Supplementary Files:

Experimental and Computational Study to Reveal the Potential of Non-Polar Constituents from *Hizikia fusiformis* as Dual Protein Tyrosine Phosphatase 1B and α-Glucosidase Inhibitors

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† These authors contributed equally to this work.

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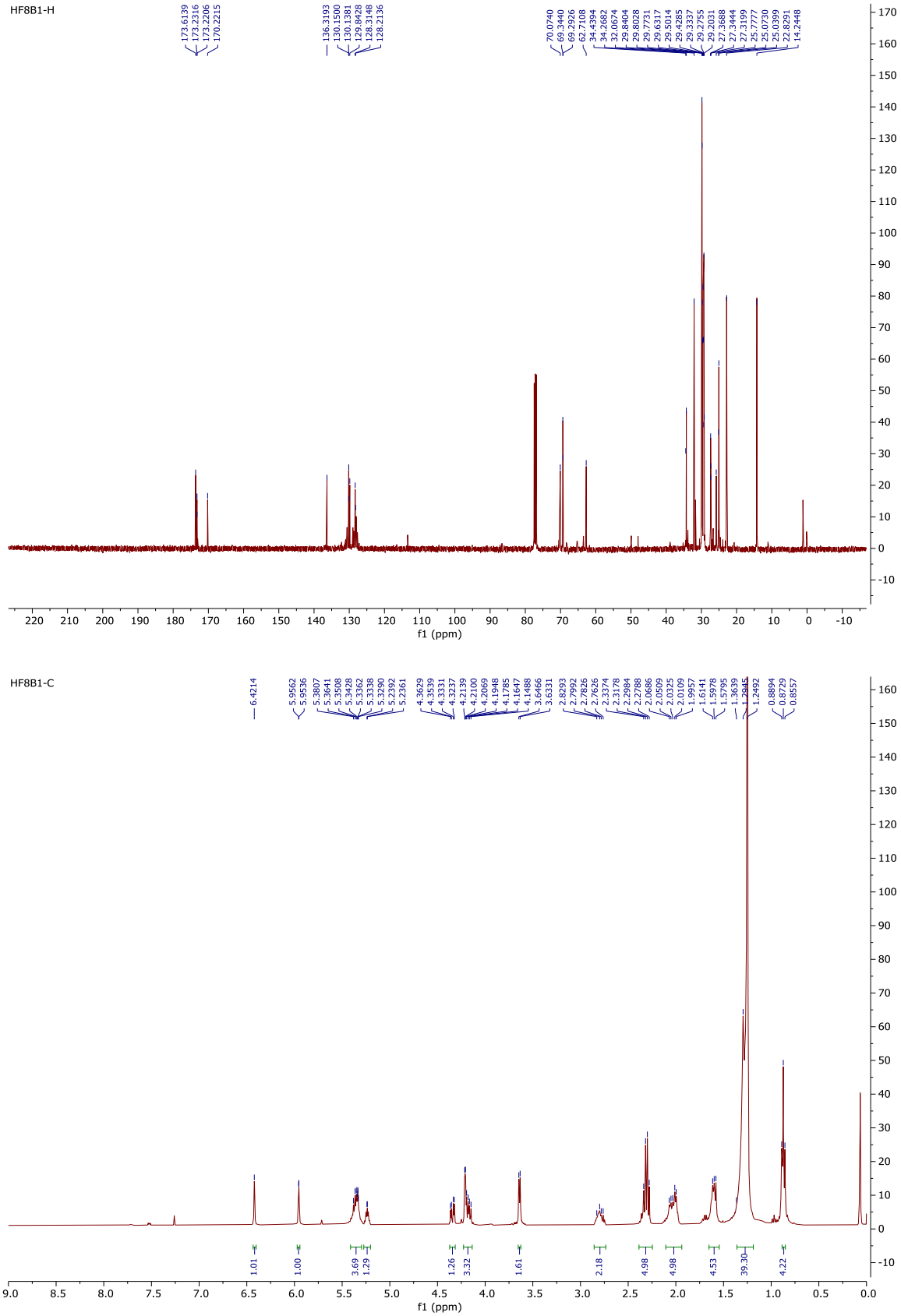


Figure S1. ^{13}C (100 MHz in $CDCl_3$)- and ^{1}H (400 MHz in $CDCl_3$)-NMR spectrum of compound **13**.

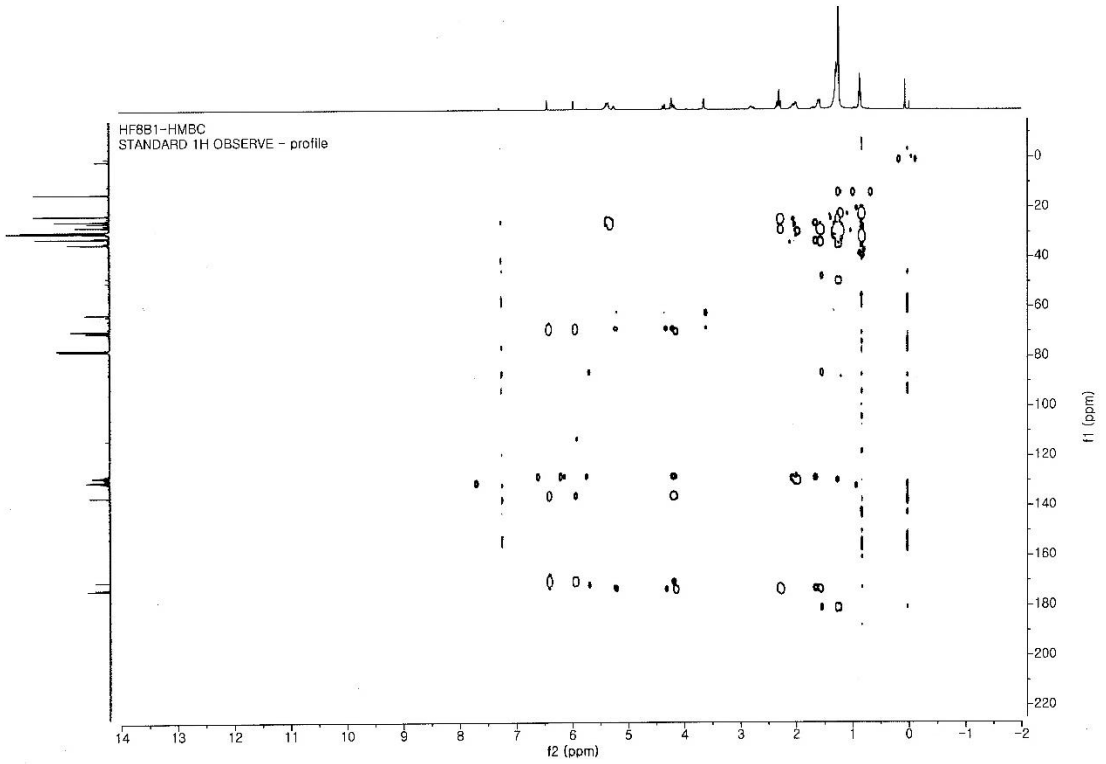


Figure S2. HMBC-NMR spectrum of compound **13**.

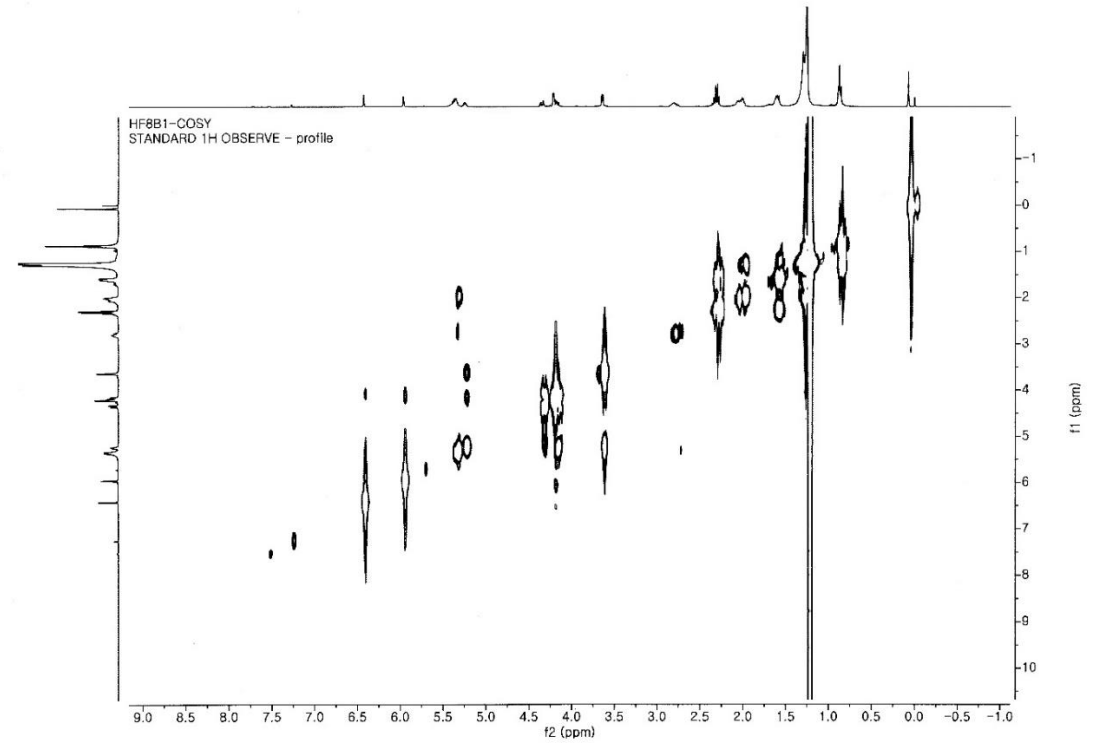
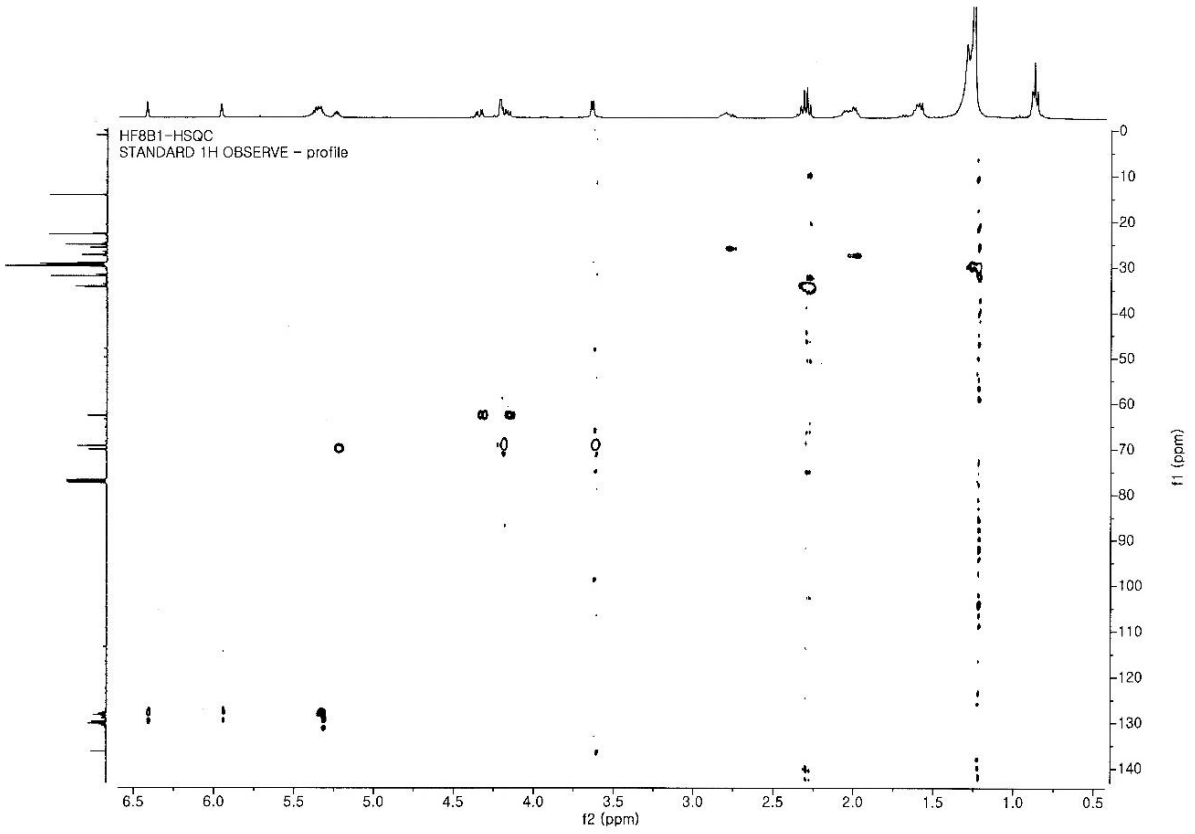


Figure S3. COSY-NMR spectrum of compound **13**.



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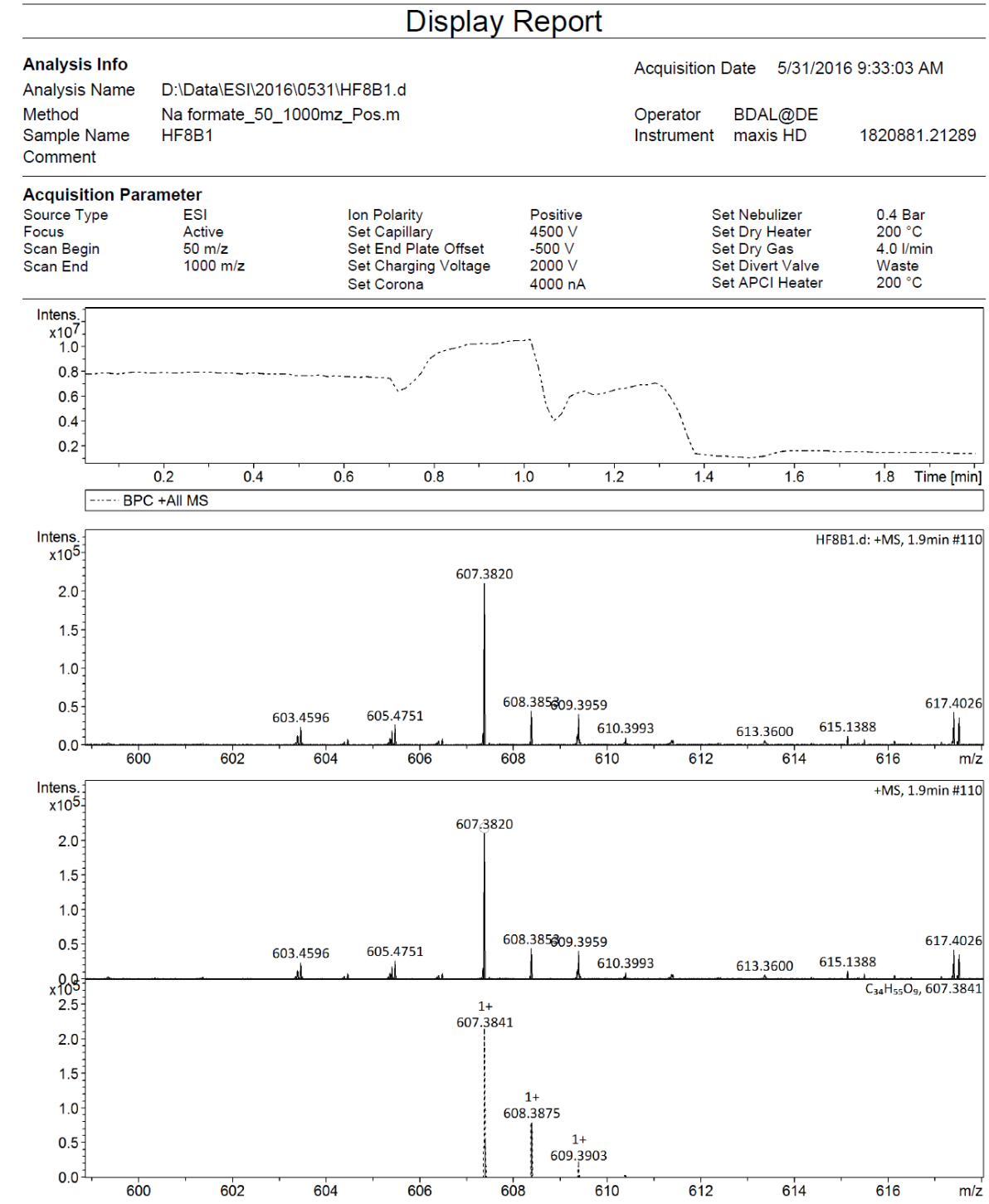

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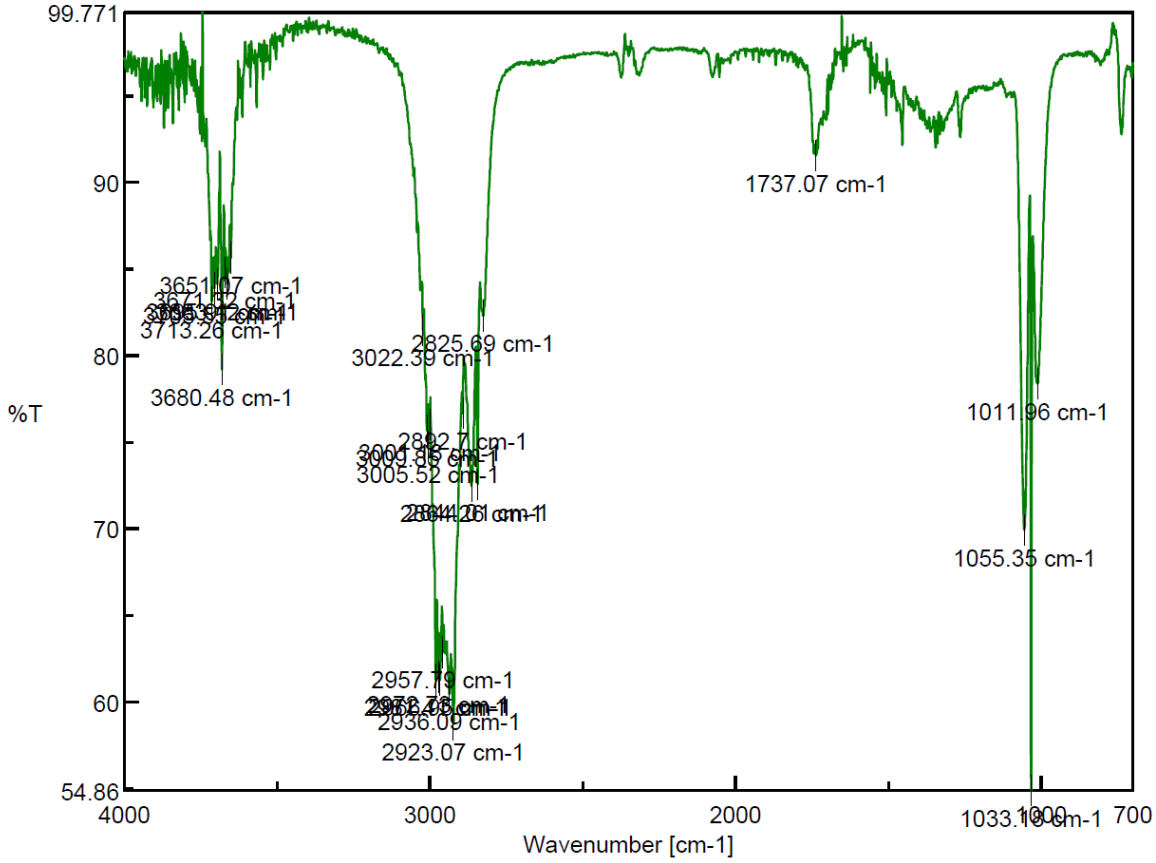

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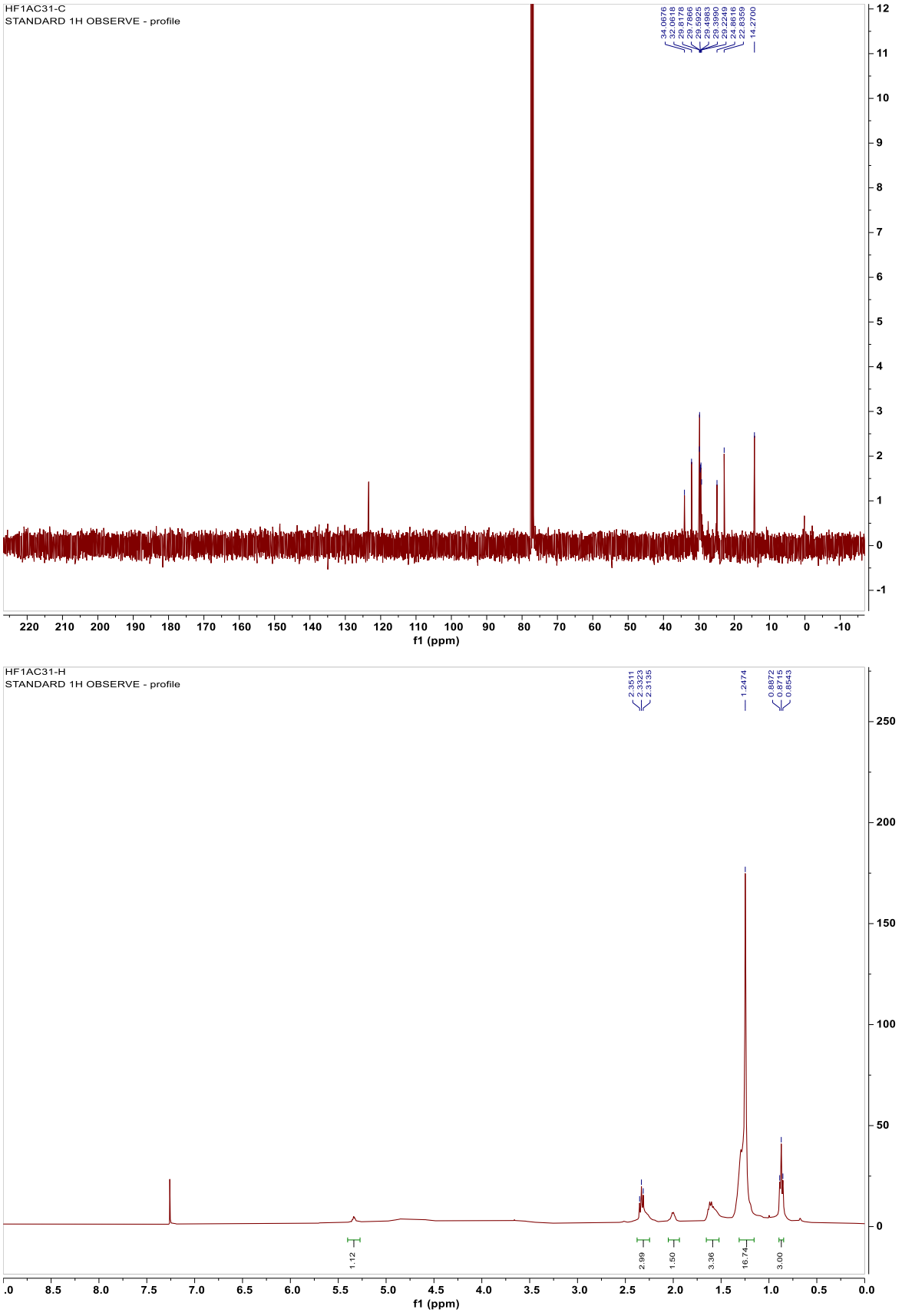
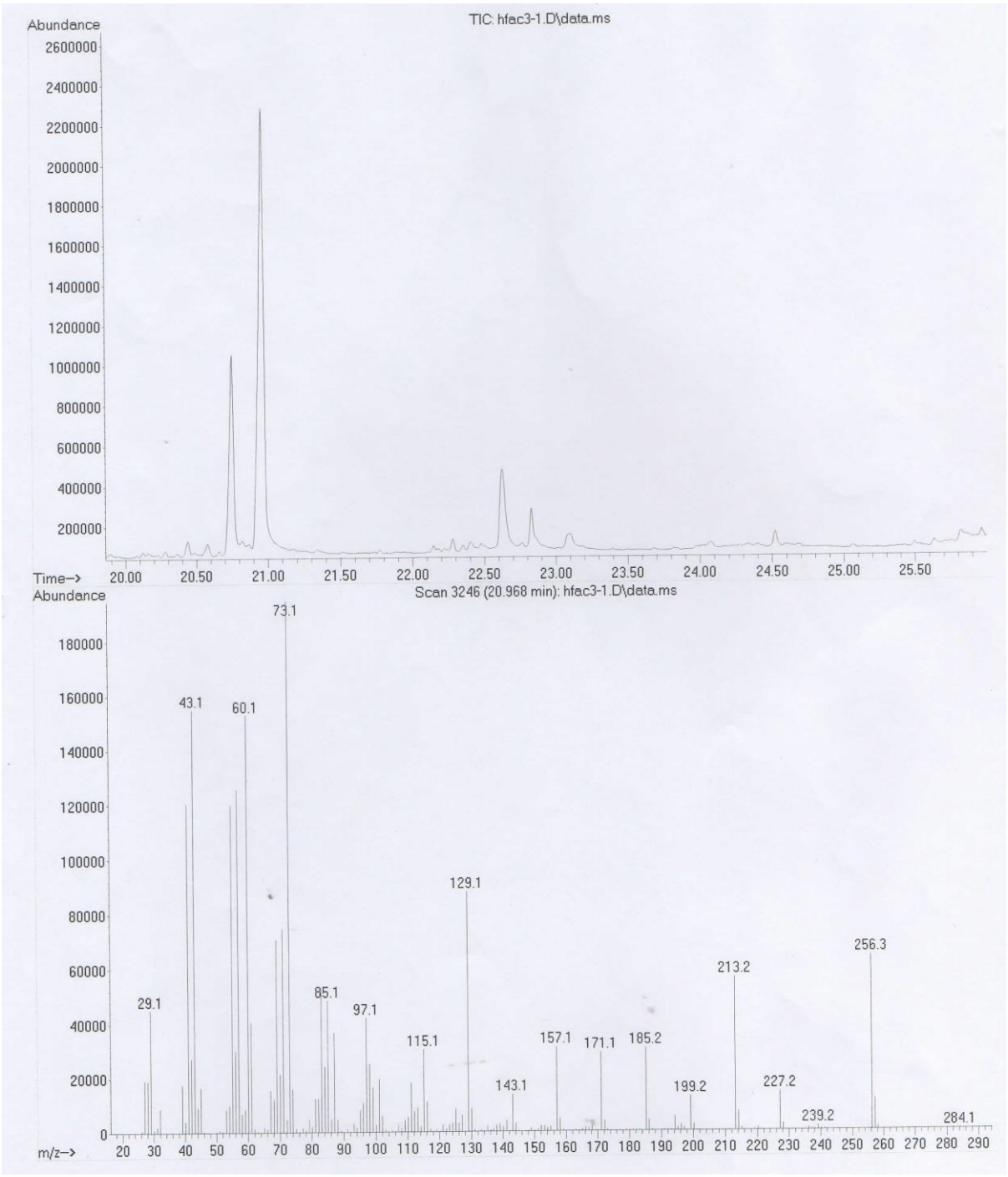


Figure S7. ^{13}C (100 MHz in $CDCl_3$)- and ^{1}H (400 MHz in $CDCl_3$)-NMR spectrum of compound **1**.



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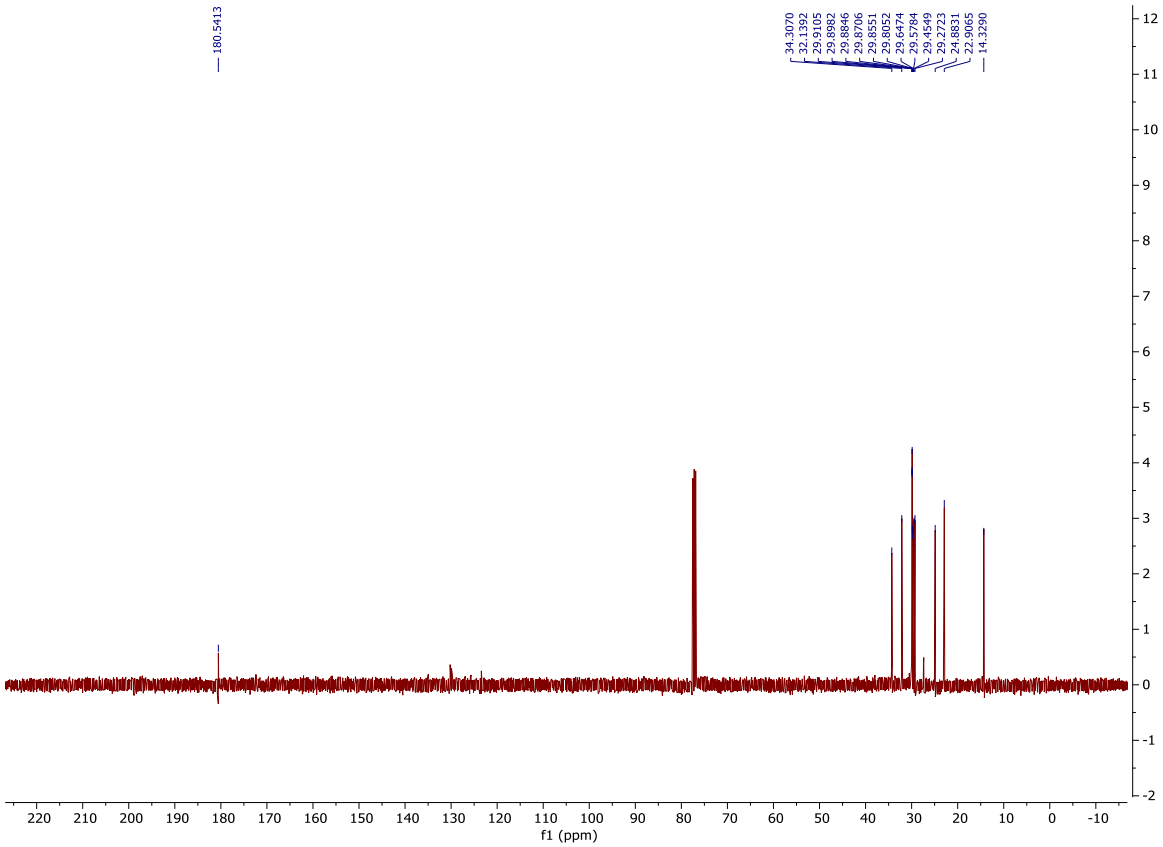

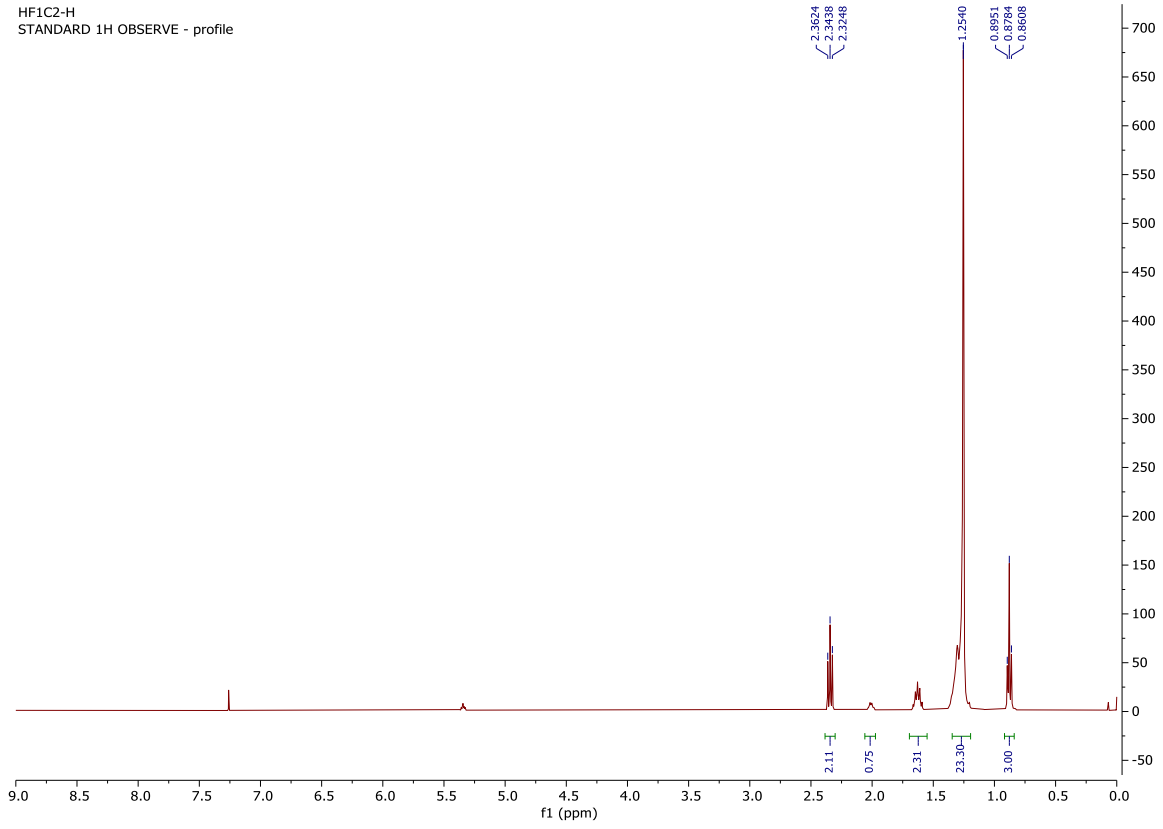

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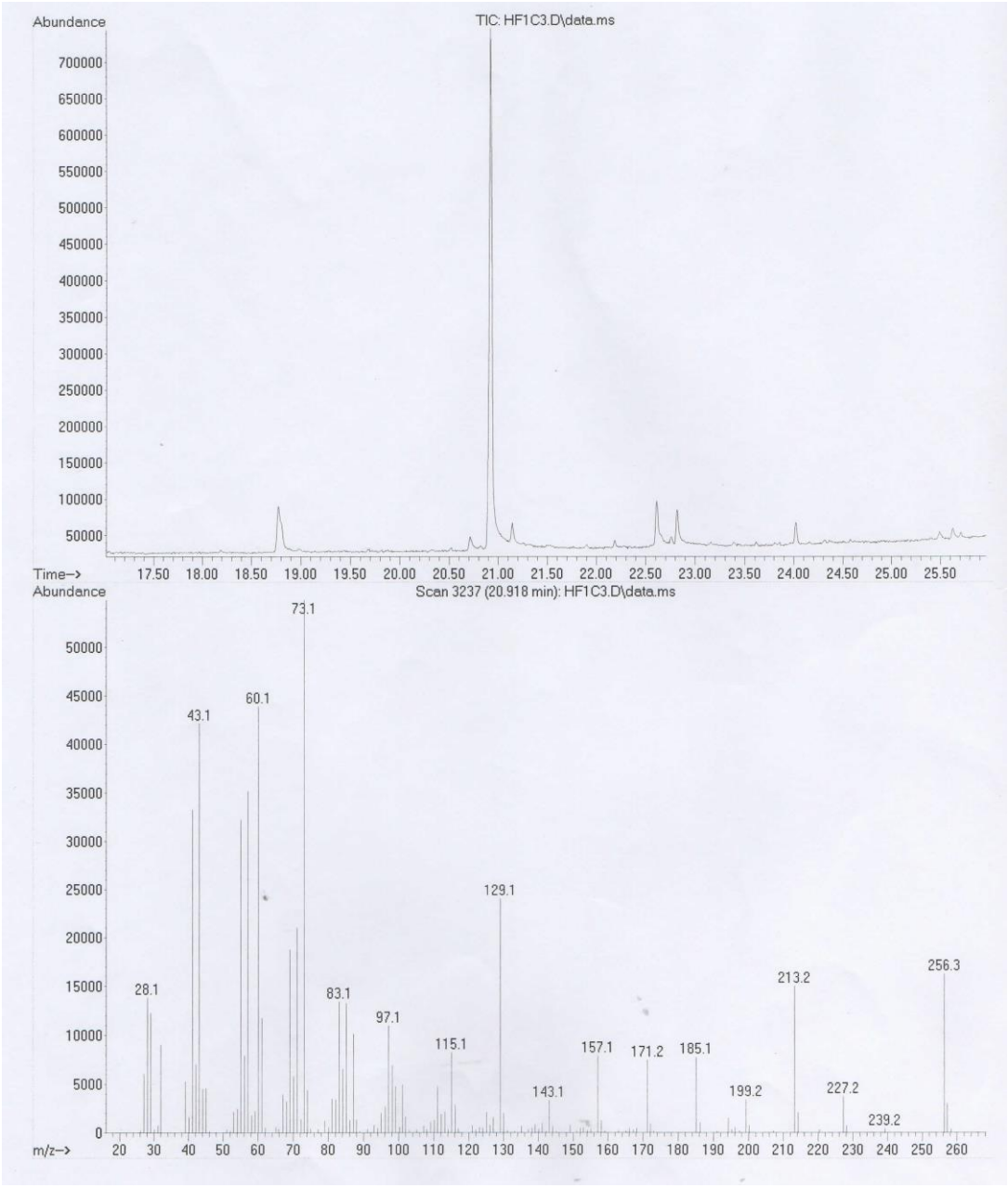

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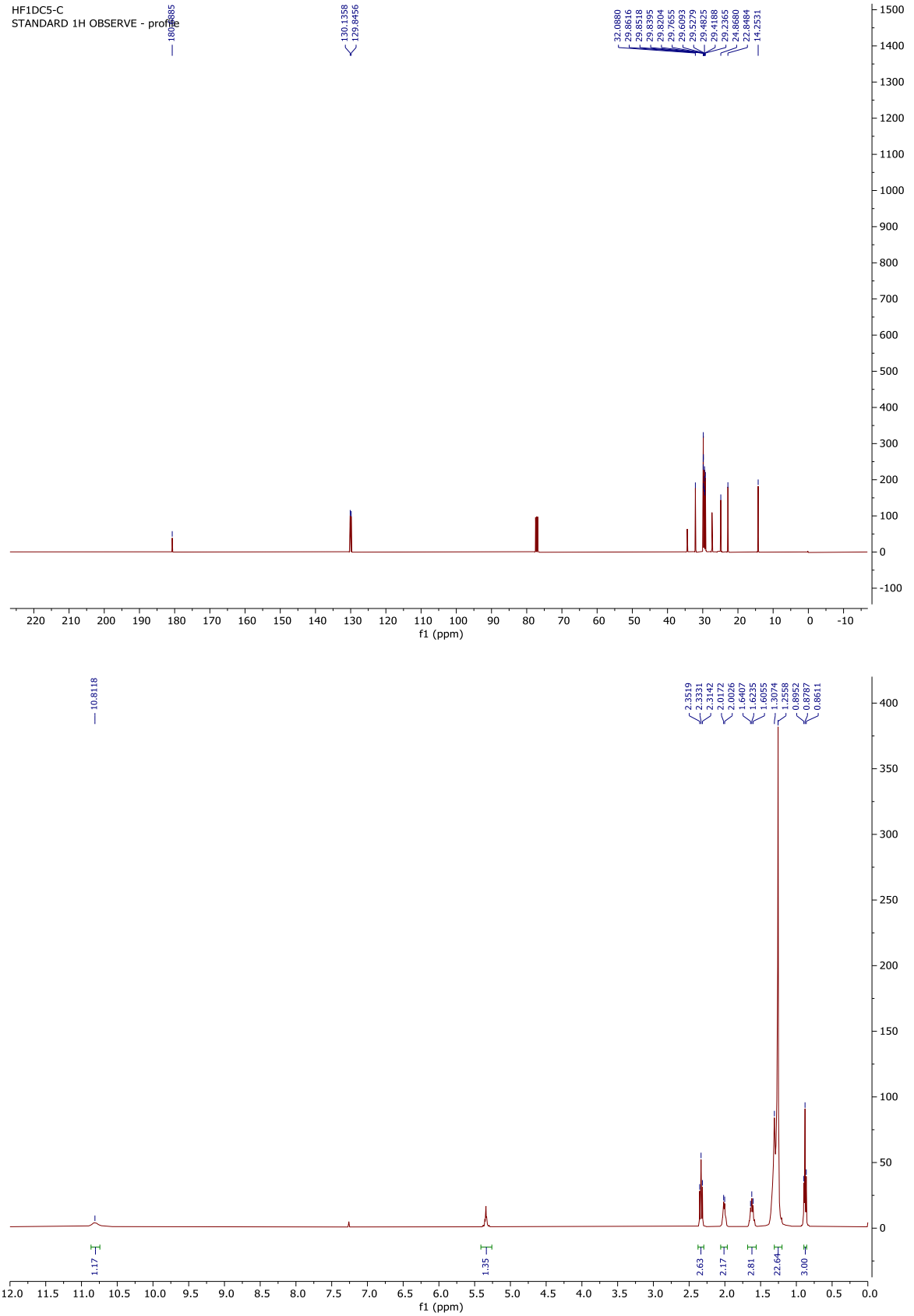

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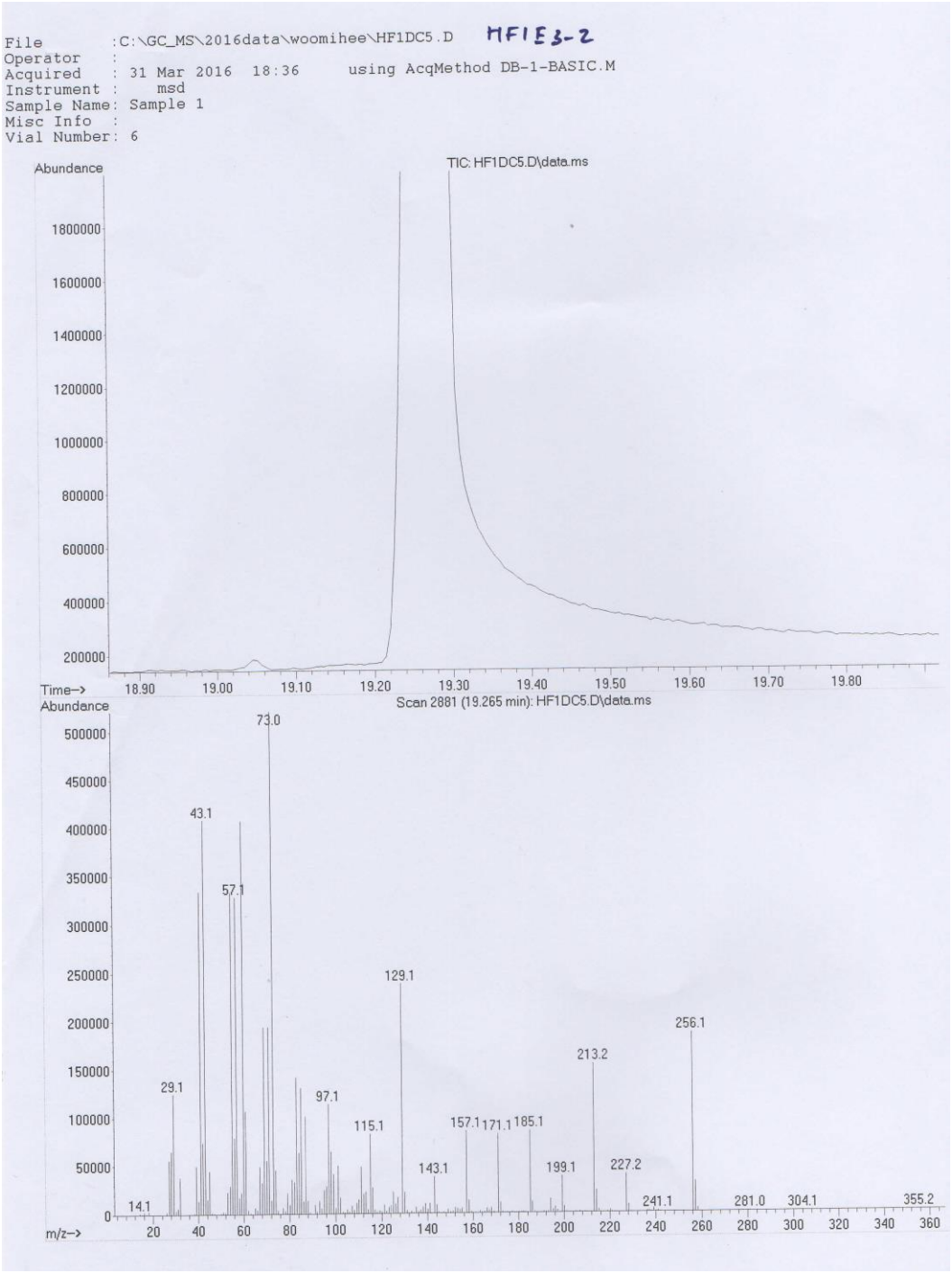

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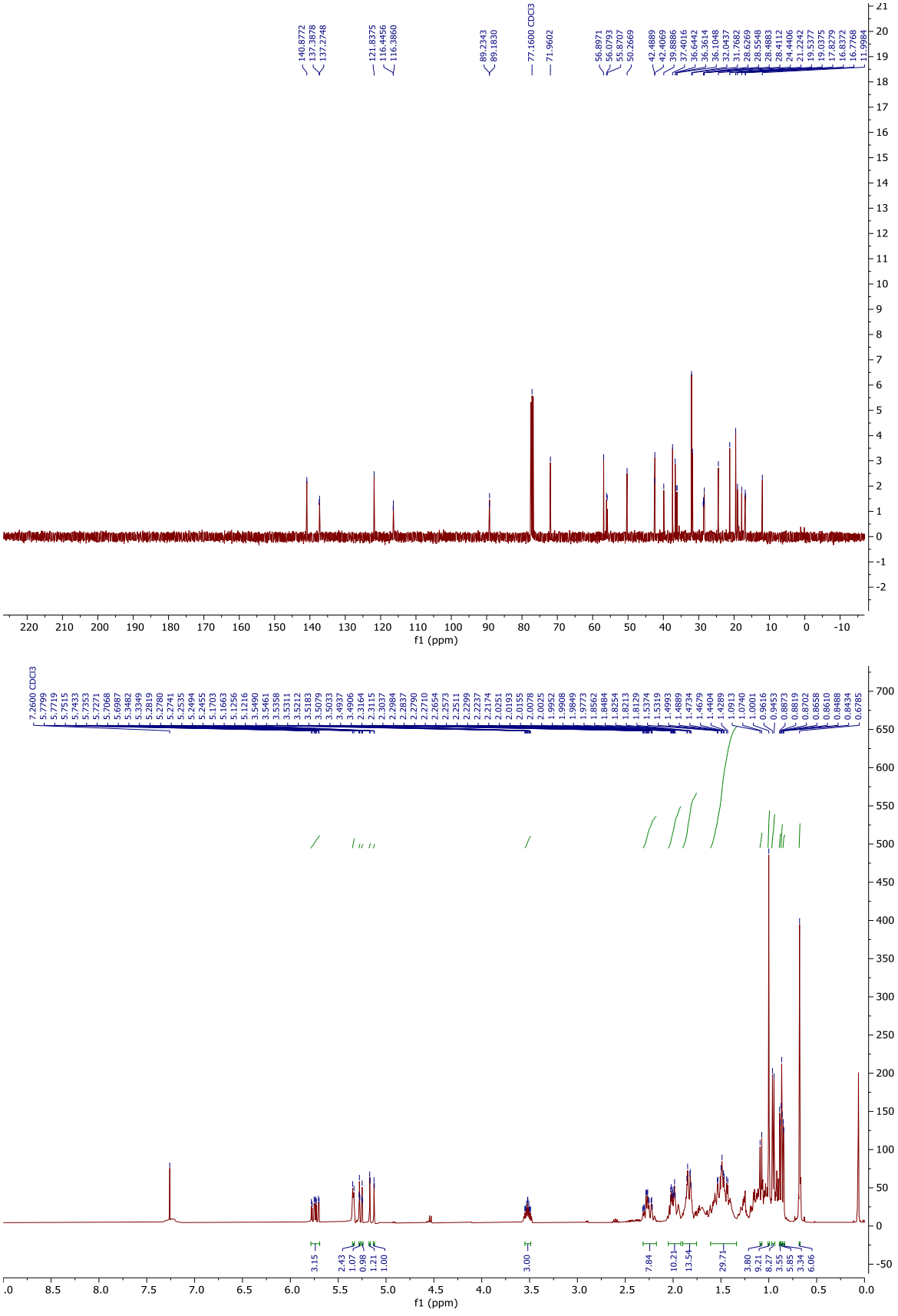

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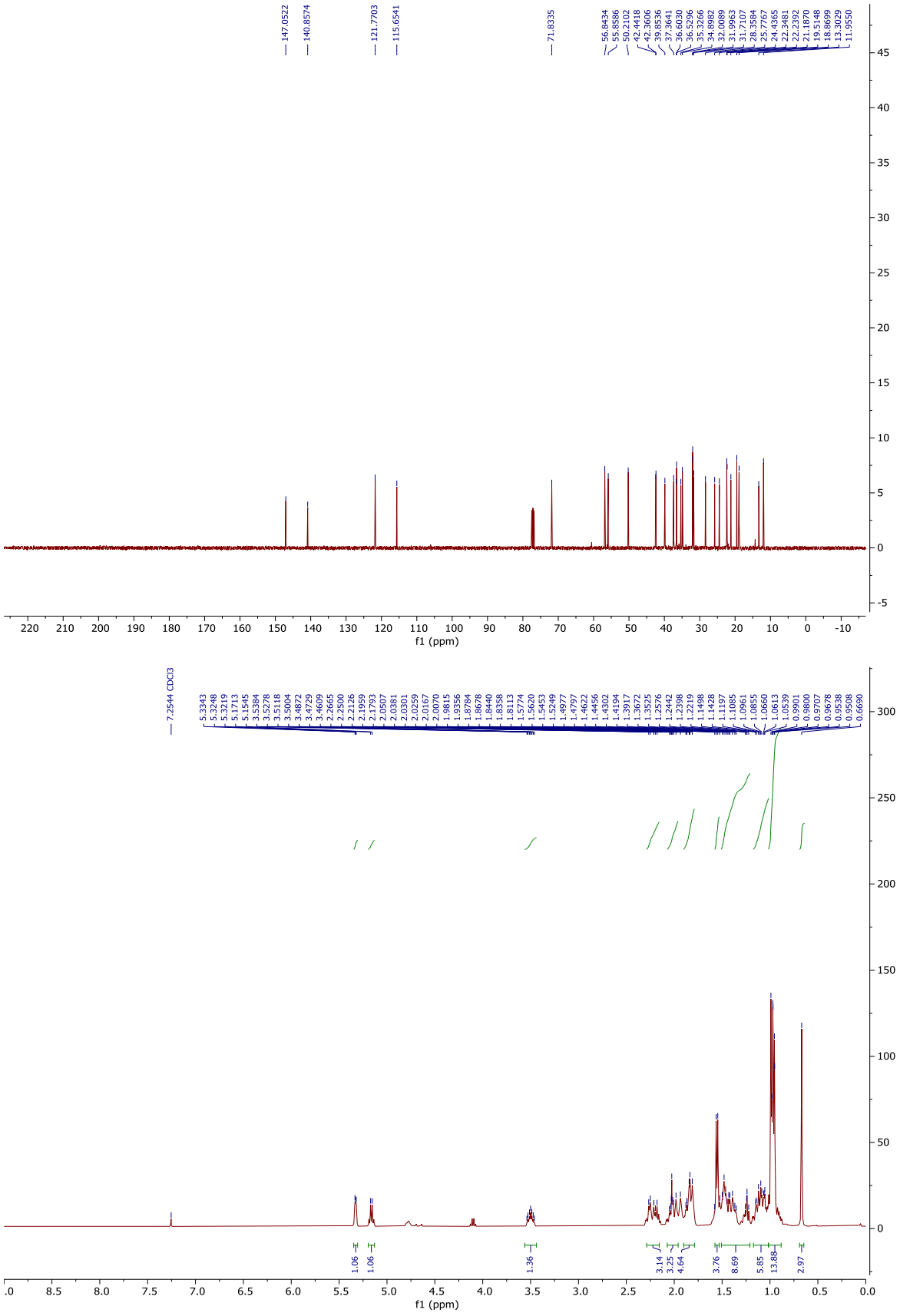
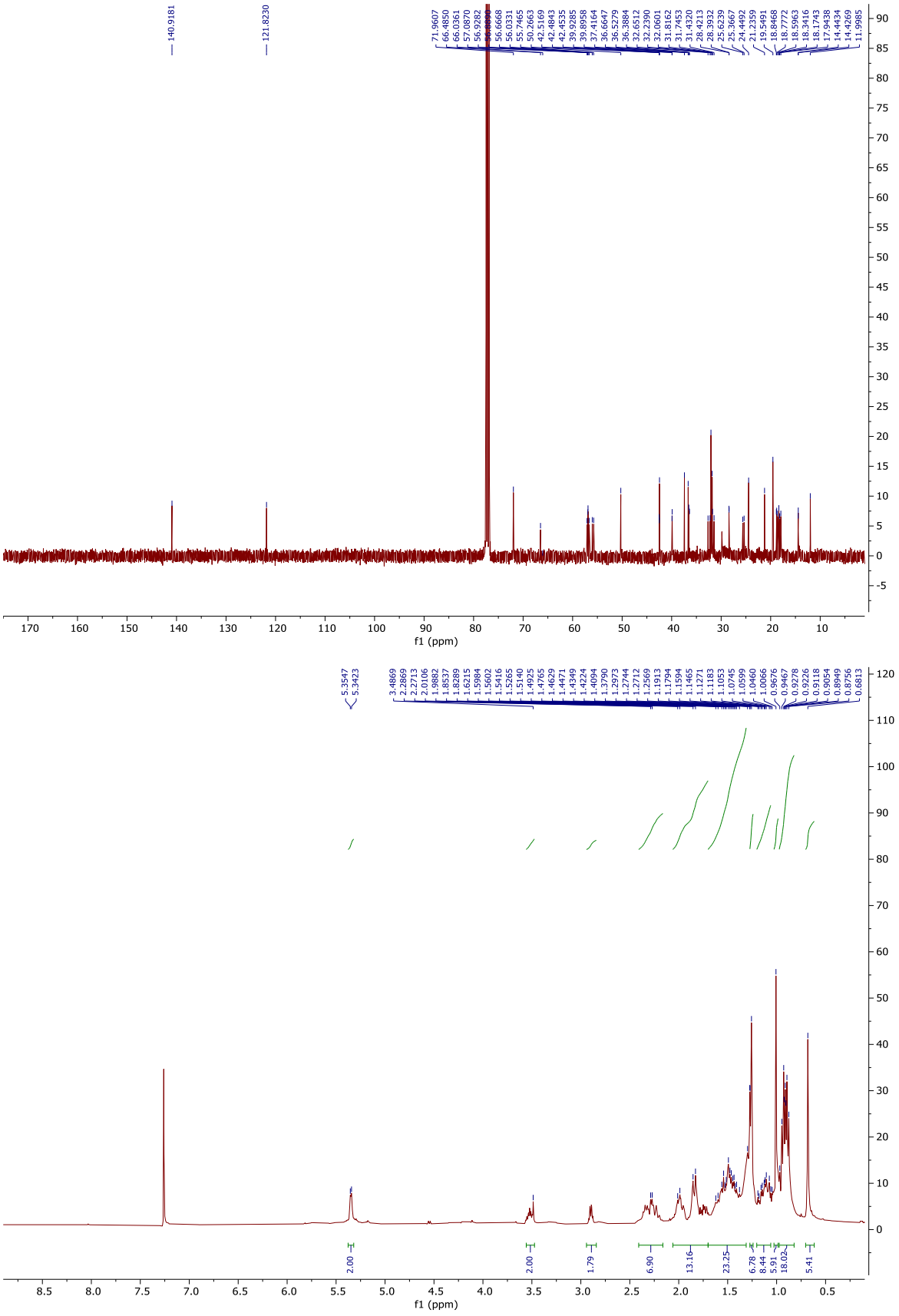


Figure S14. ^{13}C (100MHz in $CDCl_3$)- and ^{1}H (400MHz in $CDCl_3$)-NMR spectrum of compound **5**.



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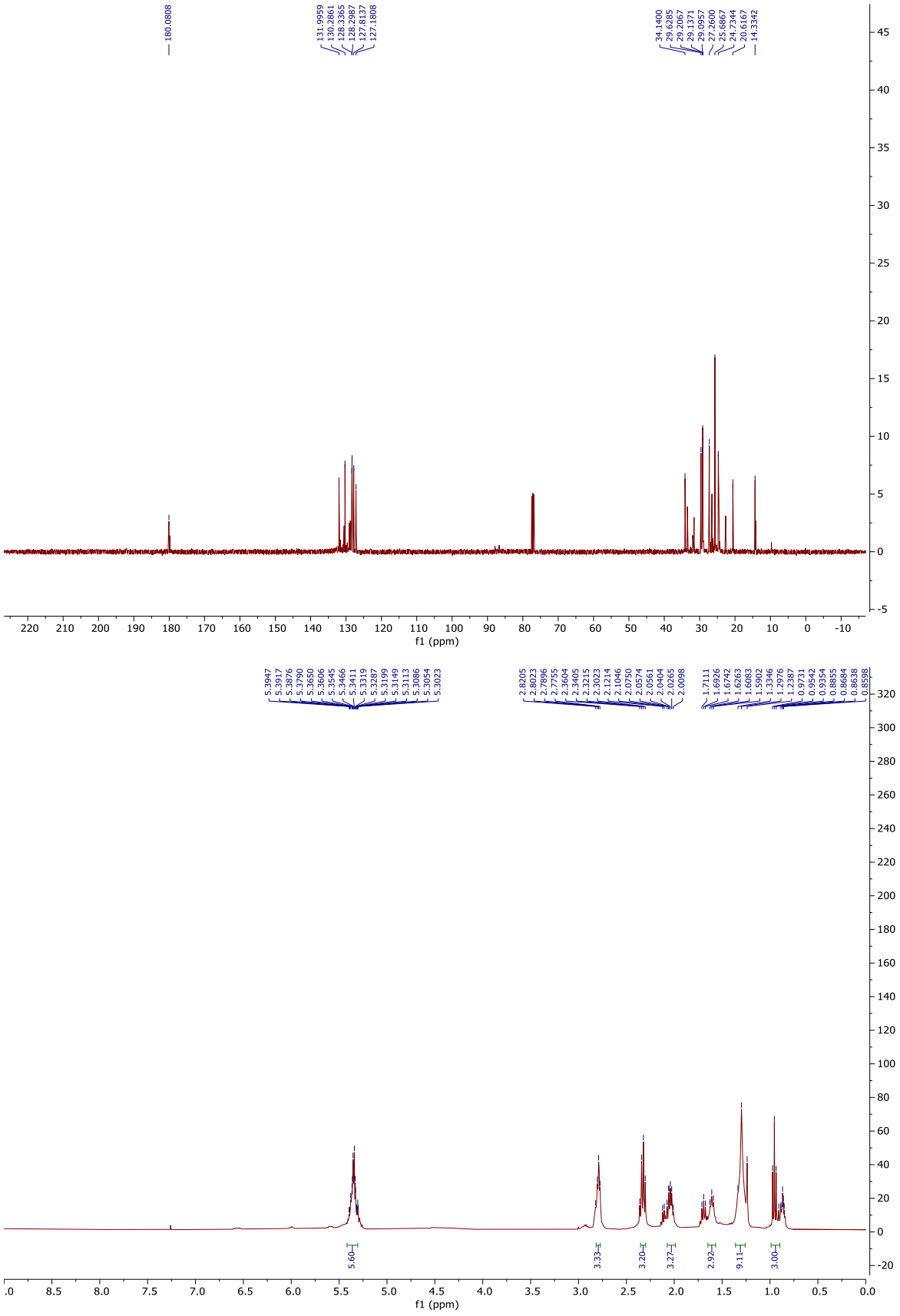

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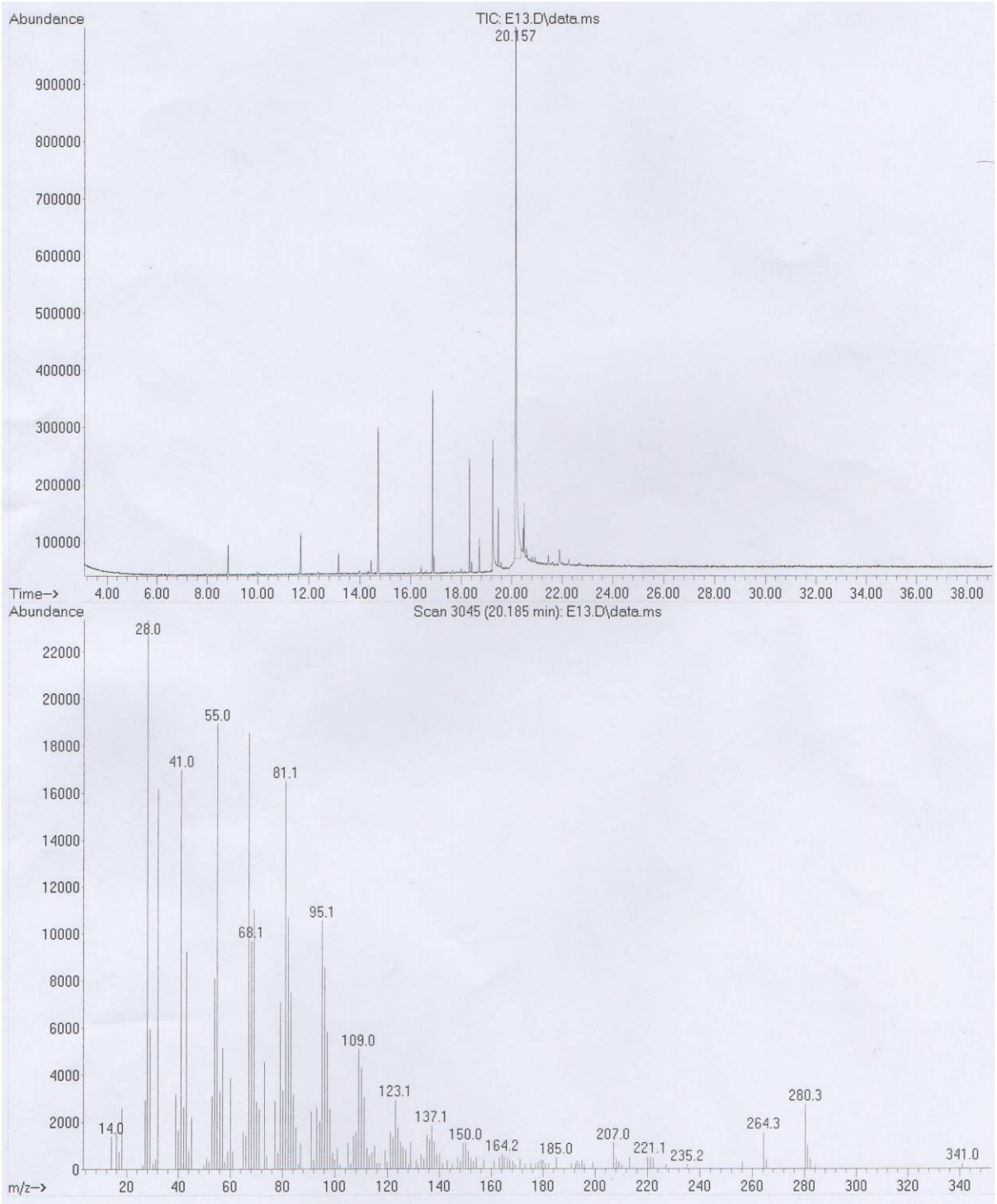

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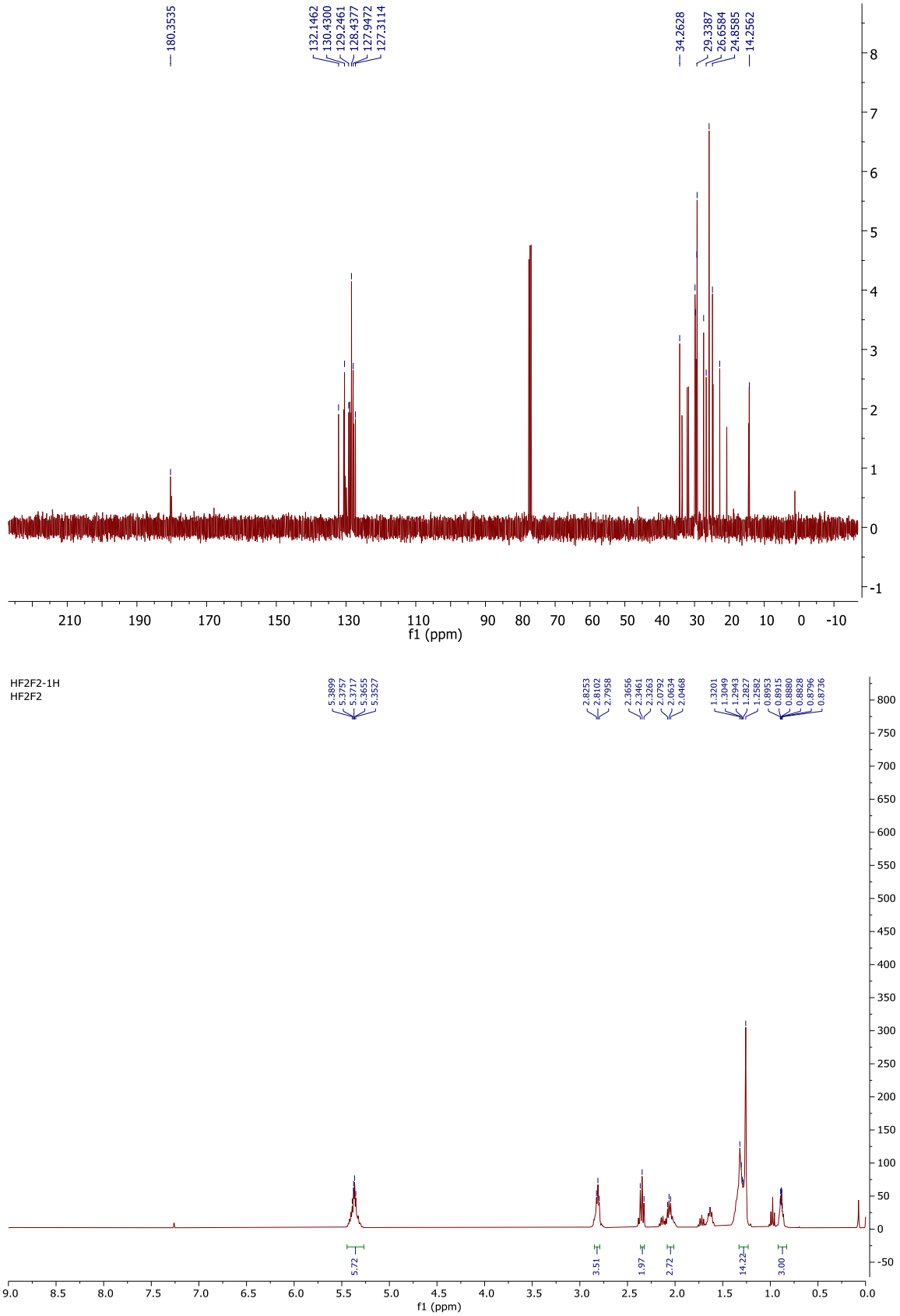

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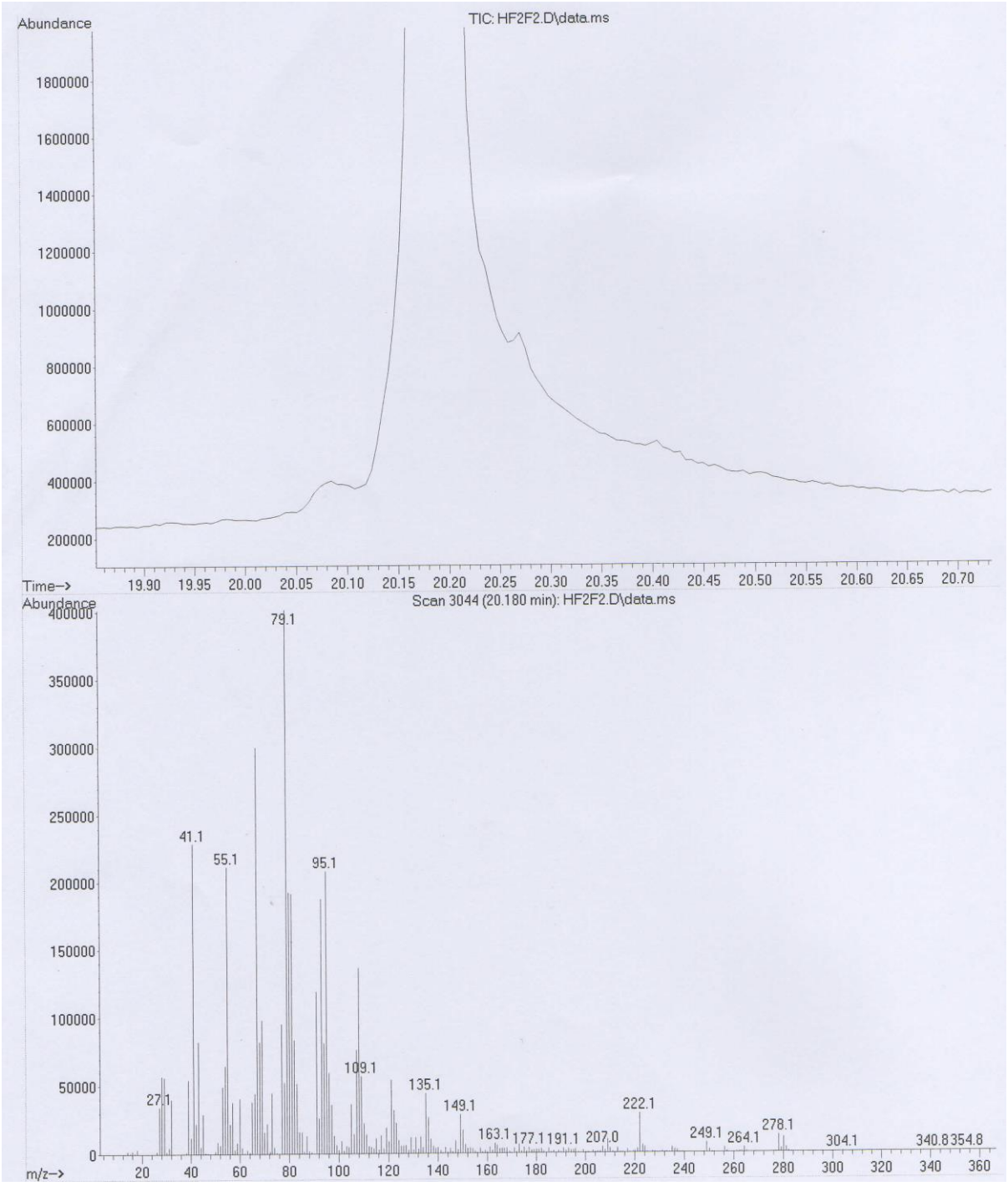

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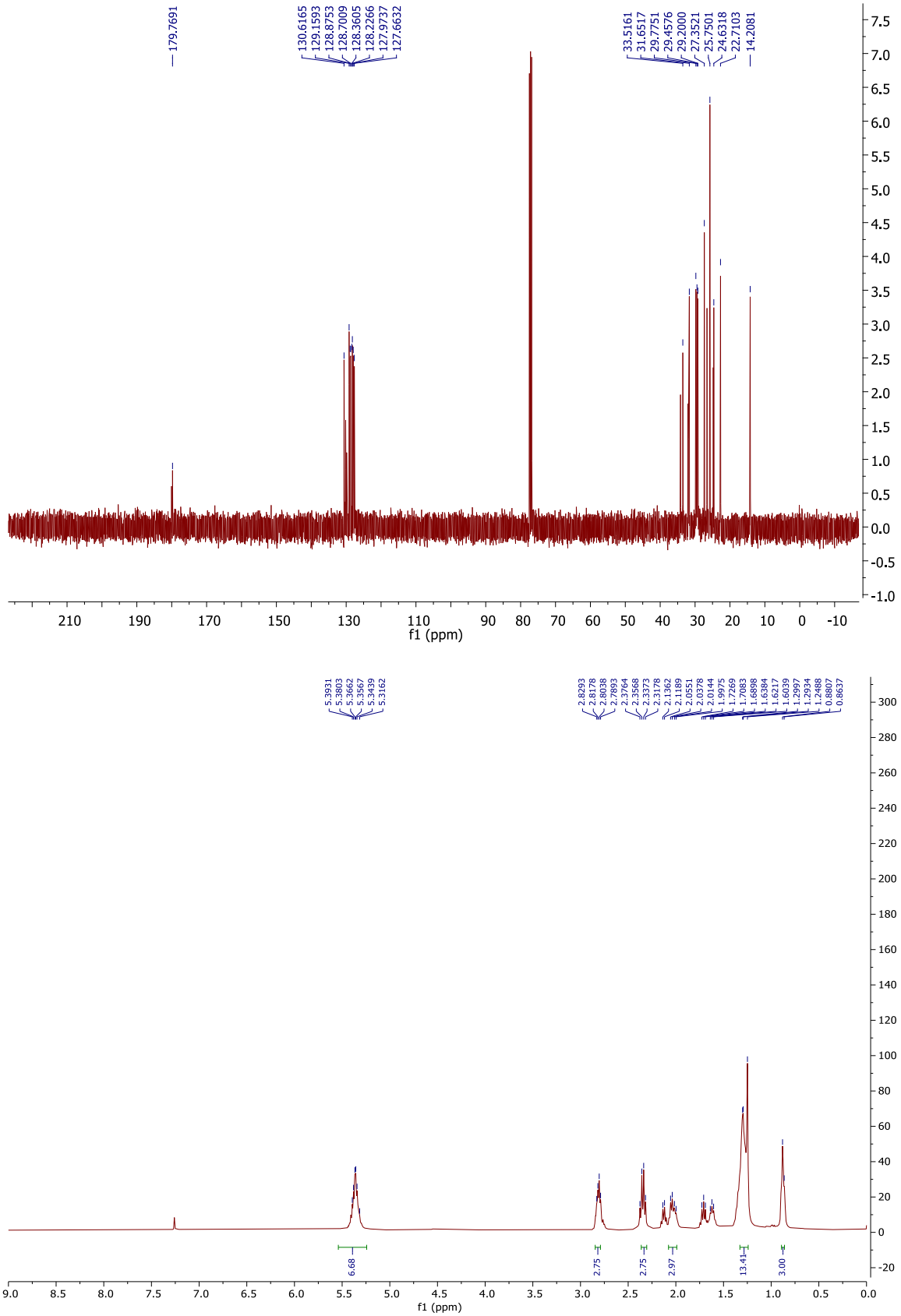

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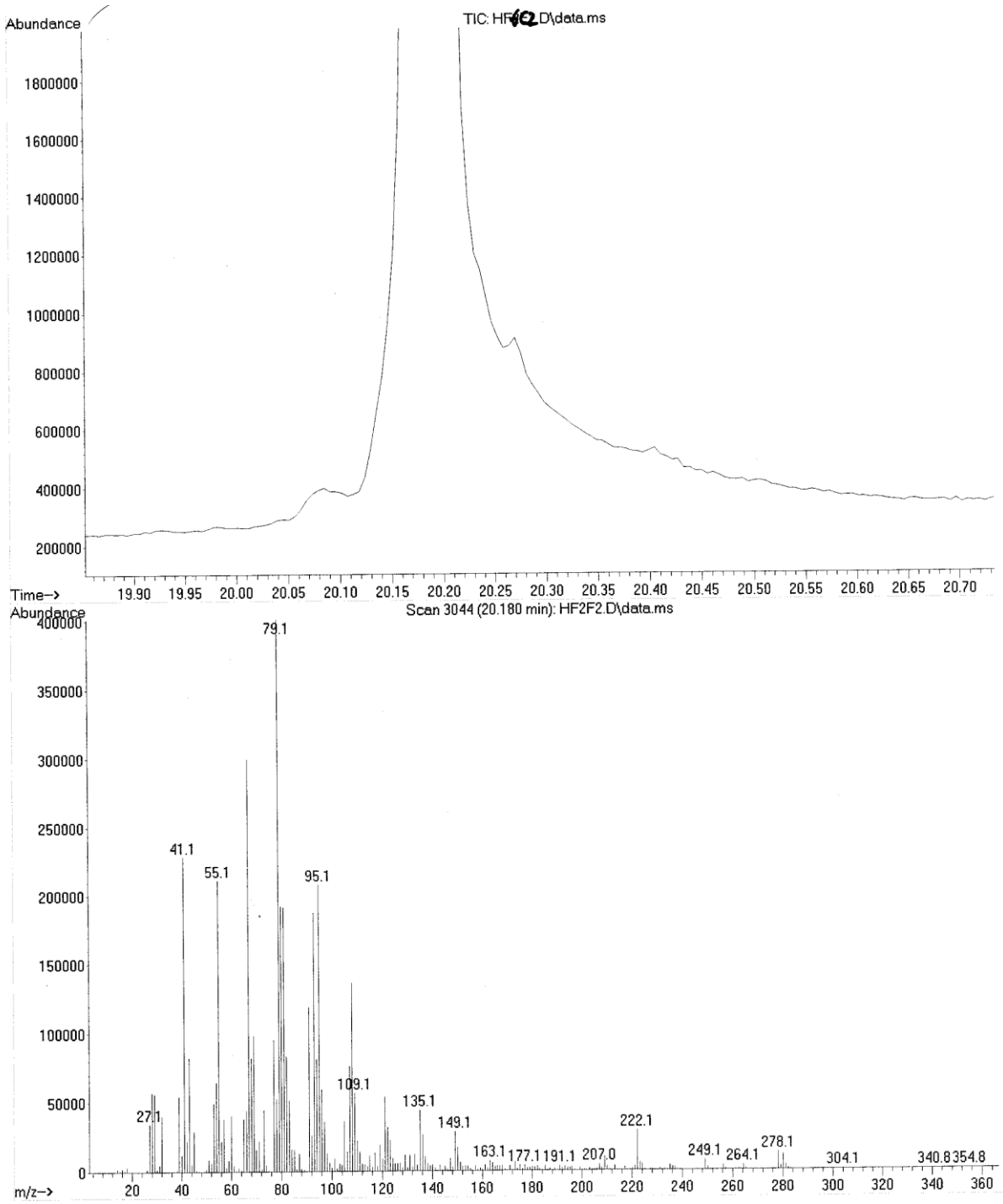
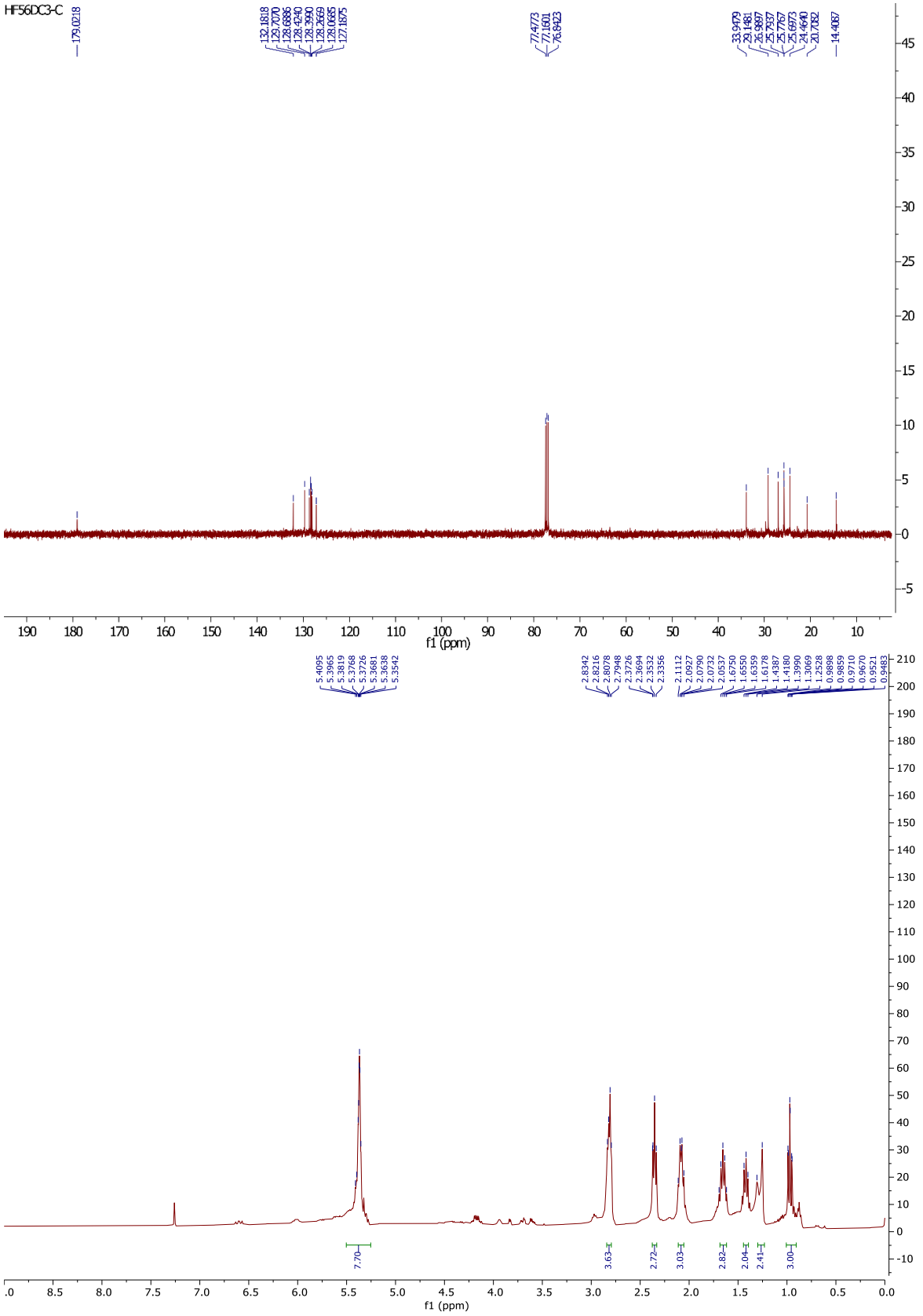


Figure S21. EI-MS spectrum of compound **9.**



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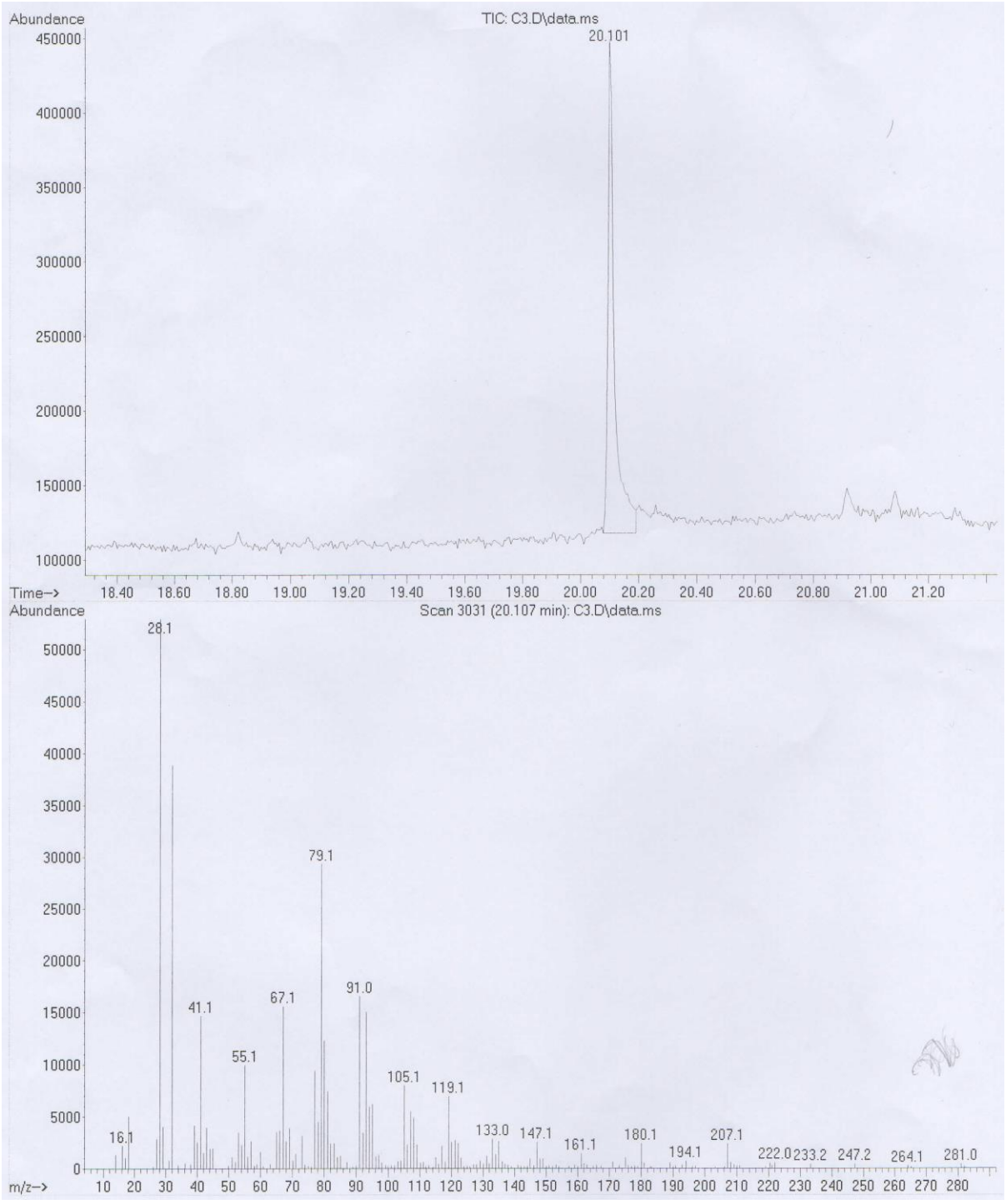
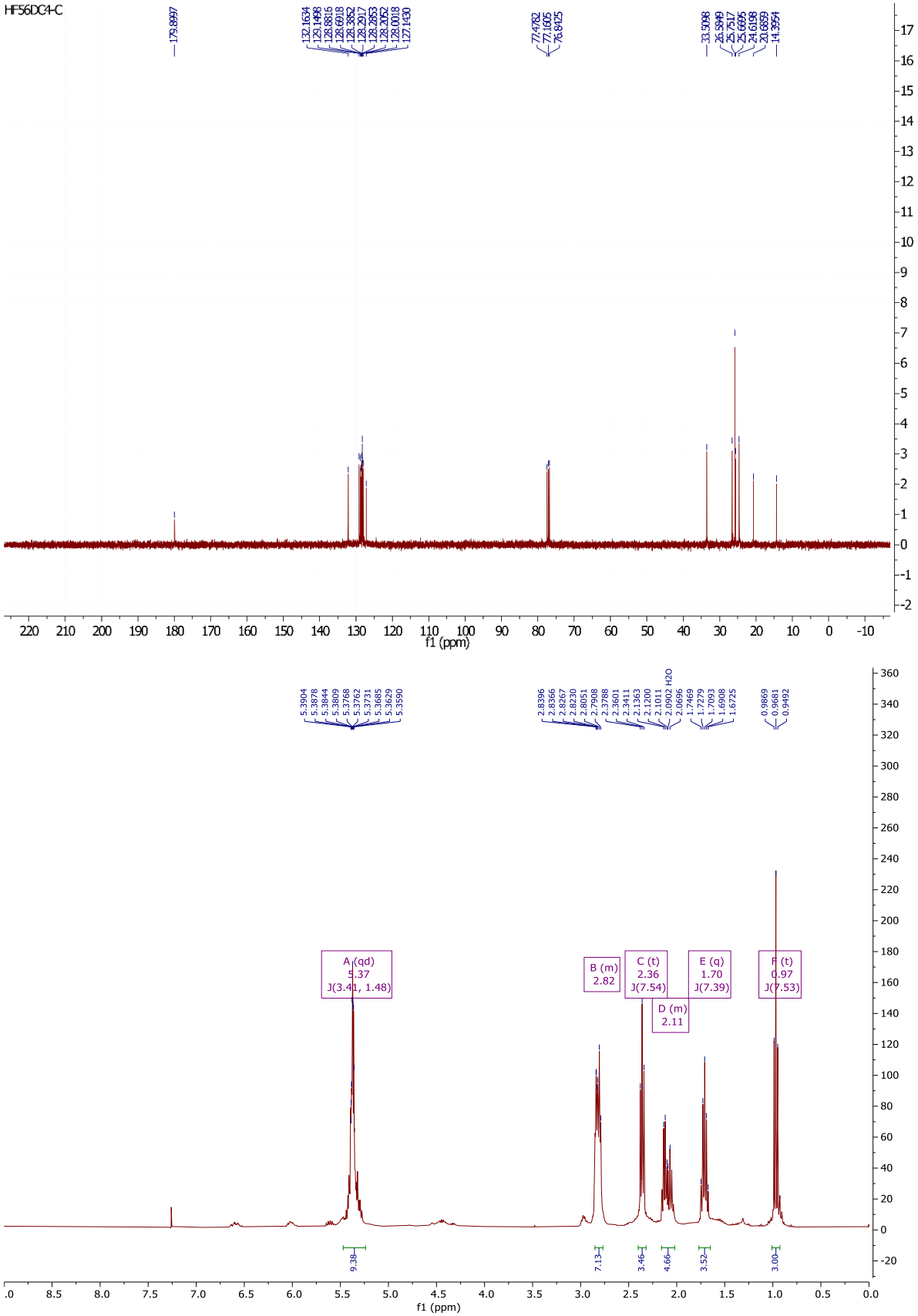


Figure S23. EI-MS spectrum of compound **10**.



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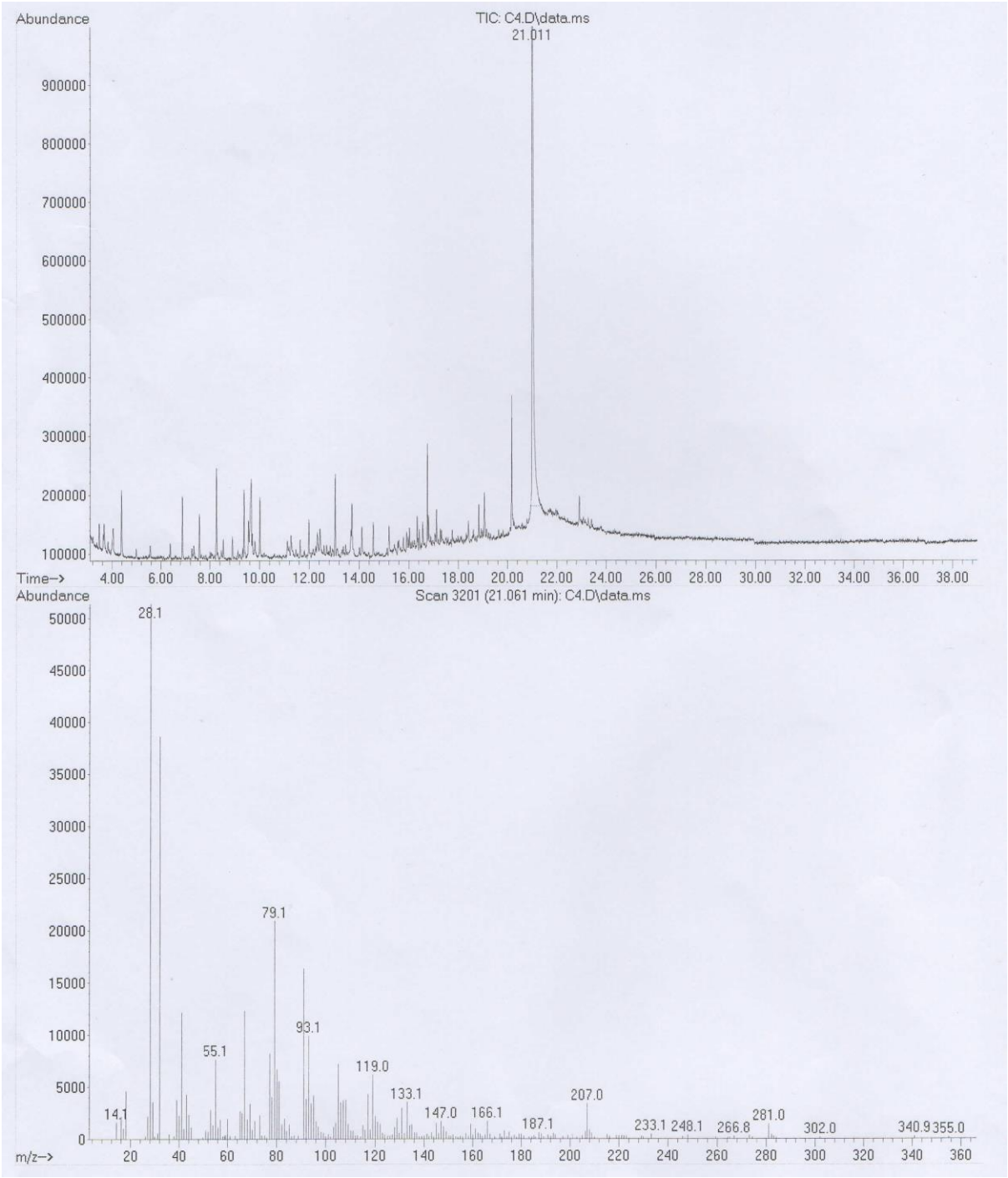

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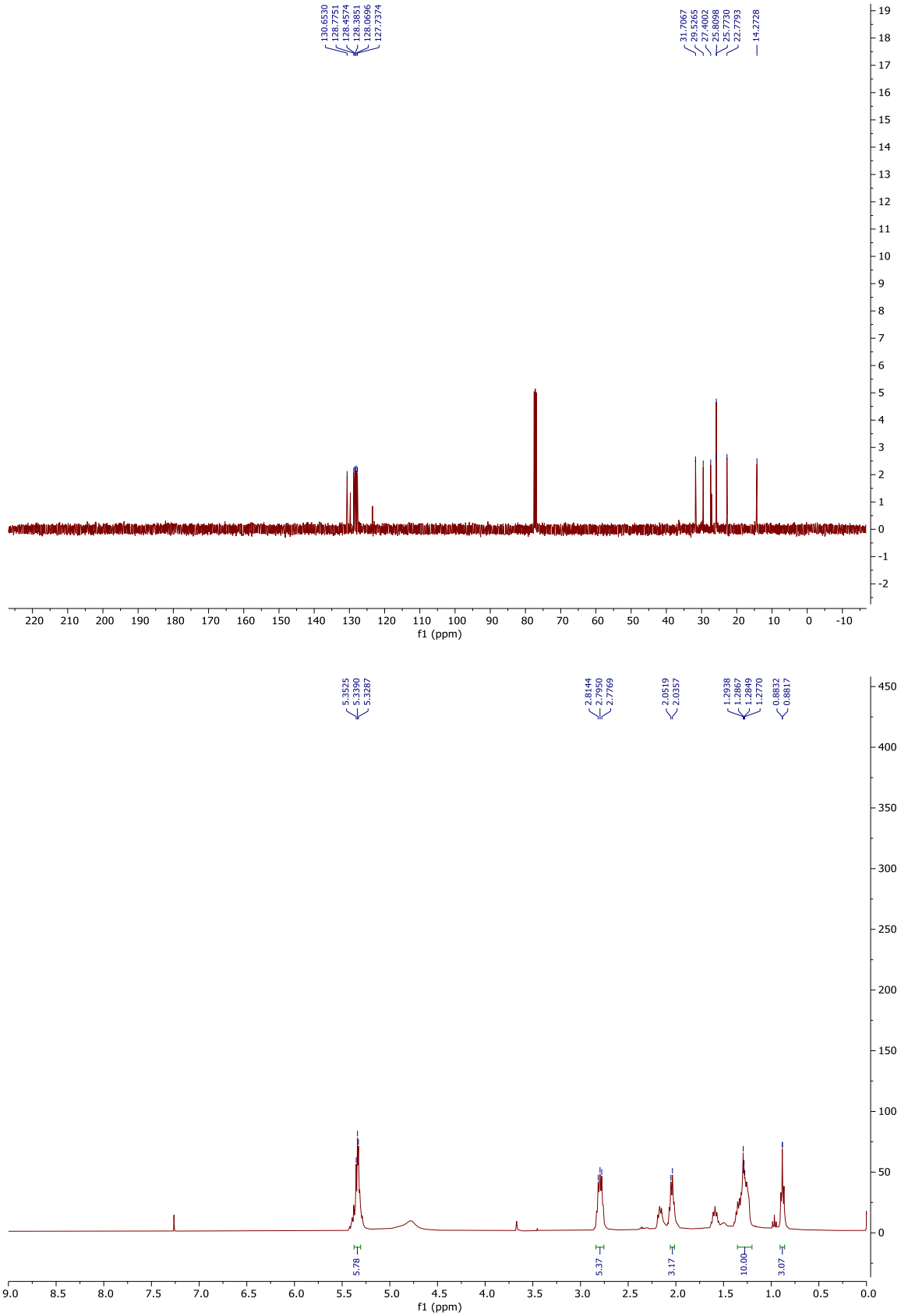

Figure S26. ^{13}C (100MHz in $CDCl_3$)- and ^{1}H (400MHz in $CDCl_3$)-NMR spectrum of compound **12**.

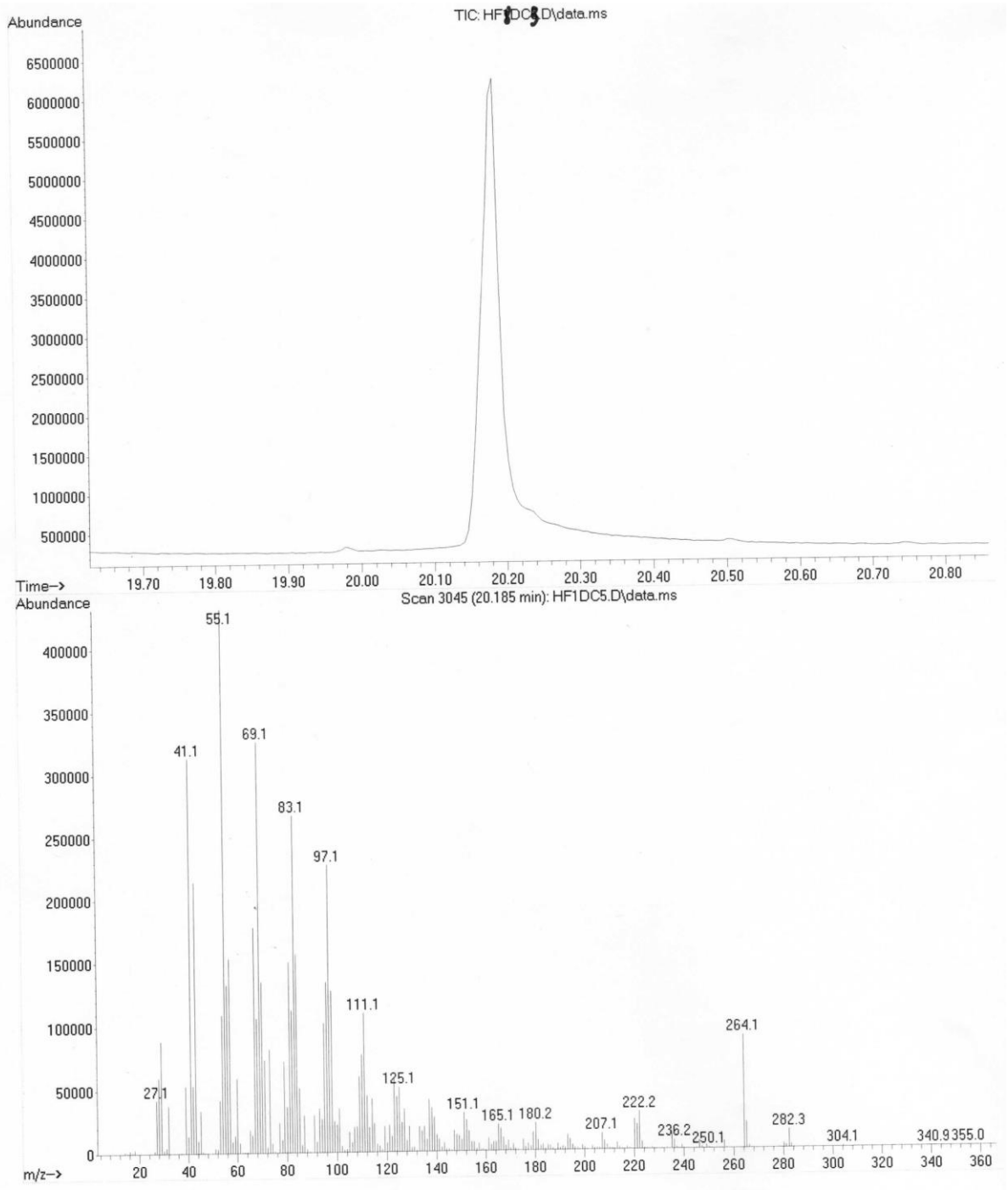

Figure S27. EI-MS spectrum of compound **12**.

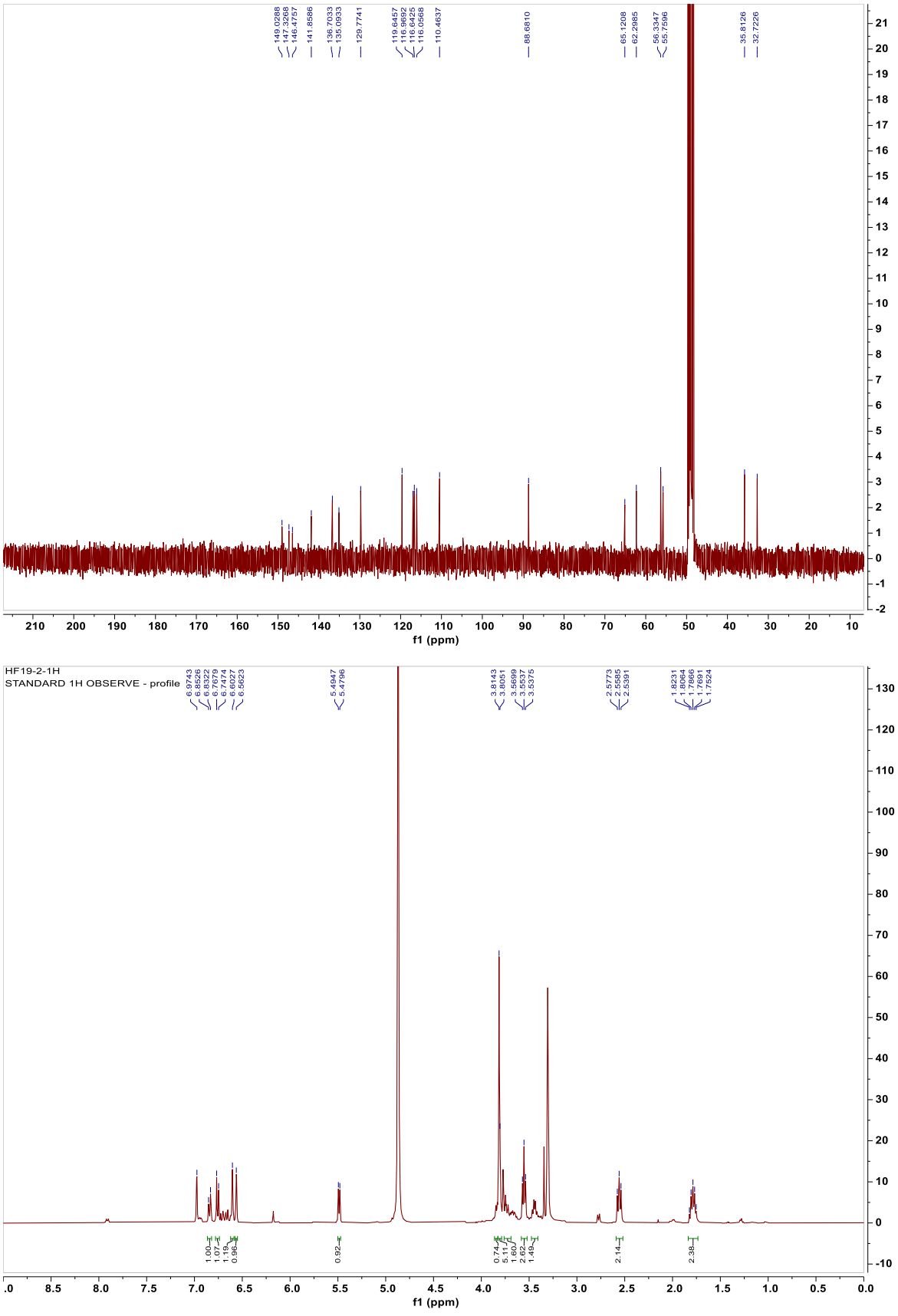

Figure S28. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **14**.

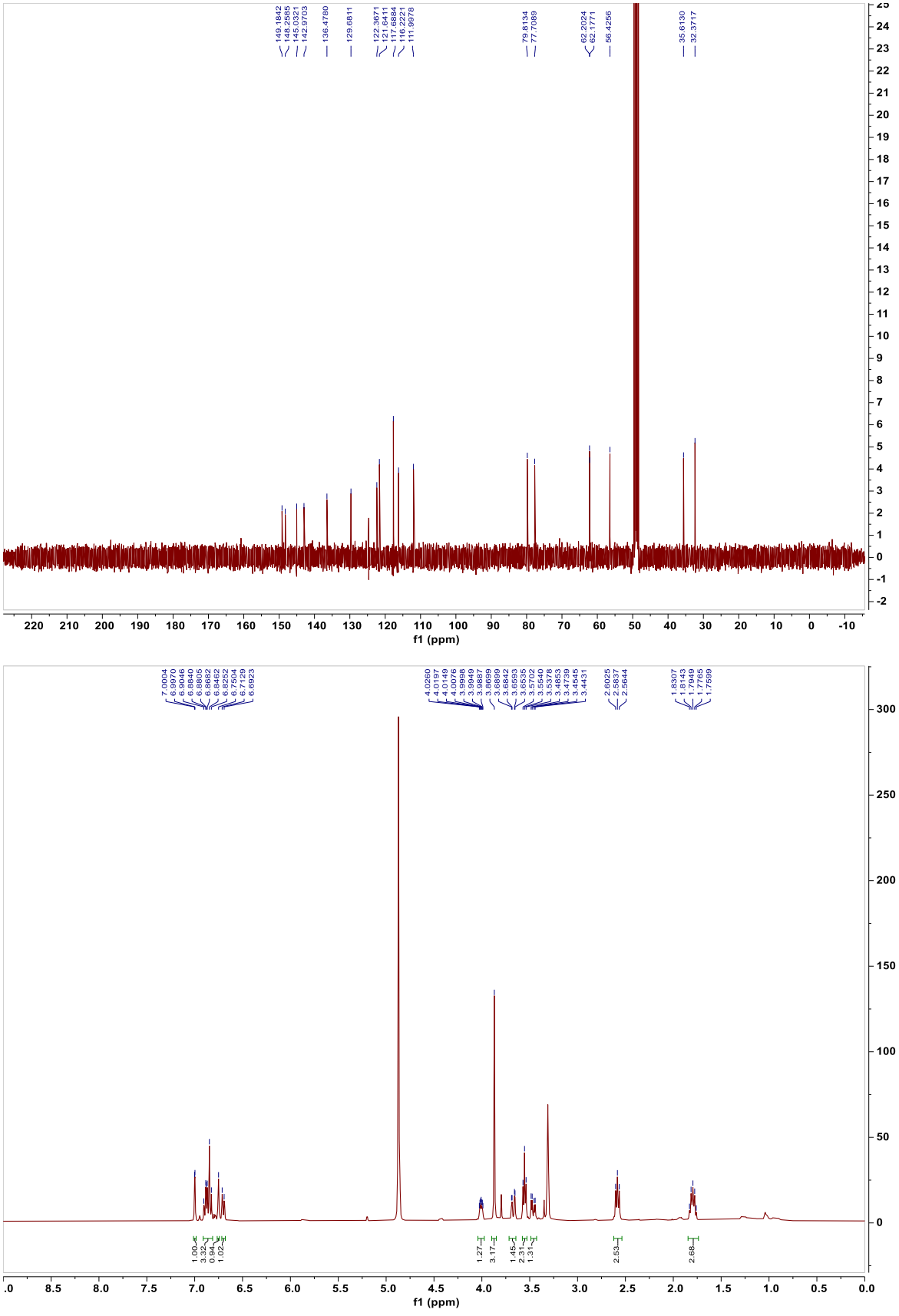

Figure S29. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **15**.

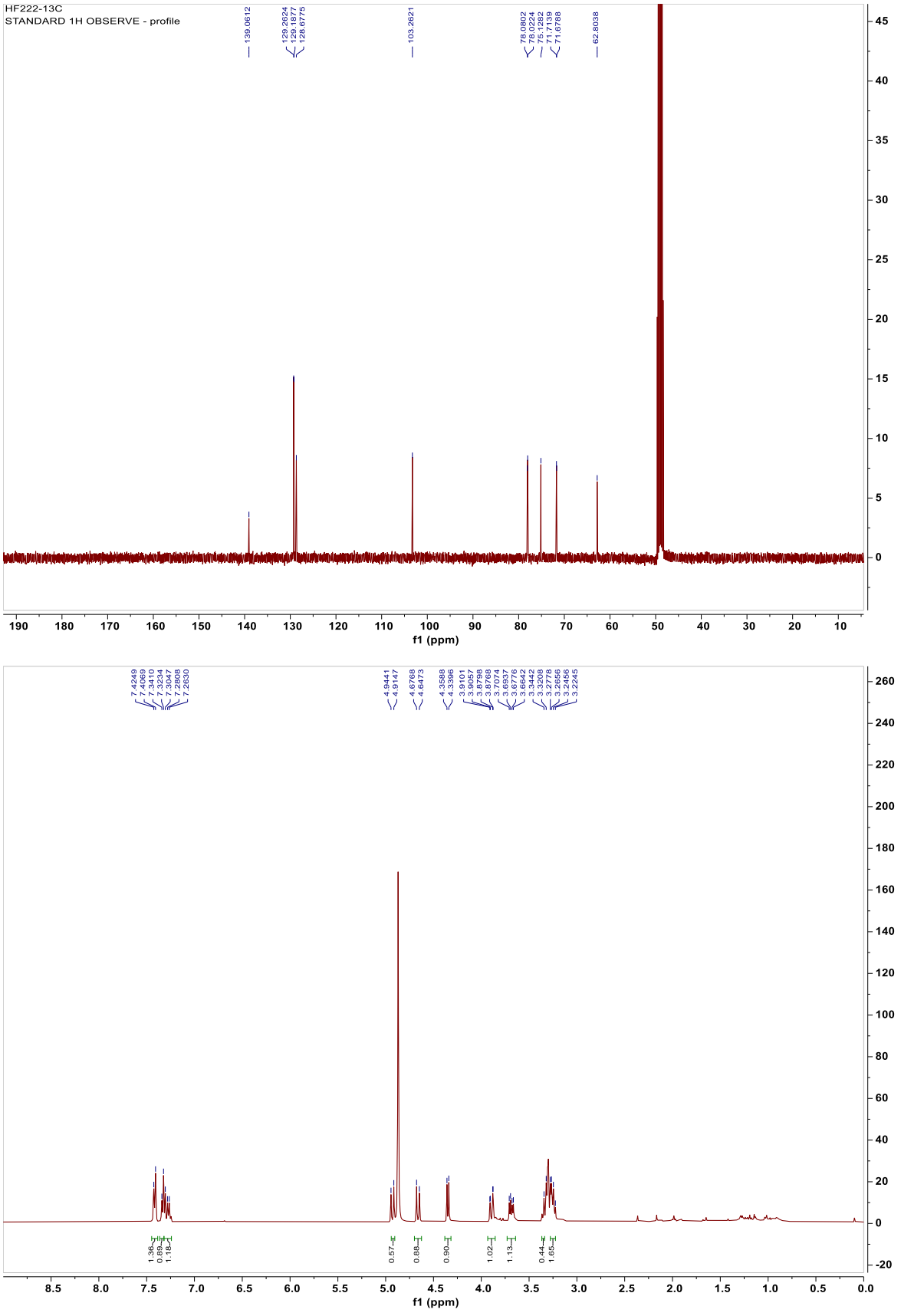

Figure S30. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **16**.

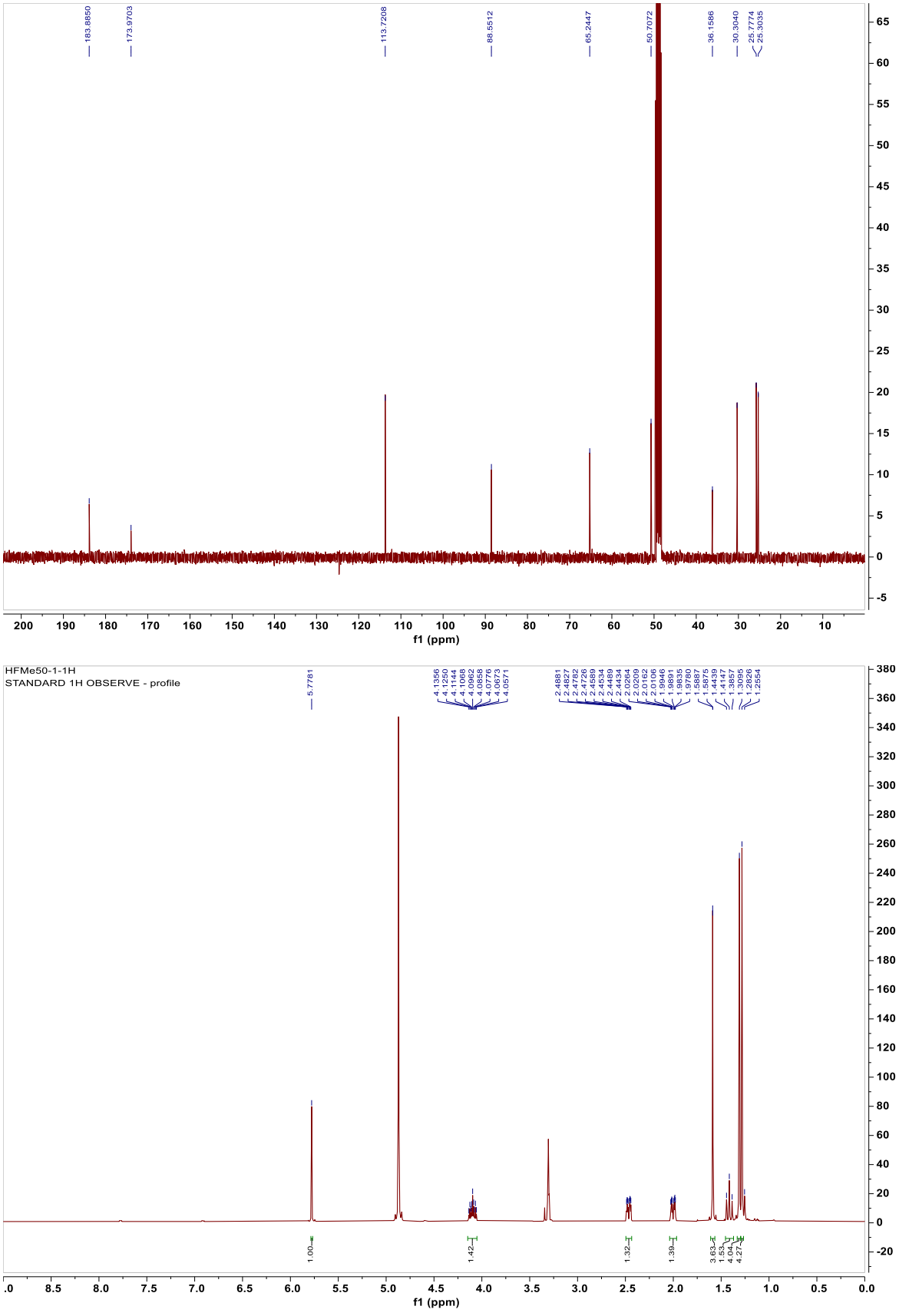

Figure S31. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **17**.

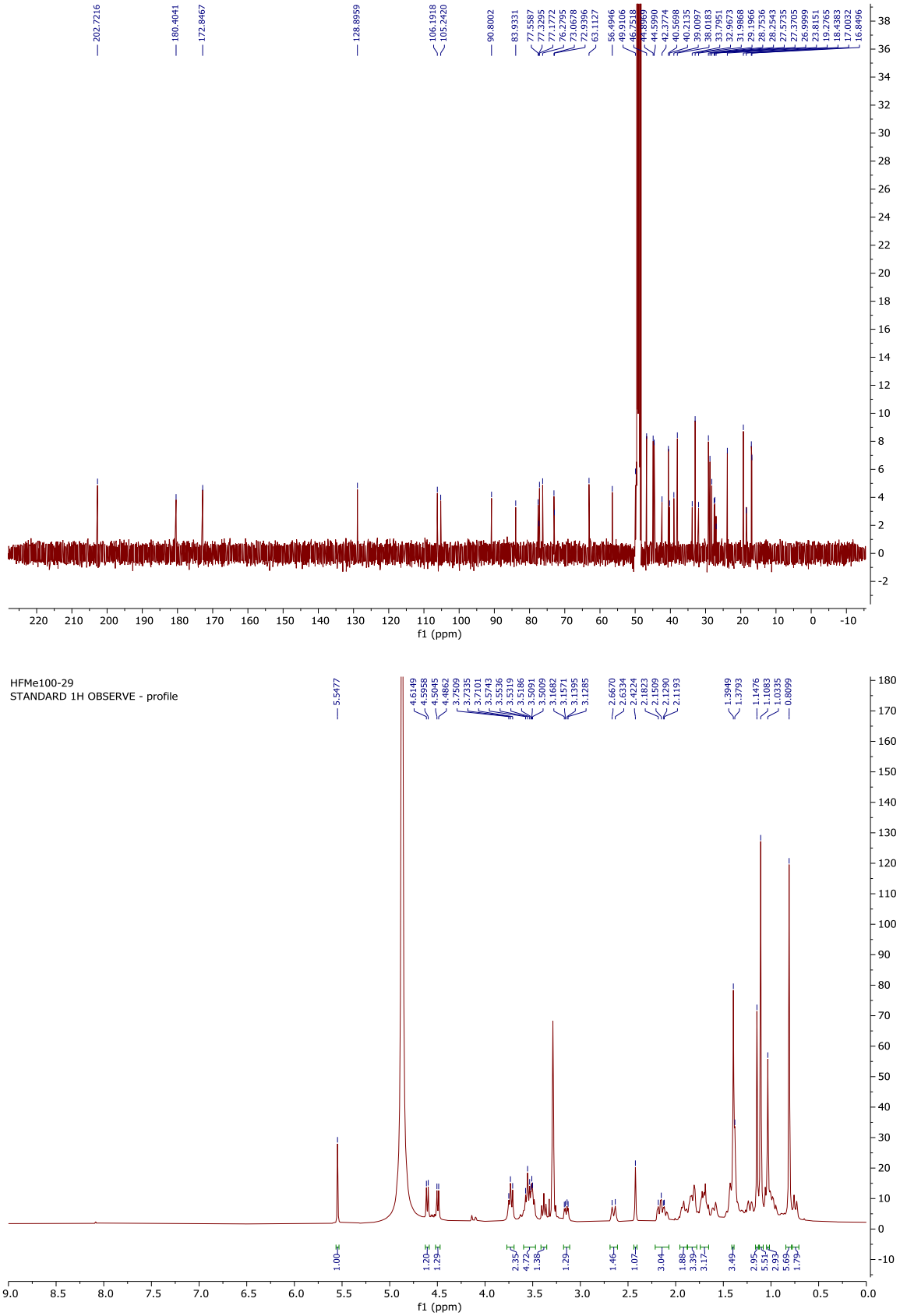

Figure S32. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **18**.

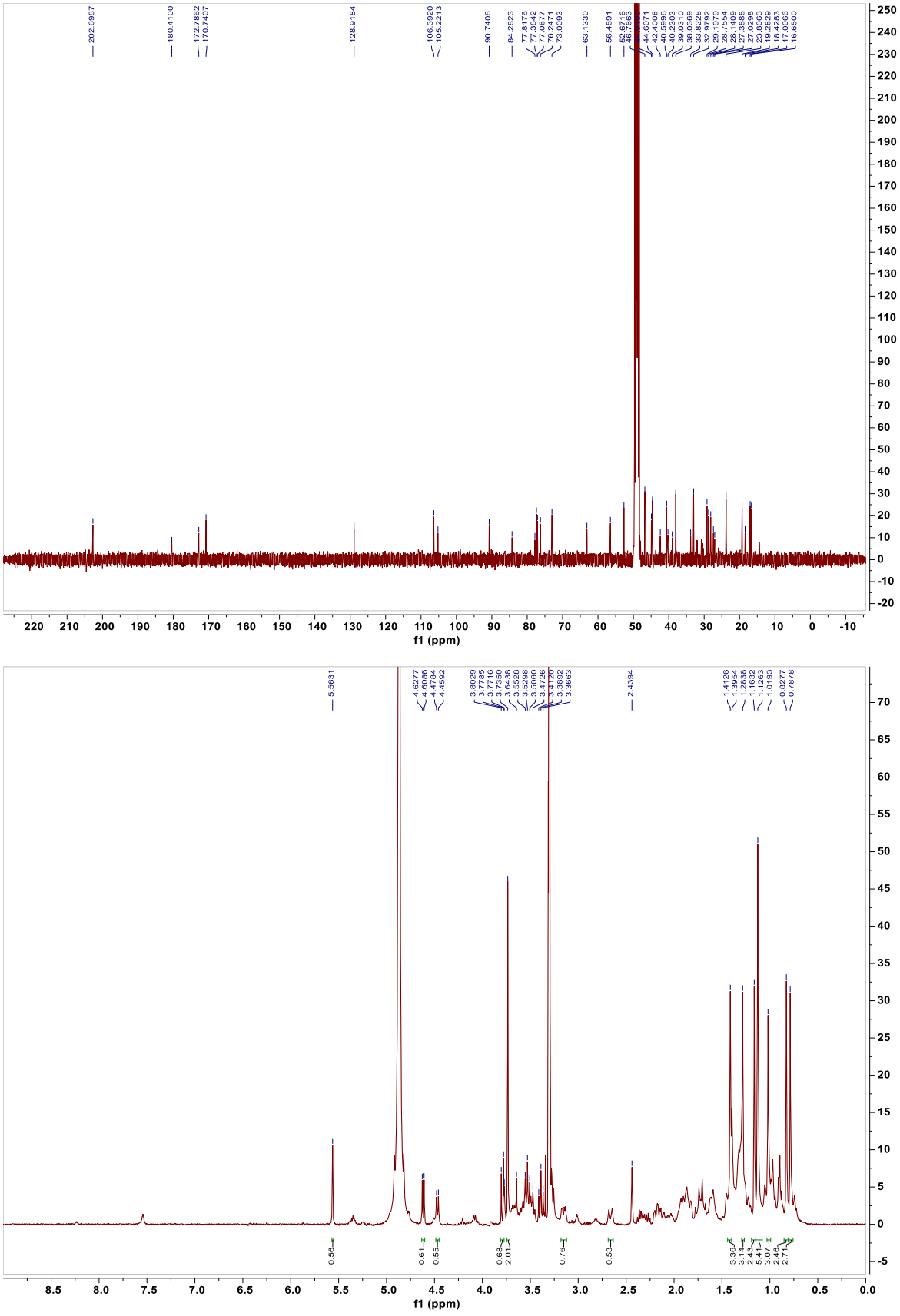

Figure S33. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **19**.

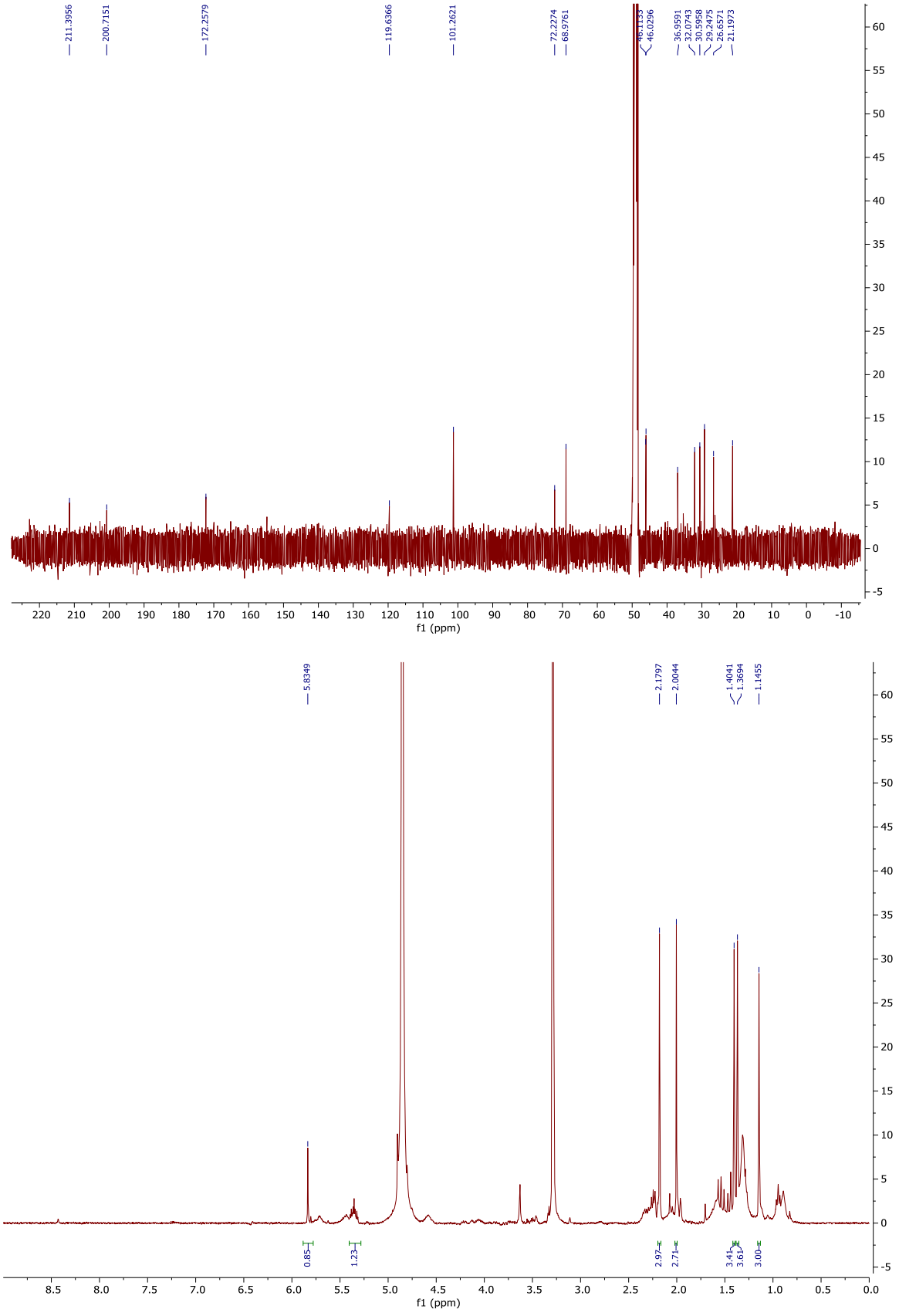

Figure S34. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **20**.

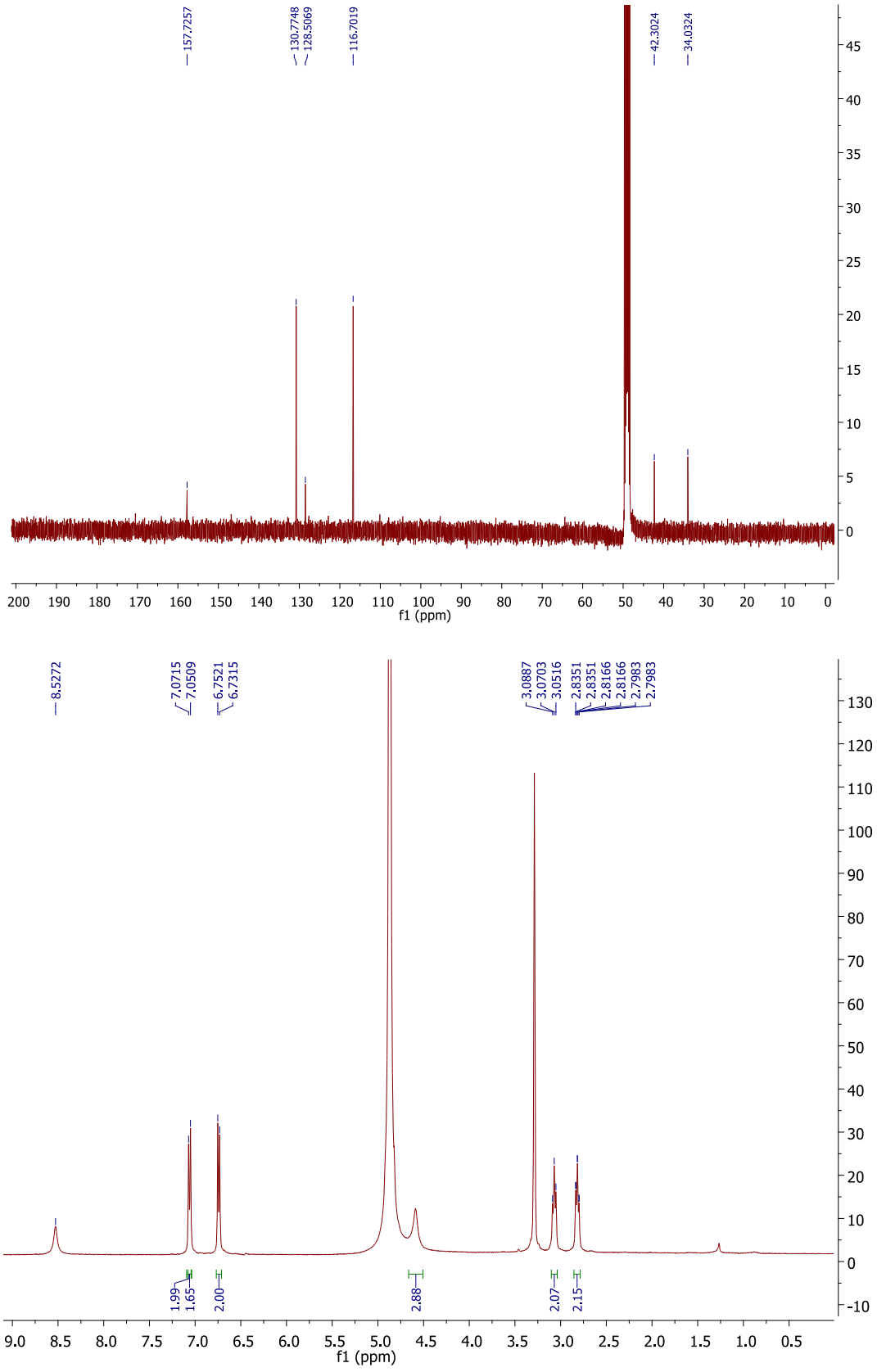

Figure S35. ^{13}C (100MHz in CD_3OD)- and ^{1}H (400MHz in CD_3OD)-NMR spectrum of compound **21**.

Table S1. Molecular weight and molecular formula of 21 isolated compounds.

Compounds	Molecular formula	Observed molecular weight	Exact molecular weight
1	$C_{16}H_{30}O_2$	254 [a]	254.2245
2	$C_{16}H_{32}O_2$	256 [a]	256.2402
3	$C_{18}H_{34}O_2$	282 [a]	282.2558
4	$C_{29}H_{48}O_2$	428 [a]	428.3654
5	$C_{29}H_{48}O$	412 [a]	412.3705
6	$C_{29}H_{48}O_2$	428 [a]	428.3654
7	$C_{17}H_{28}O_2$	264 [a]	264.2089
8	$C_{18}H_{30}O_2$	278 [a]	278.2245
9	$C_{20}H_{32}O_2$	304 [a]	304.2402
10	$C_{18}H_{28}O_2$	276 [a]	276.2089
11	$C_{20}H_{30}O_2$	302 [a]	302.2245
12	$C_{17}H_{28}O_2$	264 [a]	264.2089
13	$C_{34}H_{54}O_9$	607.3820 $[M + H]^+$ [b]	607.3846 ($C_{34}H_{55}O_9$)
14	$C_{19}H_{22}O_6$	– [c]	346.1416
15	$C_{19}H_{24}O_7$	– [c]	364.1522
16	$C_{13}H_{18}O_6$	– [c]	270.1103
17	$C_{11}H_{16}O_3$	219.0992 $[M + Na]^+$ [b]	219.0997 ($C_{11}H_{16}NaO_3$)
18	$C_{42}H_{62}O_{16}$	– [c]	822.4037
19	$C_{43}H_{64}O_{16}$	– [c]	836.4194
20	$C_{15}H_{22}O_4$	– [c]	266.1518
21	$C_8H_{11}NO$	– [c]	137.0840

[a] Observed from EI-MS.

[b] Observed from ESI-MS.

[a] Structures were elucidated based on the NMR data.