

Design, Synthesis, In Vitro and In Silico Evaluation of Indole Based Tetrazole Derivatives as Putative Anti-Breast Cancer Agents

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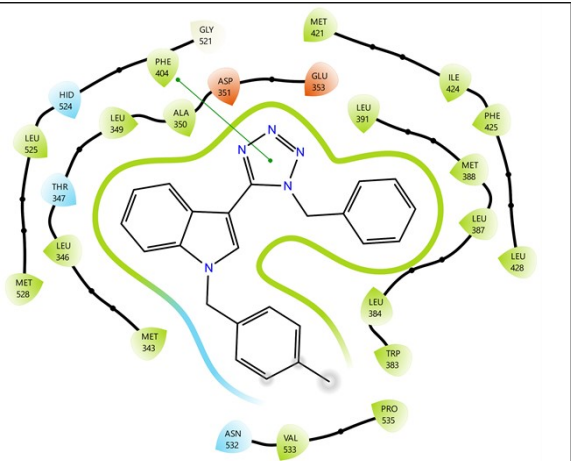
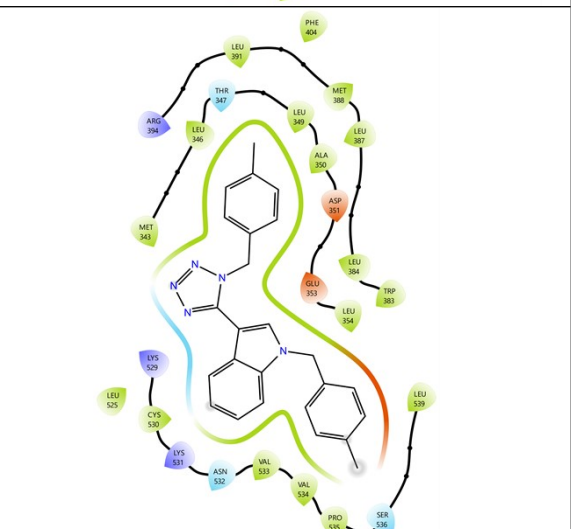
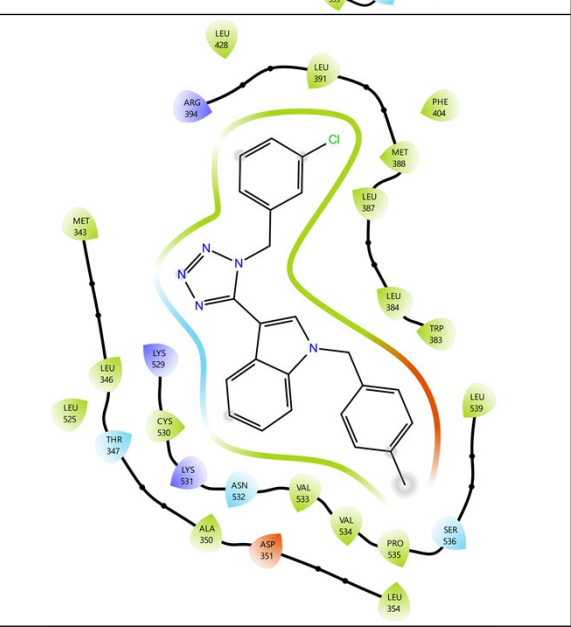
Supplementary Table 1. Docking score and binding poses of the synthesised indole-tetrazole derivatives.

S. No.	Compound	Docking Score (Kcal/Mol)	Interaction Pose
1.	4a	-6.535	
2.	4b	-6.896	
3.	5a	-7.948	

4.	5b	-8.614	
5.	5c	-8.575	
6.	5d	-7.877	
7.	5e	-7.735	

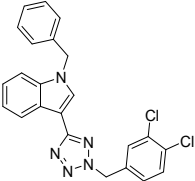
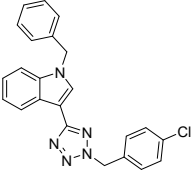
12.	5j	-7.3	
13.	5k	-7.172	
14.	5l	-7.739	
15.	5m	-7.272	

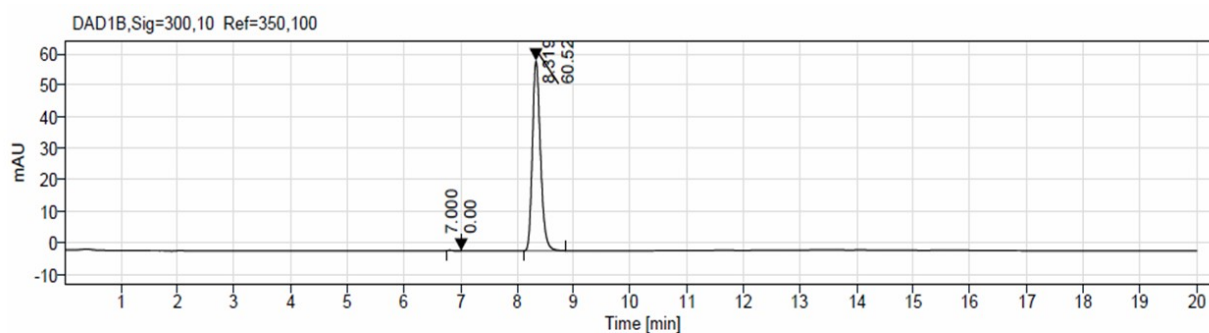
16.	5n	-6.742	
17.	5o	-6.708	
18.	5p	-6.543	

19.	6i	-8.323	
20.	6j	-6.873	
21.	6k	-7.574	

22.	6l	-7.284	
23.	6m	-7.35	
24.	Bazedoxifene	-9.482	

Supplementary Table S2. The SMILES strings of the active compounds.

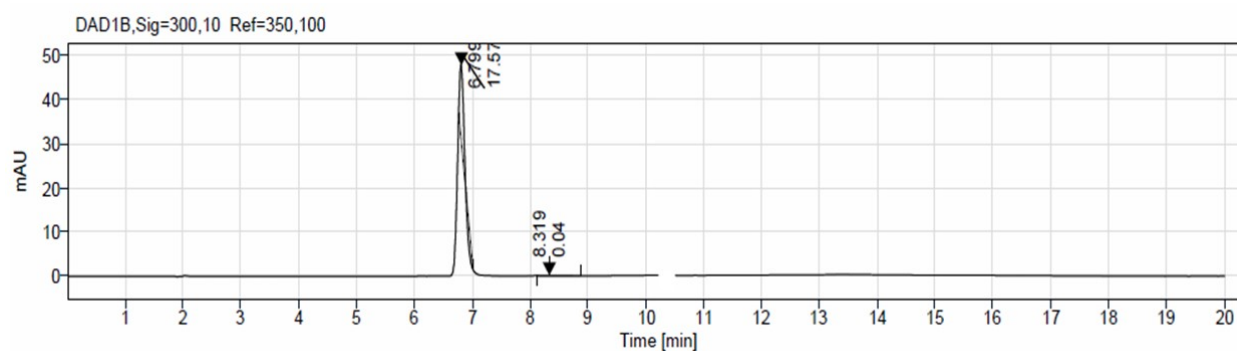
Compound	Structure	SMILES
5d		<chem>ClC1=CC(CN2N=NC(C3=CN(CC4=CC=CC=C4)C5=CC=CC=C53)=N2)=CC=C1Cl</chem>
5f		<chem>ClC(C=C1)=CC=C1CN2N=NC(C3=CN(CC4=CC=CC=C4)C5=CC=CC=C53)=N2</chem>



Signal: DAD1B, Sig=300,10 Ref=350,100

Name	RT [min]	Area	Area %	Height	Height %
1	7.000	0.309	0.05	0.000	0.00
2	8.319	601.990	99.95	60.517	100.00

Figure S1. HPLC spectrum and peak area of compound **5d**.



Signal: DAD1B, Sig=300,10 Ref=350,100

Name	RT [min]	Area	Area %	Height	Height %
1	6.799	55.768	97.97	17.572	99.76
2	8.319	1.156	2.03	0.043	0.24

Figure S2. HPLC spectrum and peak area of compound **5f**.

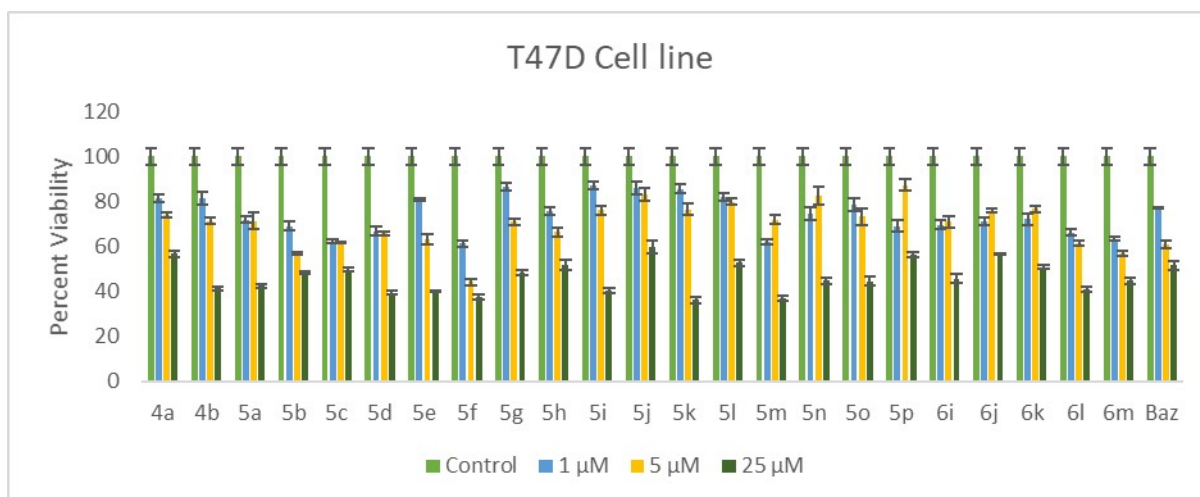


Figure S3. MTT assay results indicating dose-dependent response of test compounds in comparison to positive control bazedoxifene (Baz) on breast cancer cell line T-47D for 48 h.

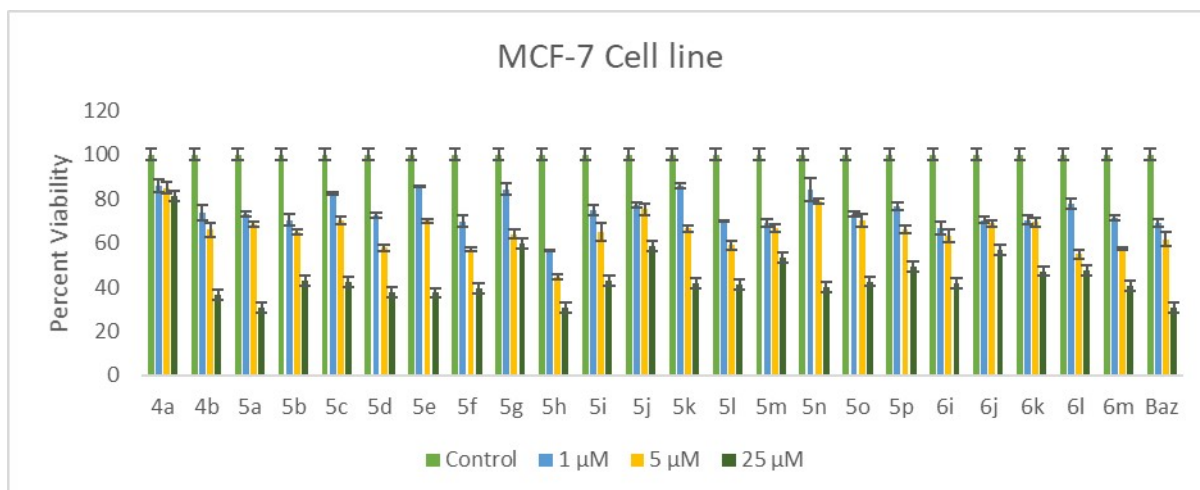


Figure S4. MTT assay results indicating dose-dependent response of test compounds in comparison to positive control bazedoxifene (Baz) on breast cancer cell line MCF-7 for 48 h.

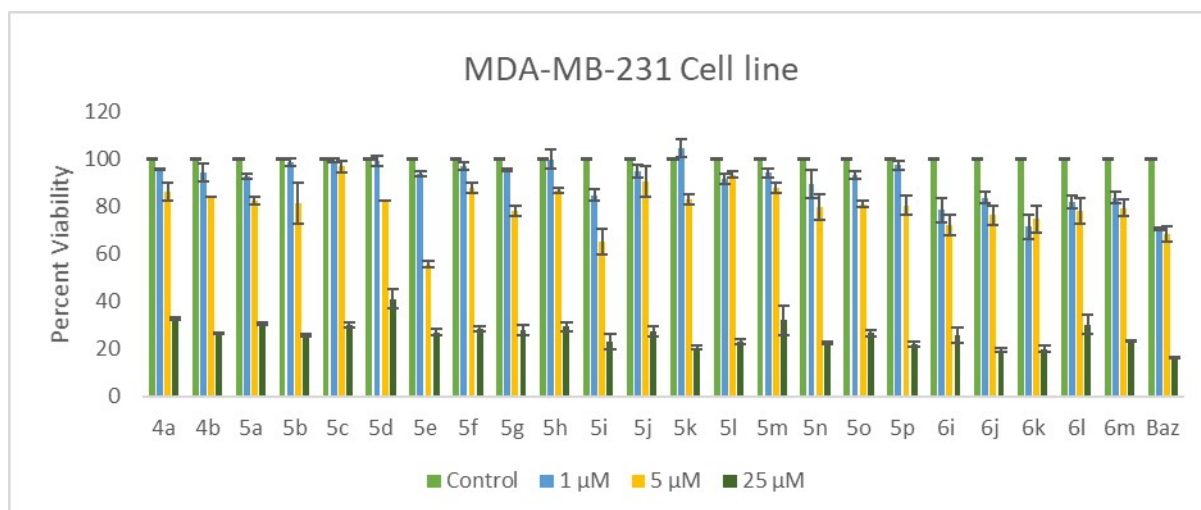


Figure S5. MTT assay results indicating dose-dependent response of test compounds in comparison to positive control basedoxifene (Baz) on breast cancer cell line MDA-MB-231 for 48 h.

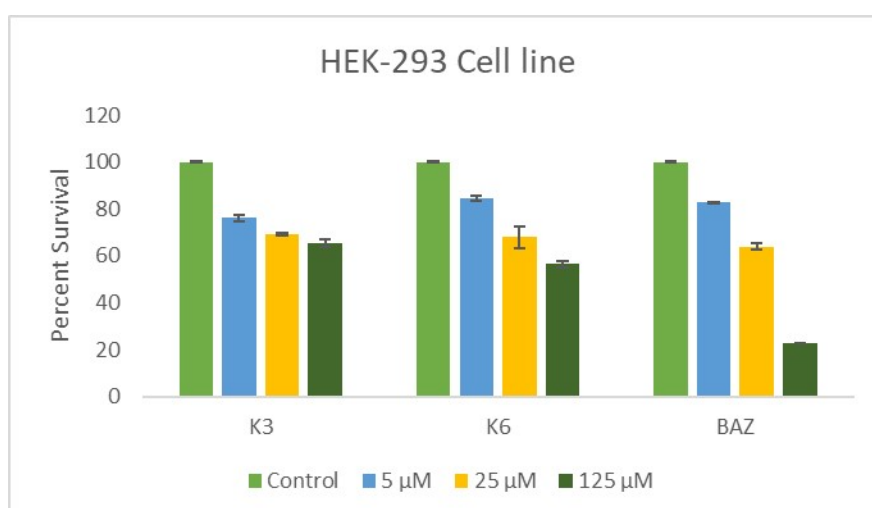


Figure S6. MTT assay results indicating dose-dependent response of selected test compounds in comparison to positive control basedoxifene (Baz) on human embryonic kidney cells HEK-293 for 48 h.

^1H NMR, ^{13}C NMR, Mass Spectra and FT-IR of synthesized compounds.

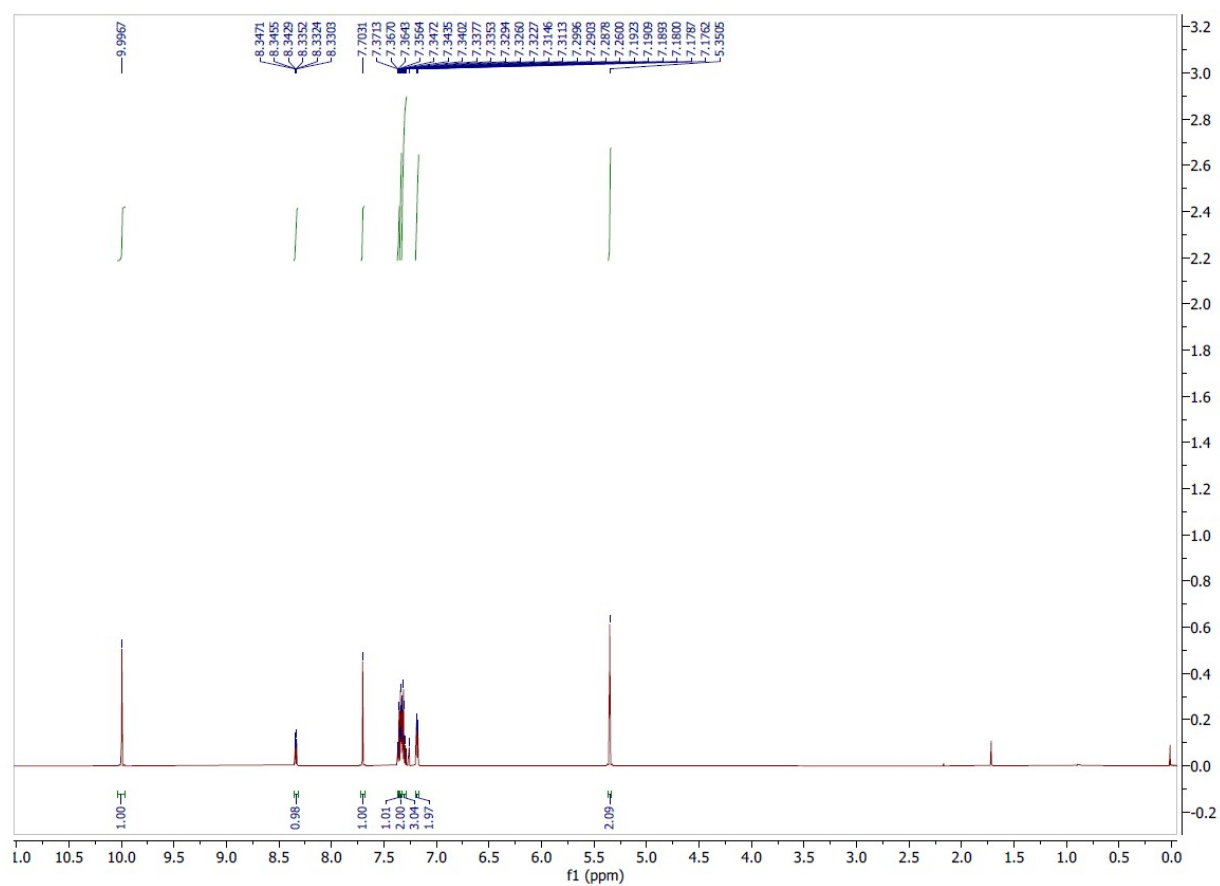


Figure S7. ^1H NMR spectrum of compound 2a

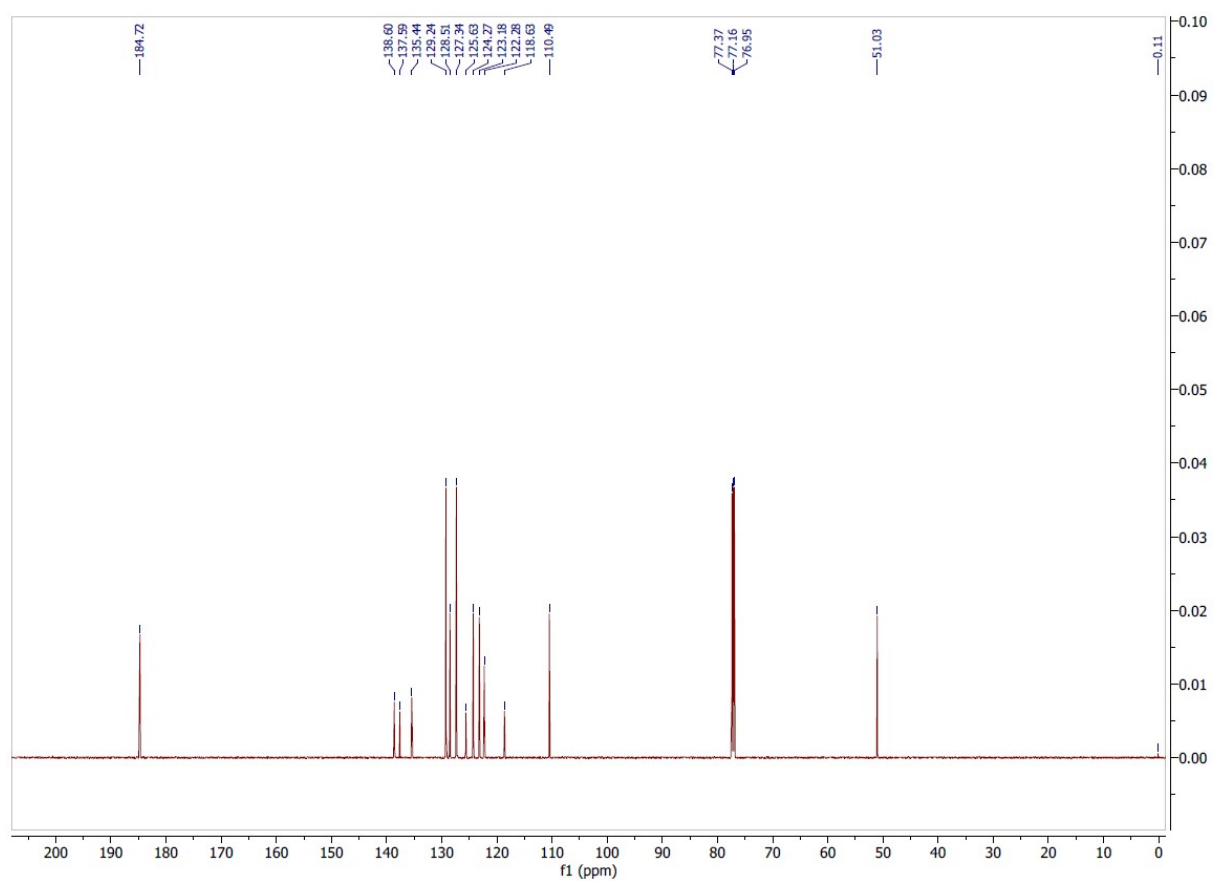


Figure S8. ^{13}C NMR spectrum of compound 2a

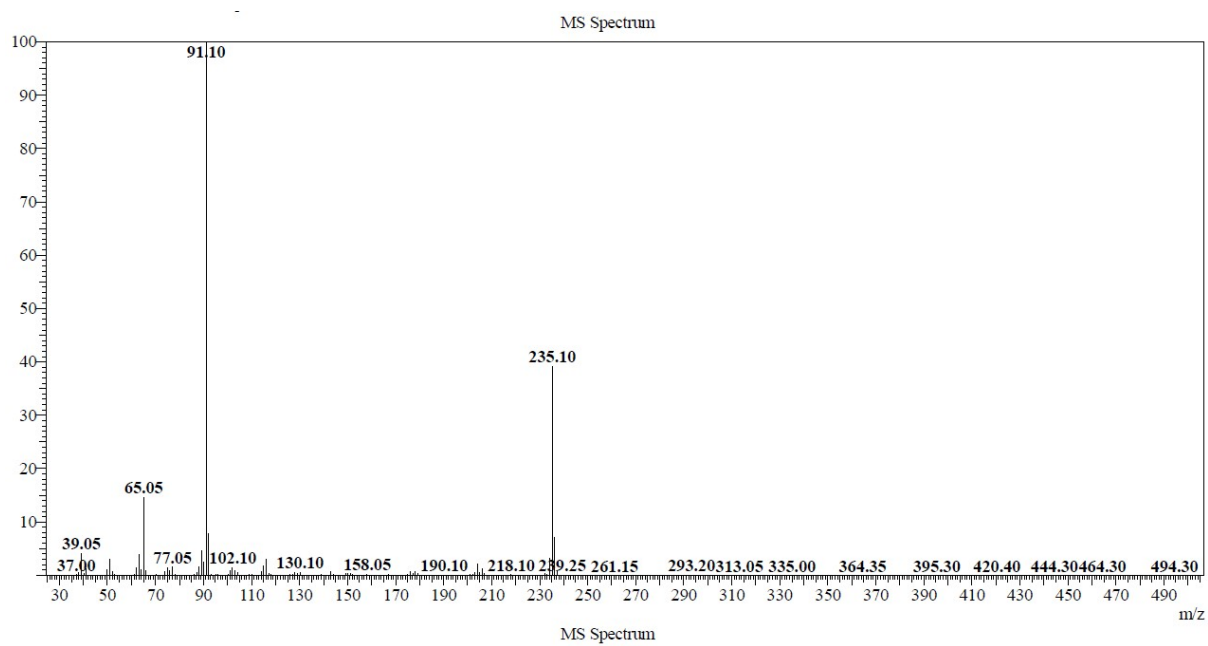


Figure S9. Mass spectrum (ESI-MS) of compound 2a

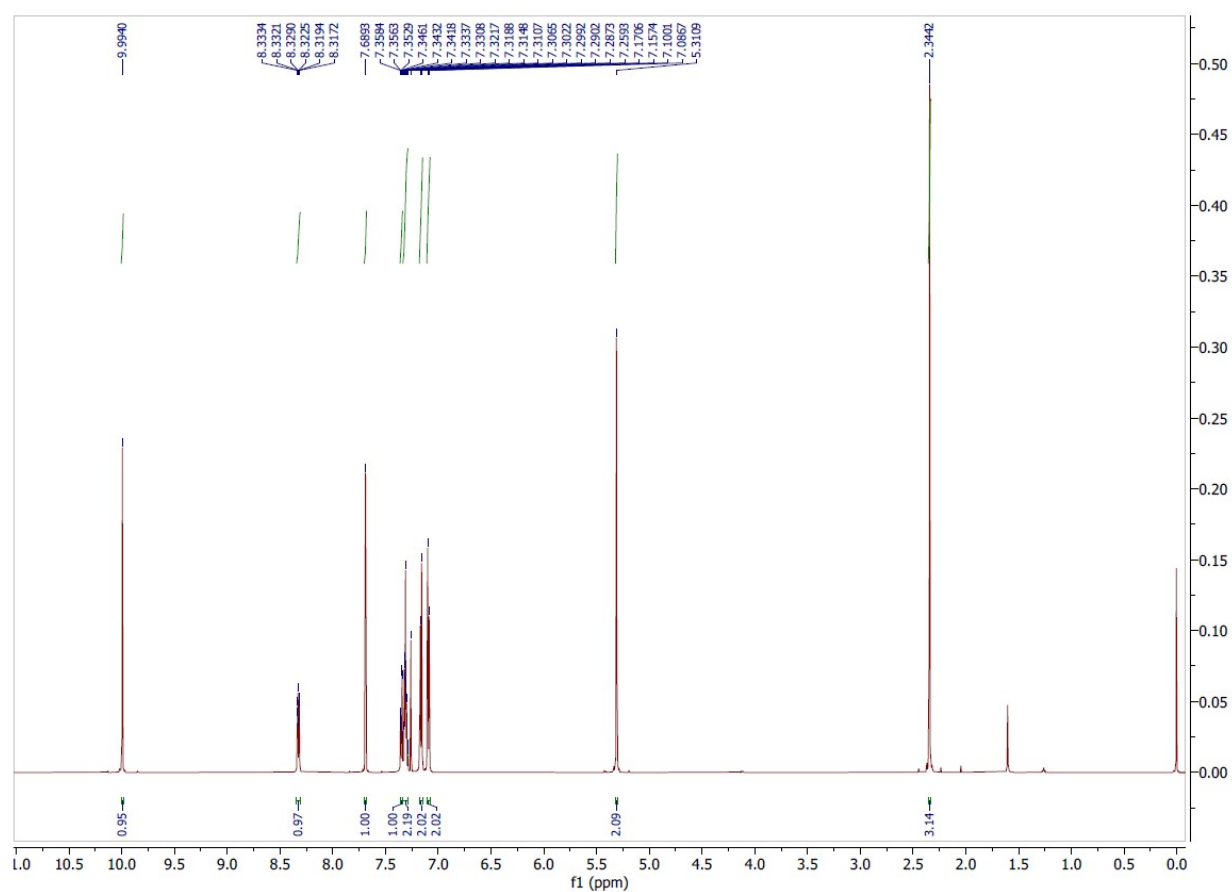


Figure S10. ¹H NMR spectrum of compound 2b

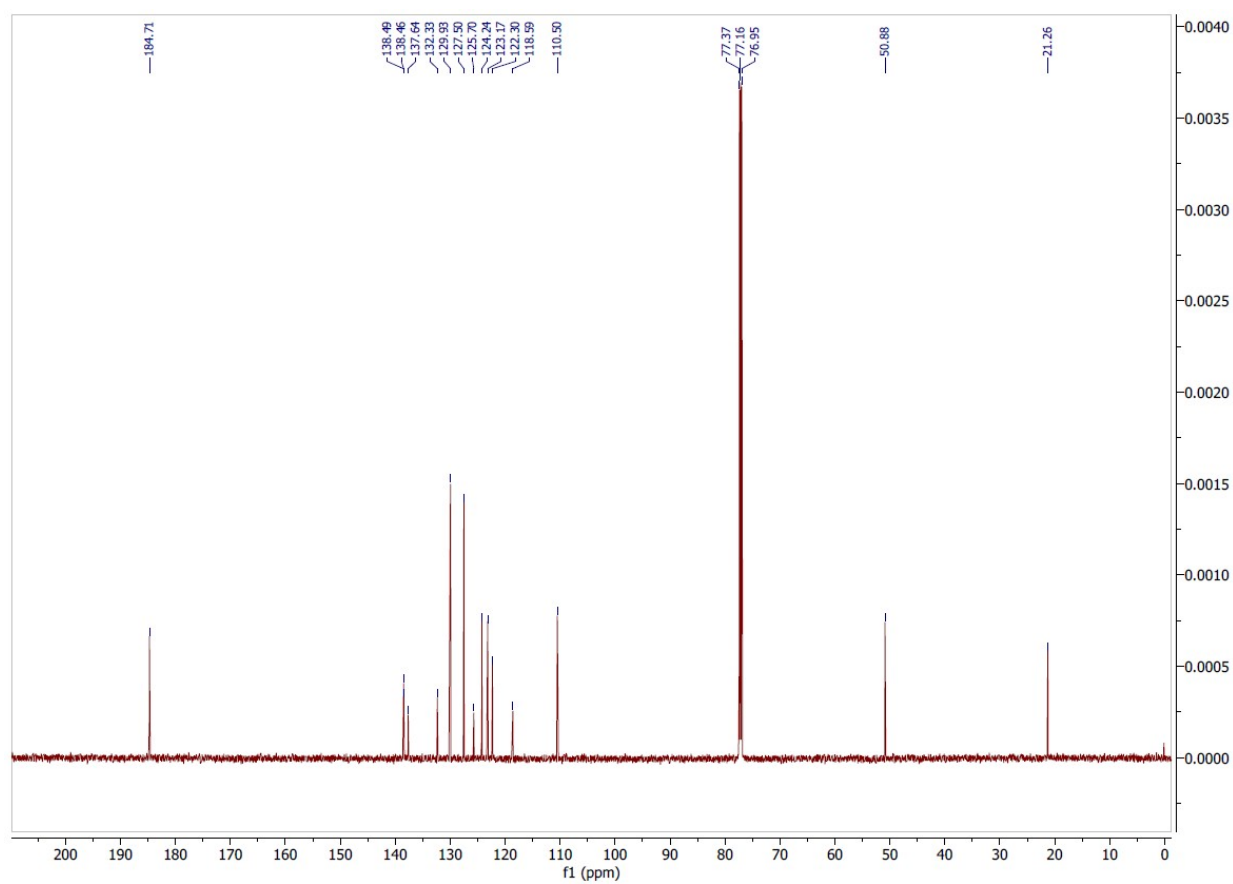


Figure S11. ^{13}C NMR spectrum of compound 2b

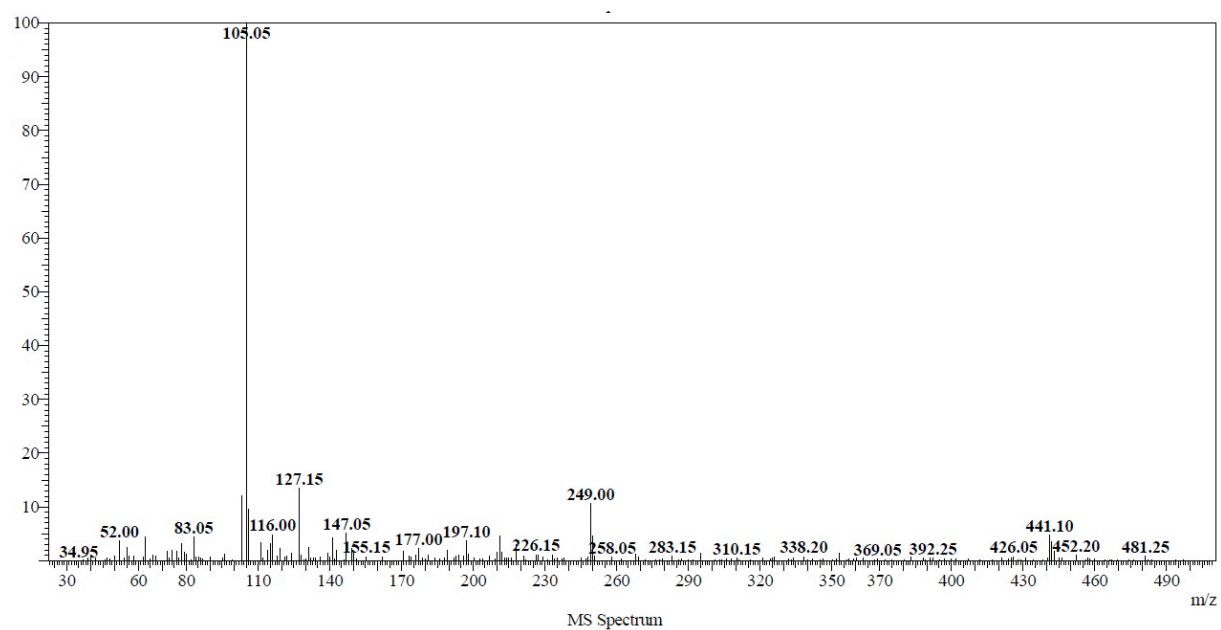


Figure S12. Mass spectrum (ESI-MS) of compound 2b

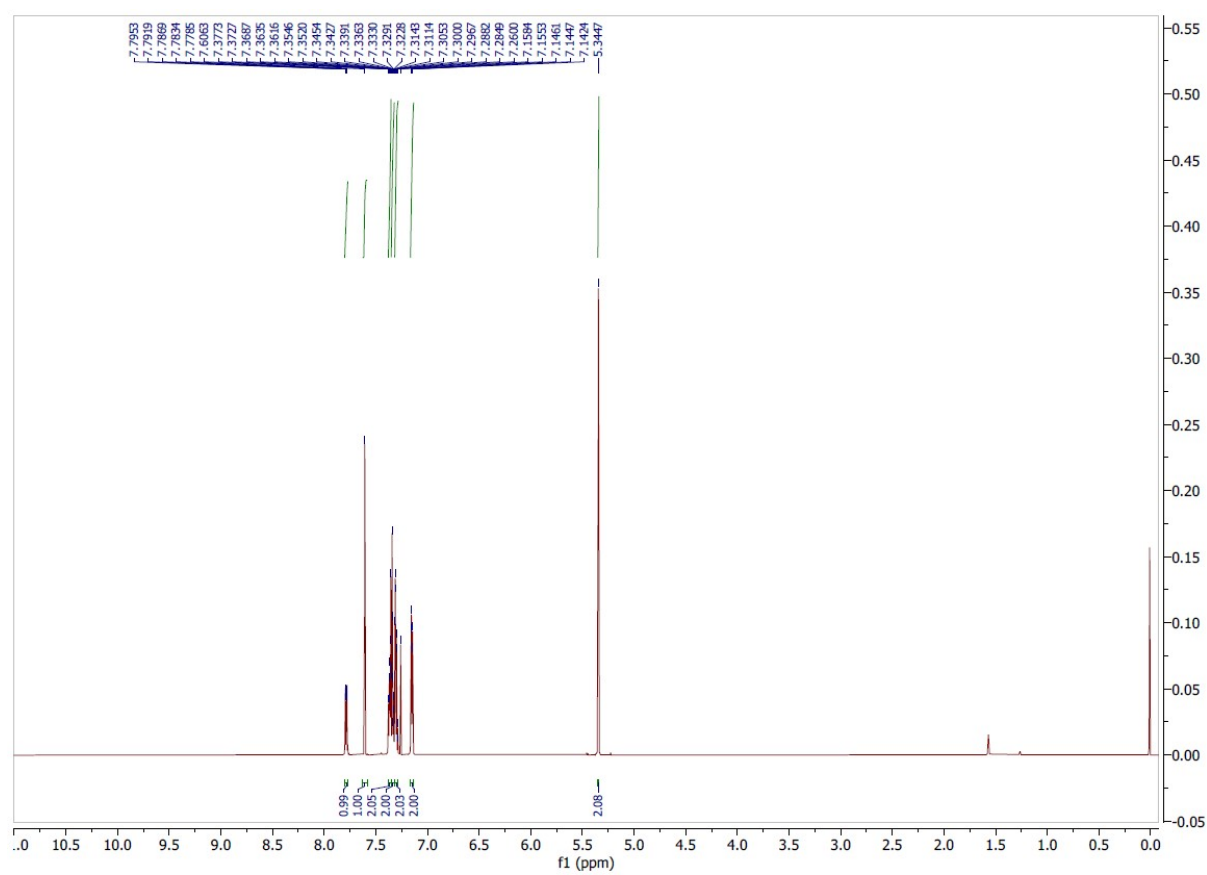


Figure S13. ¹H NMR spectrum of compound 3a

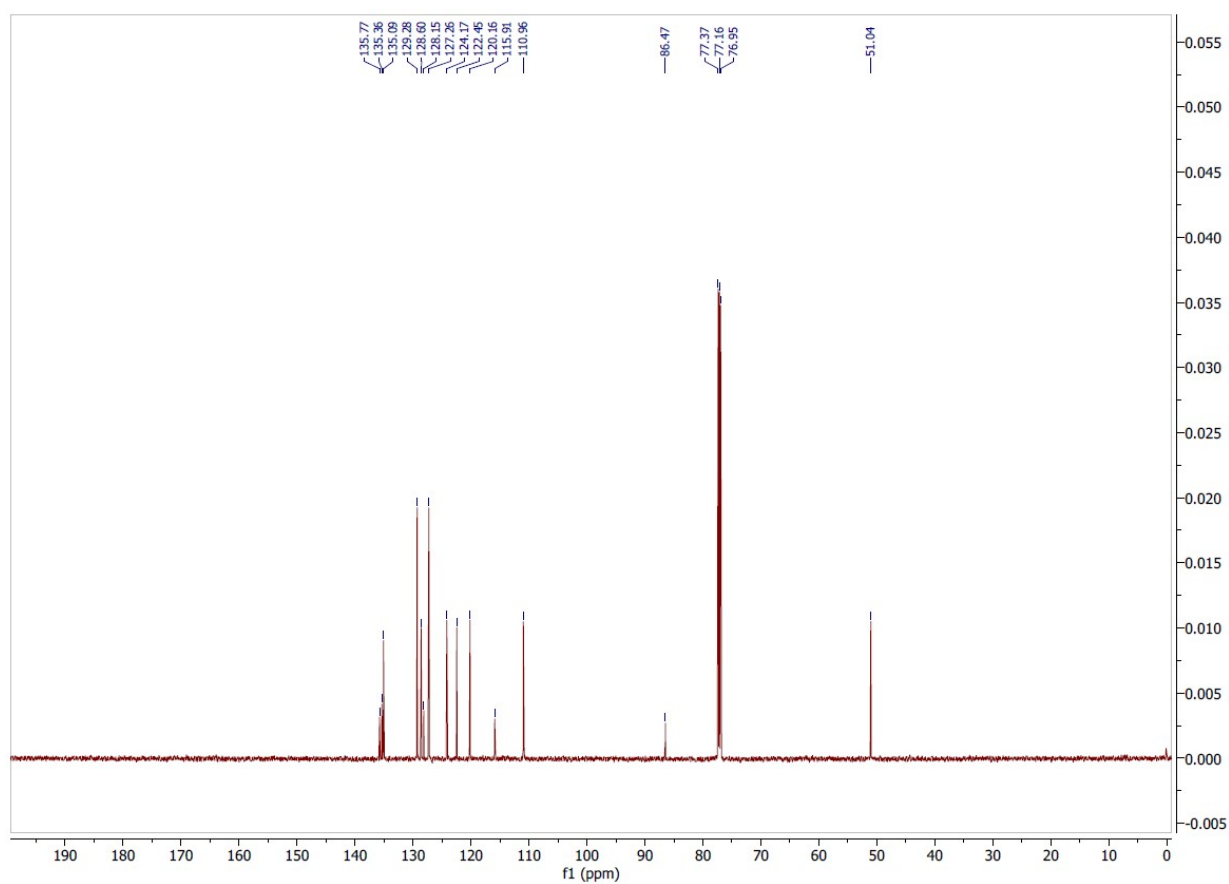


Figure S14. ¹³C NMR spectrum of compound 3a

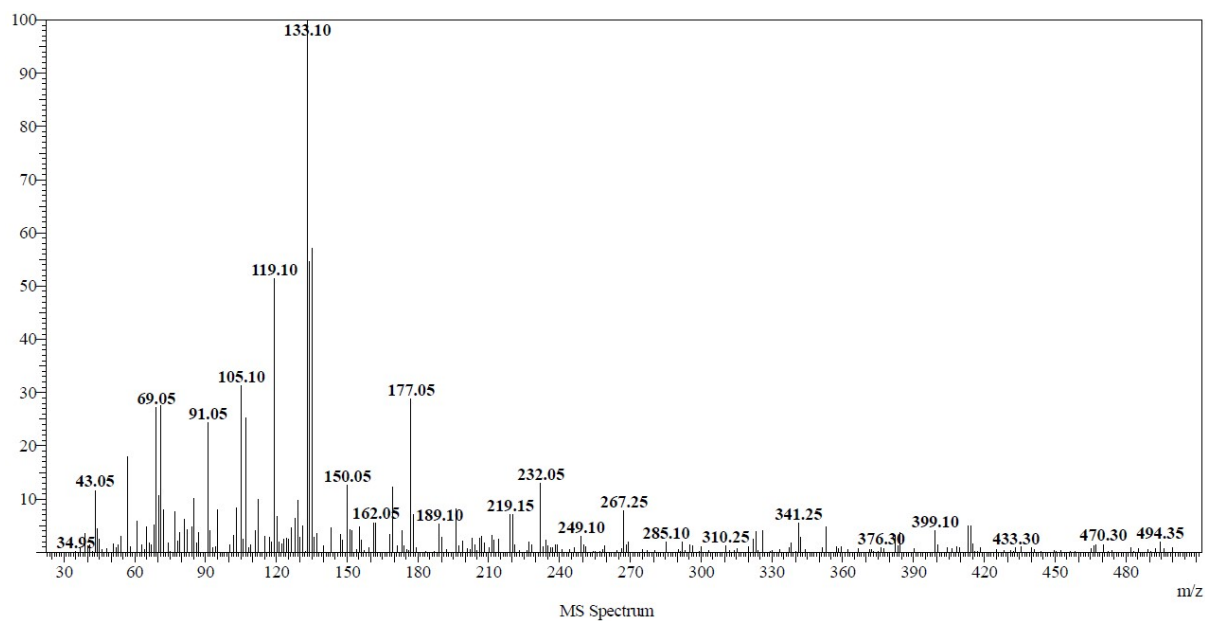
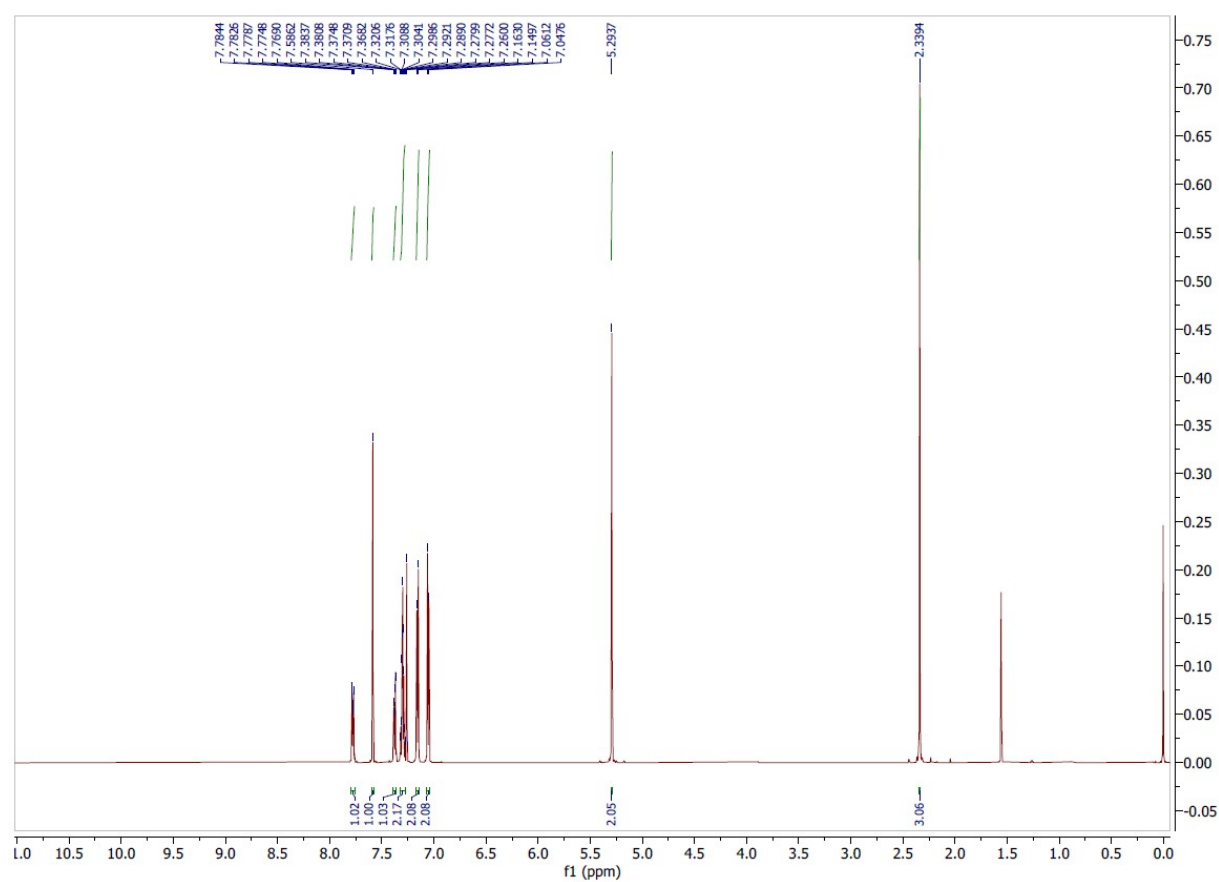


Figure S15. Mass spectrum (ESI-MS) of compound 3a



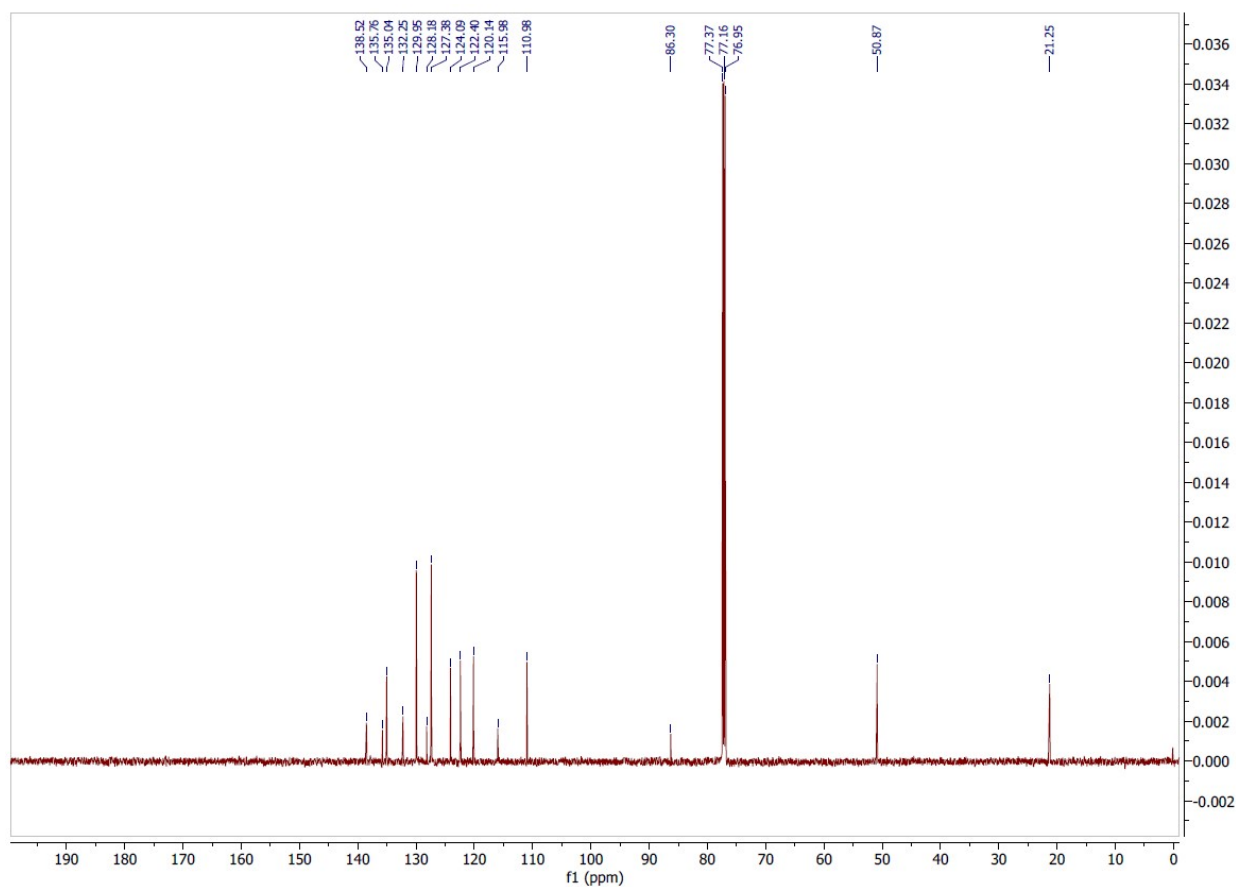


Figure S17. ¹³C NMR spectrum of compound 3b

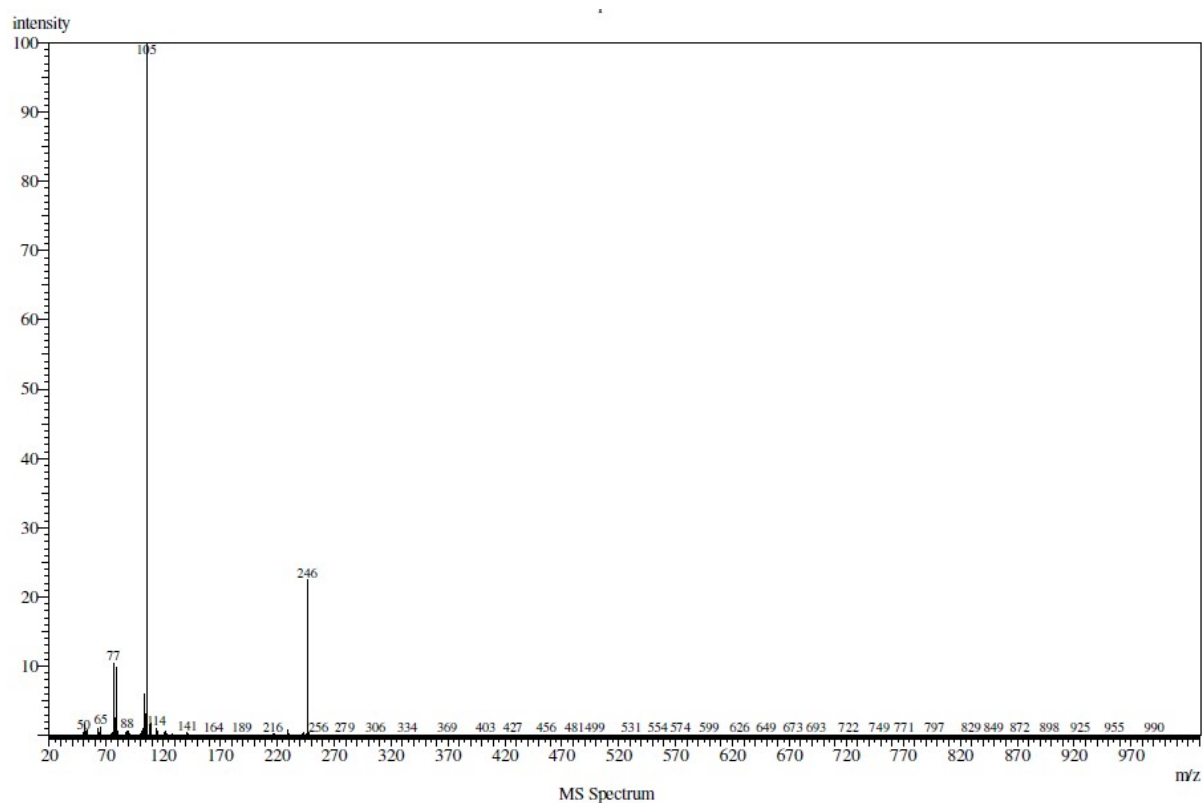


Figure S18. Mass spectrum (ESI-MS) of compound 3b

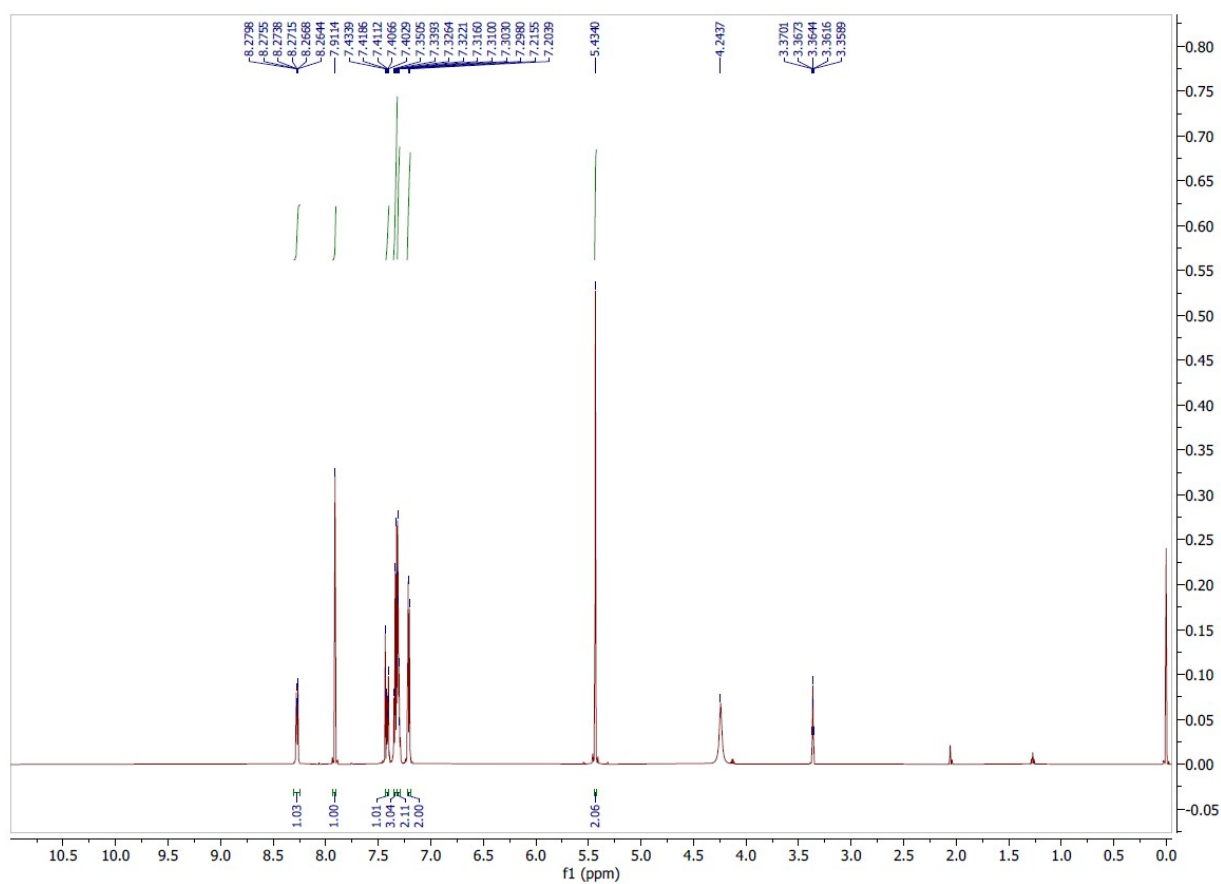


Figure S19. ¹H NMR spectrum of compound 4a

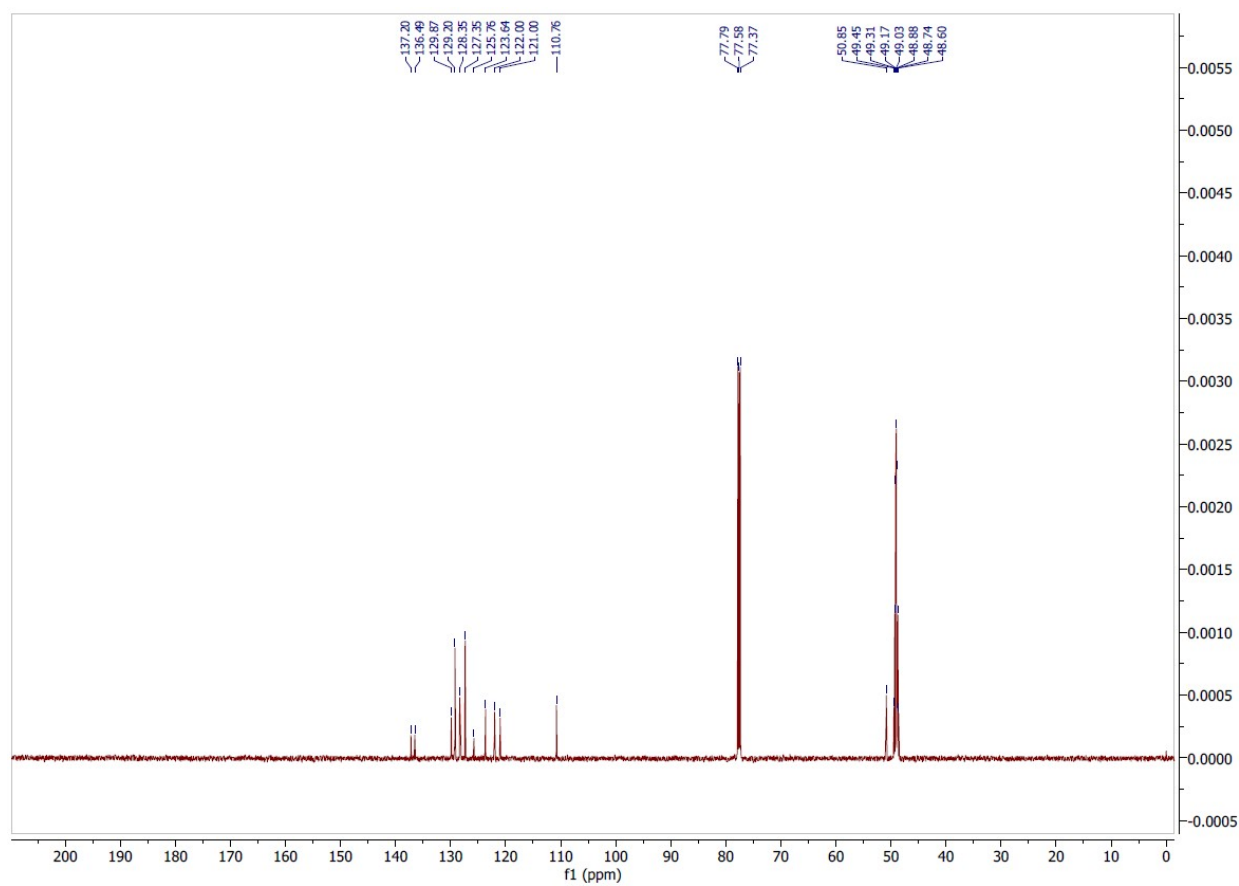


Figure S20. ¹³C NMR spectrum of compound 4a

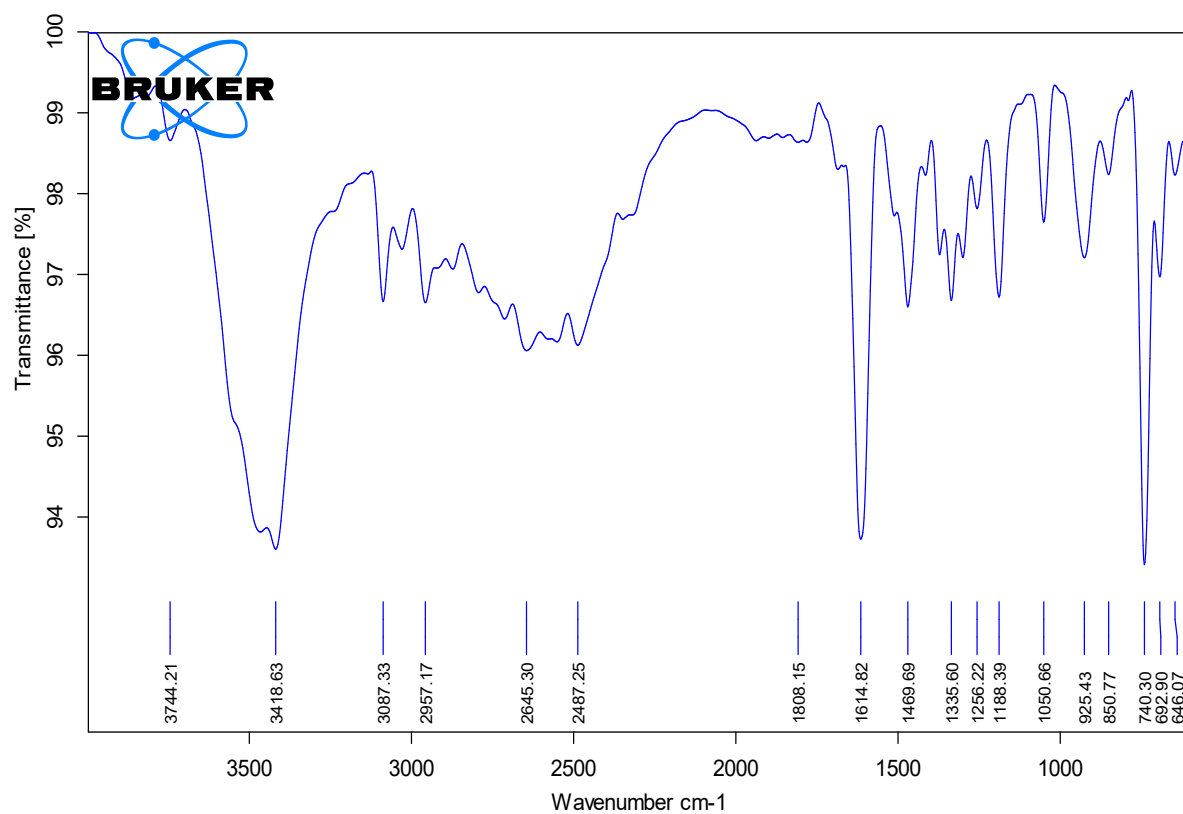


Figure S21. FT-IR spectrum of compound 4a

Sample Name : K_268
Test Name :
13012022_K_268 31 (0.667)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.47e+007

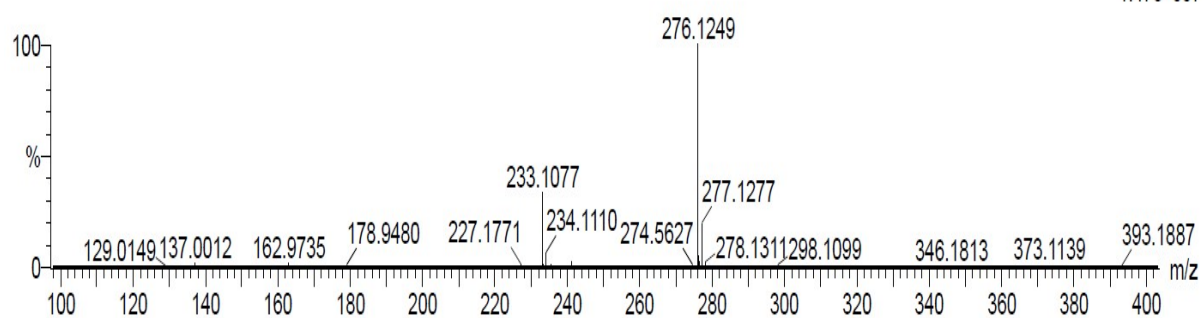


Figure S22. HRMS spectrum of compound 4a

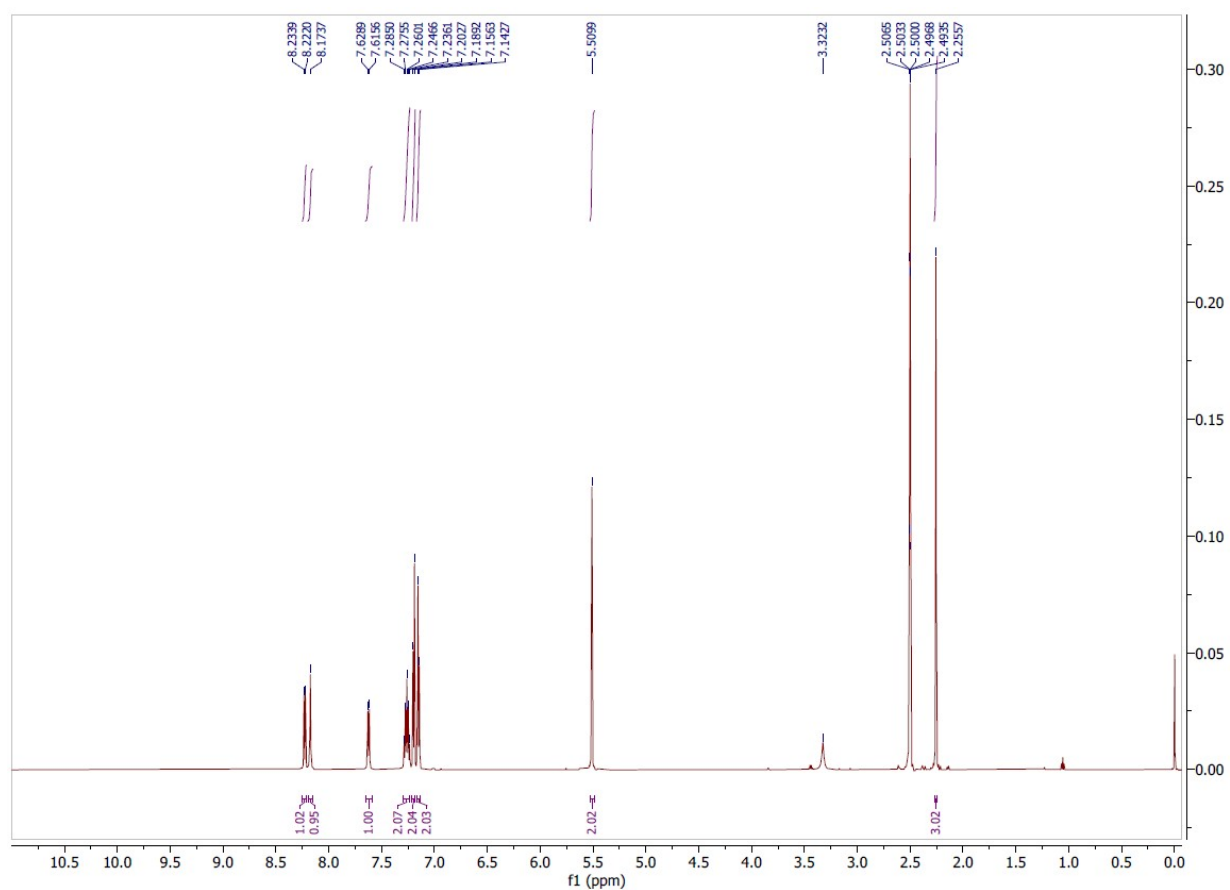


Figure S23. ¹H NMR spectrum of compound 4b

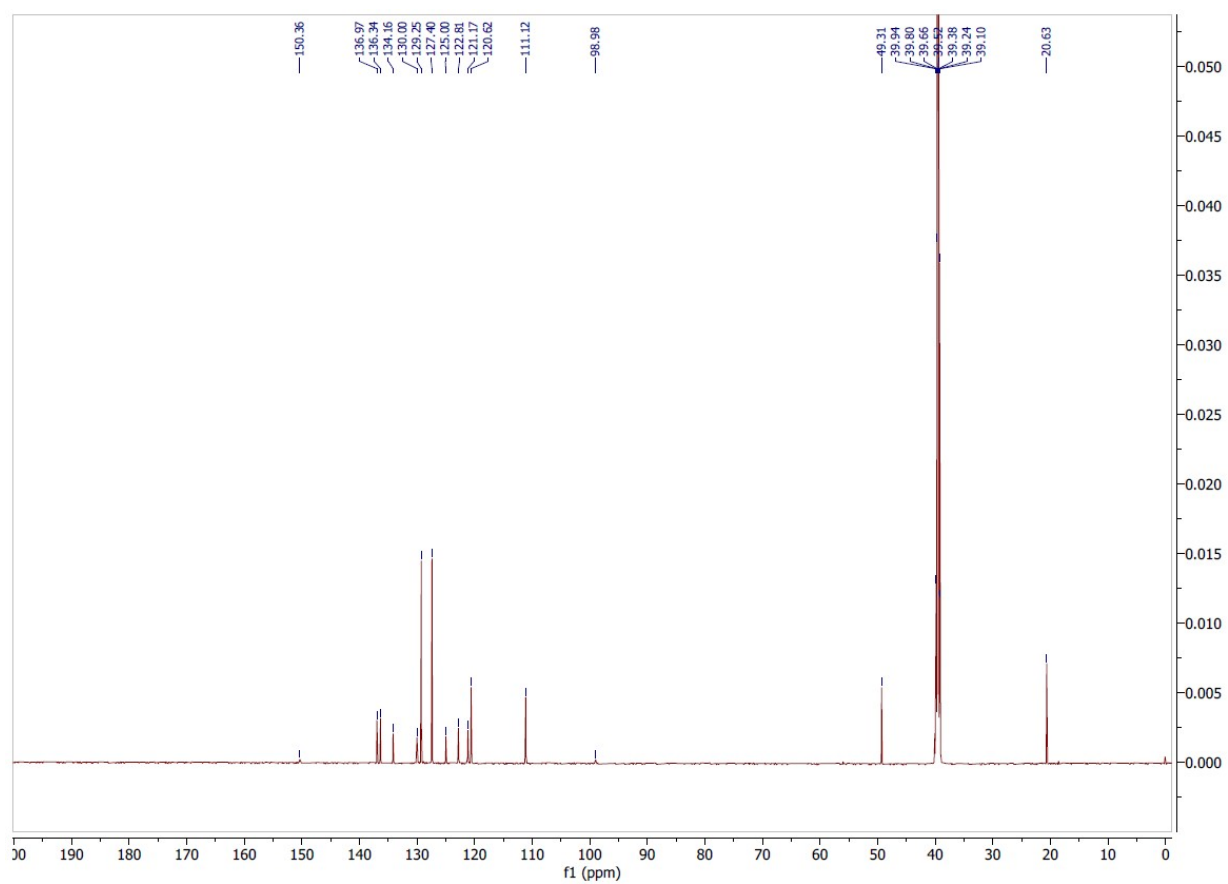


Figure S24. ^{13}C NMR spectrum of compound 4b

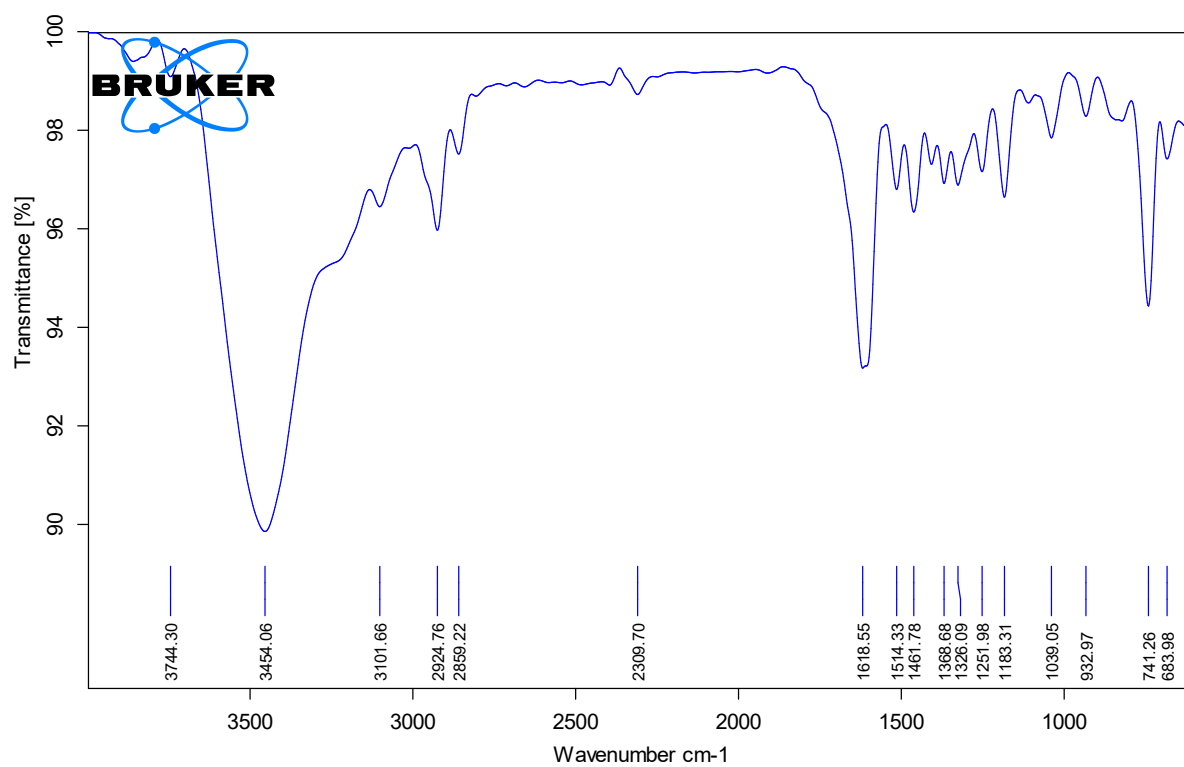


Figure S25. FT-IR spectrum of compound 4b

Sample Name : K_359
Test Name :
060822_K_359 25 (0.277)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
4.13e+007

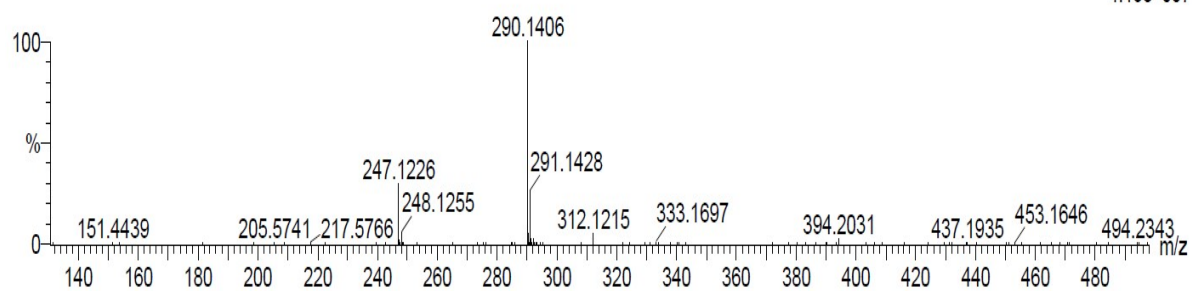


Figure S26. HRMS spectrum of compound 4b

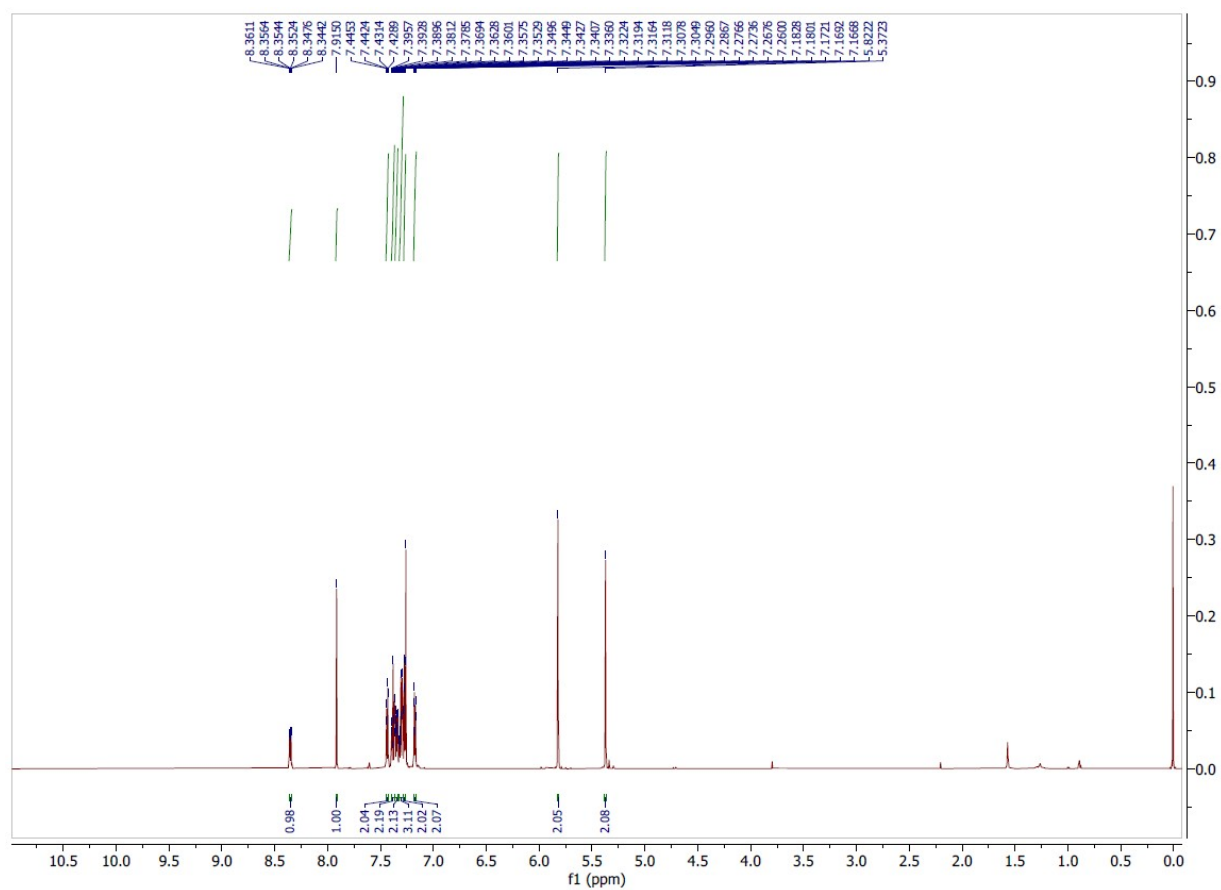


Figure S27. ¹H NMR spectrum of compound 5a

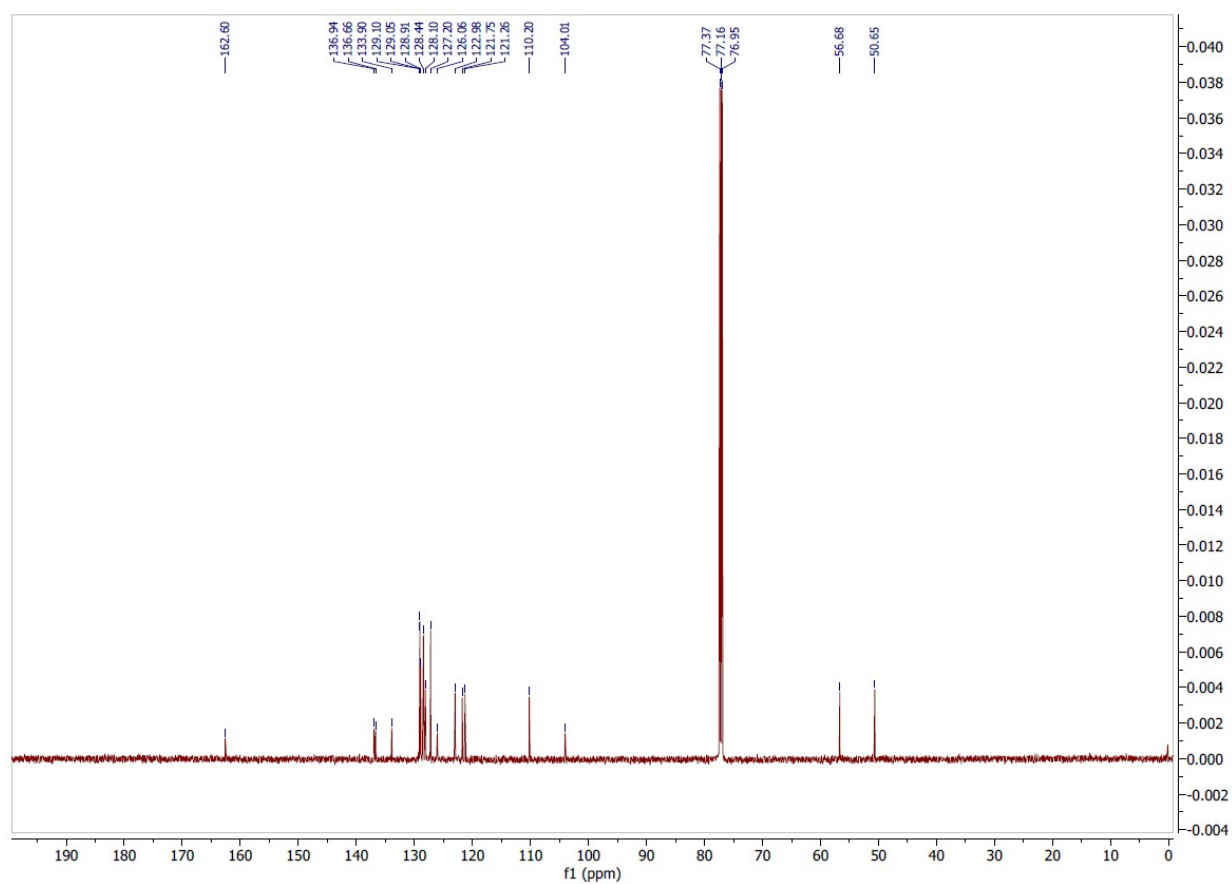


Figure S28. ¹³C NMR spectrum of compound 5a

Sample Name : K_287
Test Name :
13012022_K_287 31 (0.667)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
2.00e+007

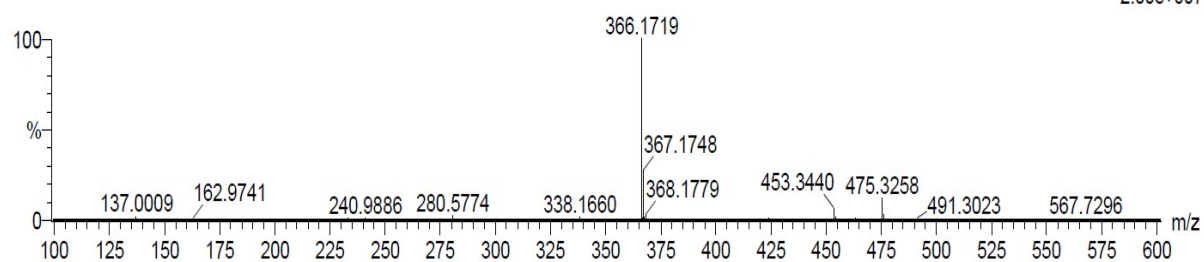


Figure S29. HRMS spectrum of compound 5a

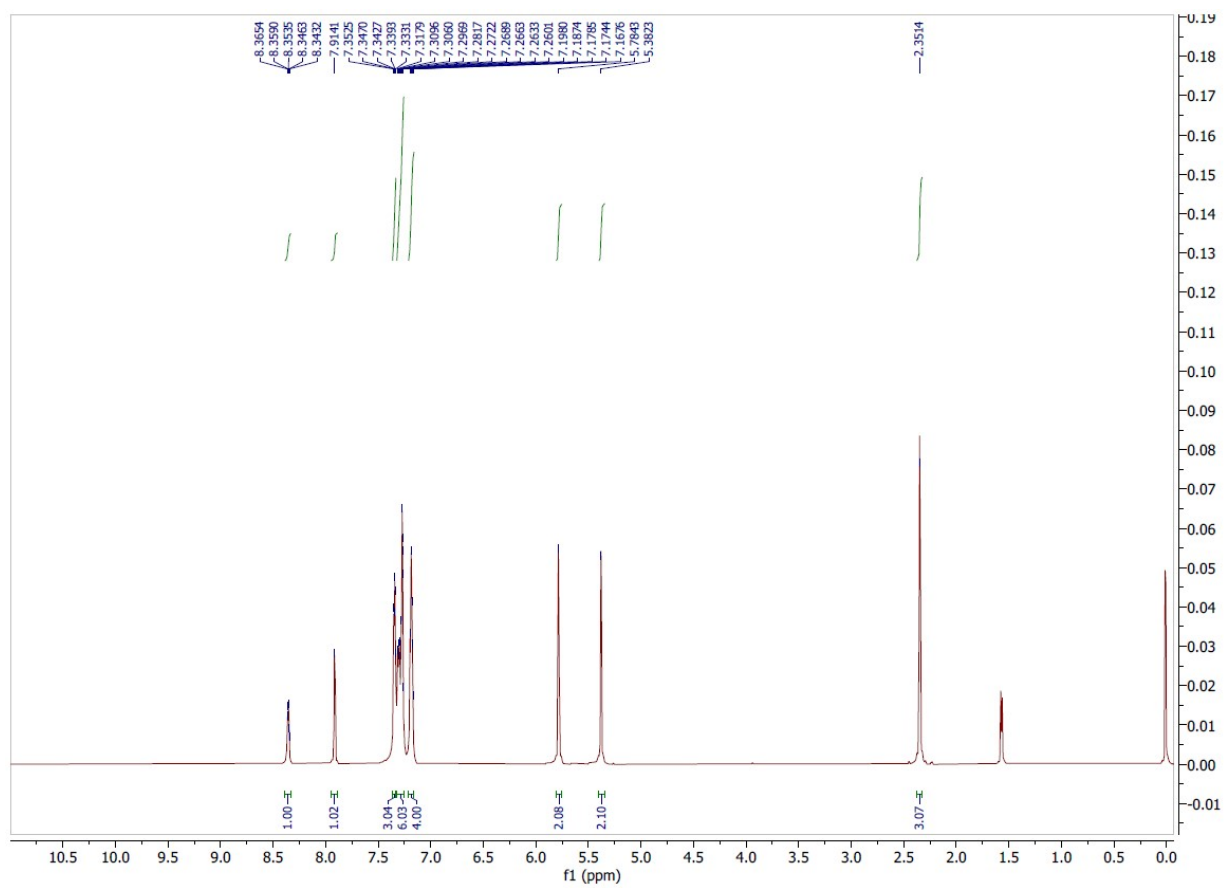


Figure S30. ¹H NMR spectrum of compound 5b

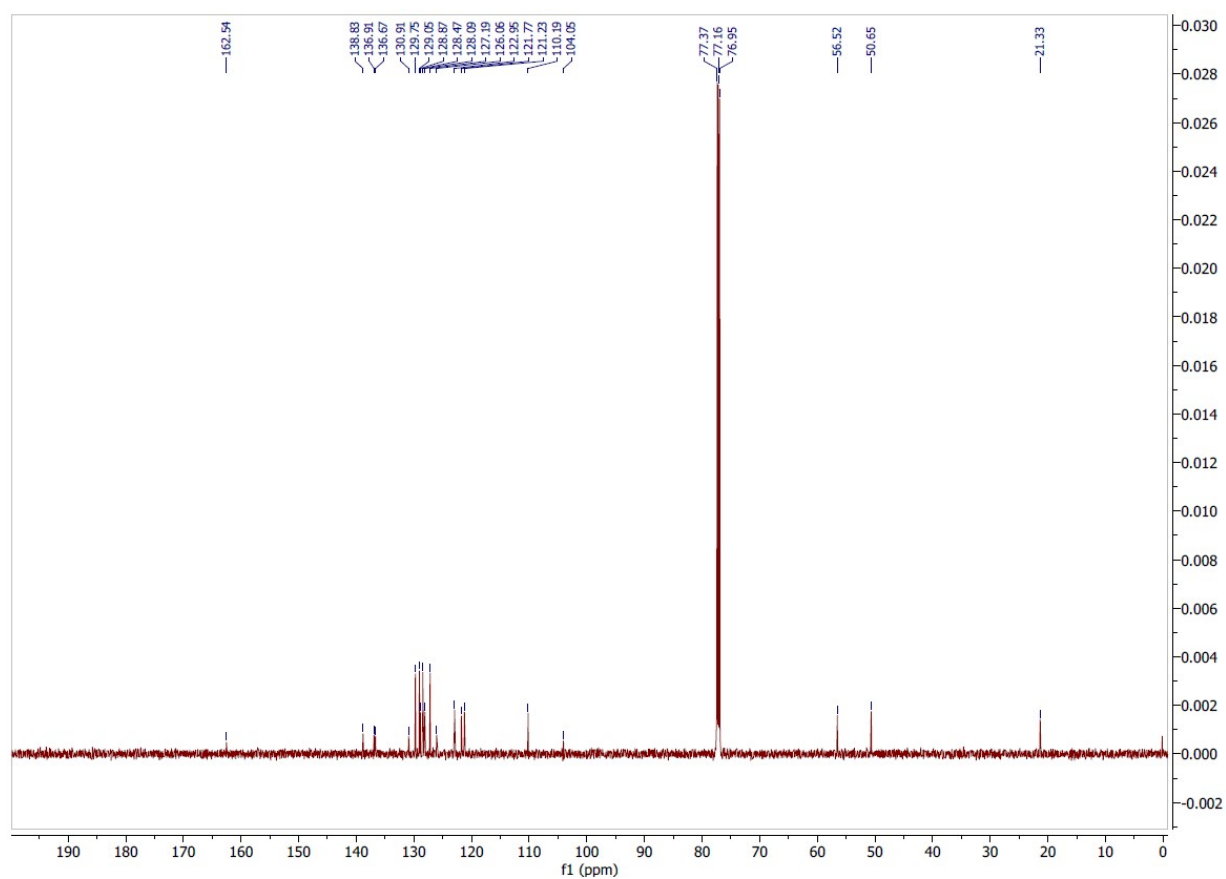


Figure S31. ¹³C NMR spectrum of compound 5b

Sample Name : K_276
Test Name :
13012022_K_276 29 (0.622)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.86e+007

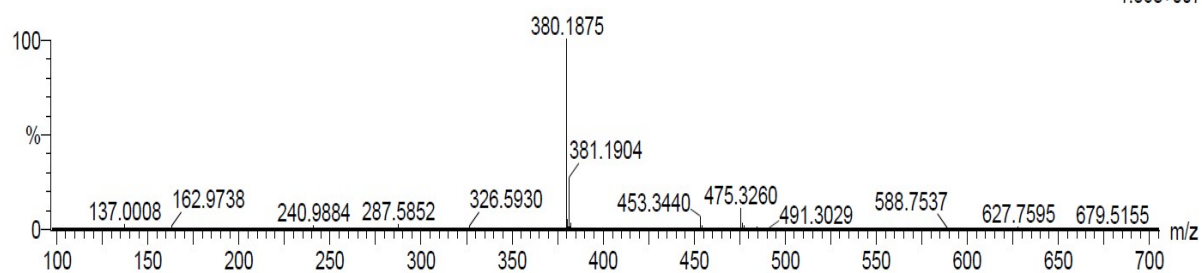
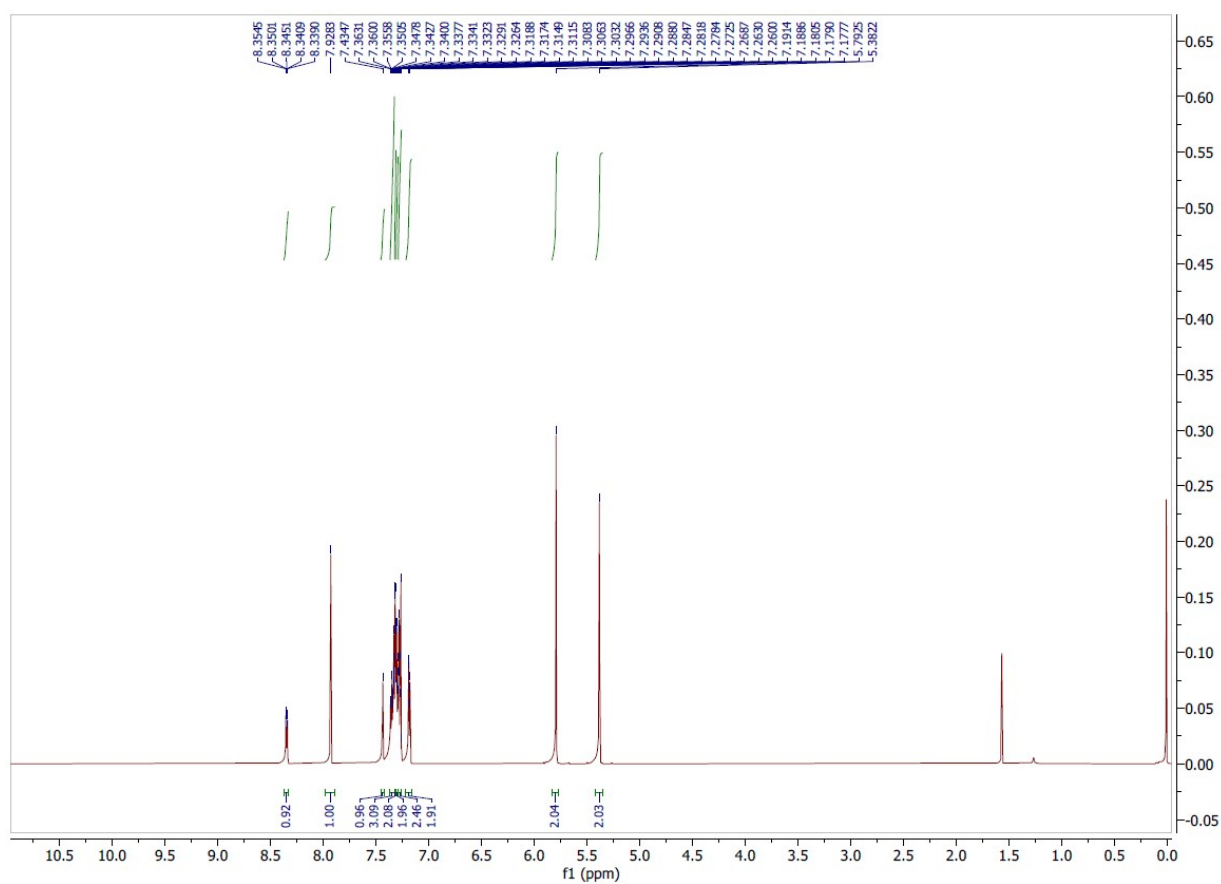


Figure S32. HRMS spectrum of compound 5b



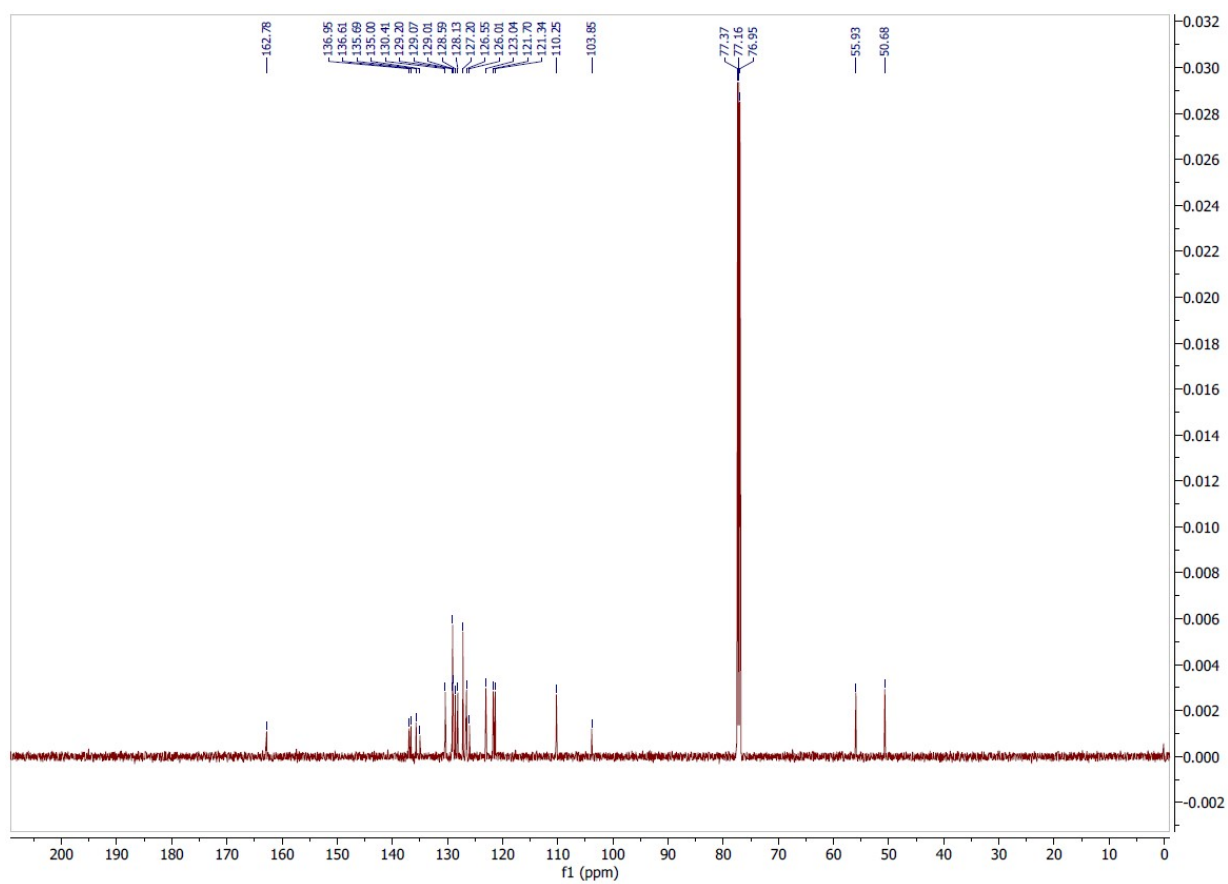


Figure S34. ¹³C NMR spectrum of compound 5c

Sample Name : K_277
Test Name :
13012022_K_277 18 (0.390)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
5.38e+006

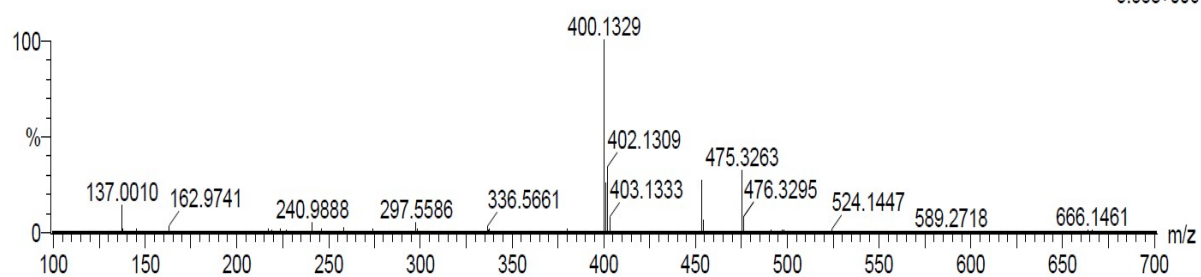


Figure S35. HRMS spectrum of compound 5c

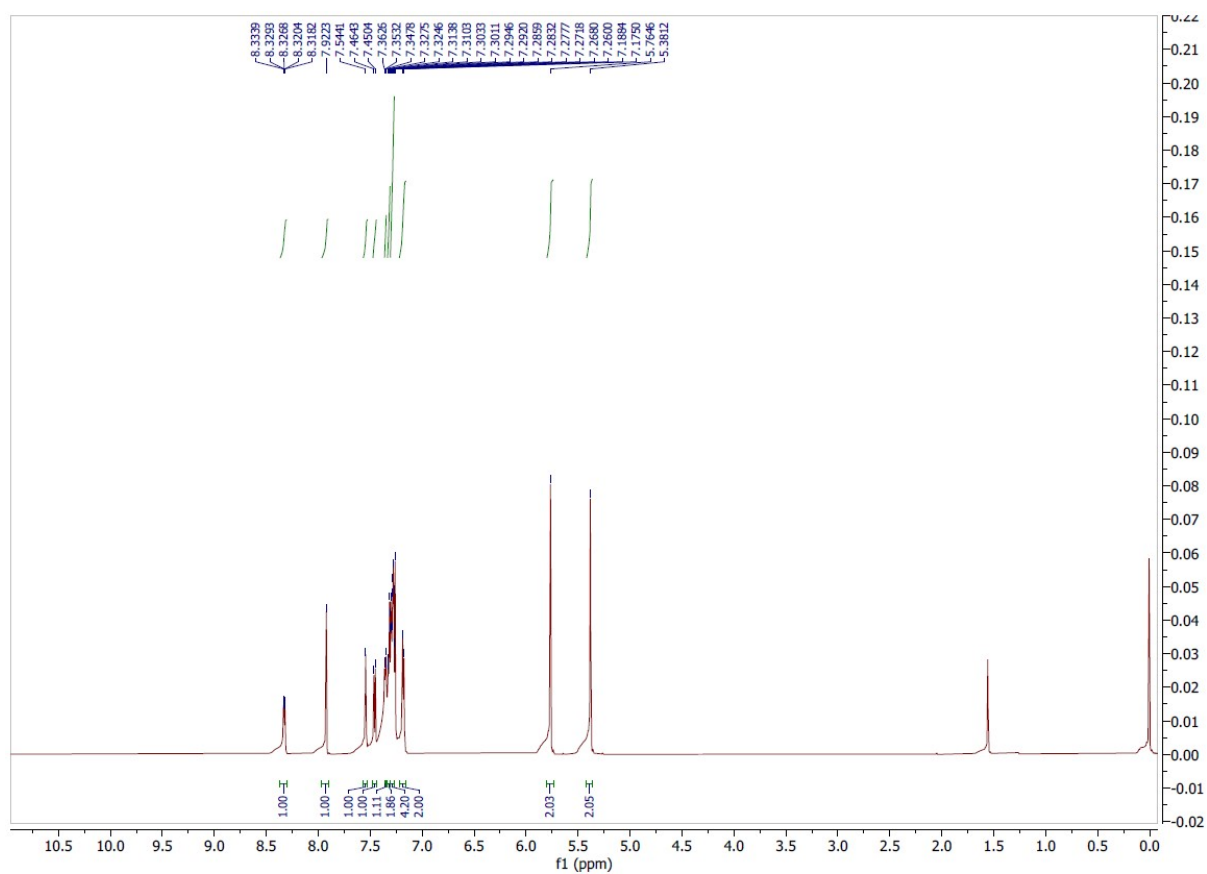


Figure S36. ¹H NMR spectrum of compound 5d

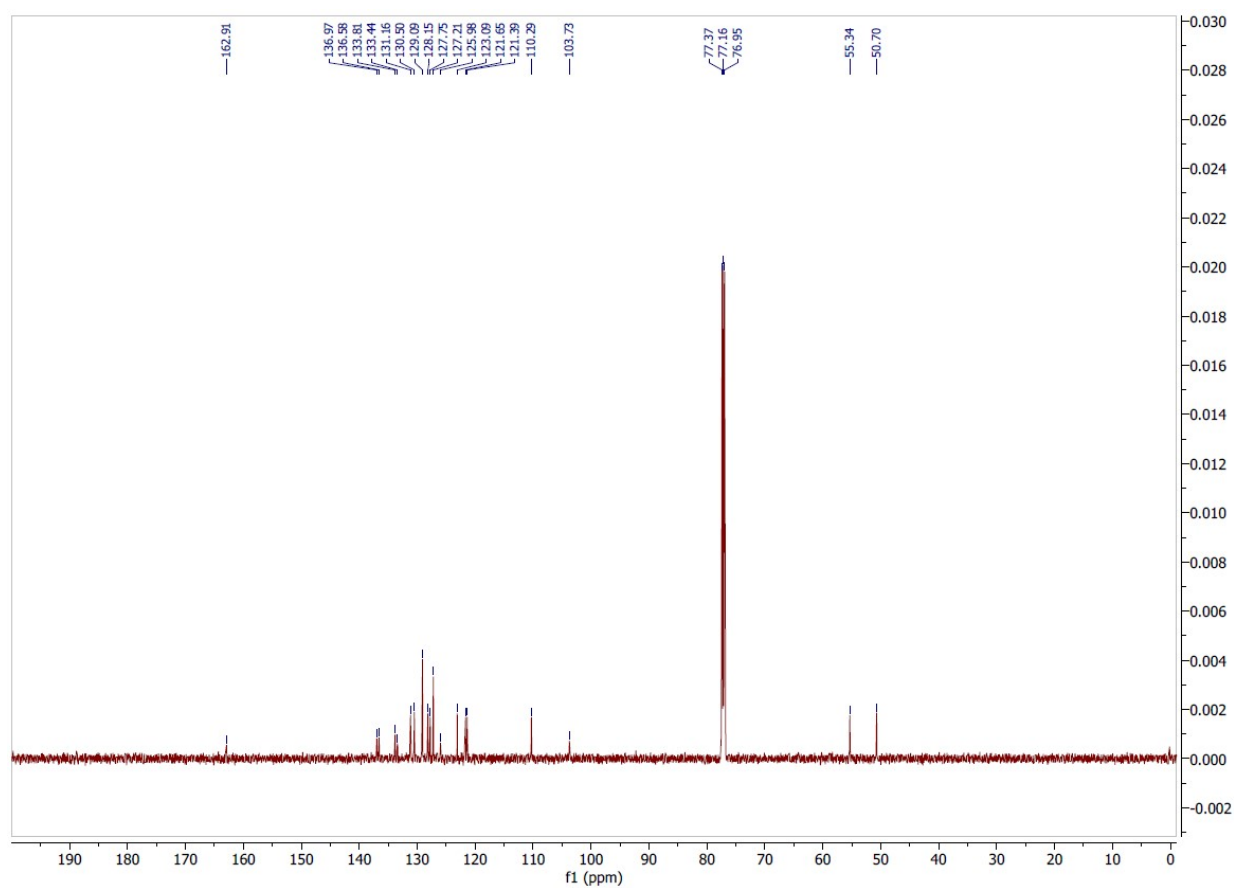


Figure S37. ¹³C NMR spectrum of compound 5d

Sample Name : K_272
Test Name :
03012022_K_272 10 (0.232)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.94e+007

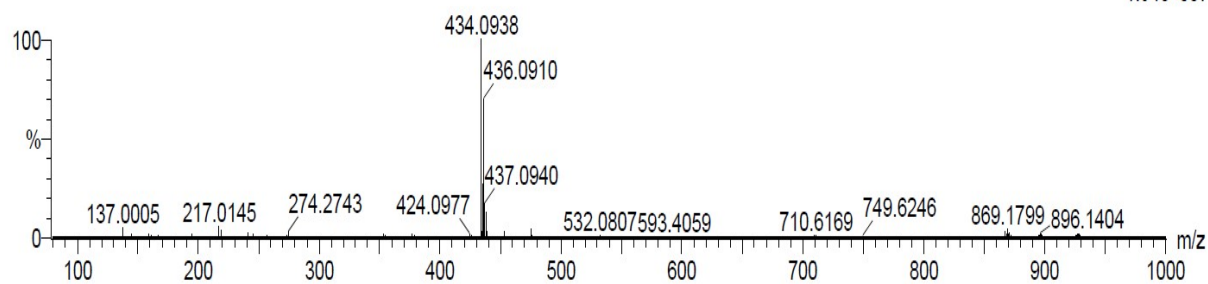


Figure S38. HRMS spectrum of compound 5d

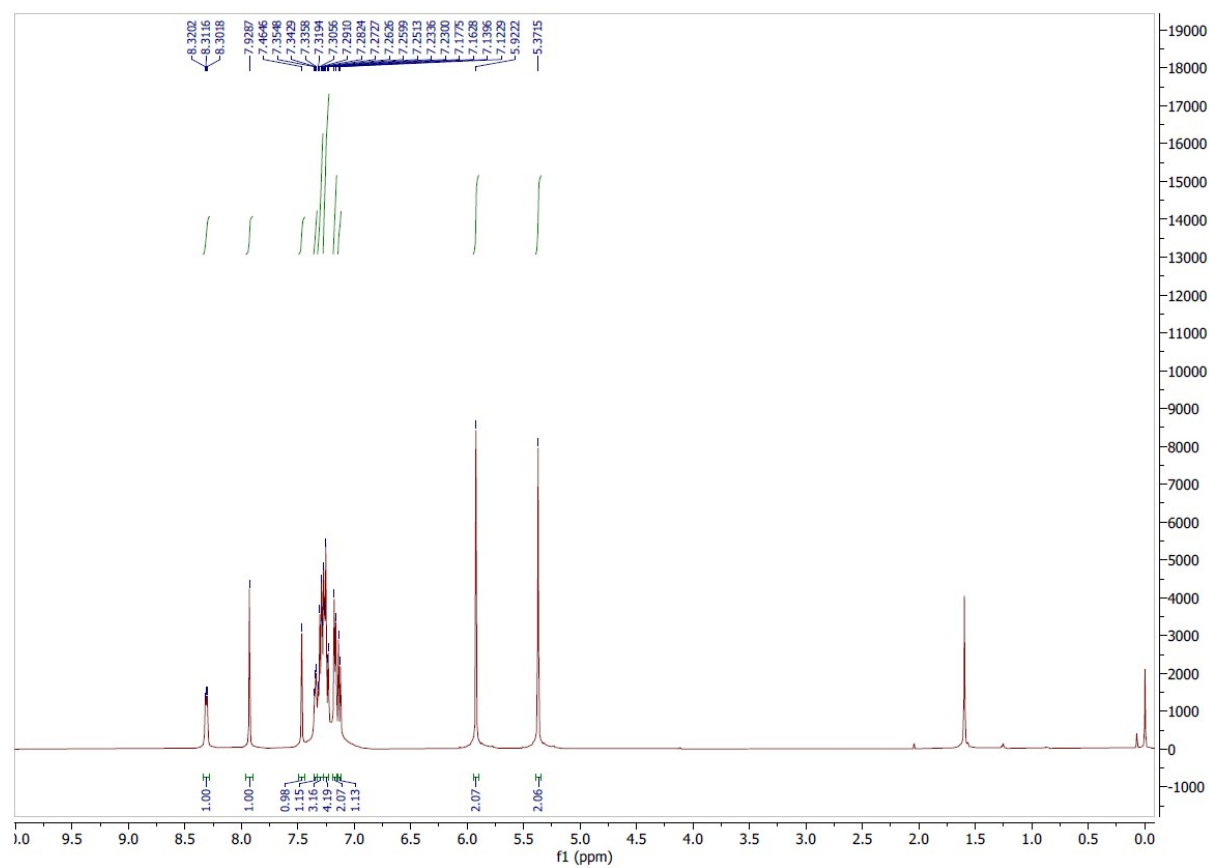


Figure S39. ^1H NMR spectrum of compound 5e

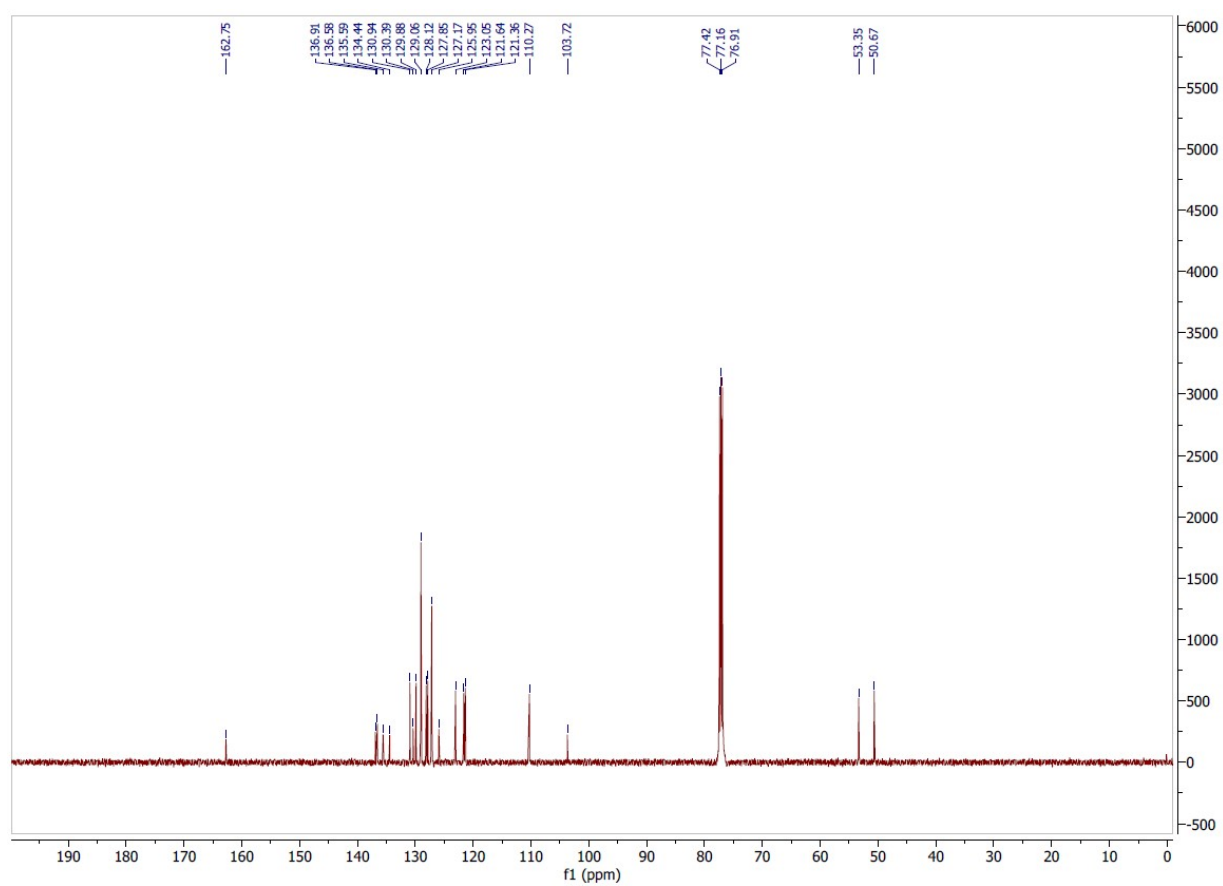


Figure S40. ^{13}C NMR spectrum of compound 5e

Sample Name : K_259
Test Name :
13012022_K_259 8 (0.186)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.72e+007

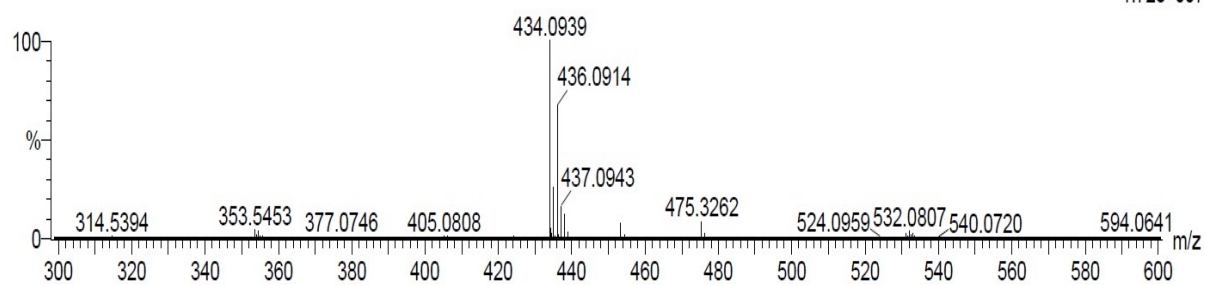


Figure S41. HRMS spectrum of compound 5e

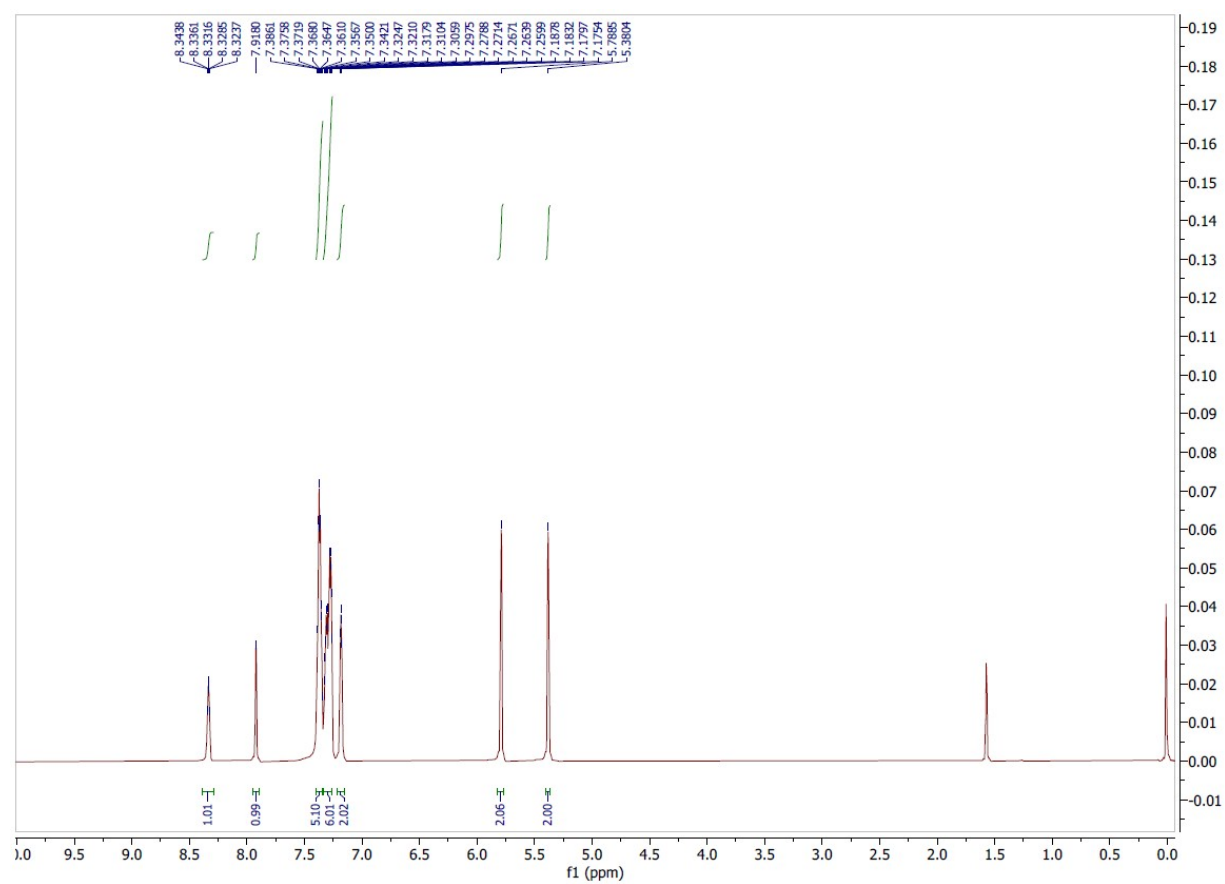


Figure S42. ^1H NMR spectrum of compound 5f

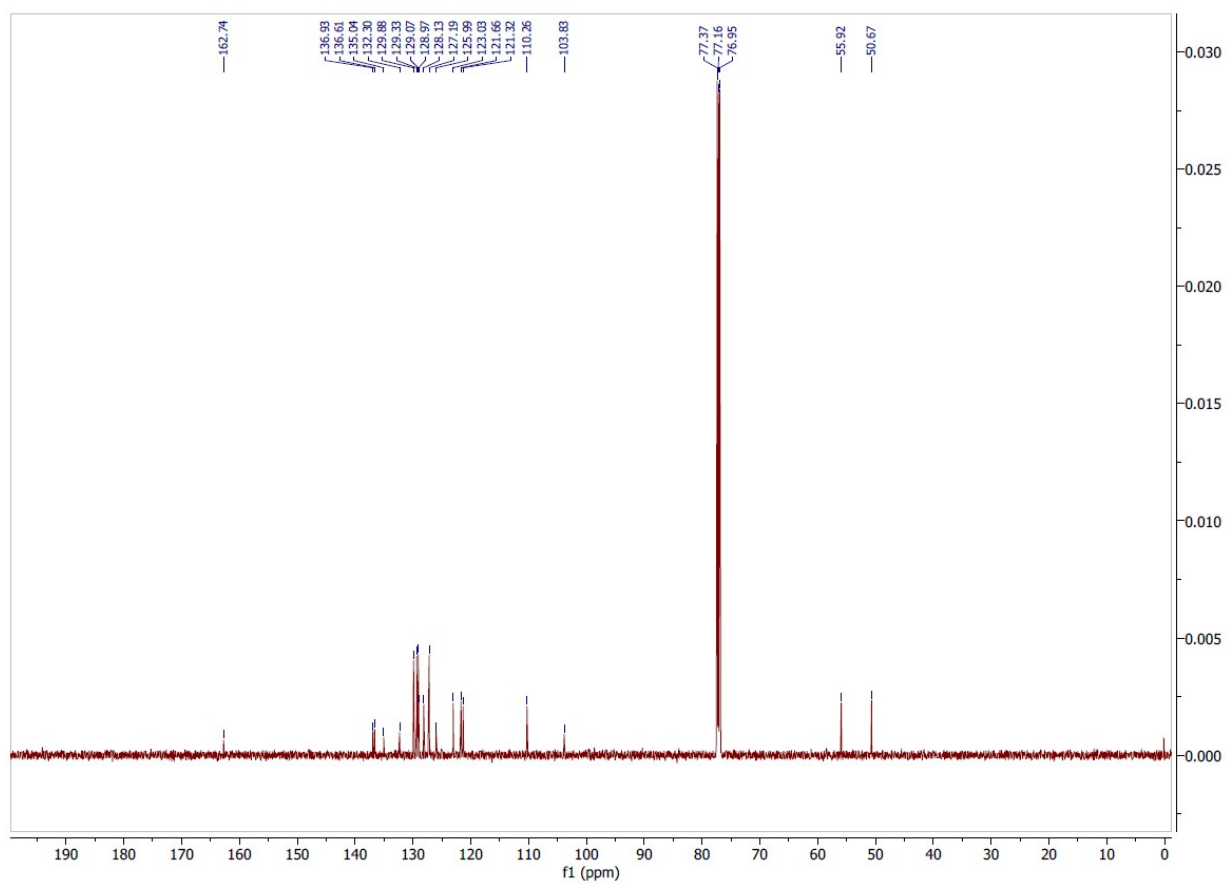


Figure S43. ^{13}C NMR spectrum of compound 5f

Sample Name : K_278
Test Name :
13012022_K_278 13 (0.294)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.89e+007

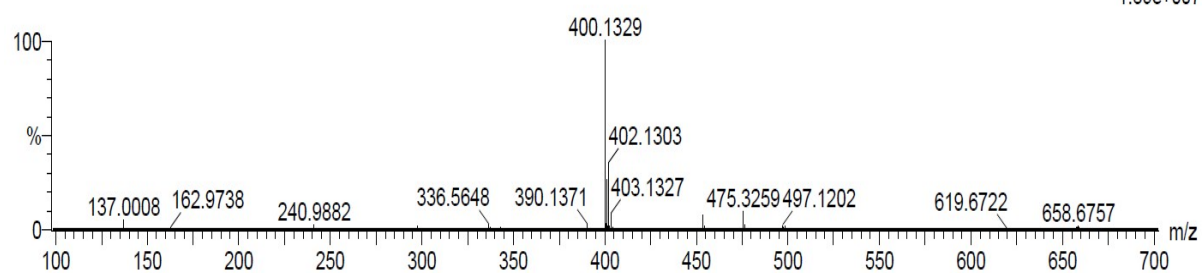


Figure S44. HRMS spectrum of compound 5f

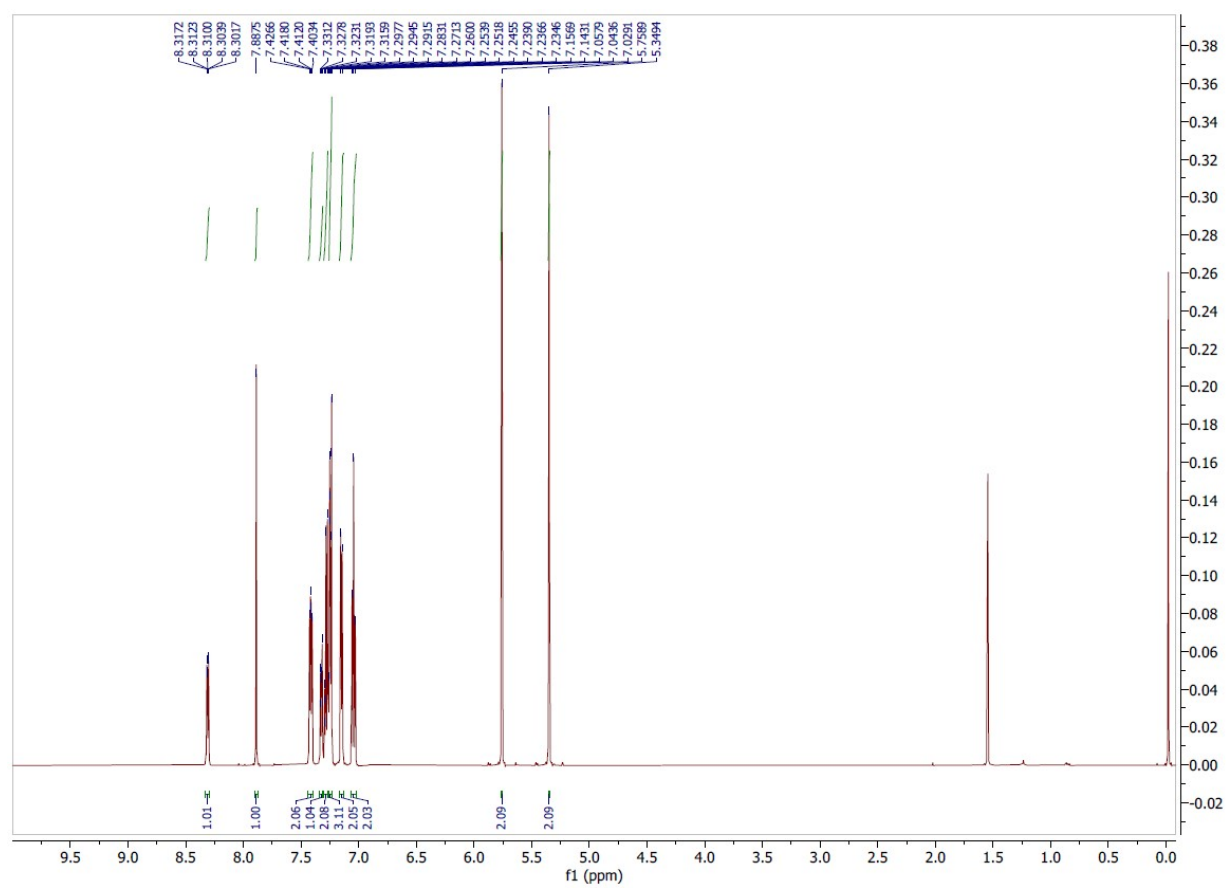


Figure S45. ^1H NMR spectrum of compound 5g

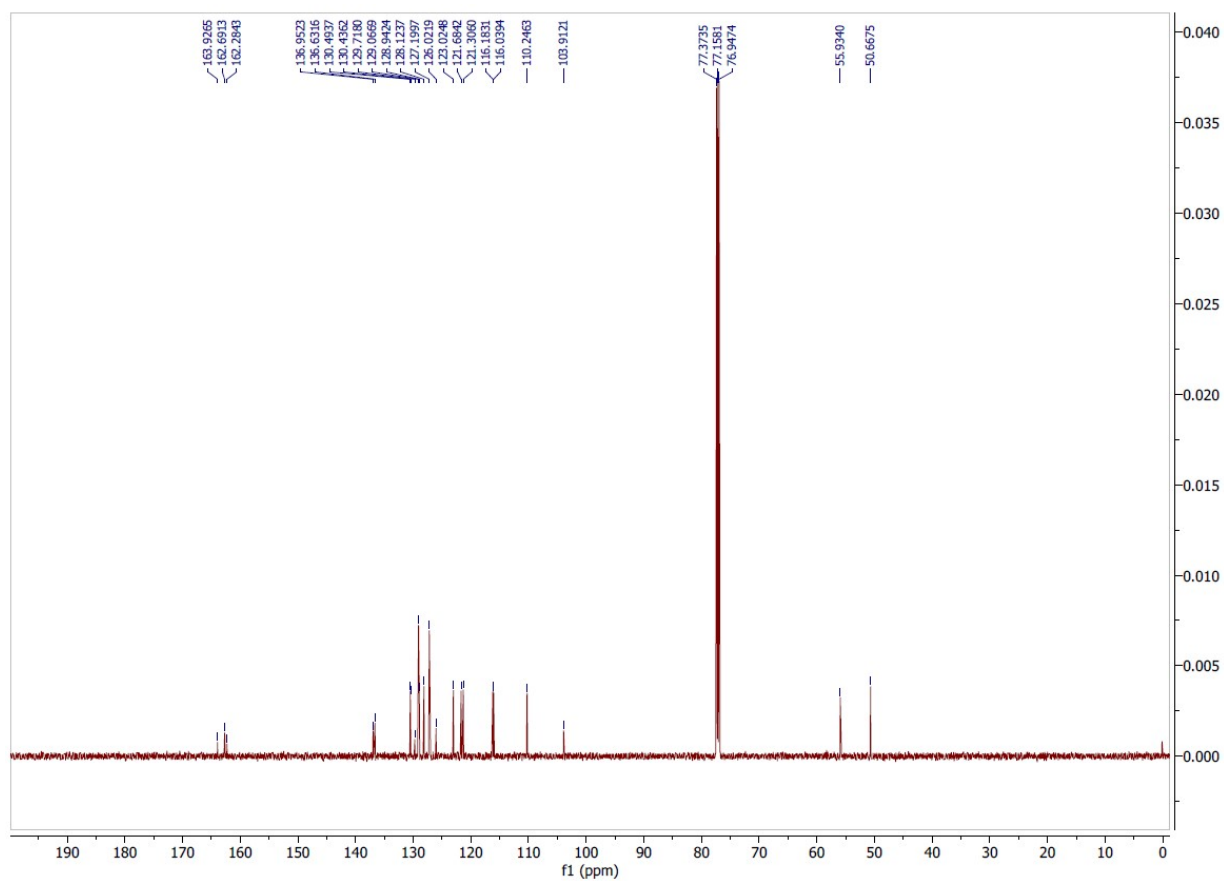


Figure S46. ¹³C NMR spectrum of compound 5g

Sample Name : K_279
Test Name :
13012022_K_279 30 (0.639)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.78e+007

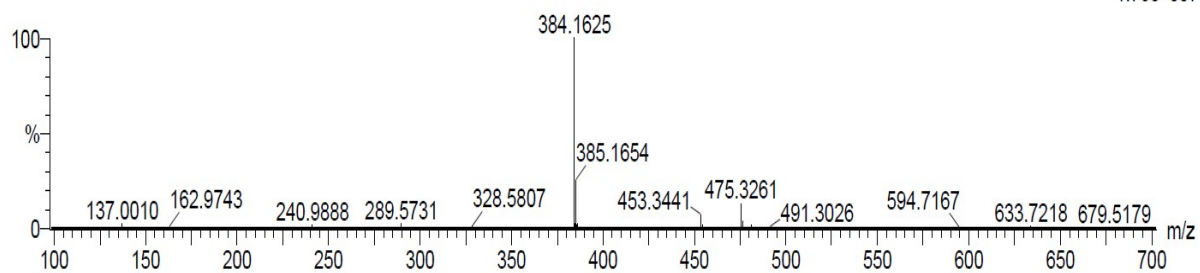


Figure S47. HRMS spectrum of compound 5g

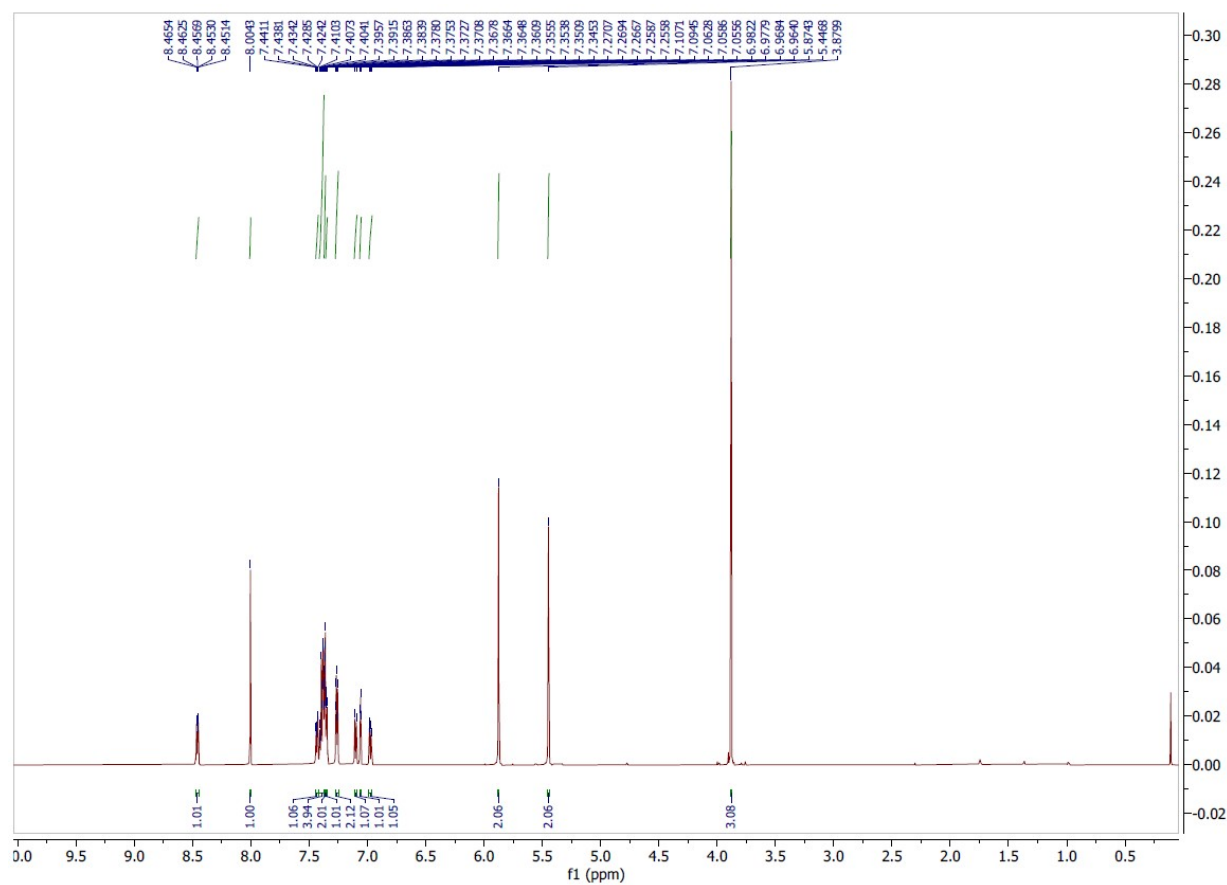


Figure S48. ^1H NMR spectrum of compound 5h

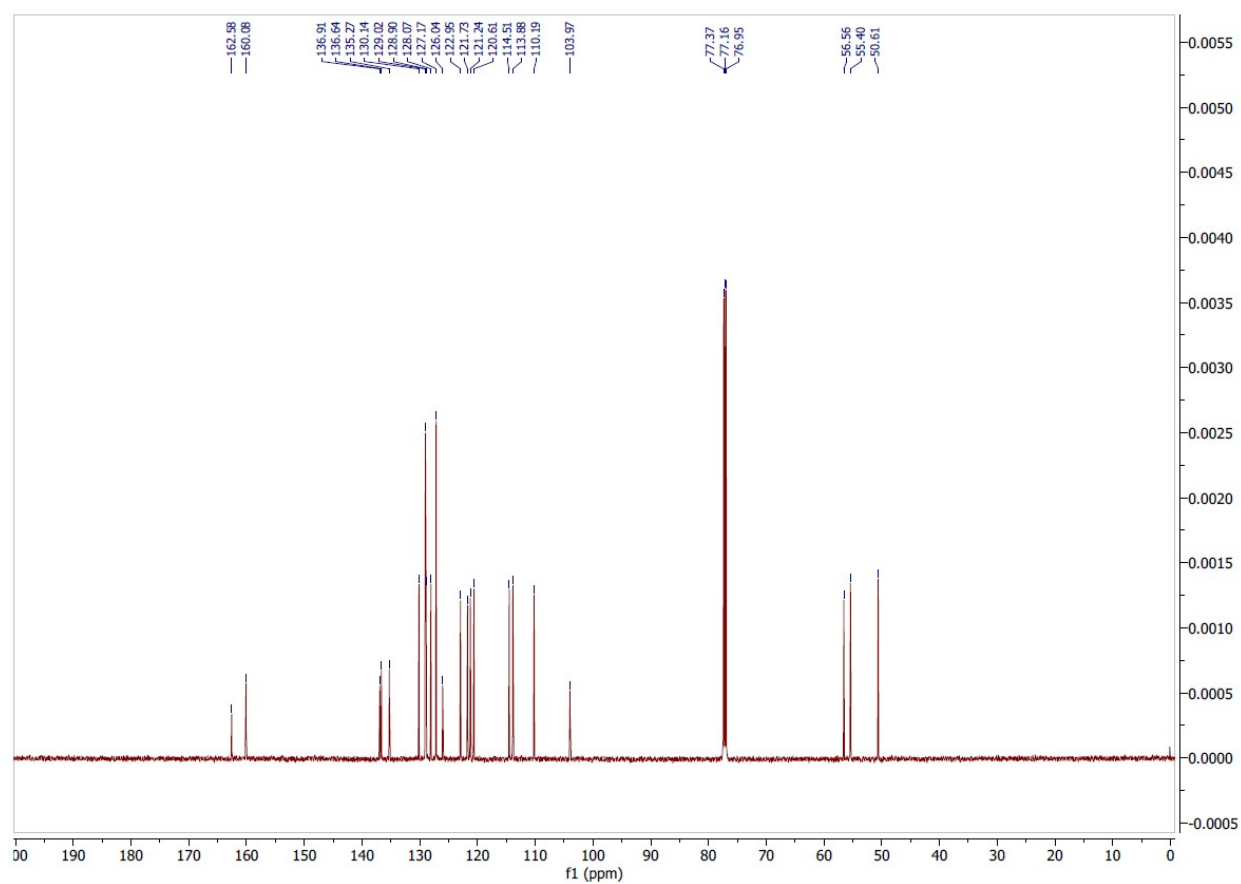


Figure S49. ¹³C NMR spectrum of compound 5h

Sample Name : K_322
Test Name :
03012022_K_322 33 (0.701)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
2.17e+007

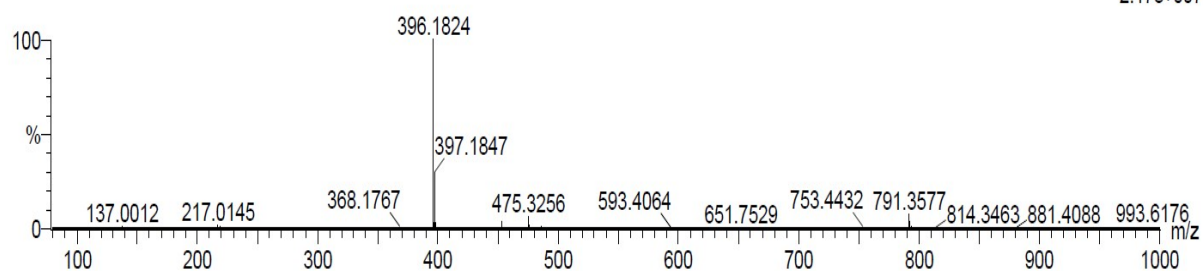


Figure S50. HRMS spectrum of compound 5h

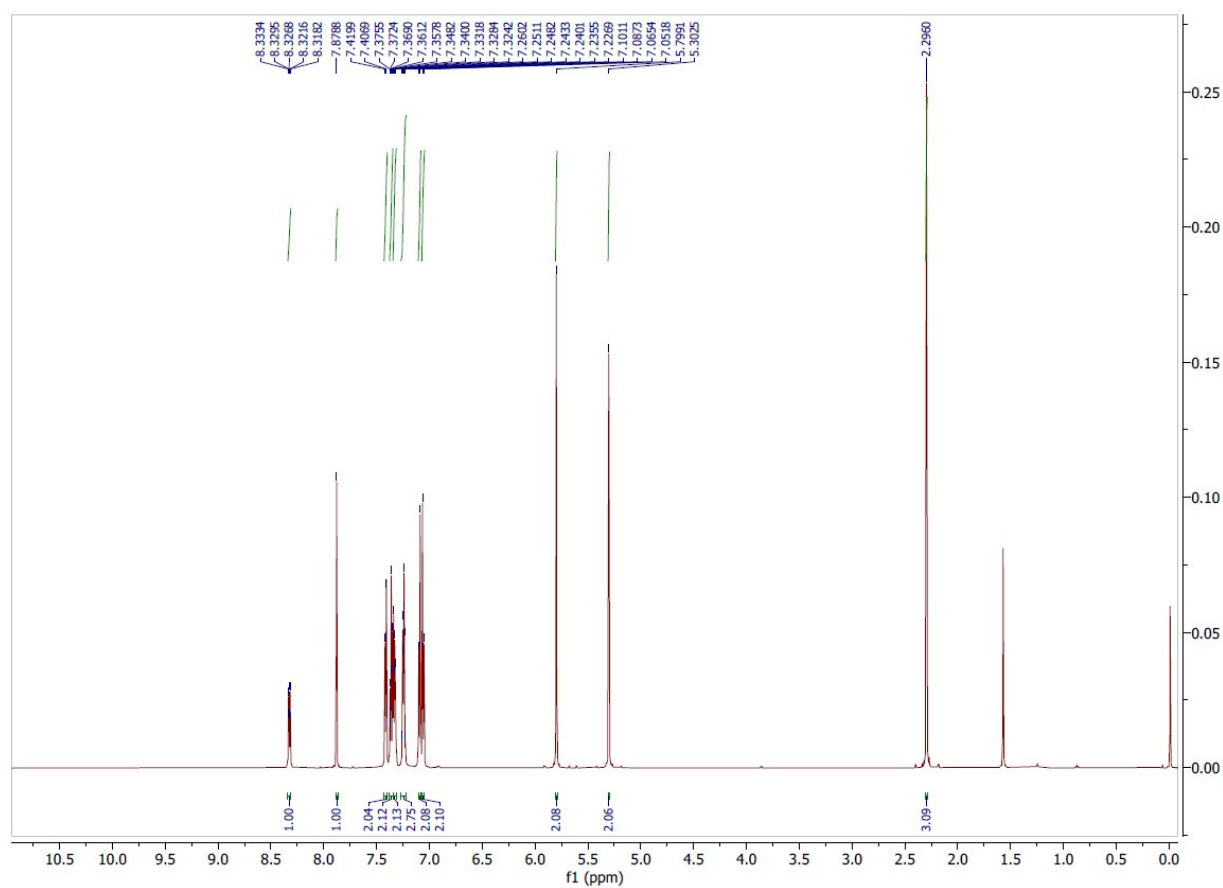


Figure S51. ¹H NMR spectrum of compound 5i

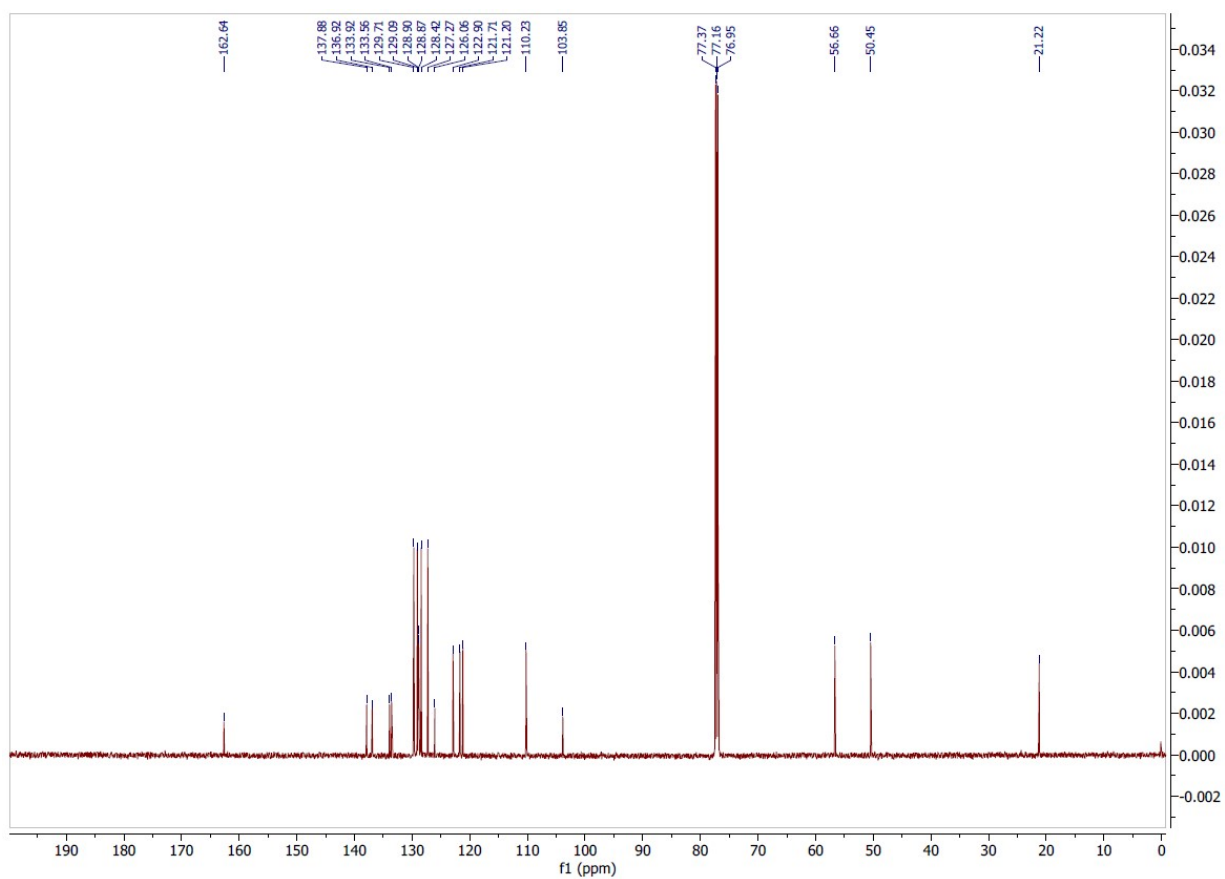


Figure S52. ^{13}C NMR spectrum of compound 5i

Sample Name : K_374 a
Test Name :
060822_K_374 a 33 (0.357)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
4.51e+007

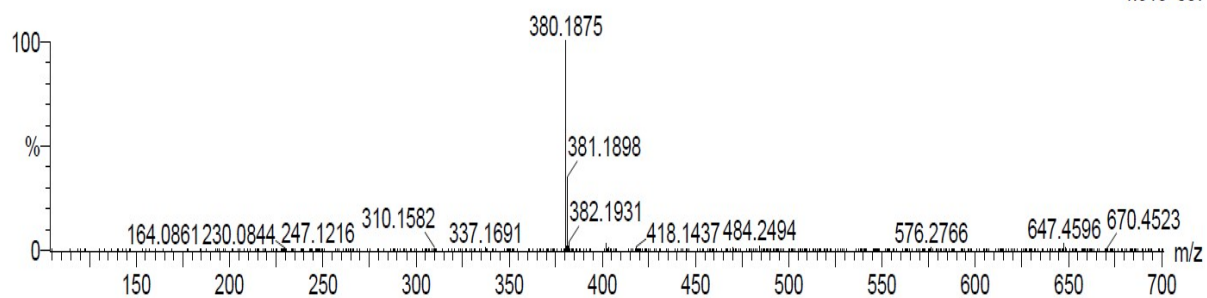


Figure S53. HRMS spectrum of compound 5i

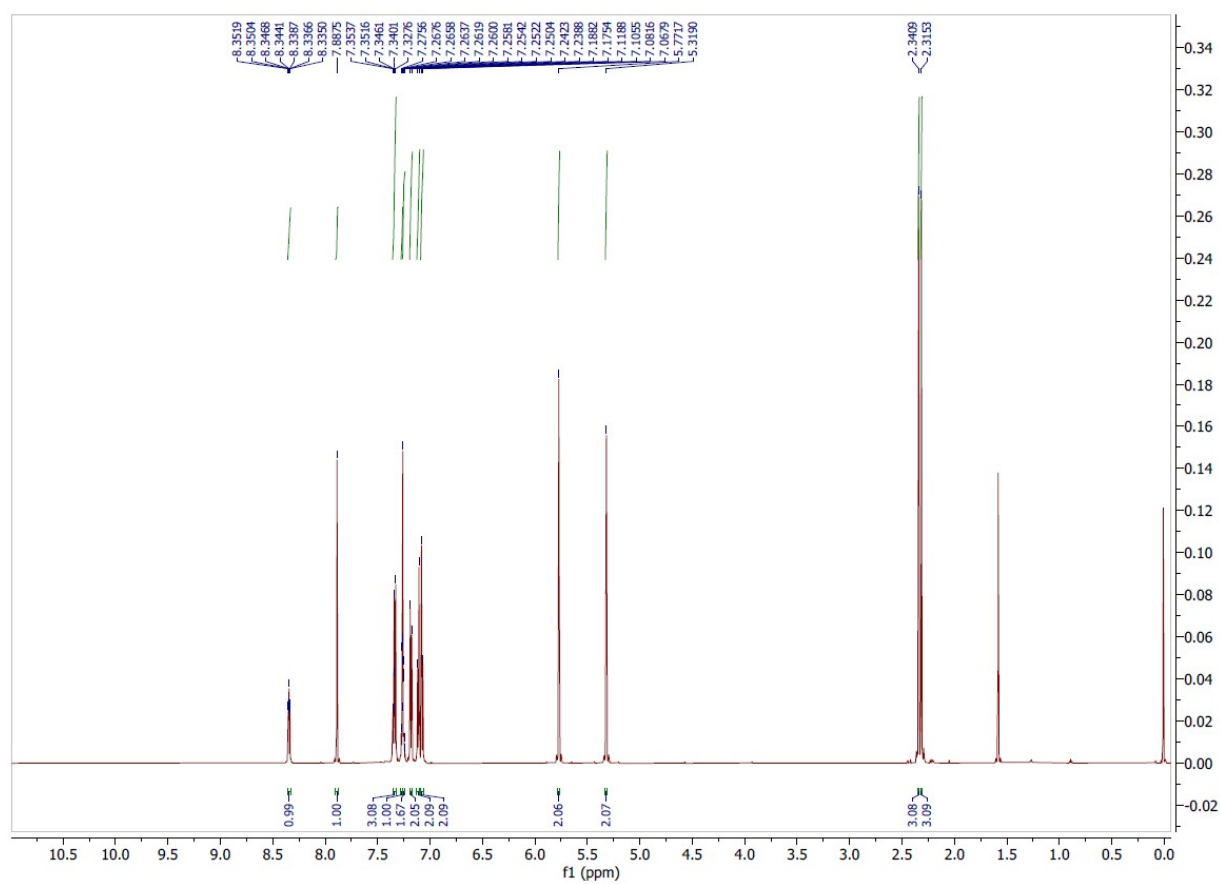


Figure S54. ¹H NMR spectrum of compound 5j

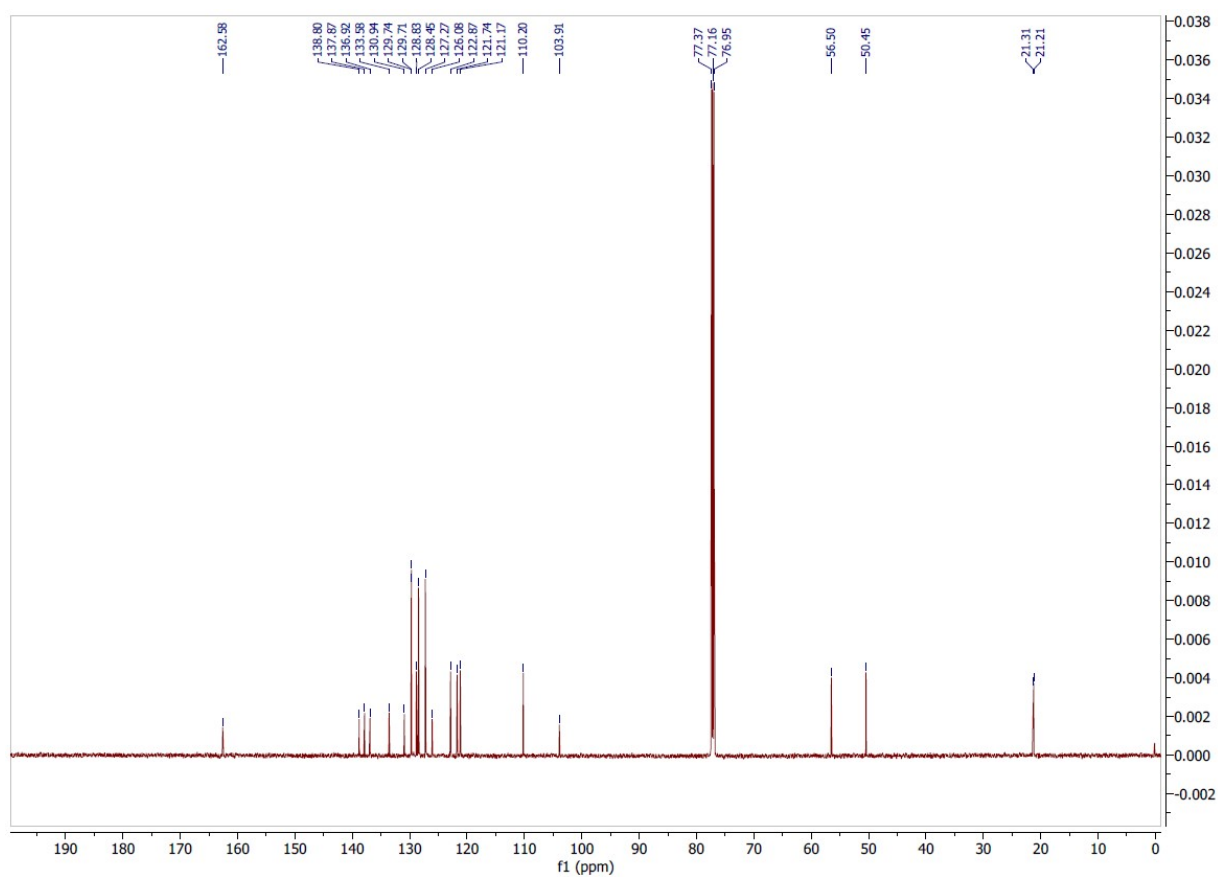


Figure S55. ¹³C NMR spectrum of compound 5j

Sample Name : K_370 a
Test Name :
060822_K_370 a 28 (0.303)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.03e+007

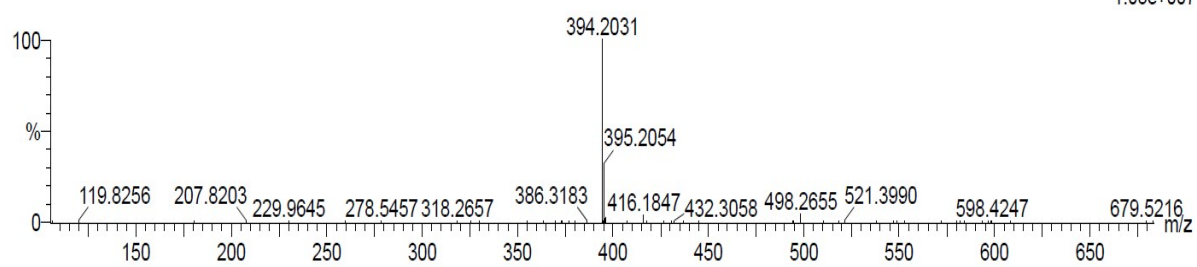


Figure S56. HRMS spectrum of compound 5j

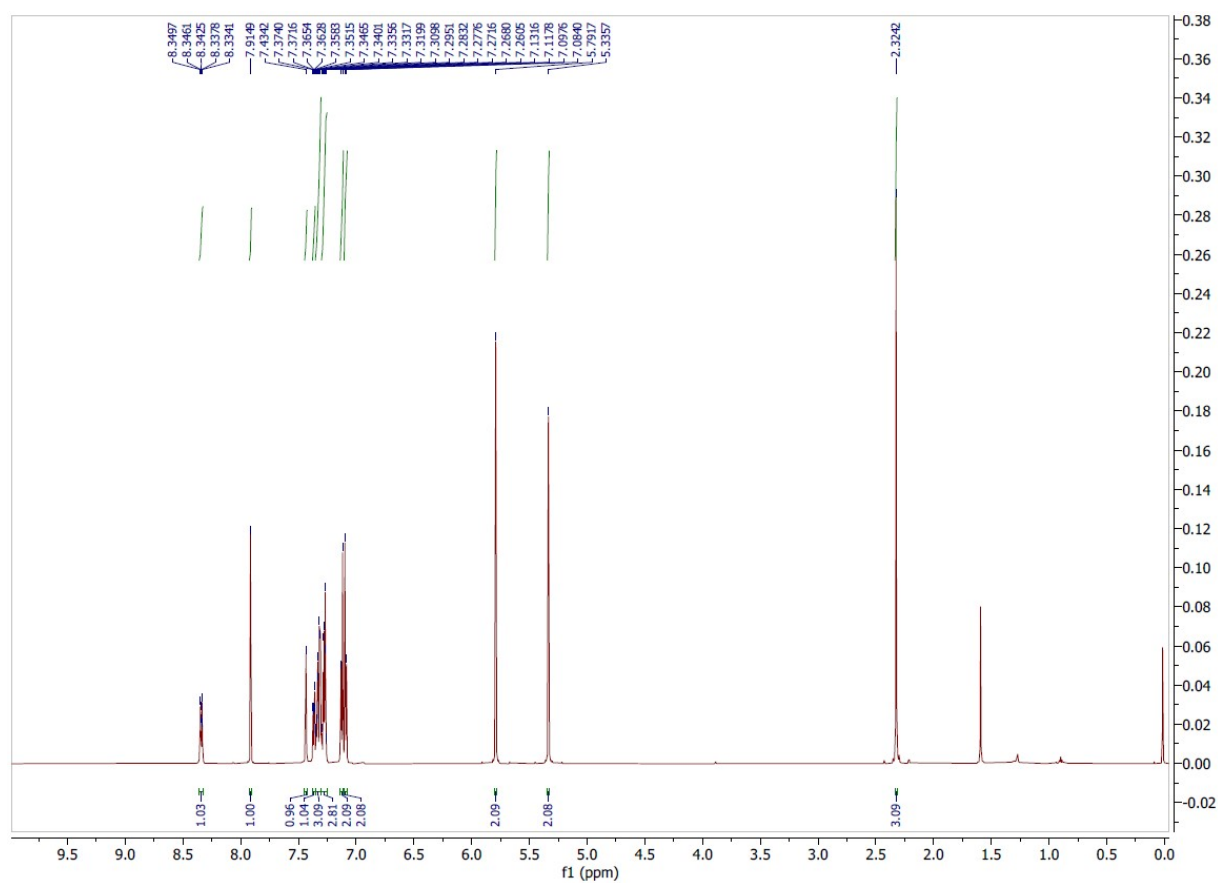


Figure S57. ¹H NMR spectrum of compound 5k

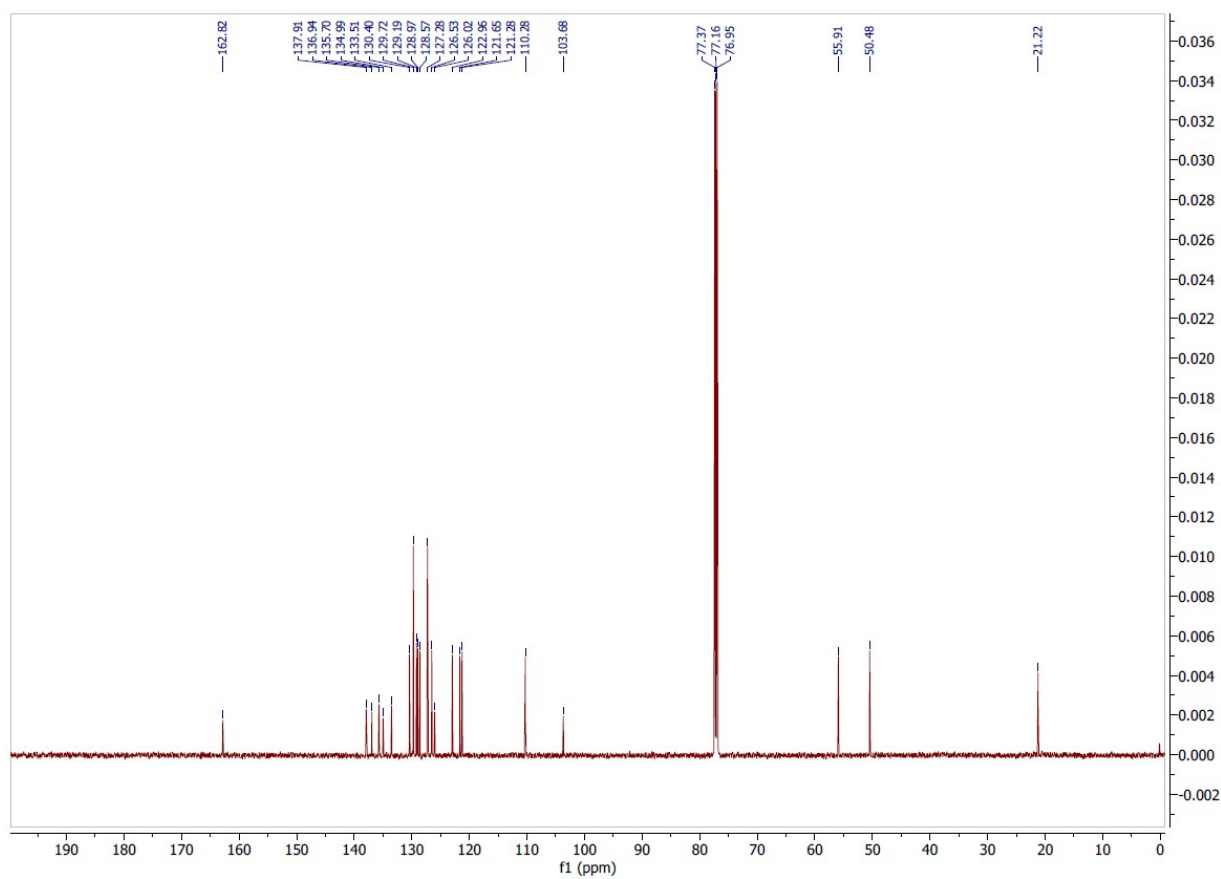


Figure S58. ¹³C NMR spectrum of compound 5k

Sample Name : K_371 a
Test Name :
060822_K_371 a 24 (0.257)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
4.96e+007

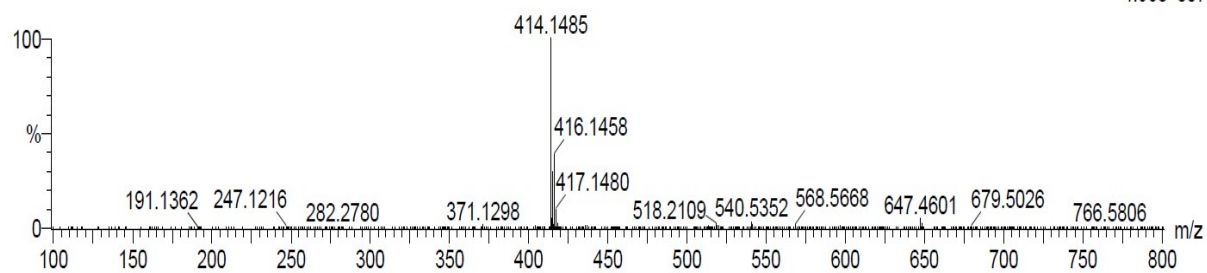


Figure S59. HRMS spectrum of compound 5k

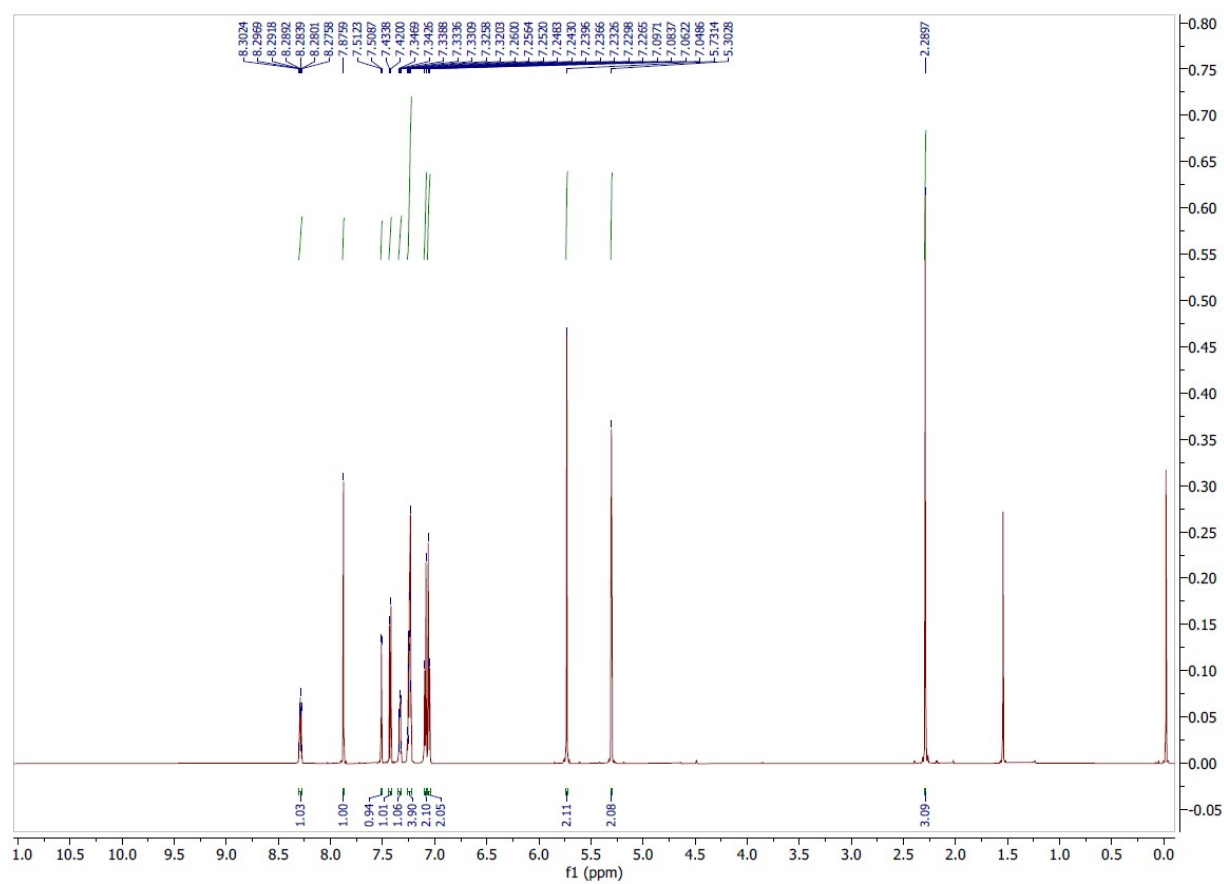


Figure S60. ¹H NMR spectrum of compound 5I

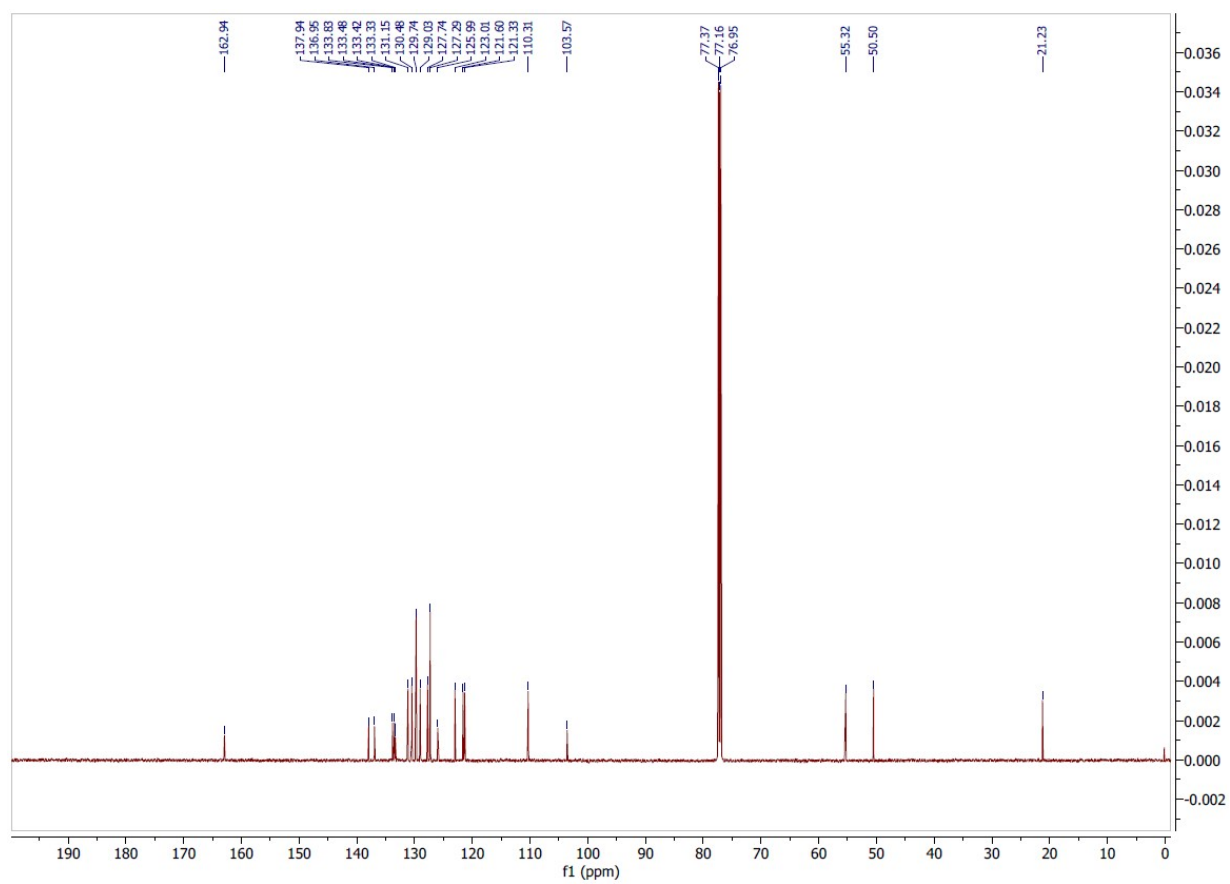


Figure S61. ¹³C NMR spectrum of compound 5I

Sample Name : K_366 a
Test Name :
060822_K_366 a 30 (0.320)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
4.44e+006

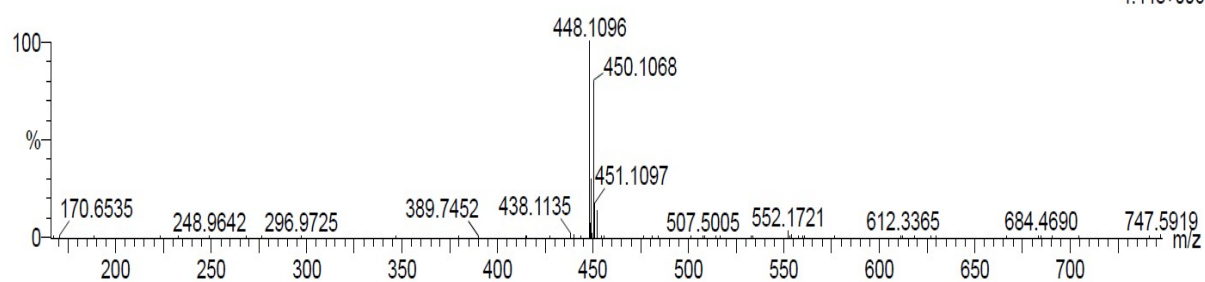


Figure S62. HRMS spectrum of compound 5I

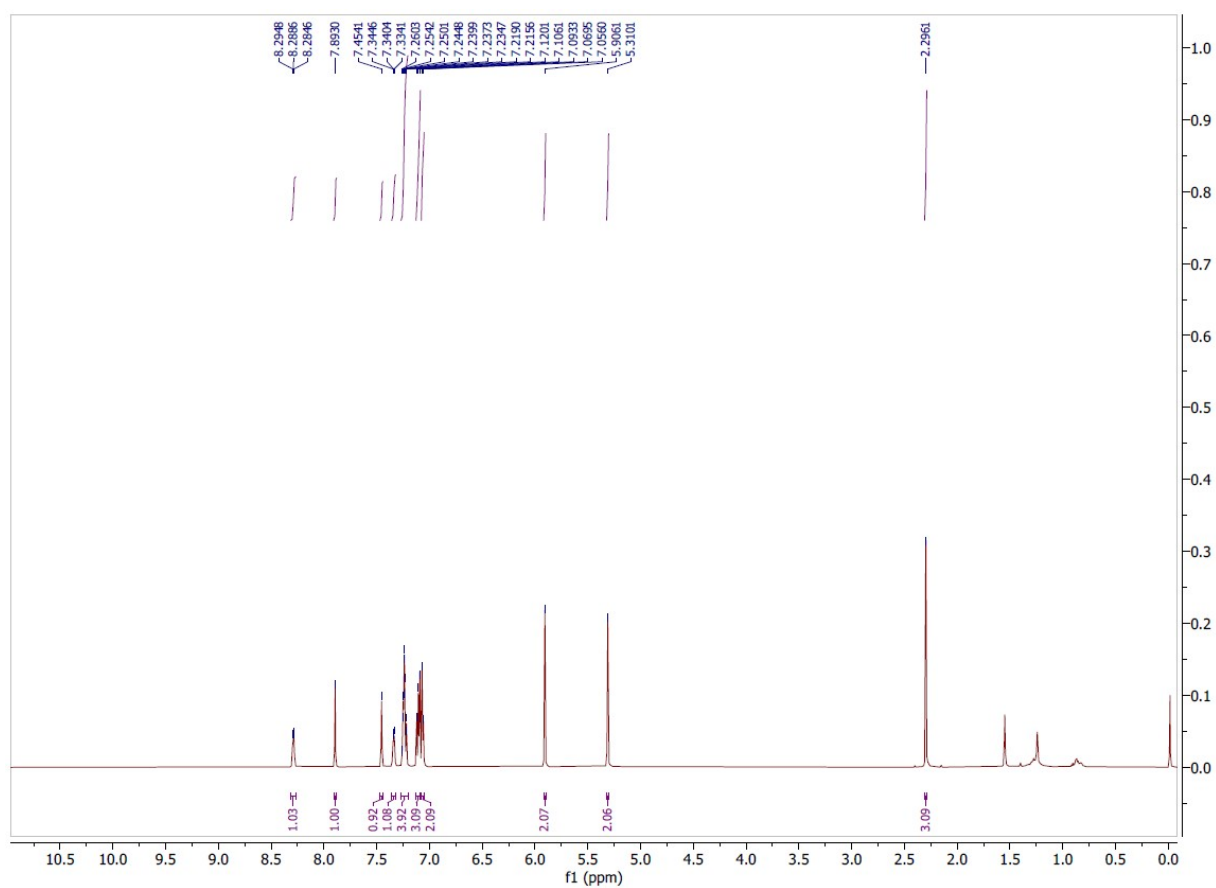


Figure S63. ^1H NMR spectrum of compound 5m

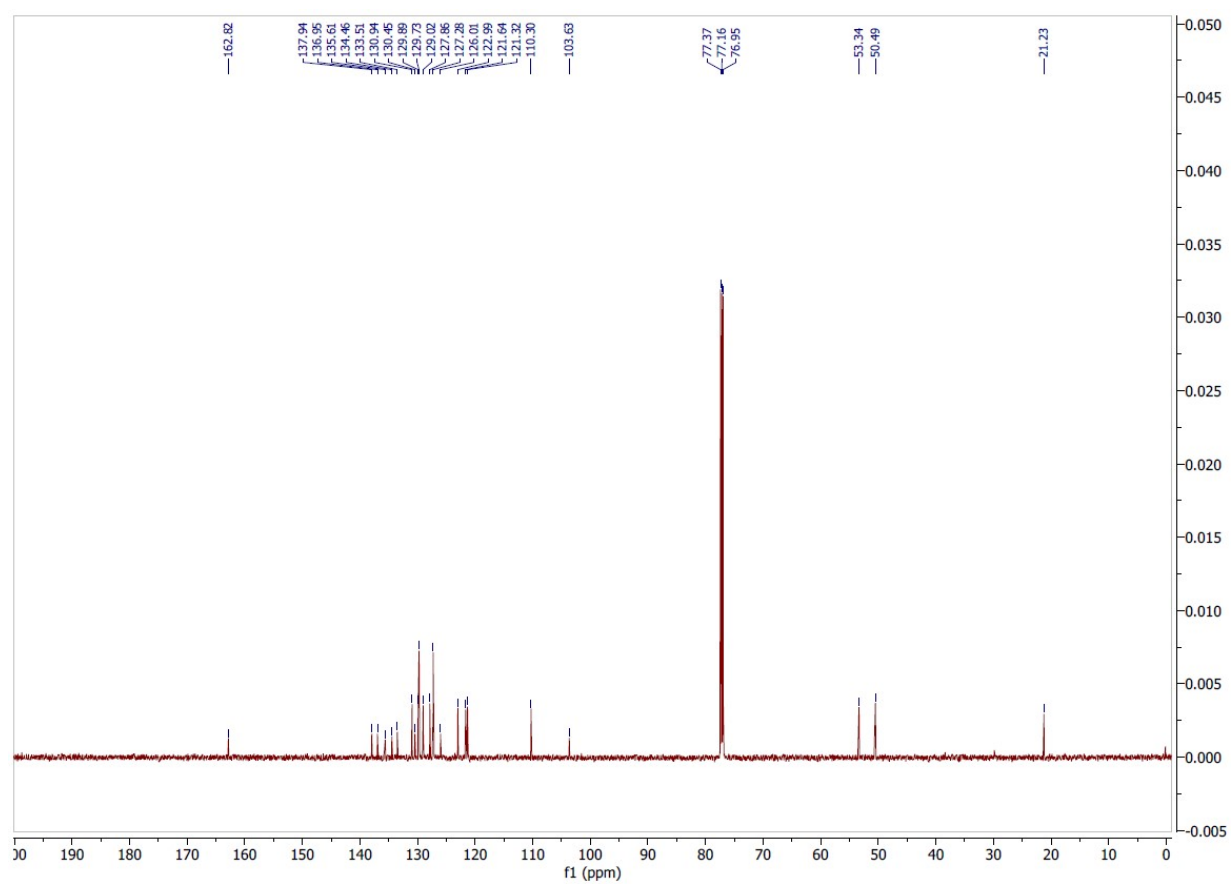


Figure S64. ¹³C NMR spectrum of compound 5m

Sample Name : K_365 a
Test Name :
060822_K_365 a 27 (0.294)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.16e+007

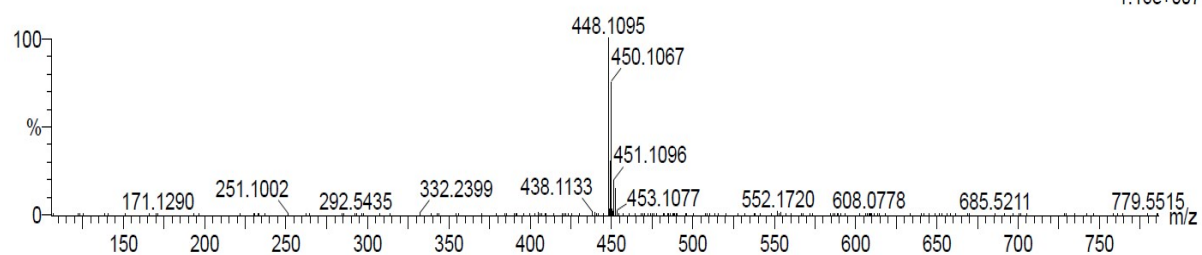


Figure S65. HRMS spectrum of compound 5m

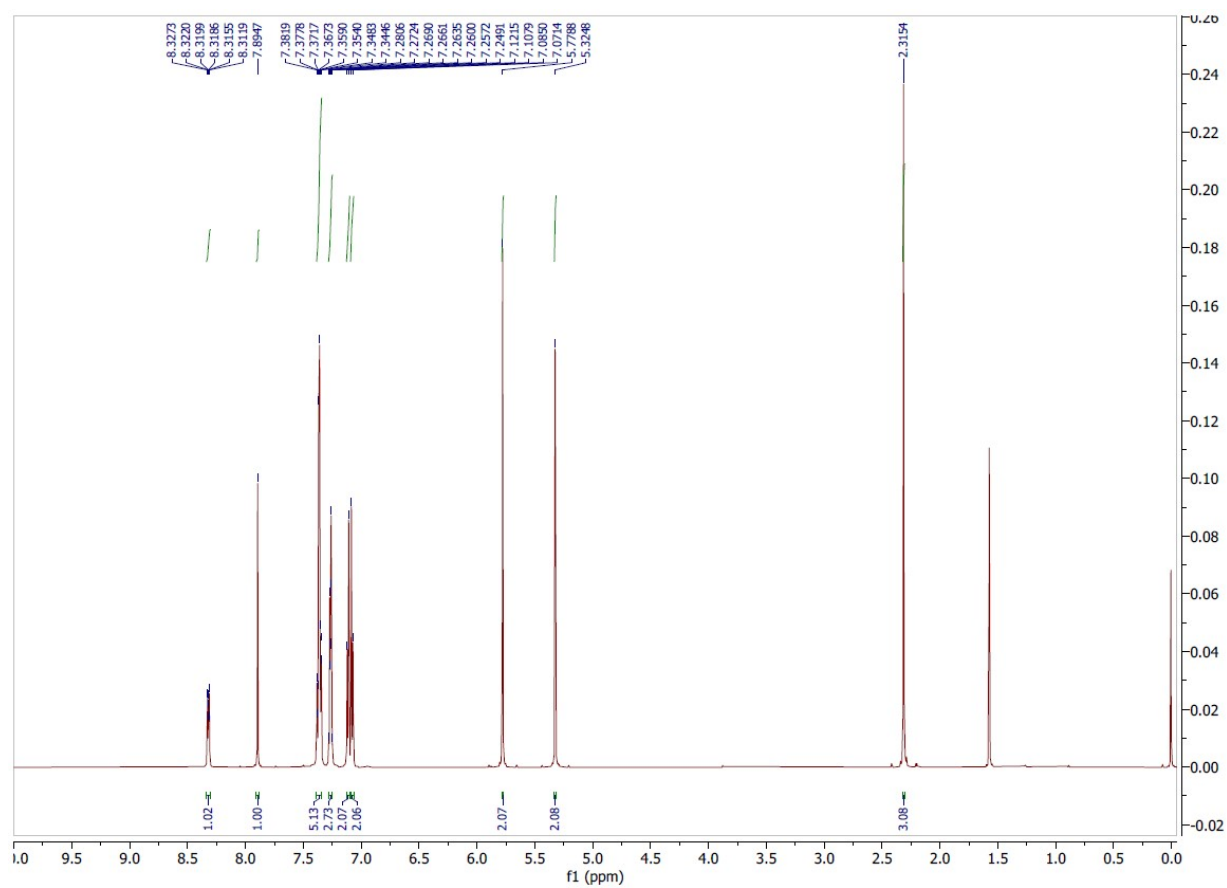


Figure S66. ¹H NMR spectrum of compound 5n

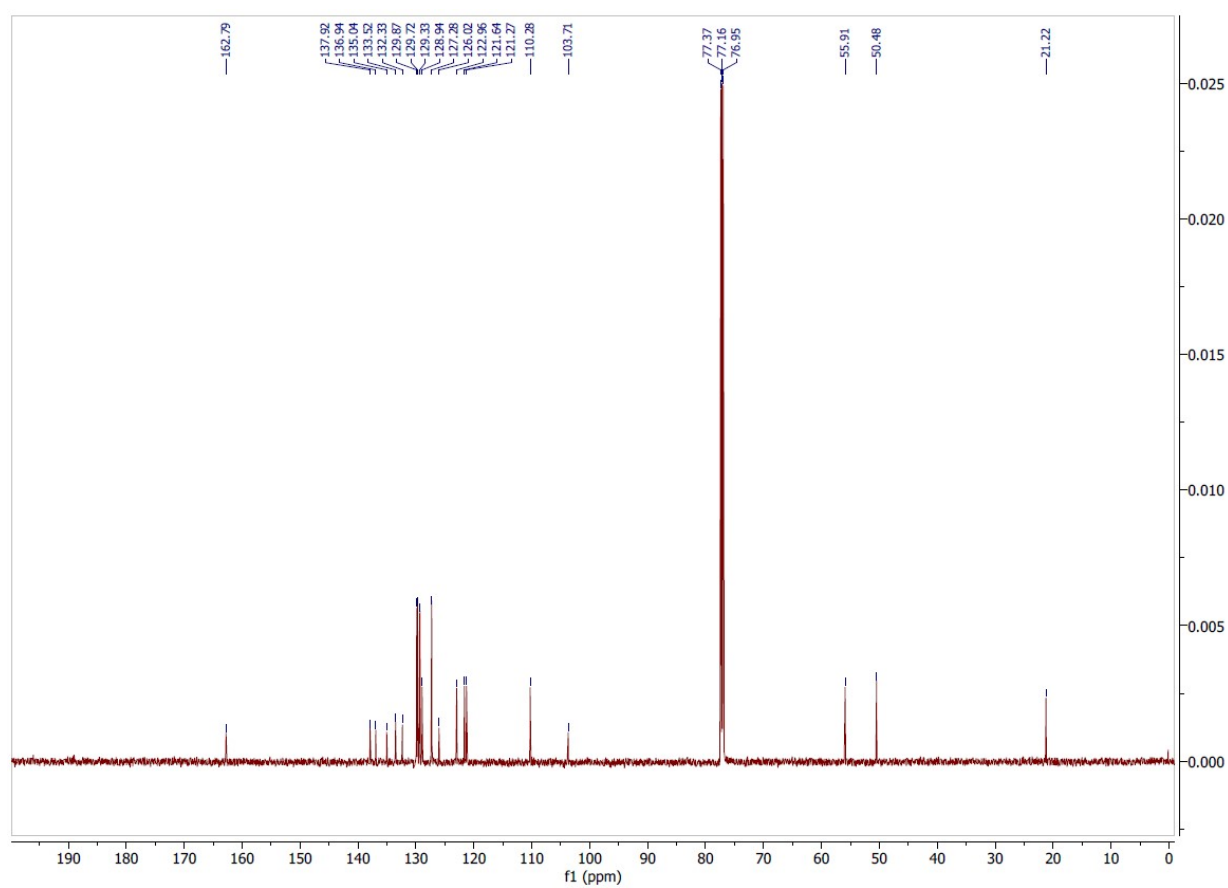


Figure S67. ^{13}C NMR spectrum of compound 5n

Sample Name : K_372 a
Test Name :
060822_K_372 a 34 (0.366)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
2.05e+007

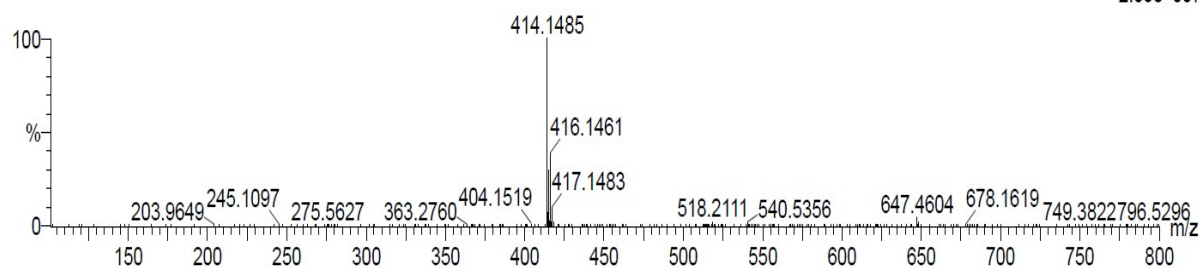


Figure S68. HRMS spectrum of compound 5n

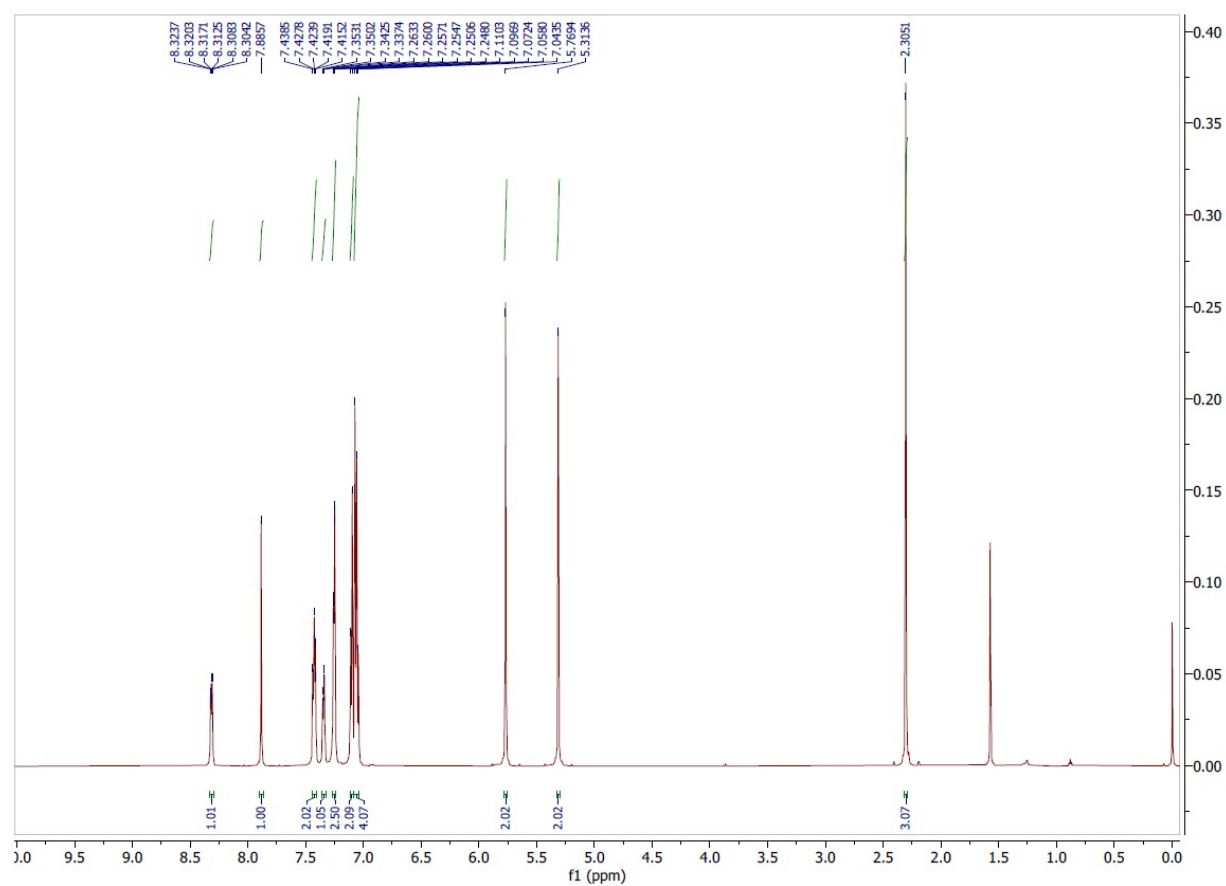


Figure S69. ¹H NMR spectrum of compound 5o

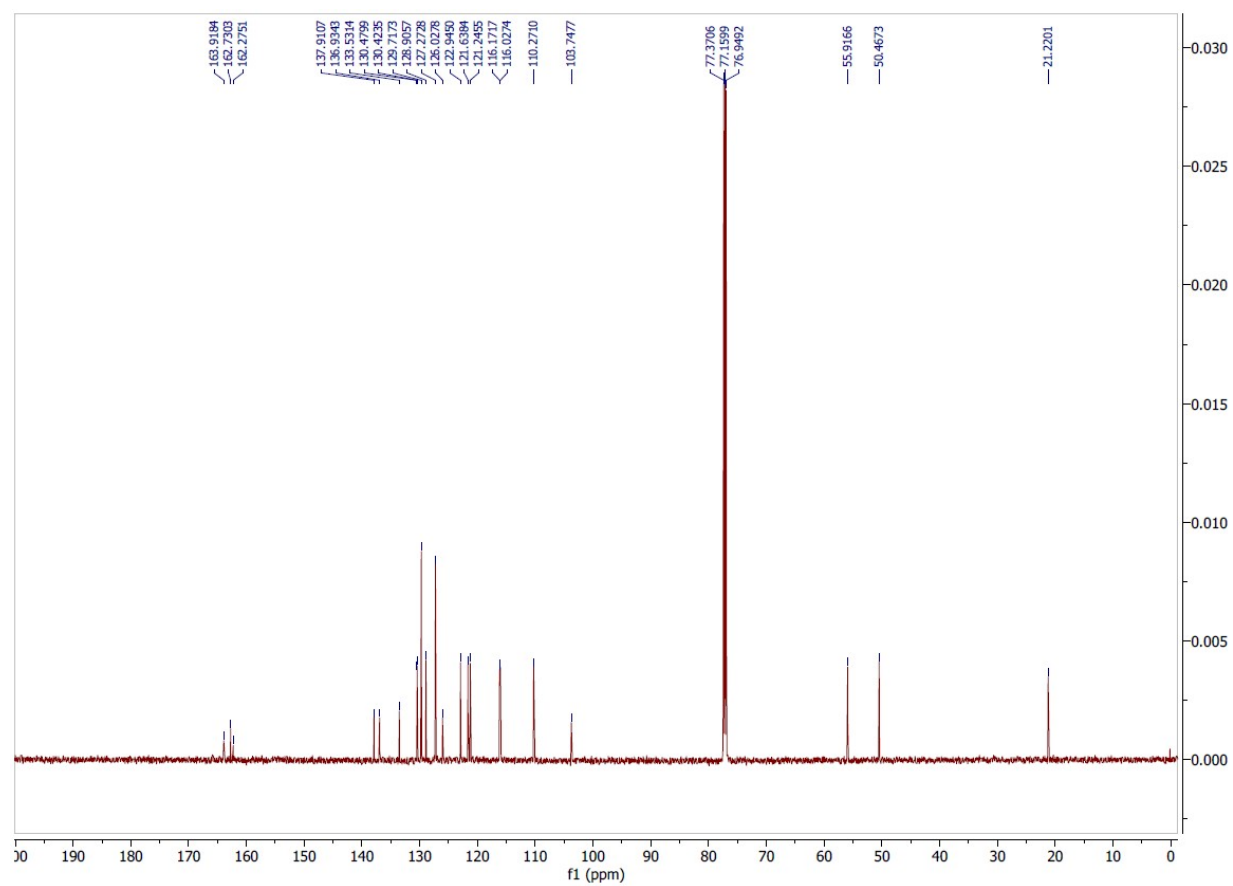


Figure S70. ¹³C NMR spectrum of compound 5o

Sample Name : K_373 a
Test Name :
060822_K_373 a 32 (0.337)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.00e+007

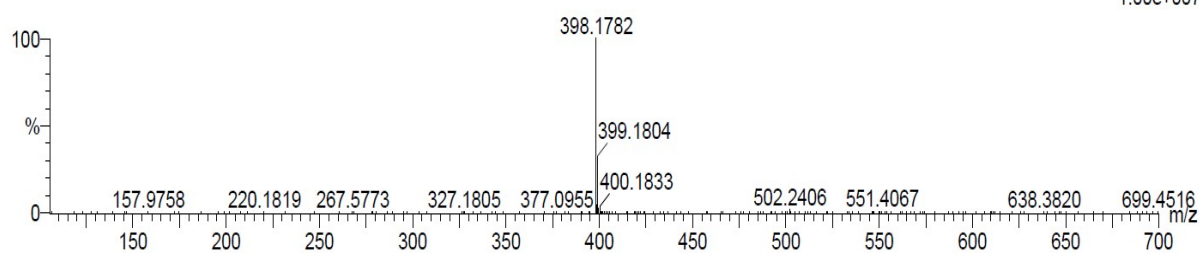


Figure S71. HRMS spectrum of compound 5o

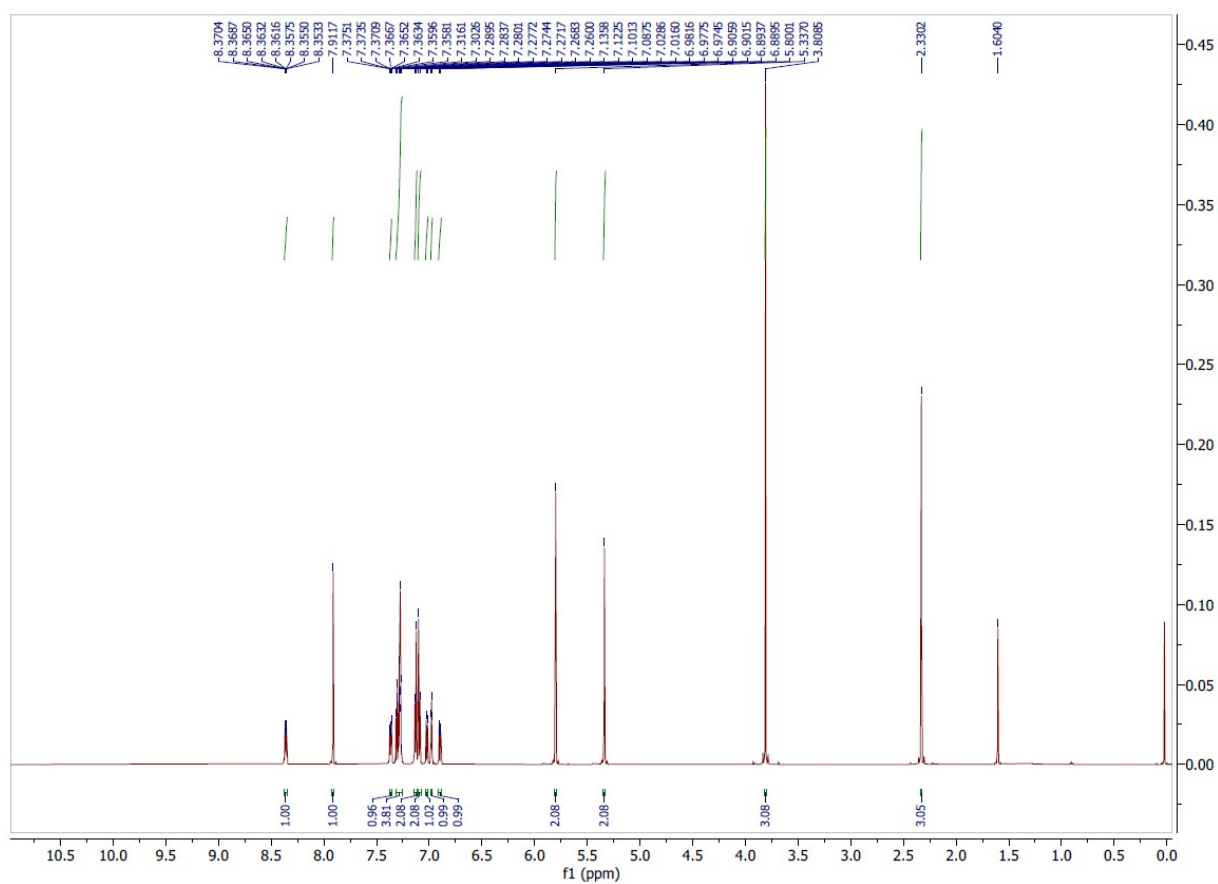


Figure S72. ^1H NMR spectrum of compound 5p

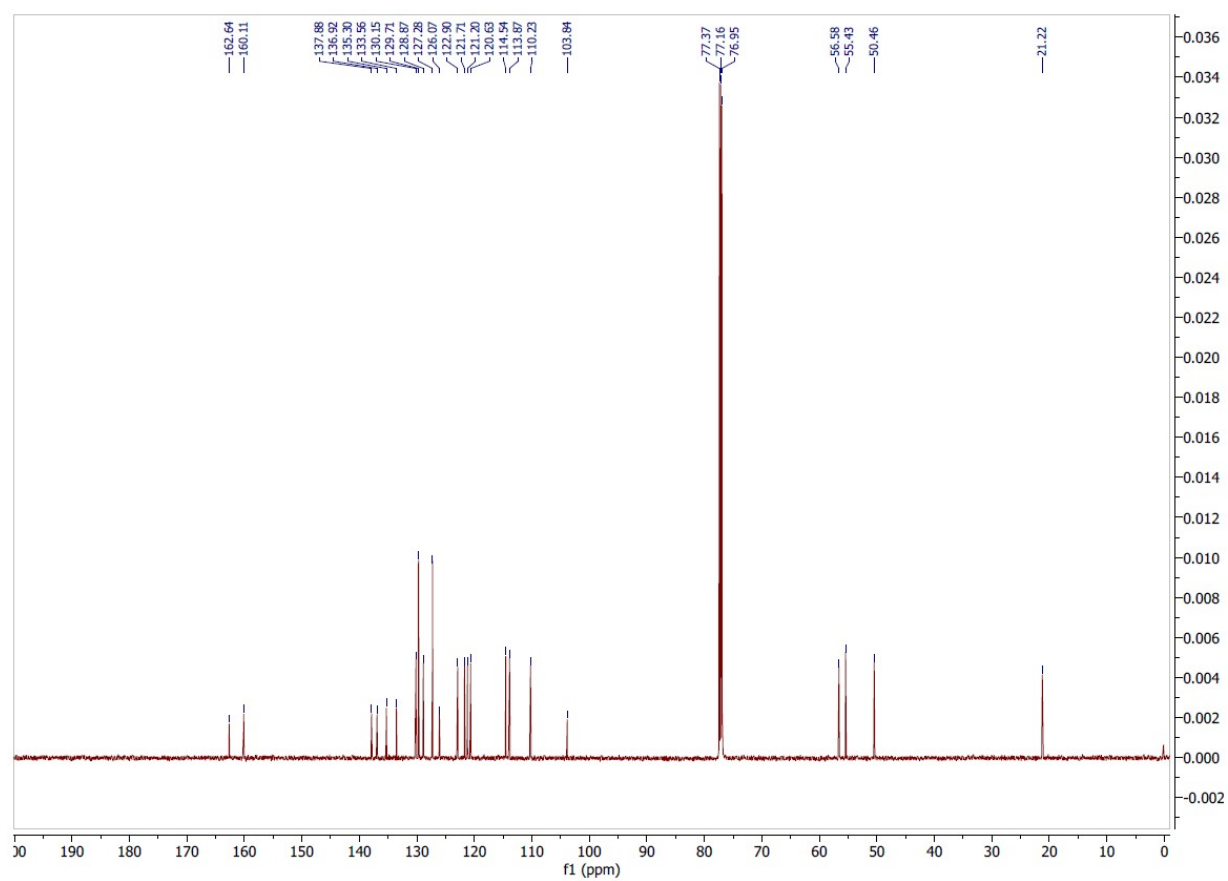


Figure S73. ¹³C NMR spectrum of compound 5p

Sample Name : K_369 a
Test Name :
060822_K_369 a 34 (0.366)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
7.03e+006

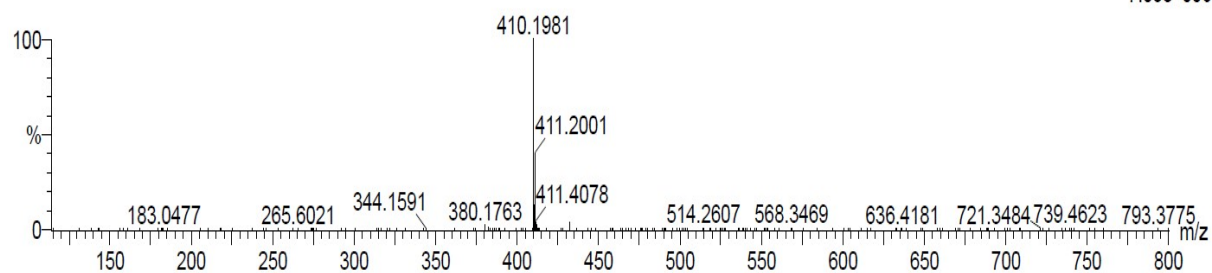


Figure S74. HRMS spectrum of compound 5p

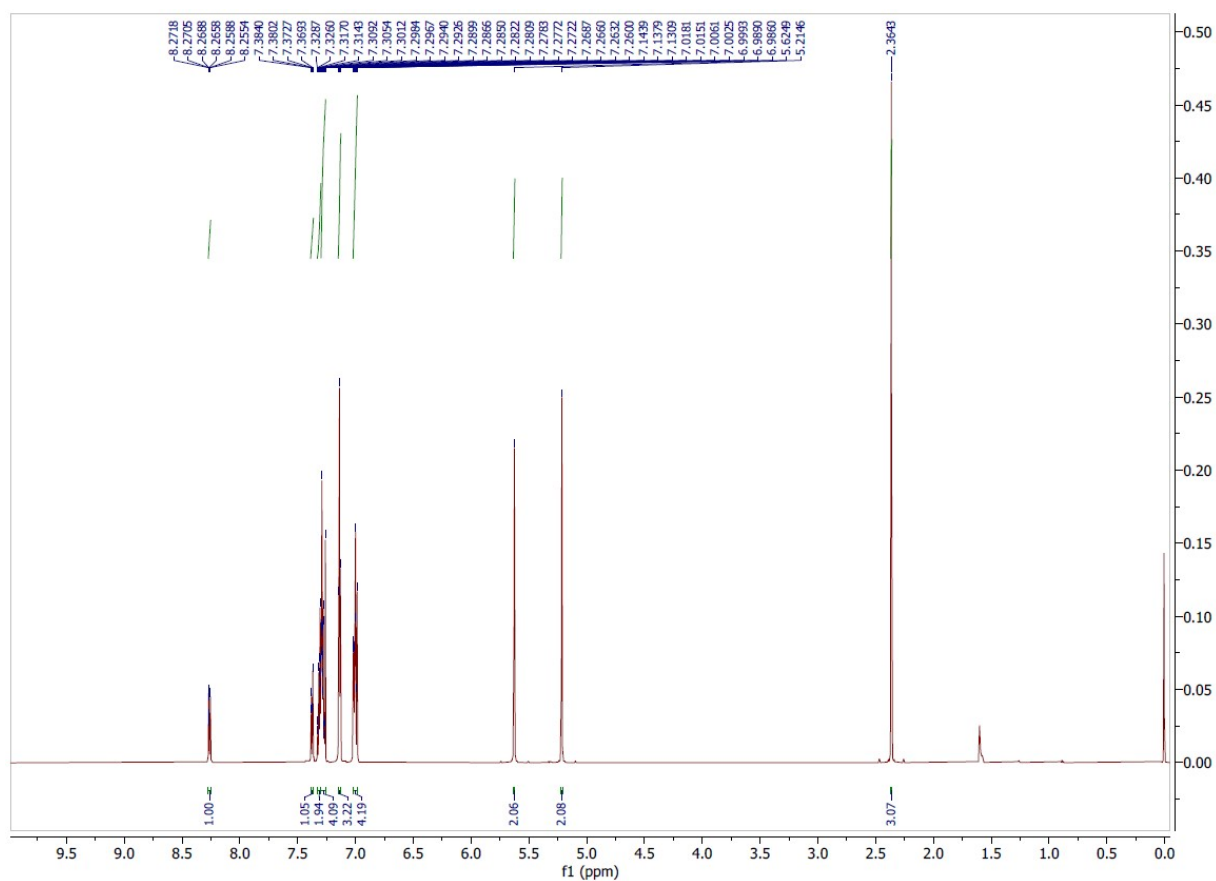


Figure S75. ^1H NMR spectrum of compound 6i

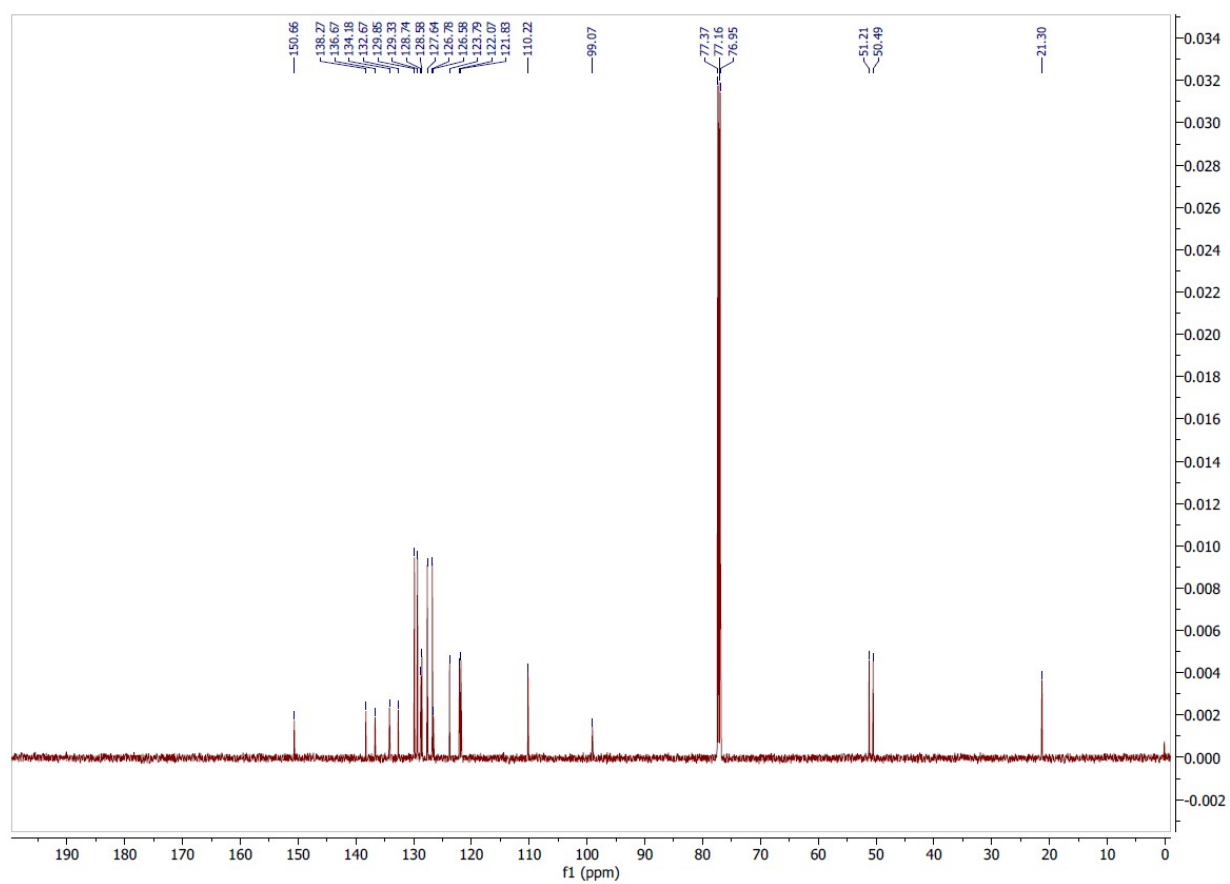


Figure S76. ^{13}C NMR spectrum of compound 6i

Sample Name : K_374 b
Test Name :
060822_K_374 b 35 (0.374)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
2.18e+007

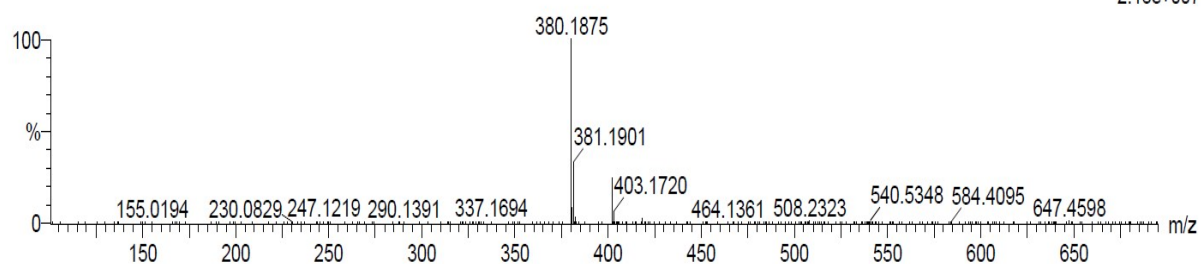


Figure S77. HRMS spectrum of compound 6i

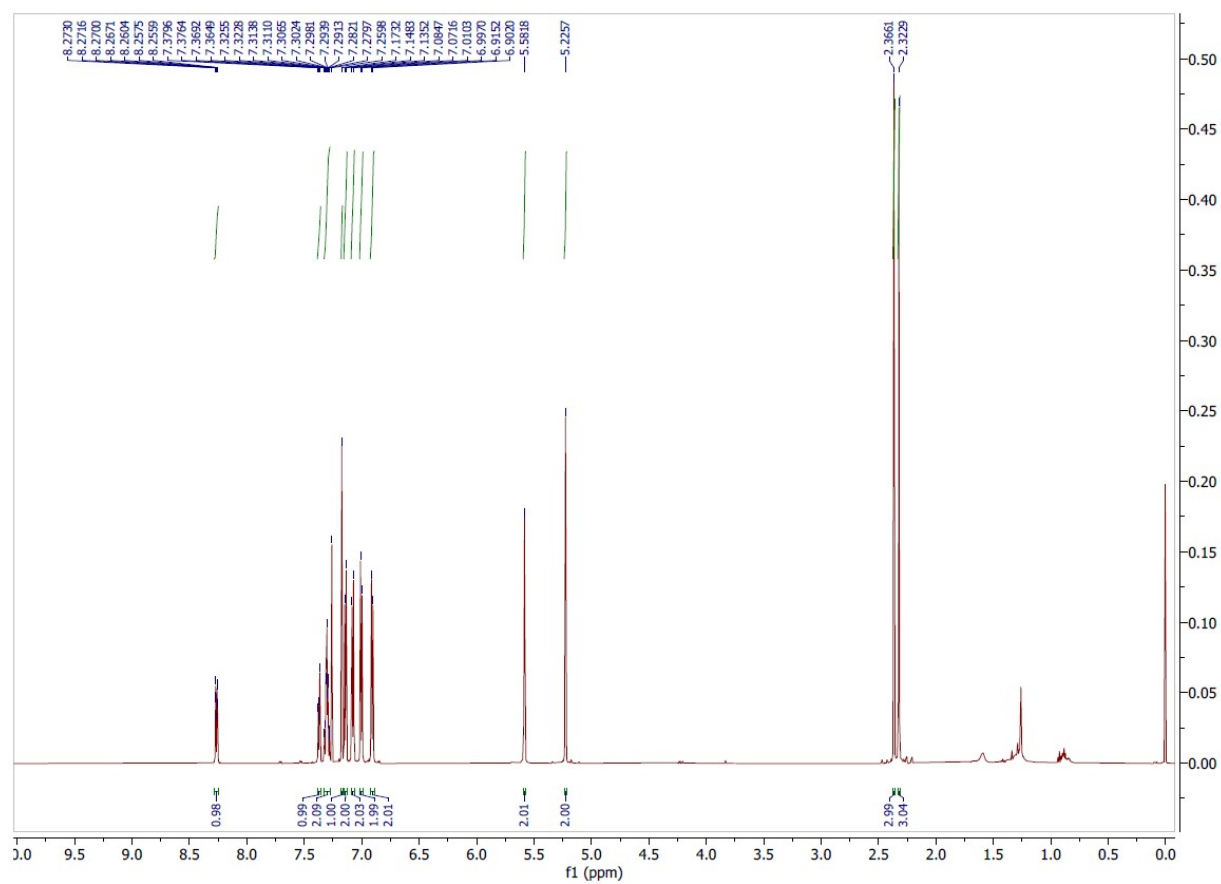


Figure S78. ¹H NMR spectrum of compound 6j

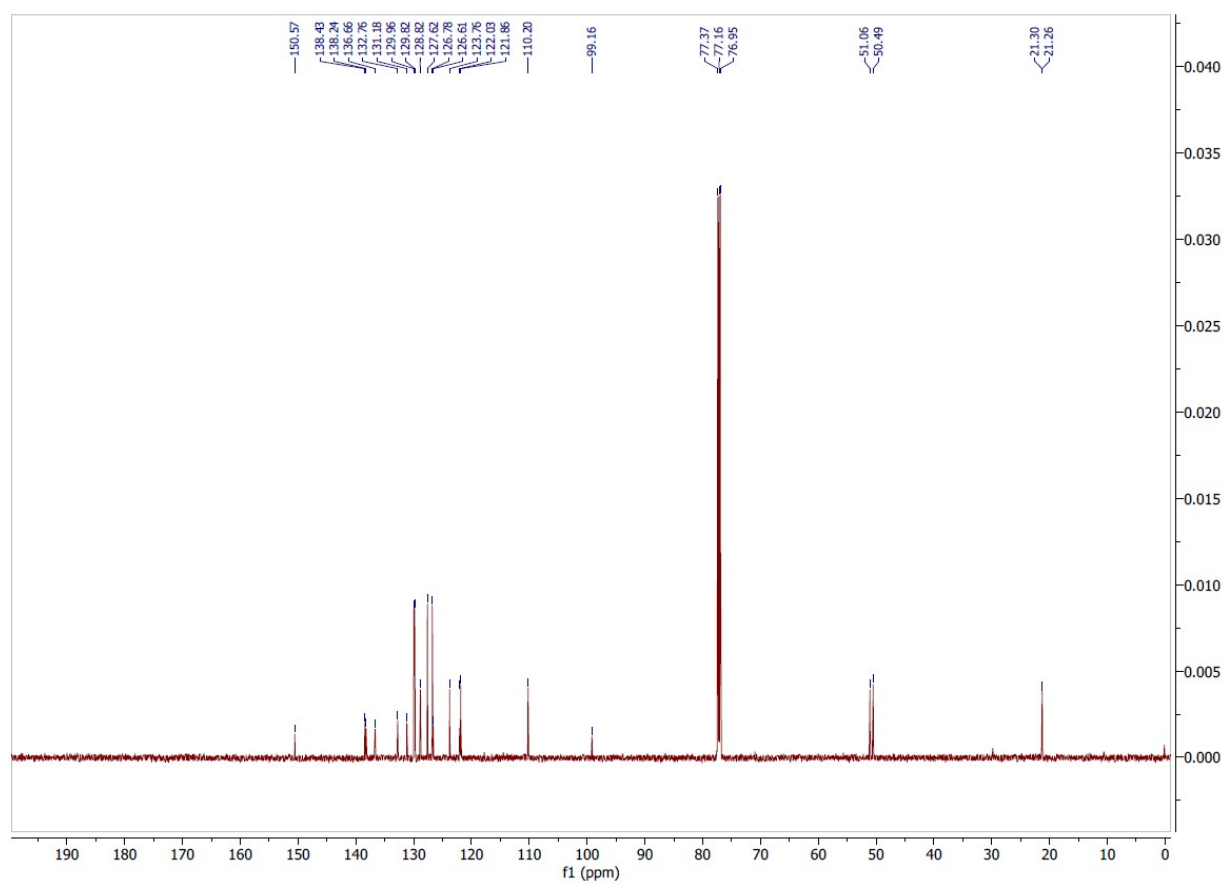


Figure S79. ¹³C NMR spectrum of compound 6j

Sample Name : K_370 b
Test Name :
060822_K_370 b 41 (0.437)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
3.69e+007

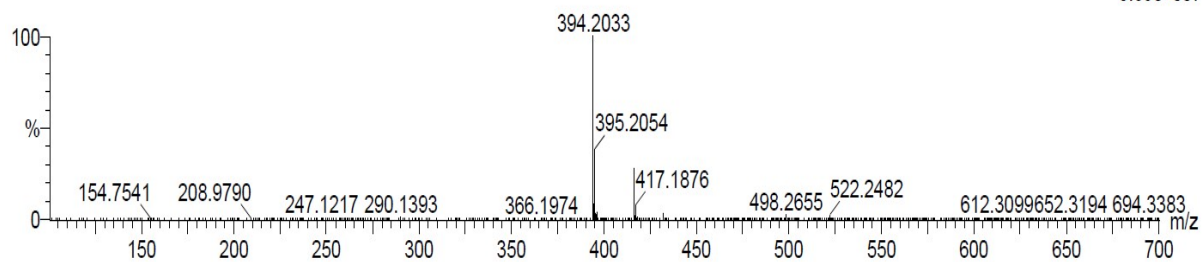


Figure S80. HRMS spectrum of compound 6j

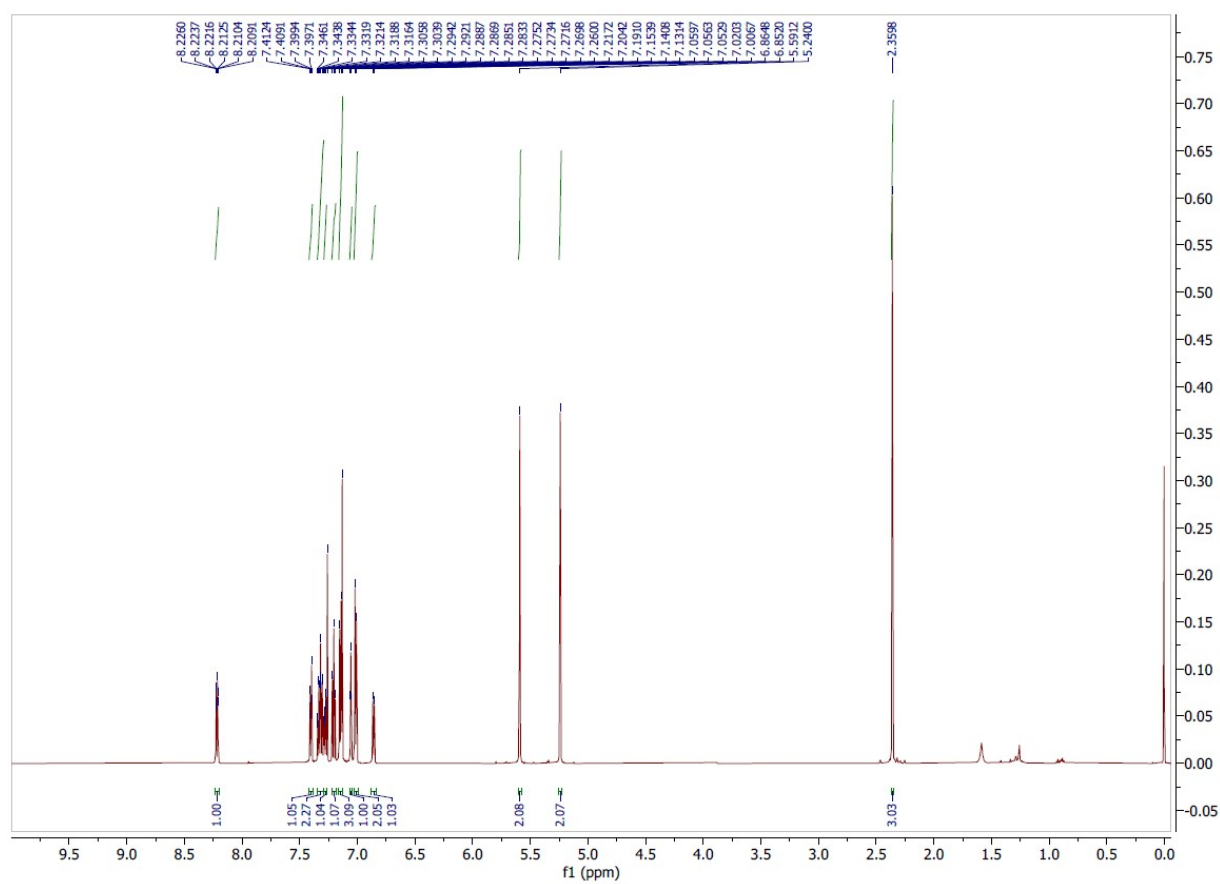


Figure S81. ^1H NMR spectrum of compound 6k

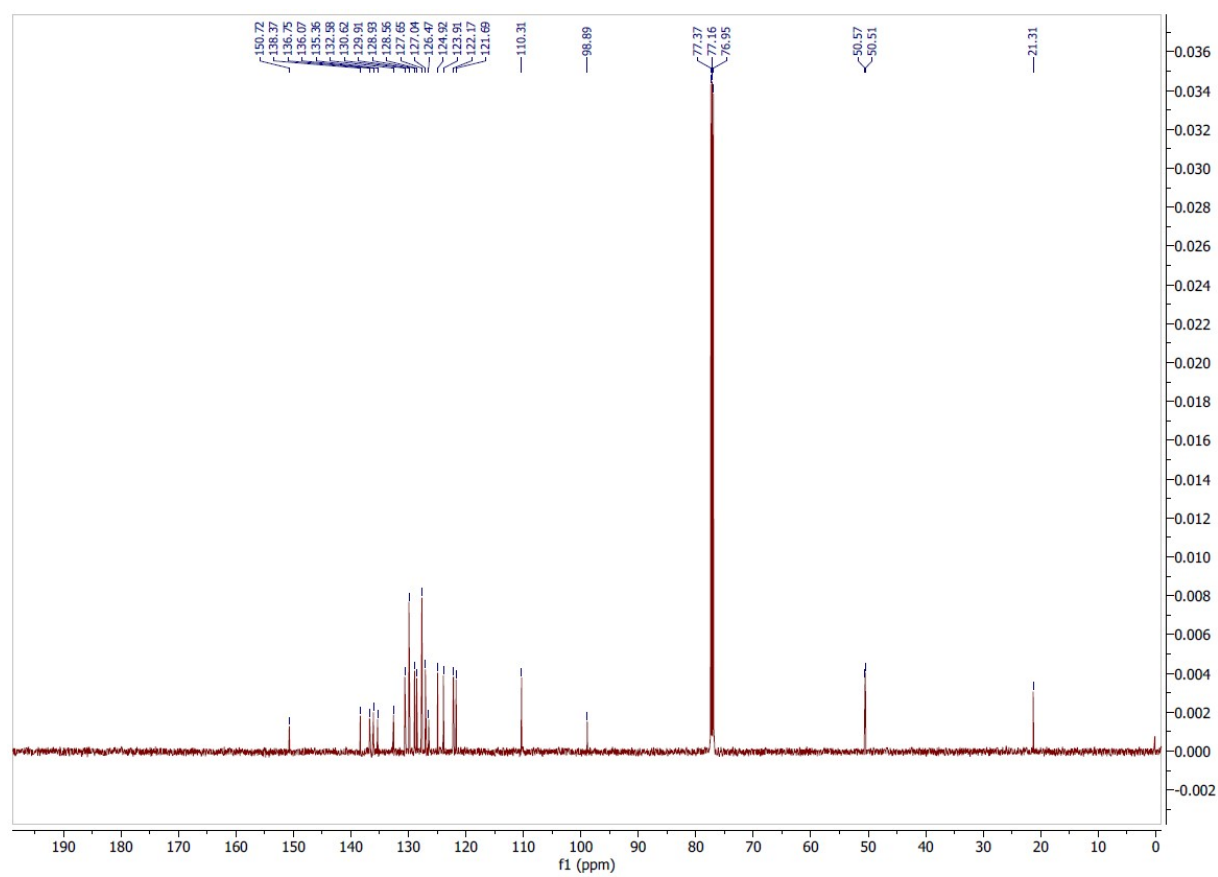


Figure S82. ¹³C NMR spectrum of compound 6k

Sample Name : K_371 b
Test Name :
060822_K_371 b 29 (0.311)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.24e+007

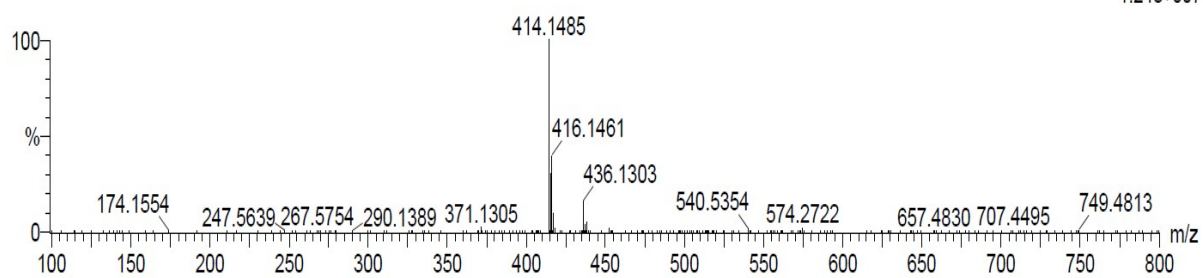


Figure S83. HRMS spectrum of compound 6k

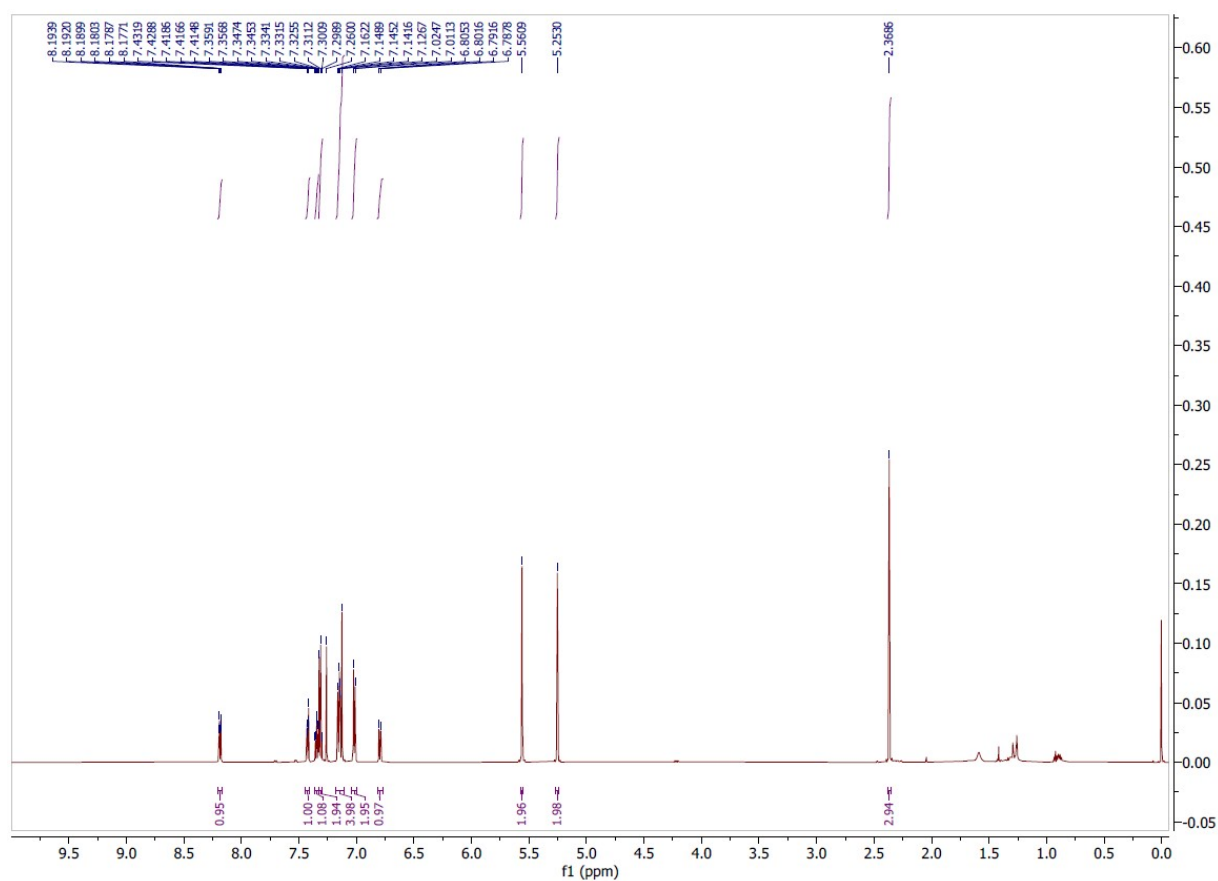


Figure S84. ¹H NMR spectrum of compound 6l

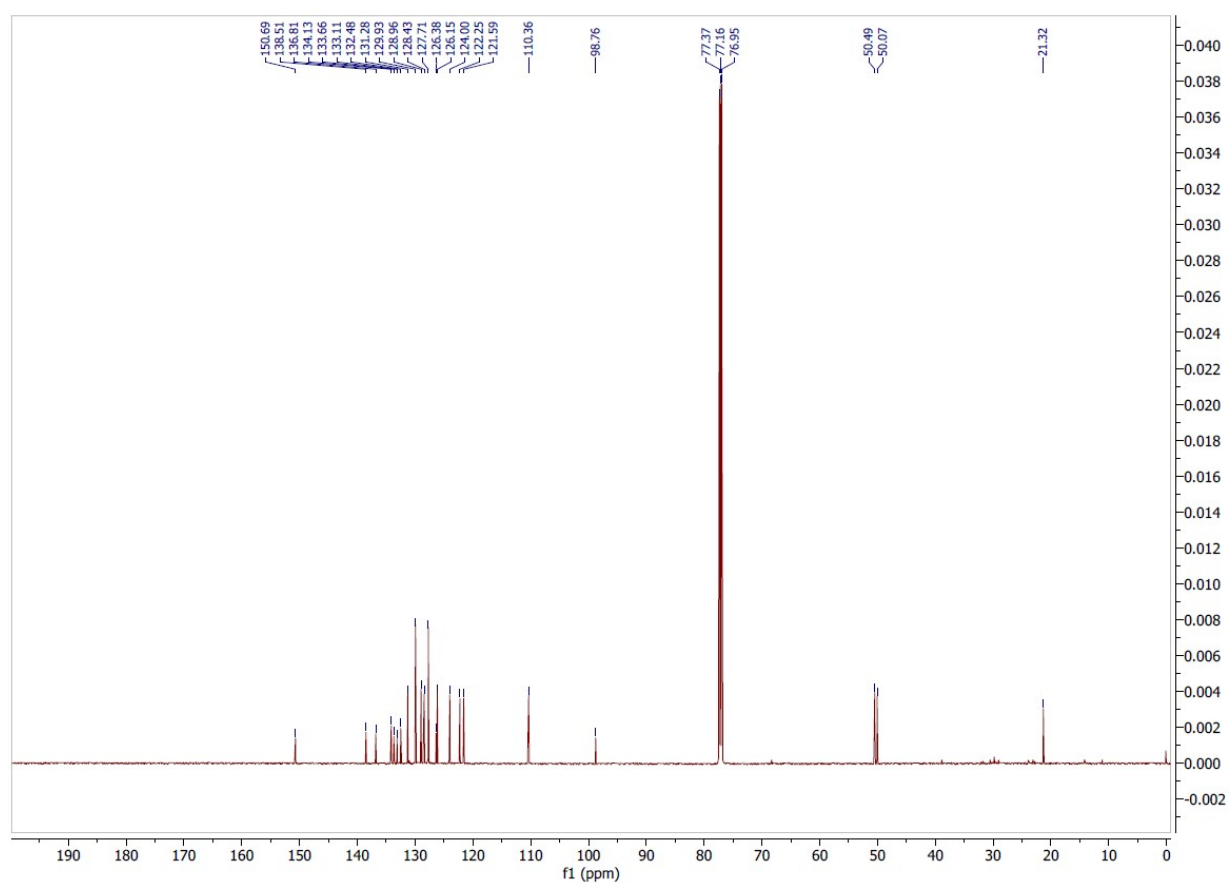


Figure S85. ^{13}C NMR spectrum of compound 6l

Sample Name : K_366 b
Test Name :
060822_K_366 b 28 (0.303)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
1.28e+007

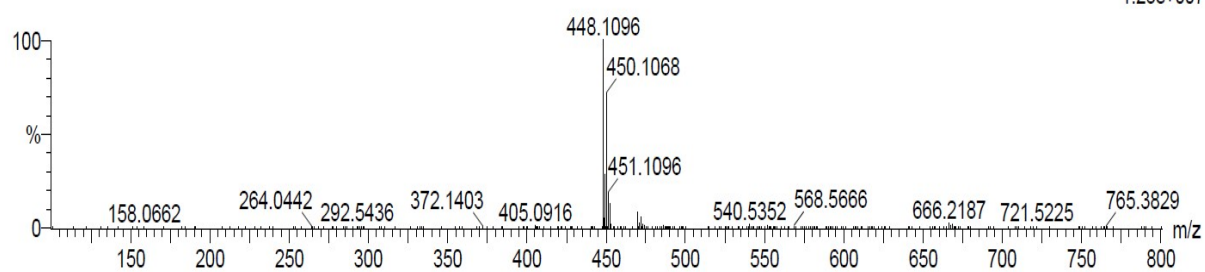
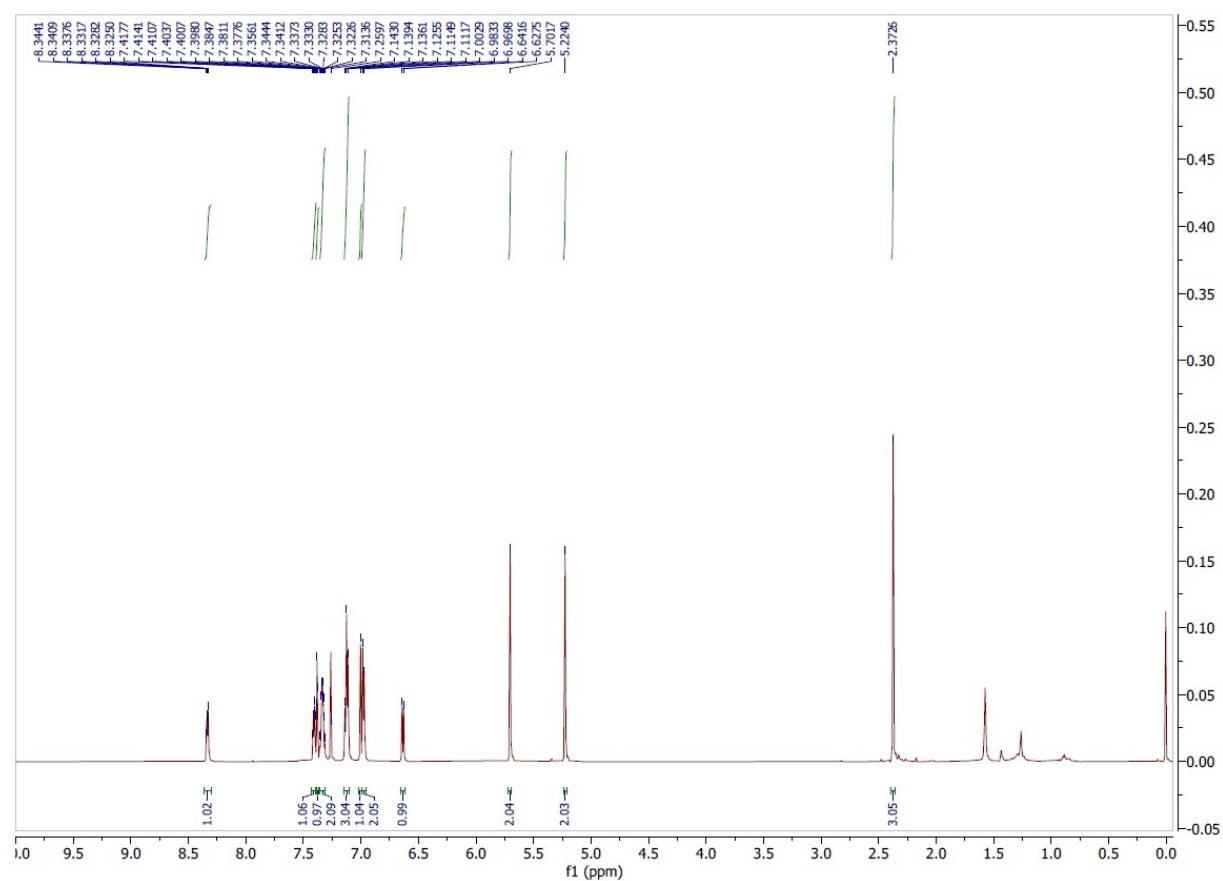


Figure S86. HRMS spectrum of compound 6I



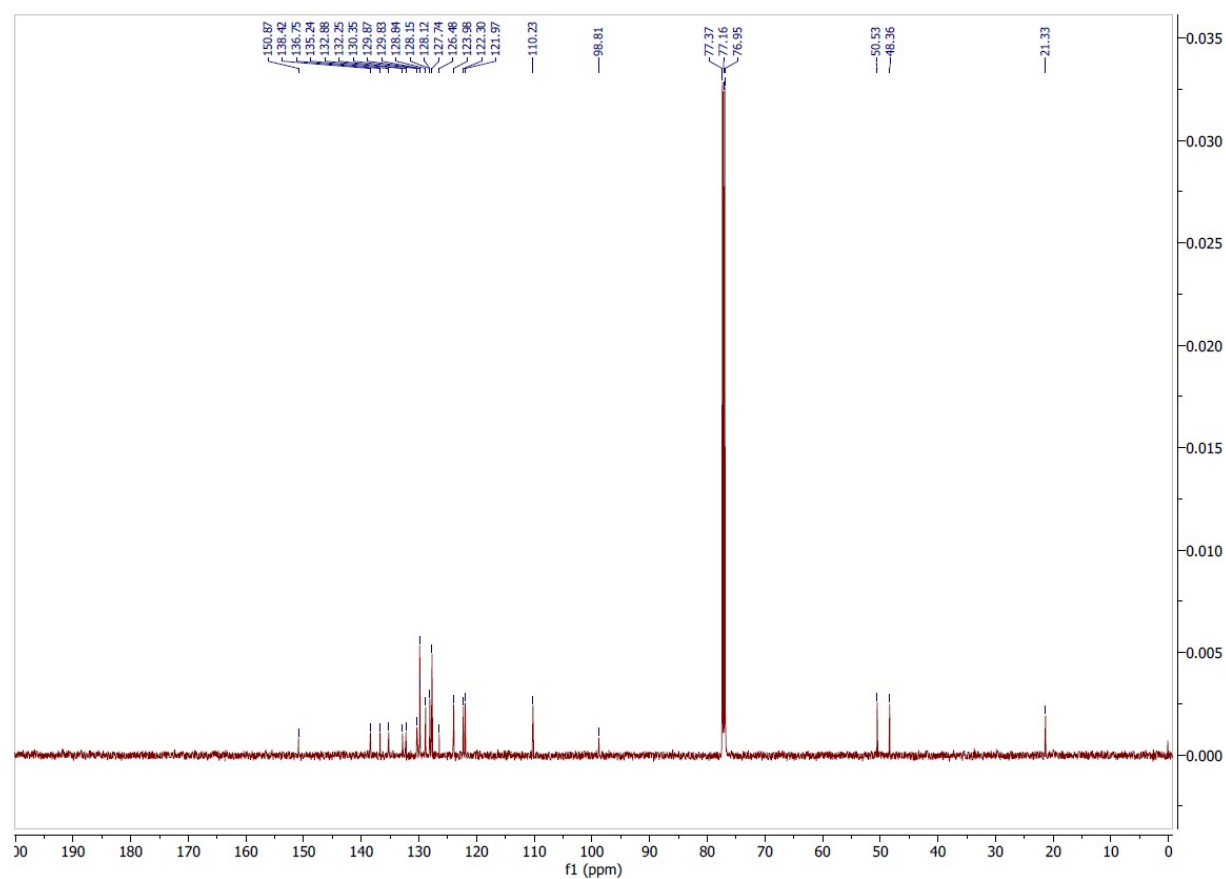


Figure S88. ^{13}C NMR spectrum of compound 6m

Sample Name : K_365 b
Test Name :
060822_K_365 b 28 (0.303)

IITRPR

XEVO G2-XS QTOF

1: TOF MS ES+
2.62e+007

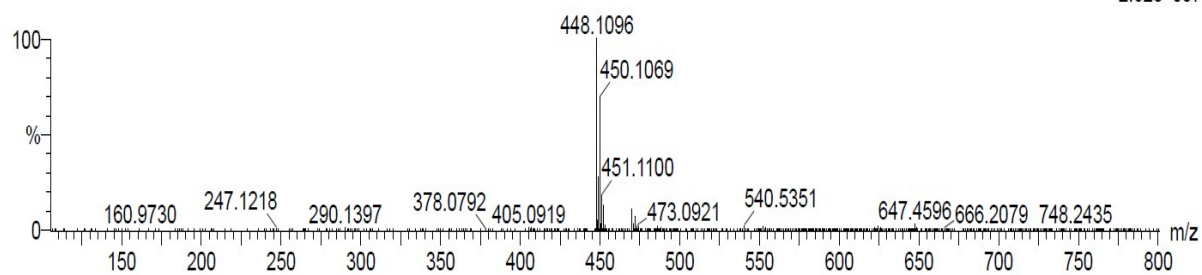


Figure S89. HRMS spectrum of compound 6m