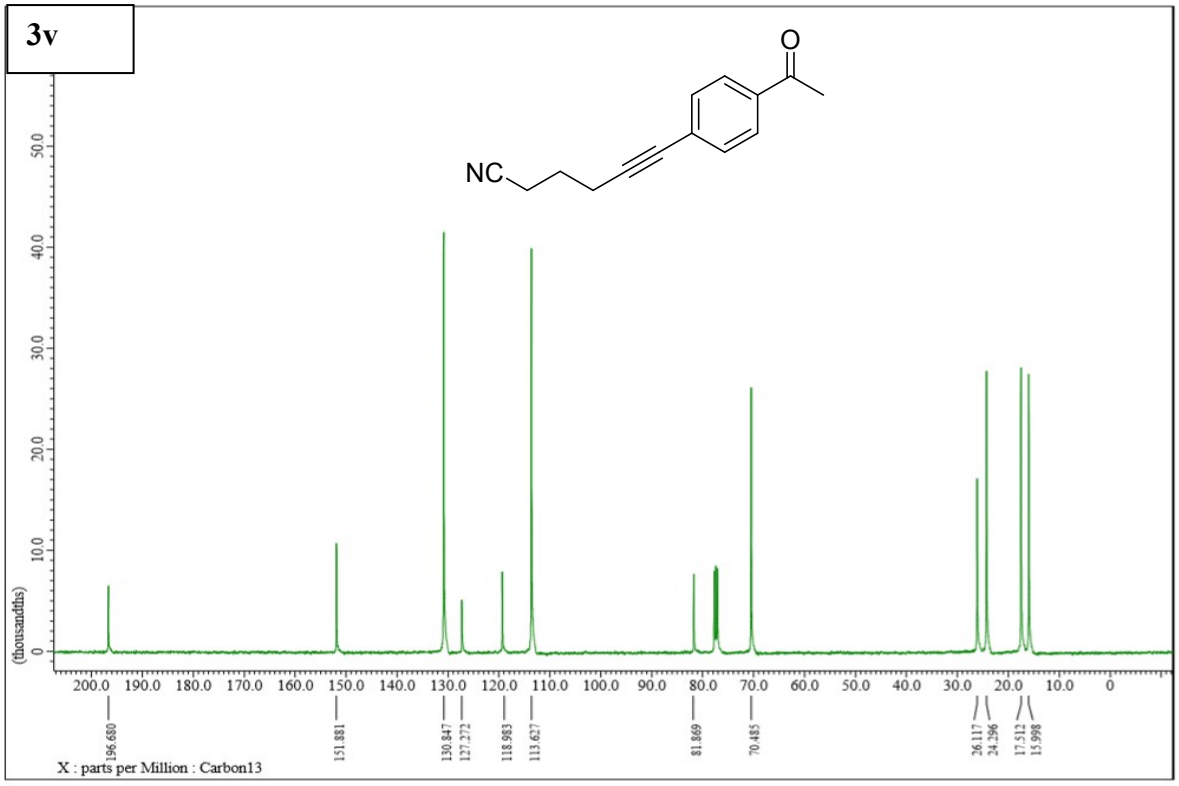
3u


6.00
2.01
1.02
2.00
1.06
abundance
11.0
10.0
9.0
8.0
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0
-1.0
10.162
8.488
7.919
7.899
7.549
7.545
7.529
7.526
7.479
7.458
7.349
7.331
7.313
4.080
X : parts per Million : Proton
H
N
O
Br

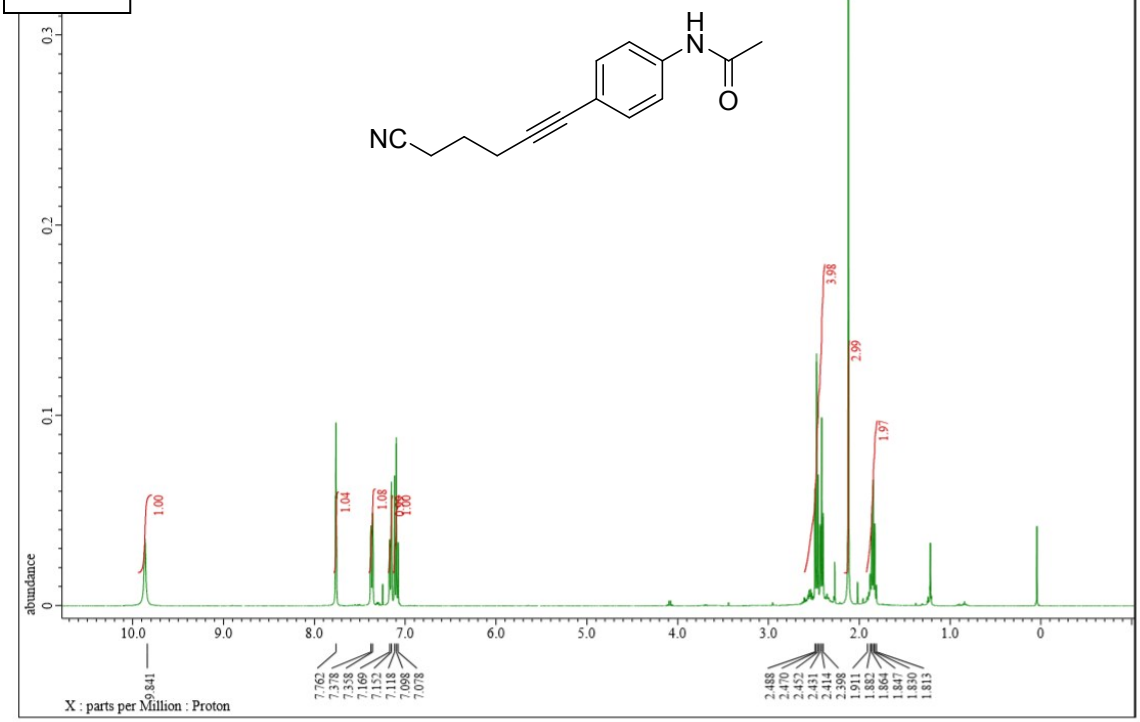
3u


abundance
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
165.651
135.878
134.785
132.313
129.045
128.604
127.205
125.442
121.983
91.117
85.626
15.749
X : parts per Million : Carbon13
H
N
O
Br

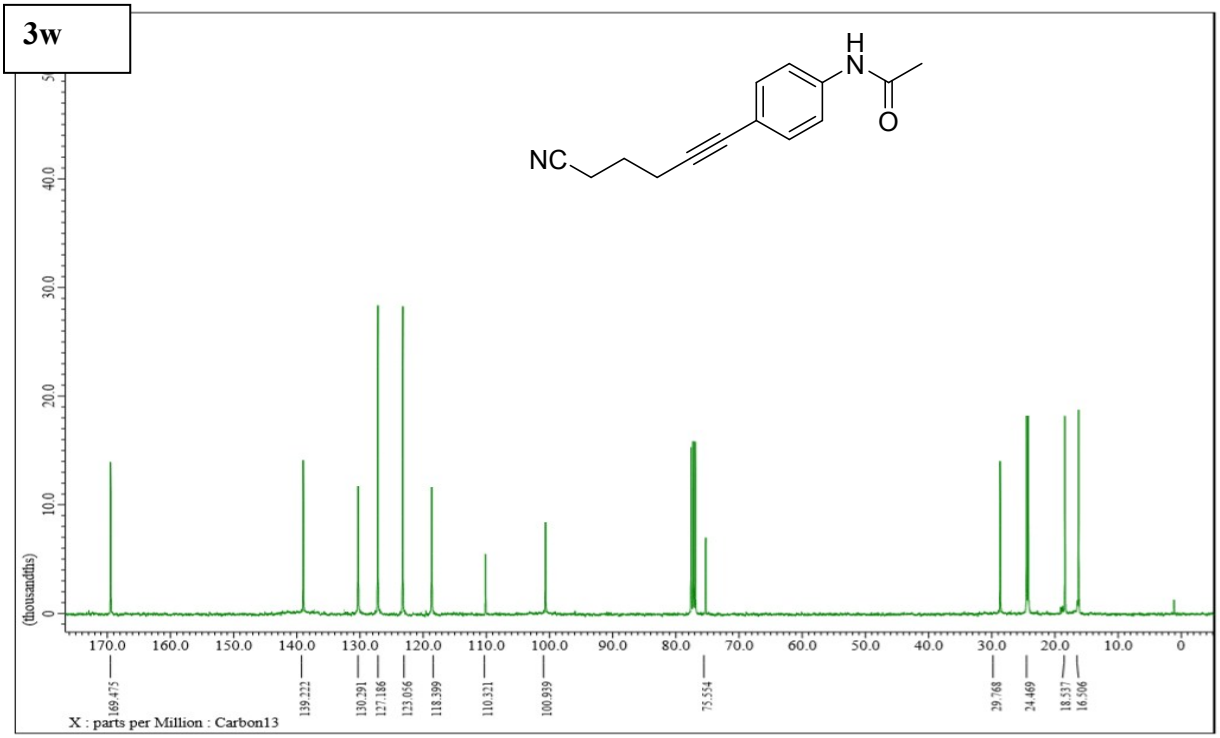

3v
O
NC
abundance
X : parts per Million : Proton

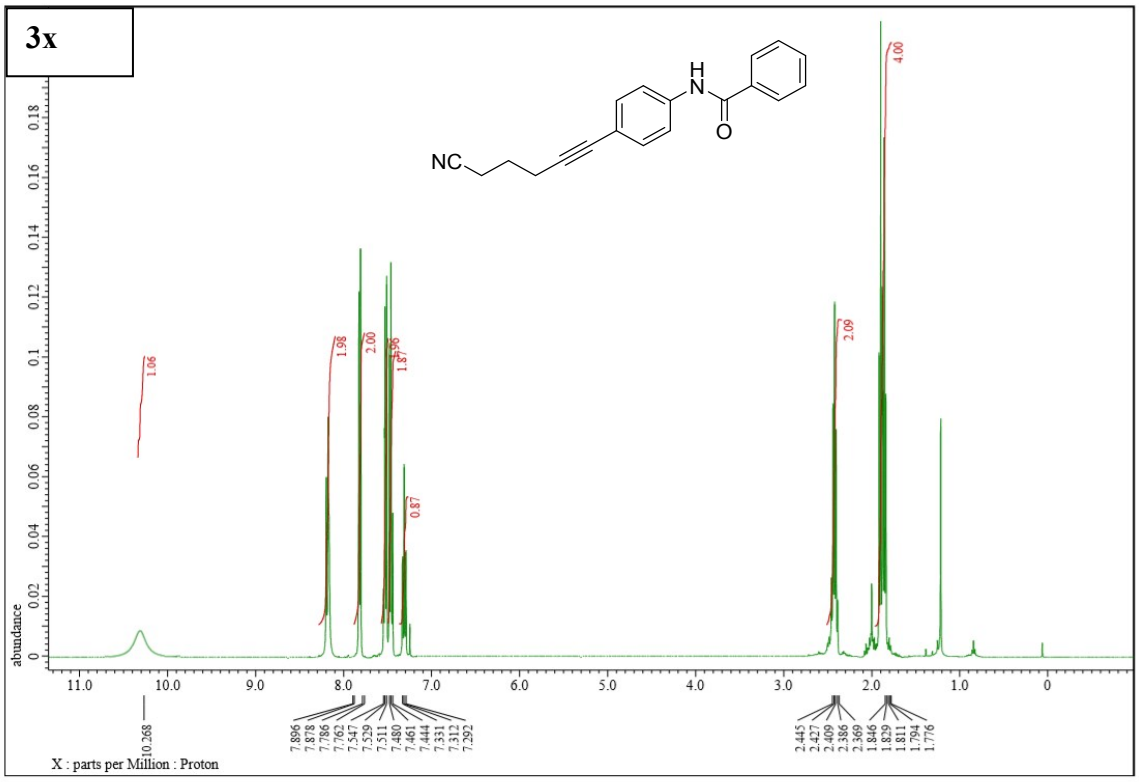

3v
O
NC
(thousandths)
X : parts per Million : Carbon13

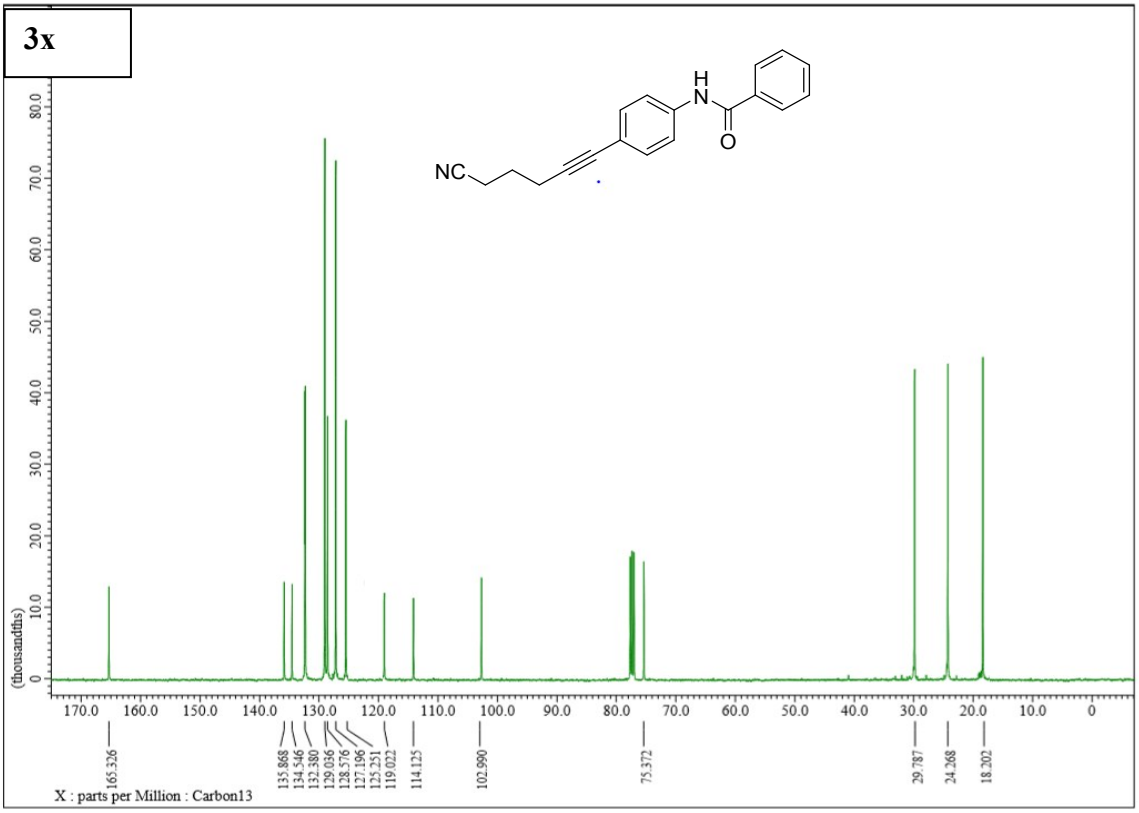
3w


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

3w


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


3x
NC
H
N
O
abundance
X : parts per Million : Proton


3x
NC
H
N
O
(thousandths)
X : parts per Million : Carbon13