

Supporting Information

for

Ebselen analogues with dual human neutrophil elastase (HNE) inhibitory and antiradical activity

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***Corresponding Author**

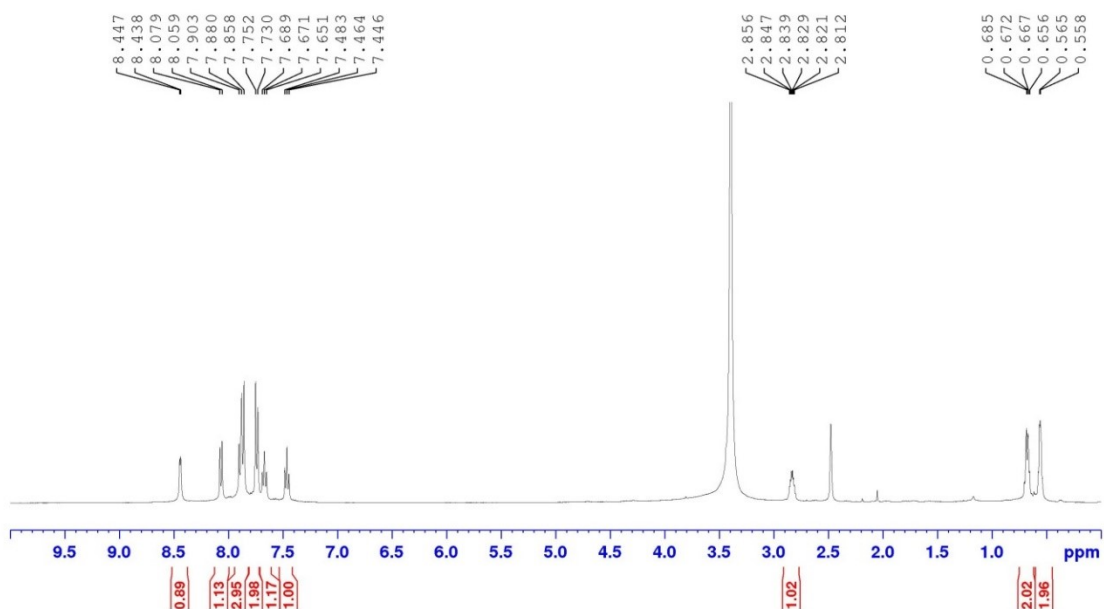
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Tel +39-055-4573683
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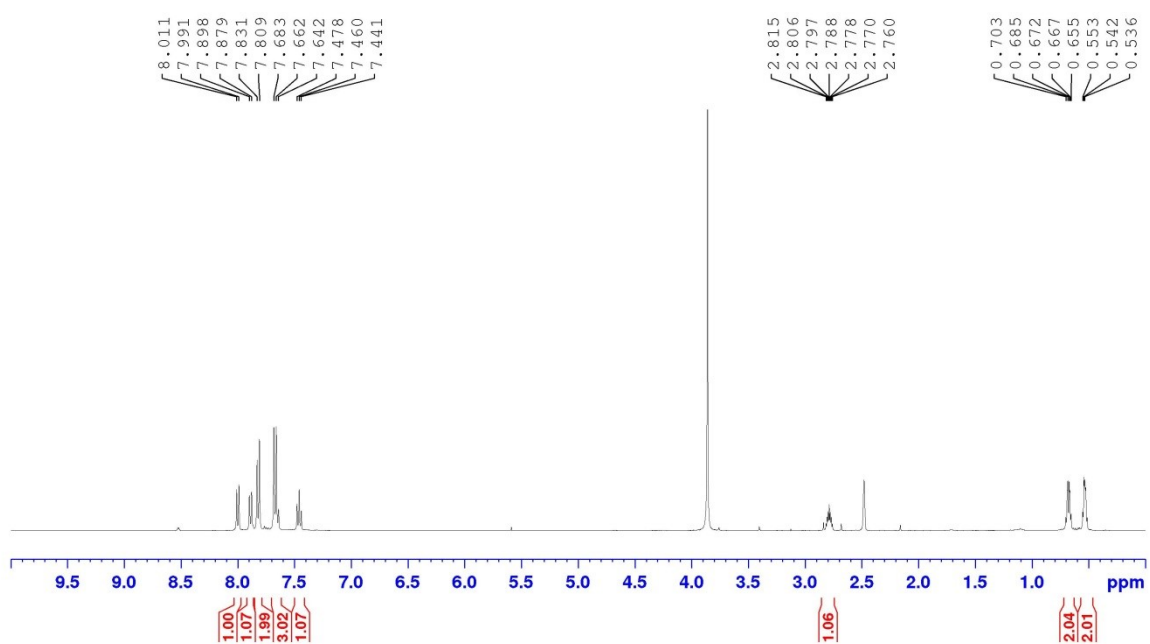
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1. $^1\text{H-NMR}$, $^{13}\text{C-NMR}$, $^{77}\text{Se-NMR}$ spectra of some representative final compounds

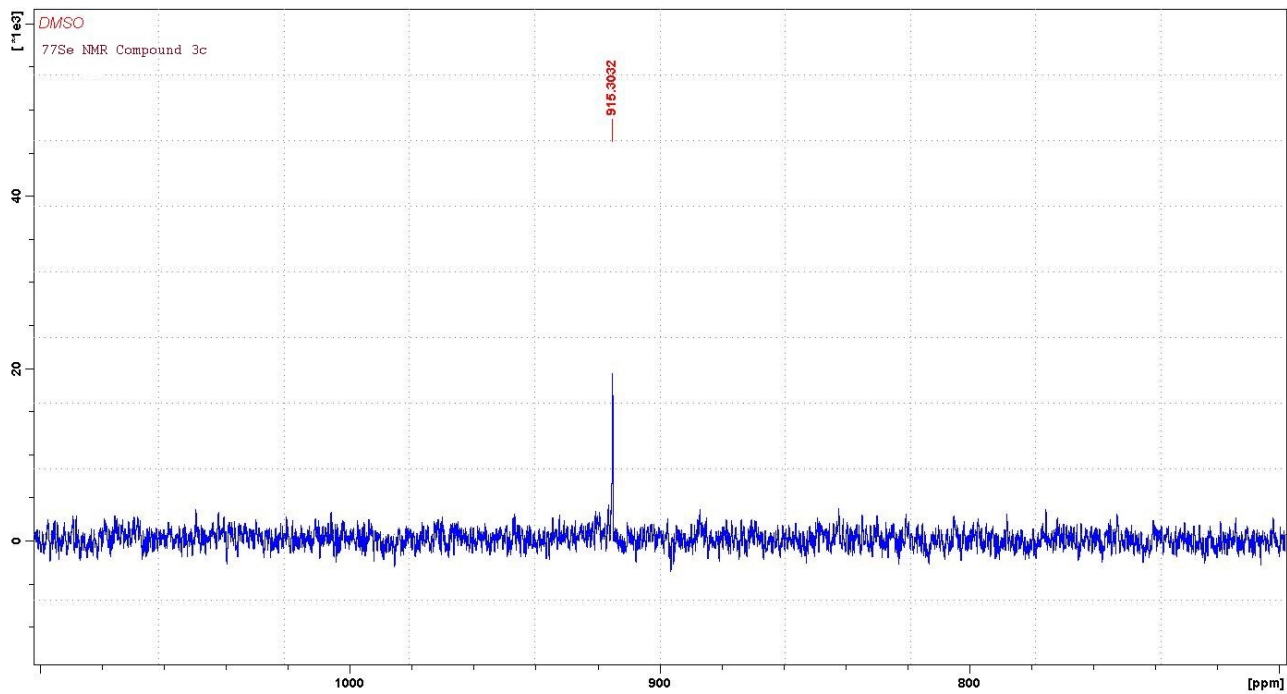
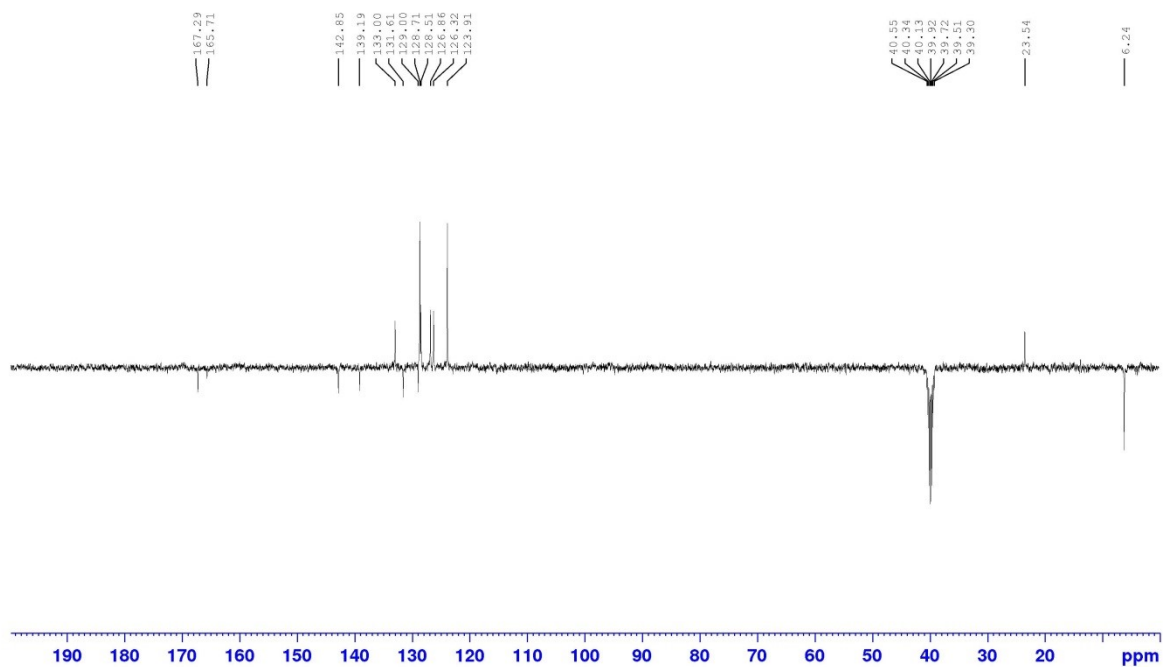
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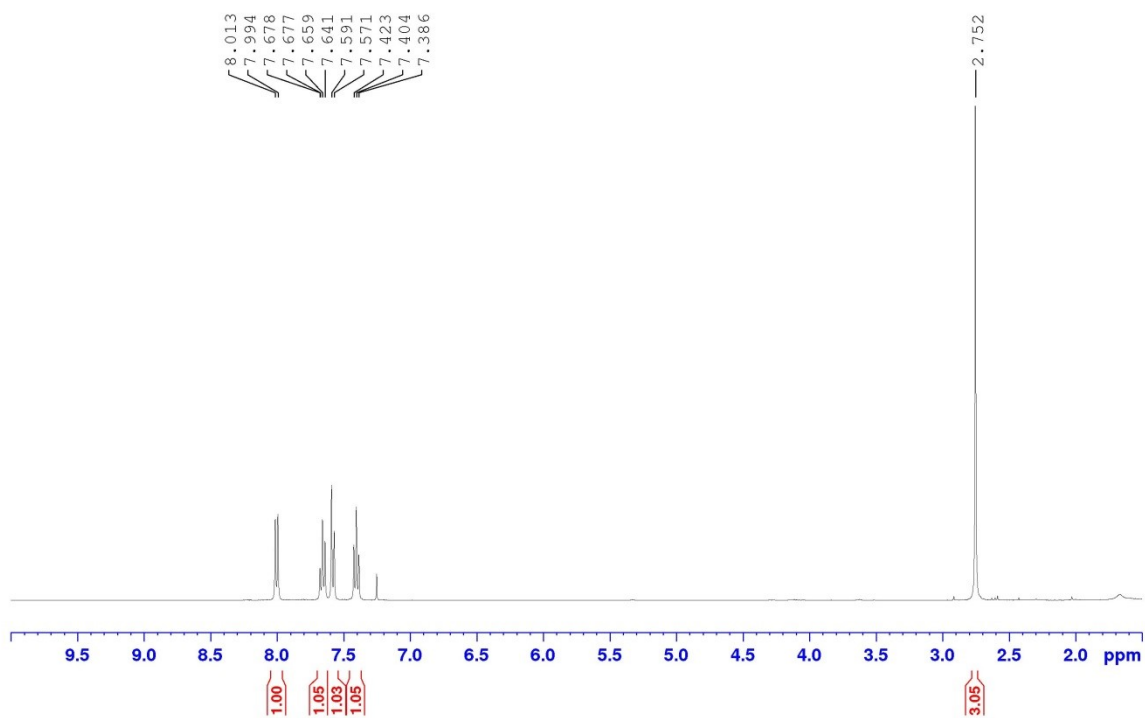
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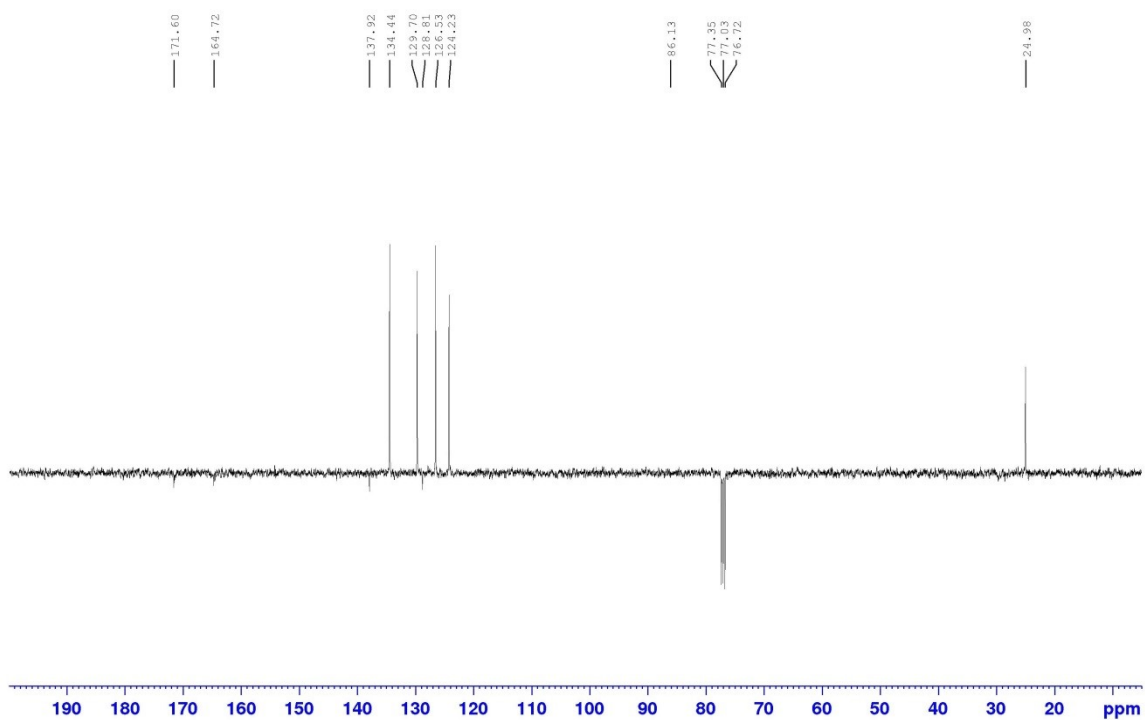
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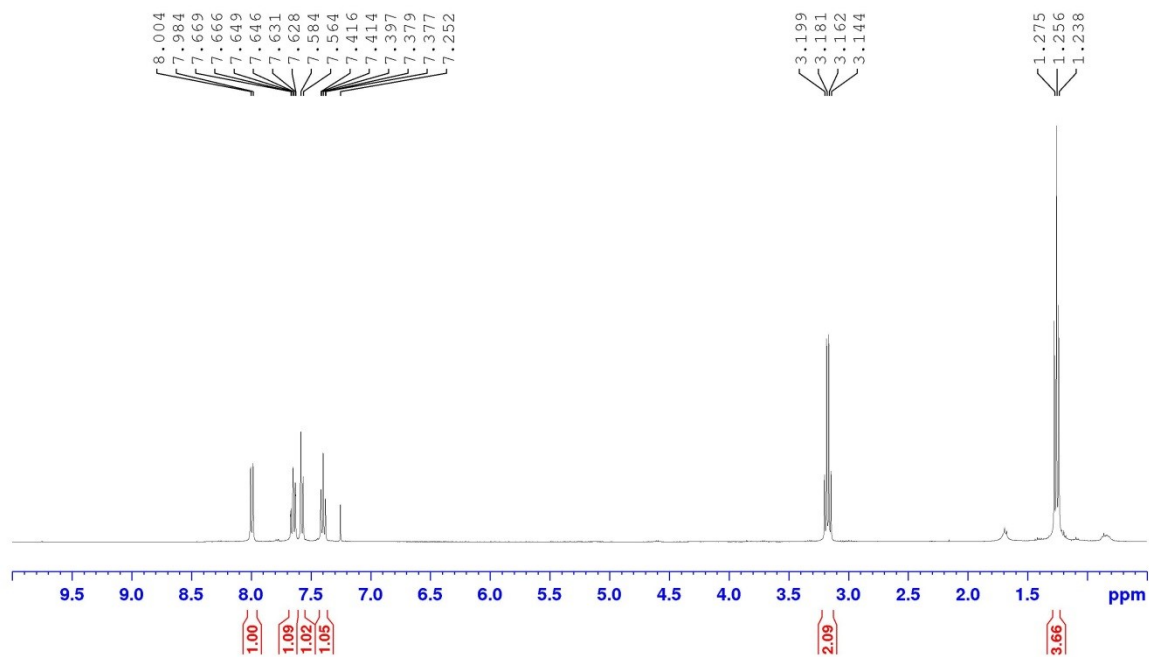
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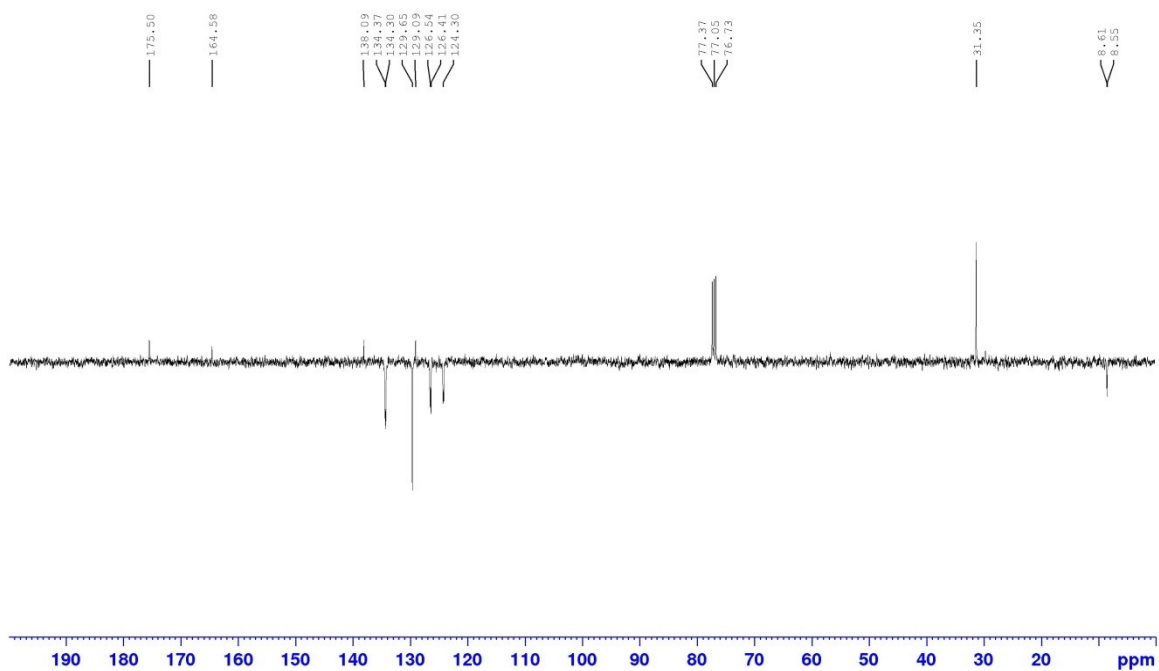
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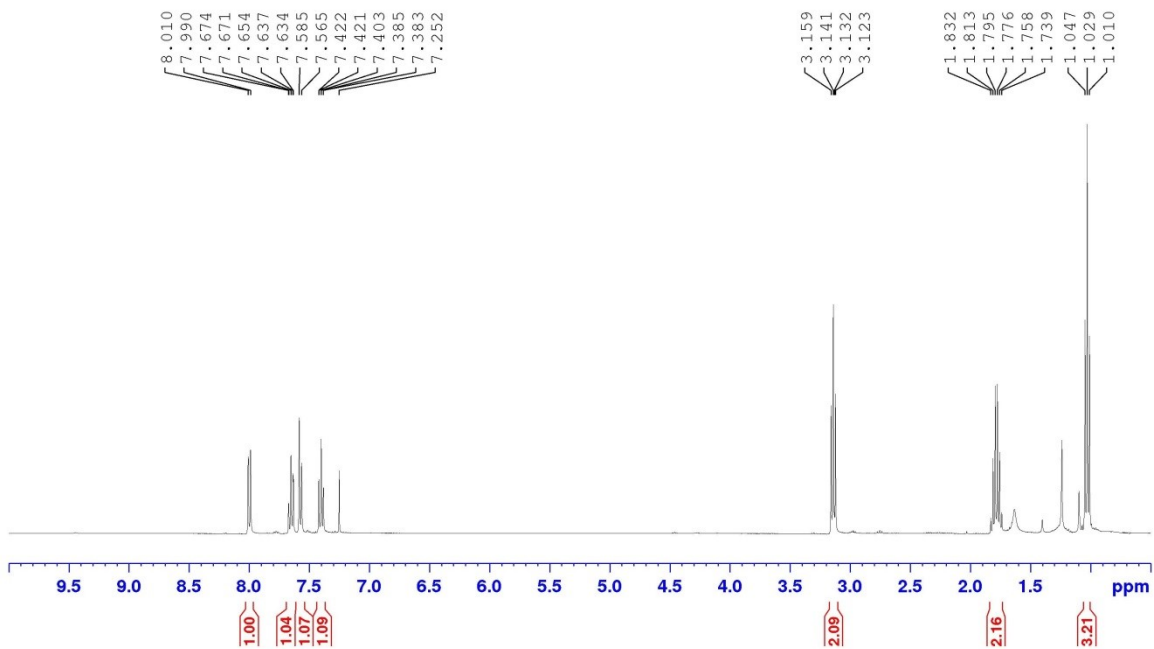
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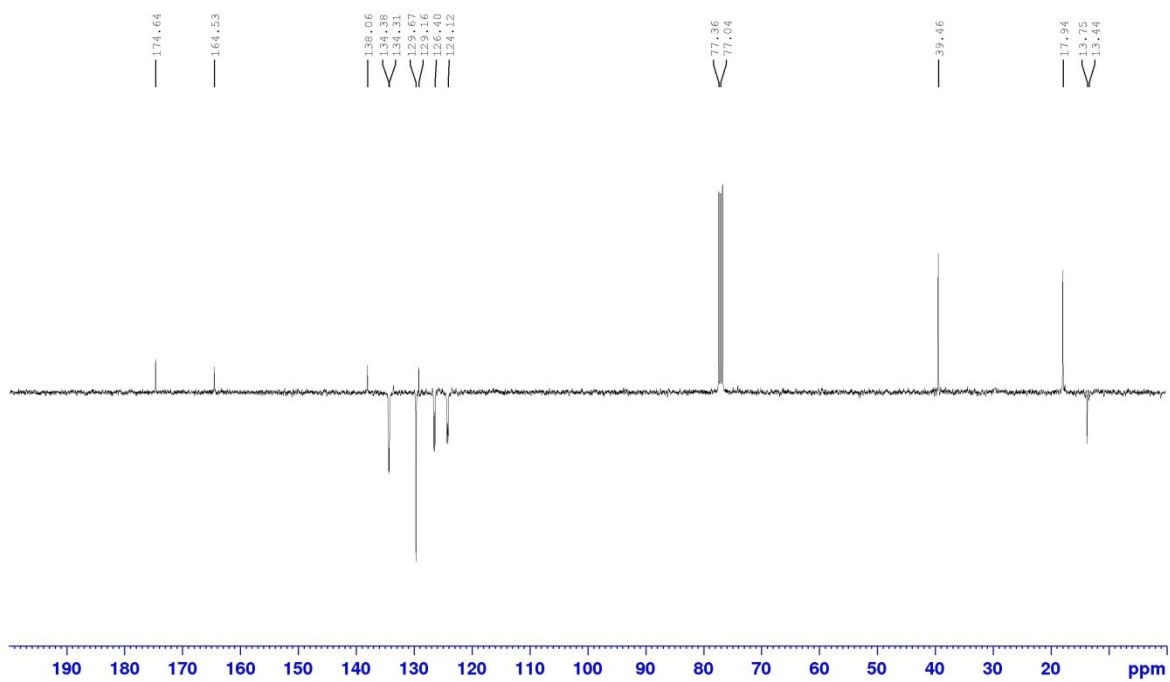
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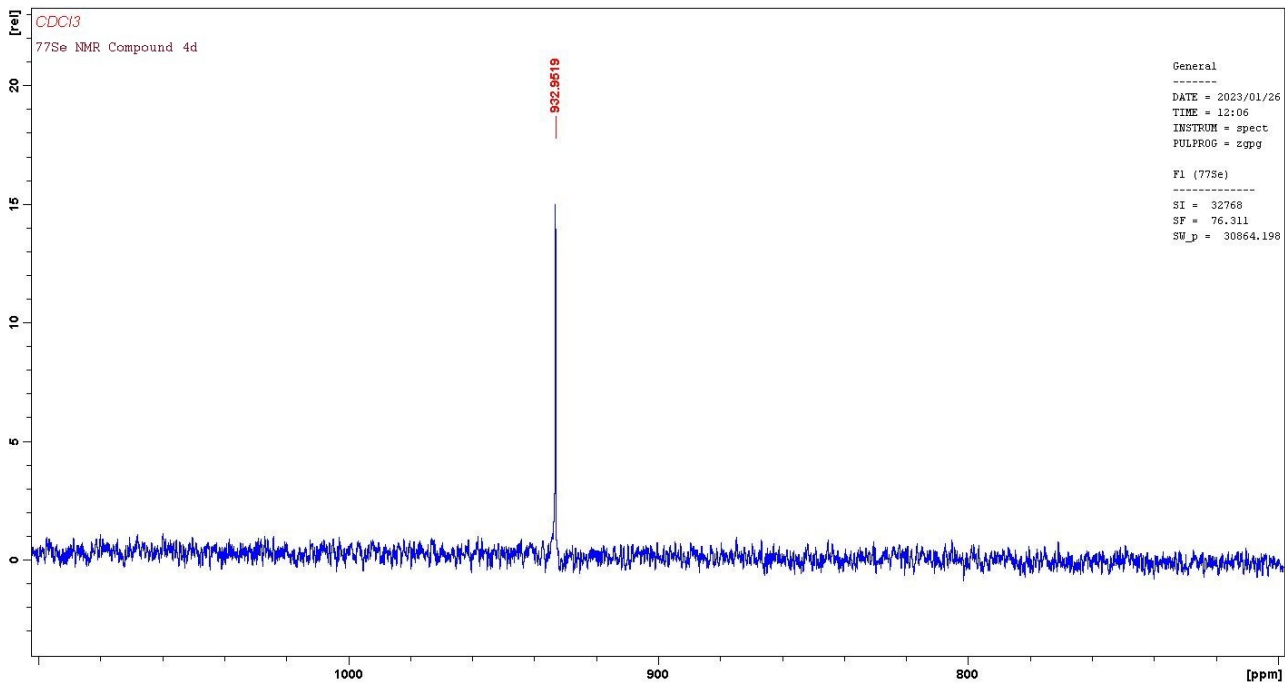


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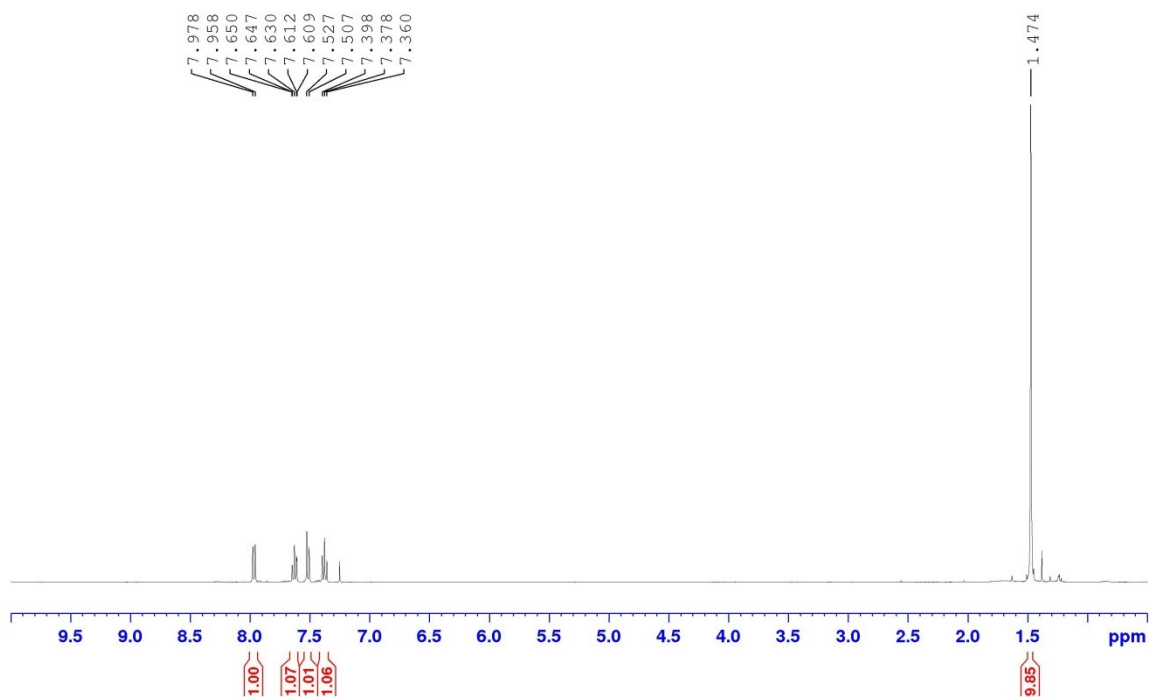


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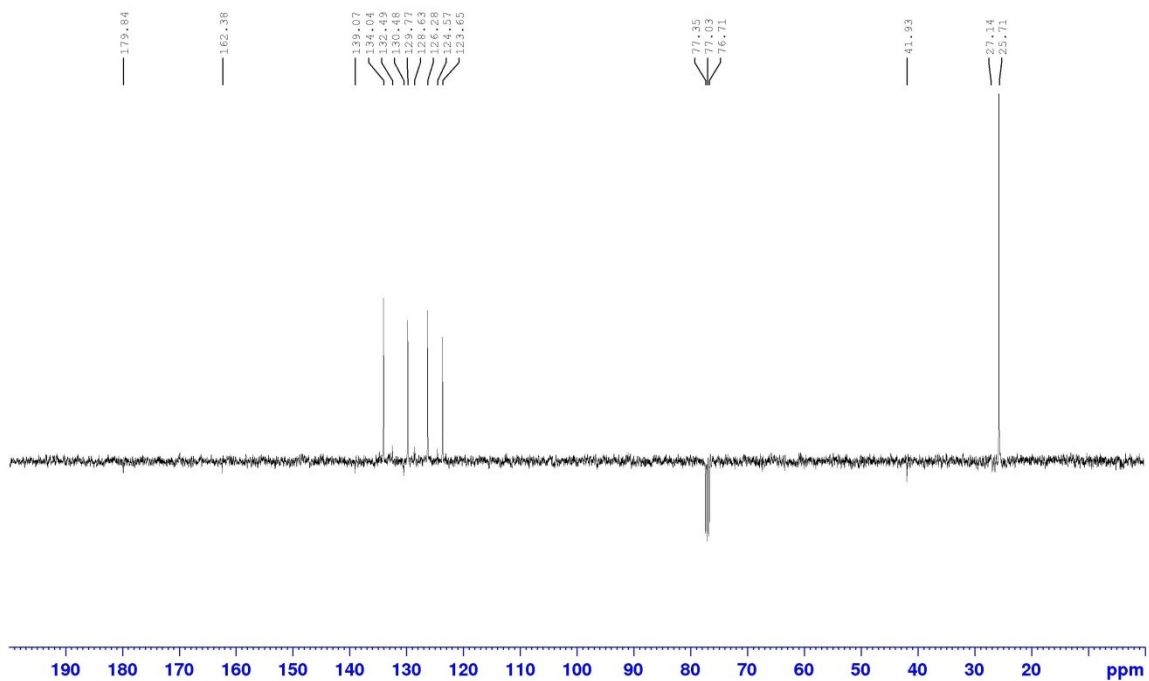




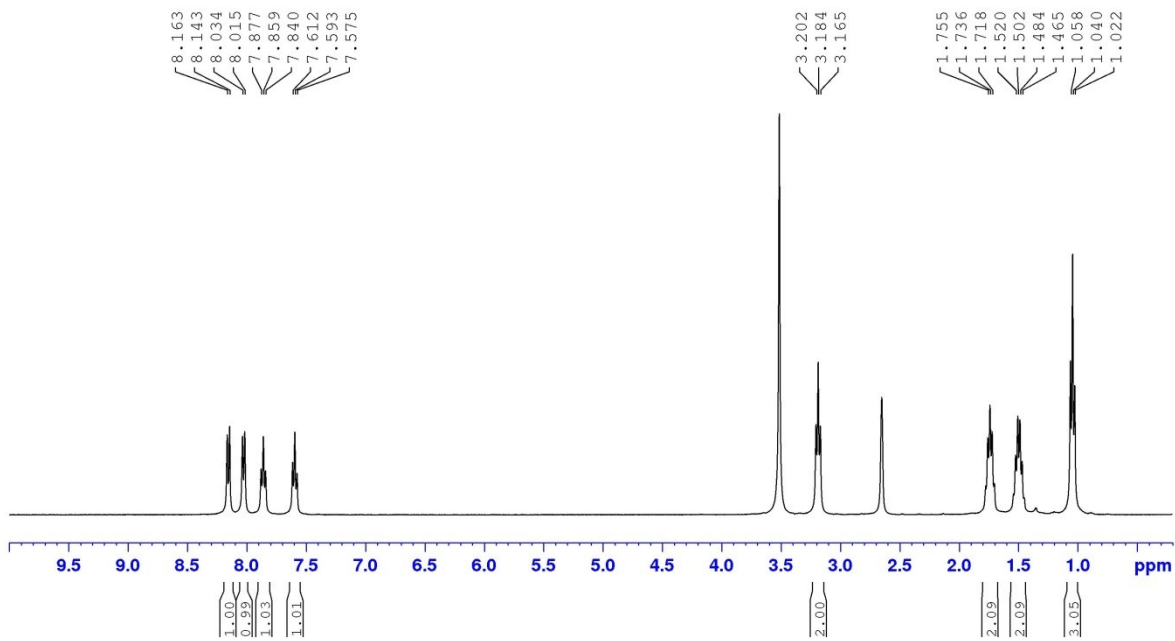
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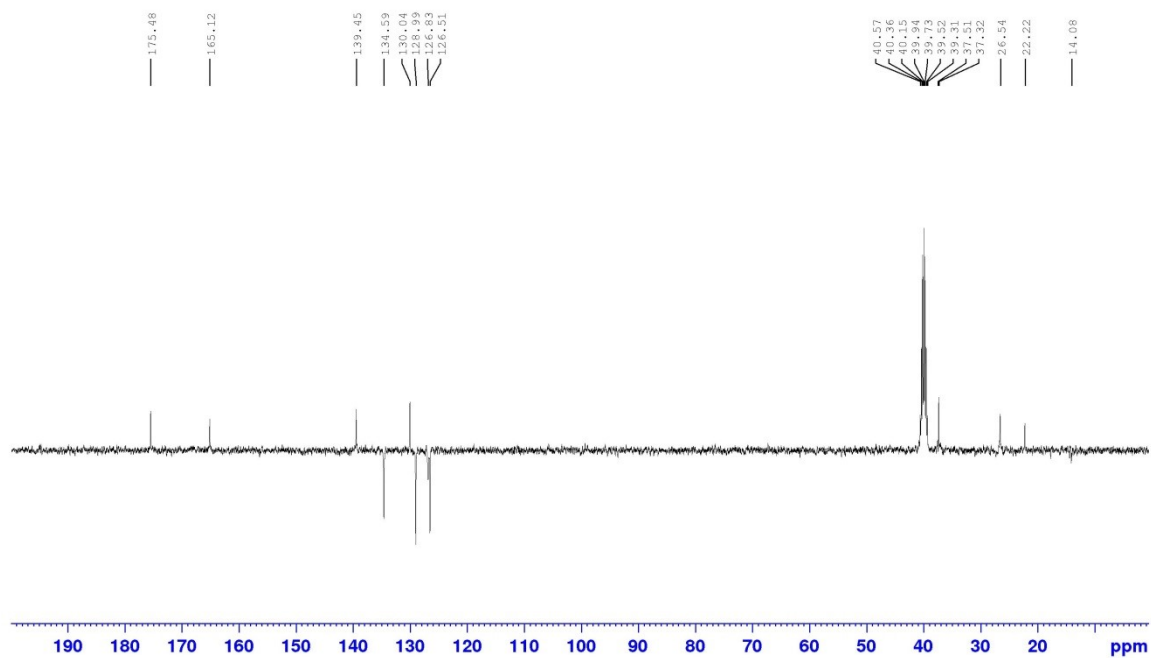
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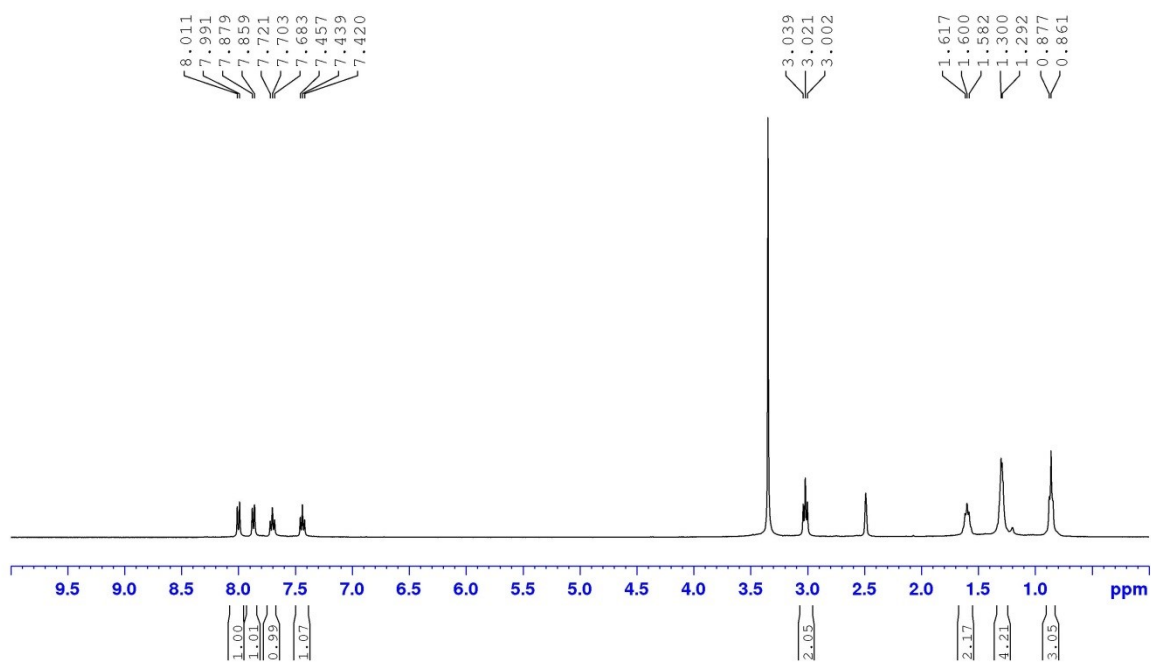
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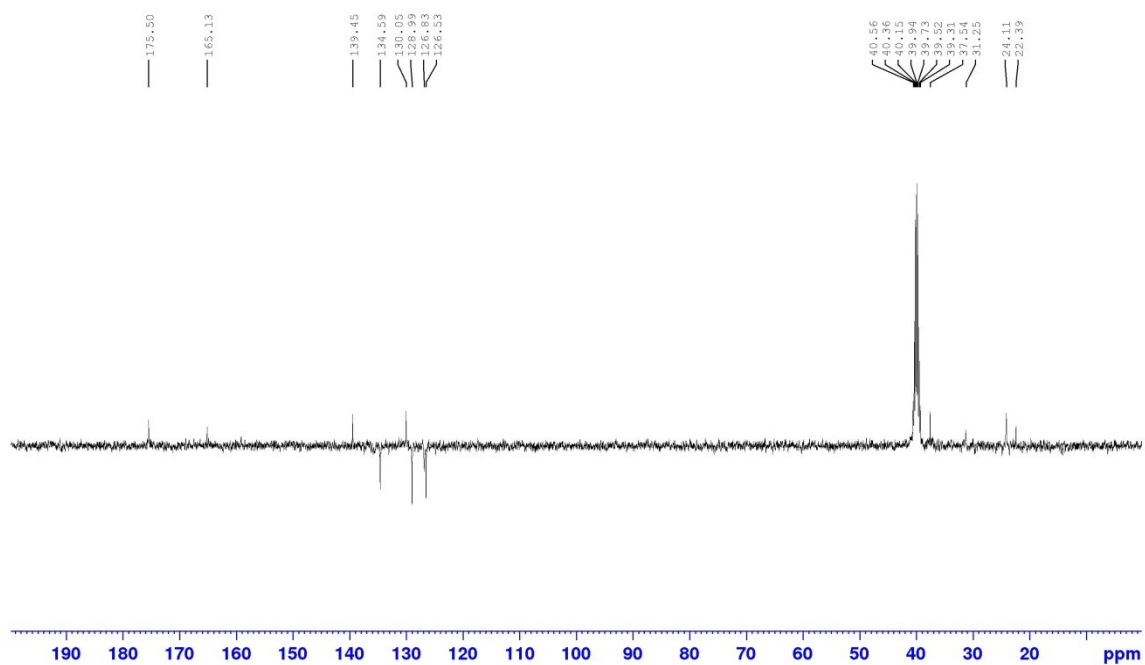
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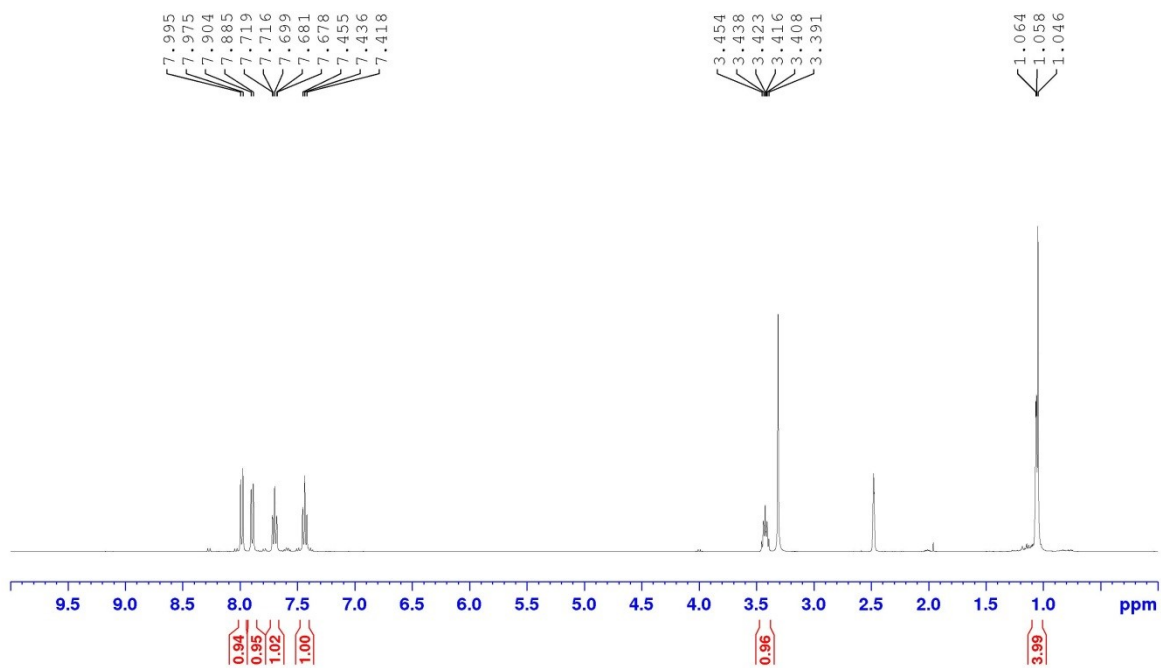
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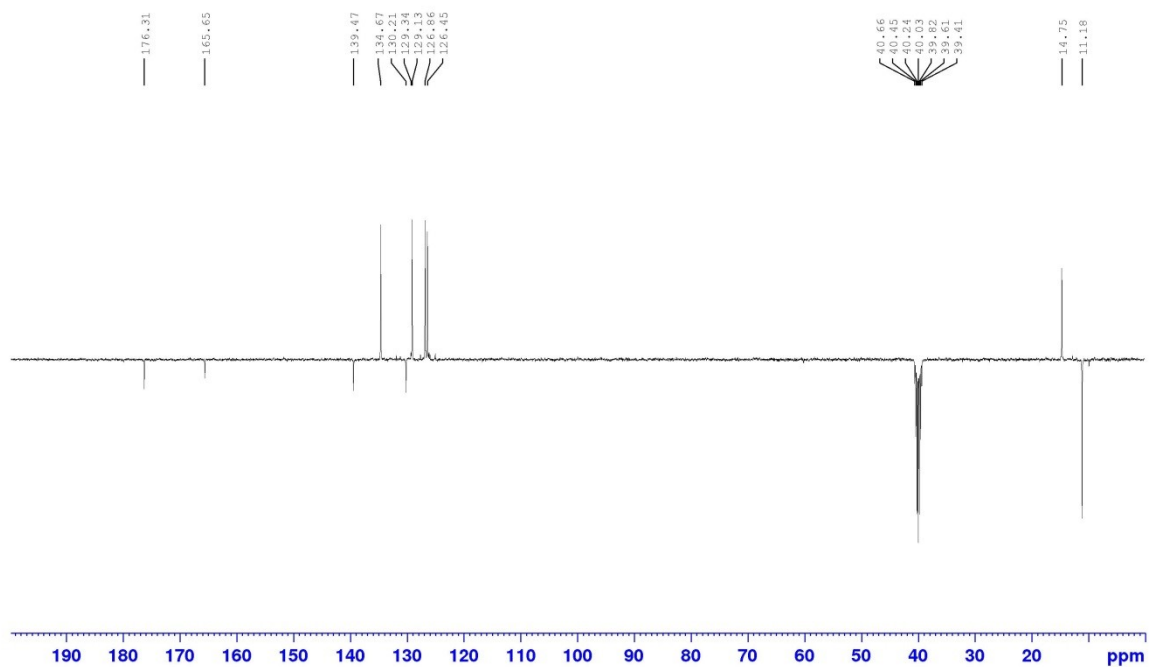
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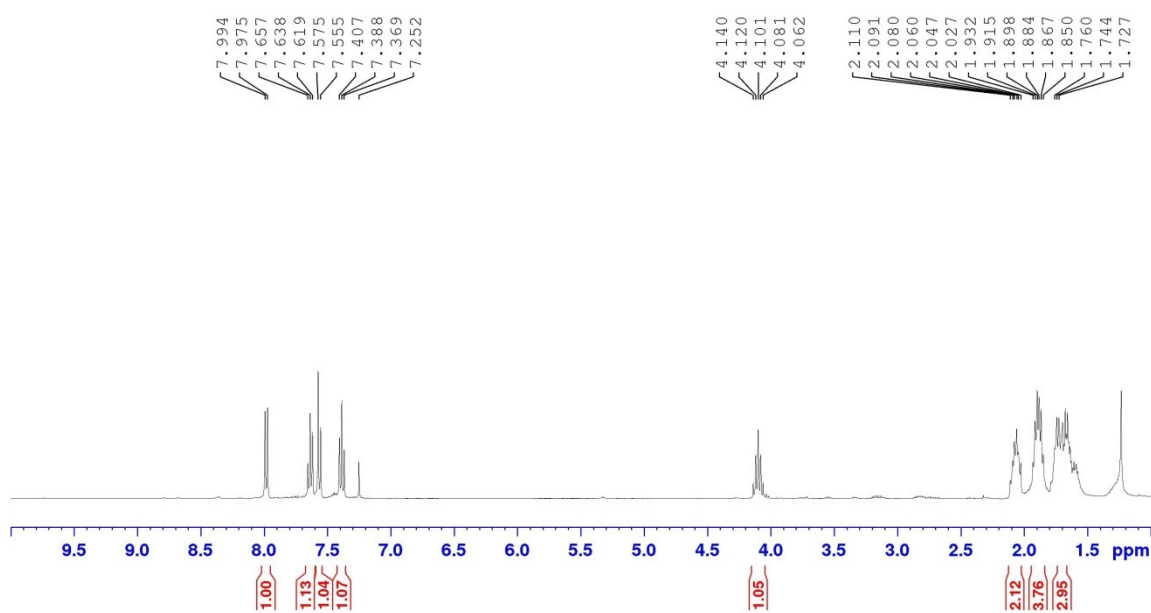
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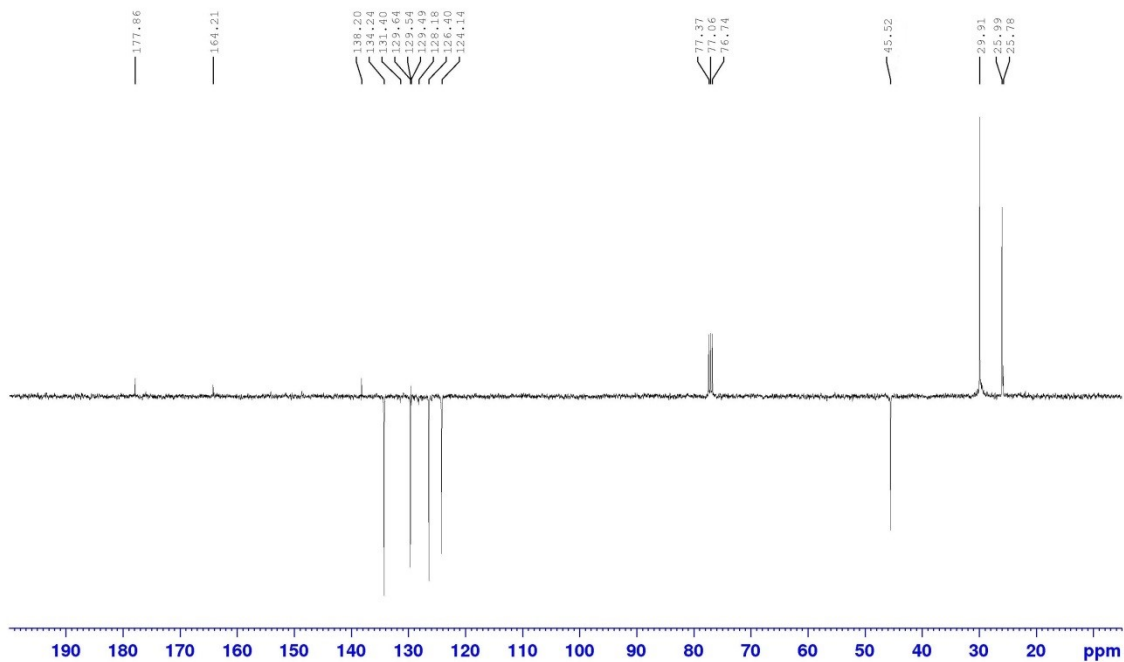
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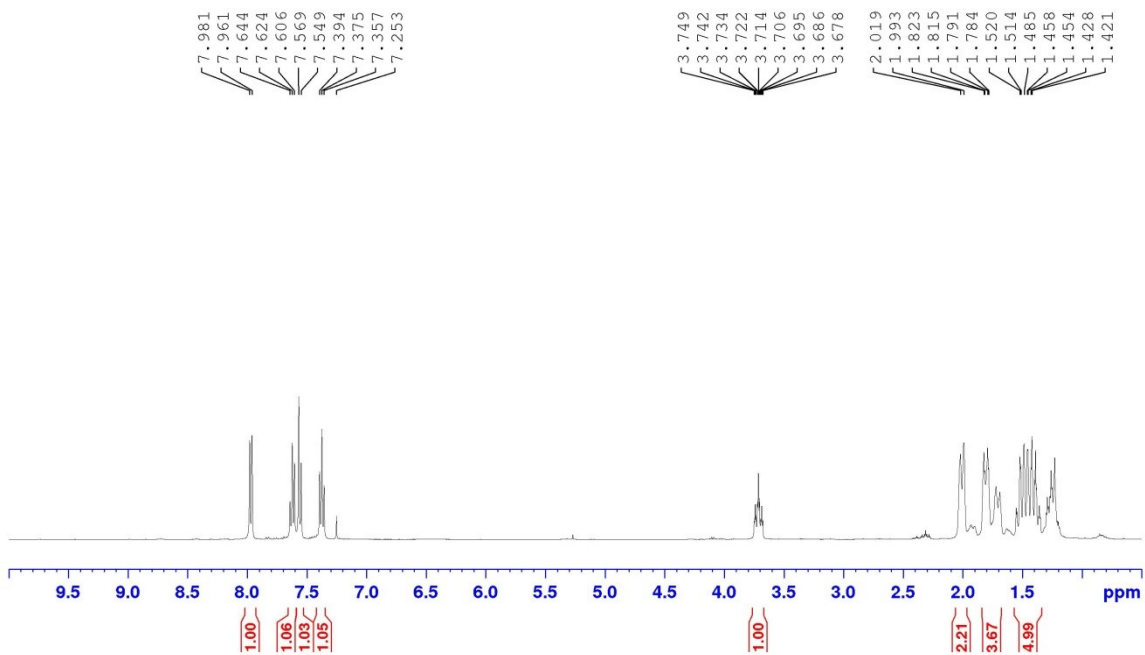
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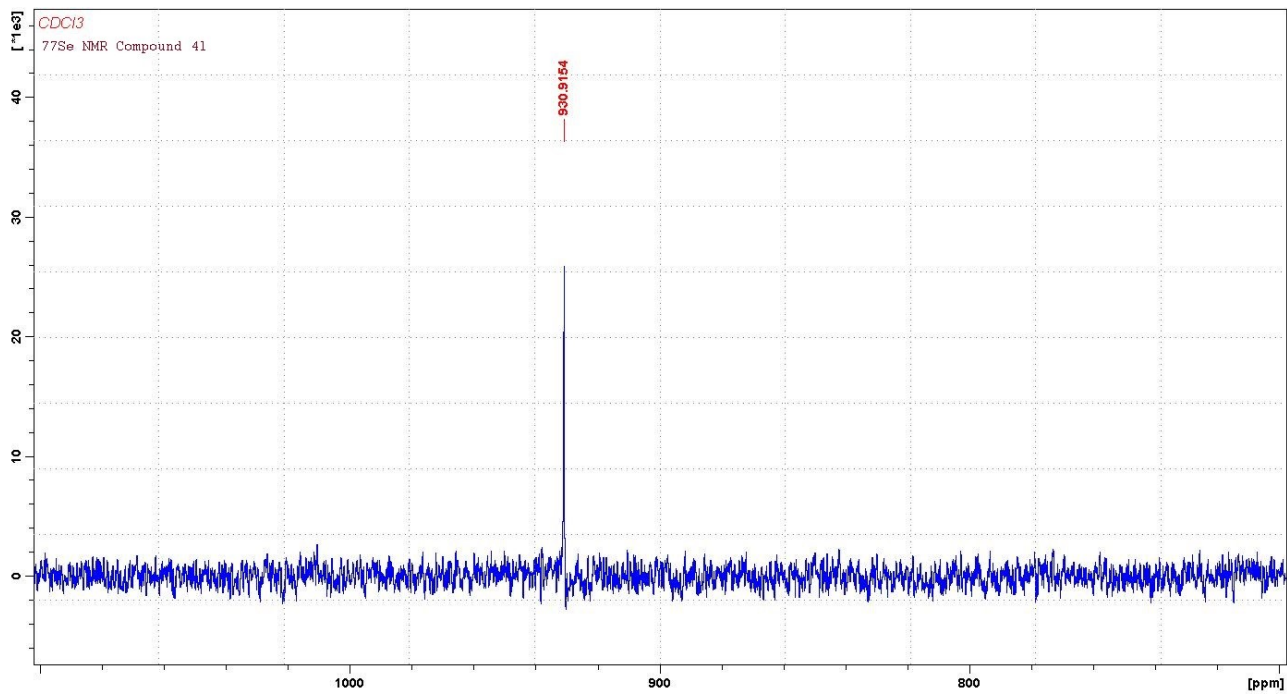
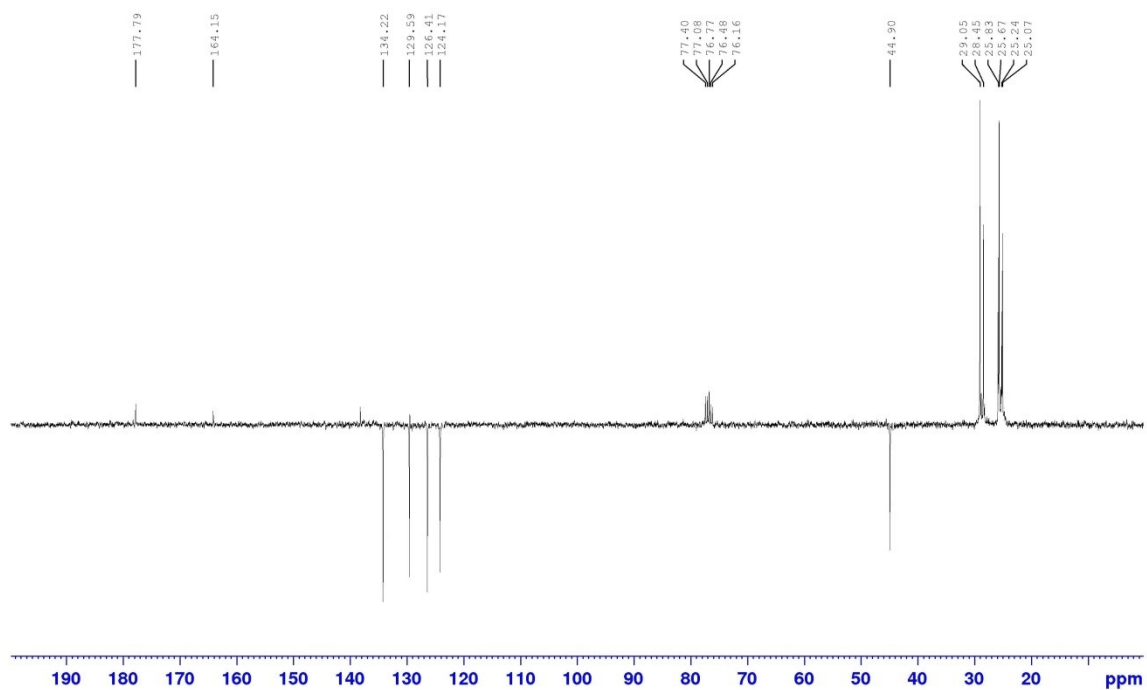
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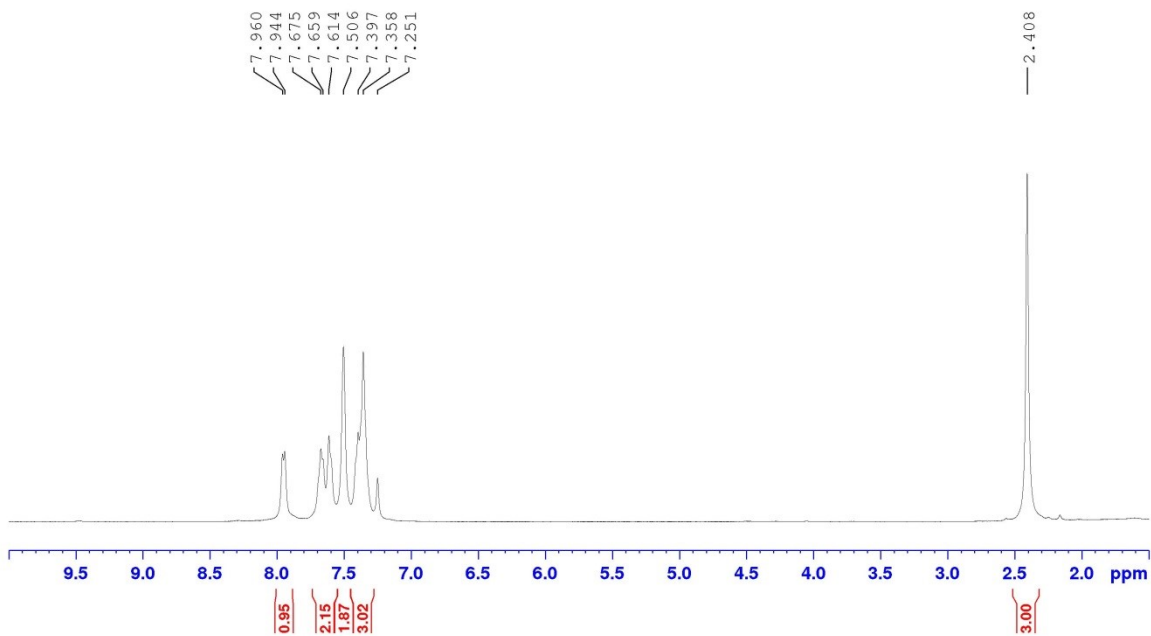
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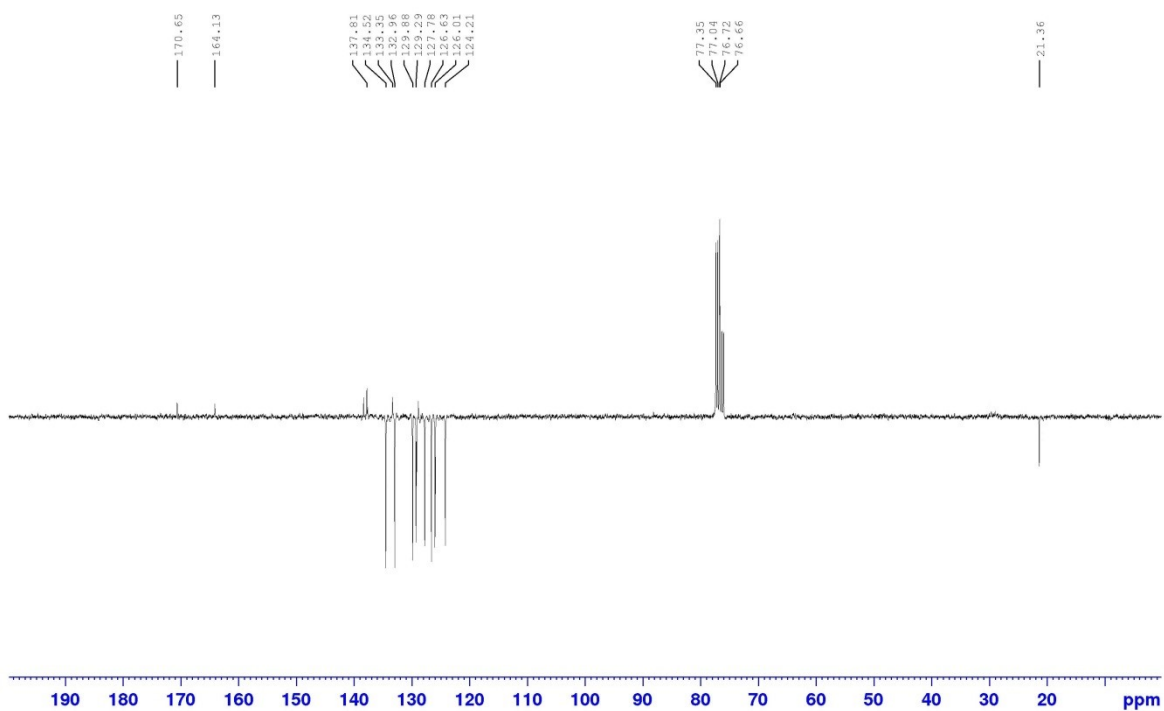
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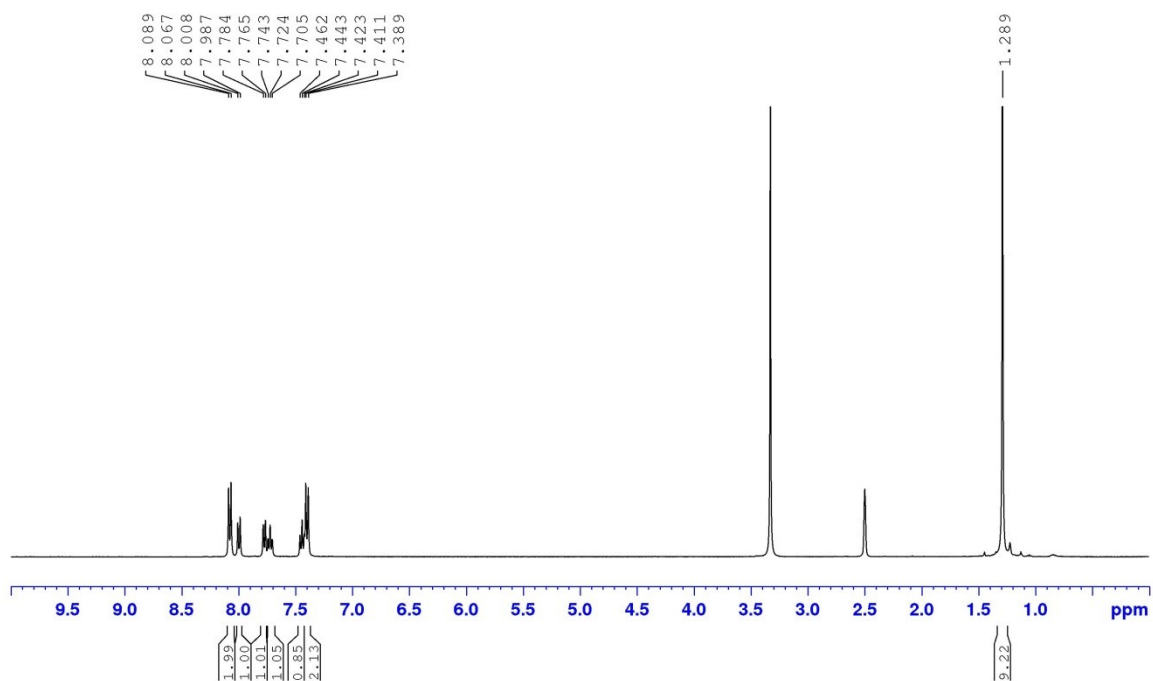
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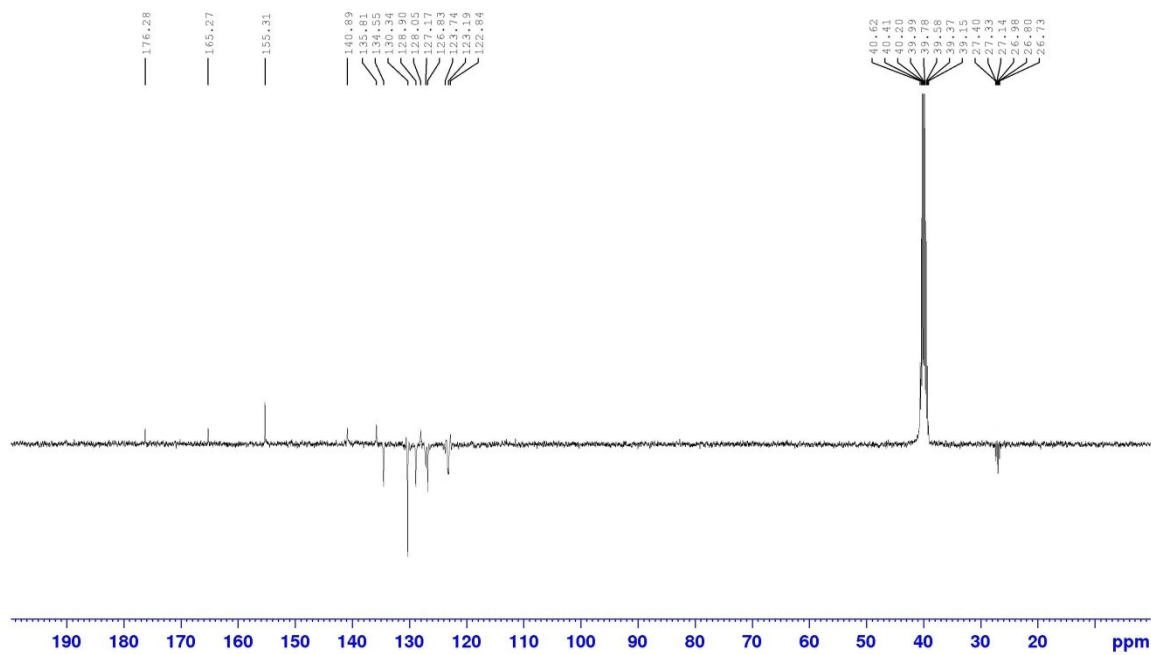
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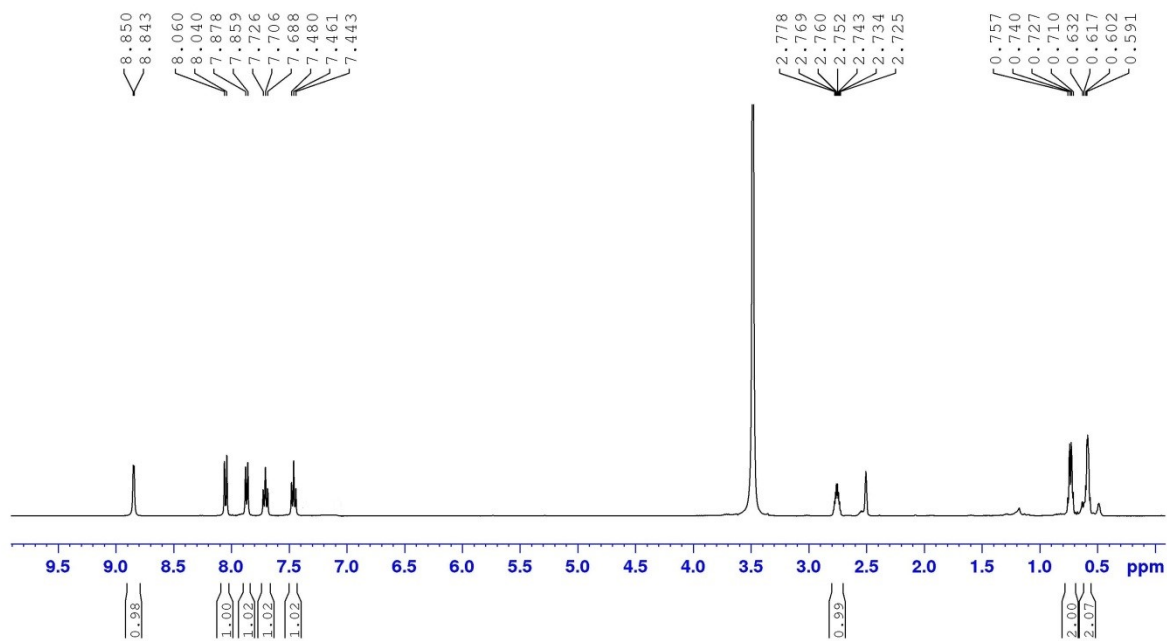
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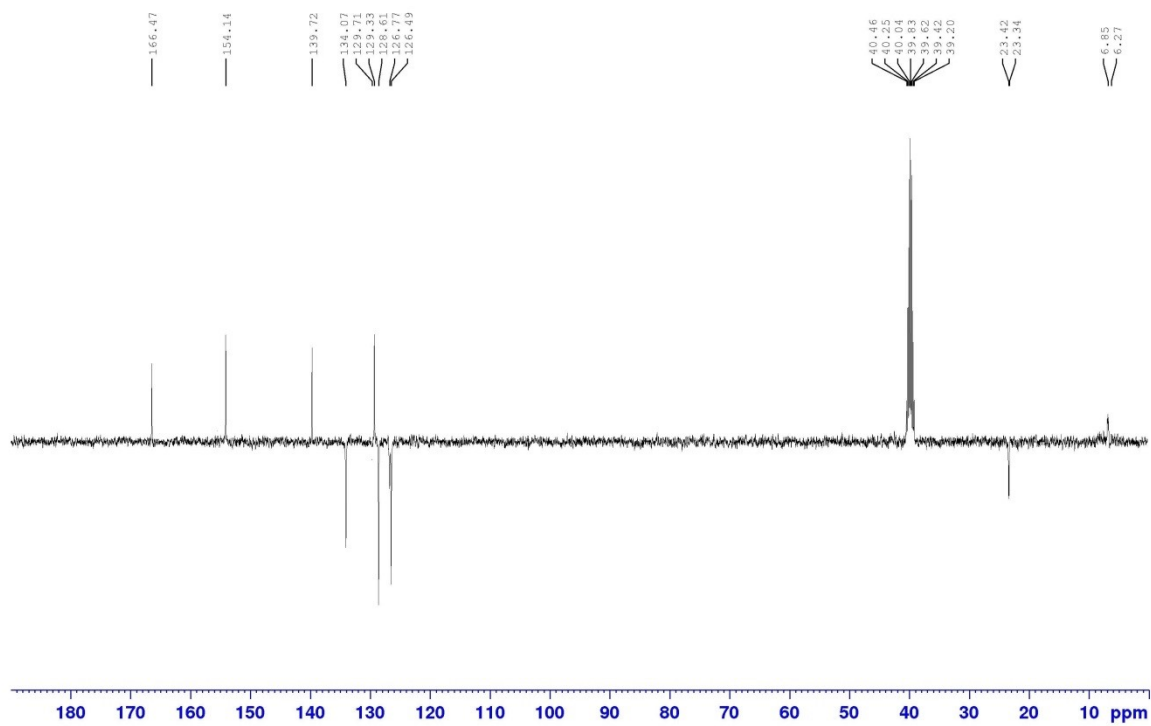
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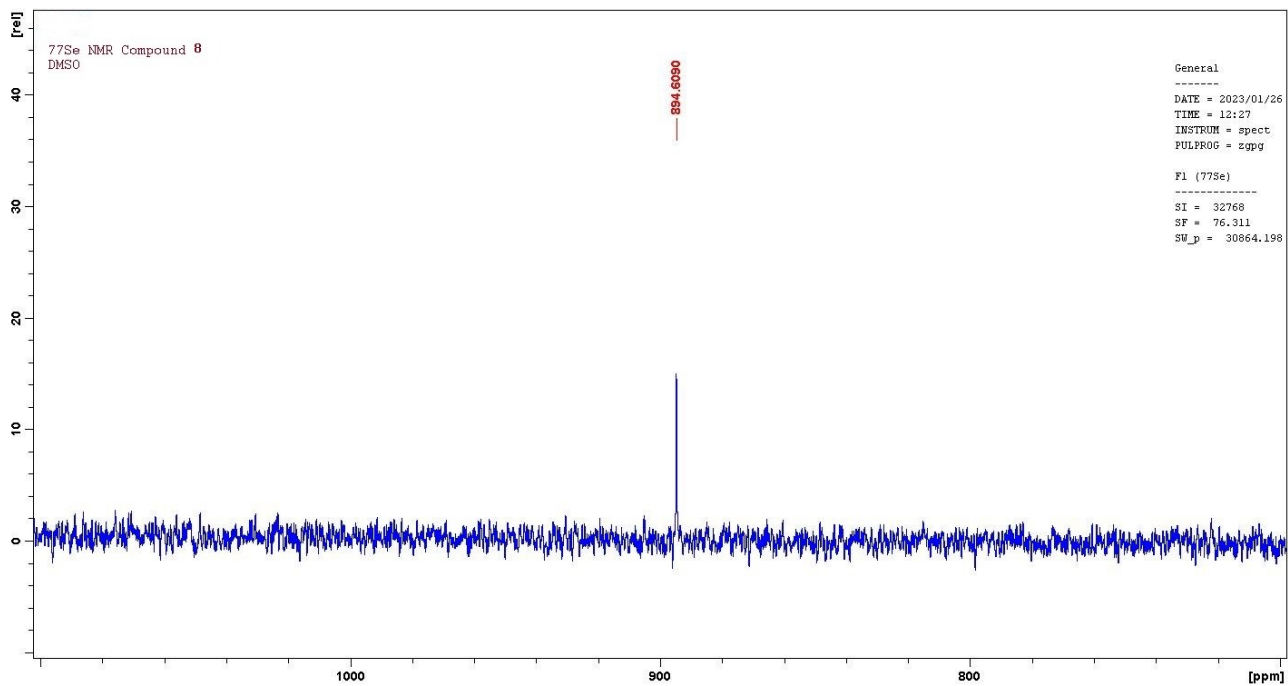


¹H NMR Compound **8**
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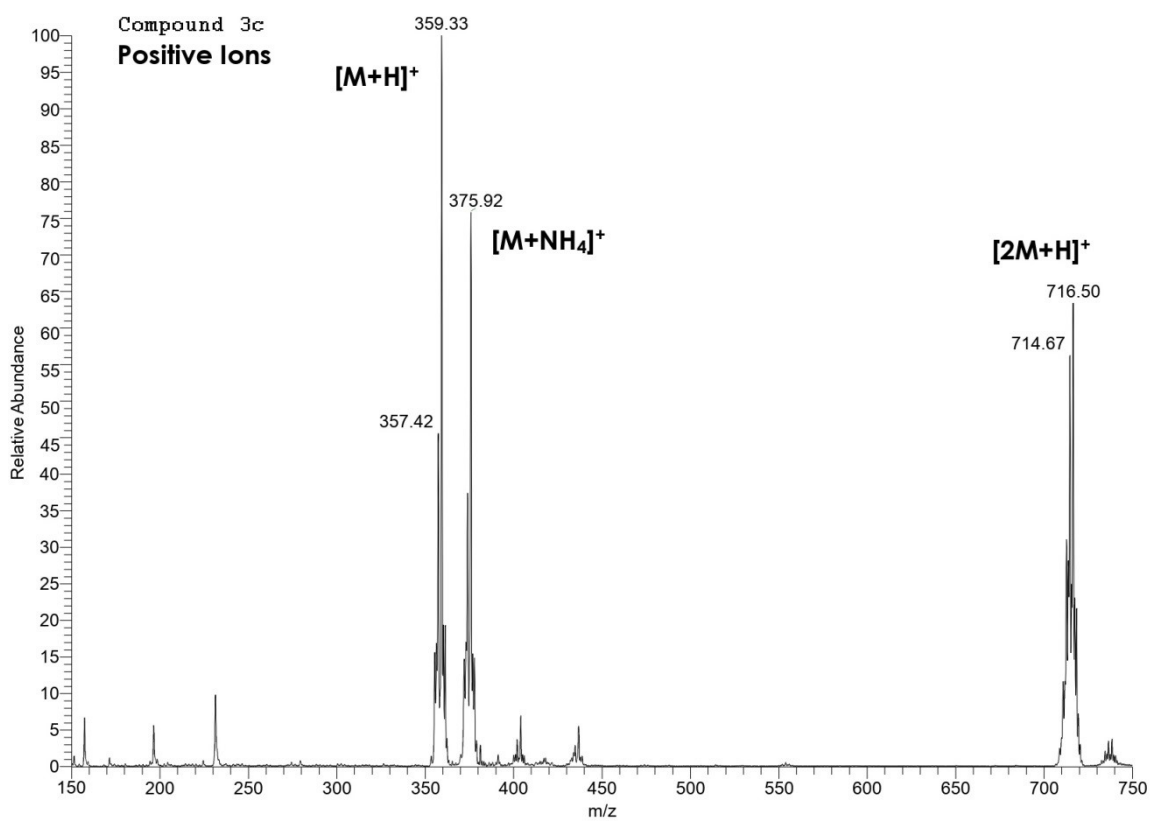
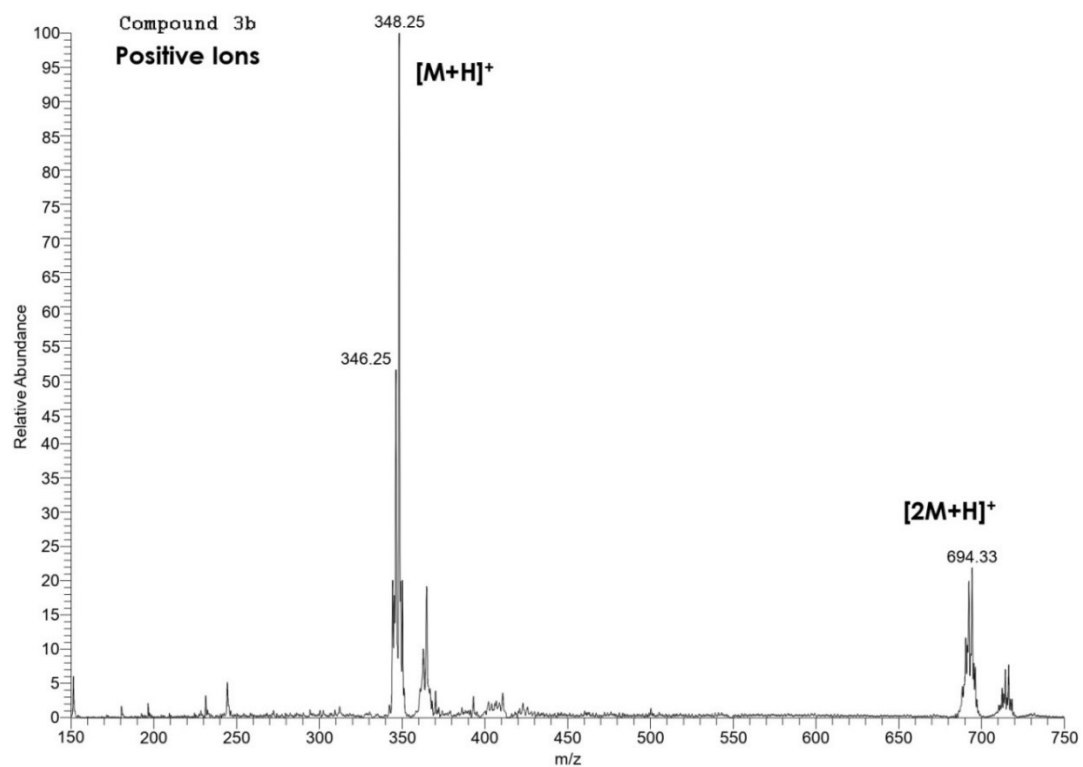


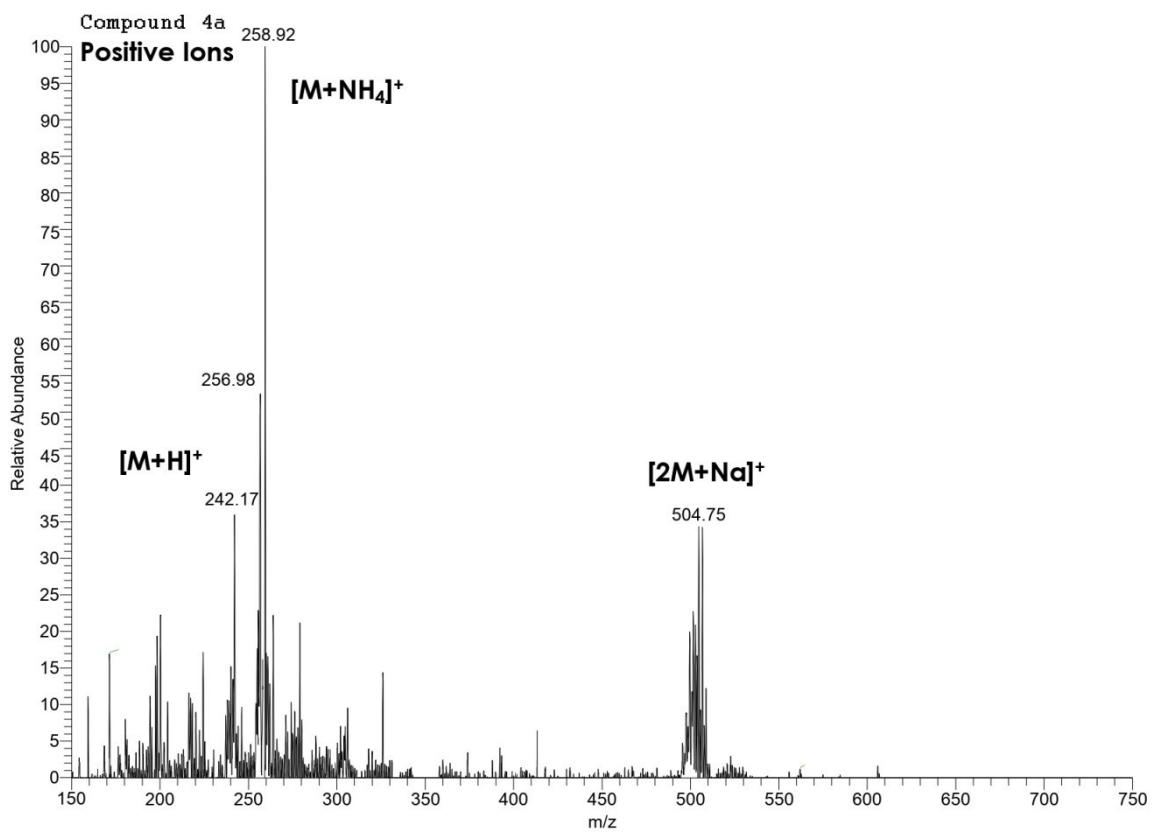
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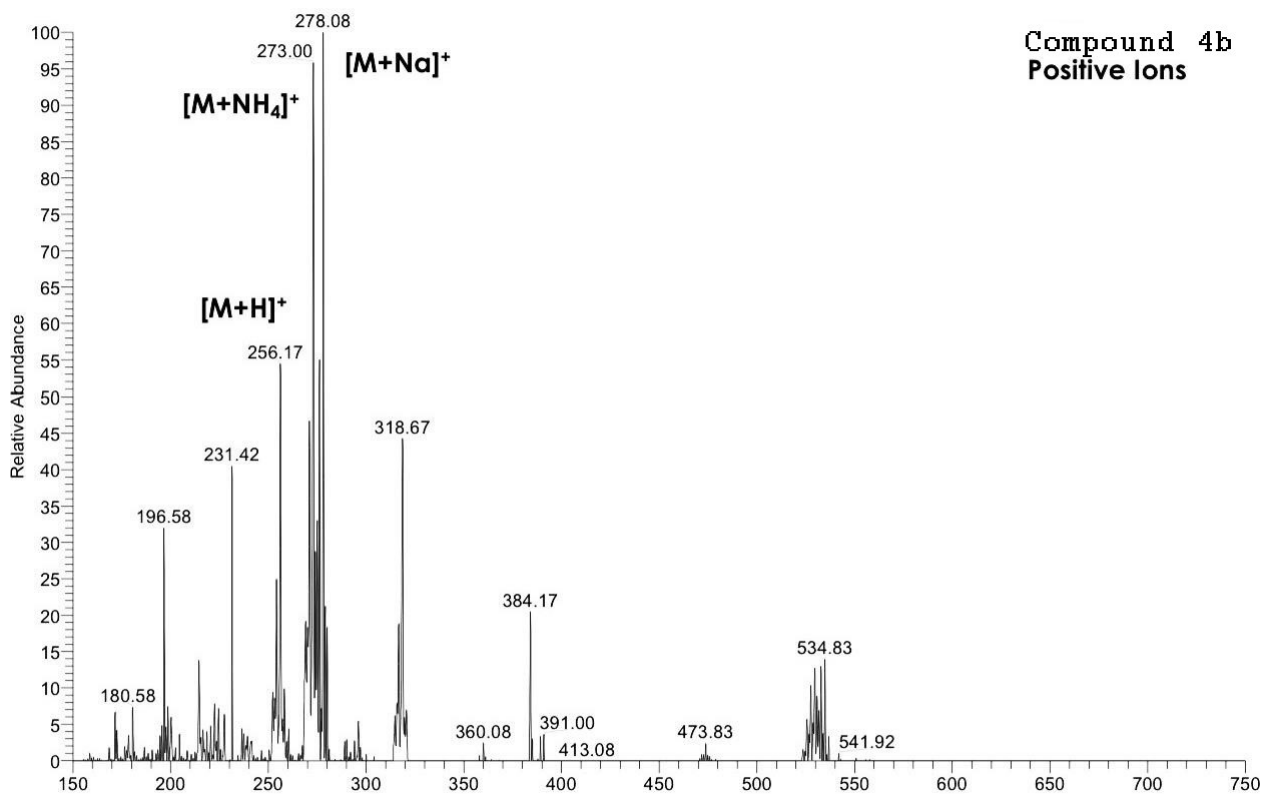


2. Mass Spectrometry spectra

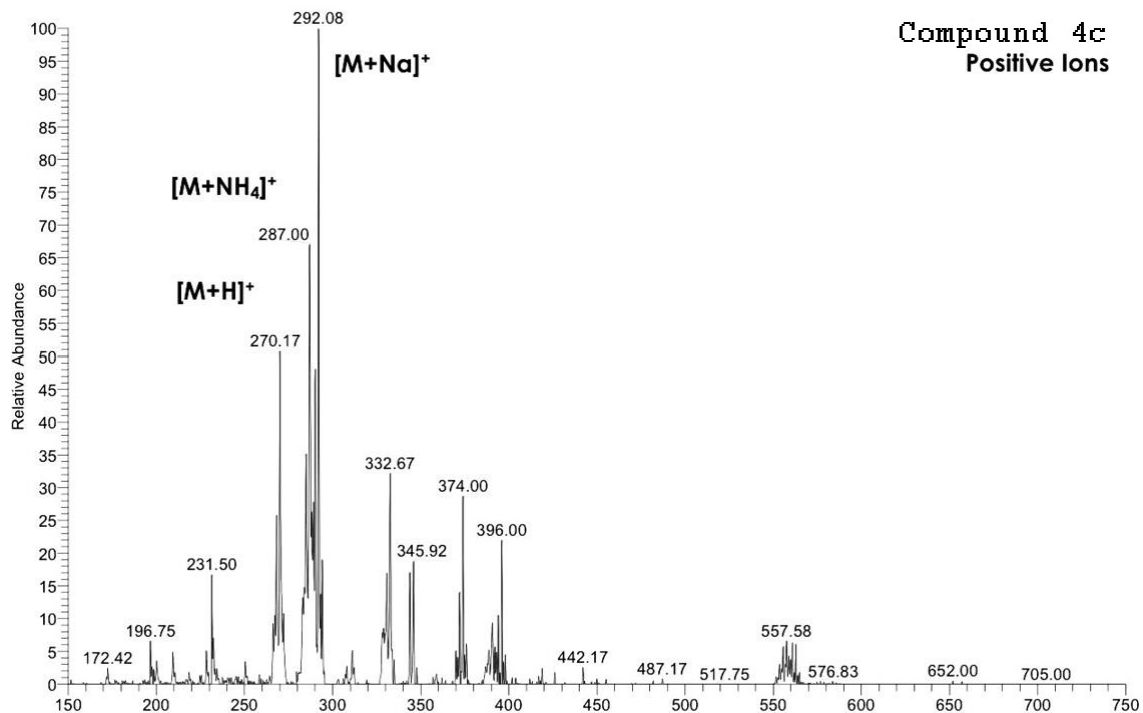




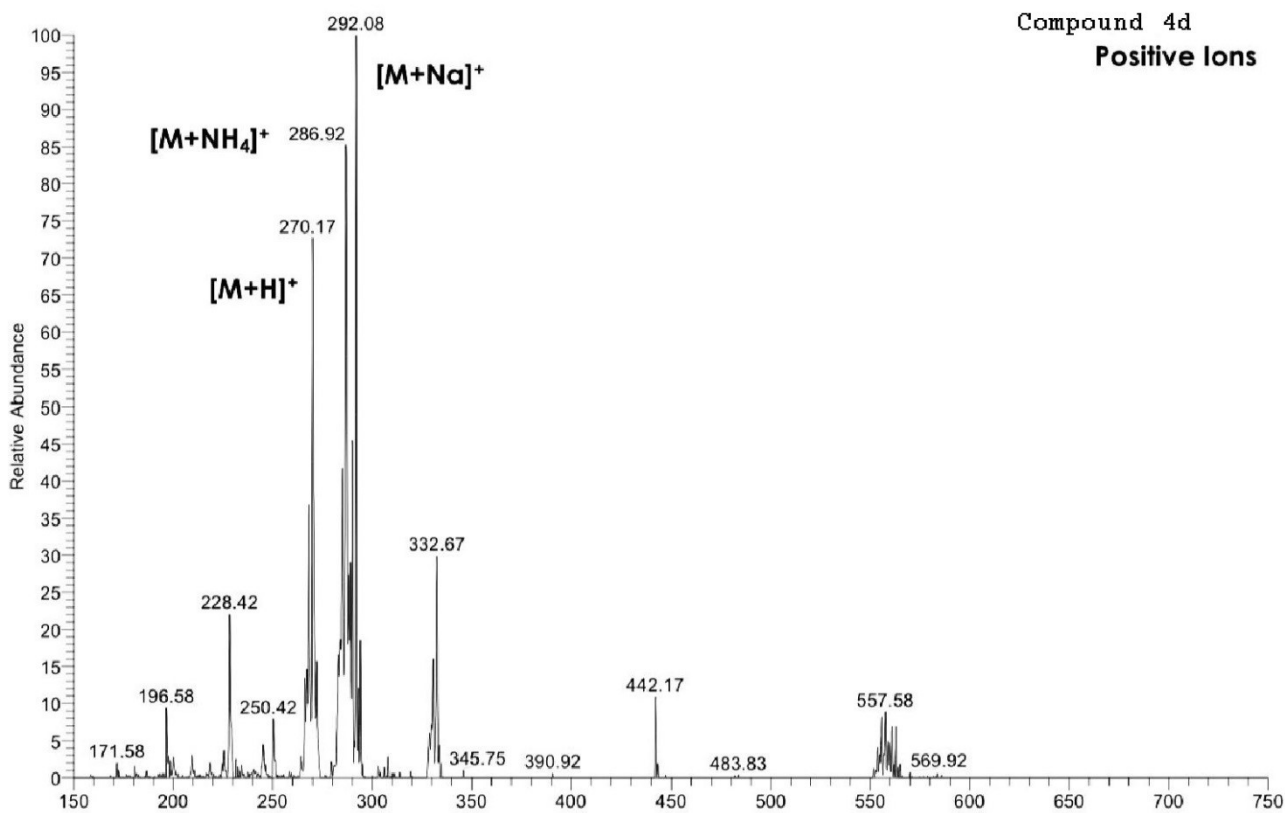
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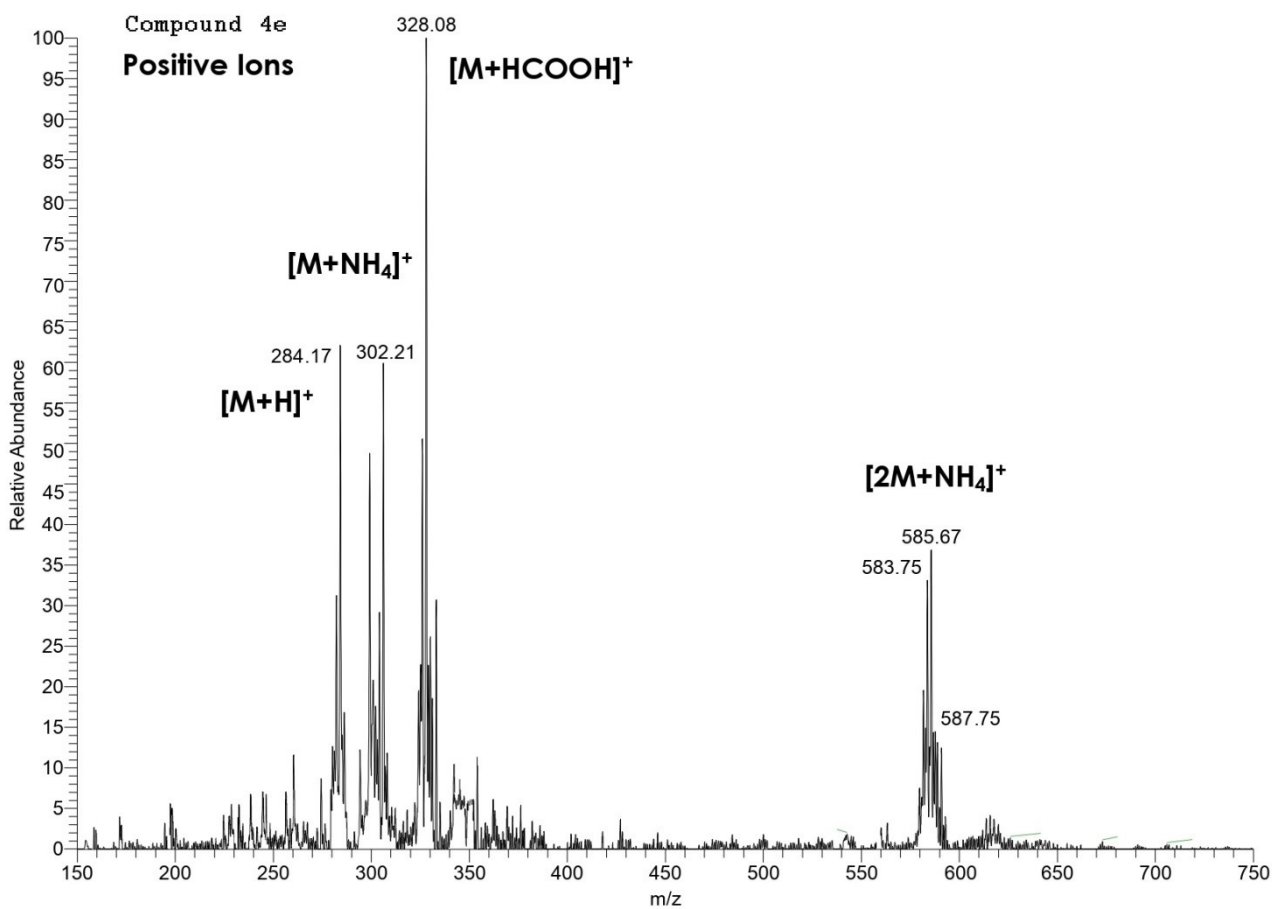


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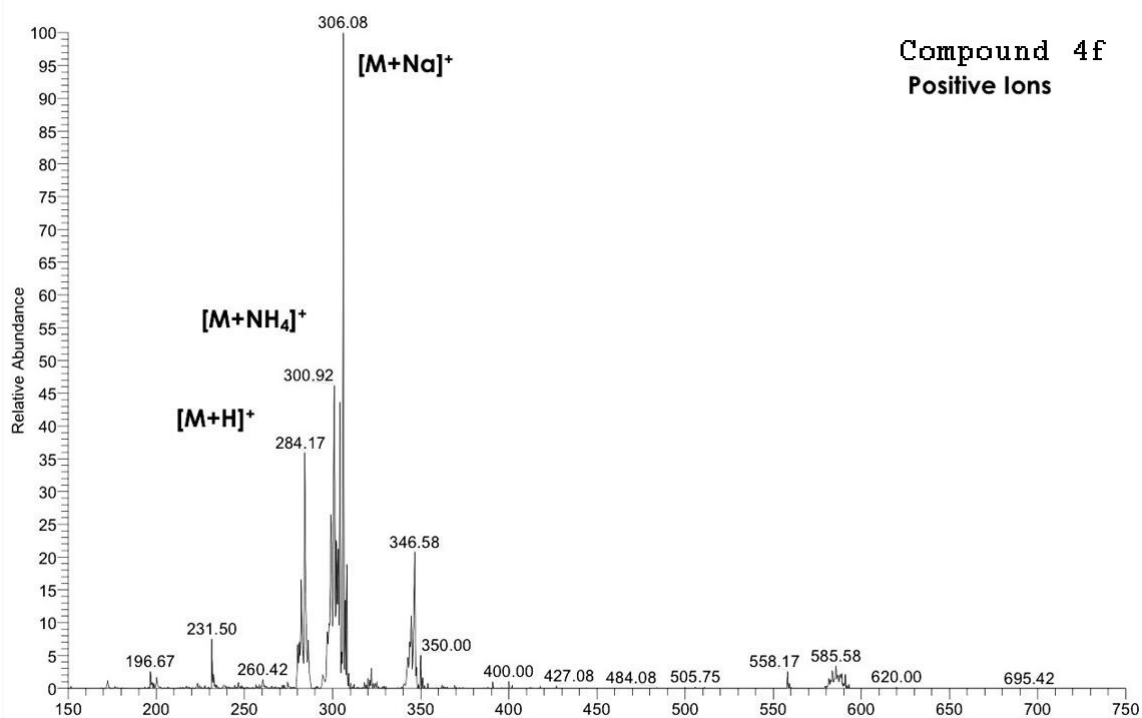


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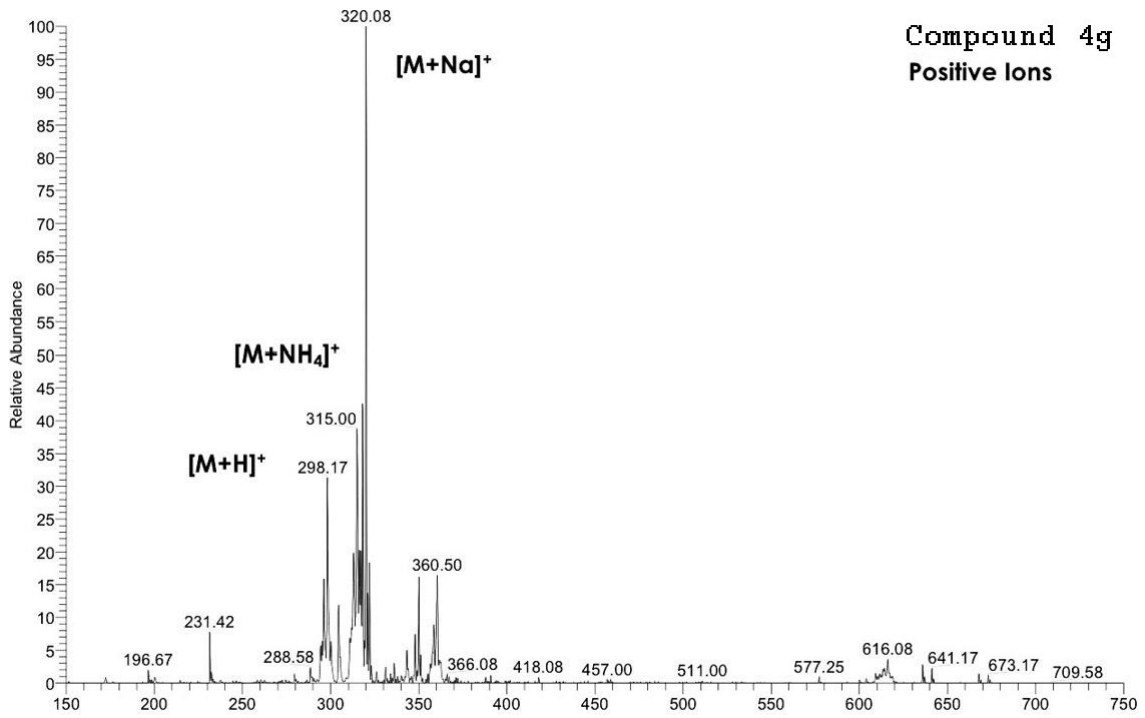




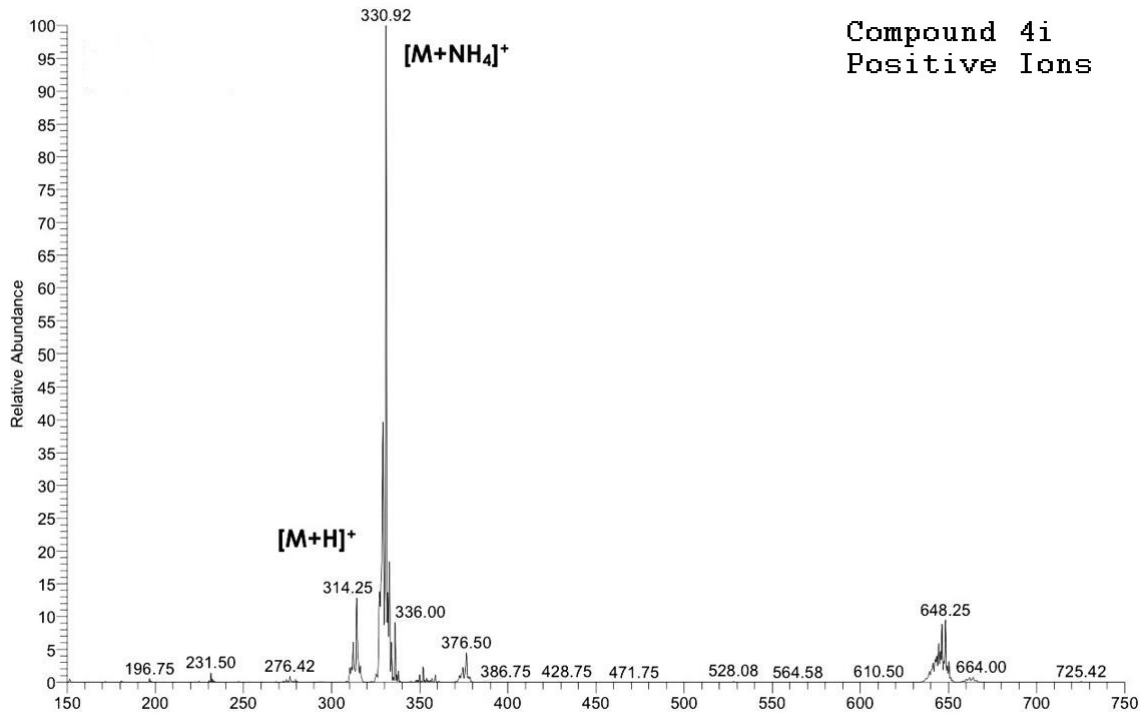
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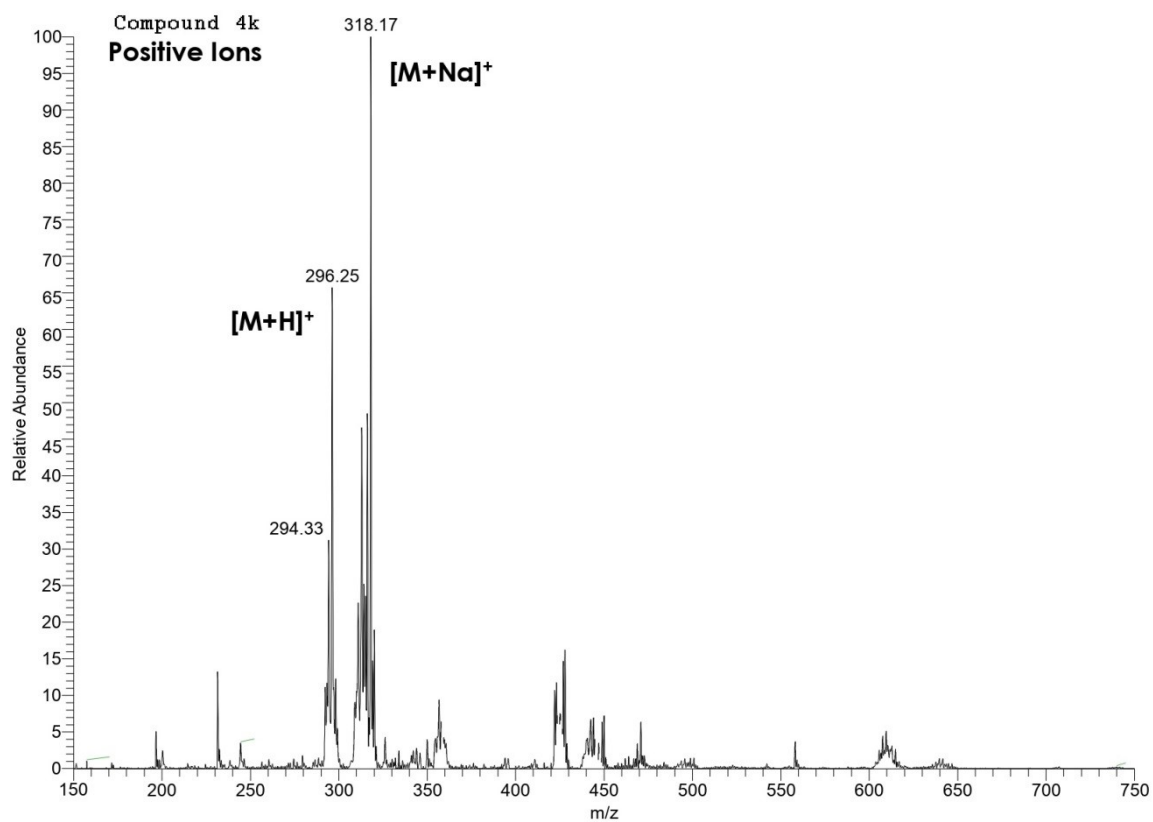
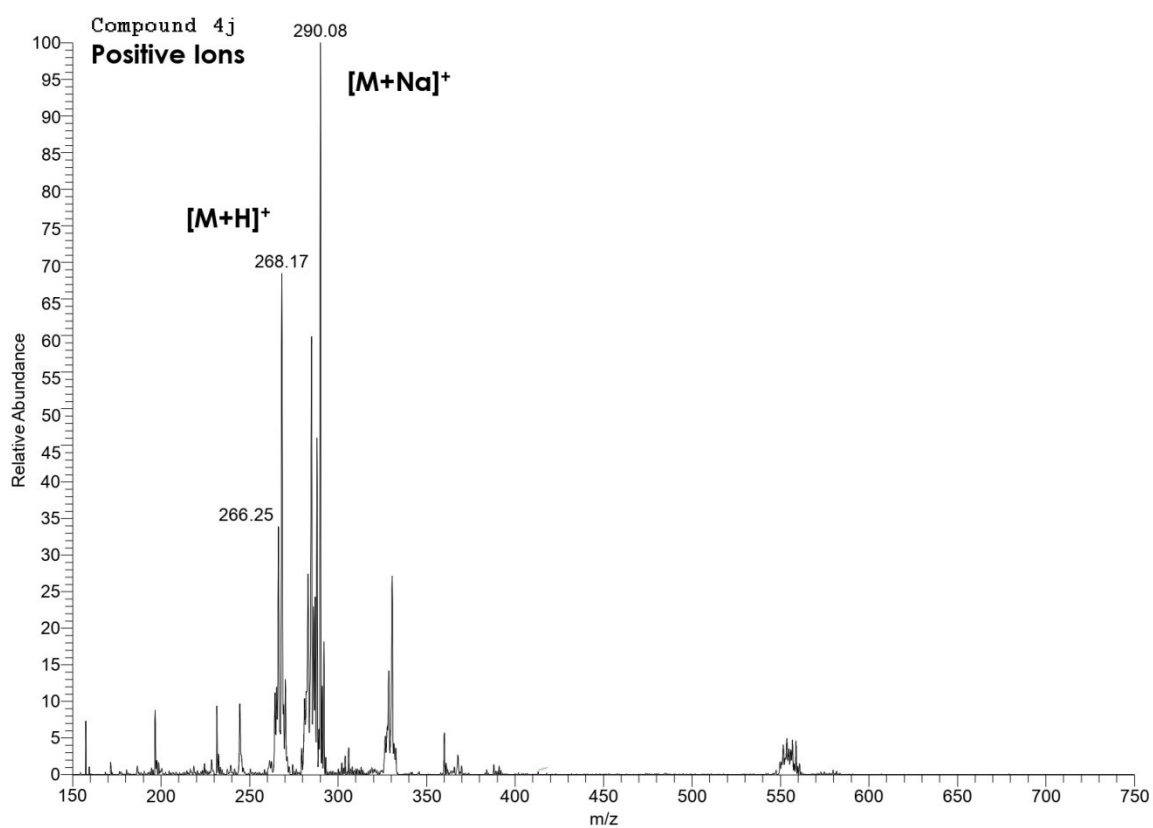


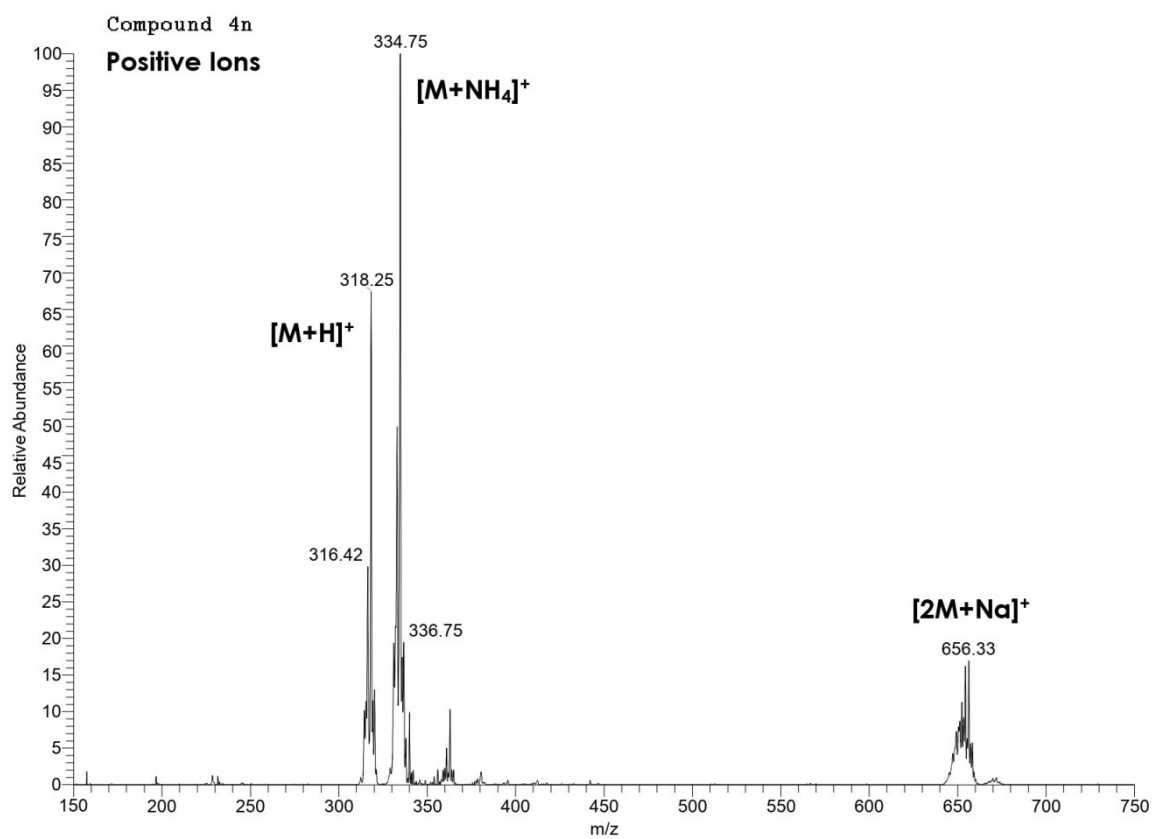
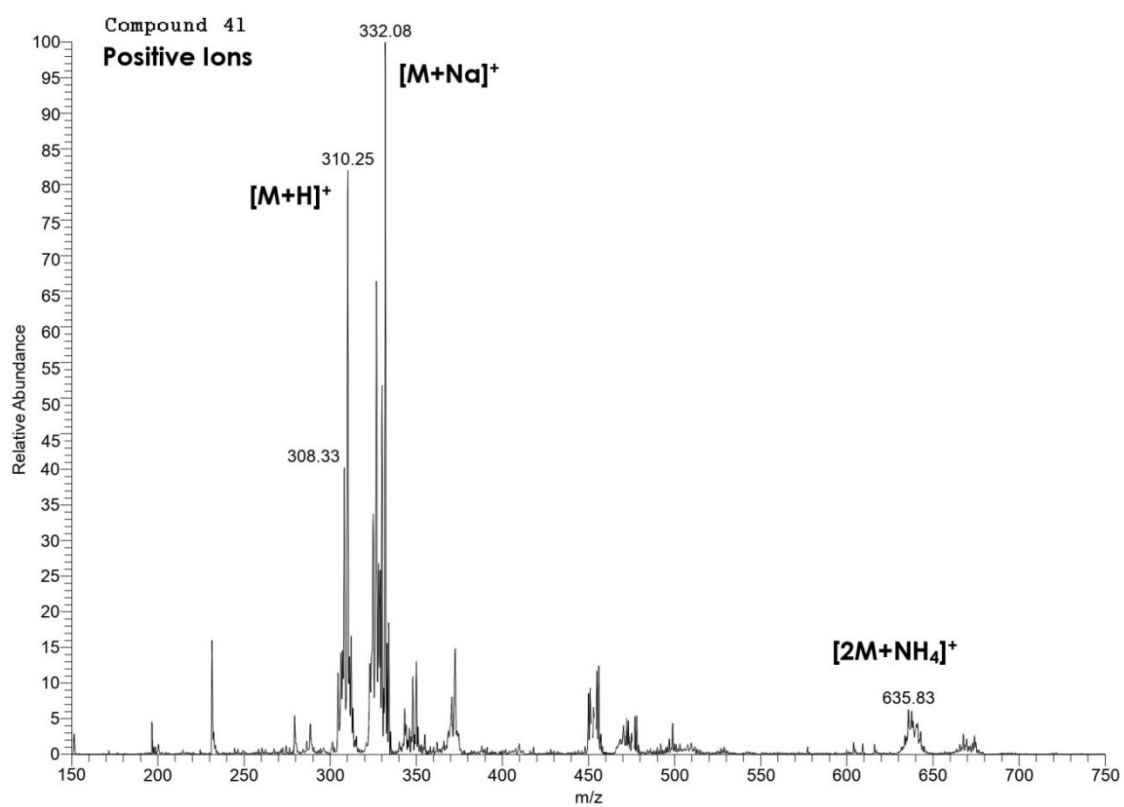
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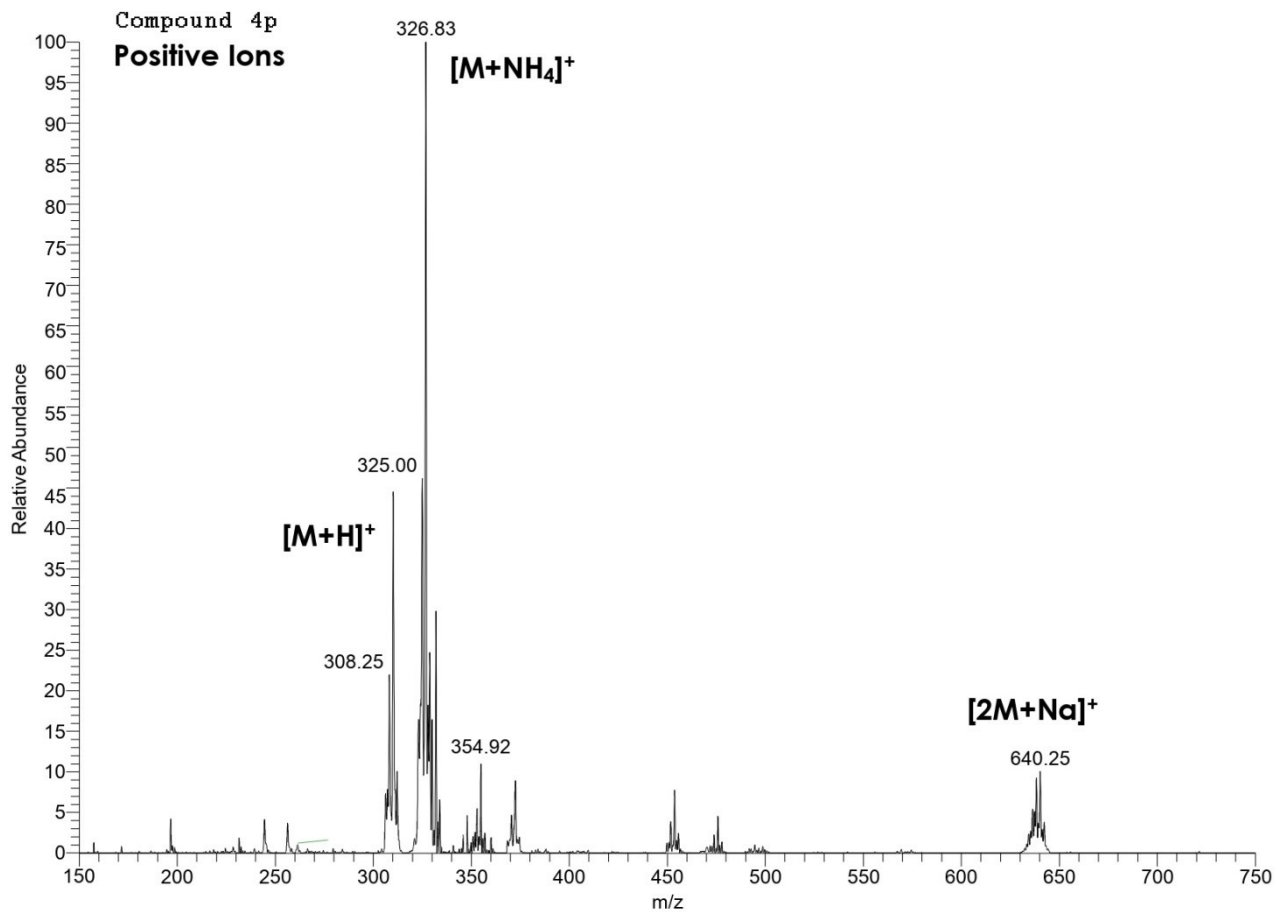
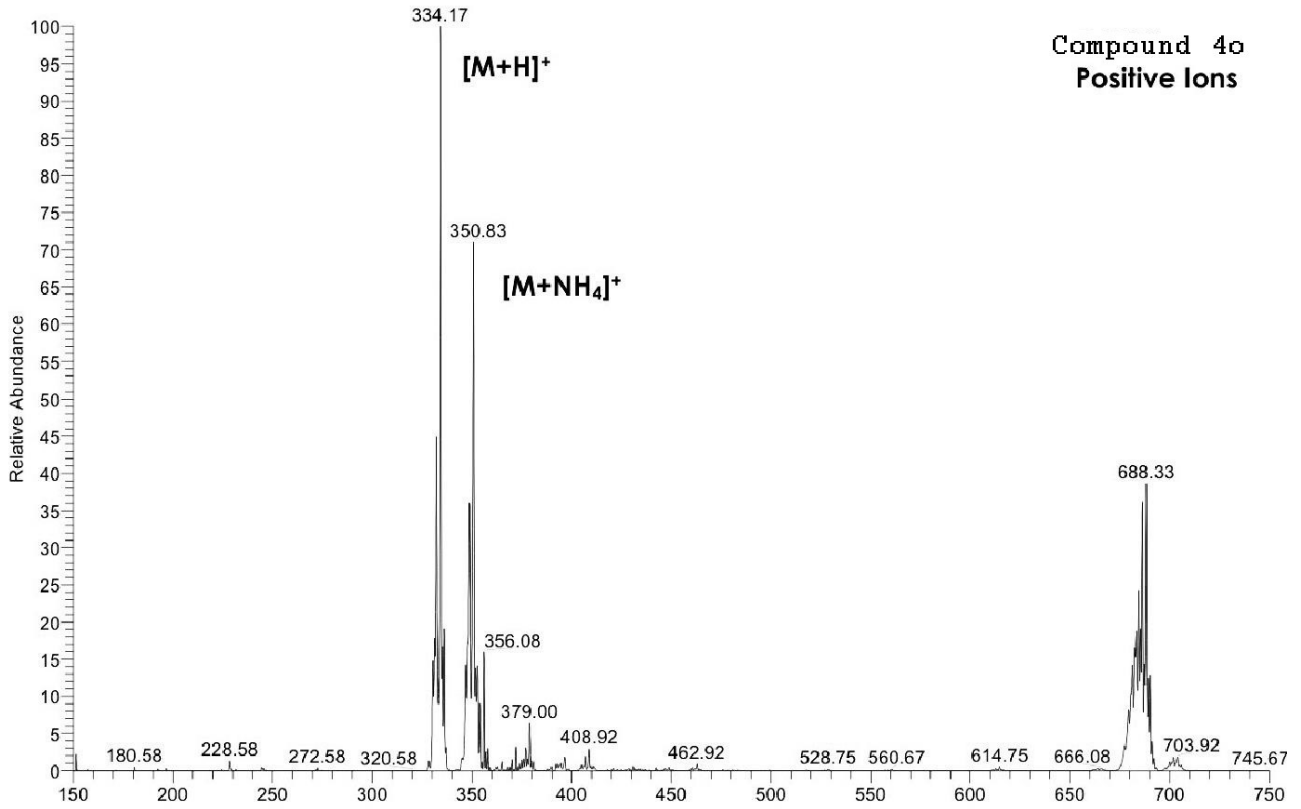


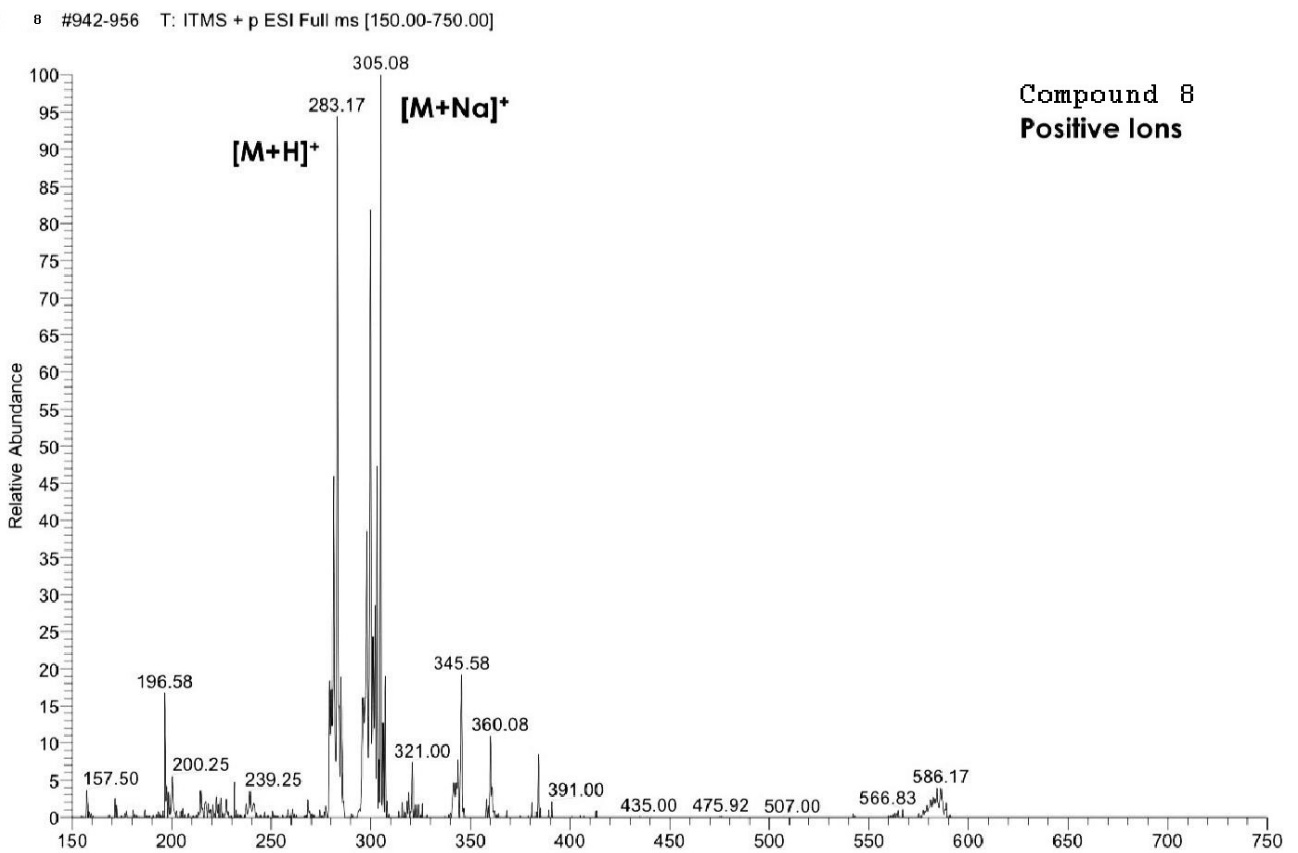
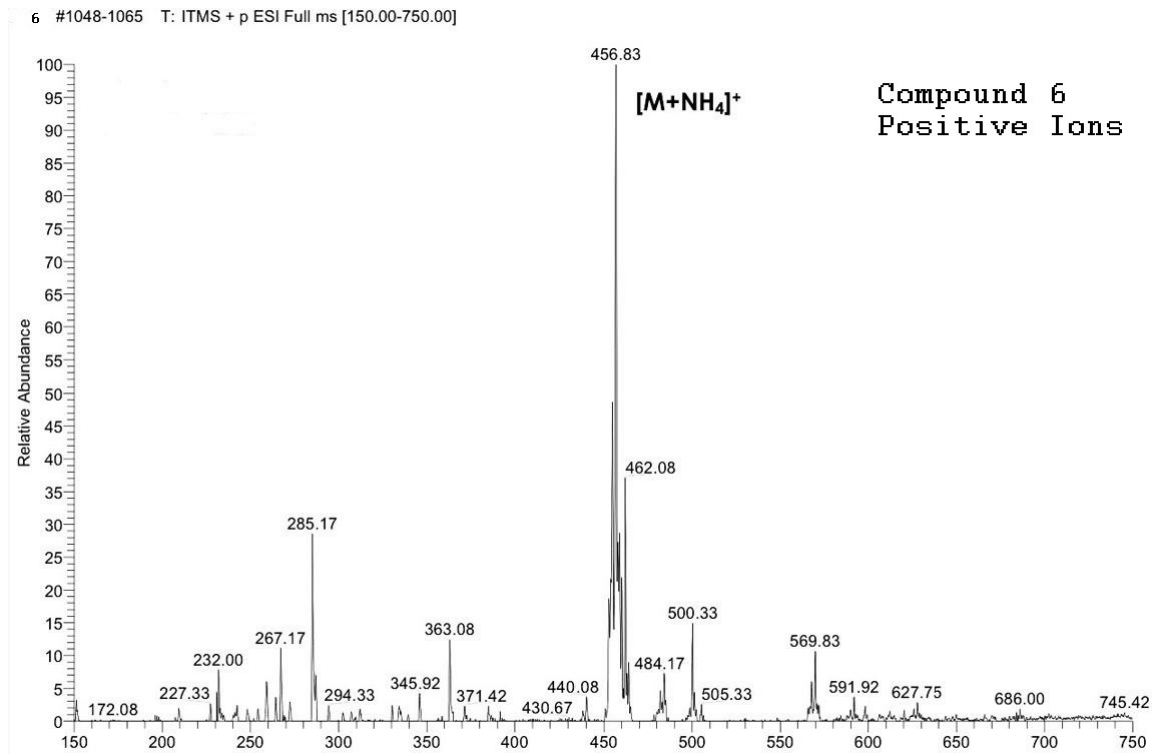
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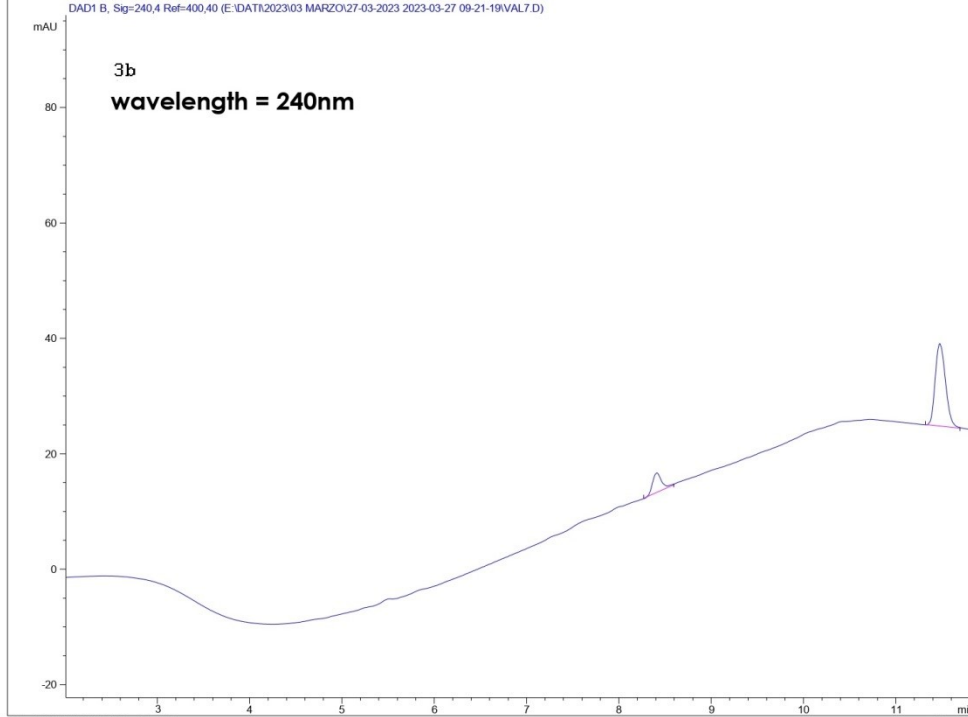






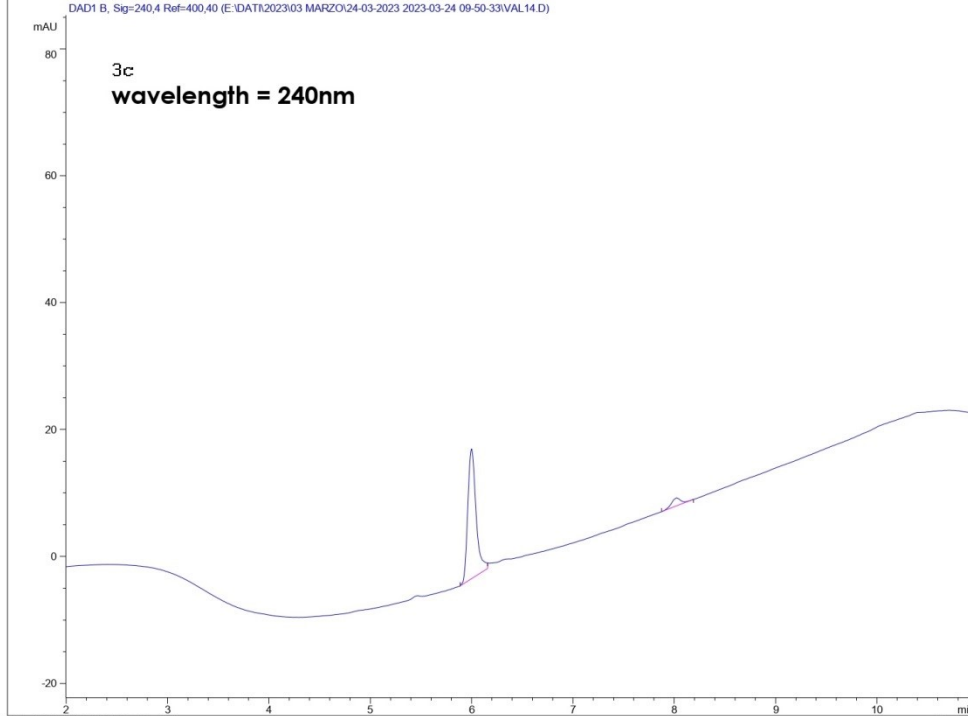
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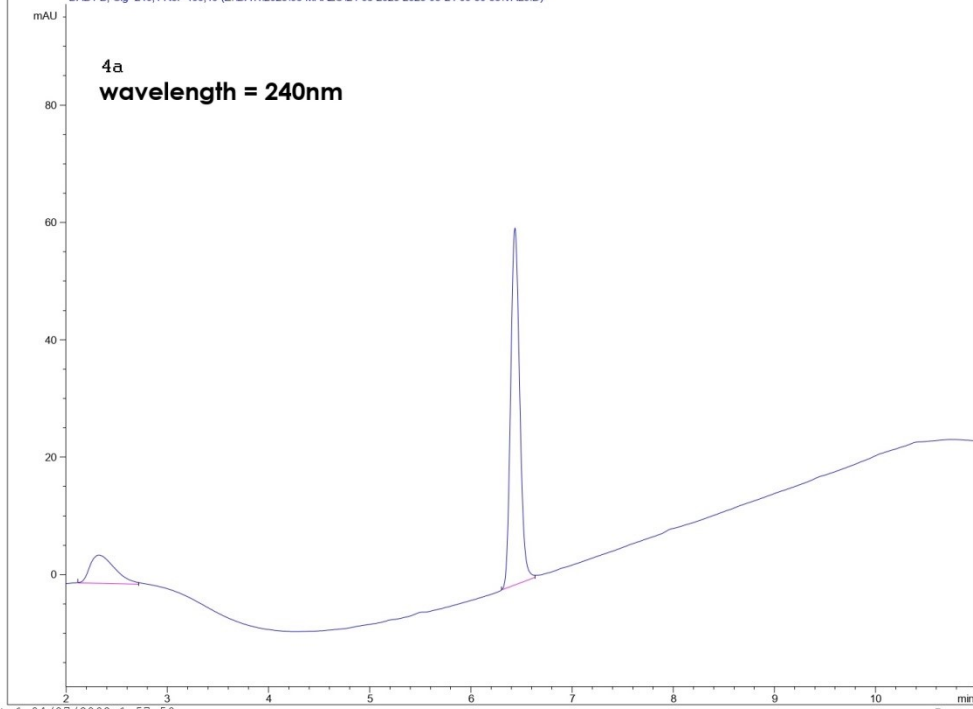
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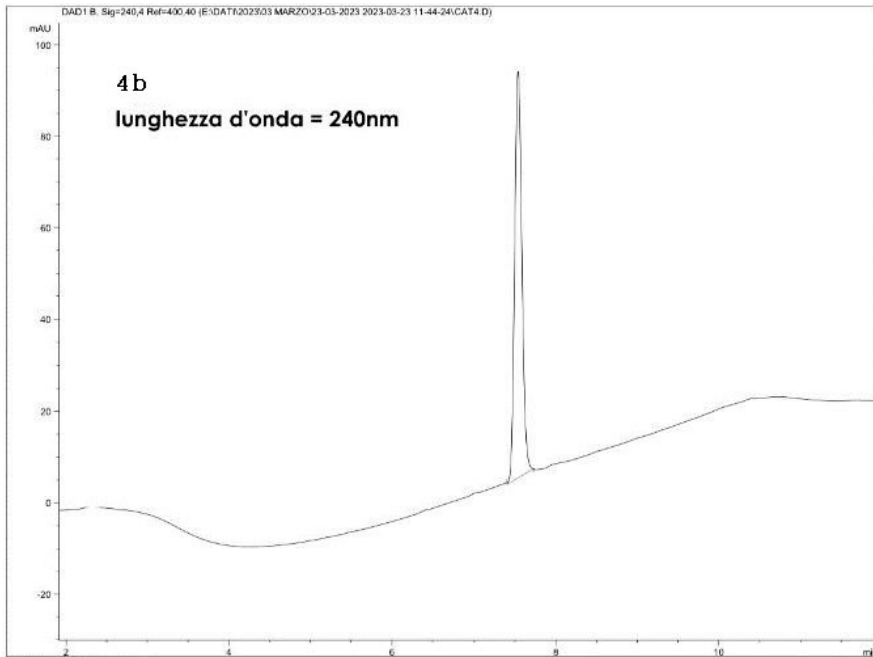
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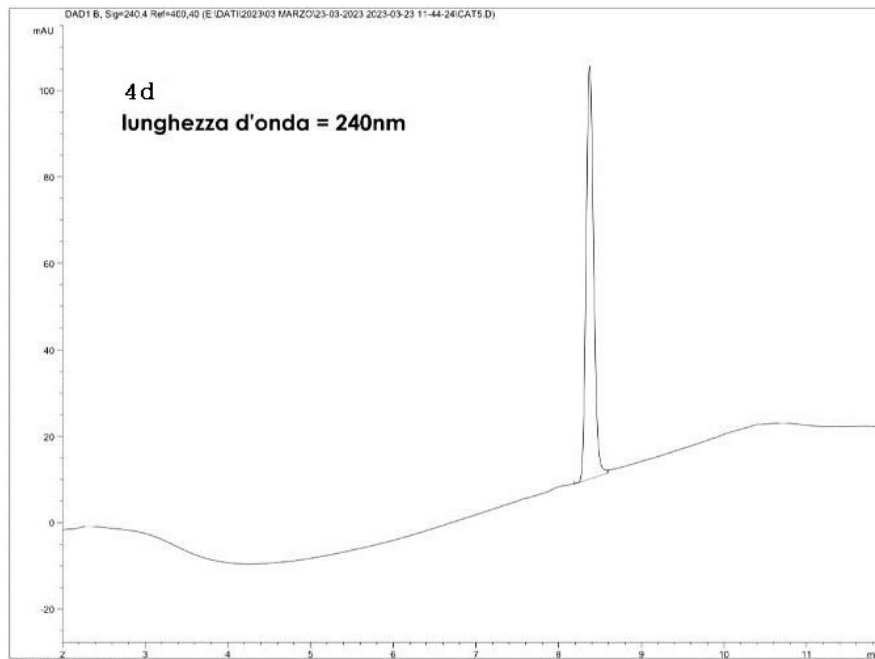
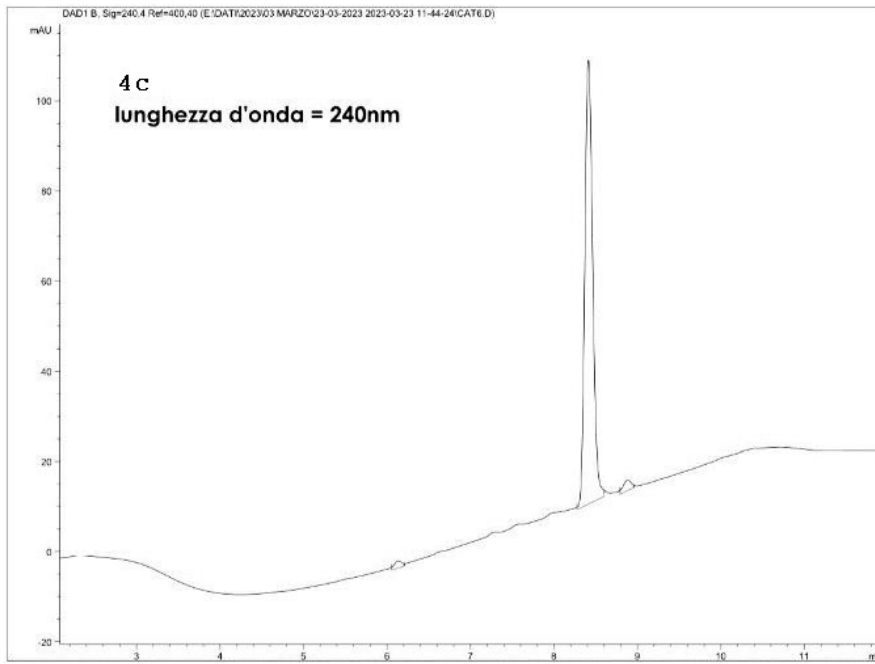


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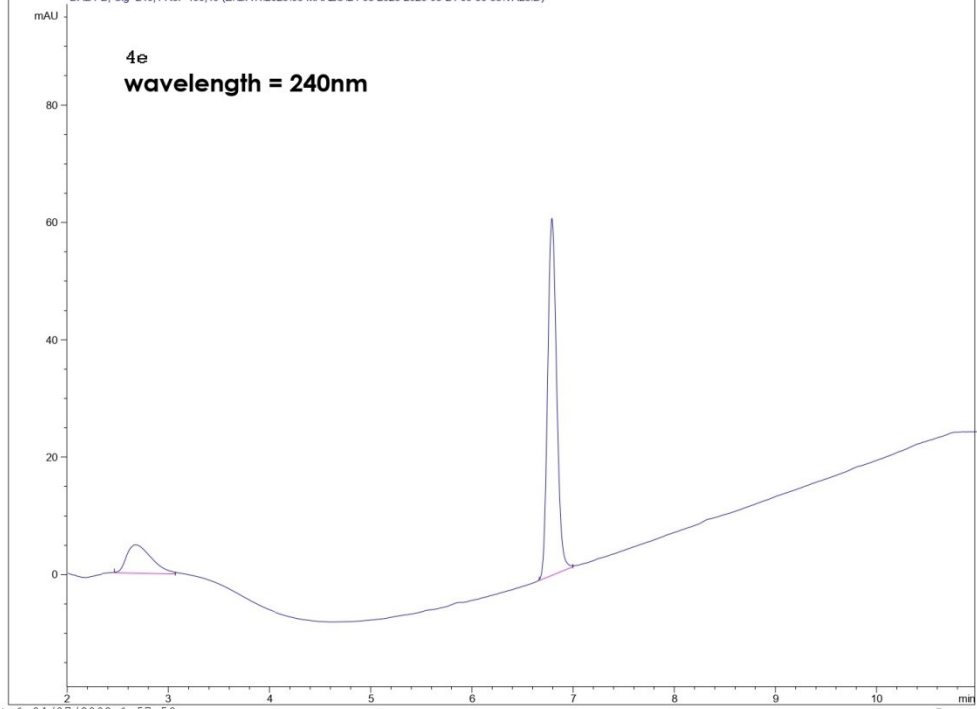
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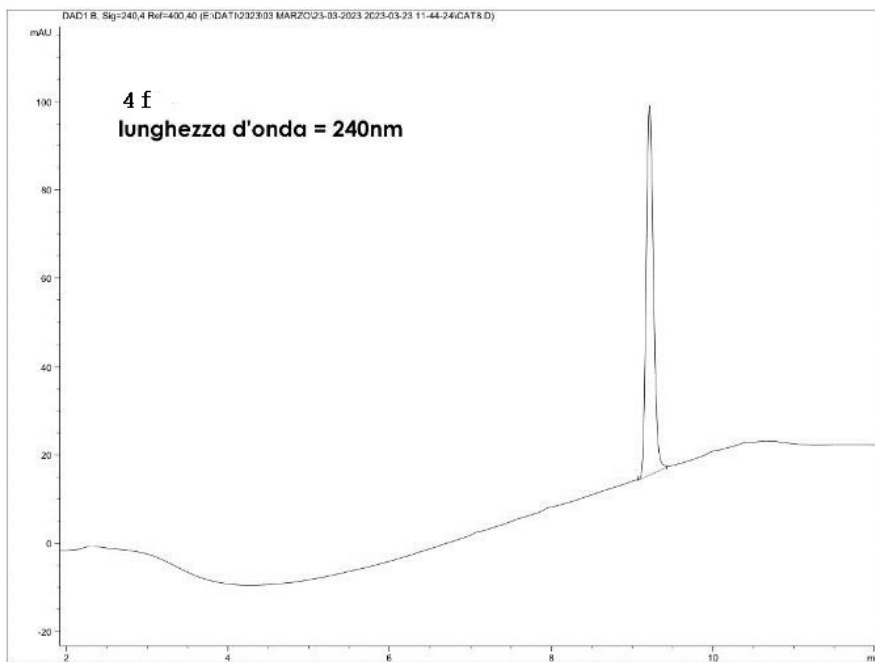
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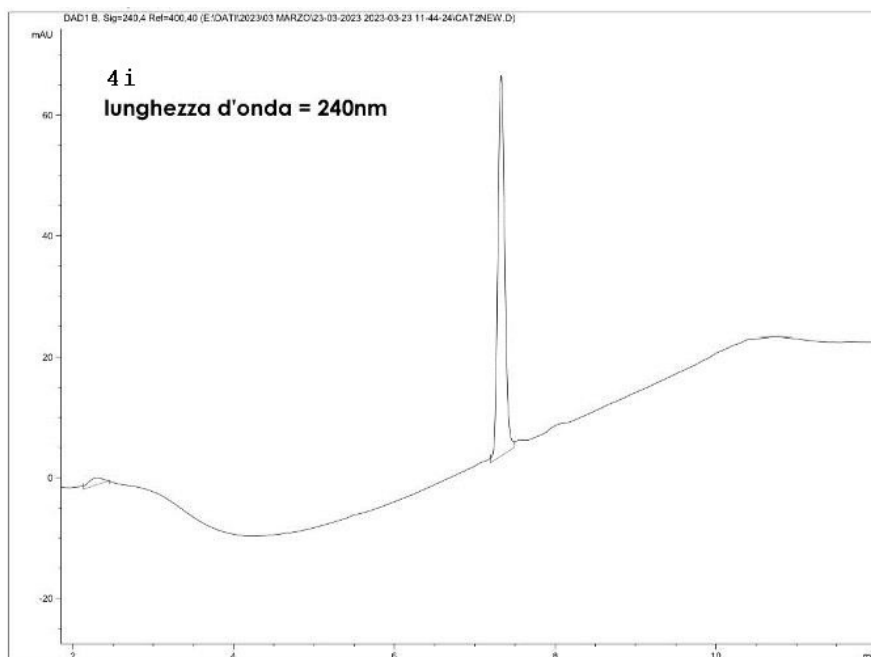
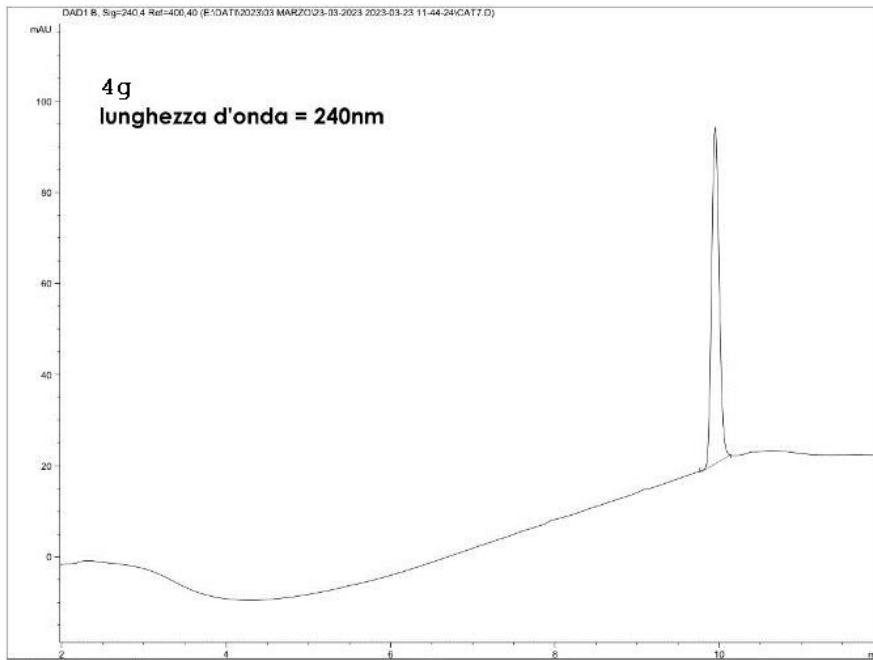


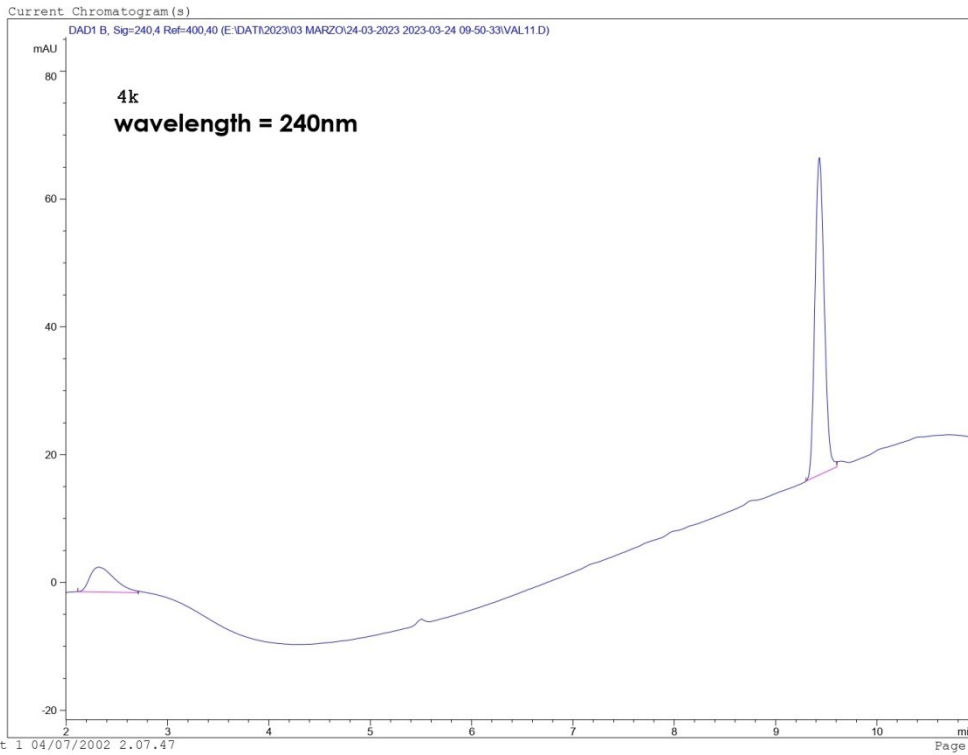
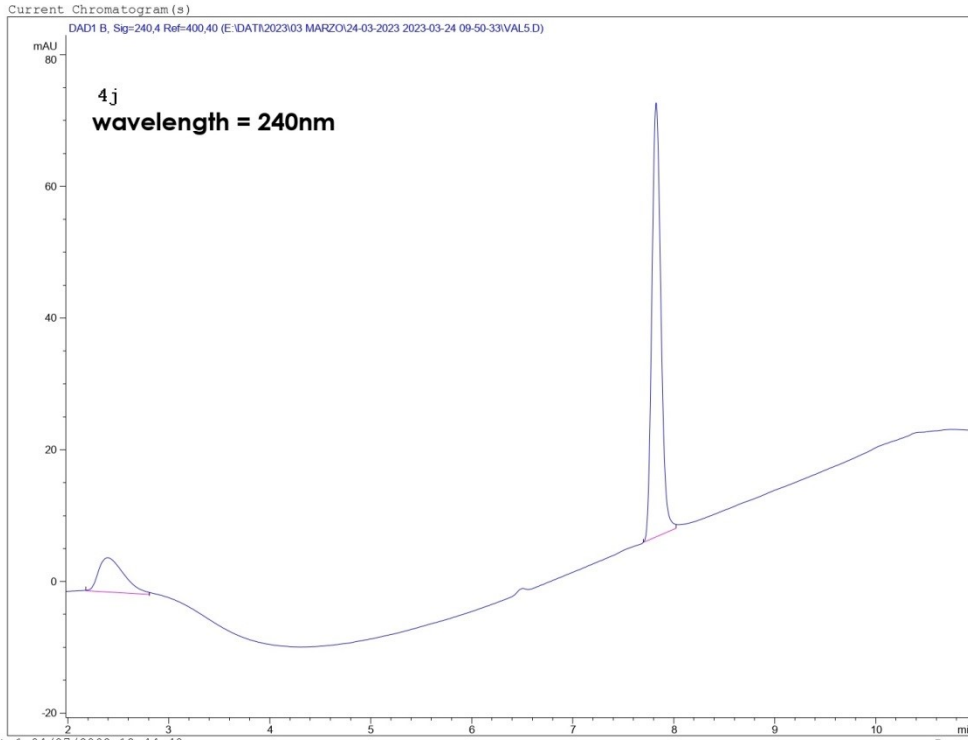
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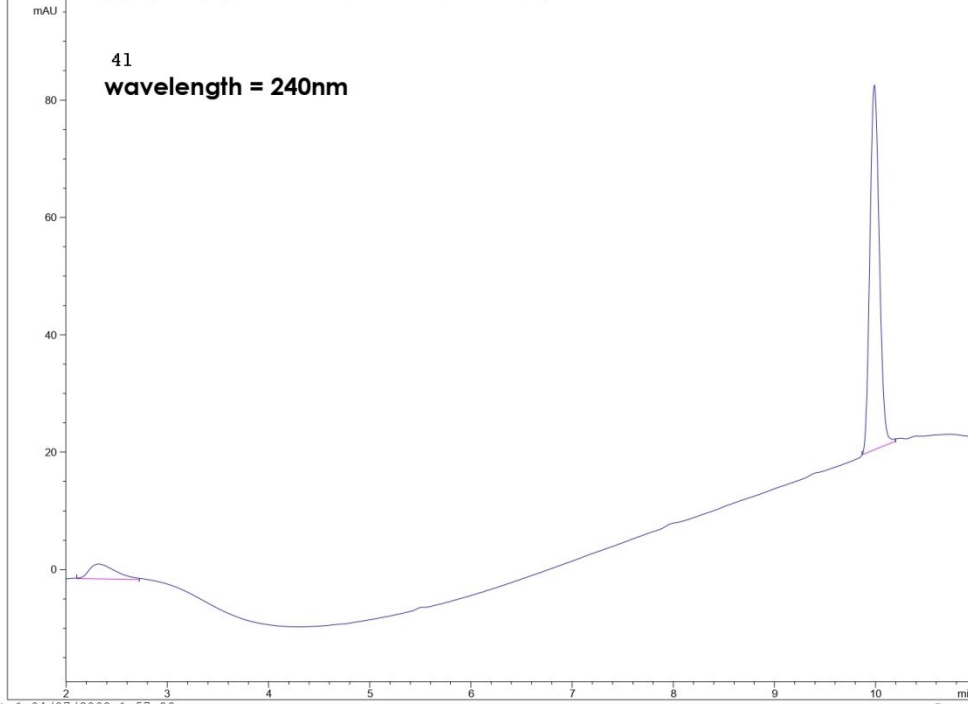






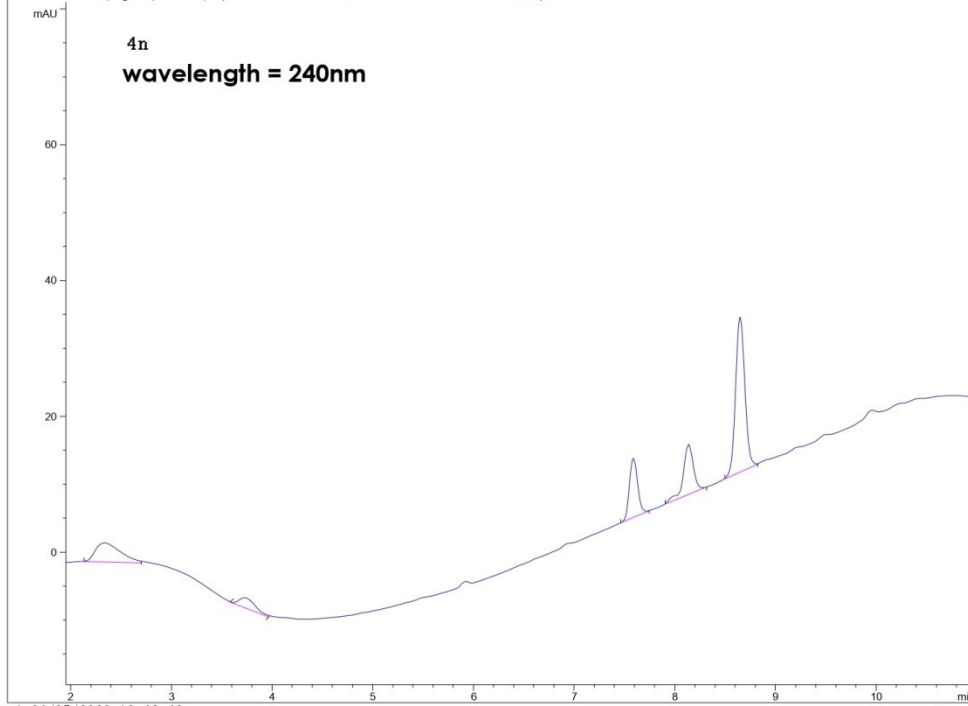
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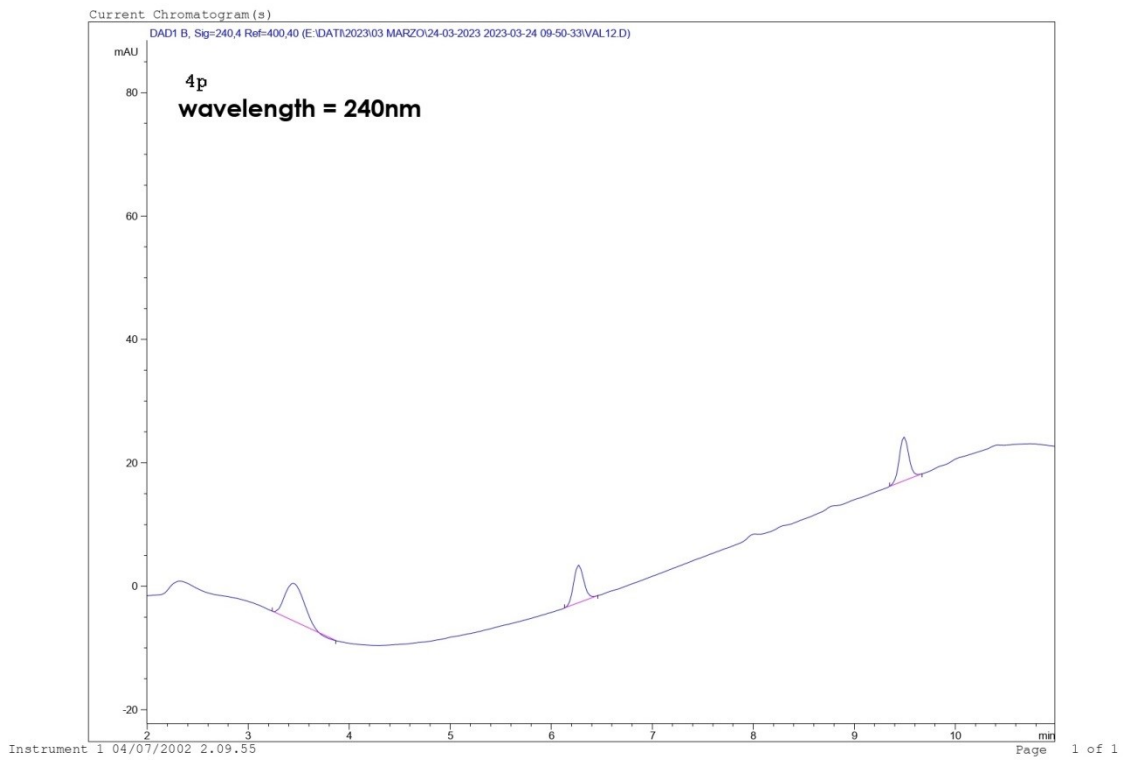
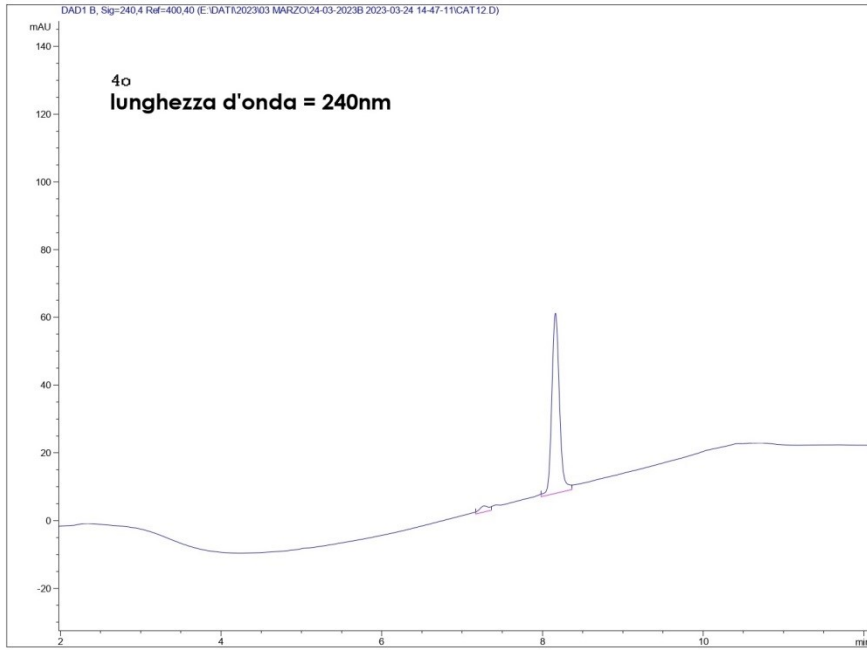
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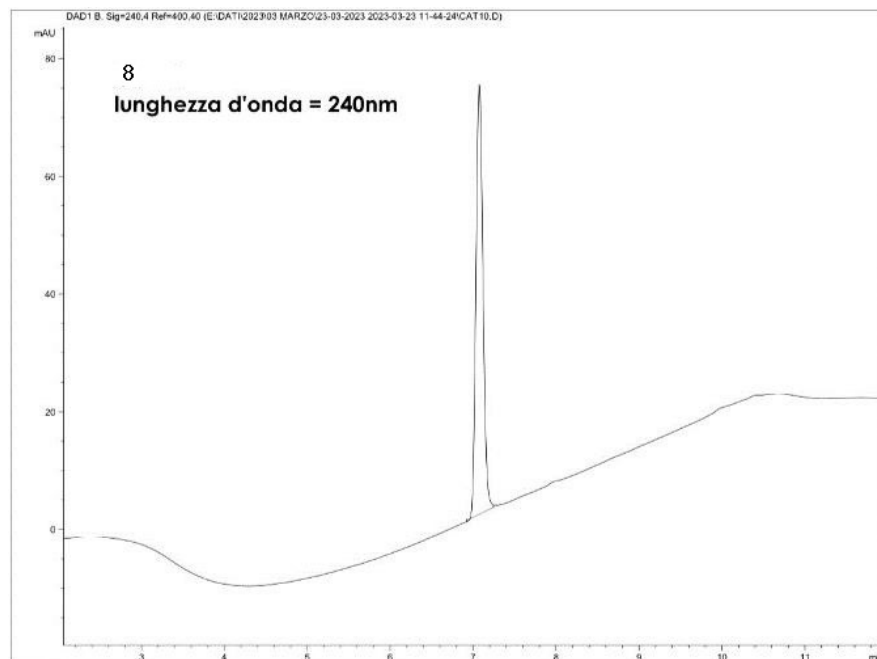
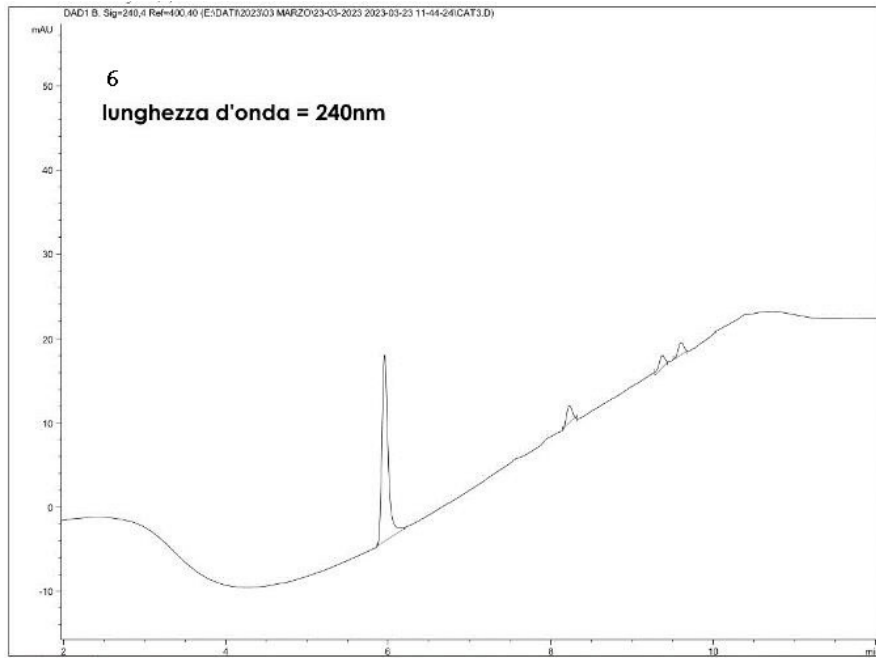


Table S1. Purity data (retention time RT, area, height, width)

Compound	RT (min)	Area	Height	Width 1/2 (min)
4b	7,535	547	89	0,103
4c	8,412	646	99	0,109
4d	8,374	602	96	0,105
4f	9,212	526	84	0,105
4g	9,948	471	74	0,106
4i	7,326	372	63	0,099
4m	7,120	97	15	0,109
4o	8,160	353	52	0,110
6	5,957	116	22	0,087
8	7,071	428	73	0,098

3. Crystallographic data and refinement parameters of **4d**

Table S2

	4d
empirical formula	C ₁₁ H ₁₁ NO ₂ Se
formula weight	268.17
T (K)	100
Crystal system, space group	orthorhombic, Pbca
Unit cell dimensions (Å)	a = 12.976(1) b = 7.1286(6) c = 22.931(2)
V (Å ³)	2121.1(3)
Z, dcalc(g/cm ³)	8, 1.680
μ (mm ⁻¹)	4.631
F(000)	1072
Reflections collected/unique/Rint	16898 / 1920 / 0.0466
Data/parameters	1914 / 169
Final R indices [I>2σ(I)]	R1 = 0.0451, wR2 = 0.1271
R indices all data	R1 = 0.0461, wR2 = 0.1274

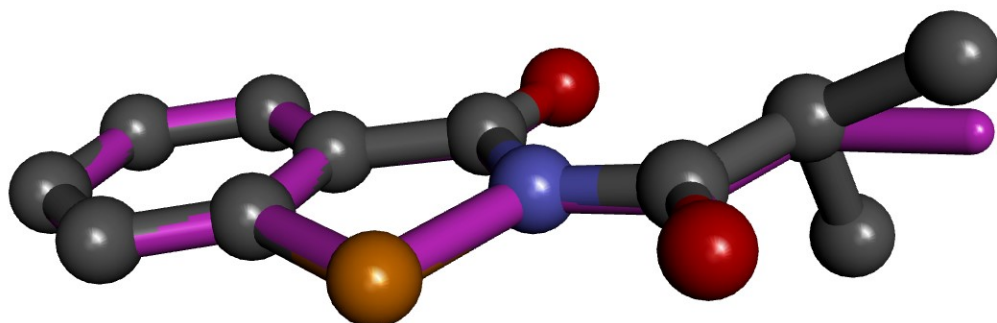


Figure S1. Superimposition of the **4d** (ball and stick) and the XAYHIO (stick, purple) molecules.

4. Volume and surface accessible to solvent for **4d**, **4e**, **4j**, **4g** and **4k** and for the *i*-propyl, *t*-butyl, *c*-propyl, *n*-pentyl and *c*-pentyl residues

For molecules **4d**, **4e**, **4j**, **4g** and **4k**, the surface accessible to solvent (Connolly surface, Å²) and the subtended volume (Å³) were evaluated (by Accelrys\DSViewerPro60) and reported in **Table S3**.

The same values are evaluated also for the *i*-propyl, *t*-butyl, *c*-propyl, *n*-pentyl and *c*-pentyl residues.

Table S3

Compound	Volume Å ³	Surface area Å ²
4d	169.96	196.66
4e	189.41	206.88
4j	161.08	187.38
4g	201.88	236.45
4k	191.92	218.73
residue		
<i>i</i>-propyle	74.57	95.55
<i>t</i>-butyl	91.66	110.31
<i>c</i>-propyl	64.77	87.77
<i>n</i>-pentyl	107.42	133.62
<i>c</i>-pentyl	90.53	111.71

5. *Overlapping of surface accessible to solvent of compounds 4d, 4e, 4j*

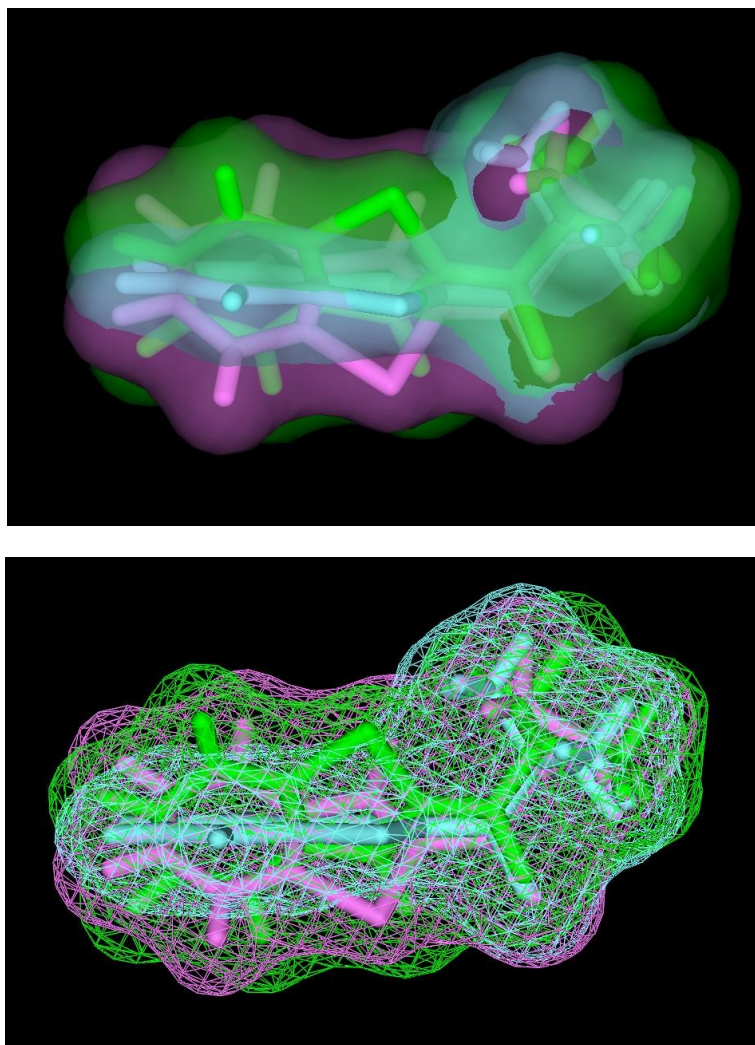


Figure S2. The surface accessible to solvent (Connolly surface) of **4d** (green), **4e** (light blue), **4j** (pink).

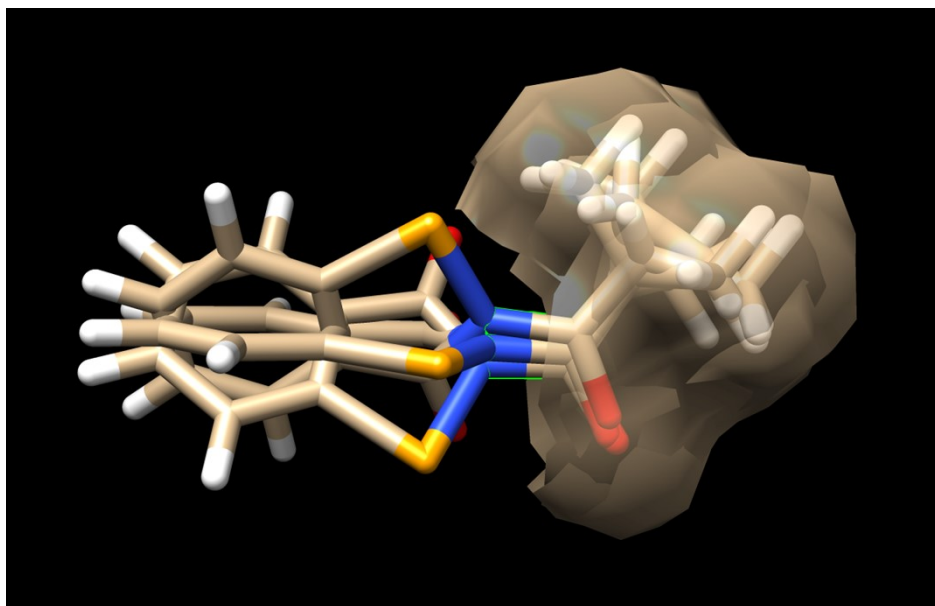


Figure S3. Surface accessible to solvent for the residues *i*-propyl, *t*-butyl and *c*-propyl.

Compounds **4g** and **4k**, respectively, the *n*-pentanyl and the cyclopentanyl derivatives show a similar surface accessible to solvent as illustrated in **Figure S4**.

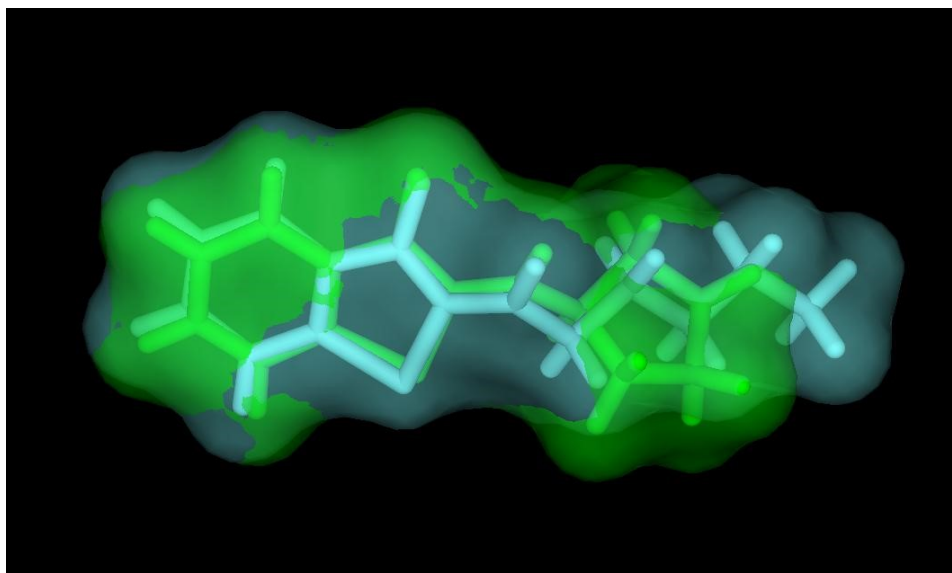


Figure S4. The surface accessible to solvent (Connolly surface) of **4g** (light blue) and **4k** (green).

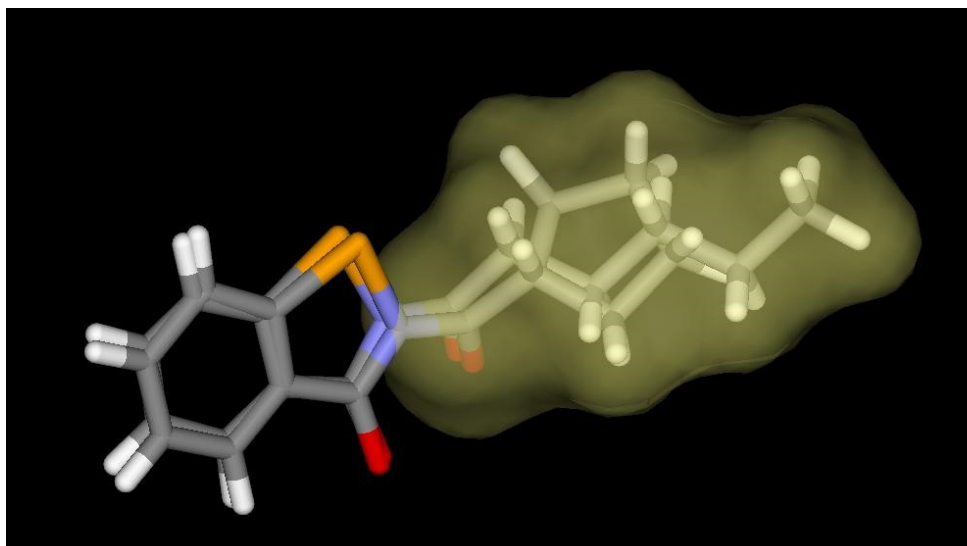


Figure S5. Surface accessible to solvent for the residues *n*-pentyl and *c*-pentyl.