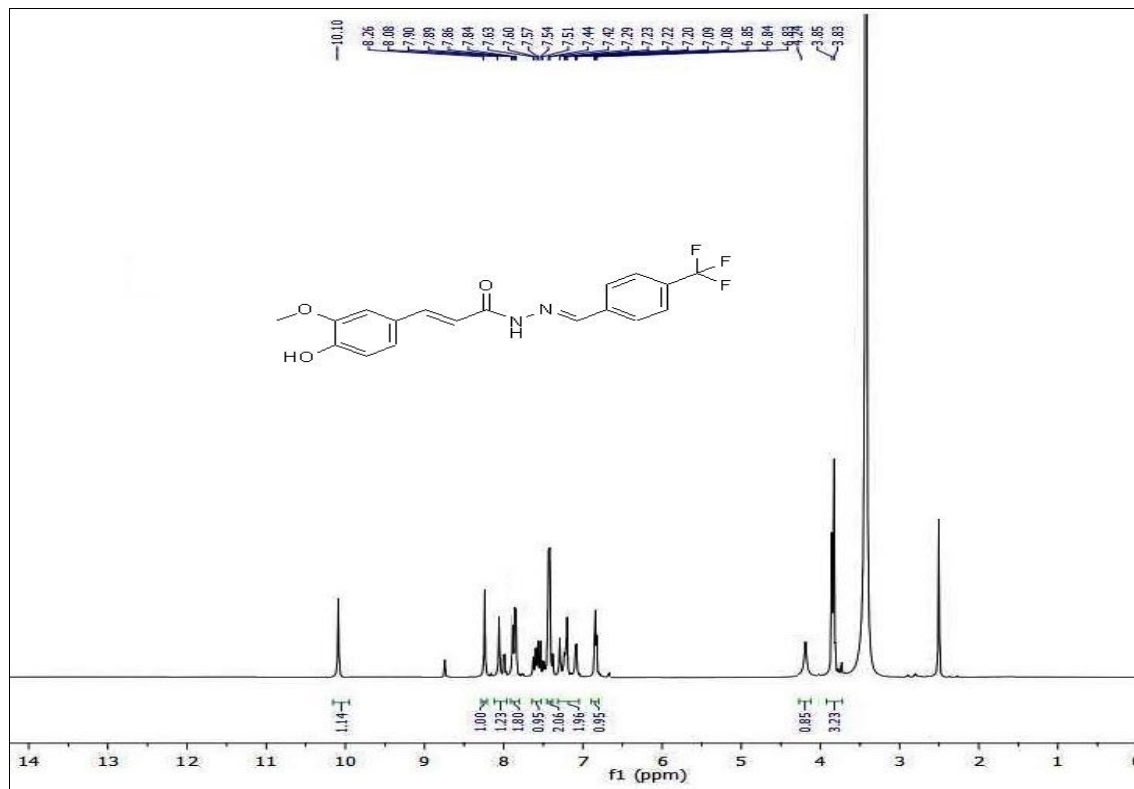
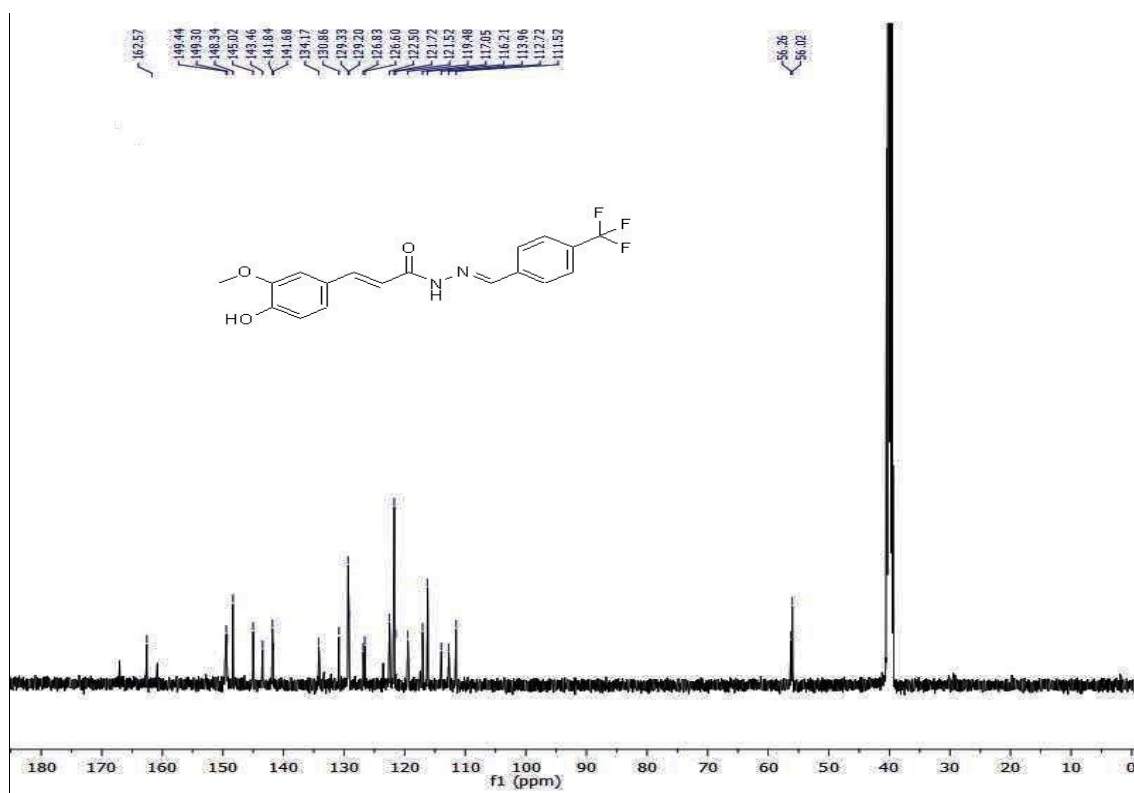
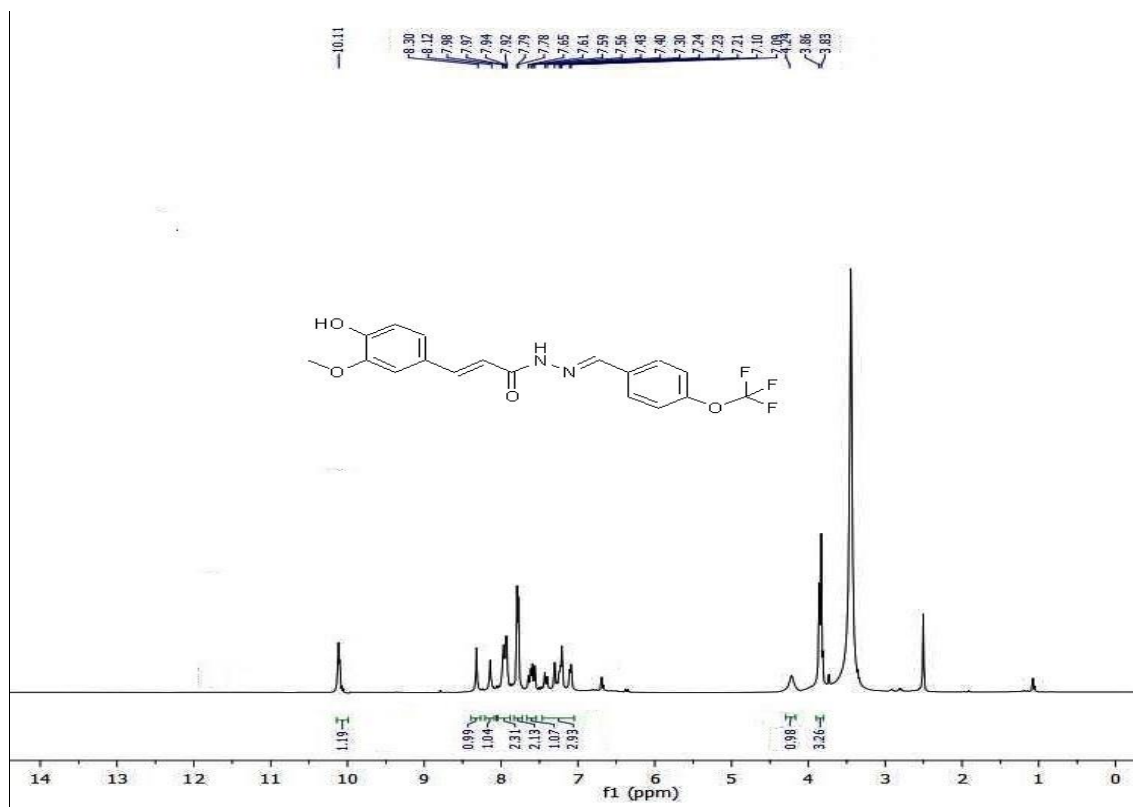
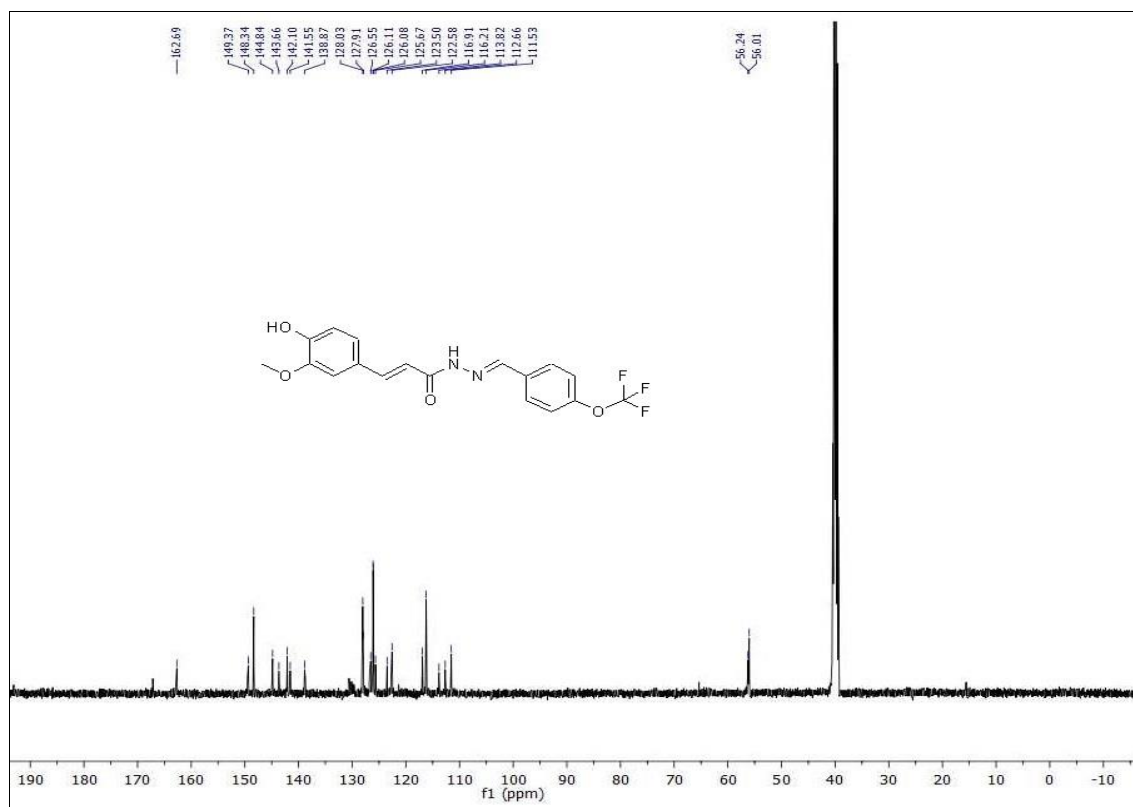


8.1.  $^1\text{H}$  and  $^{13}\text{C}$  NMR spectra of representative synthesized compounds.*3-(4-hydroxy-3-methoxyphenyl)-N'-(4-(trifluoromethyl)benzylidene)acrylohydrazide (5j)*Figure 8.1  $^1\text{H}$  NMR spectrum of target compound **5j**.Figure 8.2  $^{13}\text{C}$  NMR spectrum of target compound **5j**.

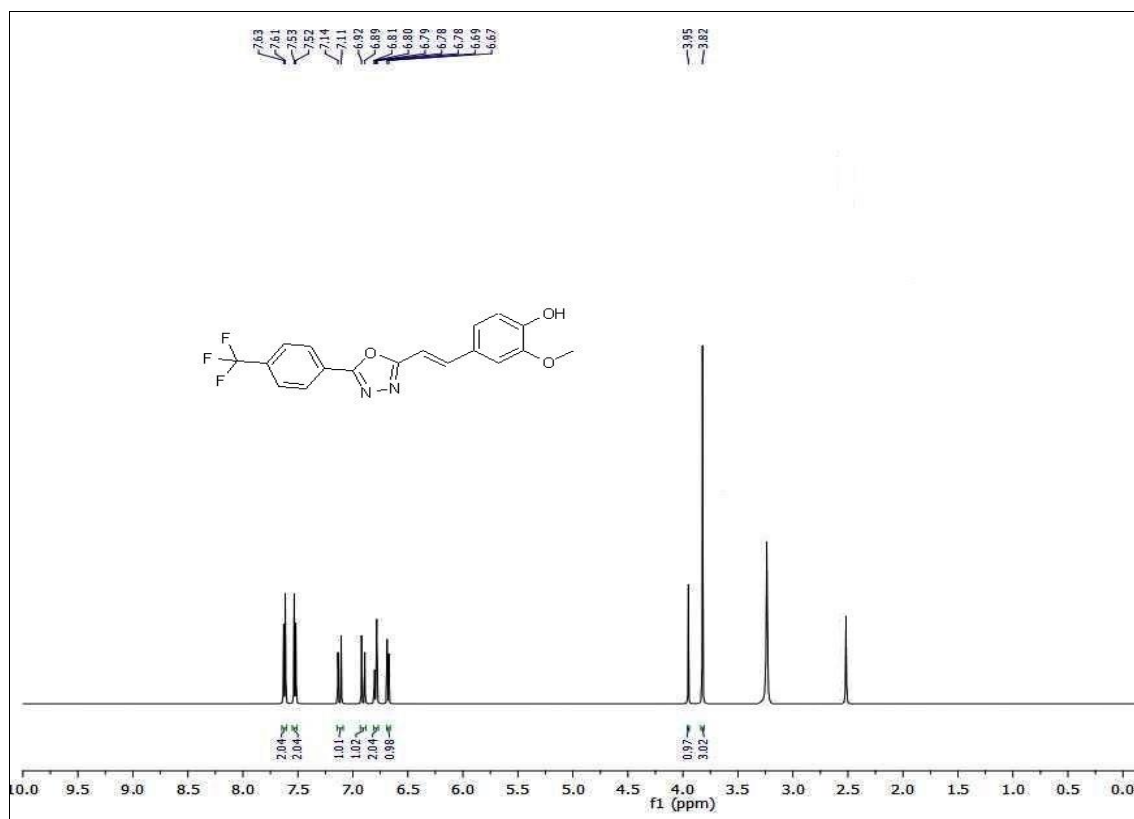
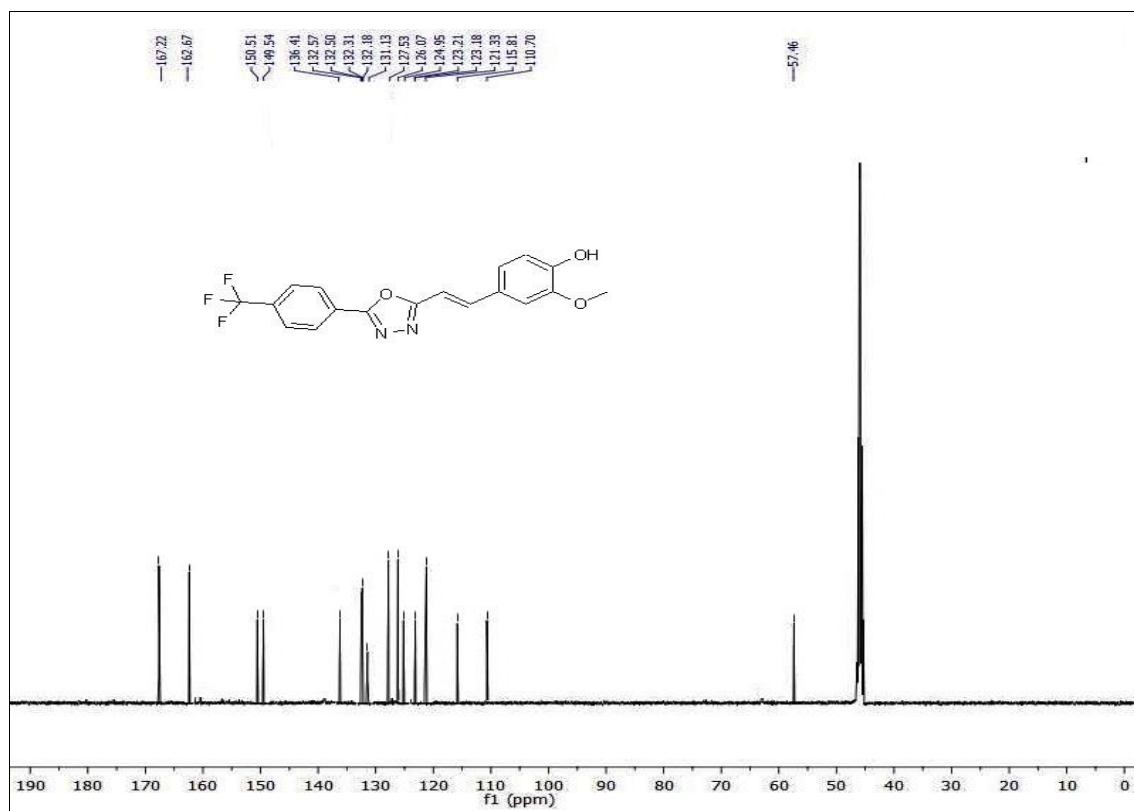
**3-(4-Hydroxy-3-methoxyphenyl)-N'-(4(trifluoromethoxy)benzylidene)acrylohydrazide (5k)**



**Figure 8.3**  $^1\text{H}$  NMR spectrum of target compound **5k**.



**Figure 8.4**  $^{13}\text{C}$  NMR spectrum of target compound **5k**.

*2-Methoxy-4-(2-(5-(4-(trifluoromethyl)phenyl)-1,3,4-oxadiazol-2-yl)vinyl)phenol (6j)***Figure 8.5** <sup>1</sup>H NMR spectrum of target compound **6j**.**Figure 8.6** <sup>13</sup>C NMR spectrum of target compound **6j**.

*2-Methoxy-4-(2-(5-(4-(trifluoromethoxy)phenyl)-1,3,4-oxadiazol-2-yl)vinyl)phenol*  
(6k)

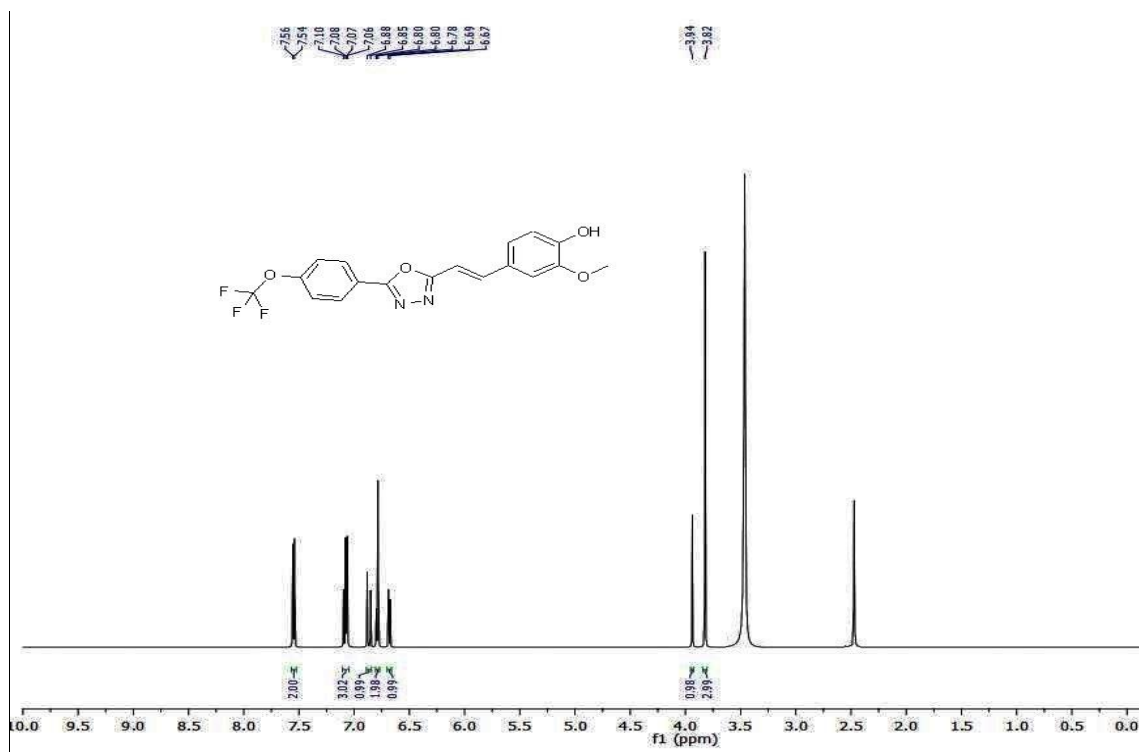


Figure 8.7 <sup>1</sup>H NMR spectrum of target compound **6k**.

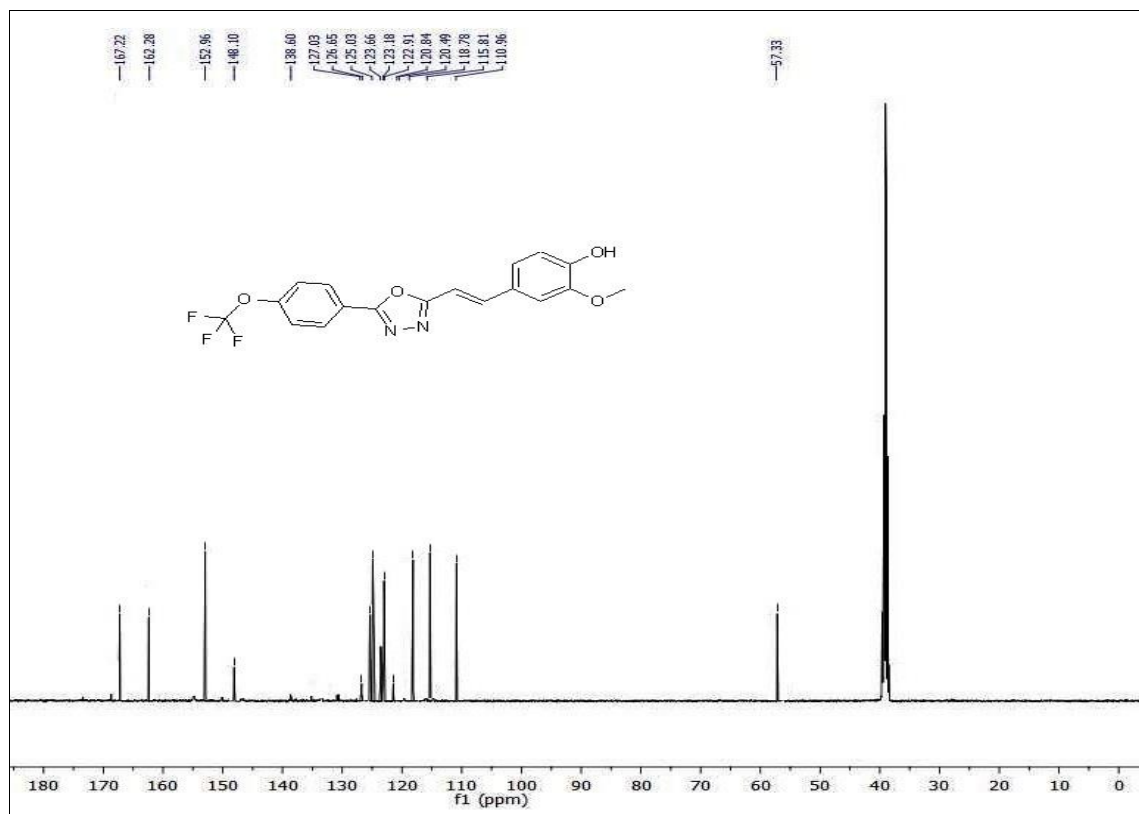
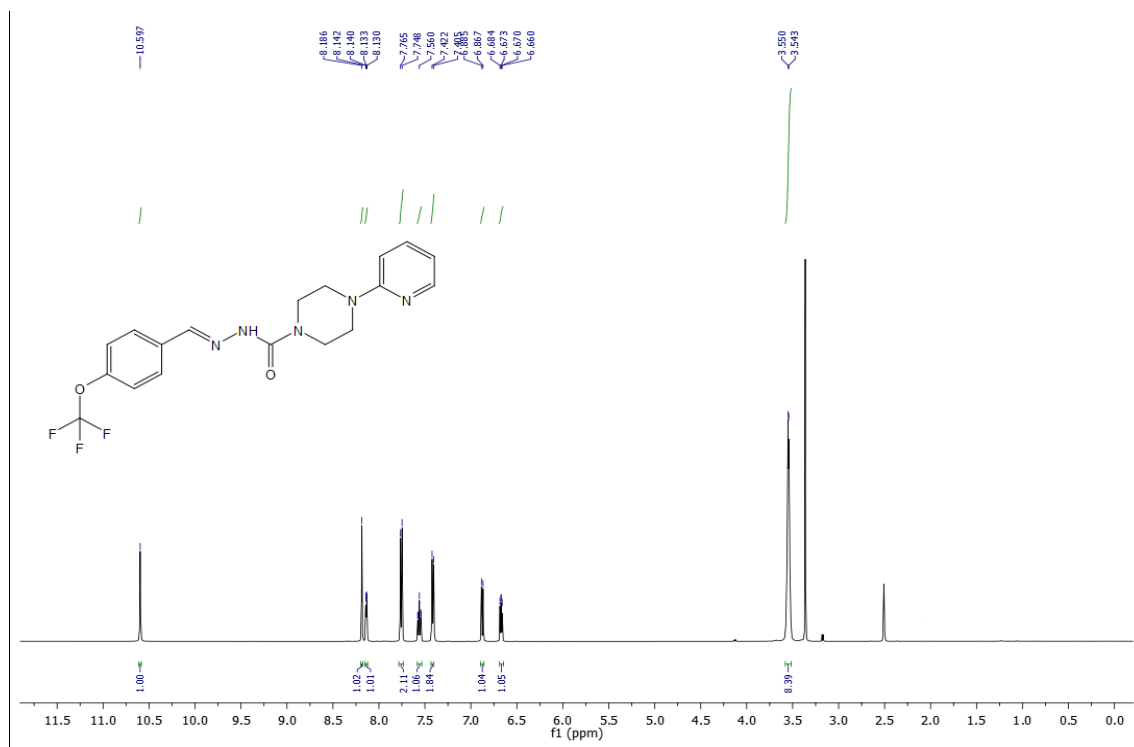
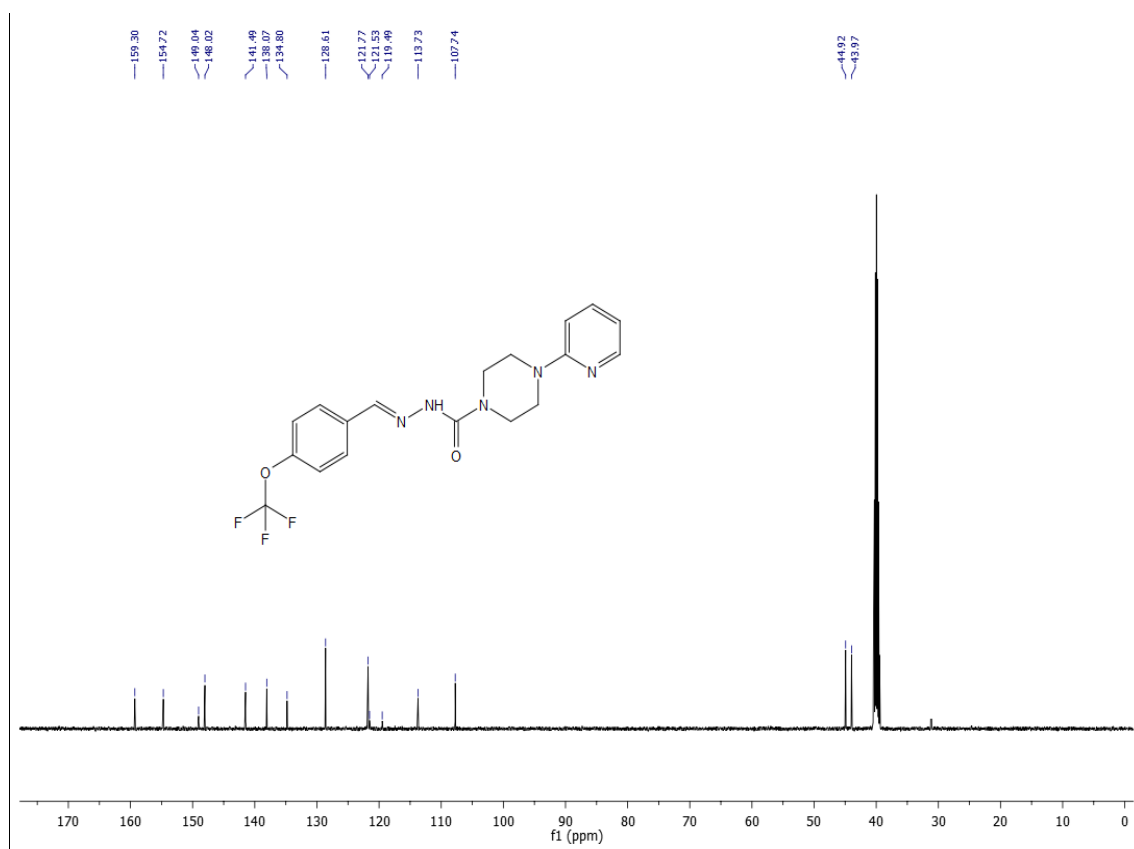


Figure 8.8 <sup>13</sup>C NMR spectrum of target compound **6k**.

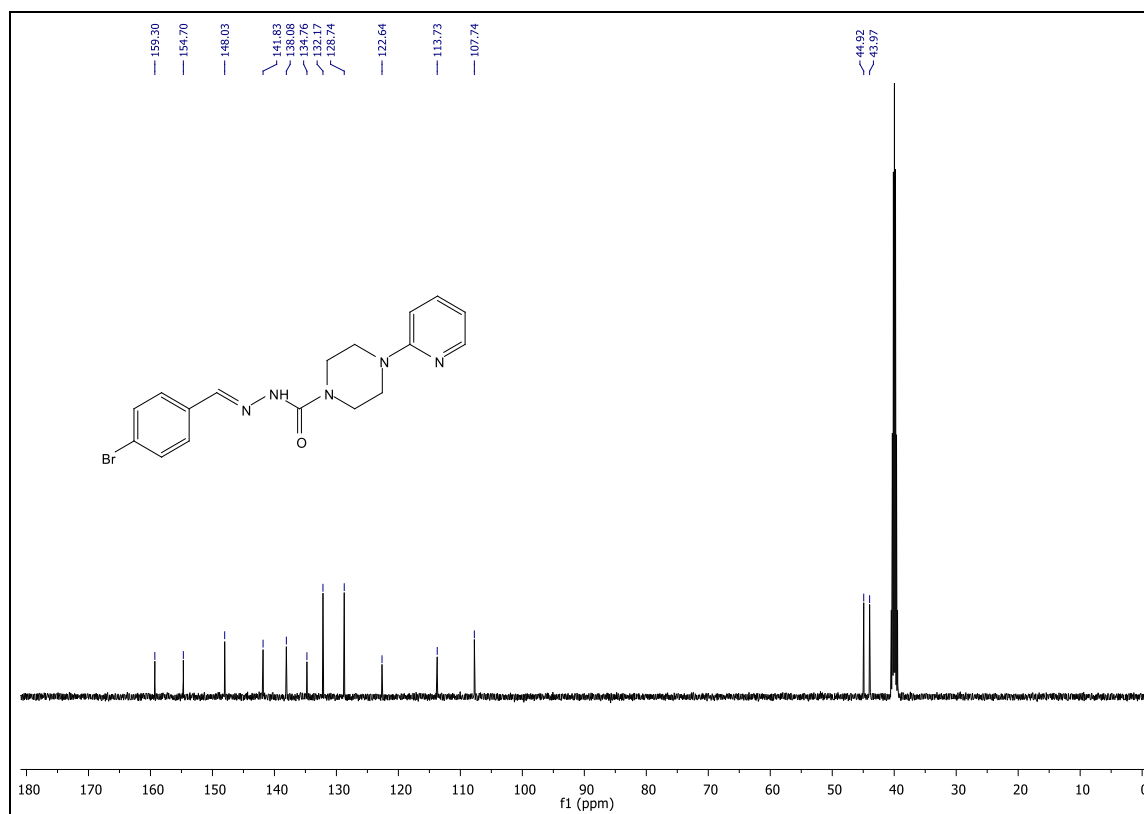
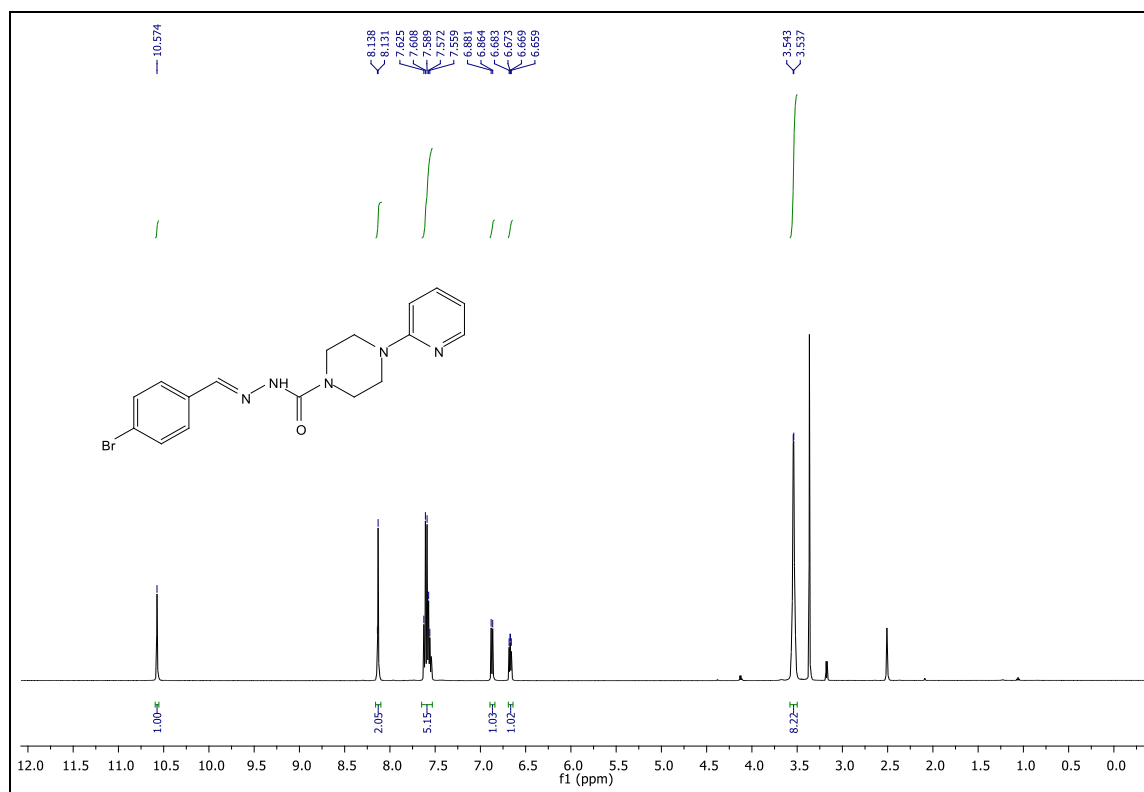
**4-(Pyridin-2-yl)-N'-(4-(trifluoromethoxy)benzylidene)piperazine-1-carbohydrazide (12k).**

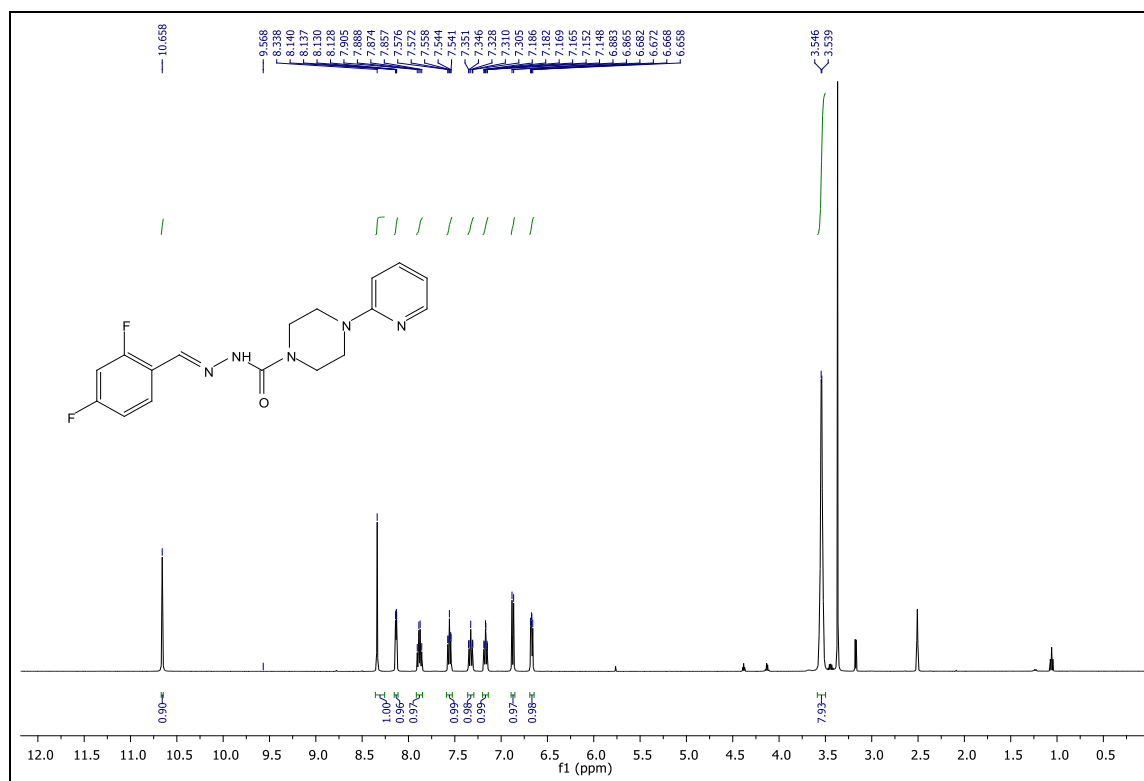
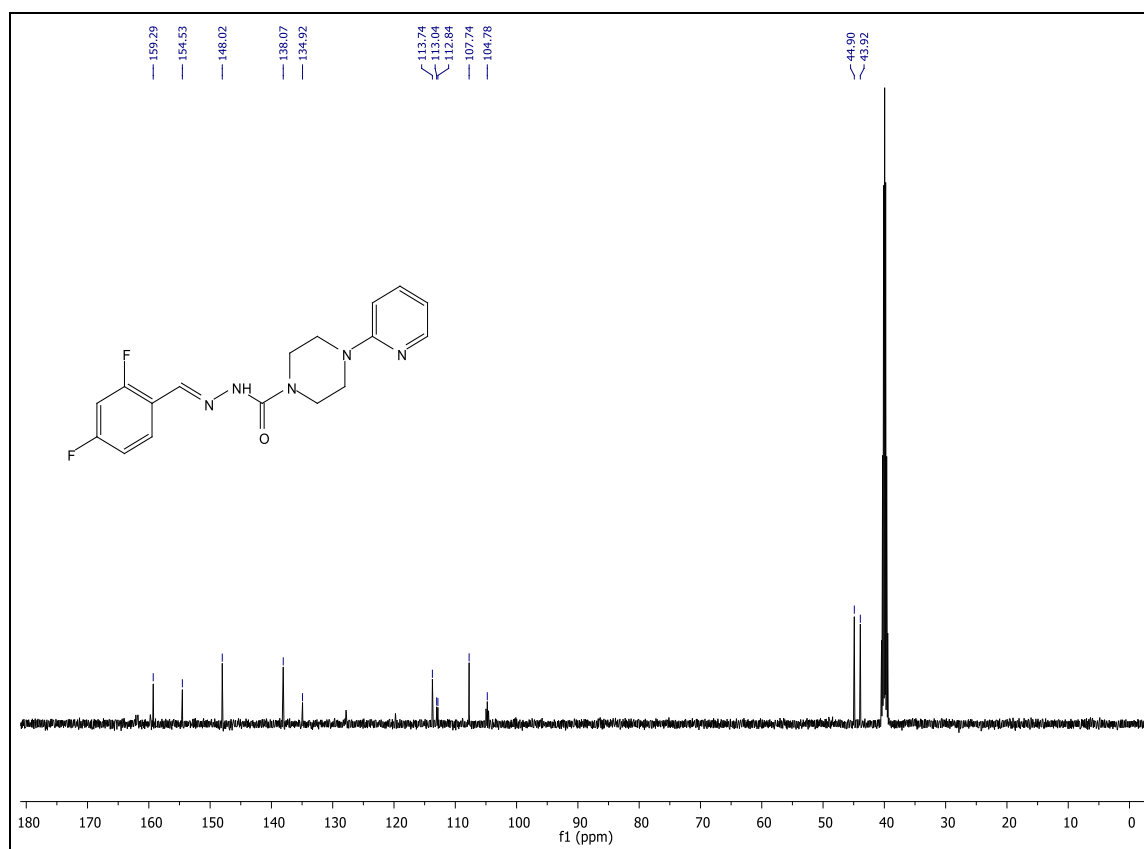


**Figure 8.9**  $^1\text{H}$  NMR Spectrum of target compound **12k**.

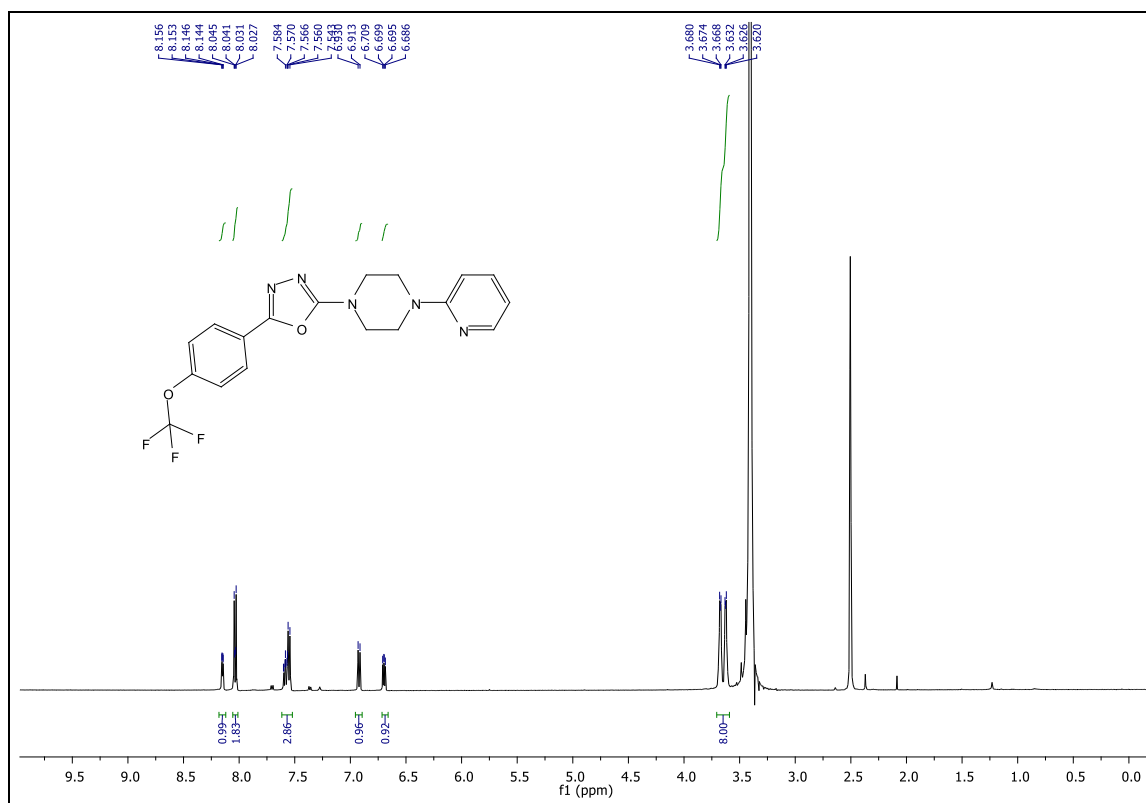


**Figure 8.10**  $^{13}\text{C}$  NMR Spectrum of target compound **12k**.

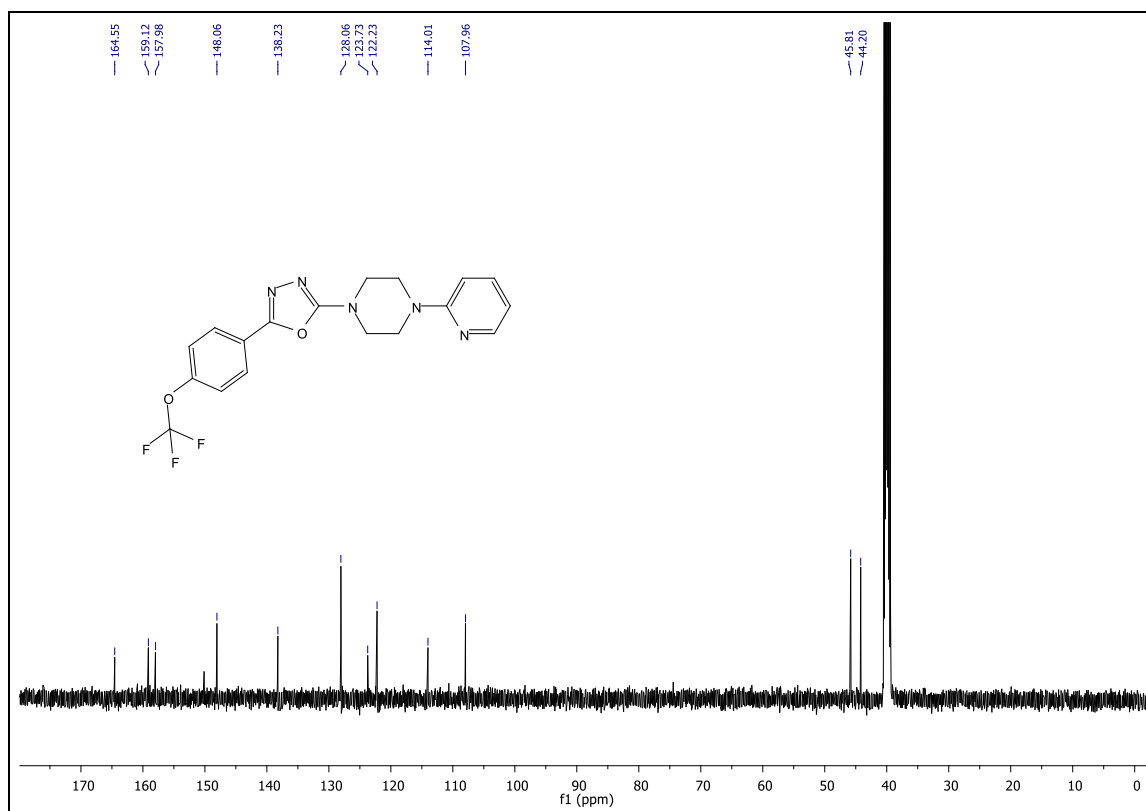
*N'*-(4-Bromobenzylidene)-4-(pyridin-2-yl)piperazine-1-carbohydrazide (**12n**).

*N'*-(2,4-Difluorobenzylidene)-4-(pyridine-2-yl)piperazine-1-carbohydrazide (**12o**).**Figure 8.13** <sup>1</sup>H NMR Spectrum of target compound **12o**.**Figure 8.14** <sup>13</sup>C NMR Spectrum of target compound **12o**.

**2-(4-(Pyridin-2-yl)piperazin-1-yl)-5-(4-(trifluoromethoxy)phenyl)-1,3,4-oxadiazole (13k).**

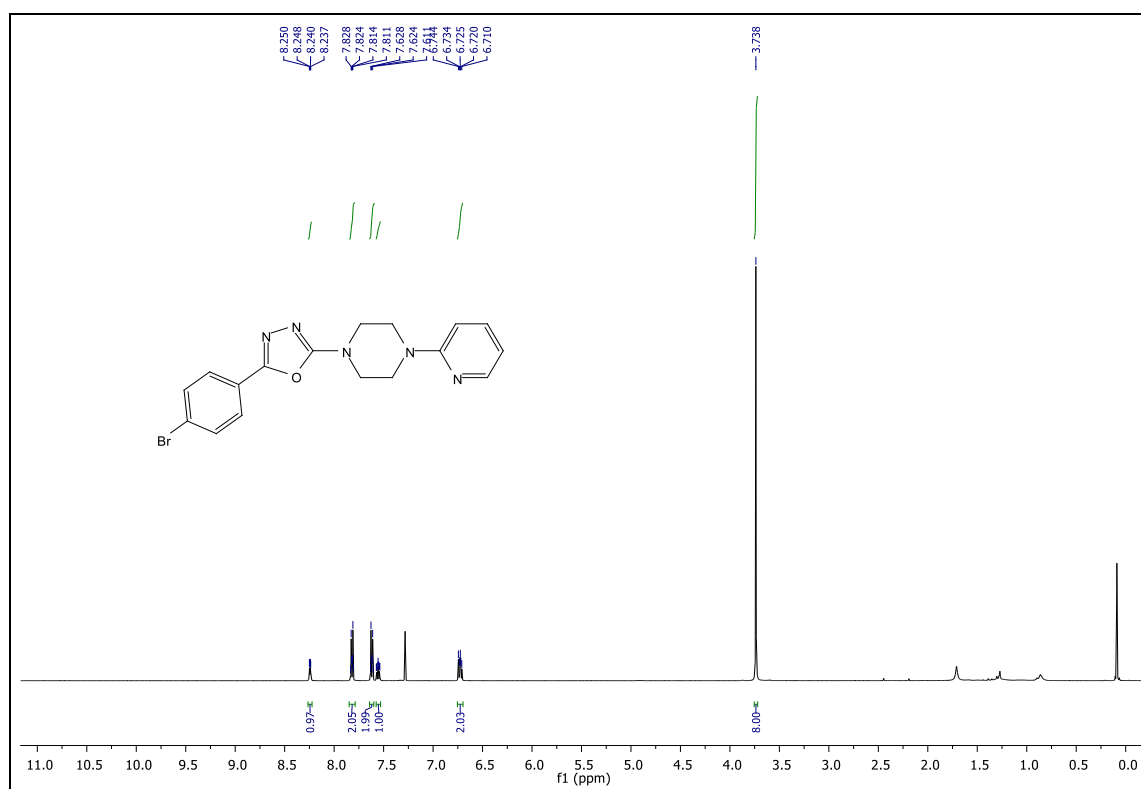
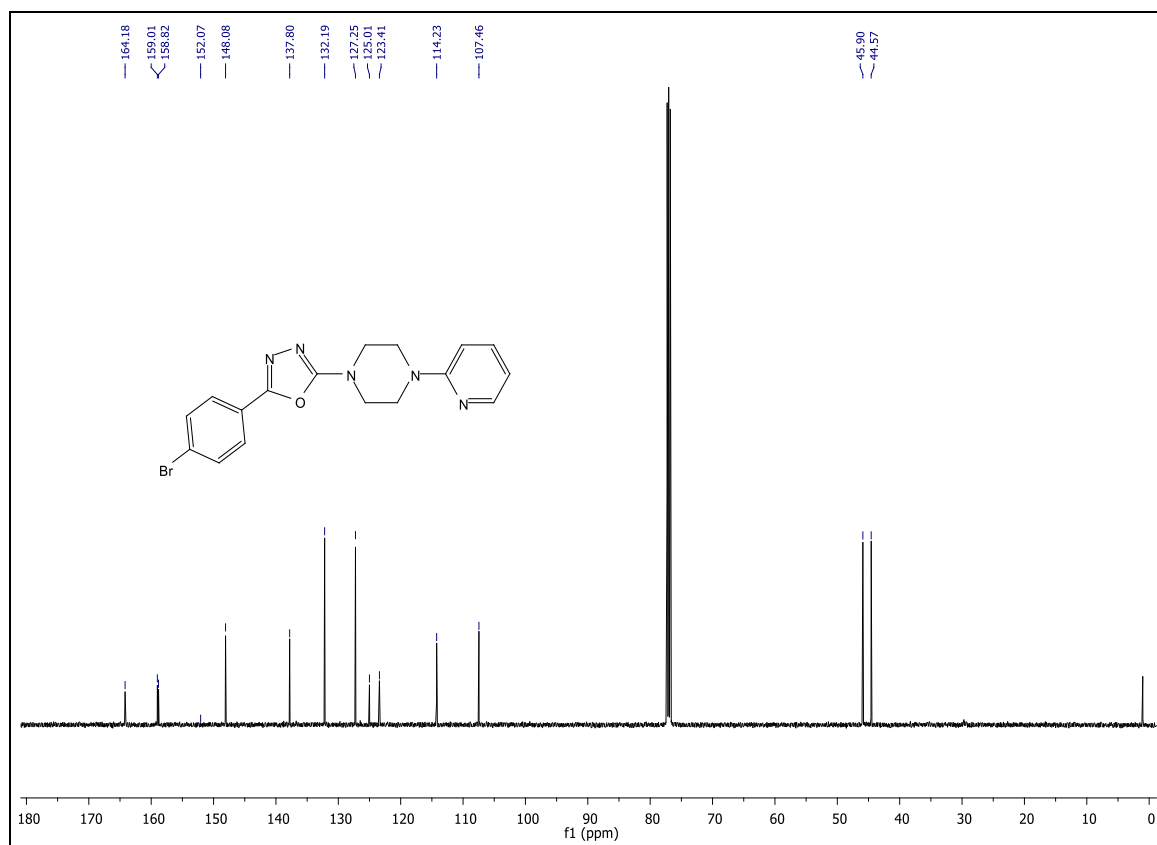


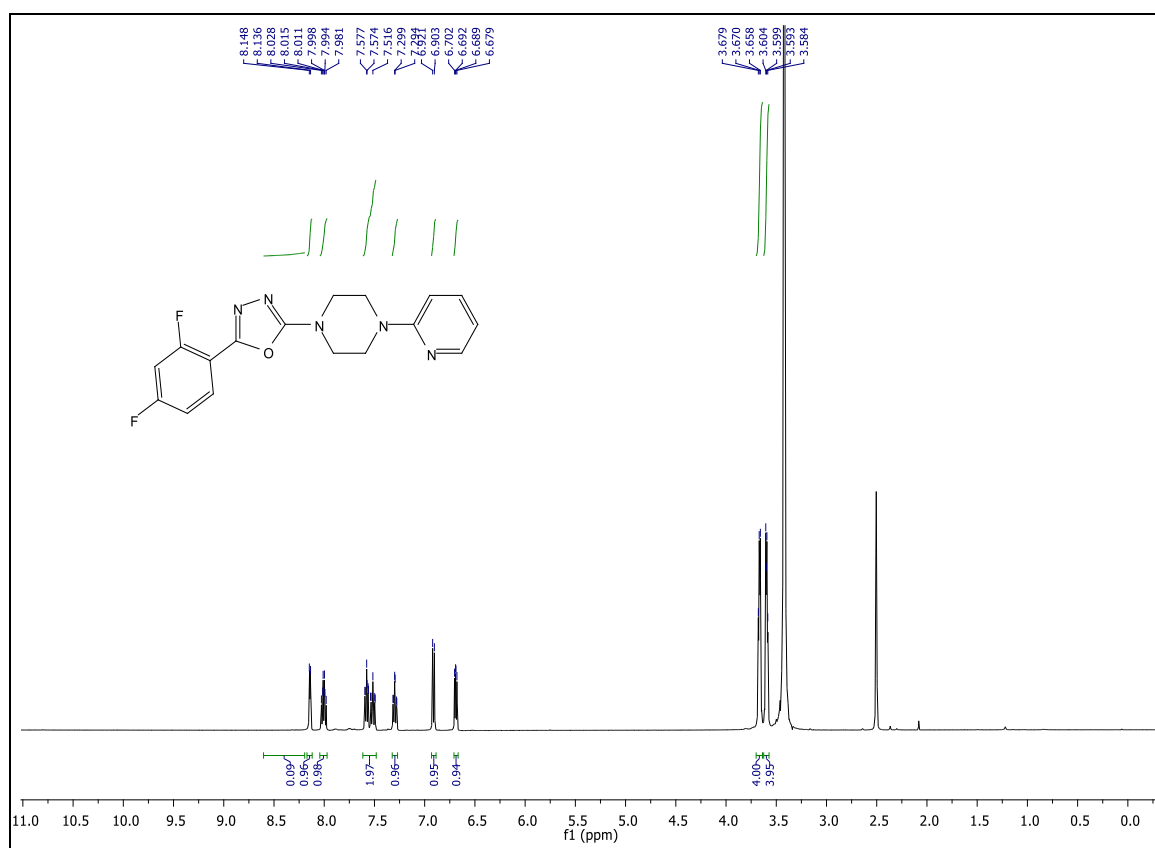
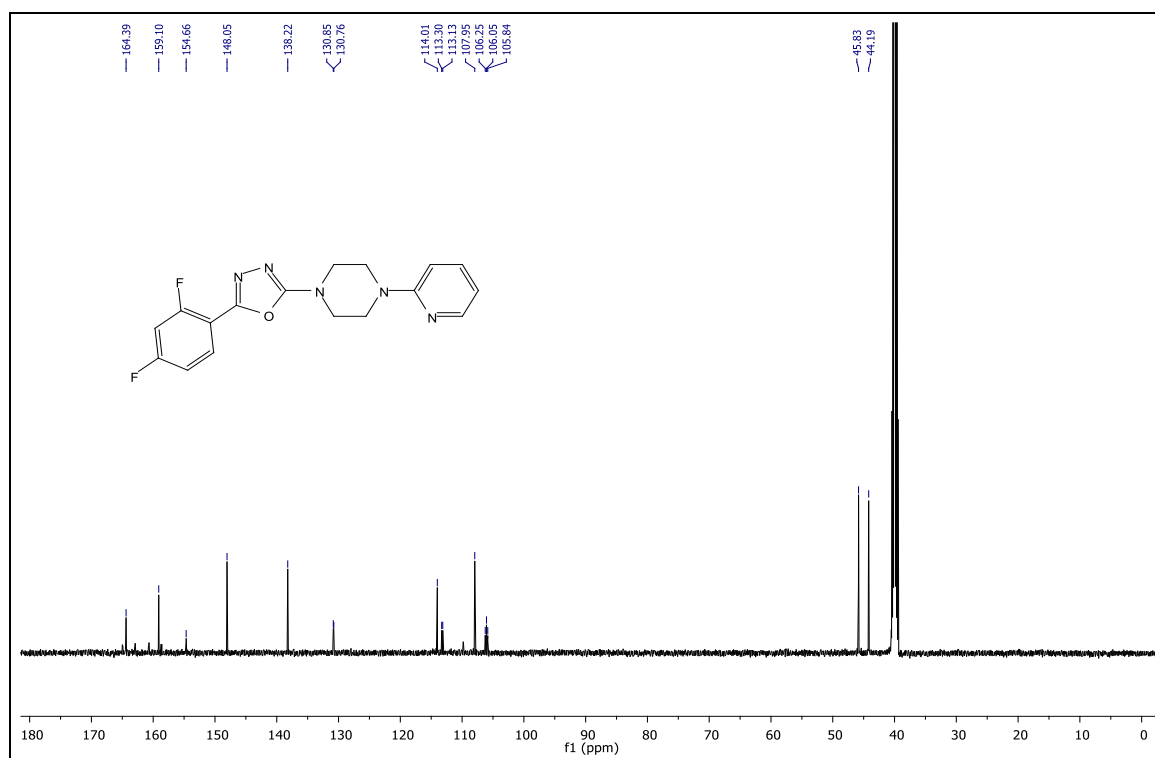
**Figure 8.15** <sup>1</sup>H NMR Spectrum of target compound **13k**.



**Figure 8.16** <sup>13</sup>C NMR Spectrum of target compound **13k**.



**2-(4-Bromophenyl)-5-(4-(pyridin-2-yl)piperazin-1-yl)-1,3,4-oxadiazole (13n).****Figure 8.17**  $^1\text{H}$  NMR Spectrum of target compound **13n**.**Figure 8.18**  $^{13}\text{C}$  NMR Spectrum of target compound **13n**.

**2-(2,4-Difluorophenyl)-5-(4-(pyridin-2-yl)piperazin-1-yl)-1,3,4-oxadiazole (13o).****Figure 8.19** <sup>1</sup>H NMR Spectrum of target compound **13o**.**Figure 8.20** <sup>13</sup>C NMR Spectrum of target compound **13o**.

## 8.2. Mass spectra of representative synthesized compounds

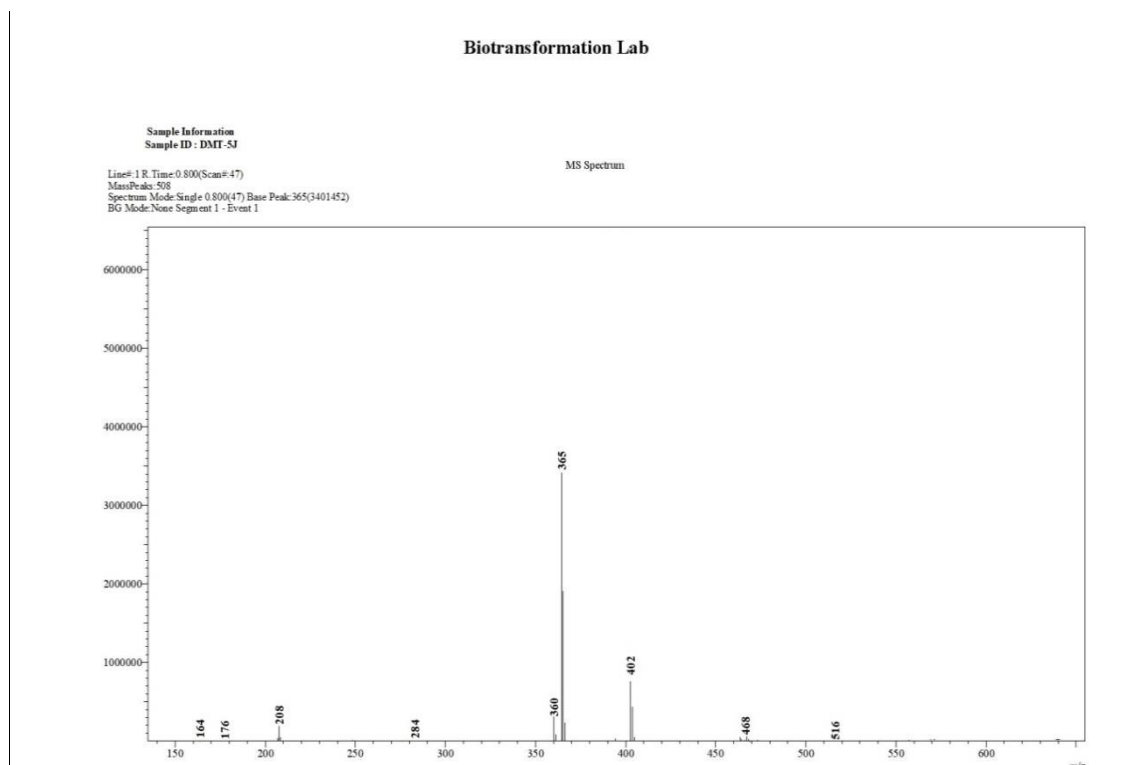


Figure 8.21 Mass spectrum of compound 5j.

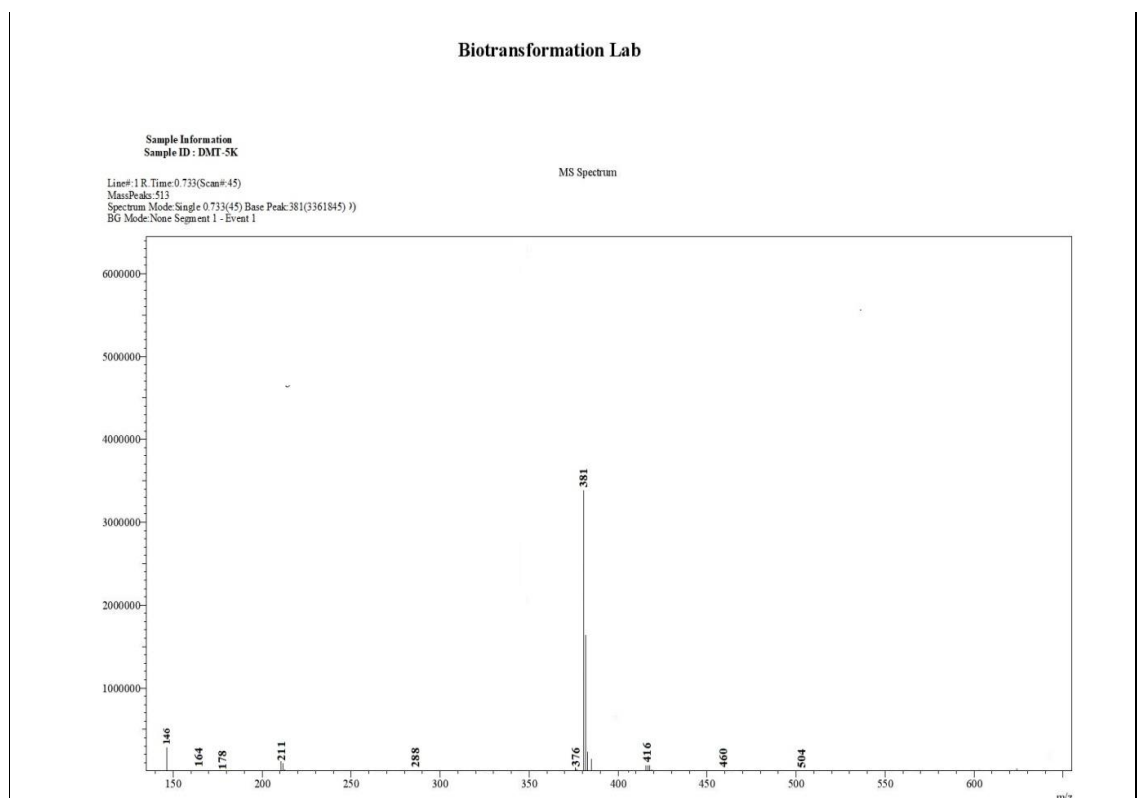
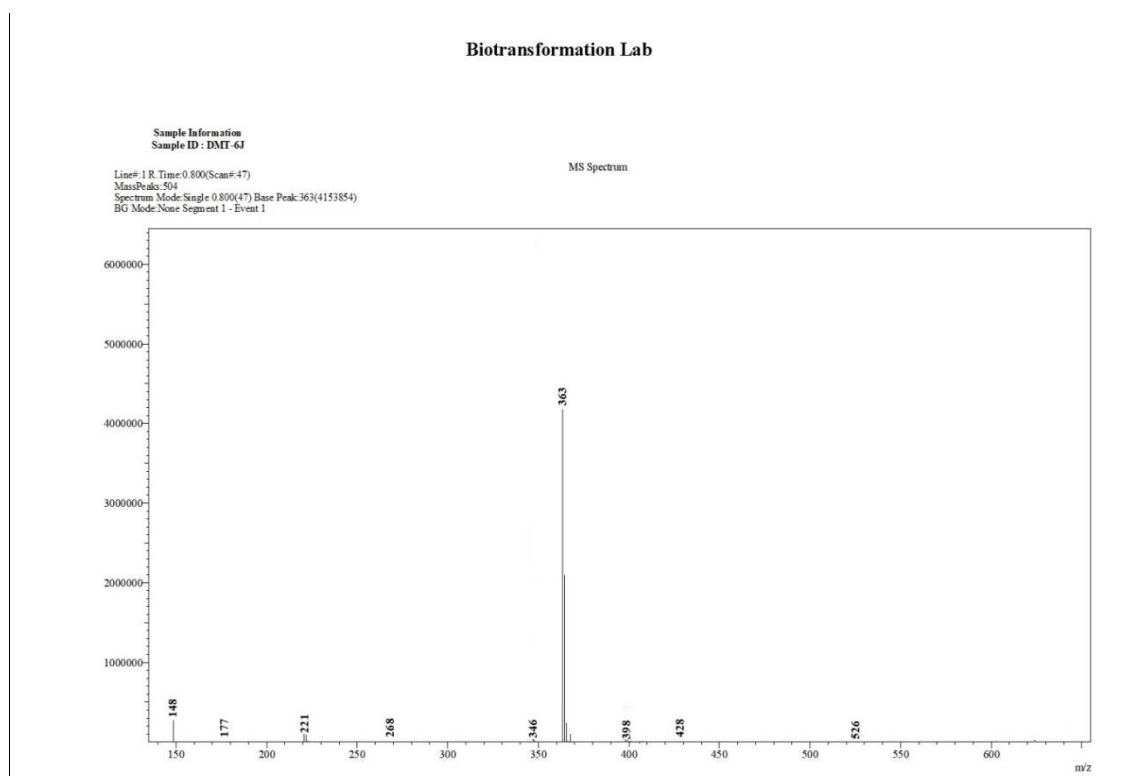
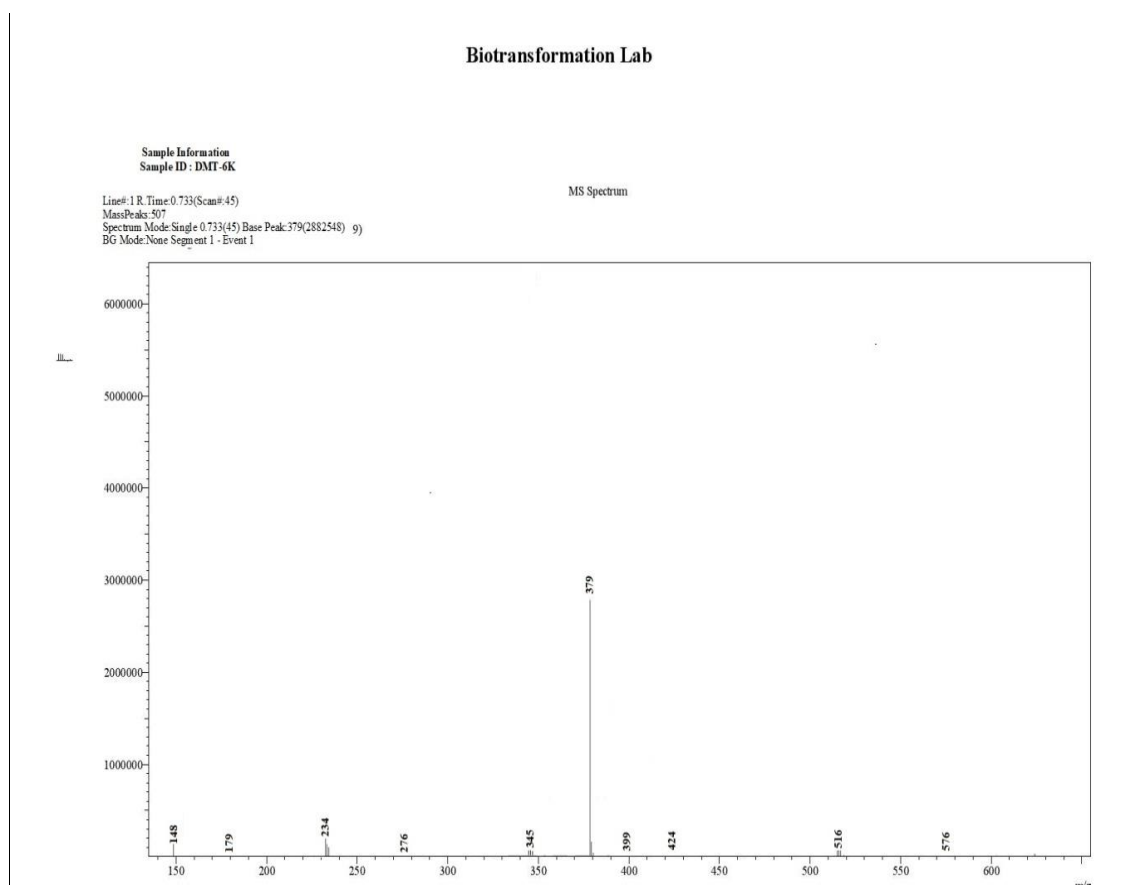


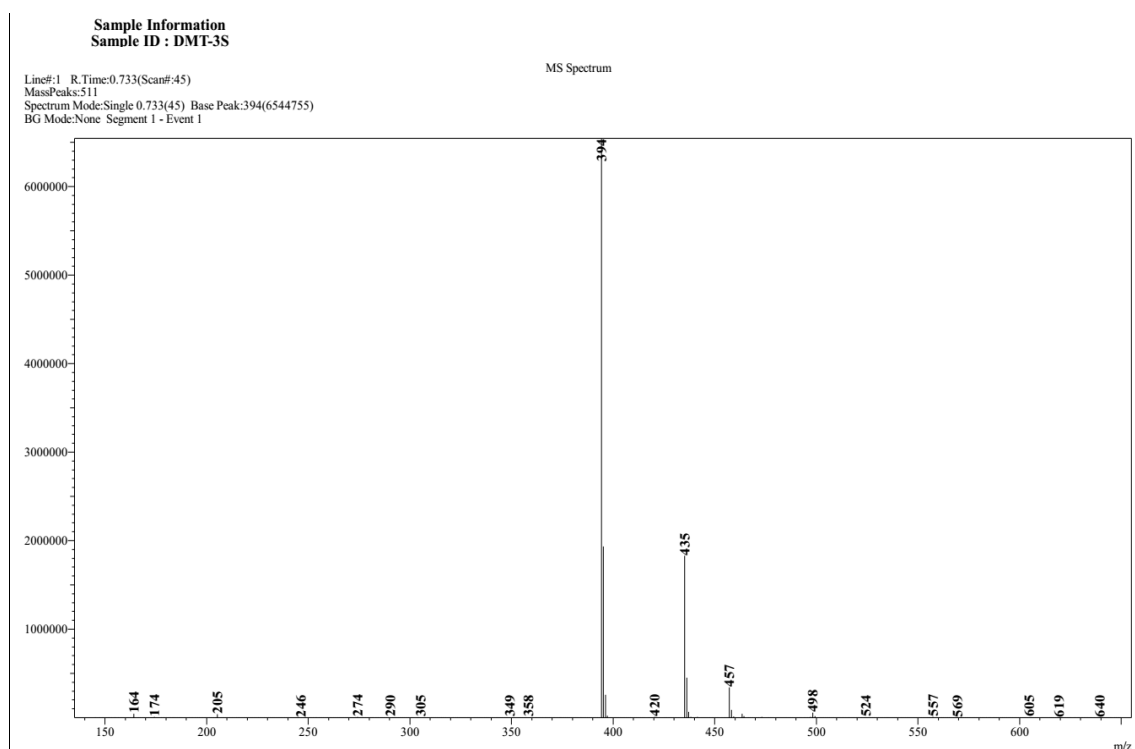
Figure 8.22 Mass spectrum of compound 5k.



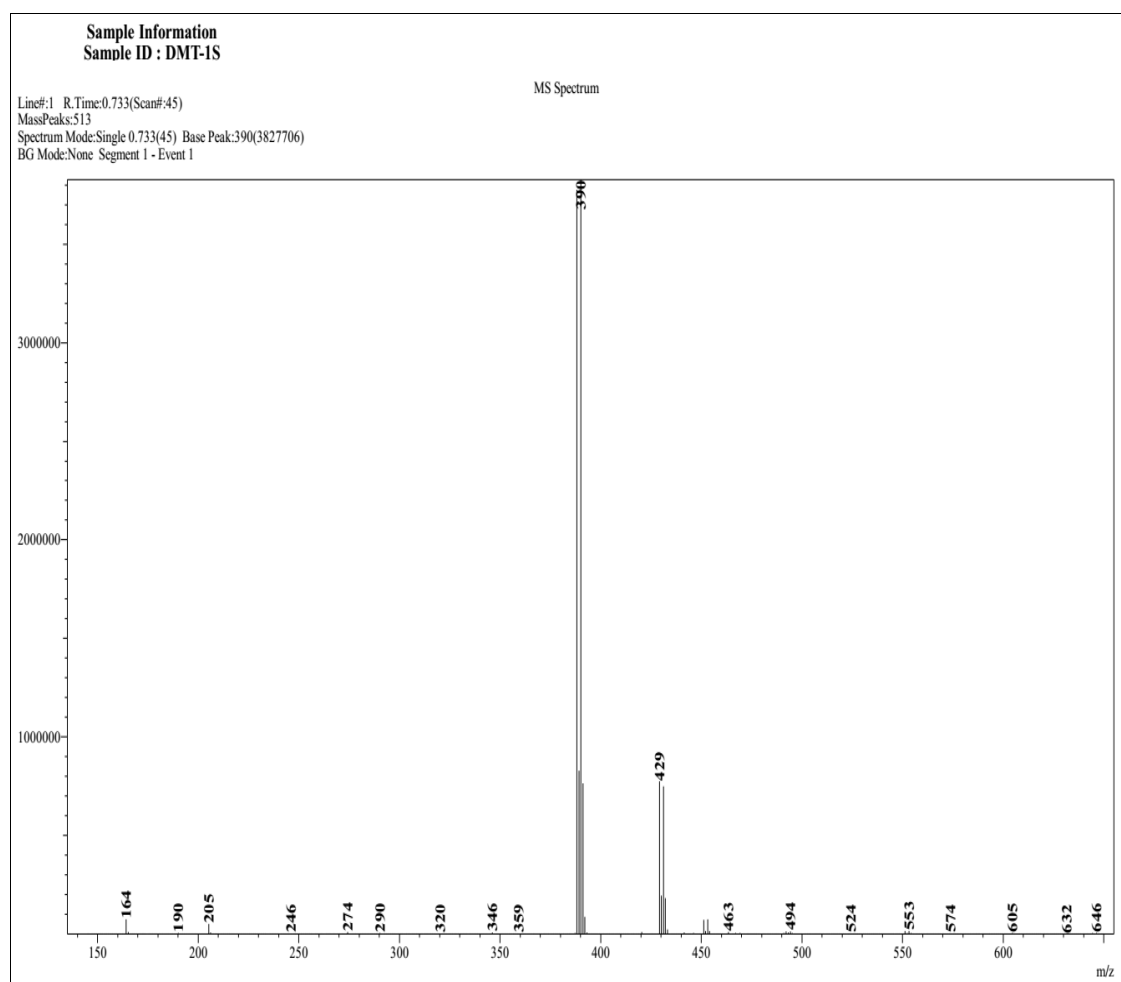
**Figure 8.23** Mass spectrum of compound **6j**.



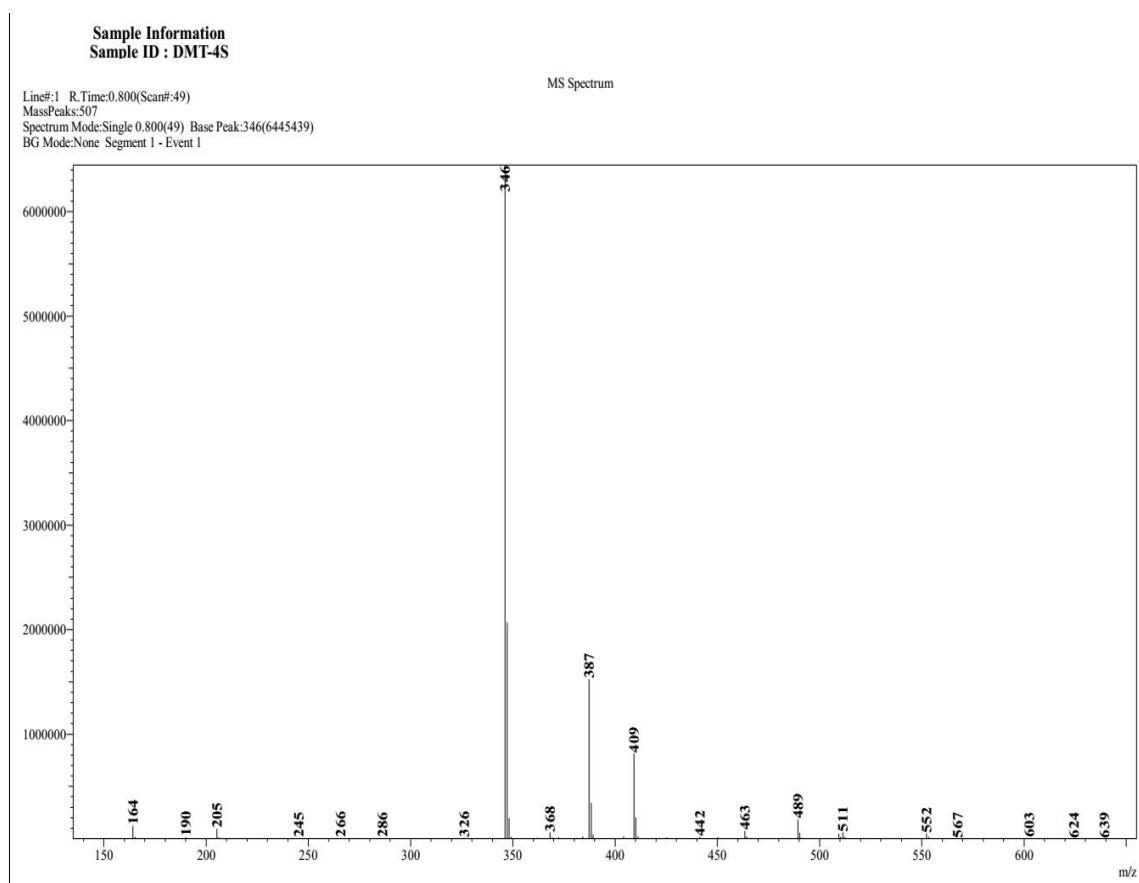
**Figure 8.24** Mass spectrum of compound **6k**.



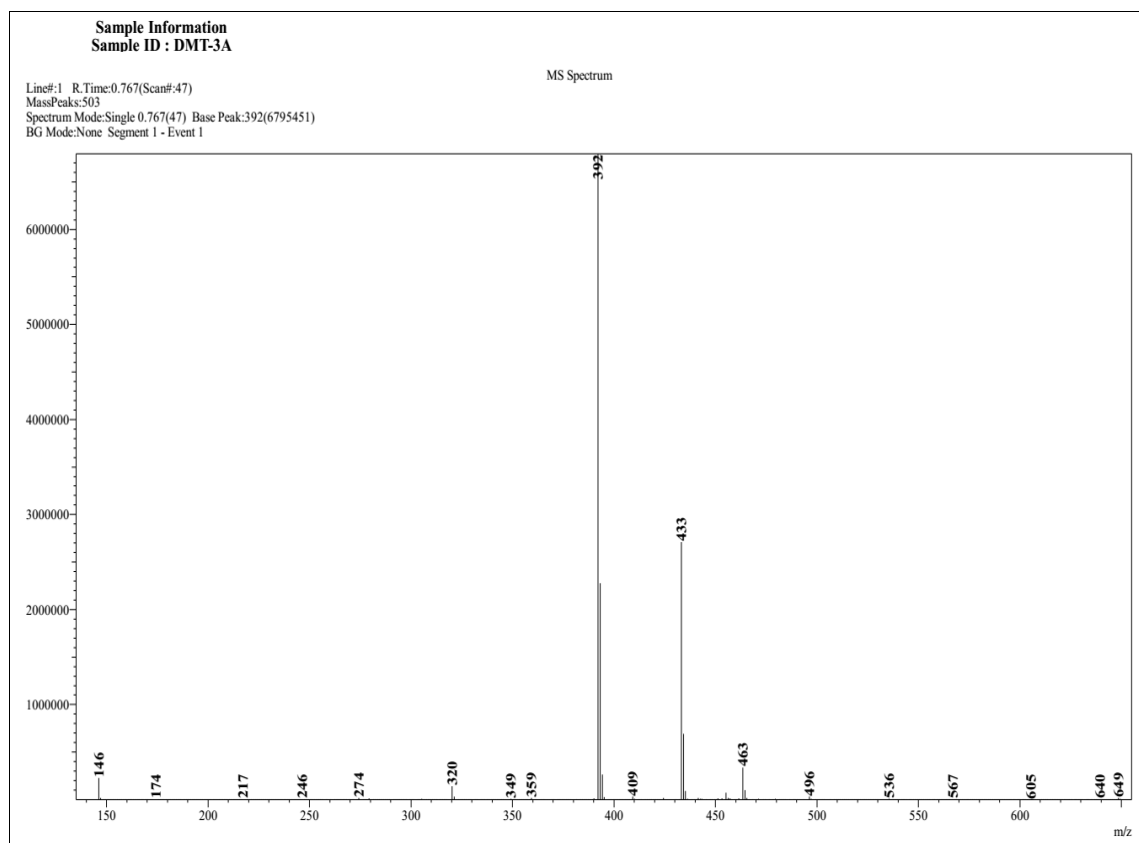
**Figure 8.25** Mass Spectrum of compound 12k.



**Figure 8.26** Mass Spectrum of compound 12n.



**Figure 8.27** Mass Spectrum of compound 12o.



**Figure 8.28** Mass Spectrum of compound 13k.

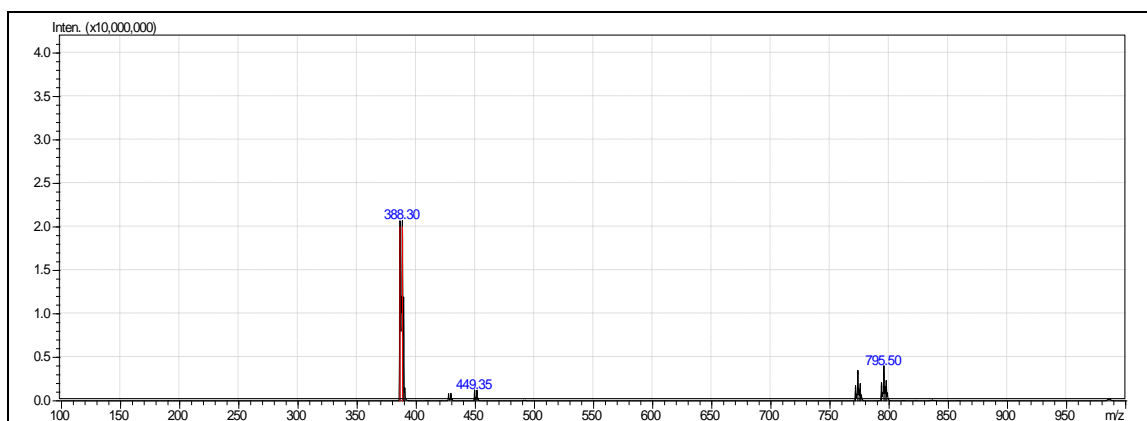


Figure 8.29 Mass Spectrum of compound 13n.

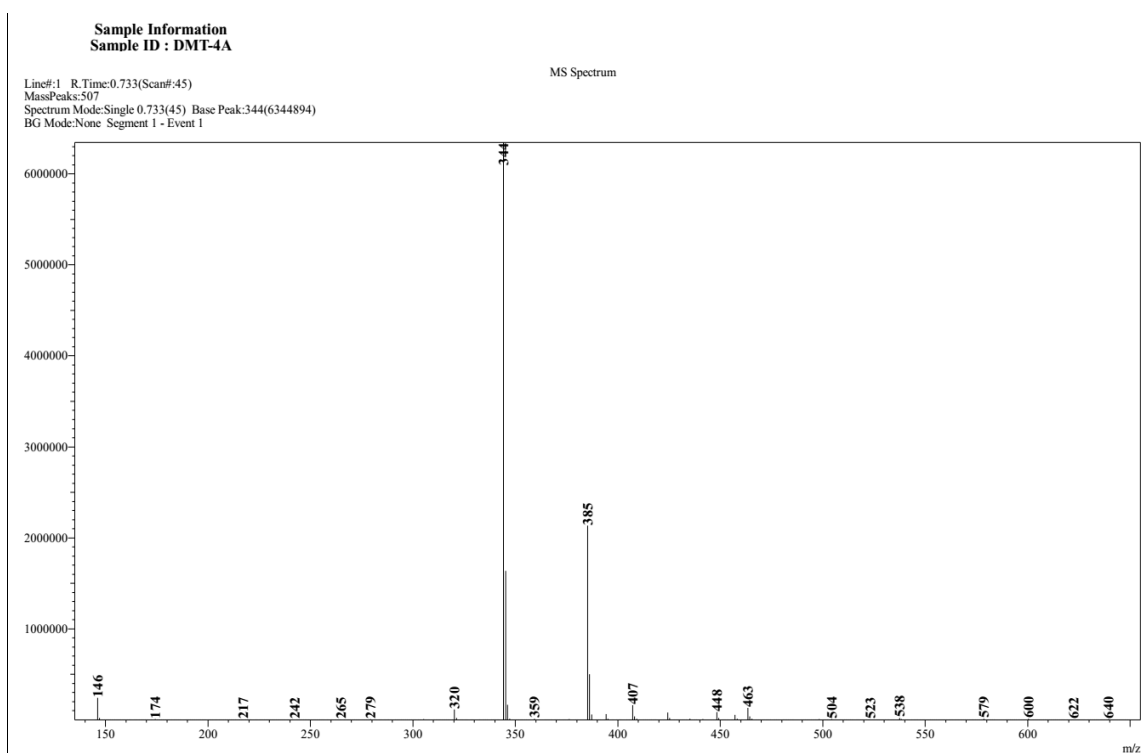


Figure 8.30 Mass Spectrum of compound 13o.

### 8.3 HPLC chromatograms of representative synthesized compounds

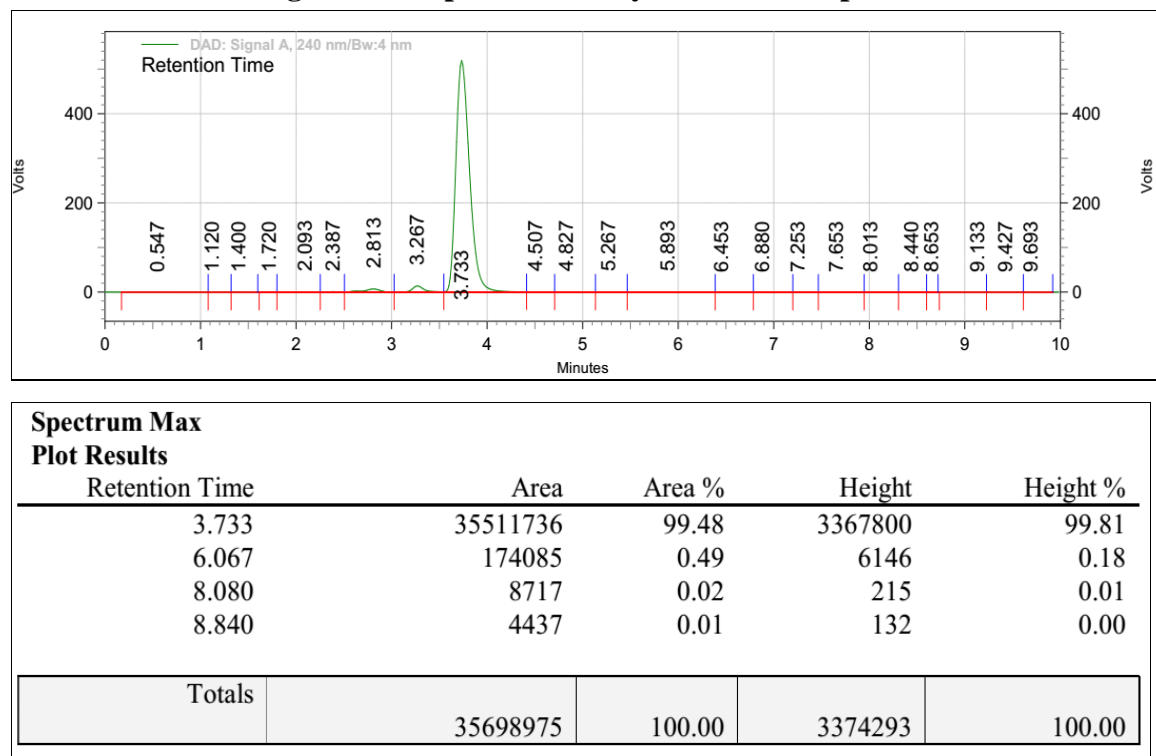


Figure 8.31 HPLC chromatogram and report of compound 6k.

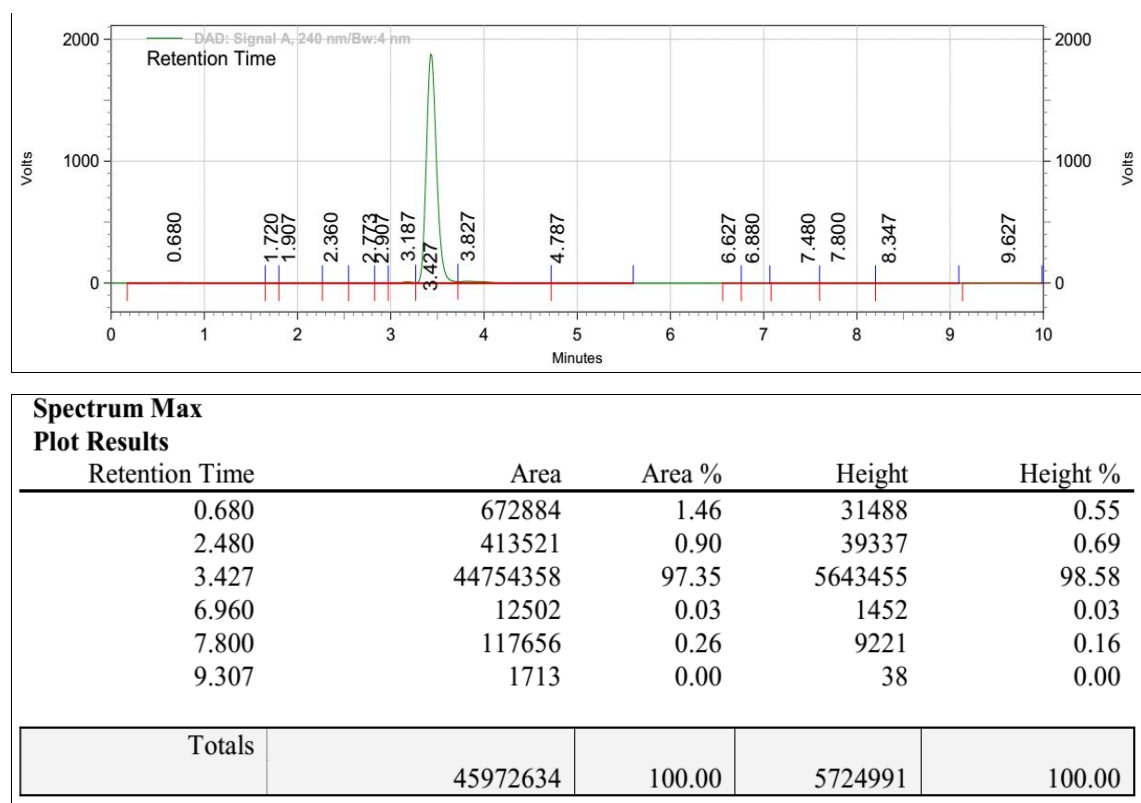
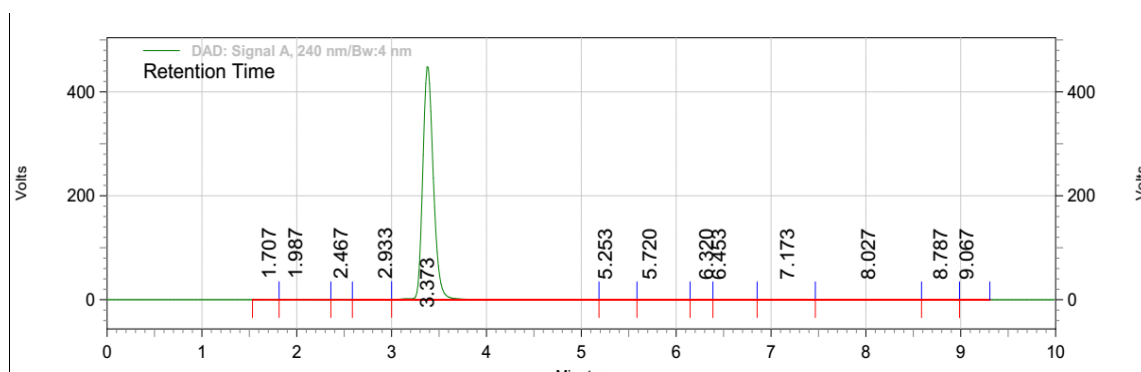


Figure 8.32 HPLC chromatogram and report of compound 12n.

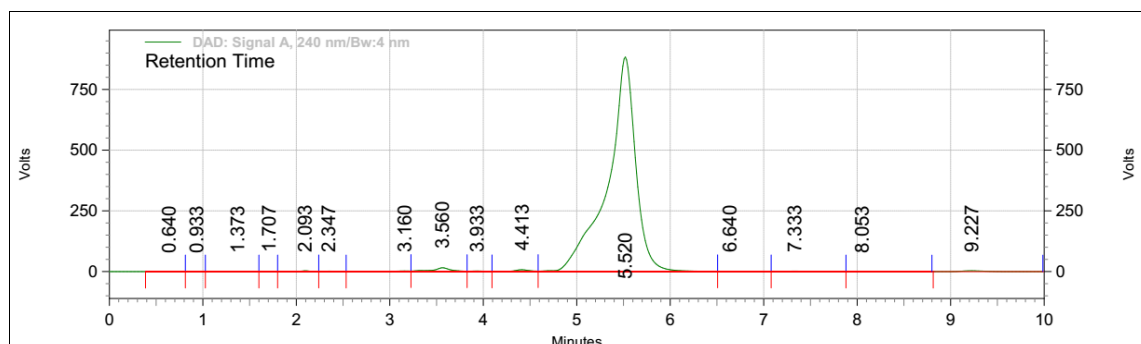




**Spectrum Max Plot Results**

Retention Time	Area	Area %	Height	Height %
3.373	39545732	99.92	4886561	99.99
8.067	30568	0.08	477	0.01
<b>Totals</b>	<b>39576300</b>	<b>100.00</b>	<b>4887038</b>	<b>100.00</b>

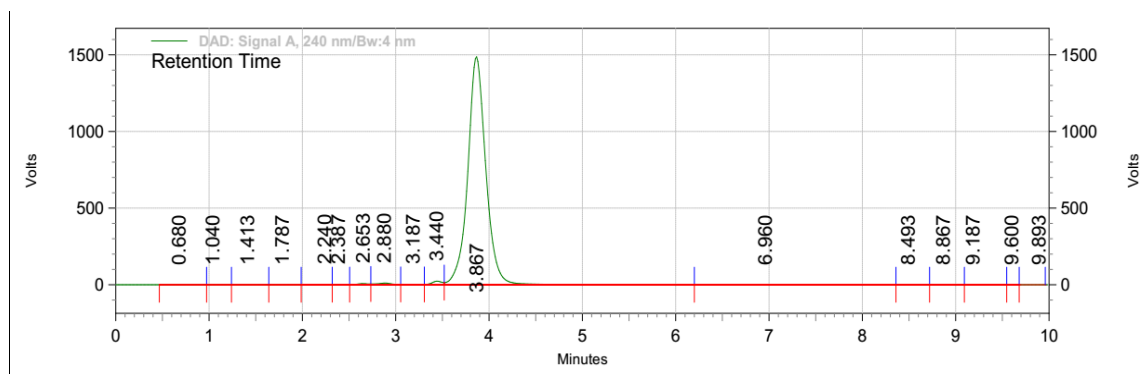
Figure 8.33 HPLC chromatogram and report of compound 12o.



**Spectrum Max Plot Results**

Retention Time	Area	Area %	Height	Height %
2.467	839561	0.48	44744	0.62
3.560	2367783	1.34	80333	1.11
5.520	172026533	97.49	7014731	97.34
7.320	320498	0.18	11544	0.16
9.227	900190	0.51	55027	0.76
<b>Totals</b>	<b>176454565</b>	<b>100.00</b>	<b>7206379</b>	<b>100.00</b>

Figure 8.34 HPLC chromatogram and report of compound 13n.



Spectrum Max				
Plot Results				
Retention Time	Area	Area %	Height	Height %
0.640	356441	0.53	11631	0.25
2.453	1447936	2.15	54422	1.16
3.867	65300745	97.13	4636288	98.53
7.173	120981	0.18	2969	0.06
8.280	4853	0.01	0	0.00
Totals	67230956	100.00	4705310	100.00

Figure 8.35 HPLC chromatogram and report of compound 13o.