

Masked Phenolic-Selenium Conjugates: Potent and Selective Antiproliferative Agents Overcoming P-gp Resistance

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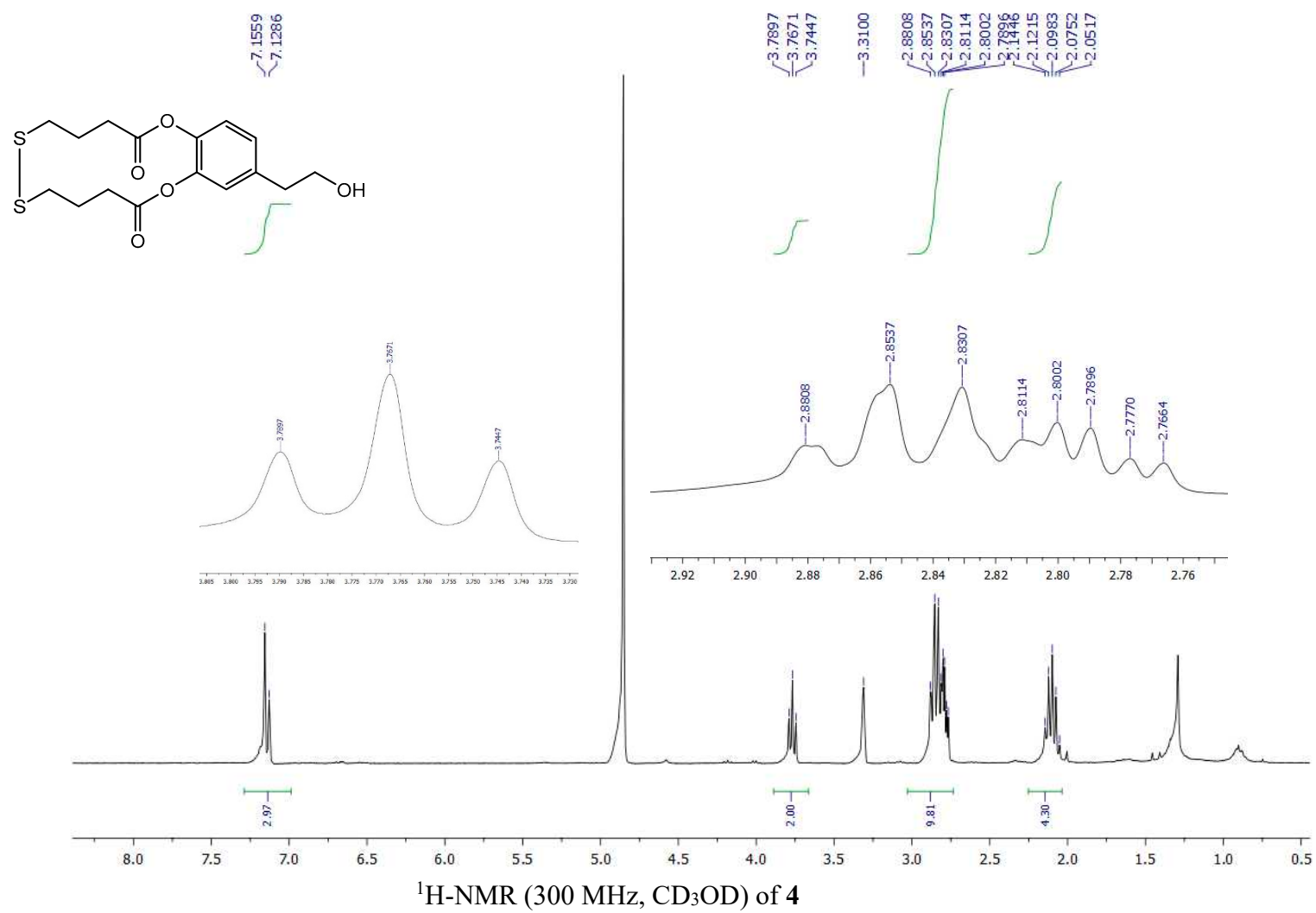
Table S1.....S2

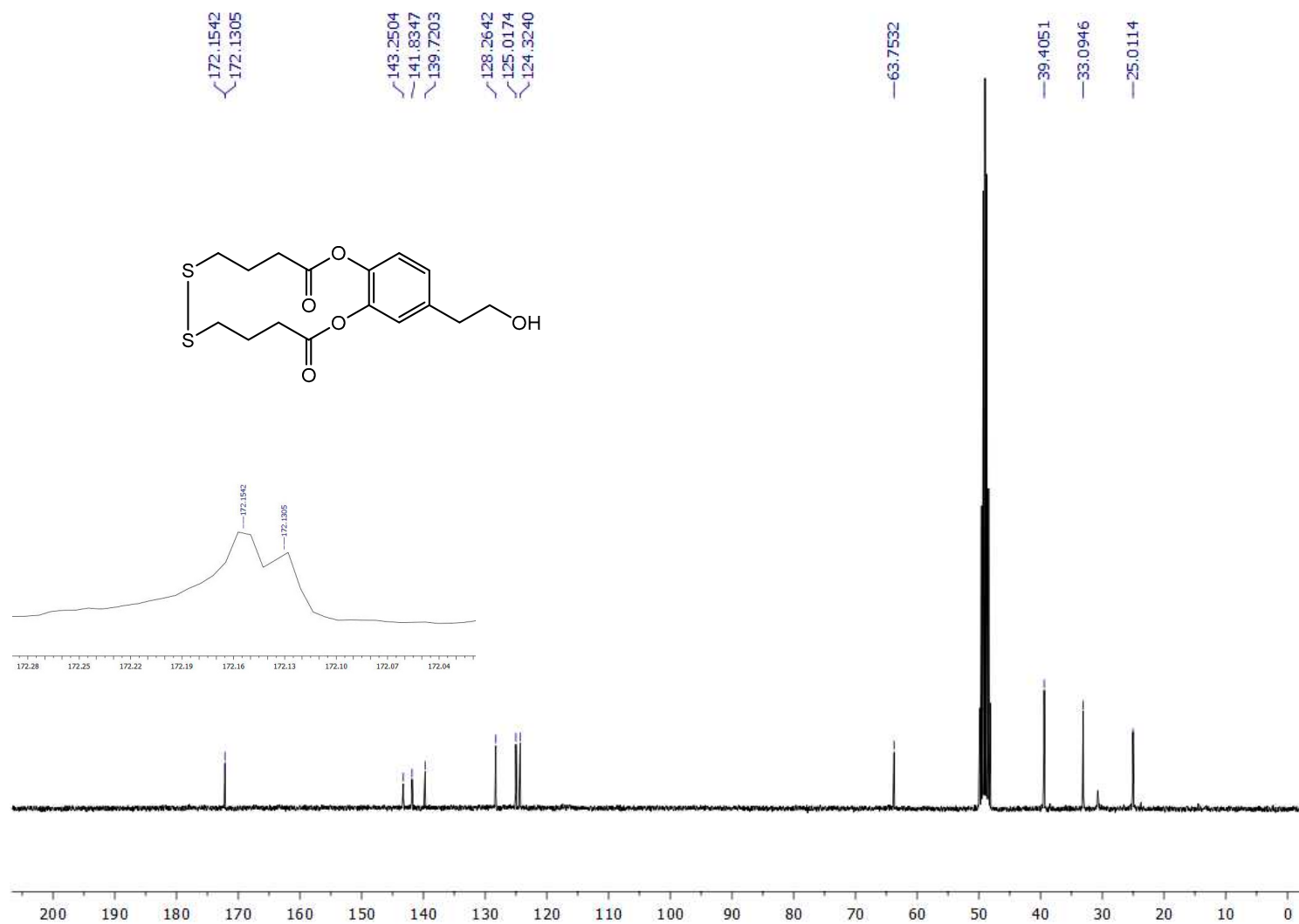
¹H-, ¹³C-NMR and ⁷⁷Se spectra.....S3-S66

Table S1. GI₅₀ values (μM) for the antiproliferative activity of organoselenium derivatives

Compound	A549 (Lung)	HBL-100 (Breast)	HeLa (Cervix)	SW1573 (Lung)	T-47D (Breast)	WiDr (Colon)	BJ-hTert (Human fibroblasts)
2	>100	>100	>100	>100	>100	>100	--- ¹
6	>100	>100	>100	>100	>100	>100	---
7	>100	>100	>100	>100	>100	>100	---
4	>100	>100	>100	>100	>100	>100	---
8	>100	>100	>100	>100	>100	>100	---
9	32±1	31±7	28±2	42±6	45±19	>100	---
10	>100	>100	>100	>100	>100	>100	---
13	4.1±0.1	94±8	18±1	>100	20±8	5.6±0.6	---
14	46±14	>100	44±13	>100	50±14	54±6	---
15	5.4±1.1	29±6	3.6±1.1	5.9±1.3	39±5	31±7	---
16	3.7±0.6	2.4±0.6	2.3±0.4	3.0±0.2	5.8±0.9	3.9±0.6	3.5±0.6
17	>100	>100	>100	>100	>100	>100	---
18	33±5	34±1	23±1	28±4	71±5	85±21	---
19	18±6	93±9	32±10	>100	36±1	28±4	---
20	28±8	37±2	19±8	24±8	35±1	41±10	---
26	21±7	21±4	21±6	21±12	28±6	30±3	---
35	3.1±0.7	3.5±1.4	3.5±0.8	4.4±0.5	3.4±0.2	2.0±0.1	8.7±3.2
36	1.8±0.7	2.1±0.2	1.2±0.2	3.8±0.1	1.1±0.3	1.3±0.6	14±2
37	Not soluble						
38	19±2	14±3	5.2±1.0	27±5	4.7±1.2	14±2	---
39	1.2±0.3	2.9±0.6	2.4±1.4	3.2±0.9	2.9±0.4	1.6±0.3	3.9±1.0
40	1.6±0.5	2.0±0.9	0.95±0.07	2.7±0.3	0.88±0.17	1.2±0.1	28±5
41	32±8	93±10	31±8	37±15	29±5	29±8	---
45	0.41±0.03	1.6±0.3	0.36±0.09	0.81±0.02	0.40±0.04	0.41±0.03	1.8±0.7
46	0.27±0.02	0.25±0.02	0.12±0.01	0.30±0.03	0.19±0.04	0.25±0.06	1.0±0.1
Ebselen	25±9	13±3	26±8	28±4	90±14	>100	---
CDDP	4.9±0.2	1.9±0.2	2.0±0.3	3.4±0.7	15±2	26±6	14±2

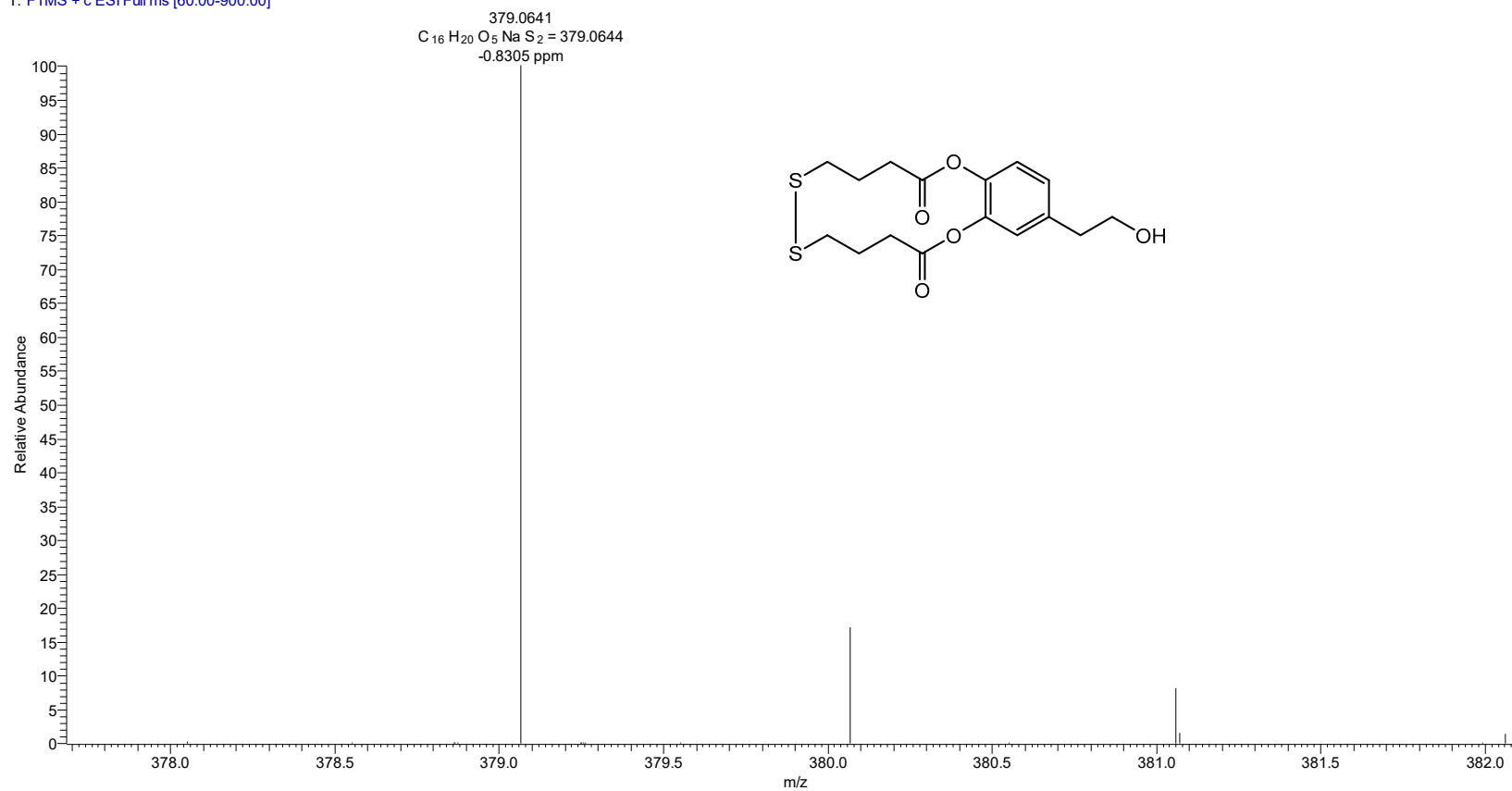
¹Not tested



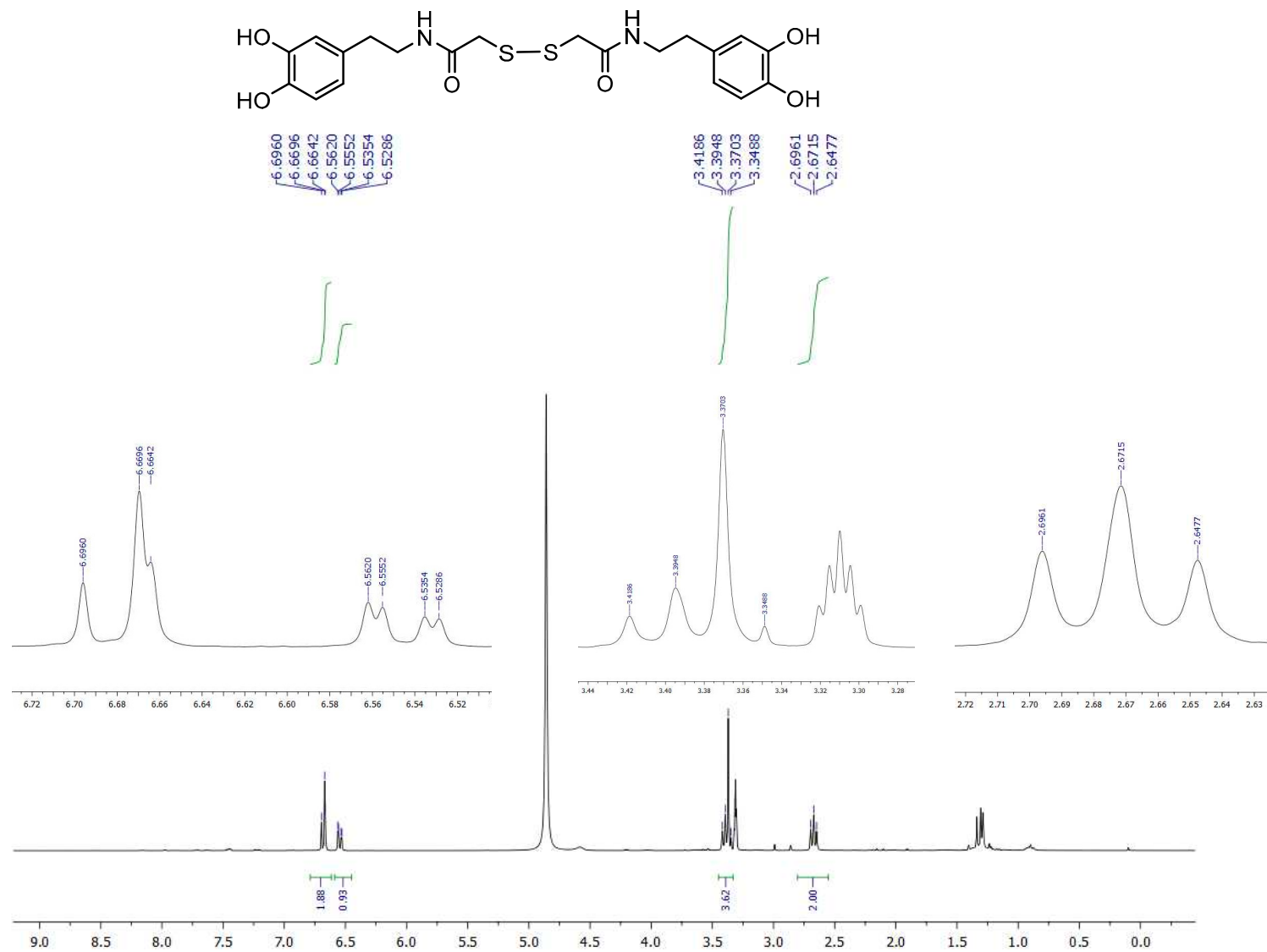


^{13}C -NMR (75.5 MHz, CD_3OD) of 4

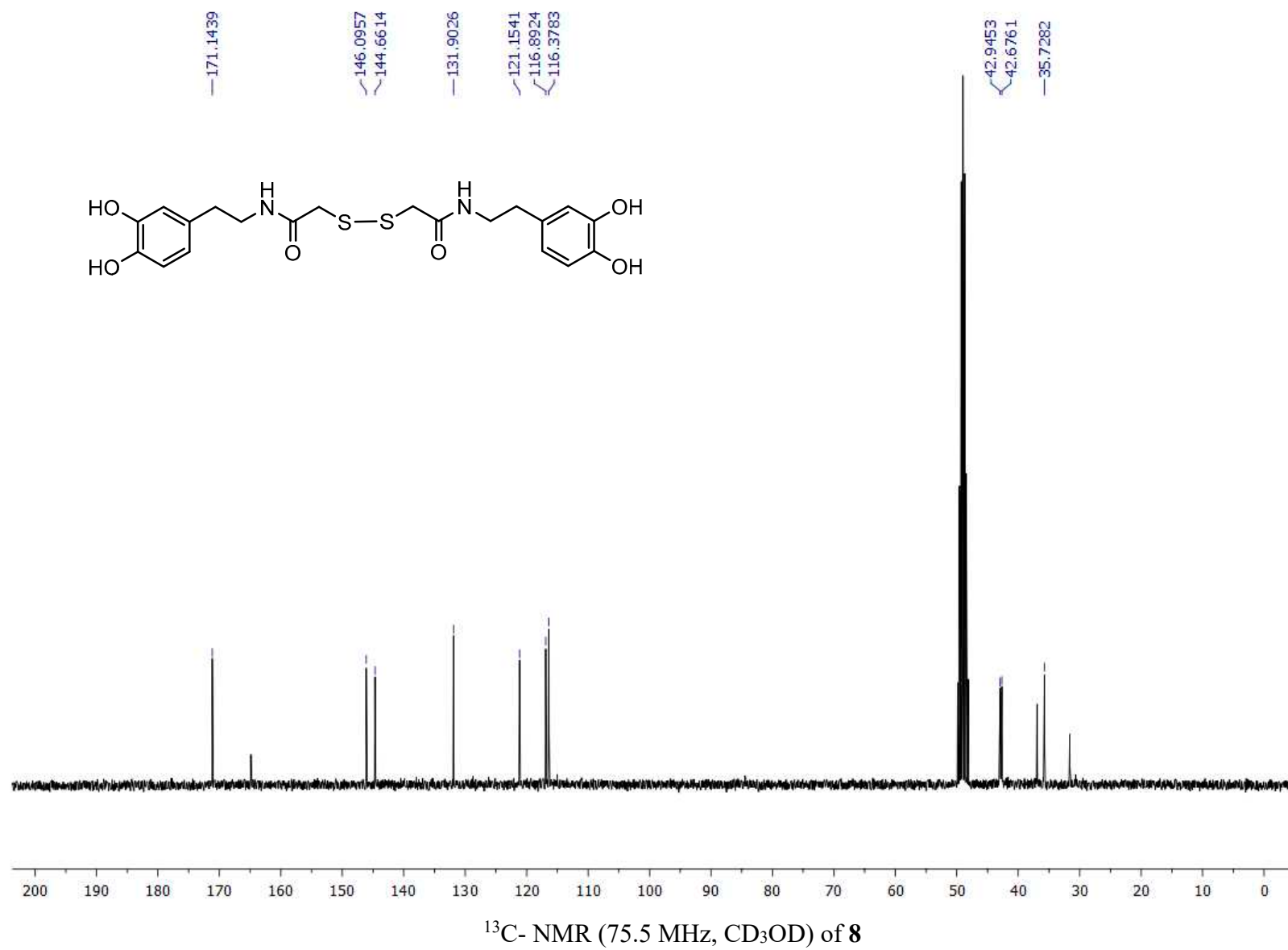
150513_LSH16 #55-81 RT: 0.29-0.42 AV: 27 SB: 41 4.50-4.71 NL: 6.49E8
T: FTMS + c ESI Full ms [60.00-900.00]



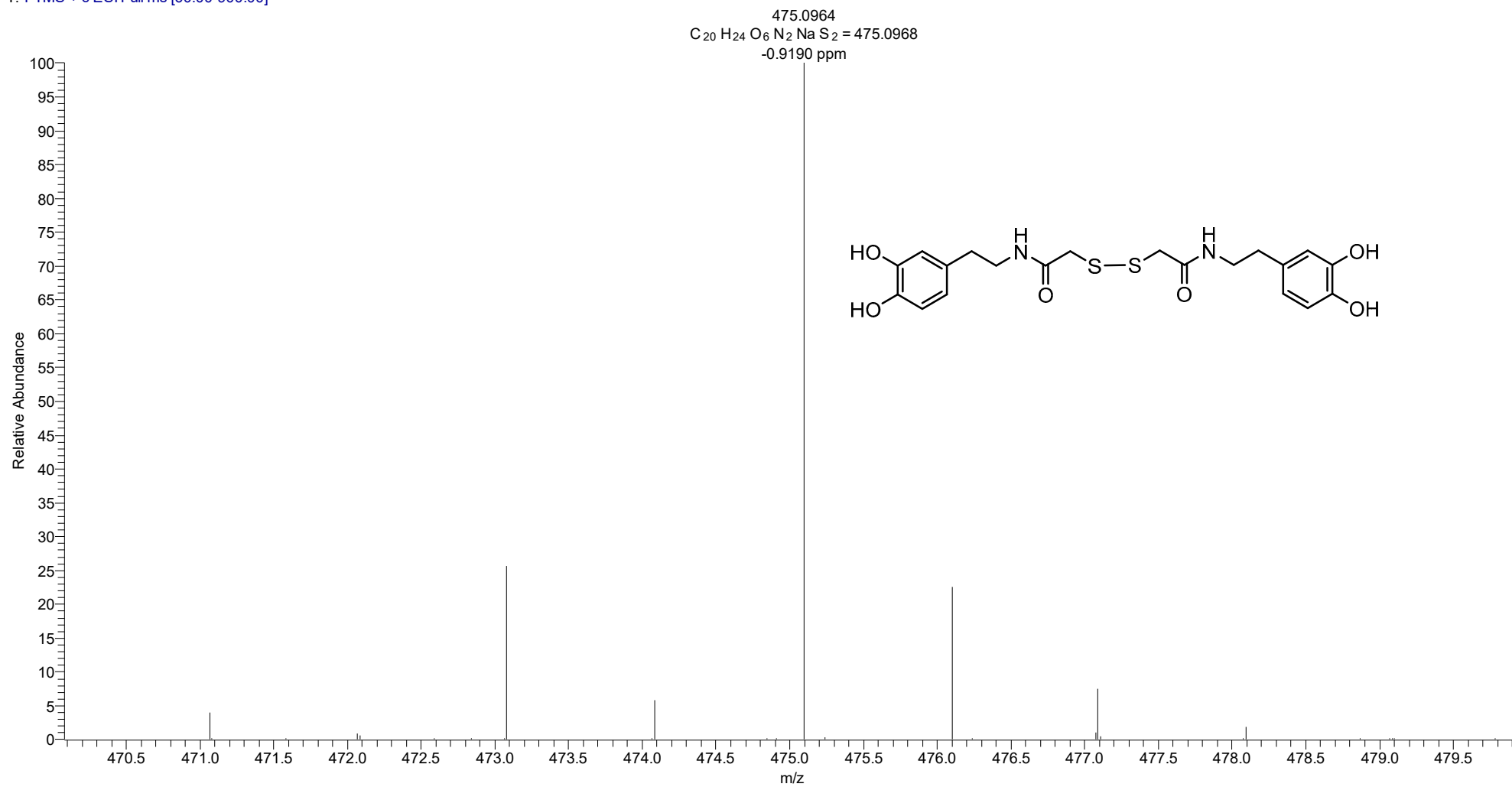
HRESI-MS spectrum of **4**



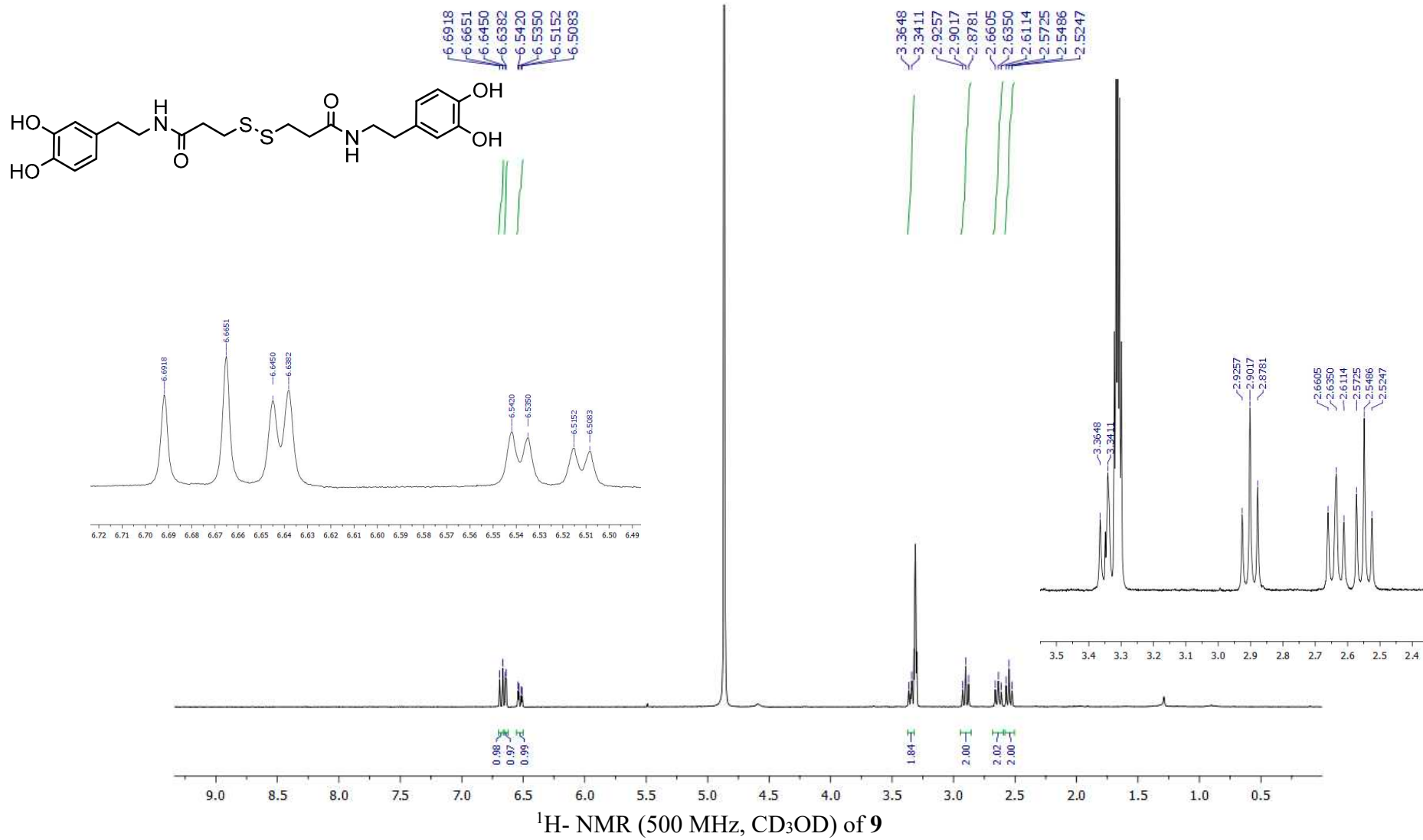
^1H -NMR (300 MHz, CD_3OD) of **8**

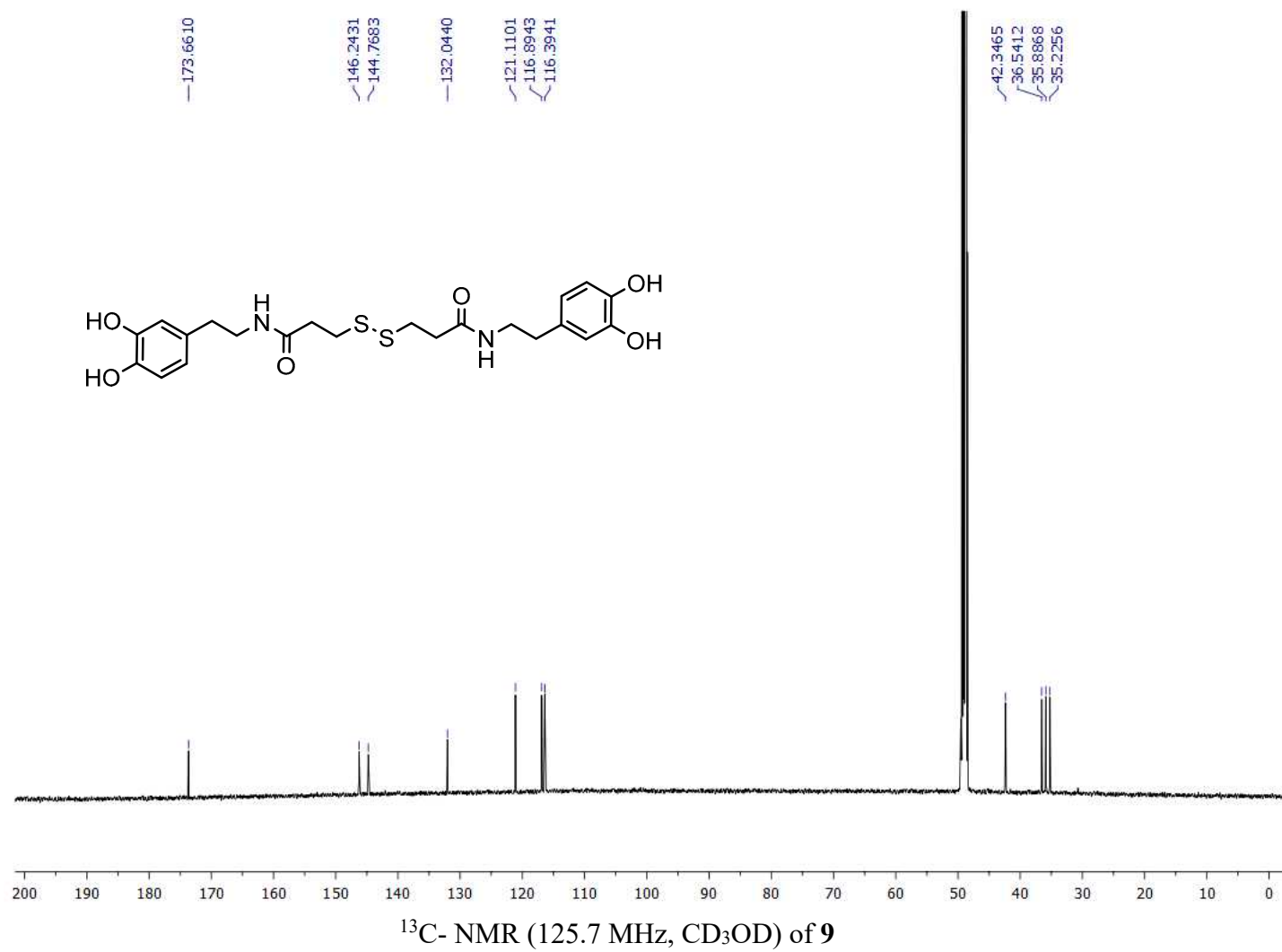


150513_LSH41 #47-81 RT: 0.25-0.43 AV: 35 SB: 41 4.50-4.71 NL: 3.21E7
T: FTMS + c ESI Full ms [60.00-900.00]

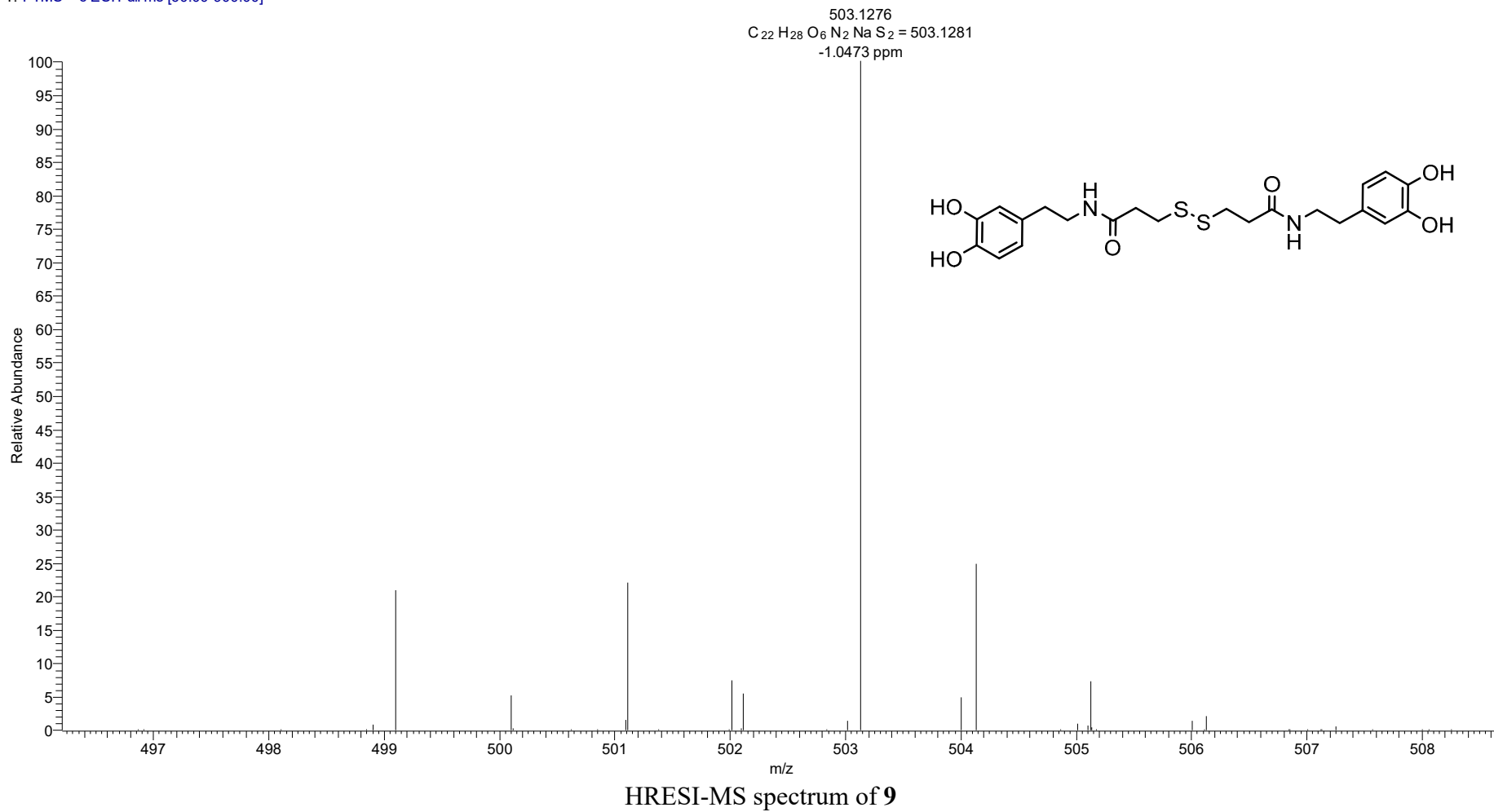


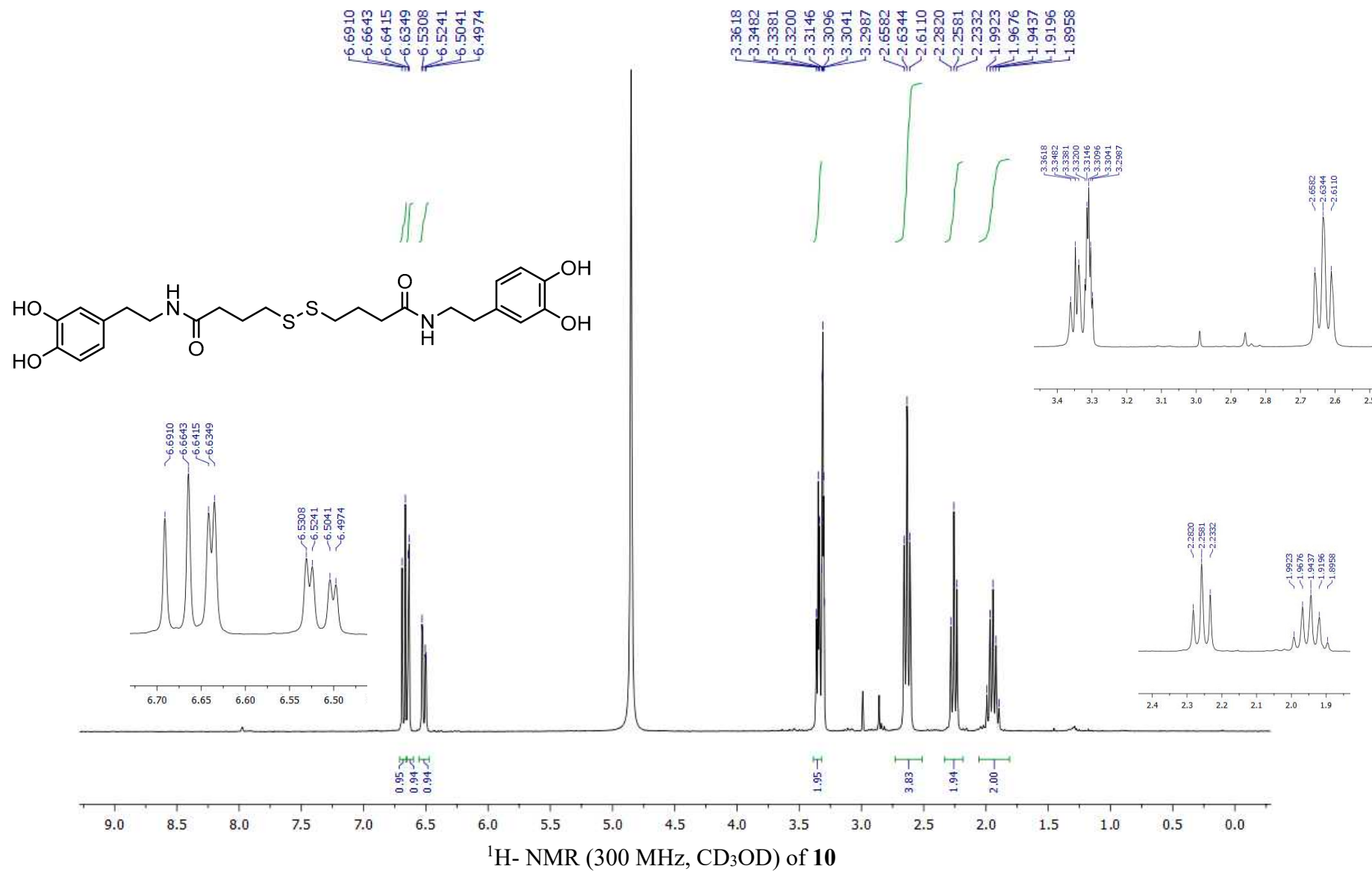
HRESI-MS spectrum of **8**

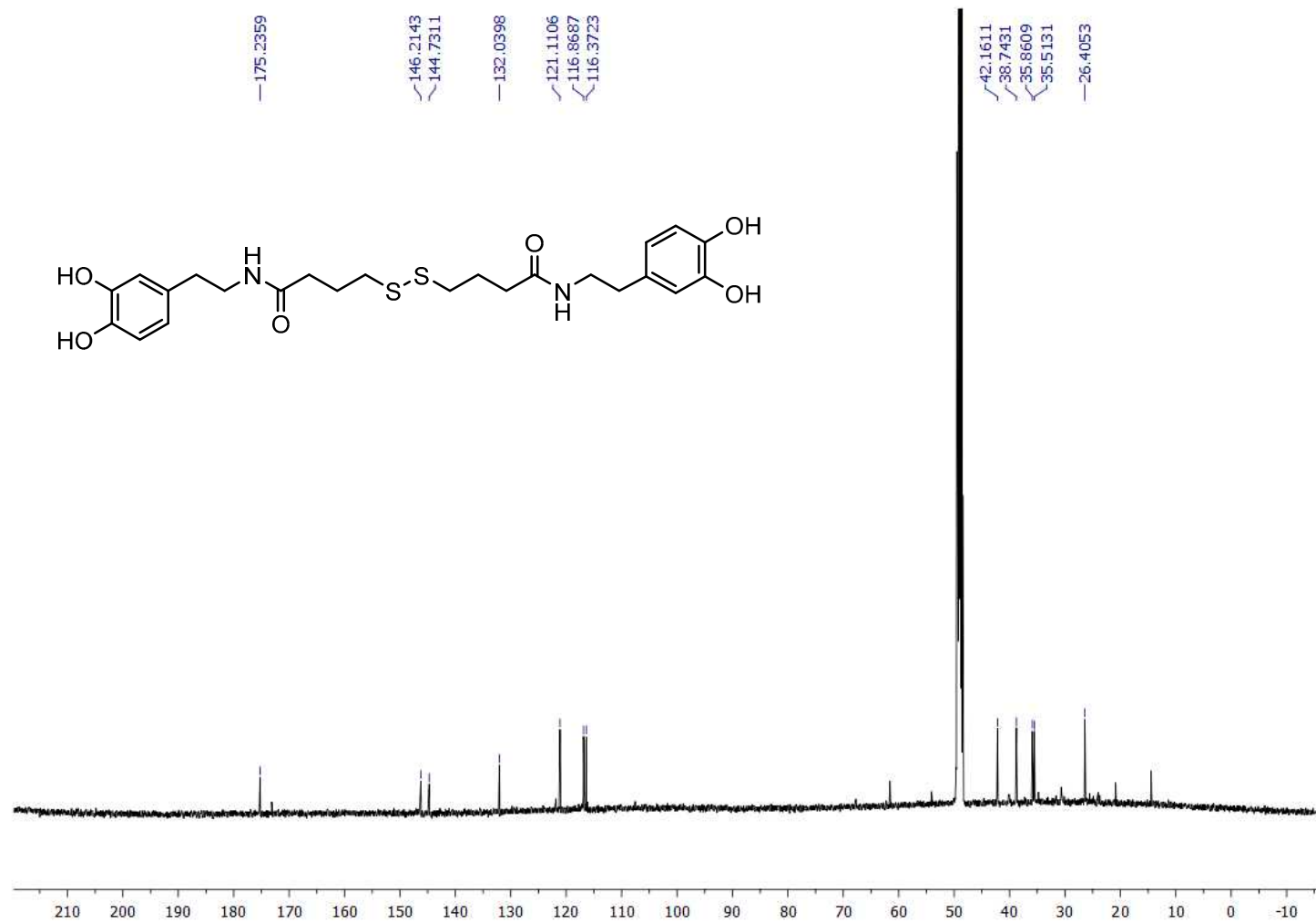




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T: FTMS + c ESI Full ms [60.00-900.00]

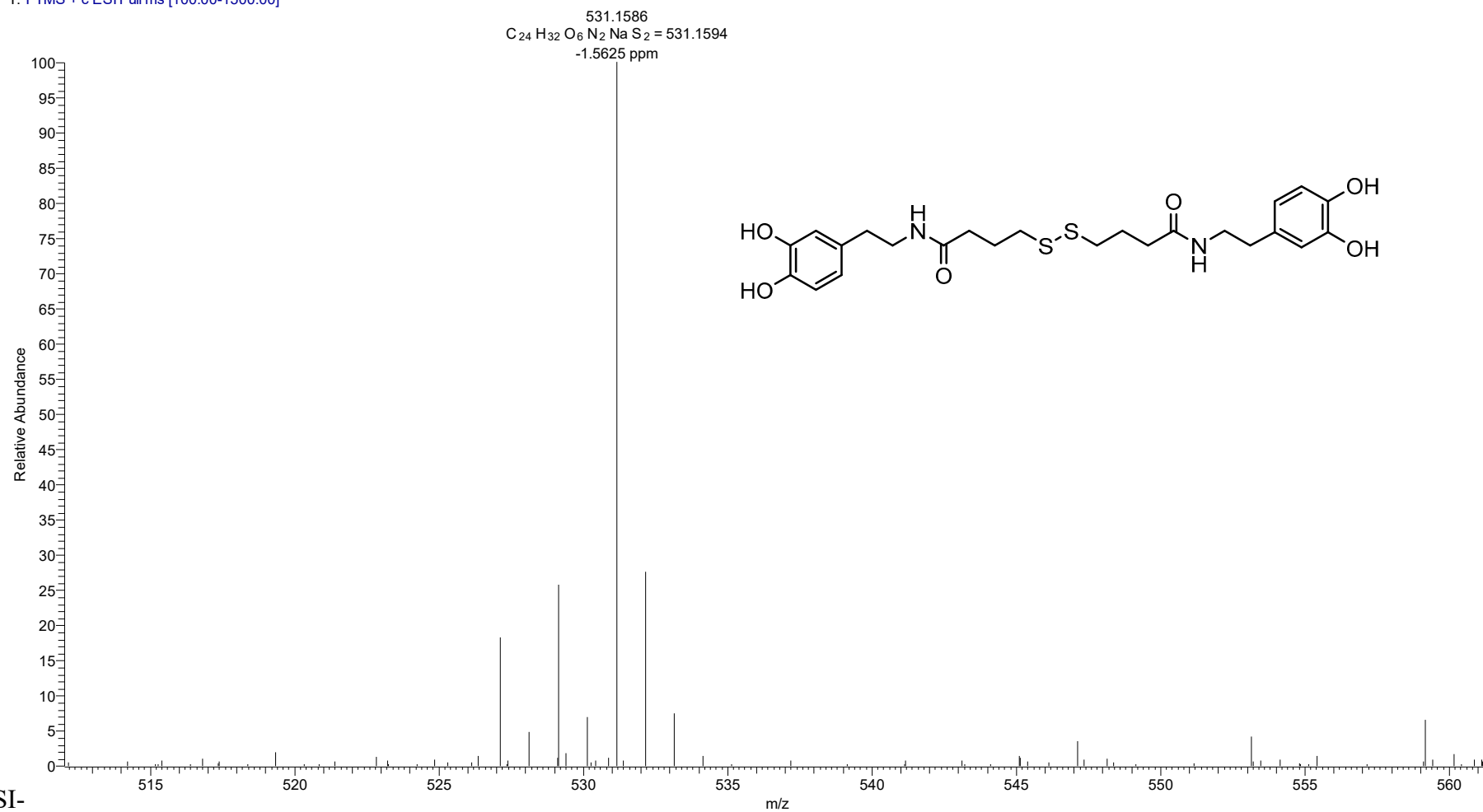






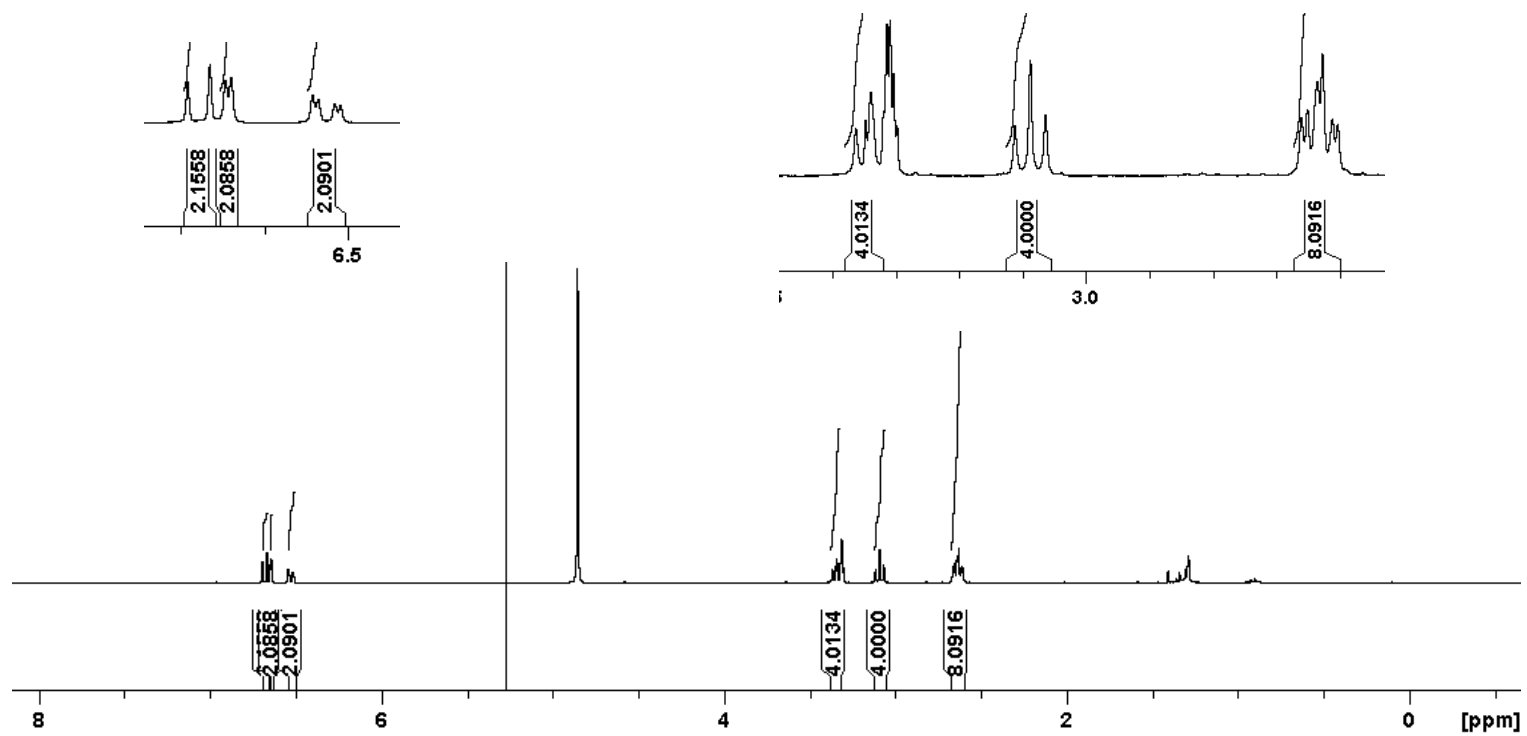
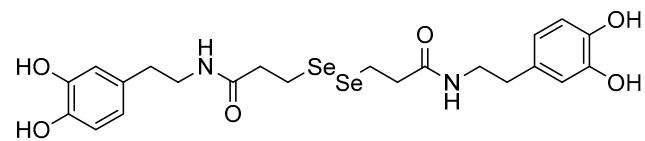
^{13}C -NMR (125.7 MHz, CD_3OD) of **10**

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T: FTMS + c ESI Full ms [100.00-1500.00]

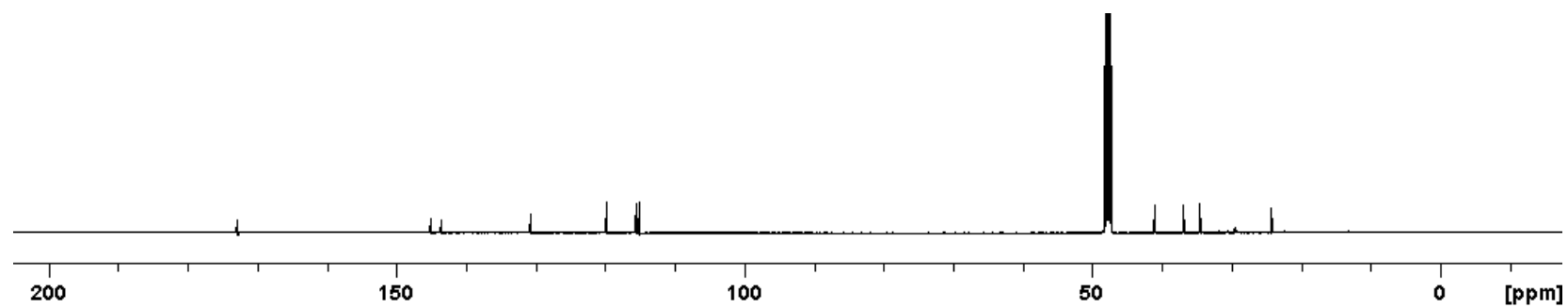
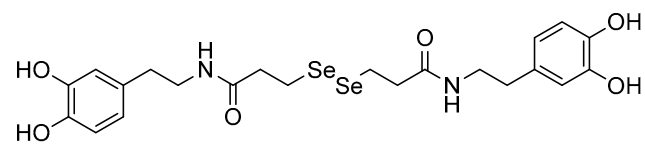


HRESI-

MS spectrum of **10**

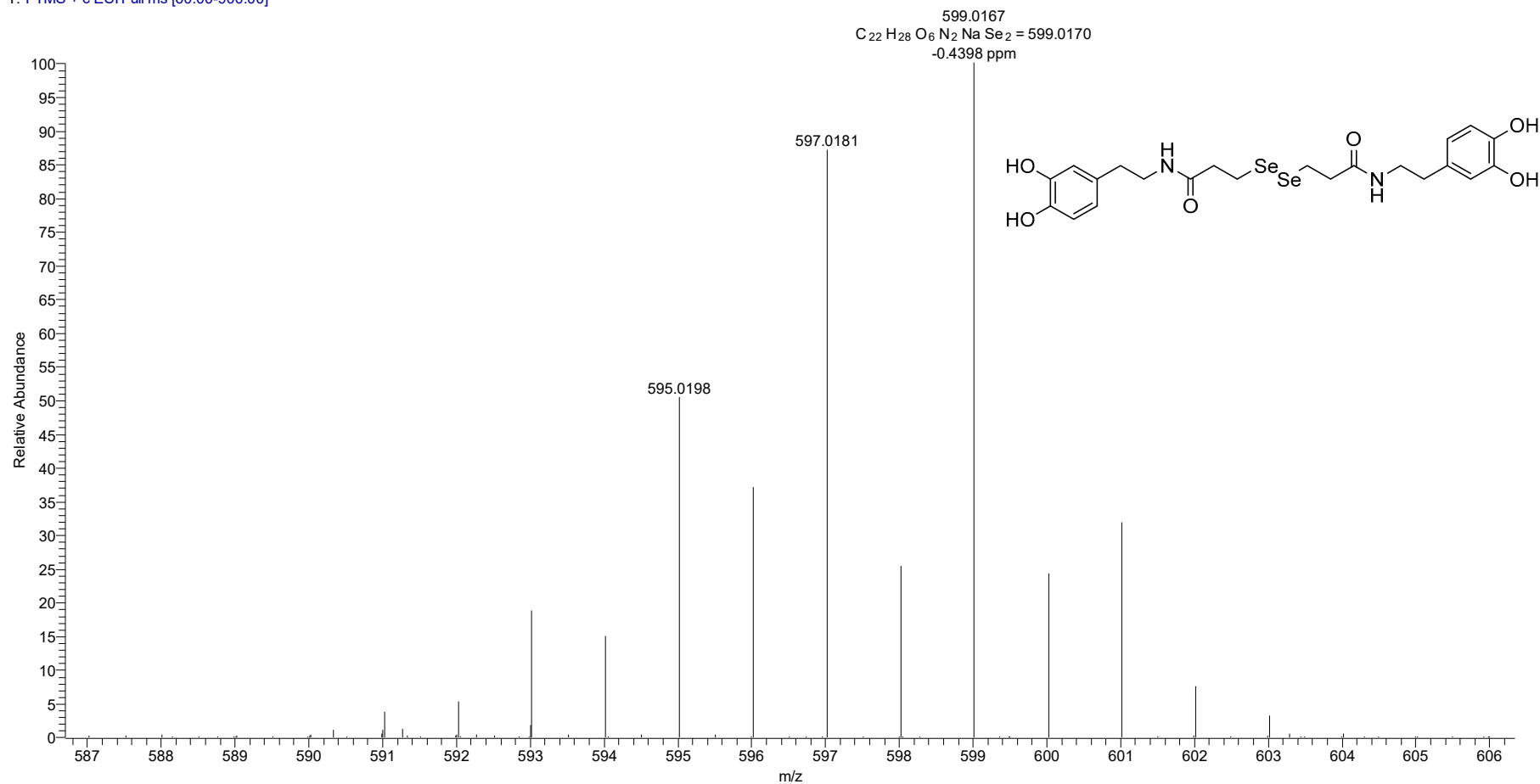


$^1\text{H-NMR}$ (300 MHz, CD_3OD) of **15**

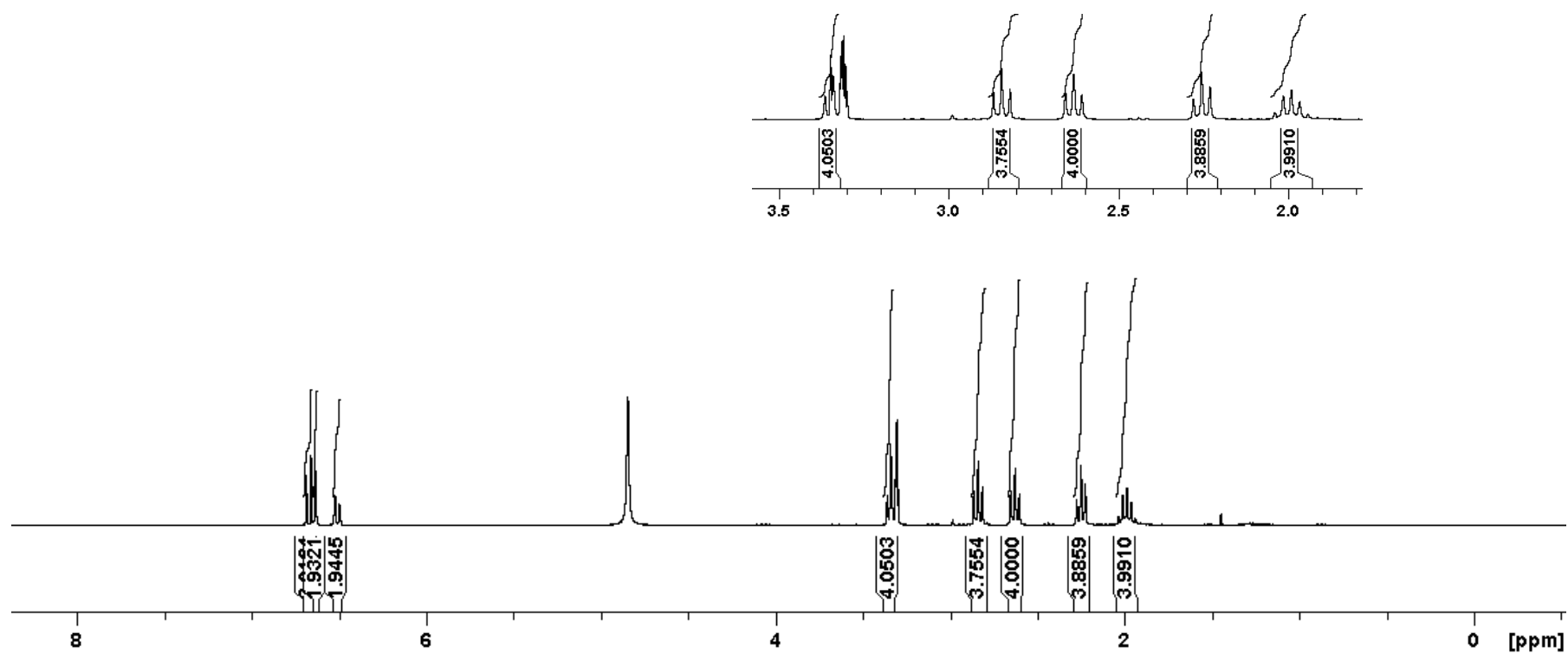
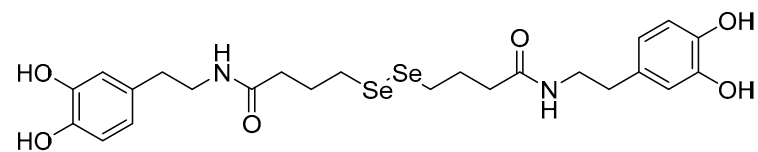


¹³C- NMR (125.7 MHz, CD₃OD) of **15**

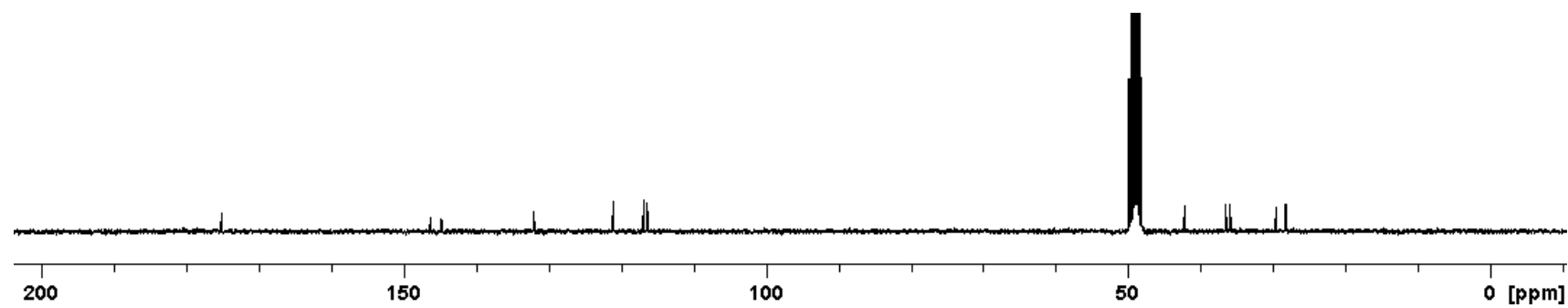
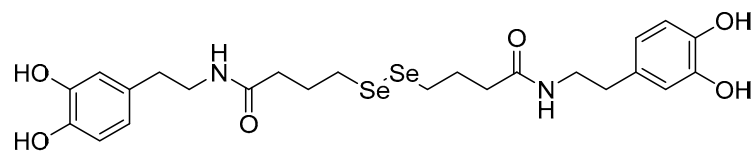
150513_LSH32 #47-88 RT: 0.25-0.46 AV: 42 SB: 40 4.50-4.71 NL: 2.28E7
T: FTMS + c ESI Full ms [60.00-900.00]



HRESI-MS spectrum of **15**

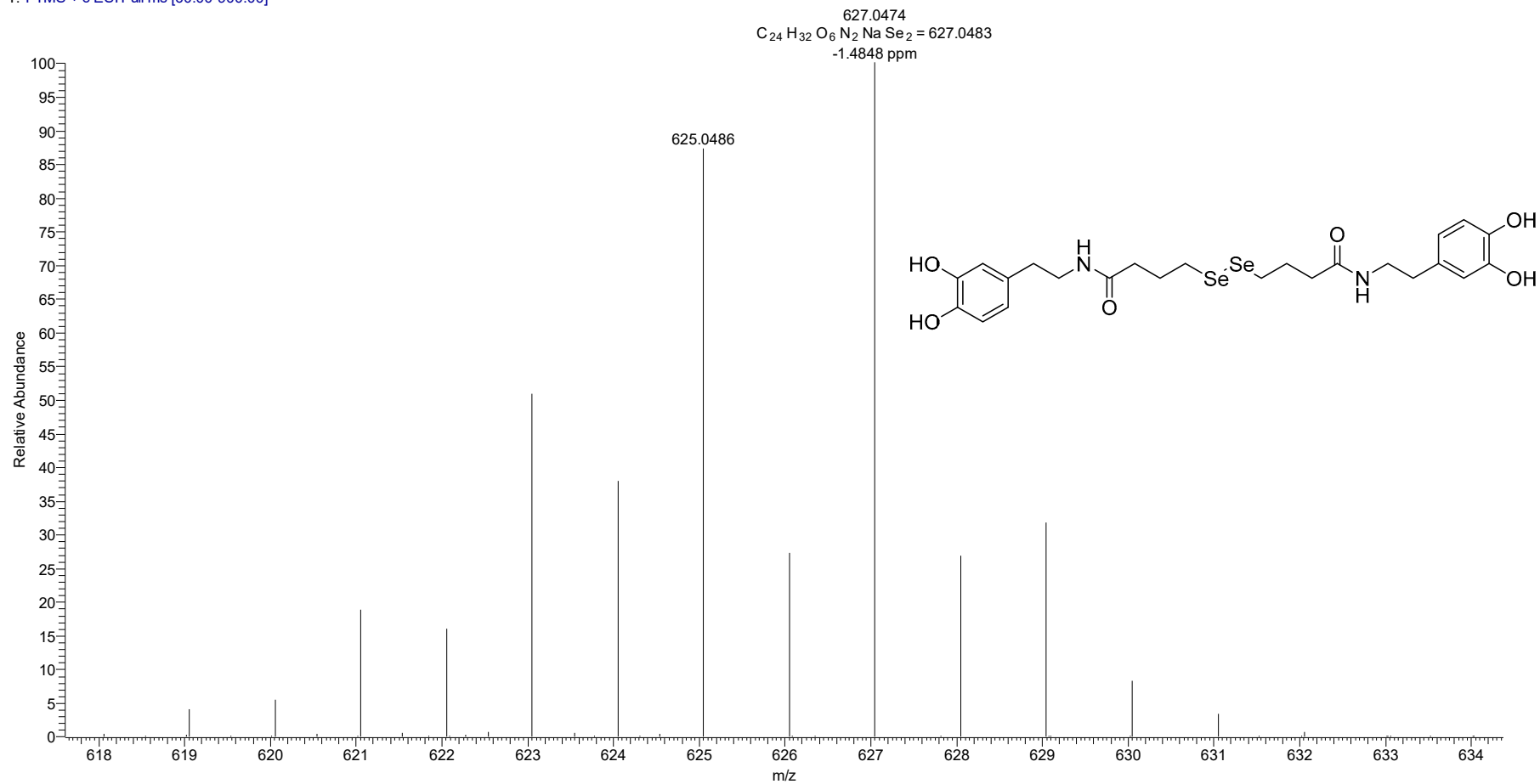


¹H- NMR (300 MHz, CD₃OD) of **16**

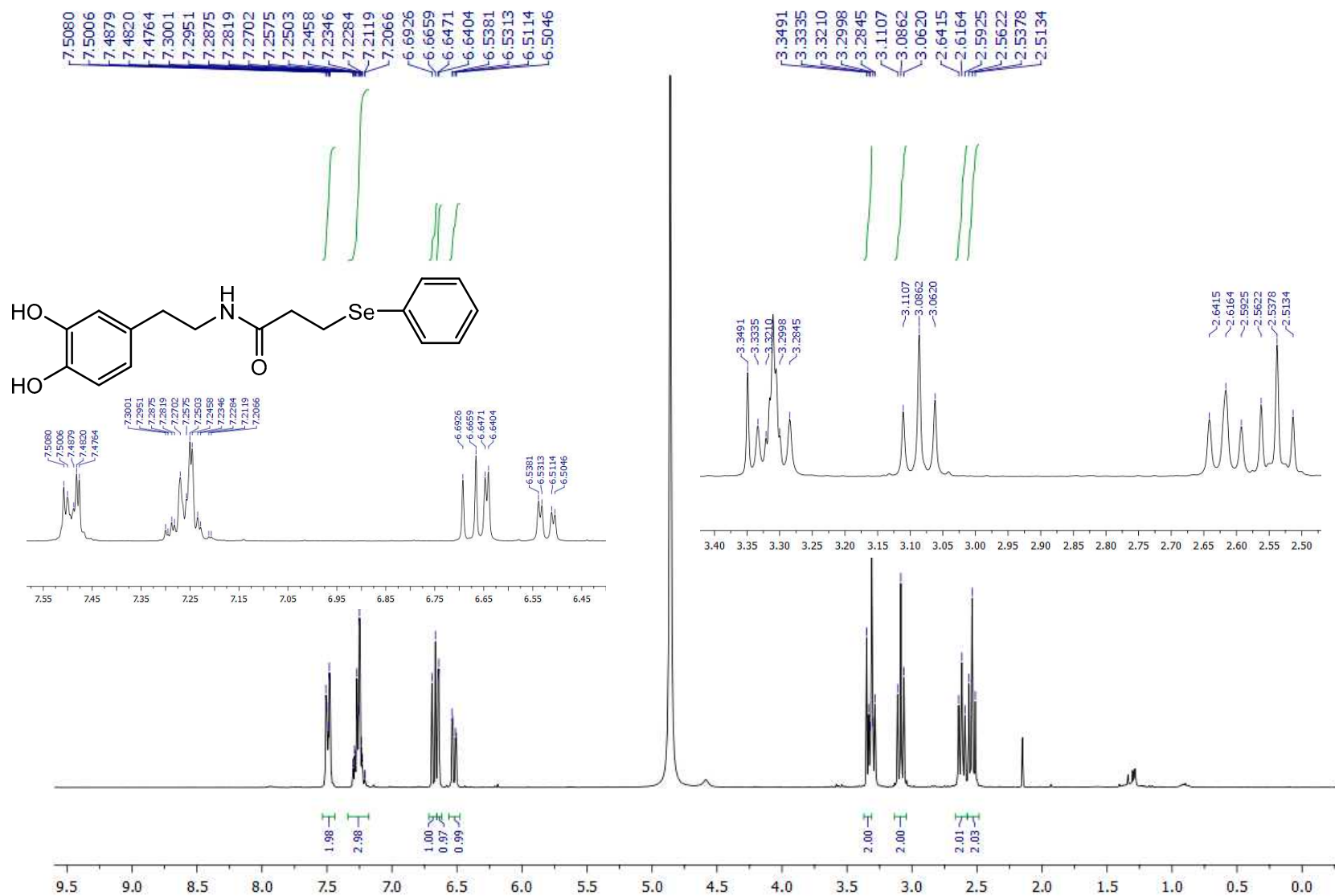


^{13}C - NMR (125.7 MHz, CD_3OD) of **16**

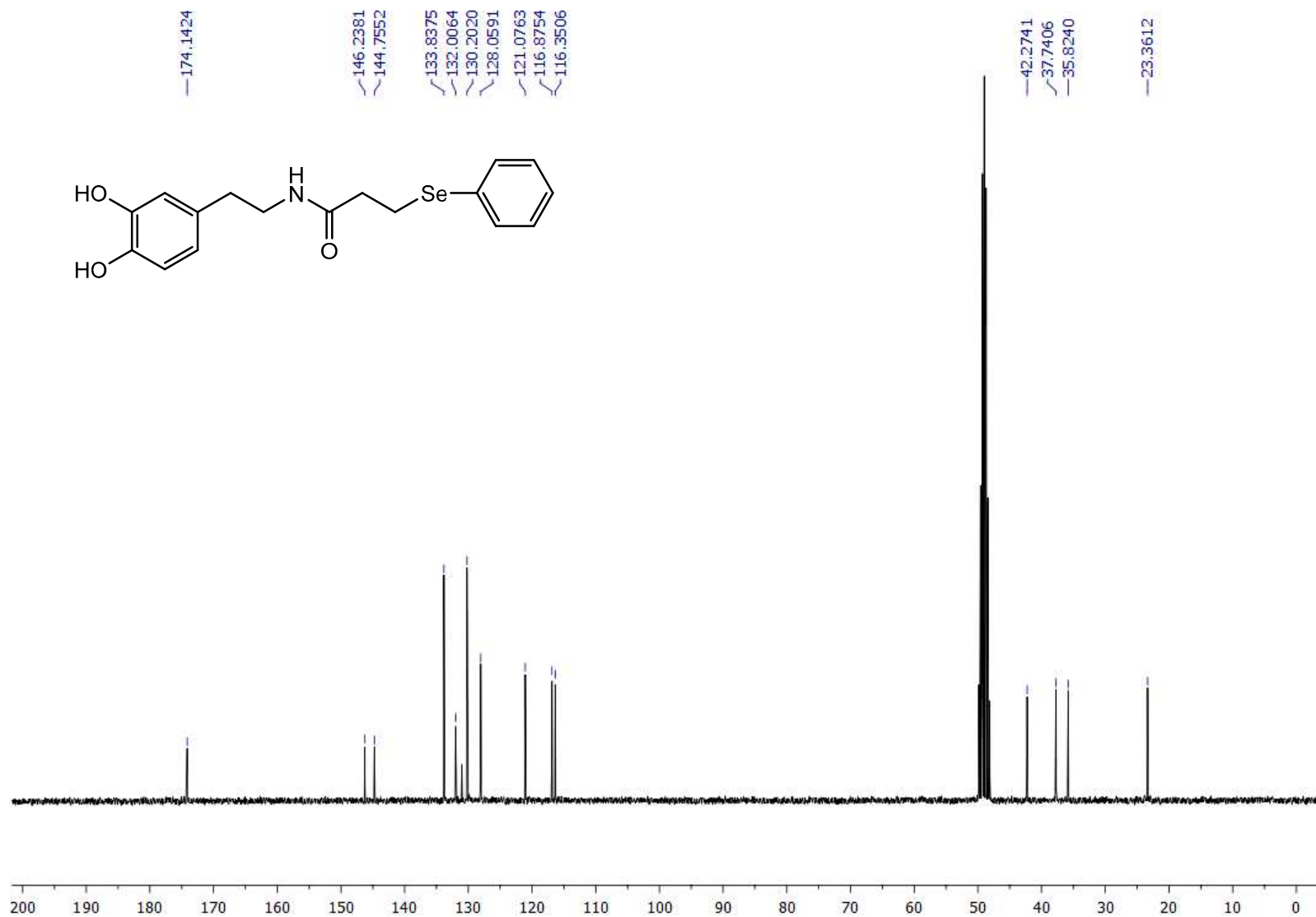
150911_LSH54 #52-63 RT: 0.27-0.33 AV: 12 NL: 2.68E7
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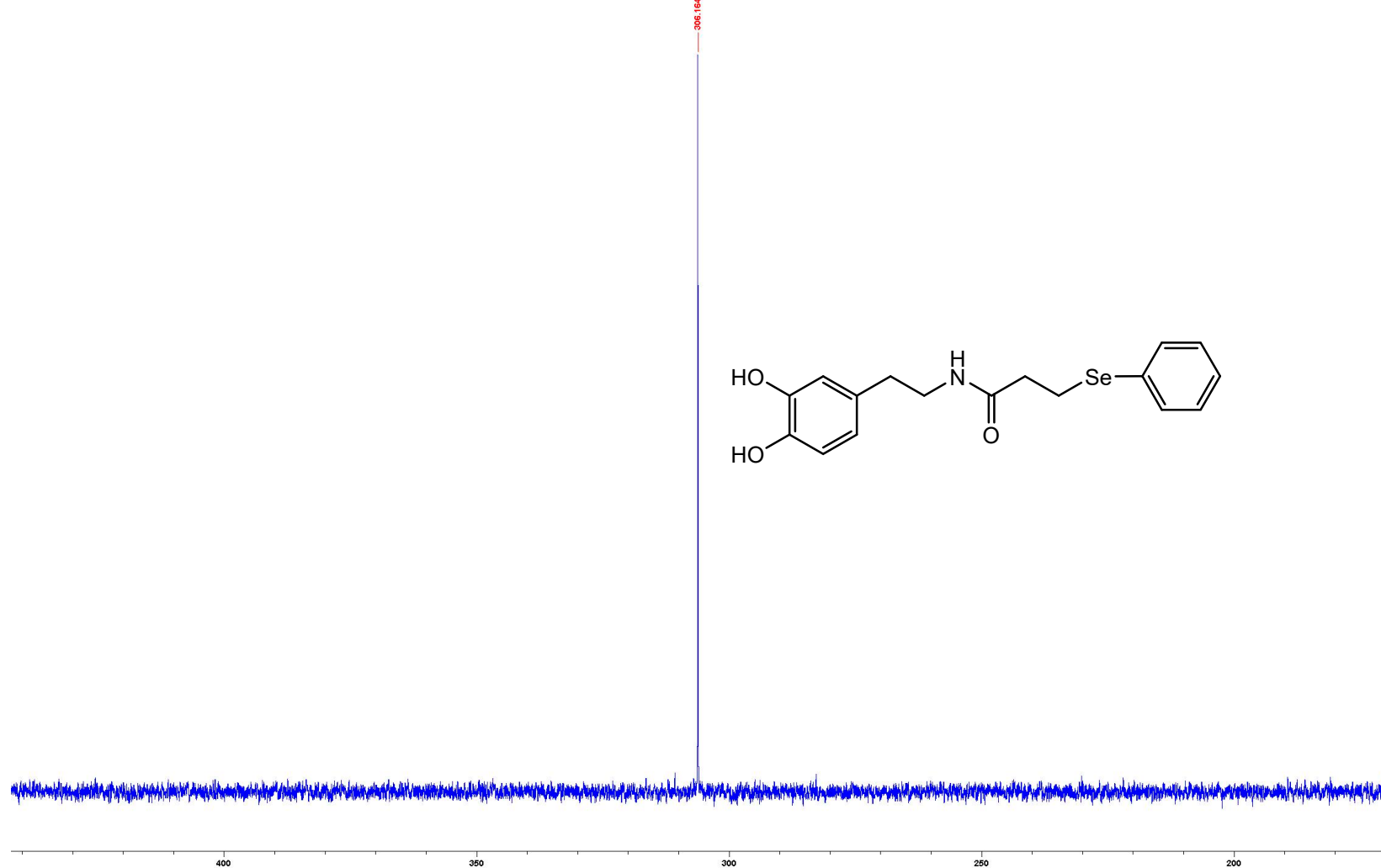
HRESI-MS spectrum of **16**



¹H- NMR (300 MHz, CD₃OD) of 18

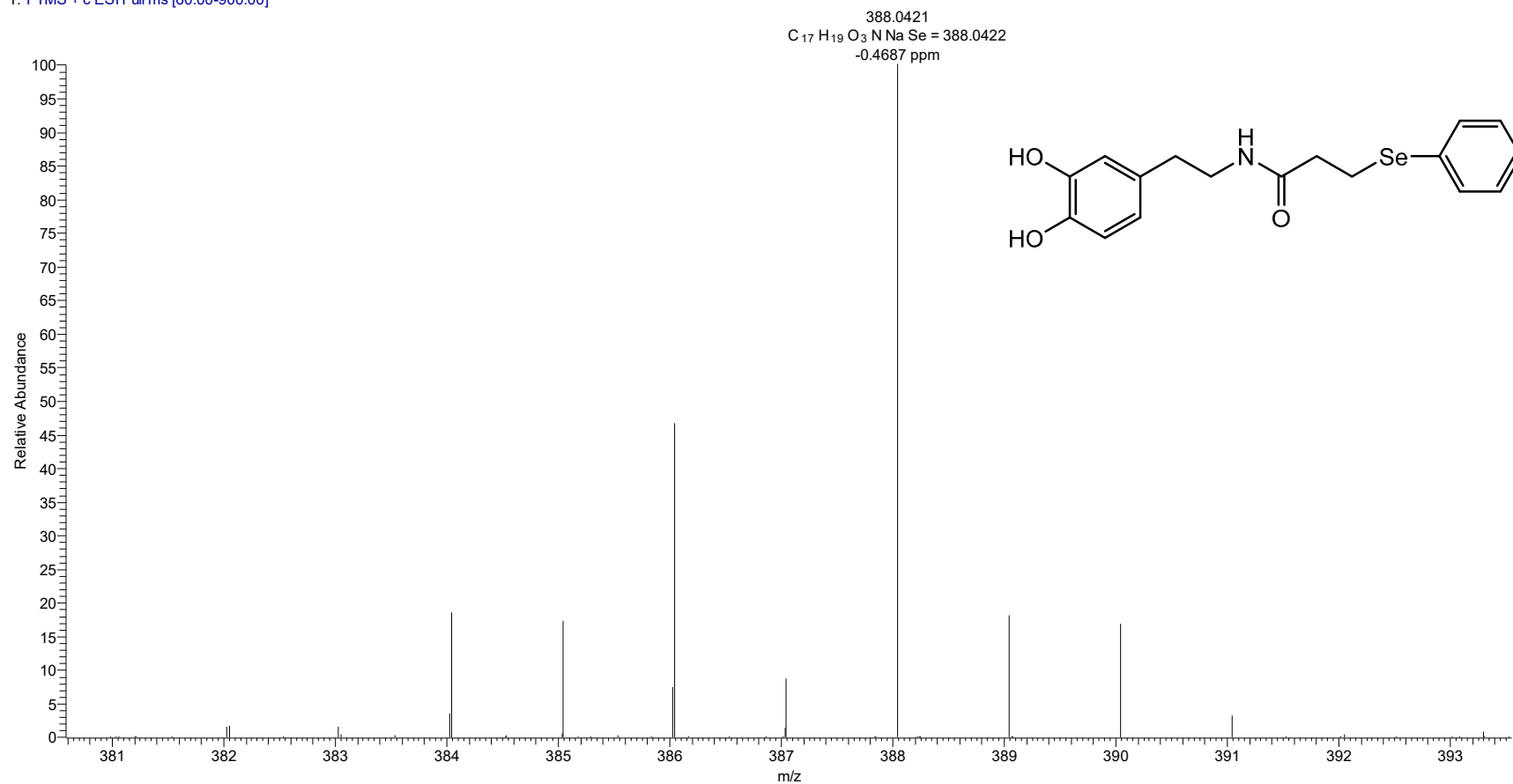


^{13}C - NMR (75.5 MHz, CD_3OD) of **18**

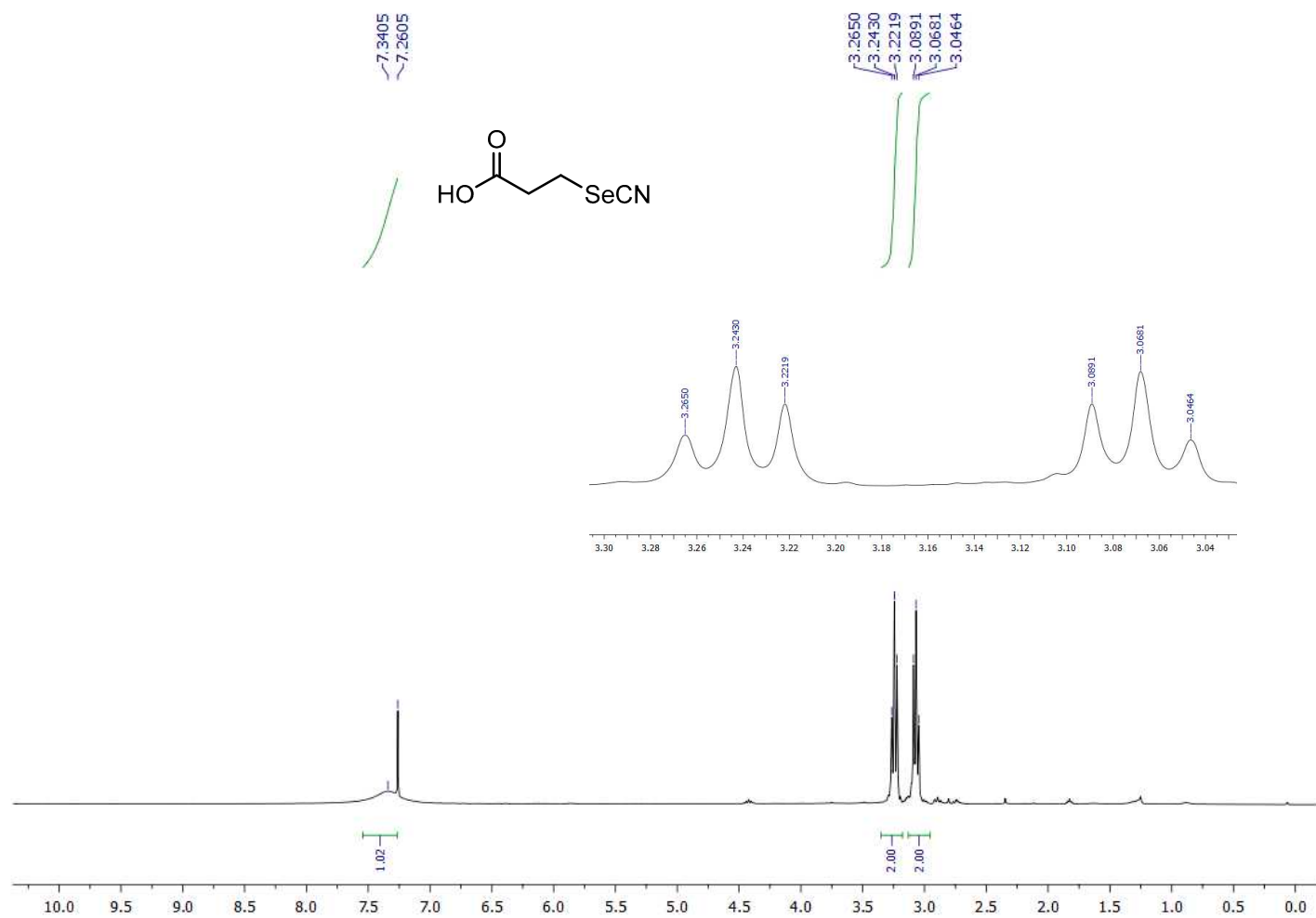


^{77}Se - NMR (95 MHz, CCl_3) of **18**

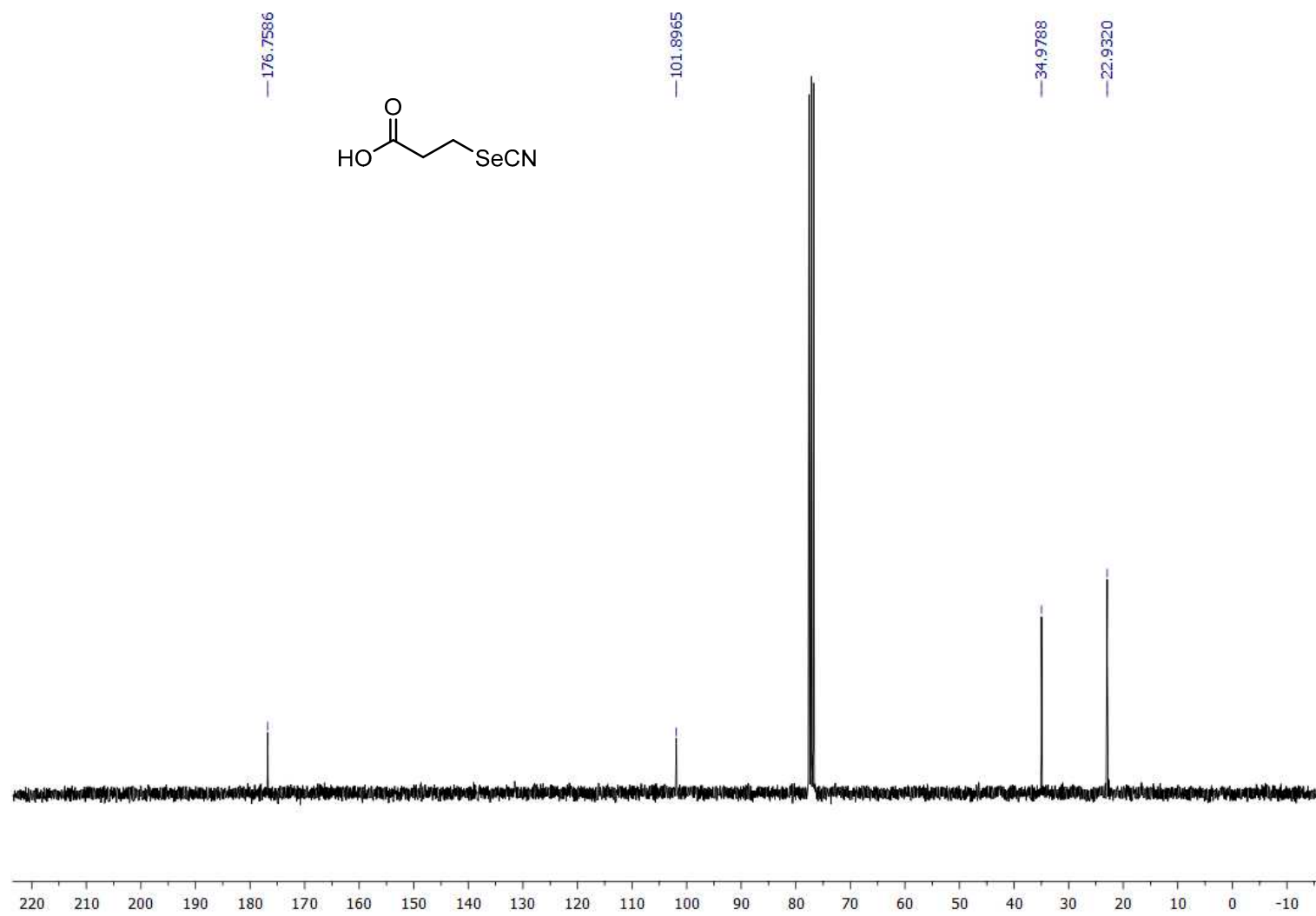
150513_LSH30 #42-66 RT: 0.22-0.35 AV: 25 SB: 41 4.50-4.71 NL: 1.56E8
T: FTMS + c ESI Full ms [60.00-900.00]



HRESI-MS spectrum of **18**

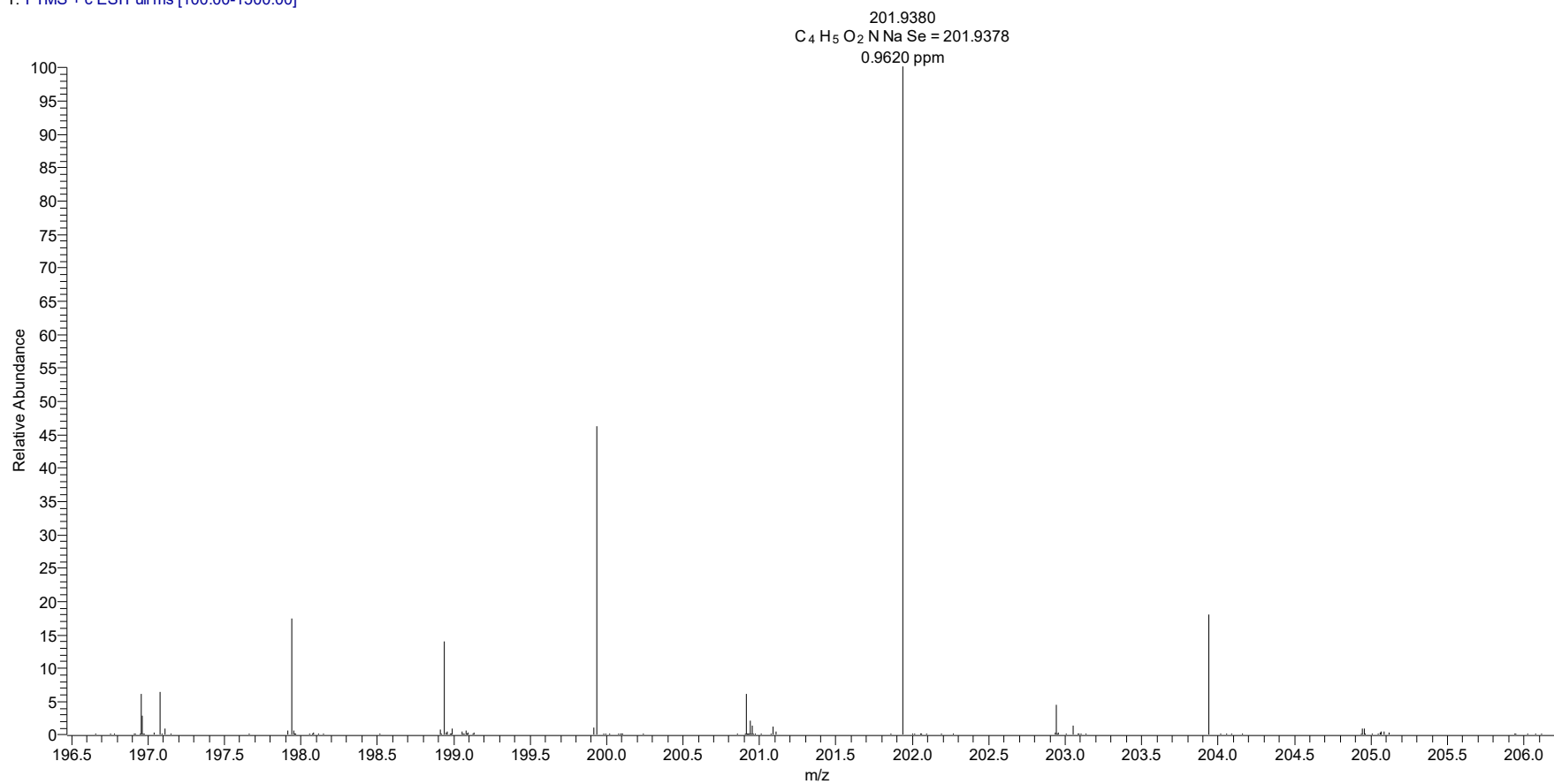


^1H - NMR (300 MHz, CDCl_3) of **19**

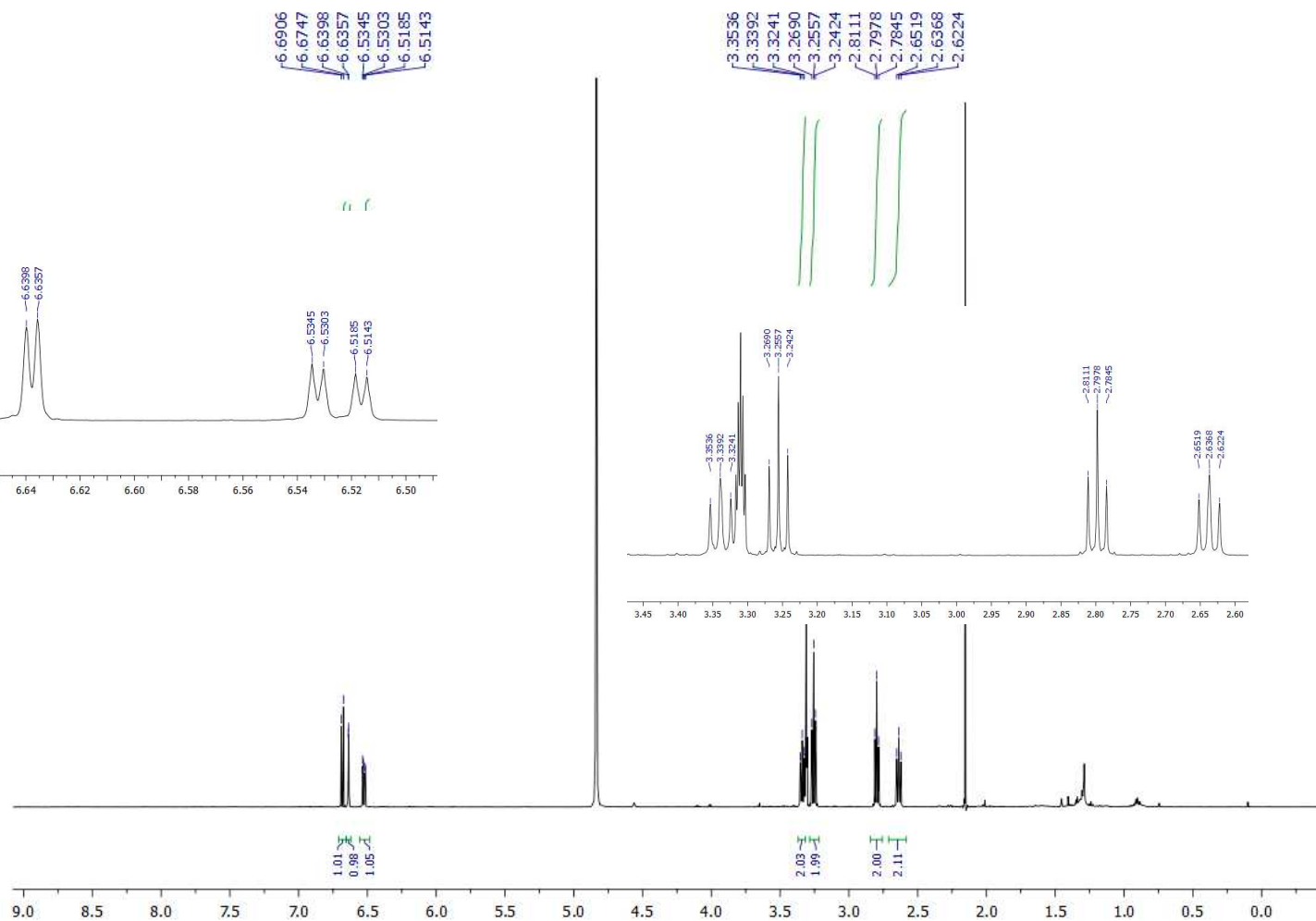
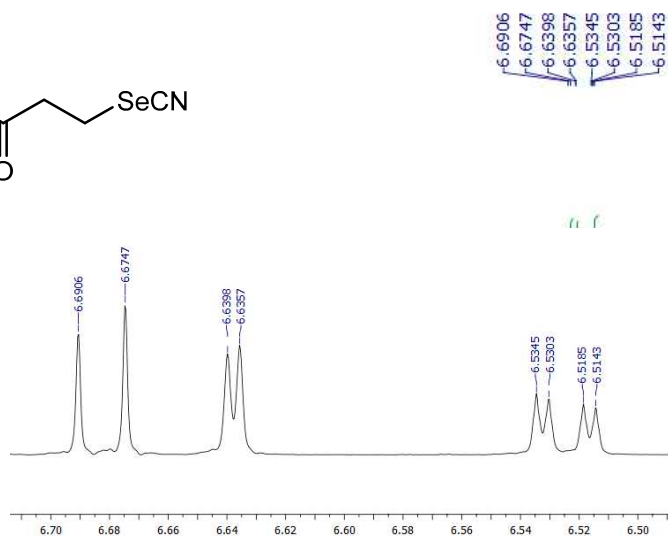
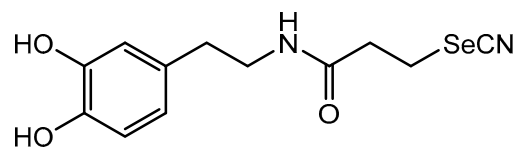


^{13}C -NMR (75.5 MHz, CDCl_3) of **19**

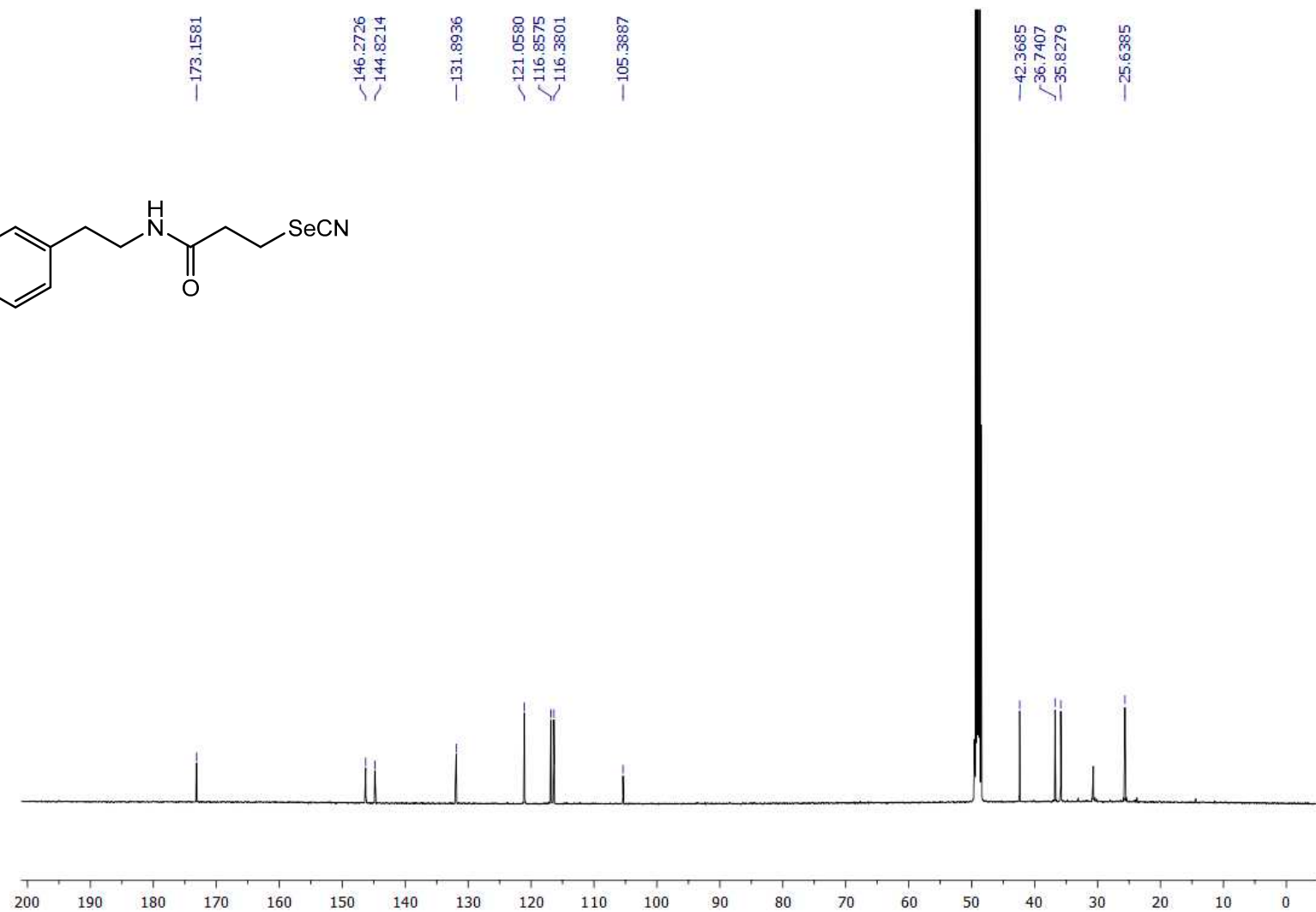
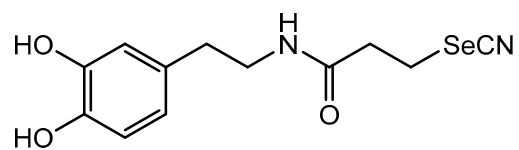
141203_LSH19 #47-79 RT: 0.24-0.41 AV: 33 SB: 41 4.50-4.71 NL: 7.13E7
T: FTMS + c ESI Full ms [100.00-1500.00]



HRESI-MS spectrum of **19**

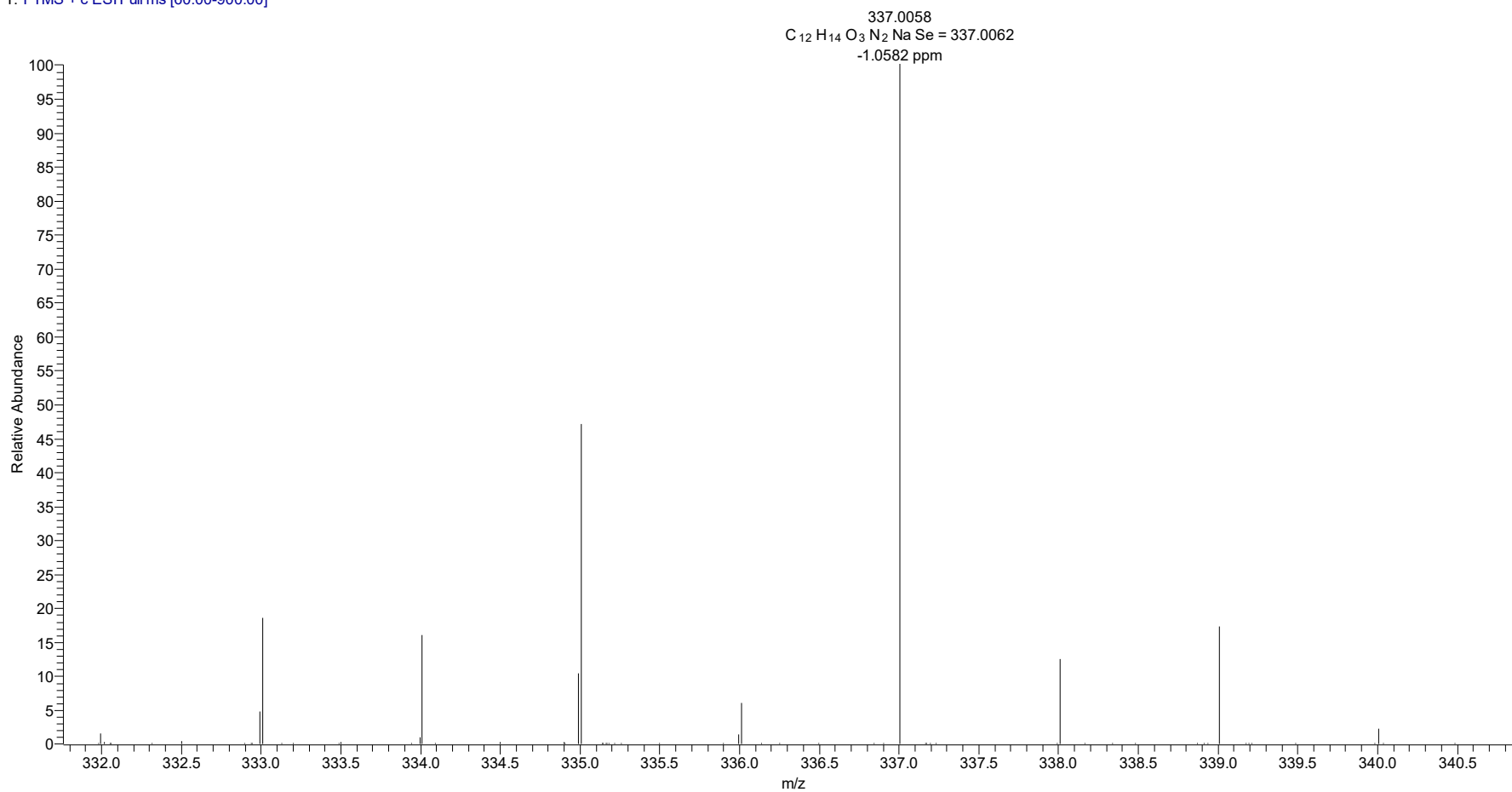


^1H - NMR (500 MHz, CD_3OD) of **20**

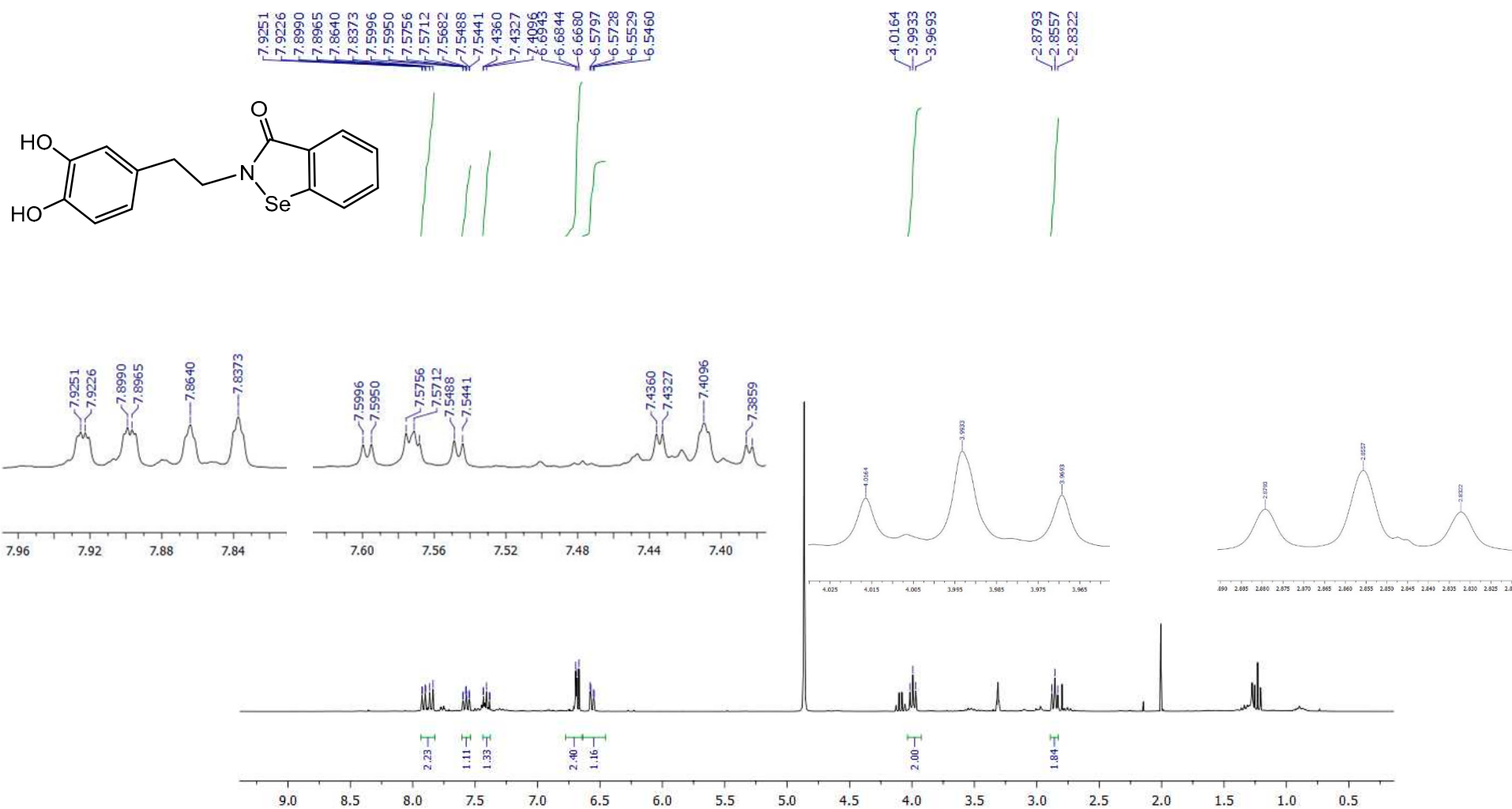


¹³C- NMR (125.7 MHz, CD₃OD) of **20**

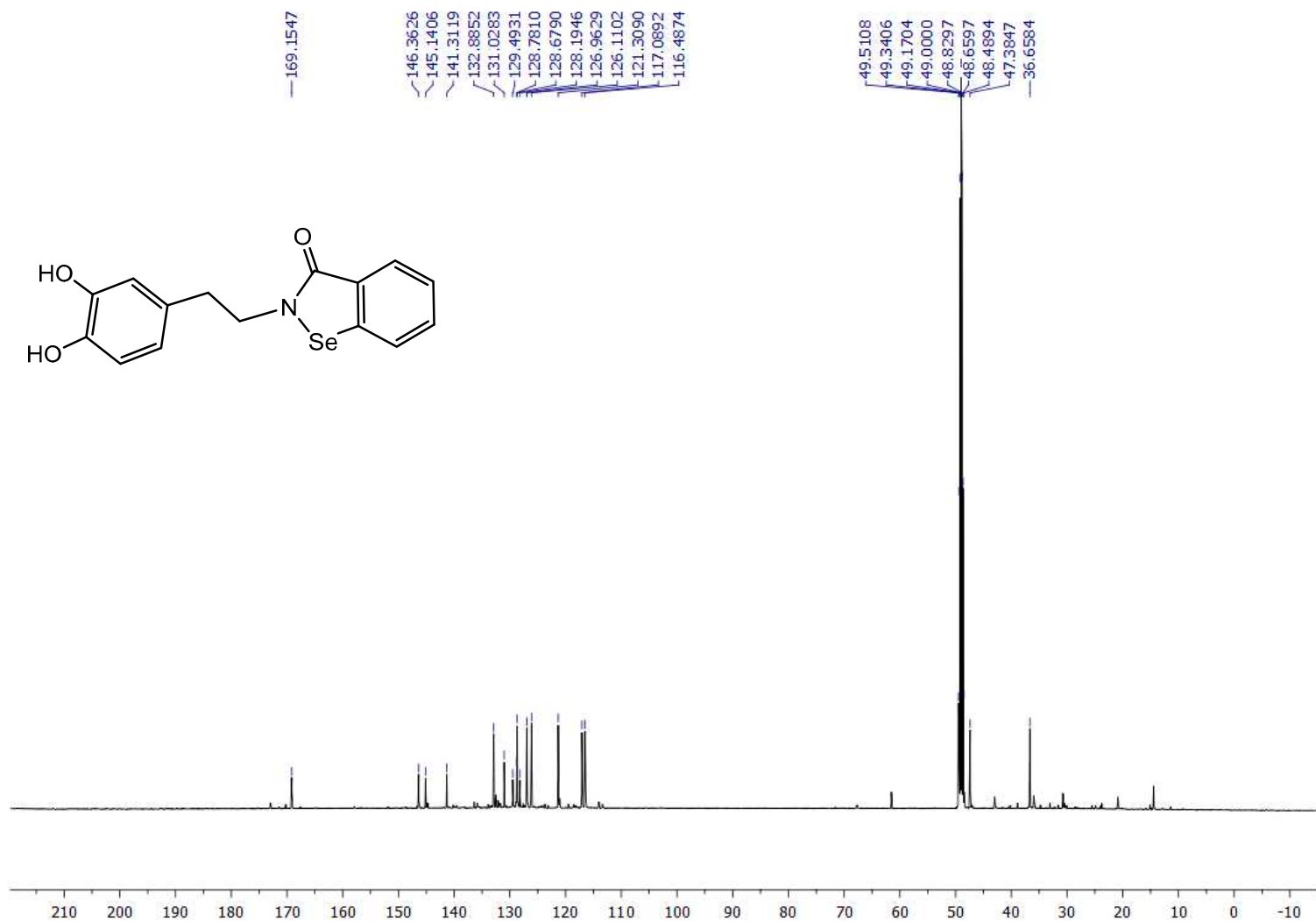
150513_LSH24 #49-79 RT: 0.26-0.41 AV: 31 SB: 41 4.50-4.71 NL: 2.03E8
T: FTMS + c ESI Full ms [60.00-900.00]



HRESI-MS spectrum of **20**

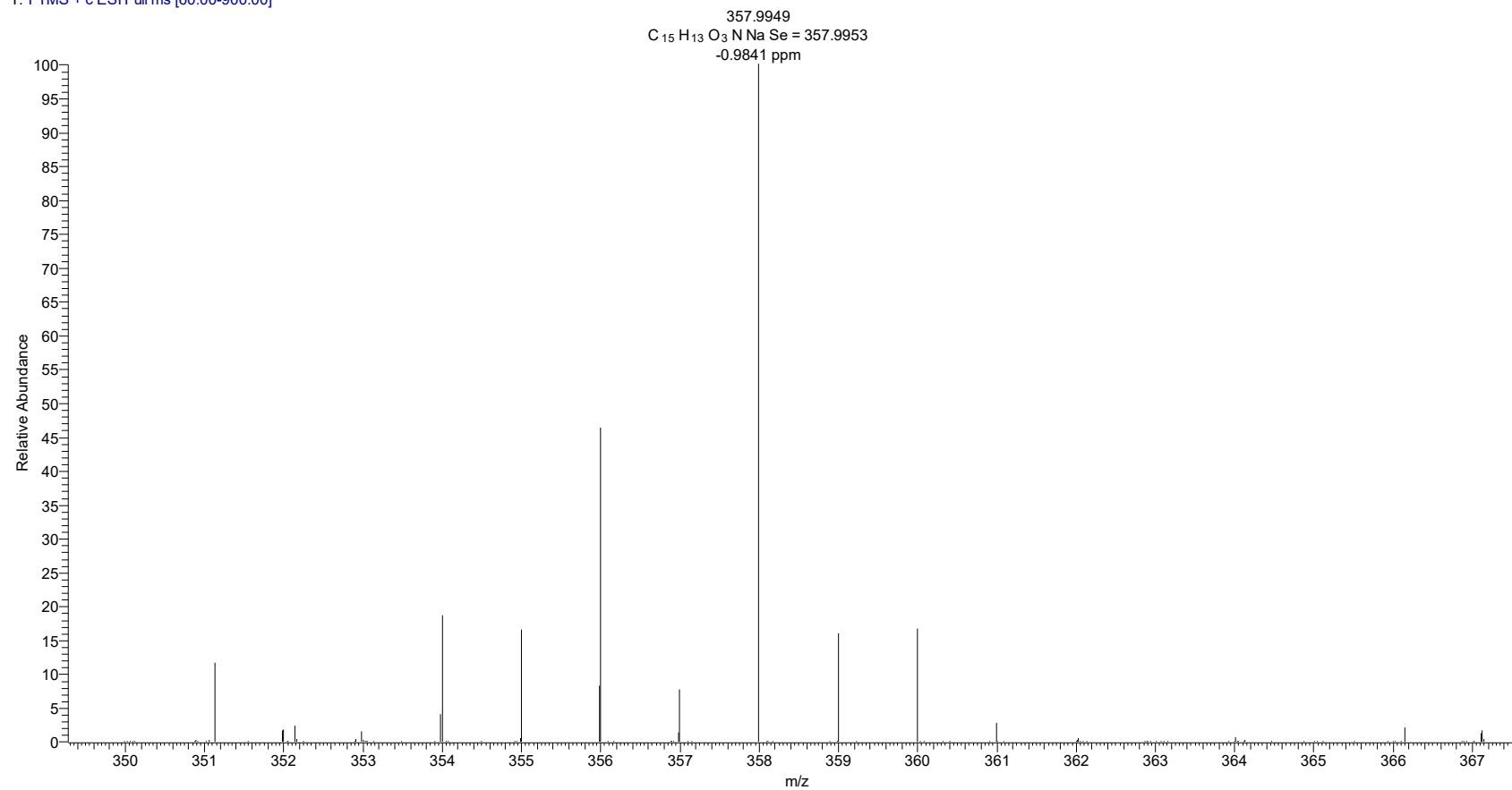


^1H - NMR (300 MHz, CD_3OD) of **26**

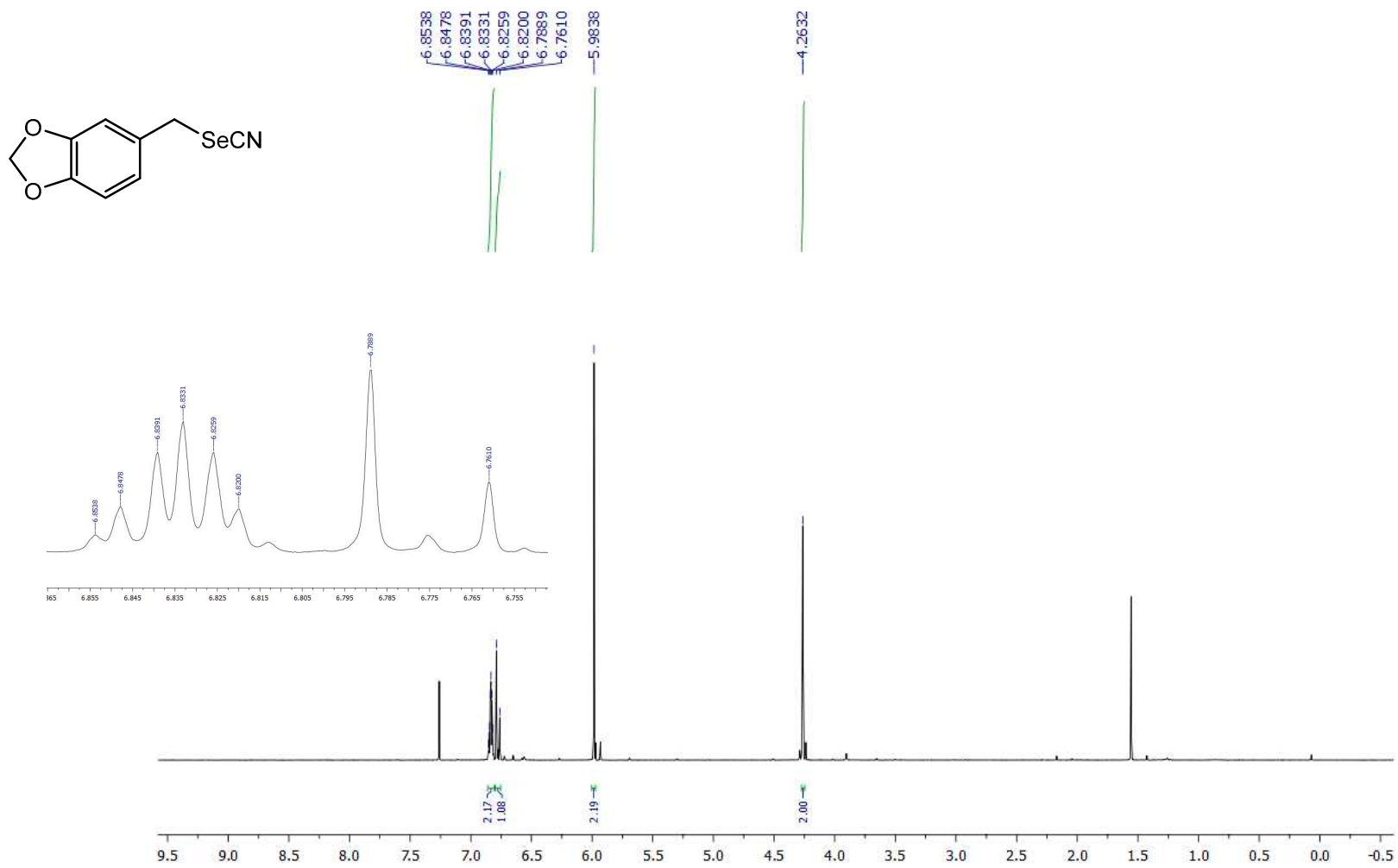


^{13}C -NMR (125.7 MHz, CD_3OD) of **26**

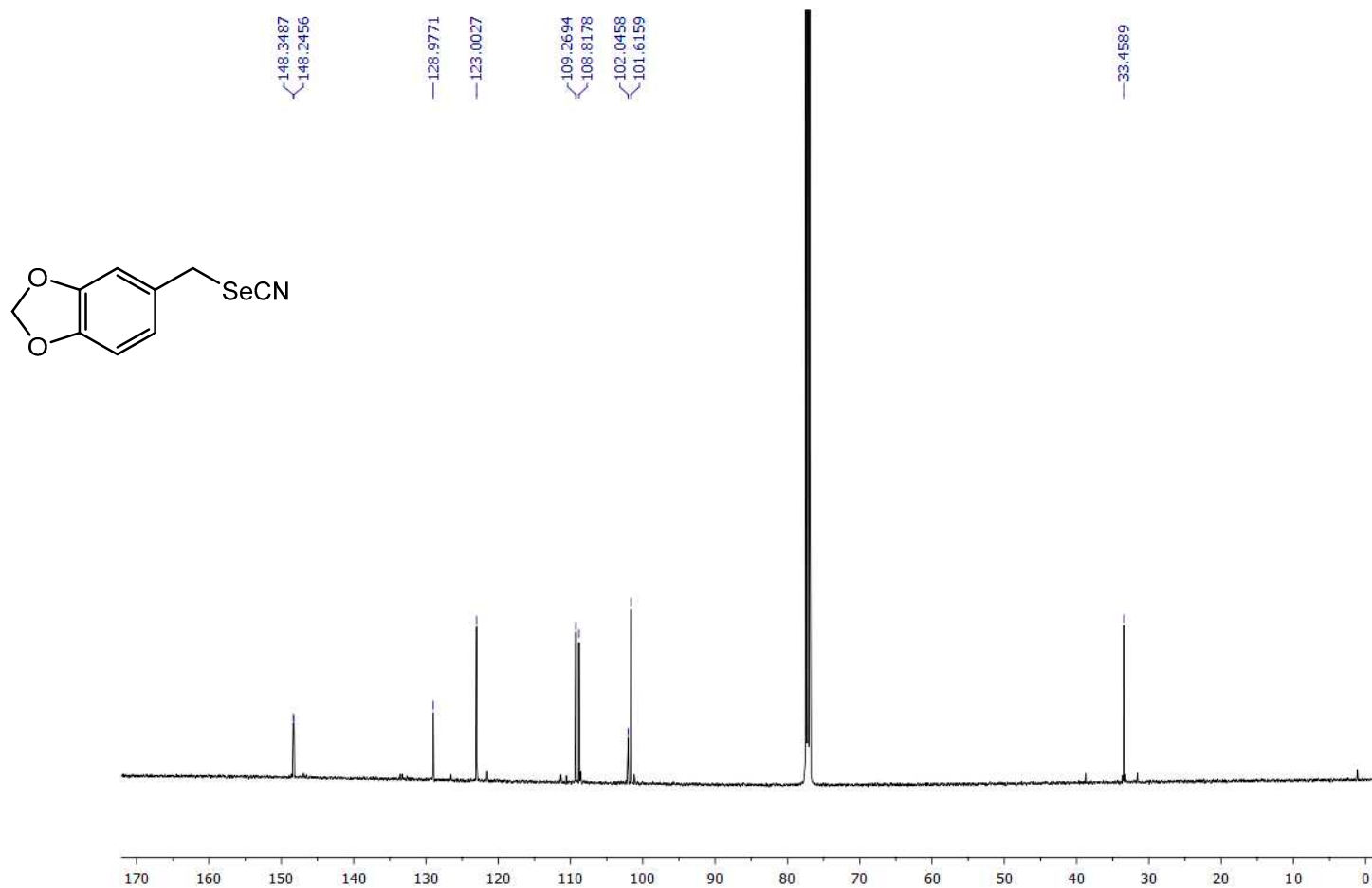
BG_150513_LSH49 #38-67 RT: 0.20-0.35 AV: 30 SB: 40 4.50-4.71 NL: 4.74E7
T: FTMS + c ESI Full ms [60.00-900.00]



HRESI-MS spectrum of **26**

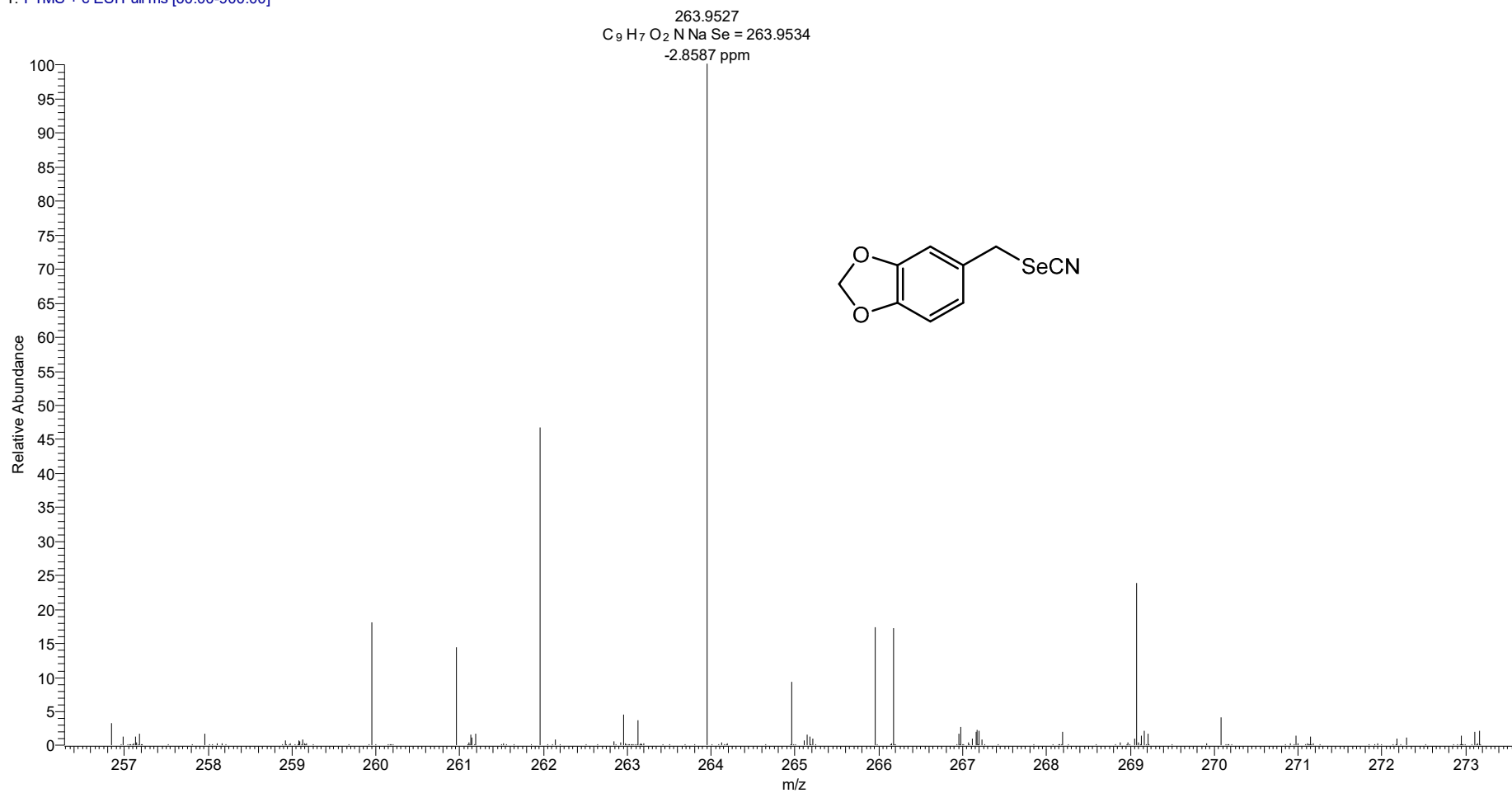


¹H-NMR (300 MHz, CDCl₃) of **35**

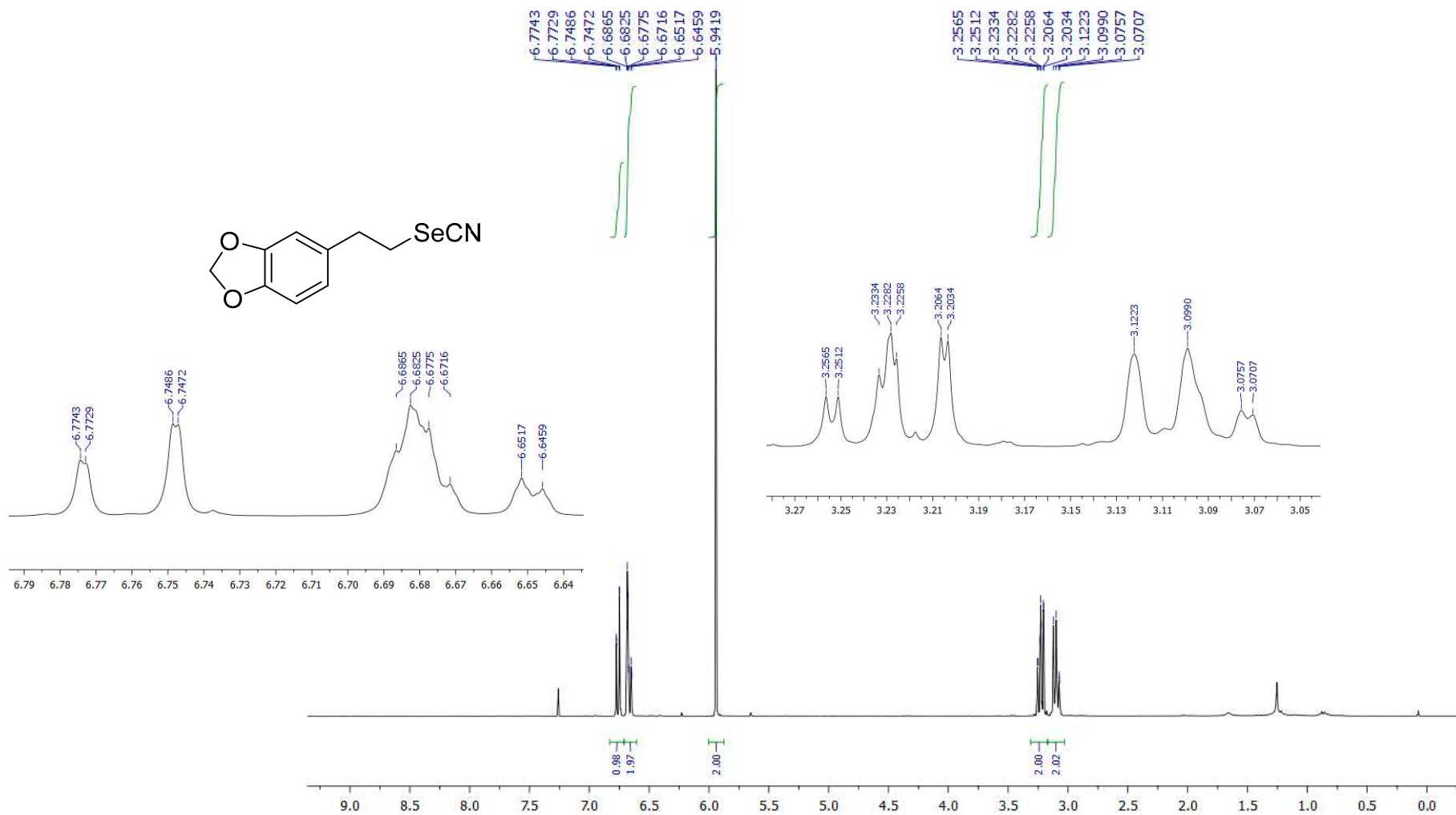


^{13}C -NMR (75.5 MHz, CDCl_3) of **35**

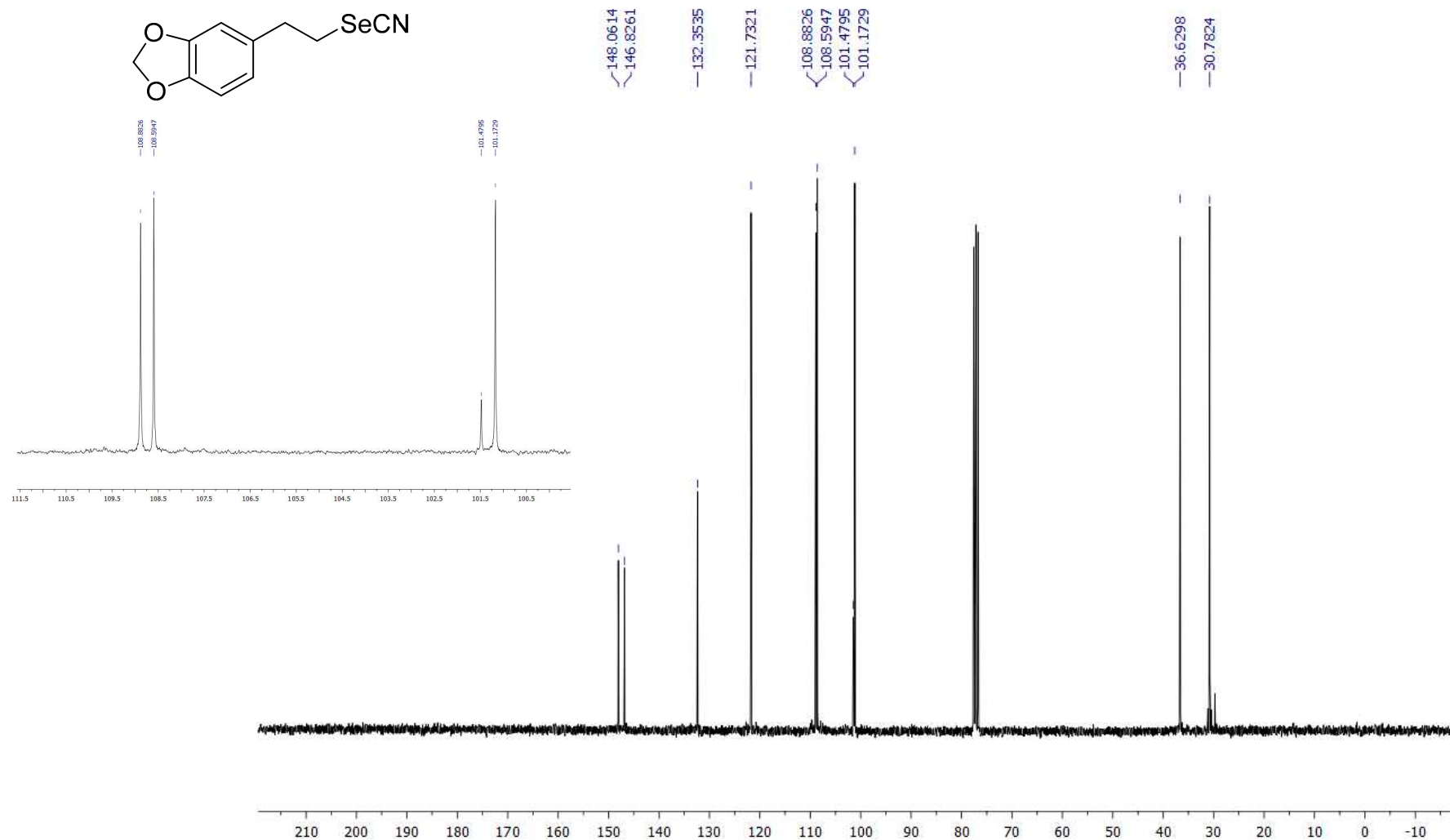
160511_RPP11 #47-73 RT: 0.25-0.39 AV: 27 NL: 1.51E7
T: FTMS + c ESI Full ms [60.00-900.00]



HRESI-MS spectrum of **35**

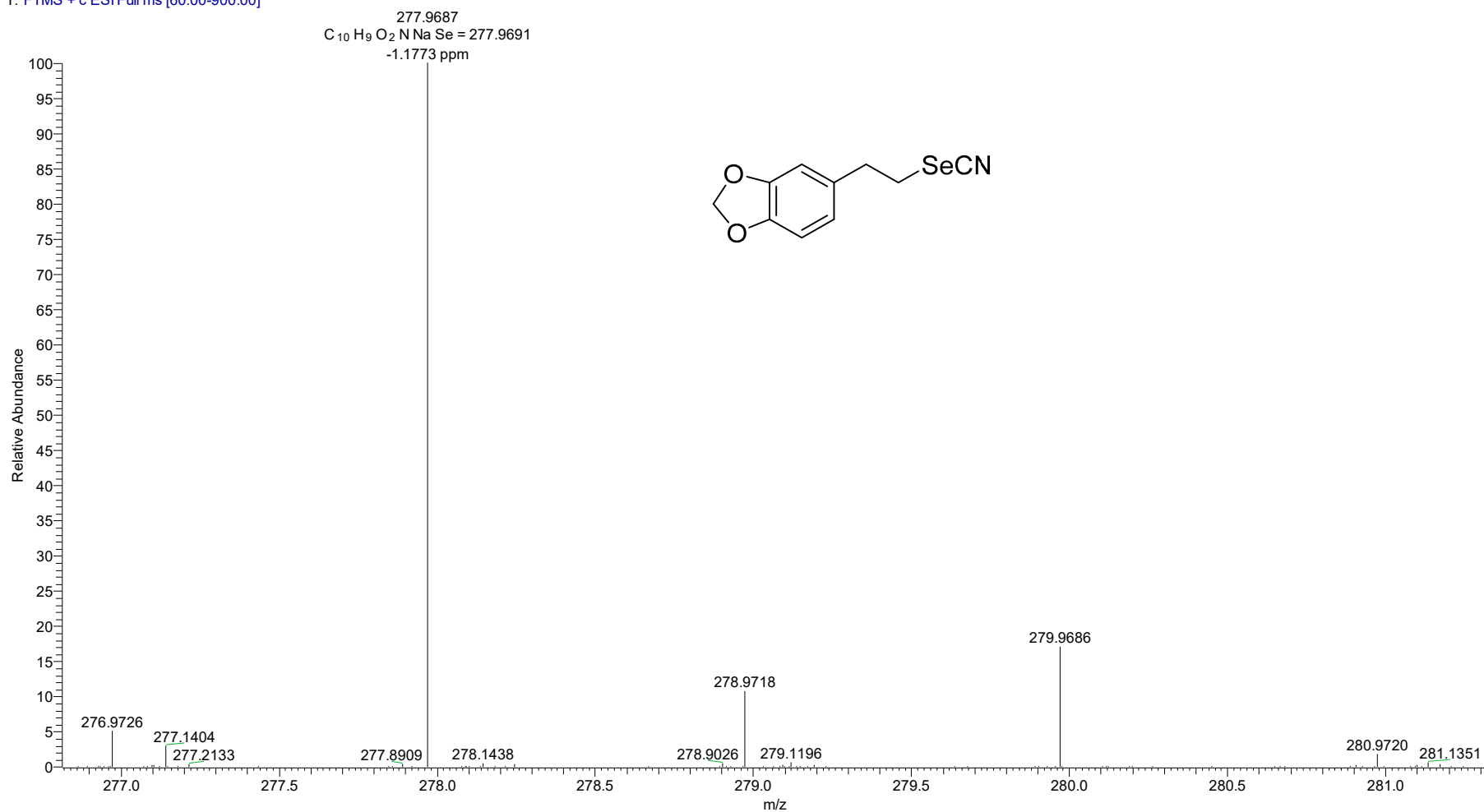


¹H- NMR (300 MHz, CDCl₃) of **36**

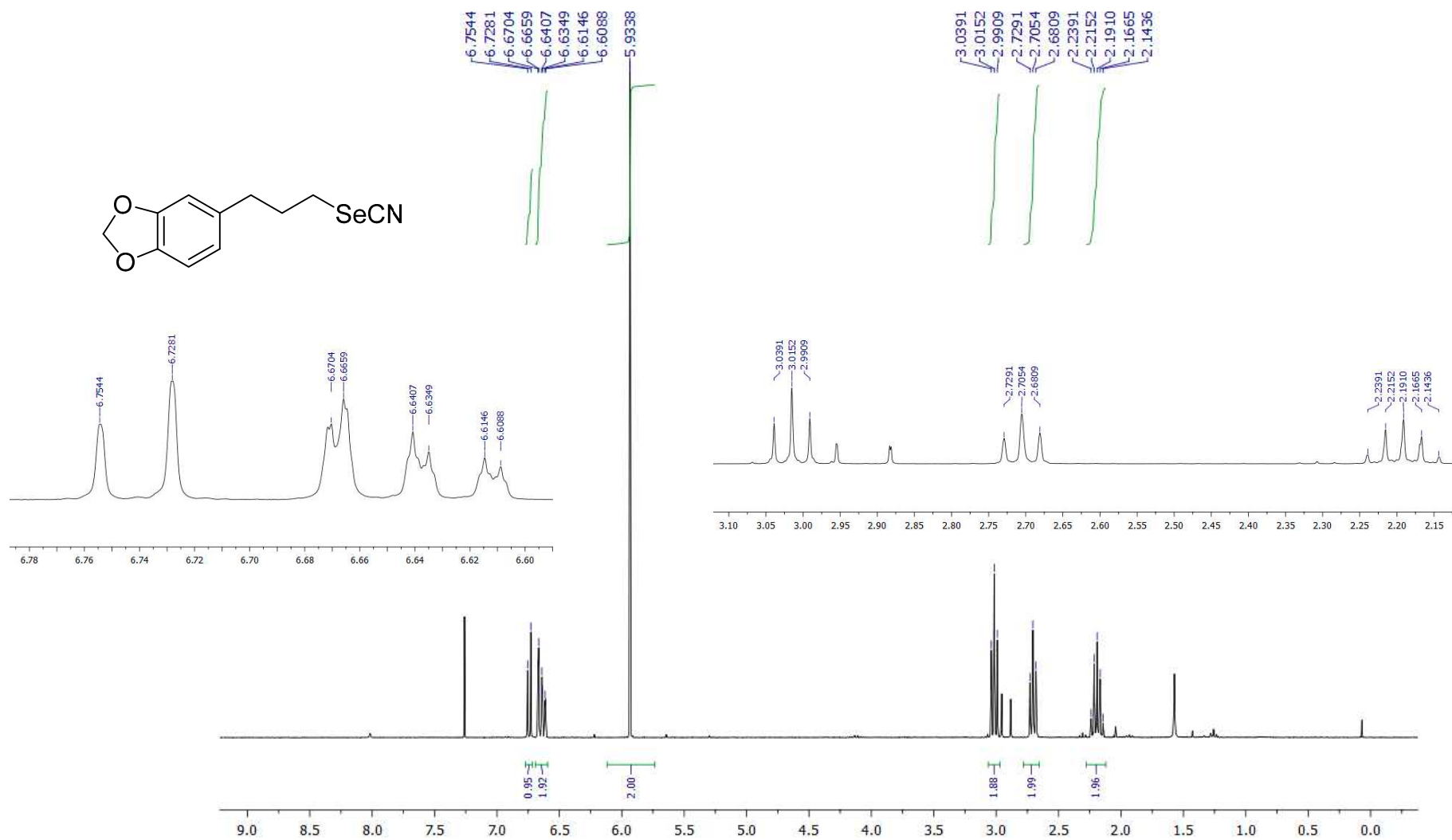


^{13}C -NMR (75.5 MHz, CDCl_3) of **36**

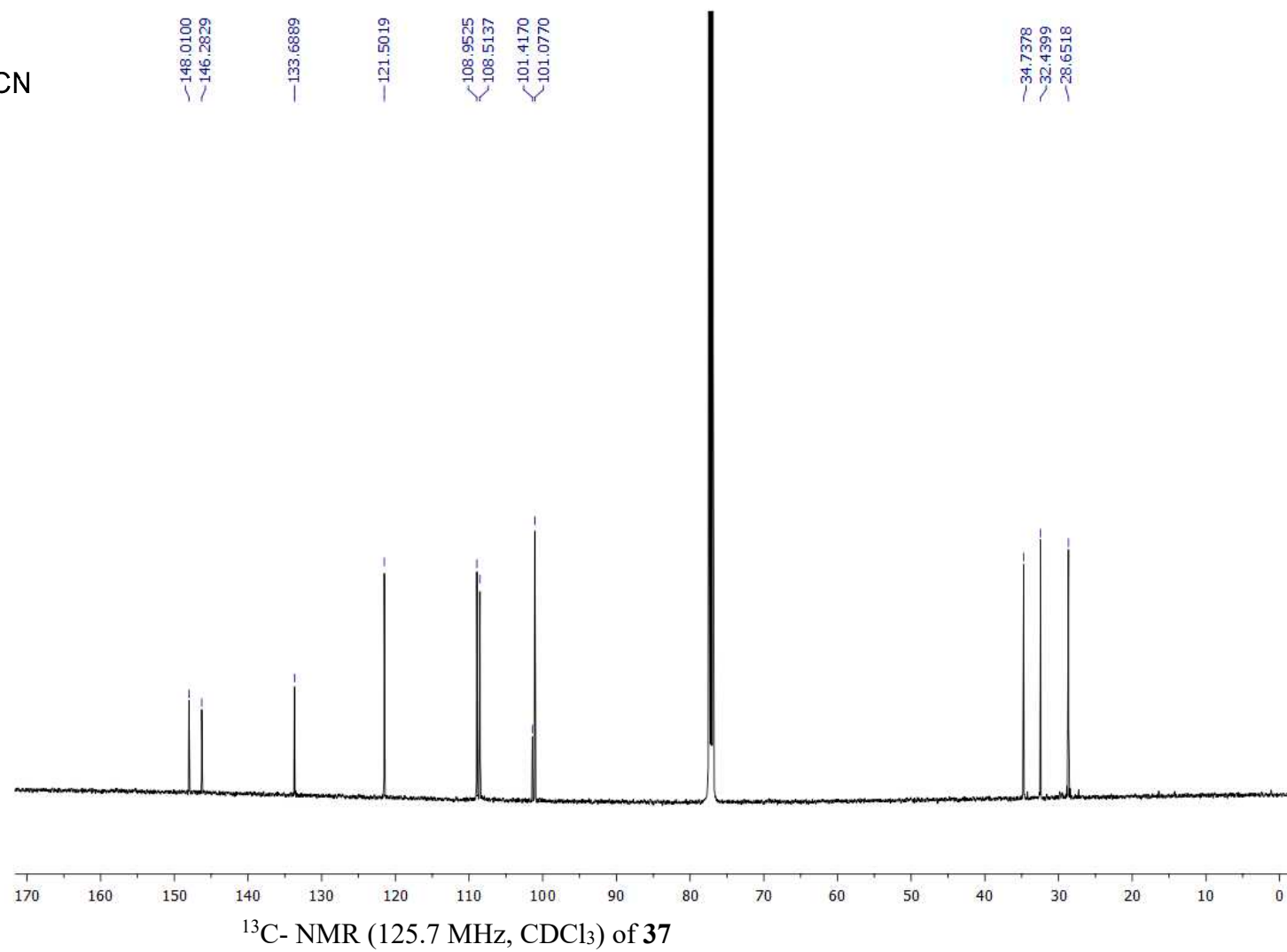
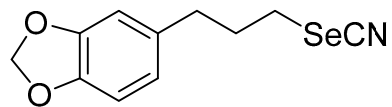
150727_SBP31 #21-87 RT: 0.11-0.46 AV: 67 SB: 2 0.05, 0.69 NL: 5.72E7
T: FTMS + c ESI Full ms [60.00-900.00]

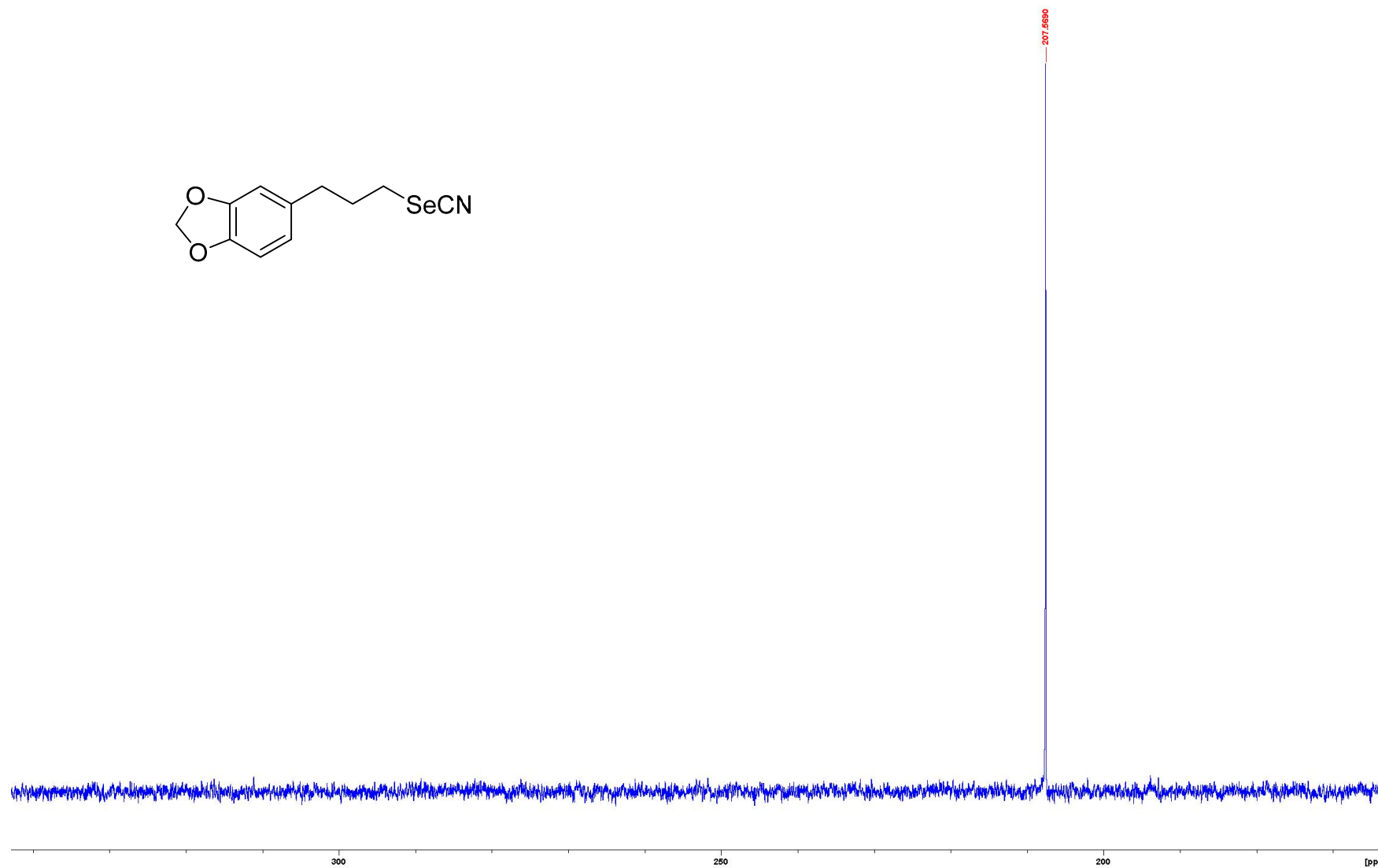
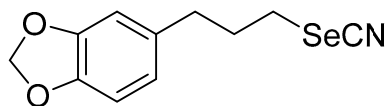


HRESI-MS spectrum of **36**



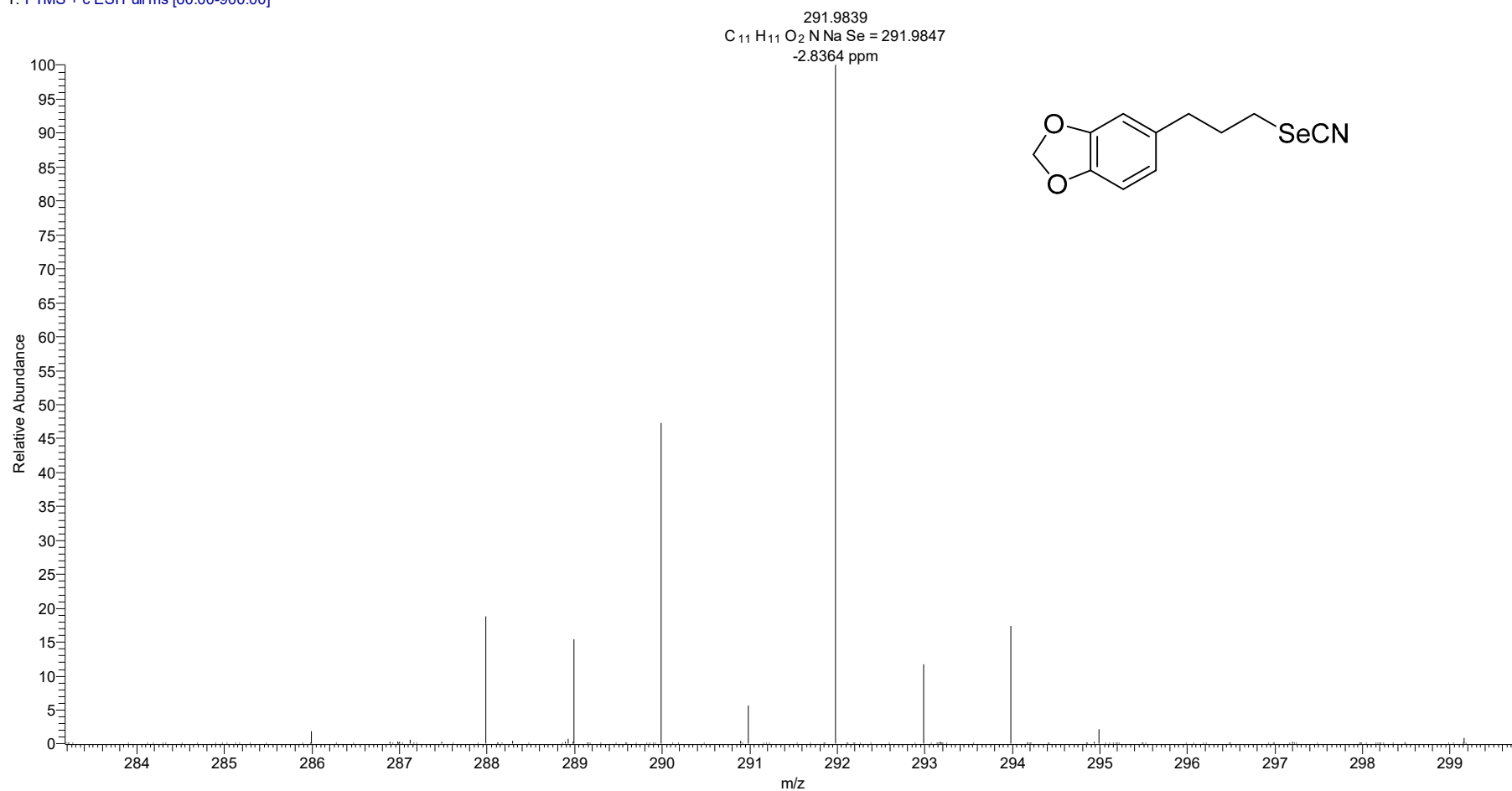
^1H -NMR (300 MHz, CDCl_3) of **37**



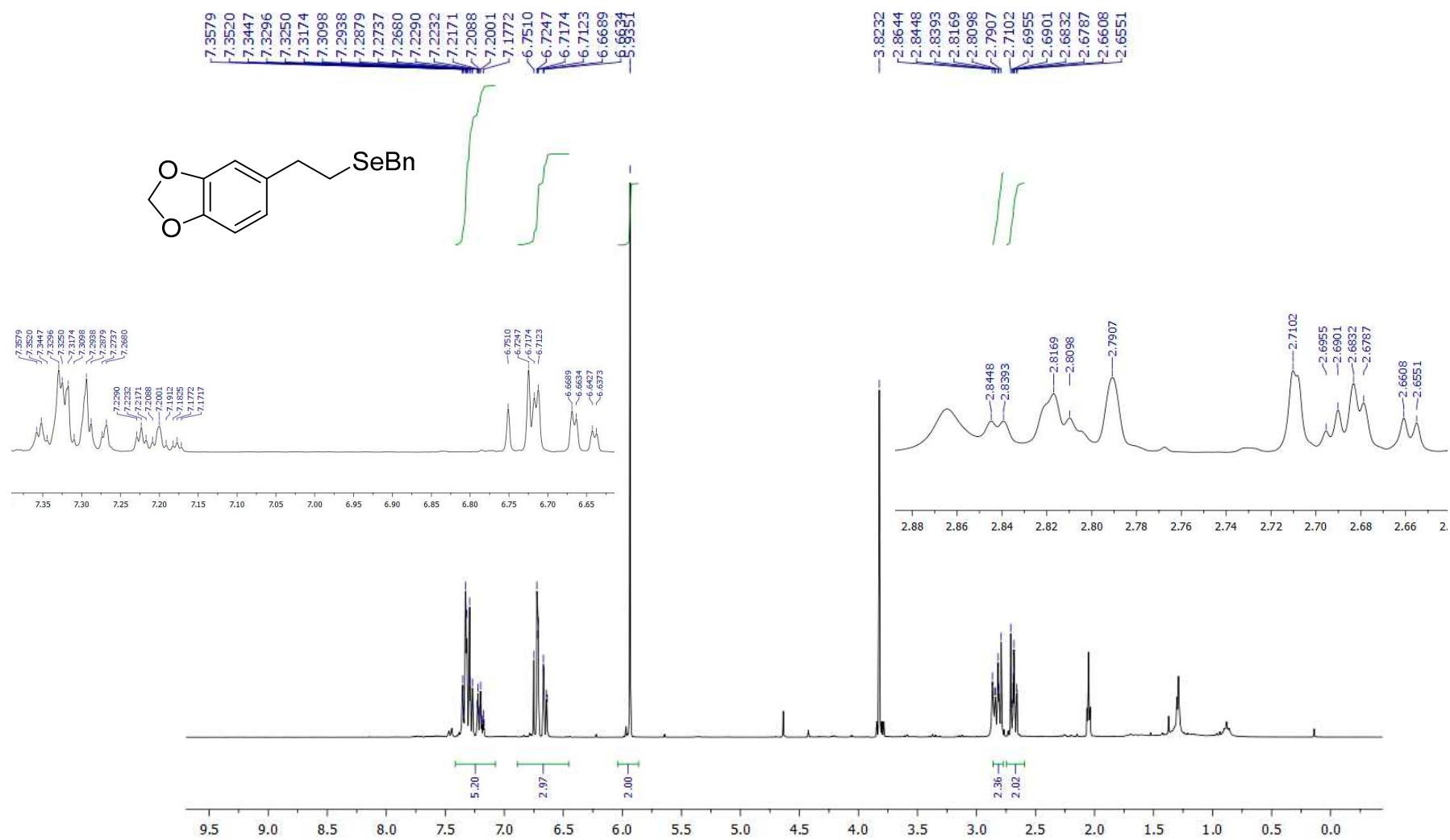


^{77}Se - NMR (95 MHz, CDCl_3) of **37**

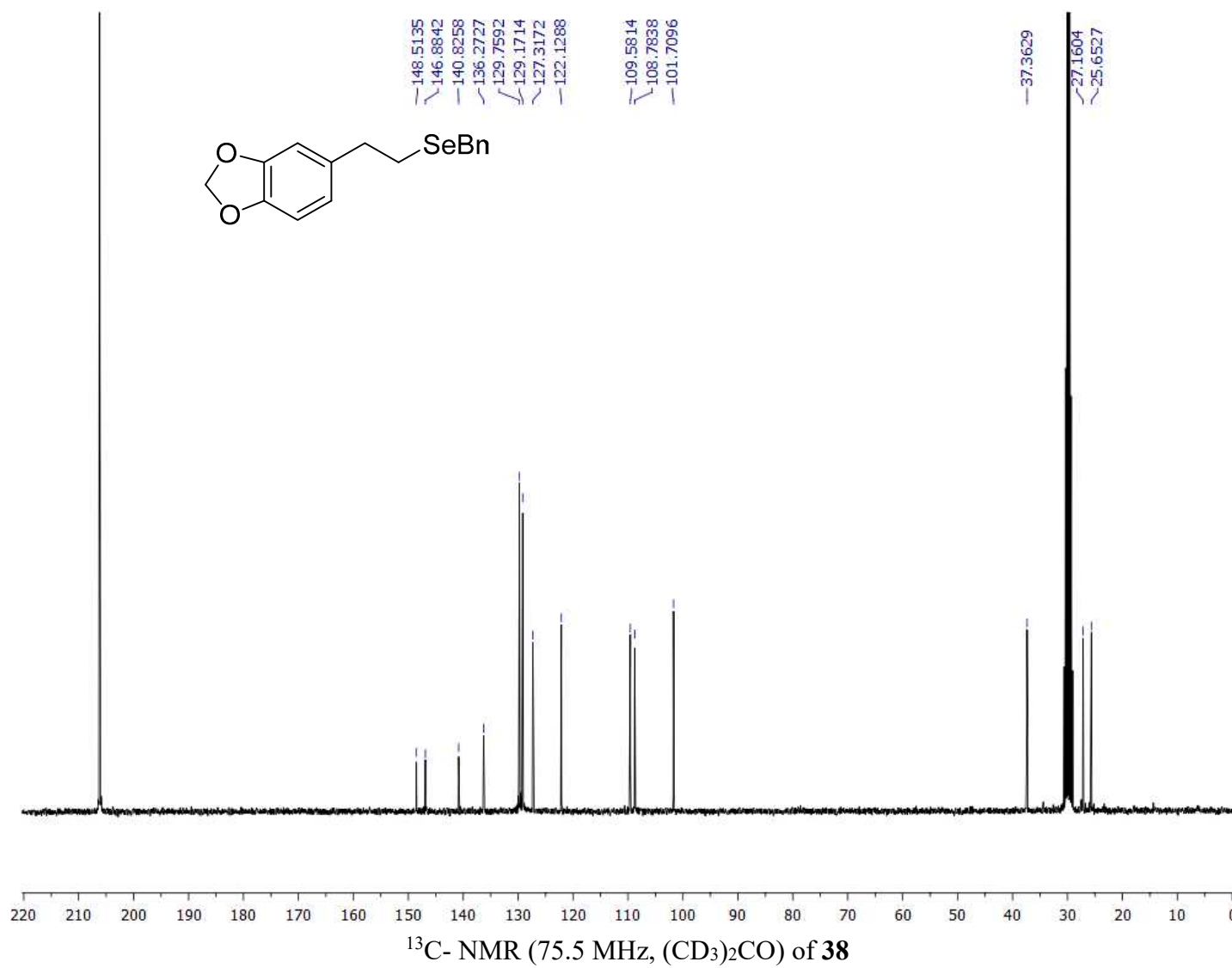
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T: FTMS + c ESI Full ms [60.00-900.00]

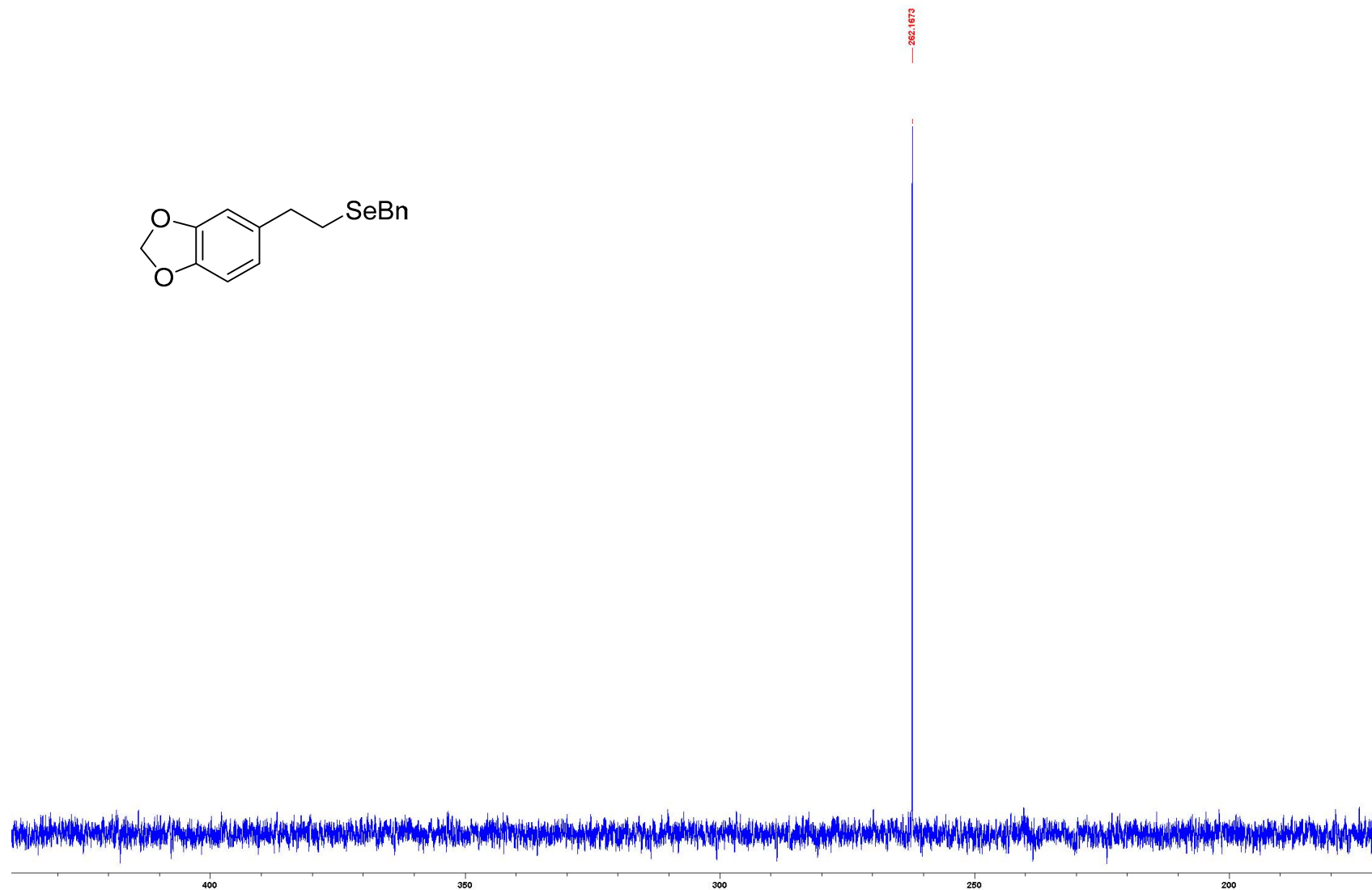
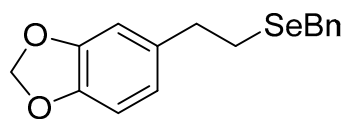


HRESI-MS spectrum of **37**



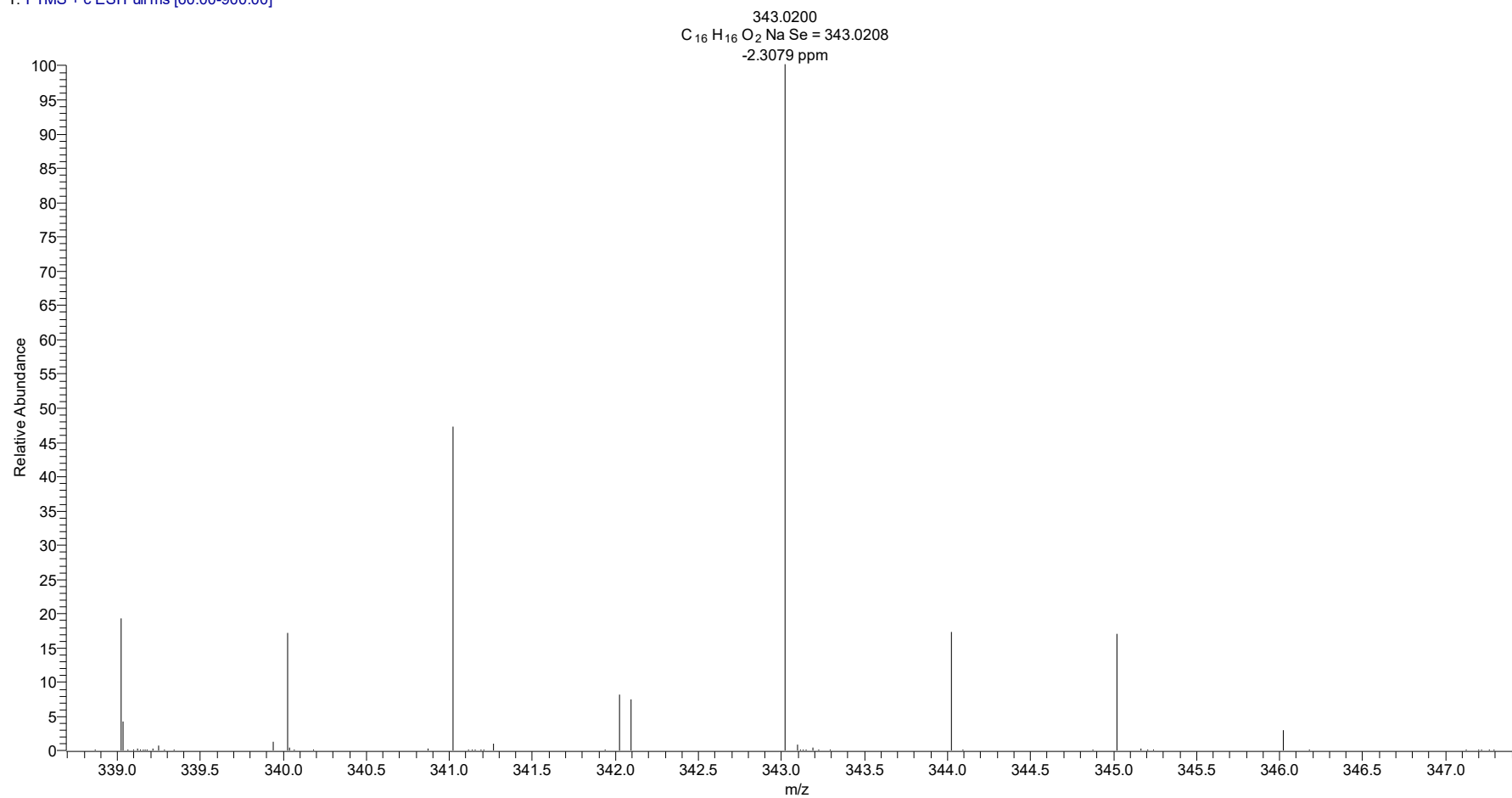
¹H- NMR (300 MHz, (CD₃)₂CO) of **38**



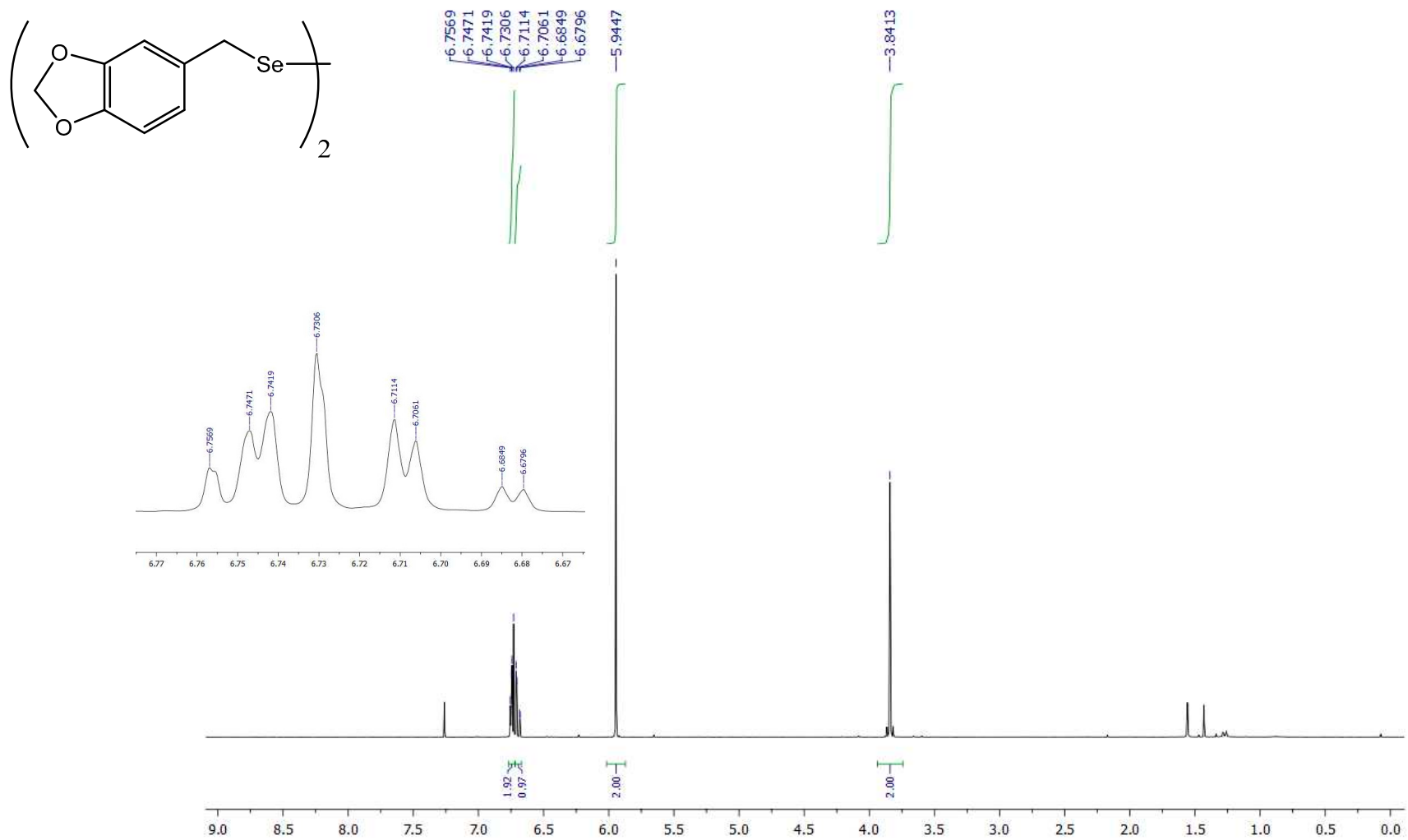


^{77}Se - NMR (95 MHz, CDCl_3) of **38**

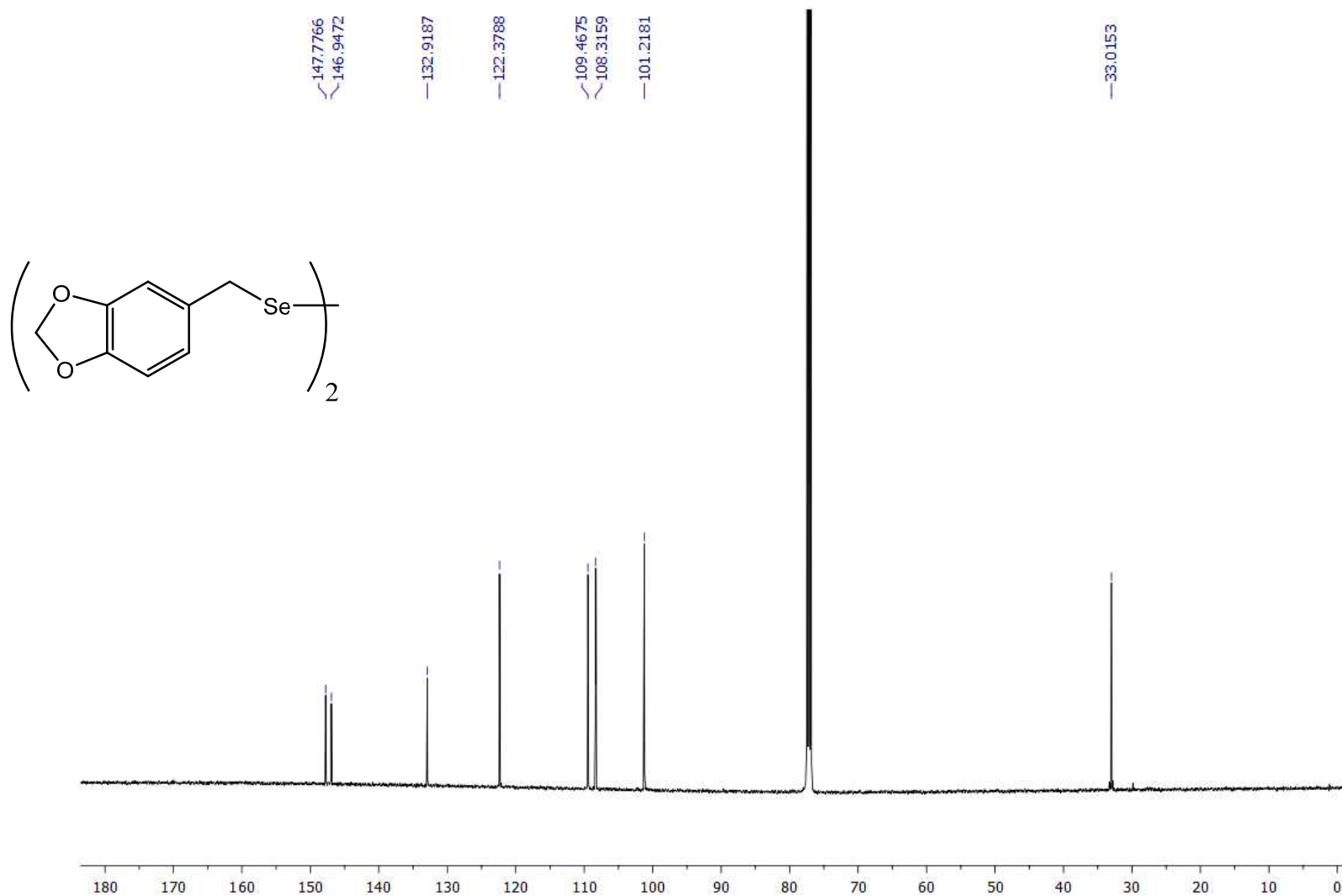
BG_150923_SBSP34 #49-63 RT: 0.26-0.34 AV: 15 NL: 7.74E6
T: FTMS + c ESI Full ms [60.00-900.00]



HRESI-MS spectrum of **38**

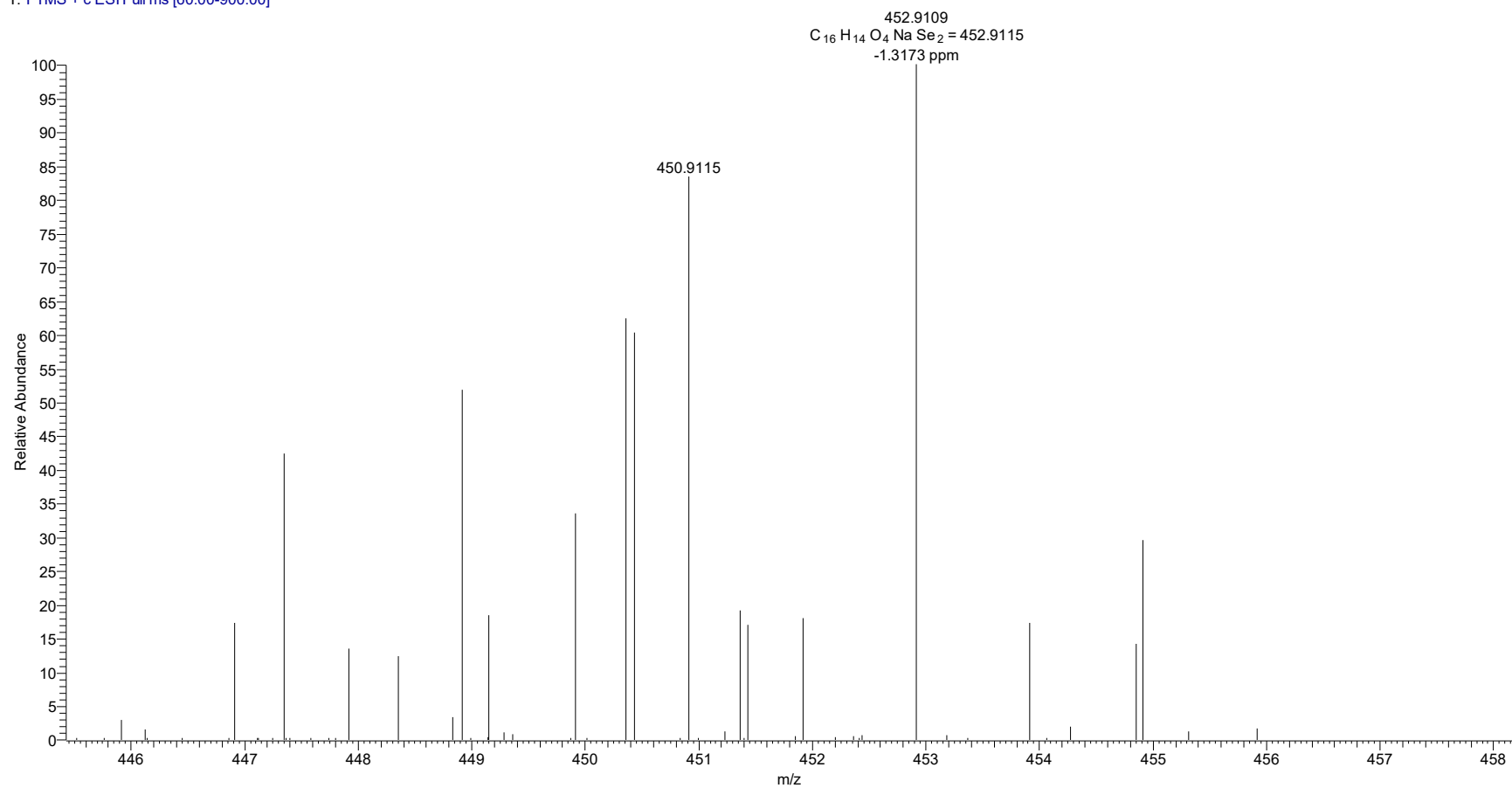


^1H -NMR (300 MHz, CDCl_3) of **39**

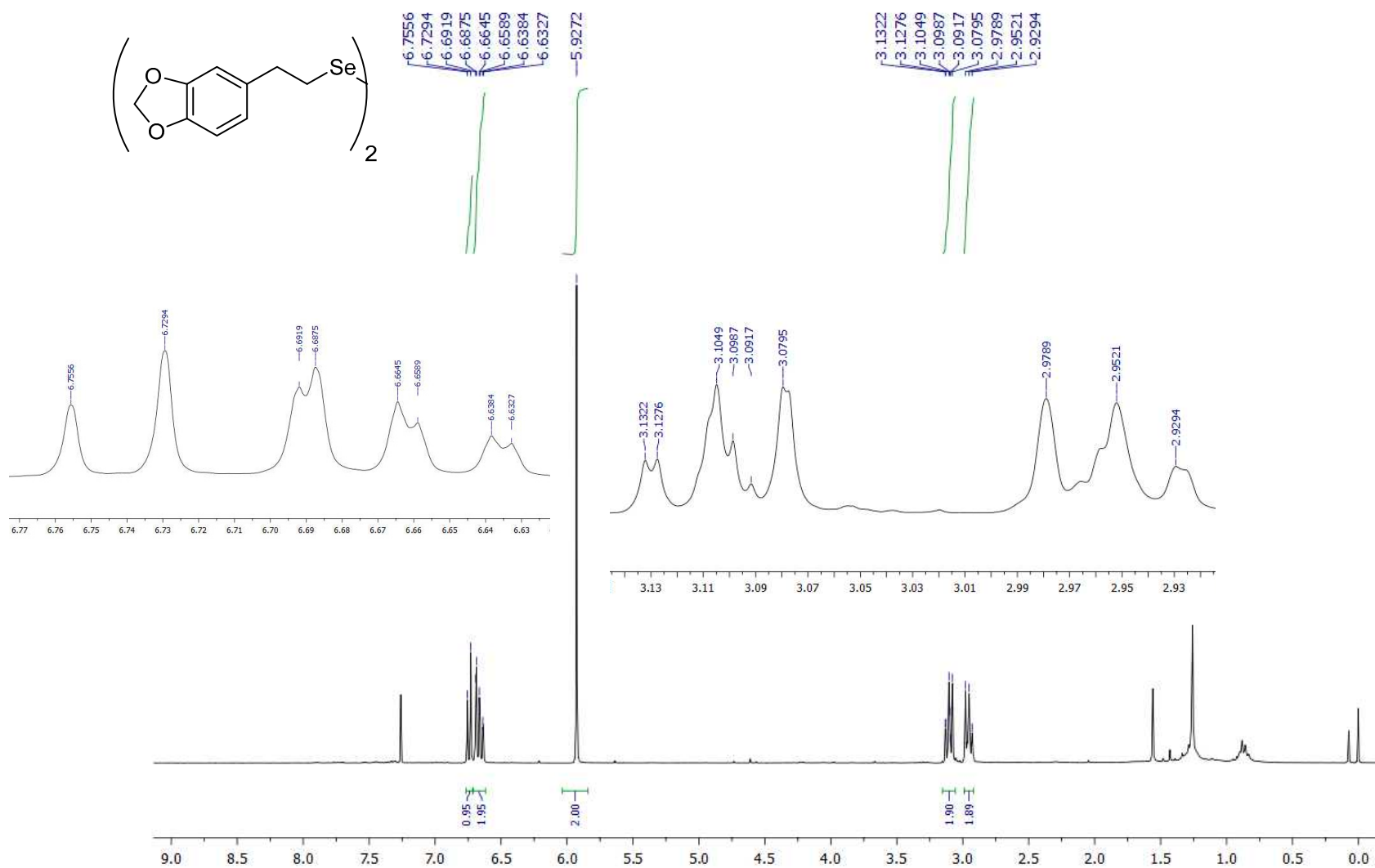


^{13}C - NMR (125.7 MHz, CDCl_3) of **39**

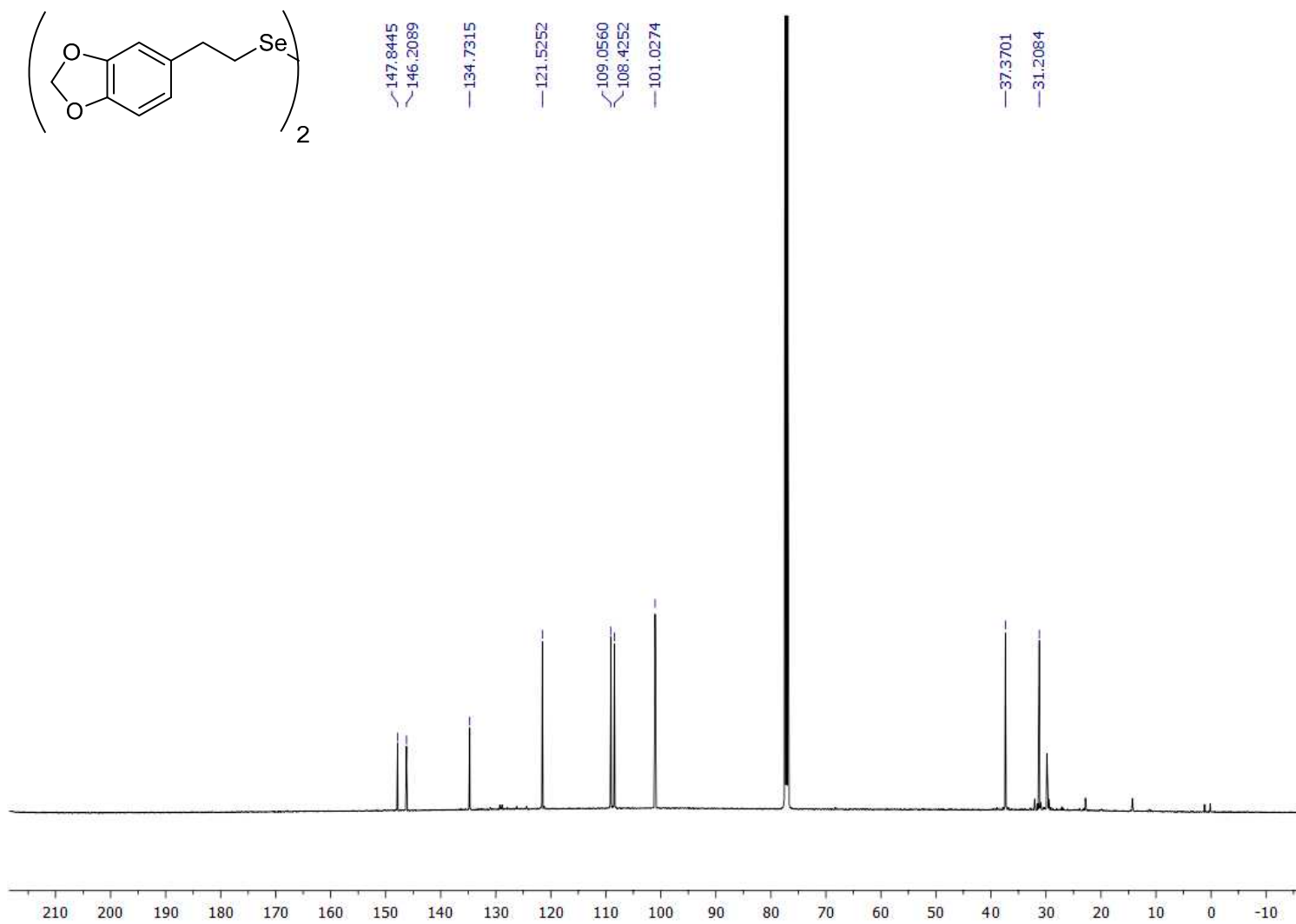
160624_RPP12 #52-81 RT: 0.21-0.32 AV: 30 NL: 1.50E5
T: FTMS + c ESI Full ms [60.00-900.00]



HRESI-MS spectrum of **39**

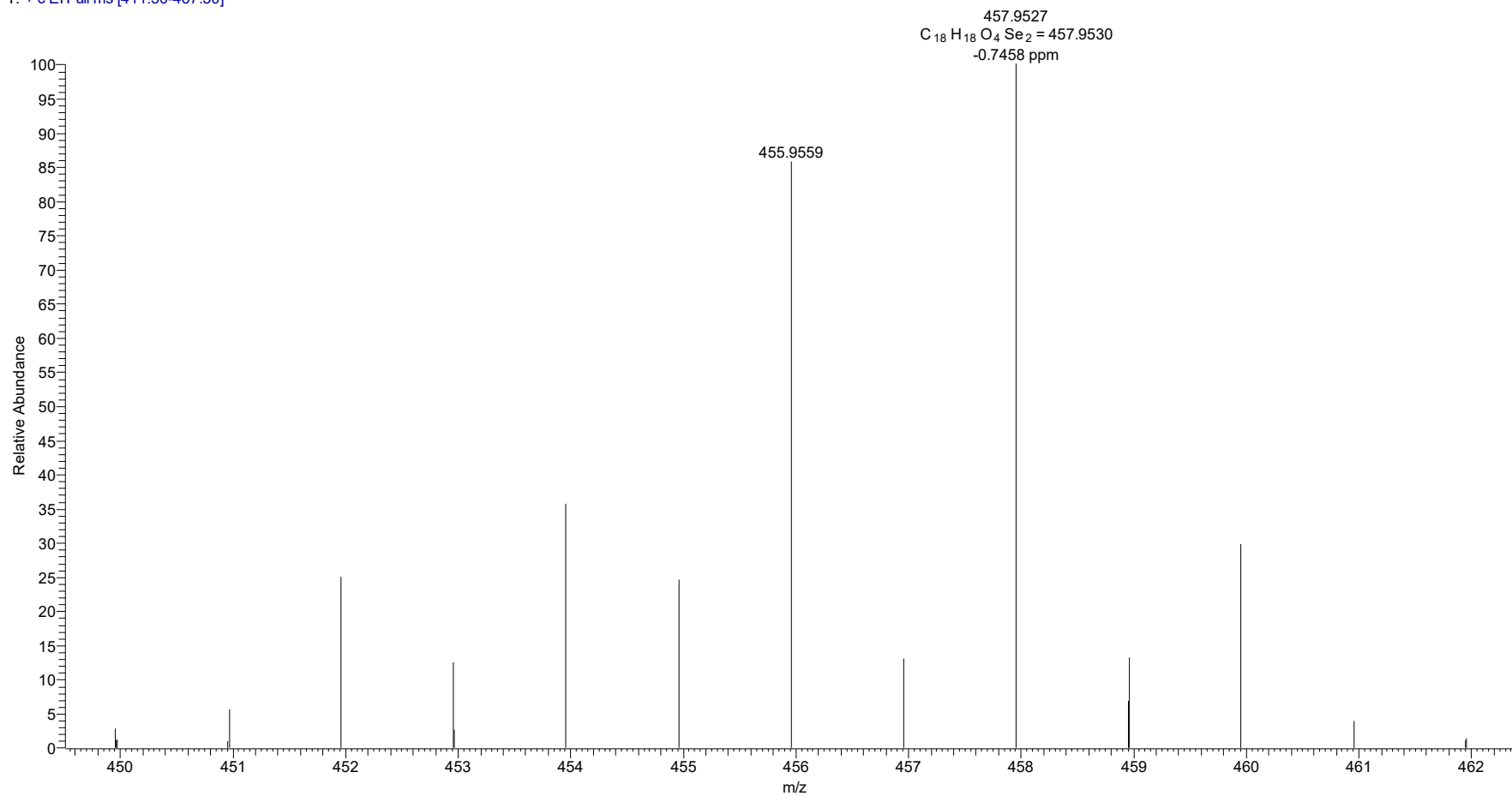


¹H-NMR (300 MHz, CDCl₃) of **40**

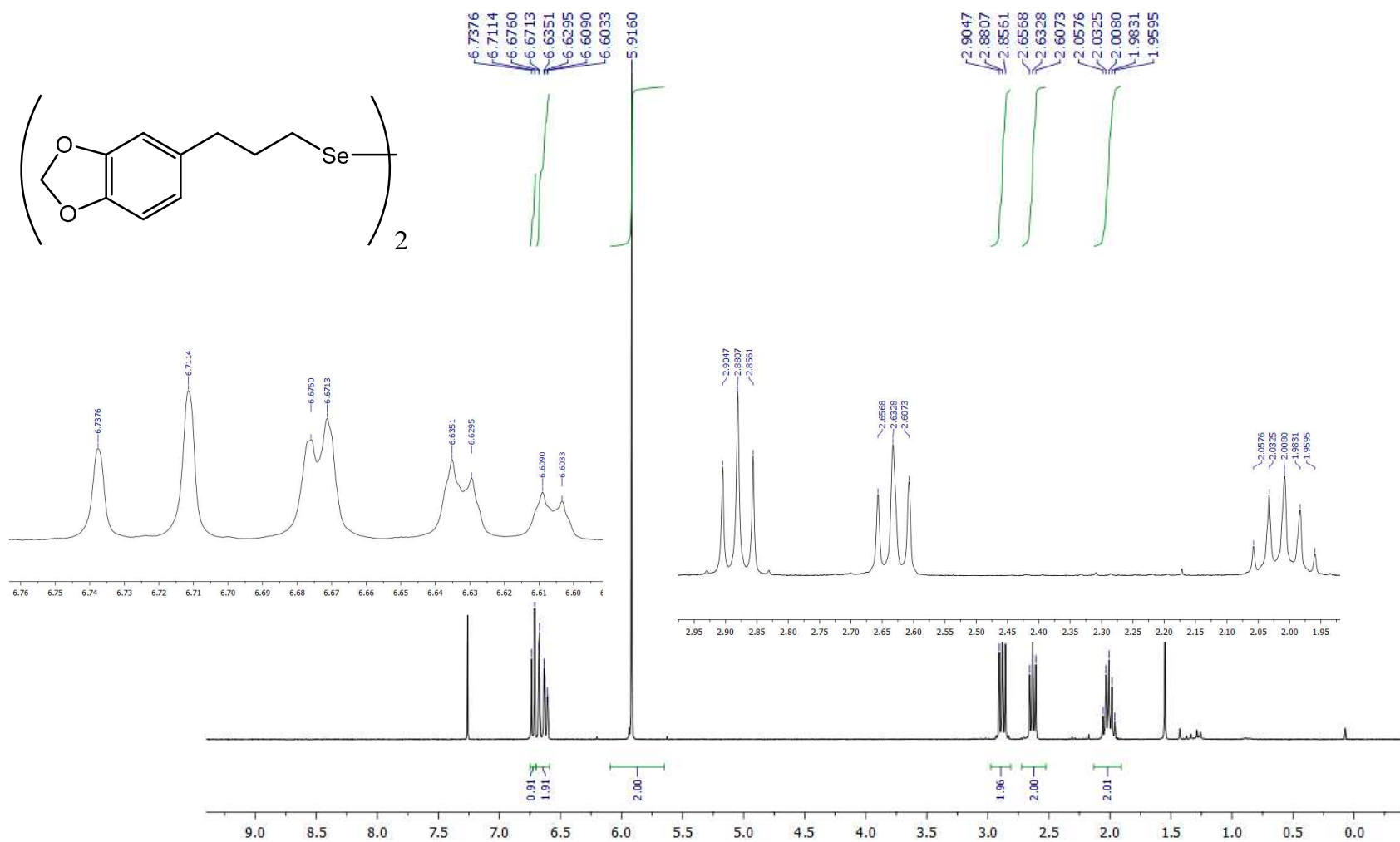


^{13}C - NMR (125.7 MHz, CDCl_3) of **40**

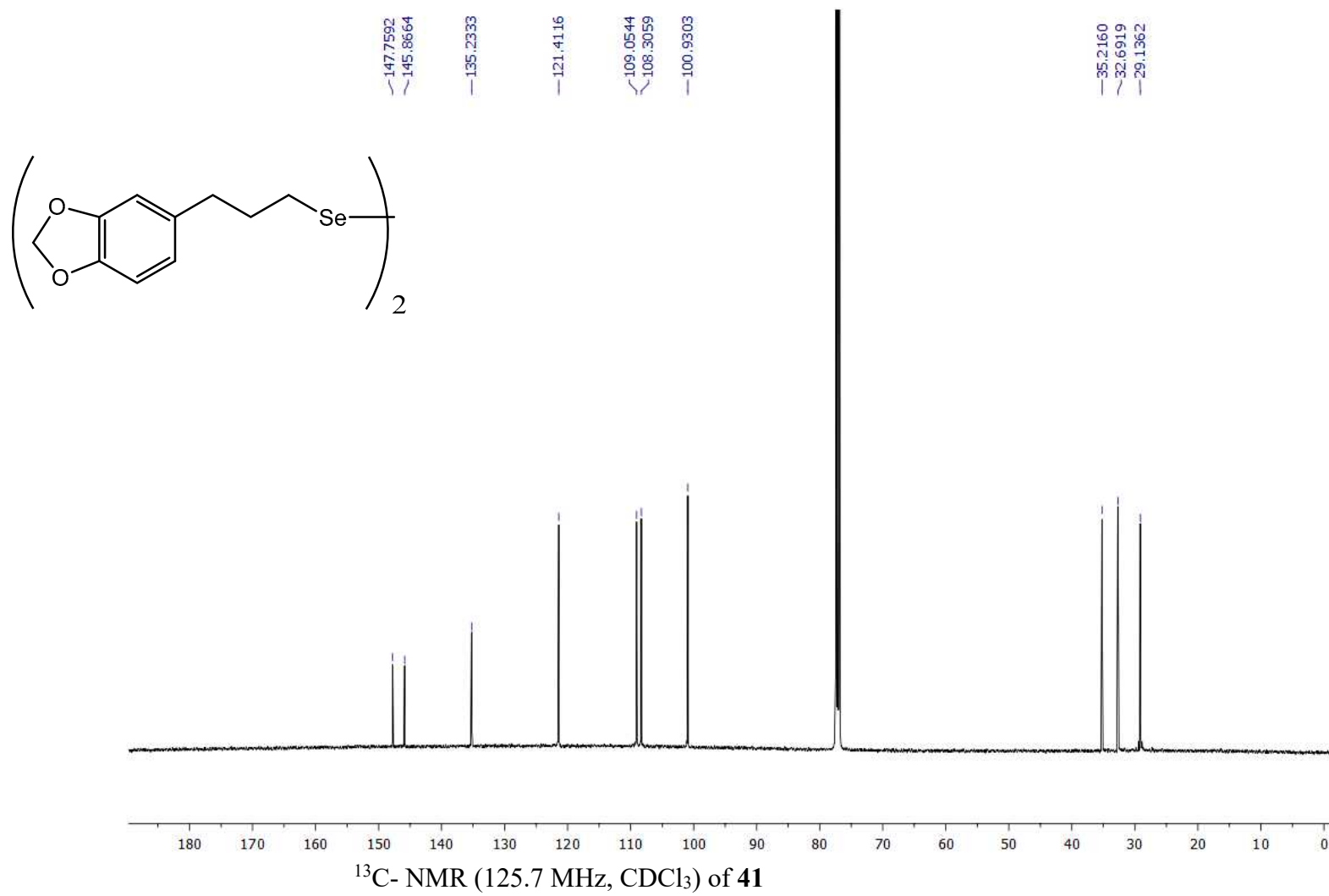
170207_PABEA_PBA511_HR-cmass1 #67-69 RT: 2.7354-2.8778 AV: 3 NL: 7.84E5
T: + c EI Full ms [411.50-467.50]

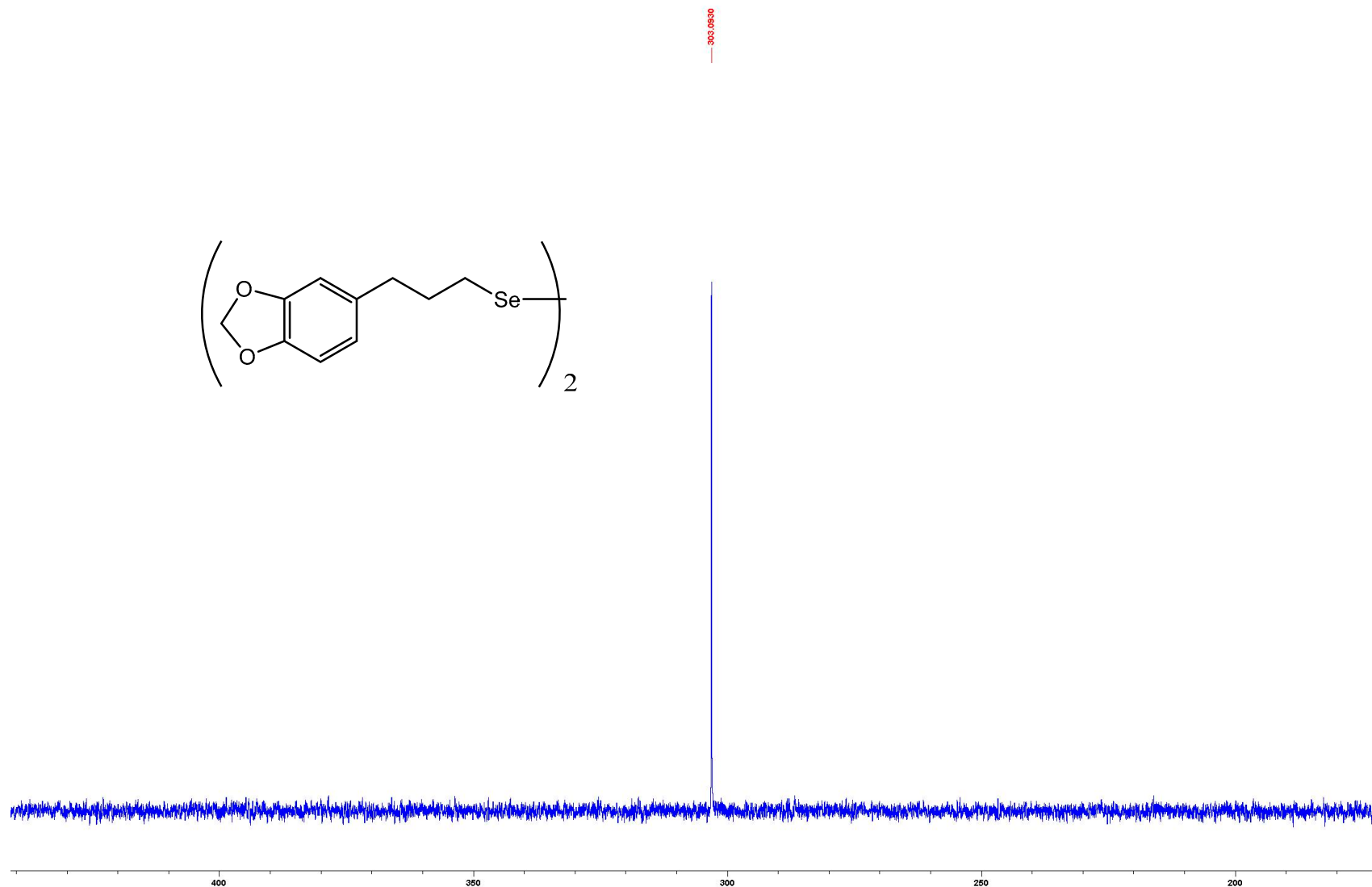


HRESI-MS spectrum of **40**



$^1\text{H-NMR}$ (300 MHz, CDCl_3) of **41**





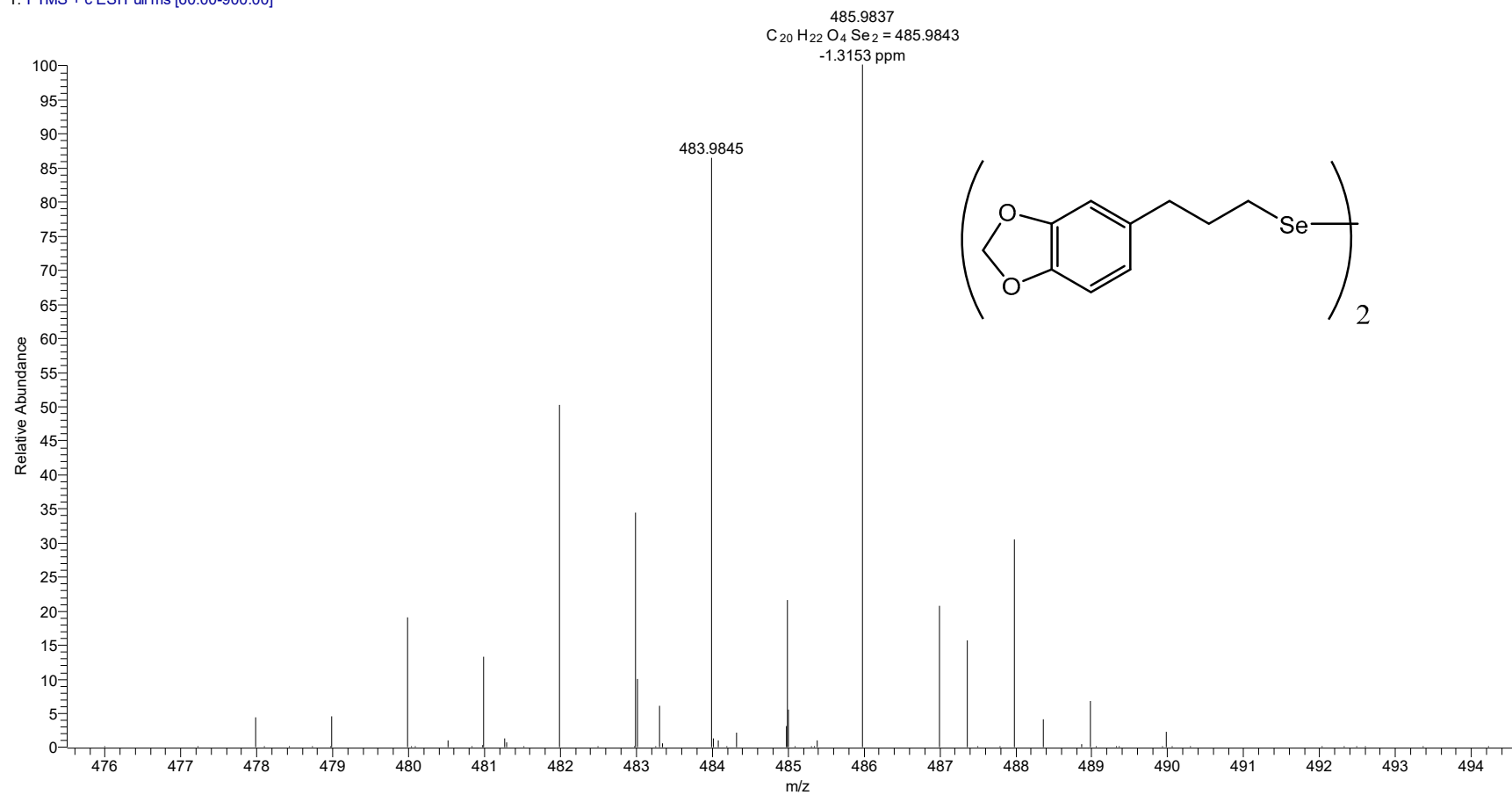
^{77}Se - NMR (95 MHz, CDCl_3) of **41**

160624_RPP6_ACN

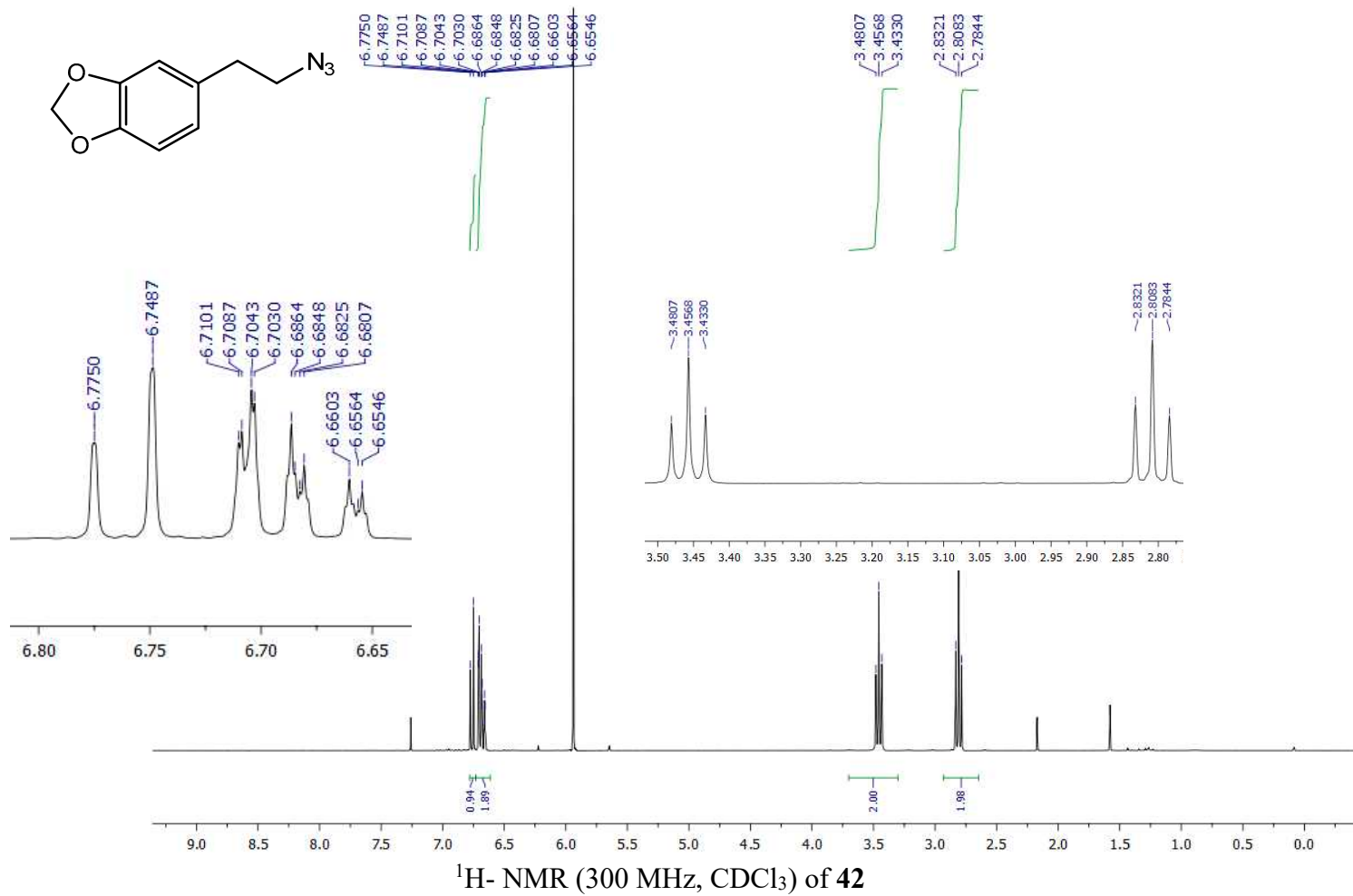
06/24/16 17:02:27

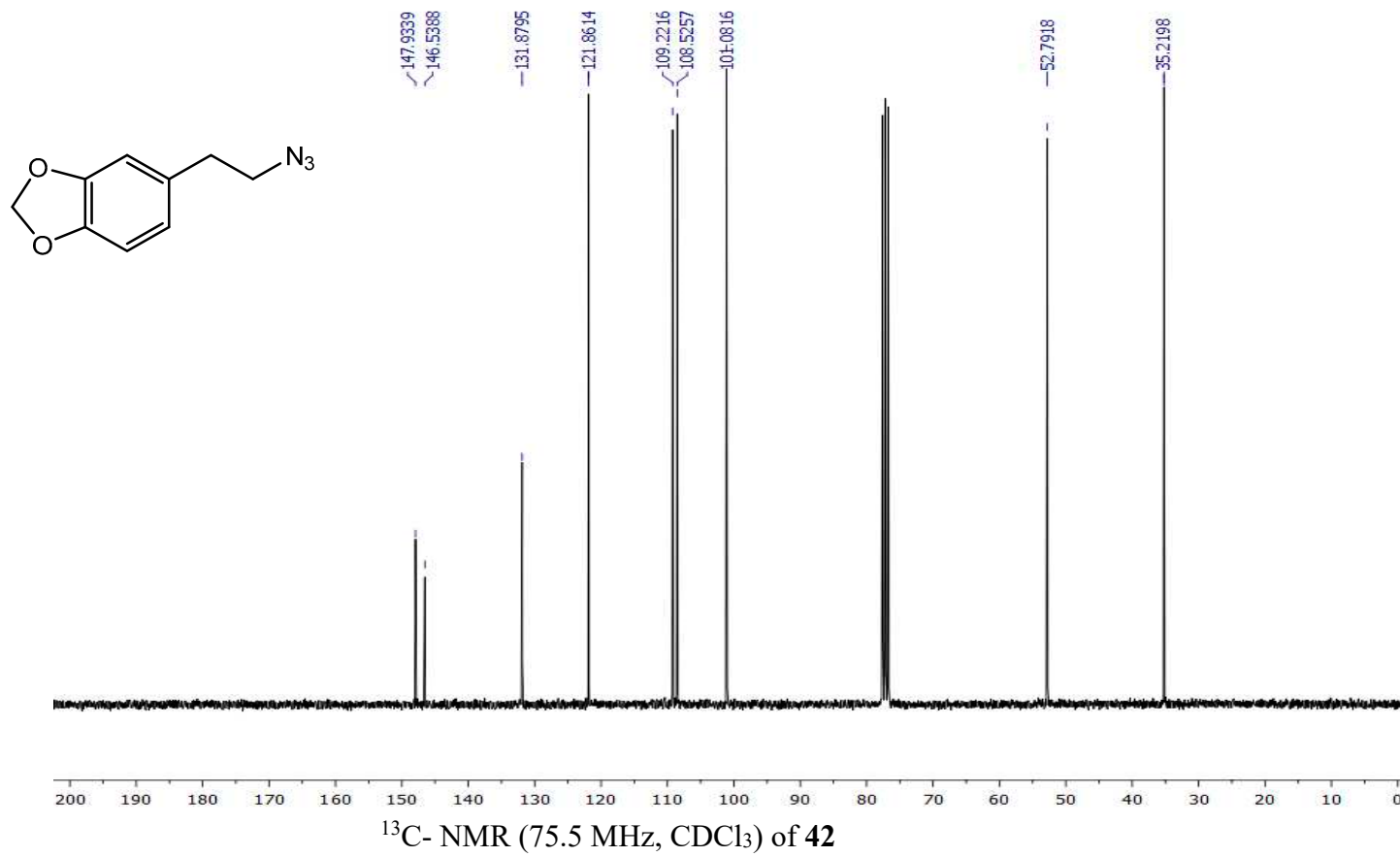
RPP-6 PM=485 C₂₀H₂₂O₄Se₂

160624_RPP6_ACN #84-107 RT: 0.34-0.44 AV: 24 SB: 140 1.28-1.85 NL: 2.67E5
T: FTMS + c ESI Full ms [60.00-900.00]

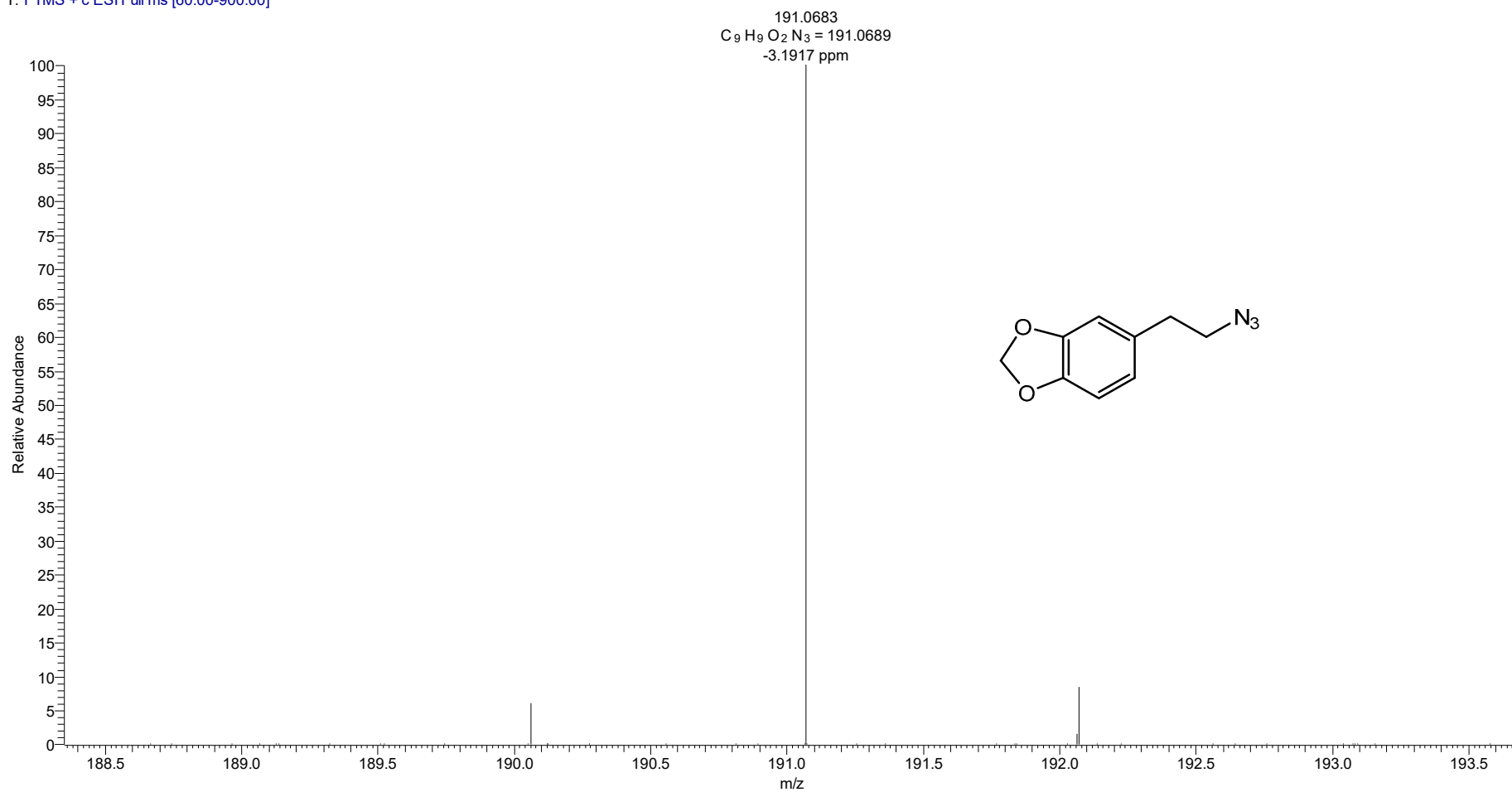


HRESI-MS spectrum of **41**

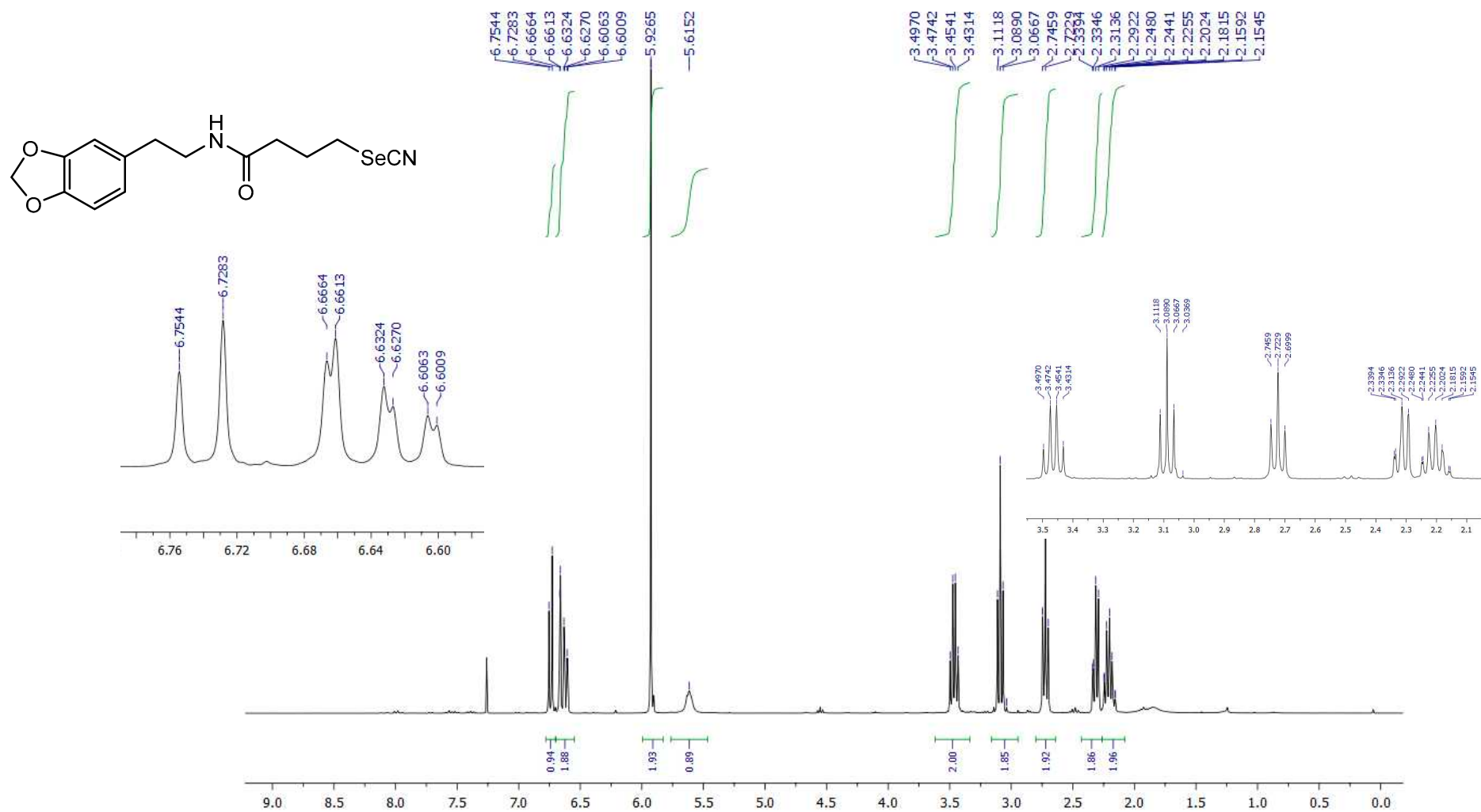




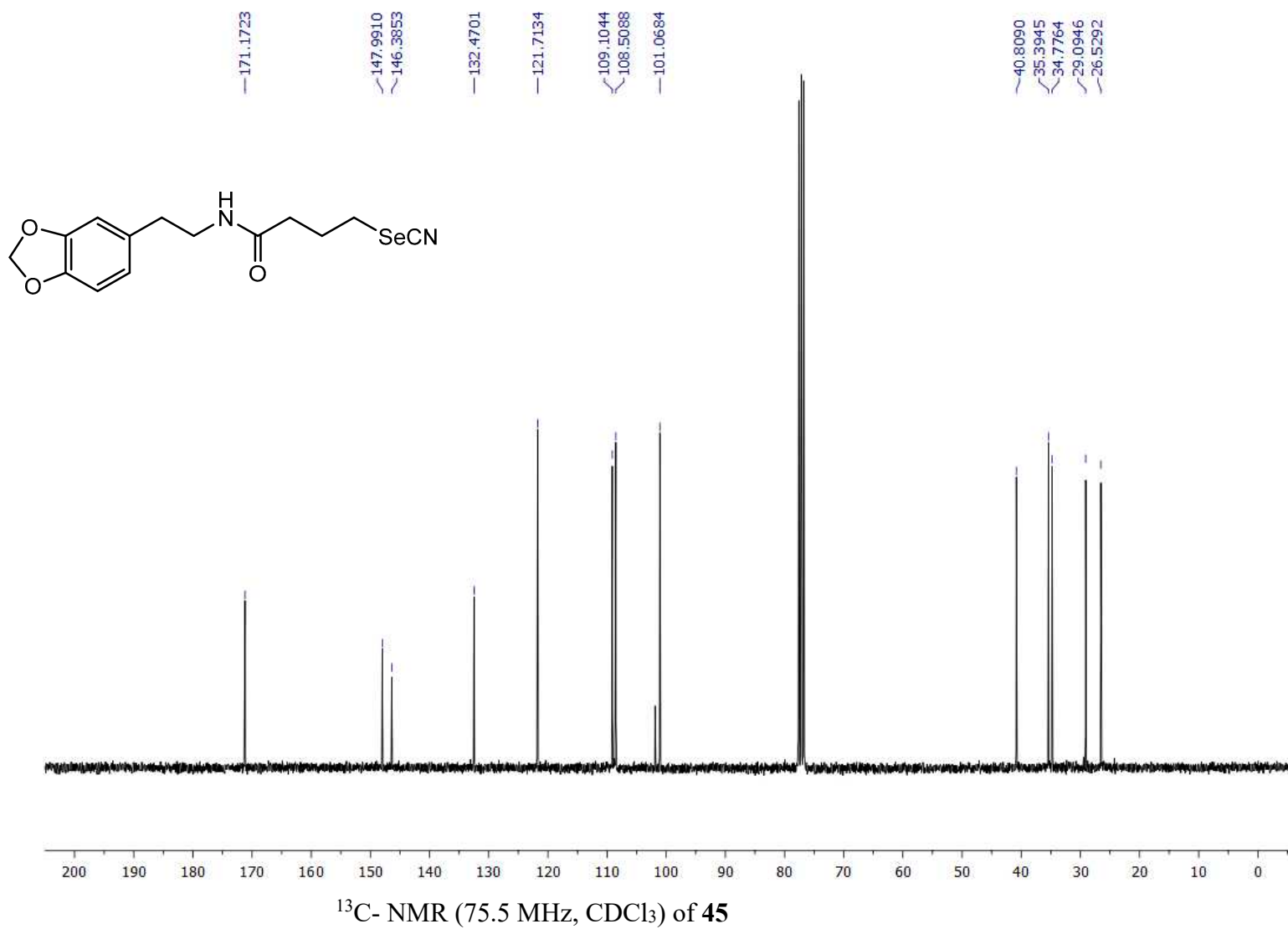
BG_170201_PBA50_ACN #76-99 RT: 0.31-0.40 AV: 24 NL: 1.54E6
T: FTMS + c ESI Full ms [60.00-900.00]



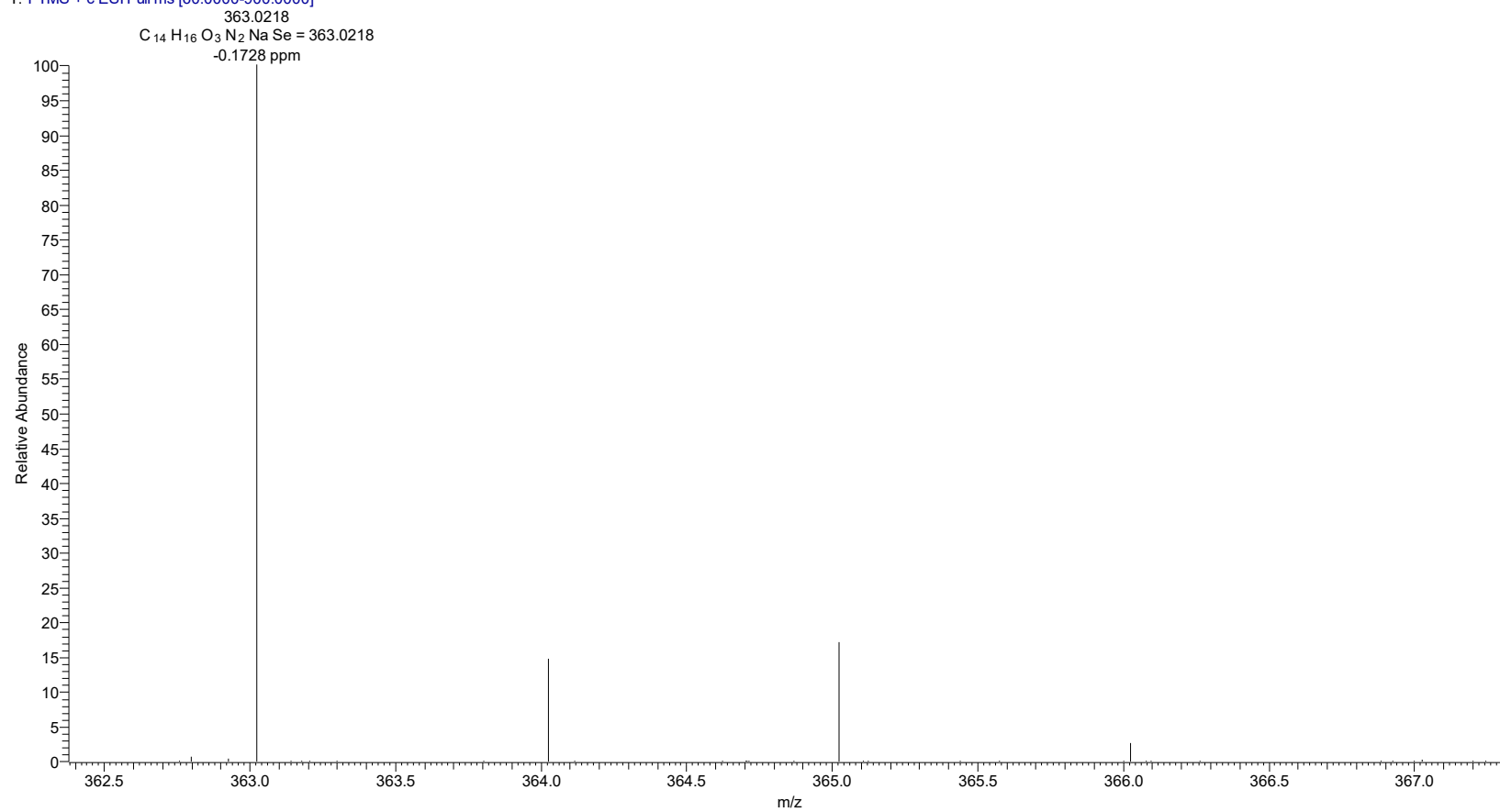
HRESI-MS spectrum of **42**



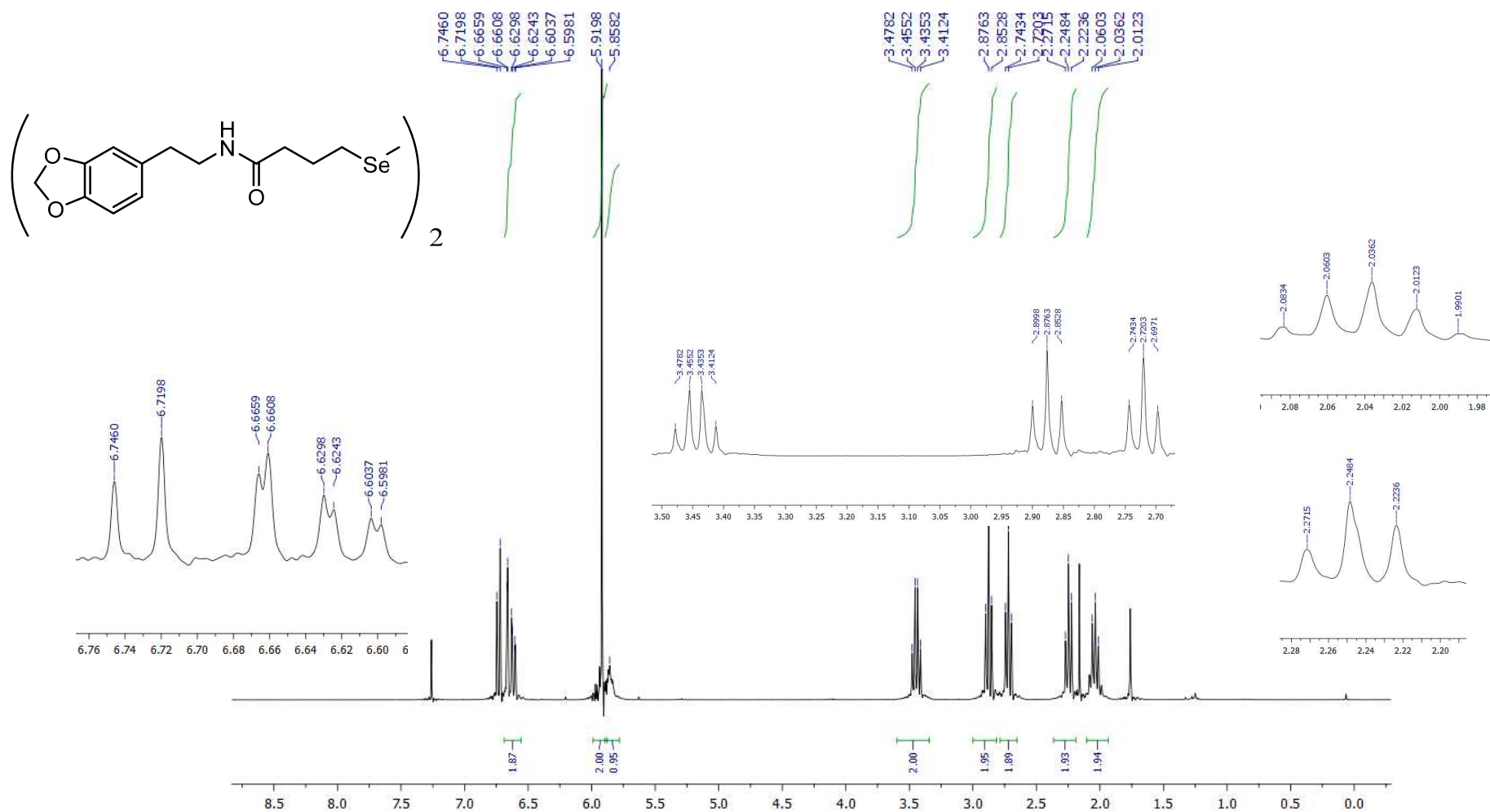
^1H -NMR (300 MHz, CDCl_3) of **45**



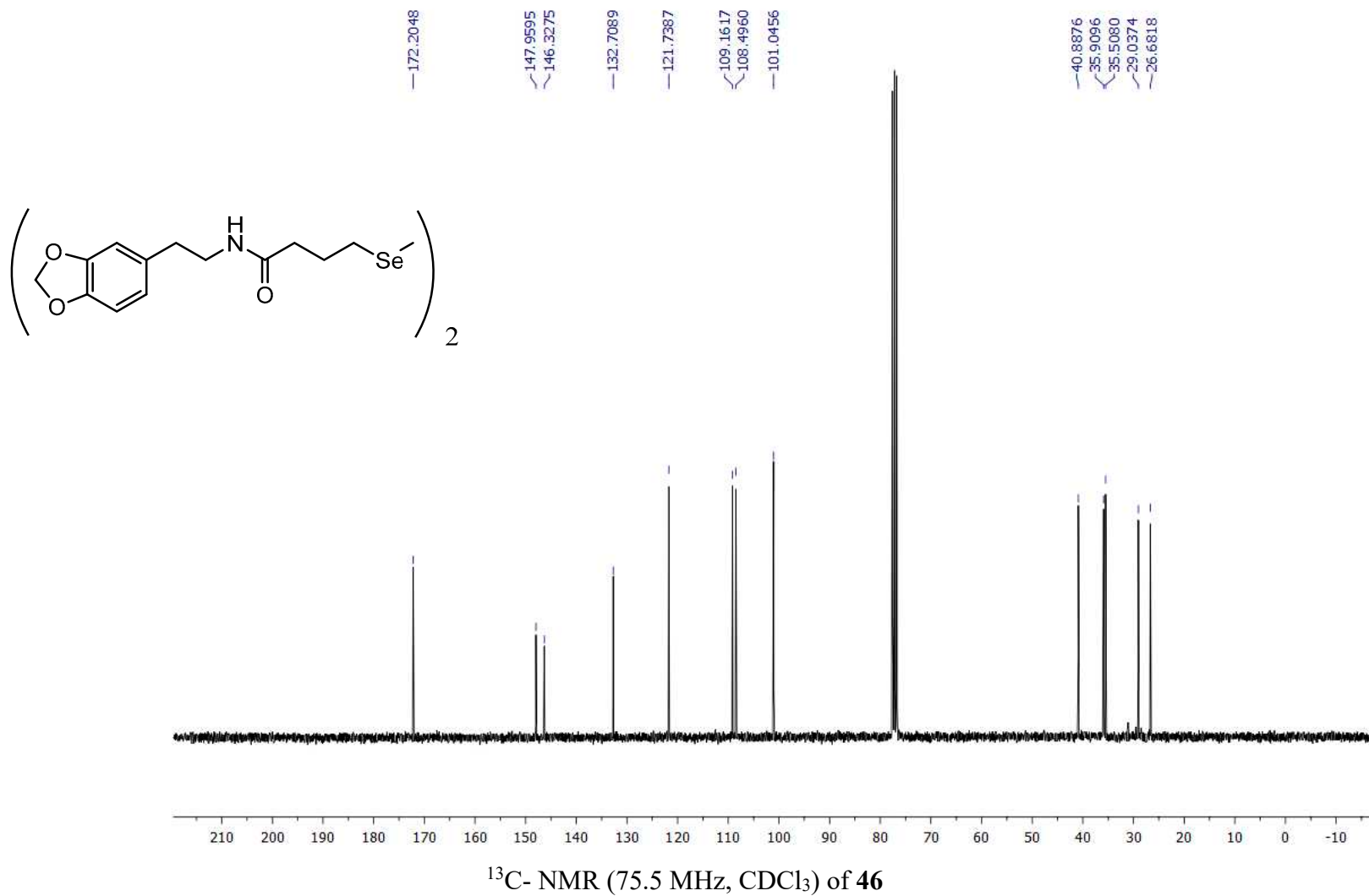
160725_PBA54 #46-92 RT: 0.24-0.48 AV: 47 SB: 32 0.03-0.07 , 1.25-1.37 NL: 1.76E8
T: FTMS + c ESI Full ms [60.0000-900.0000]



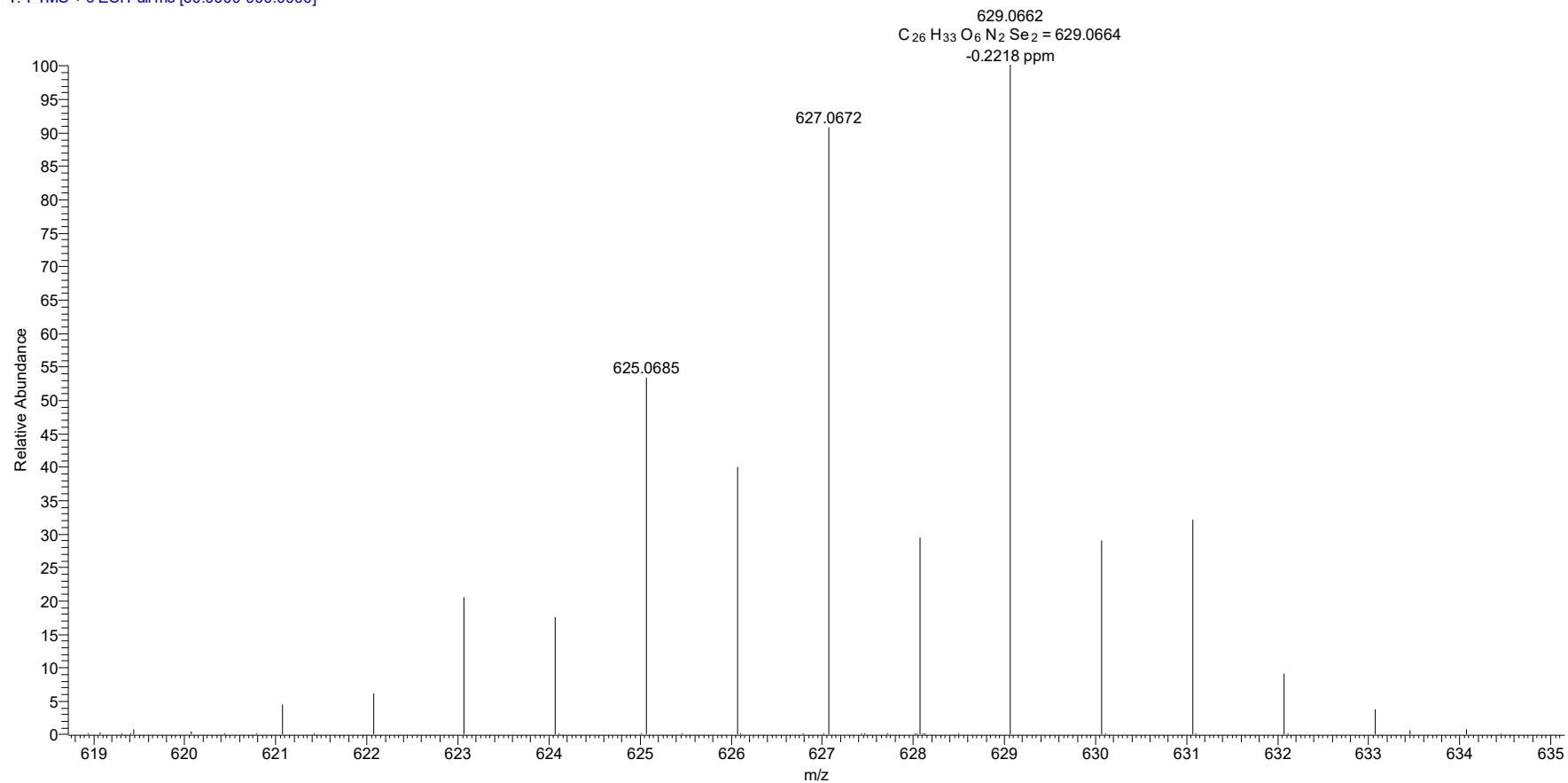
HRESI-MS spectrum of **45**



^1H -NMR (300 MHz, CDCl_3) of **46**



160727_PBA541_ACN #45-91 RT: 0.24-0.48 AV: 47 SB: 31 0.03-0.07, 1.25-1.37 NL: 1.22E7
T: FTMS + c ESI Full ms [60.0000-900.0000]



HRESI-MS spectrum of **46**