

Article

# Characterization of Three Novel 4-Methylaminorex Derivatives Applied as Designer Drugs

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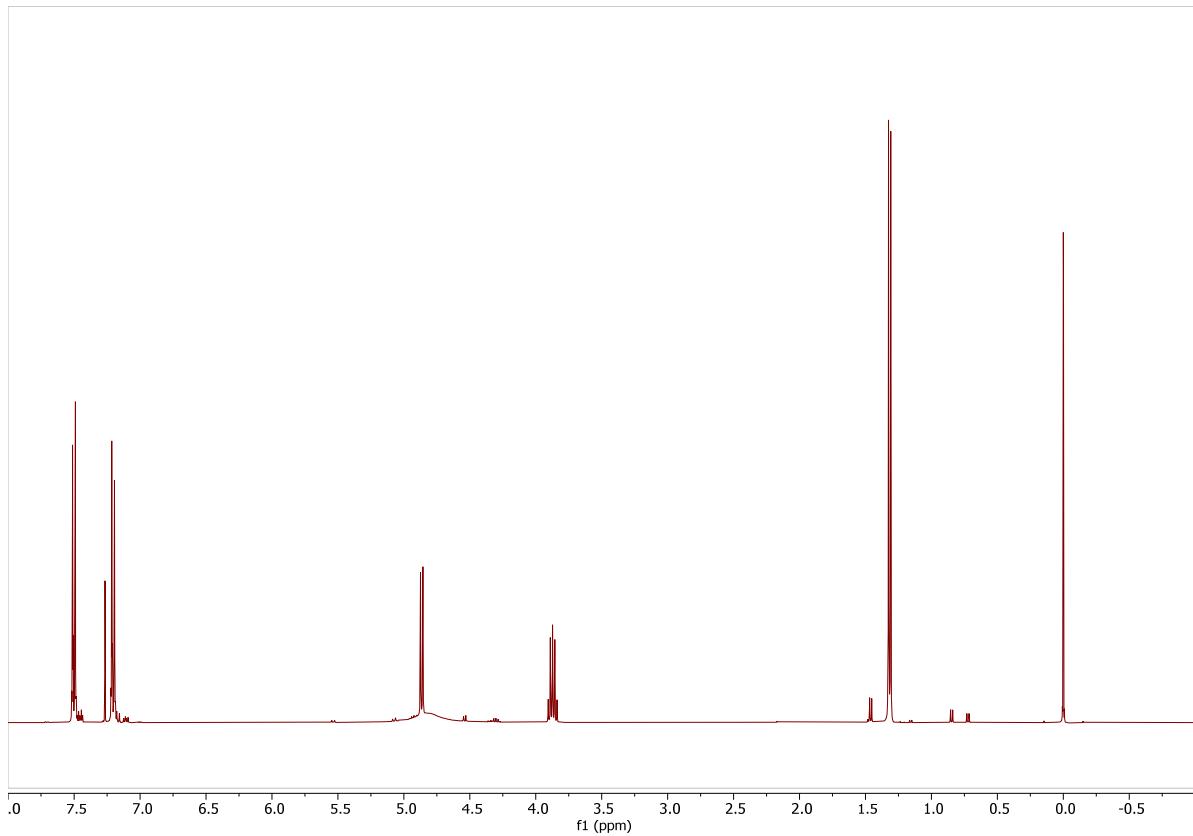
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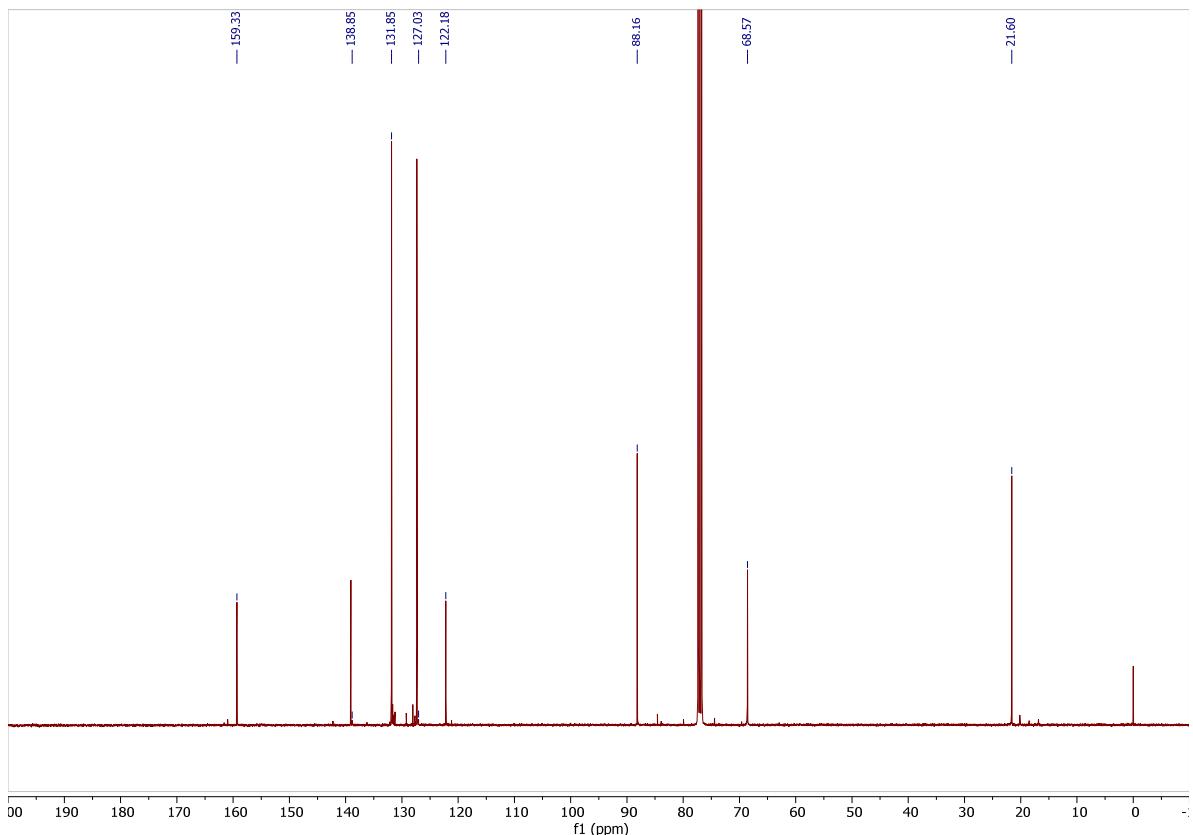
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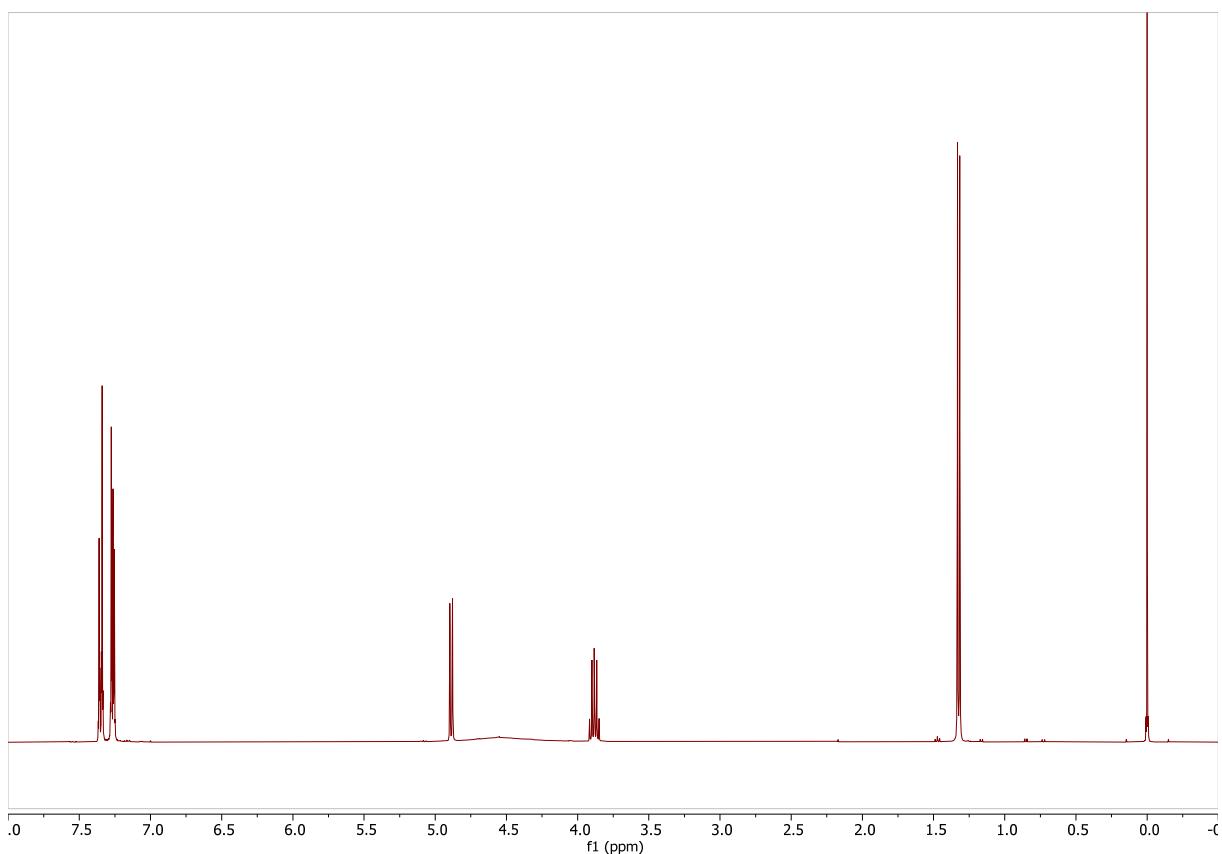
## 1. Supplementary materials



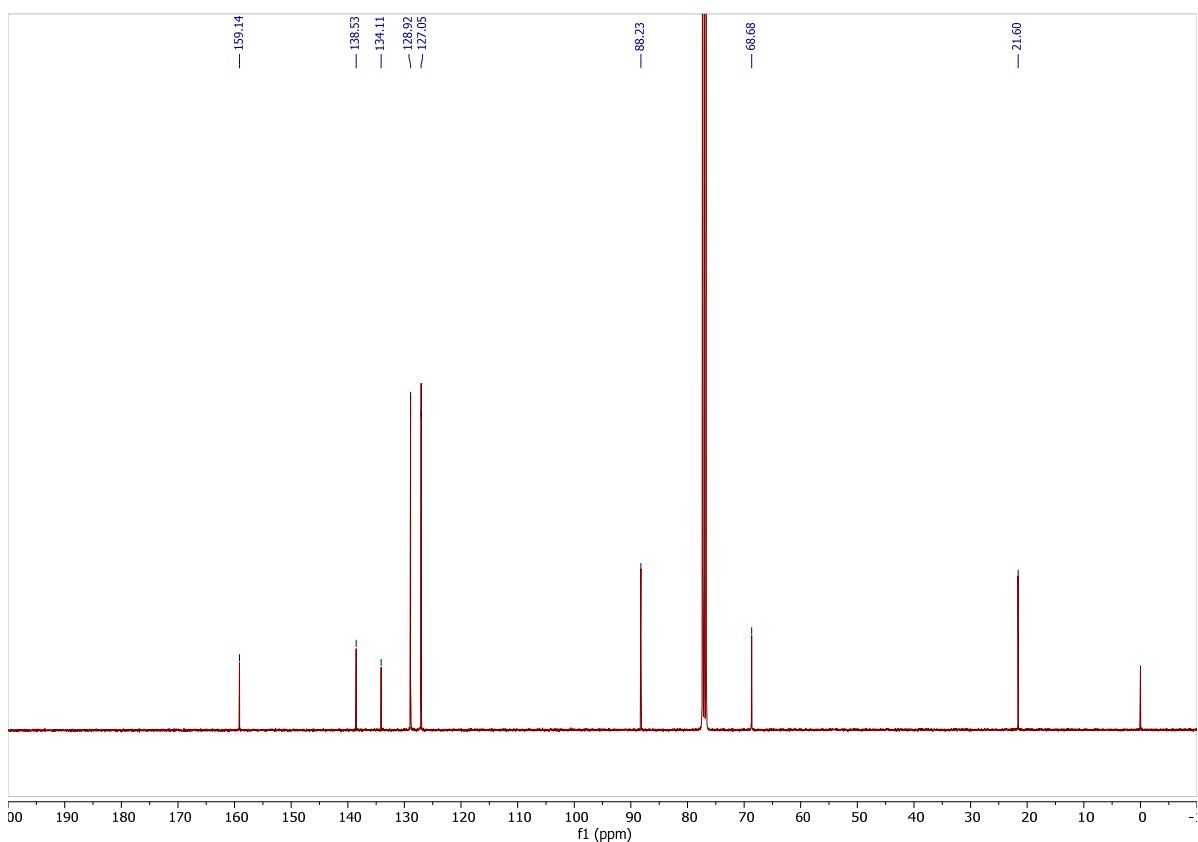
**Figure S1.** Proton NMR spectrum (400 MHz,  $\text{CDCl}_3$ ) 4B-MAR.



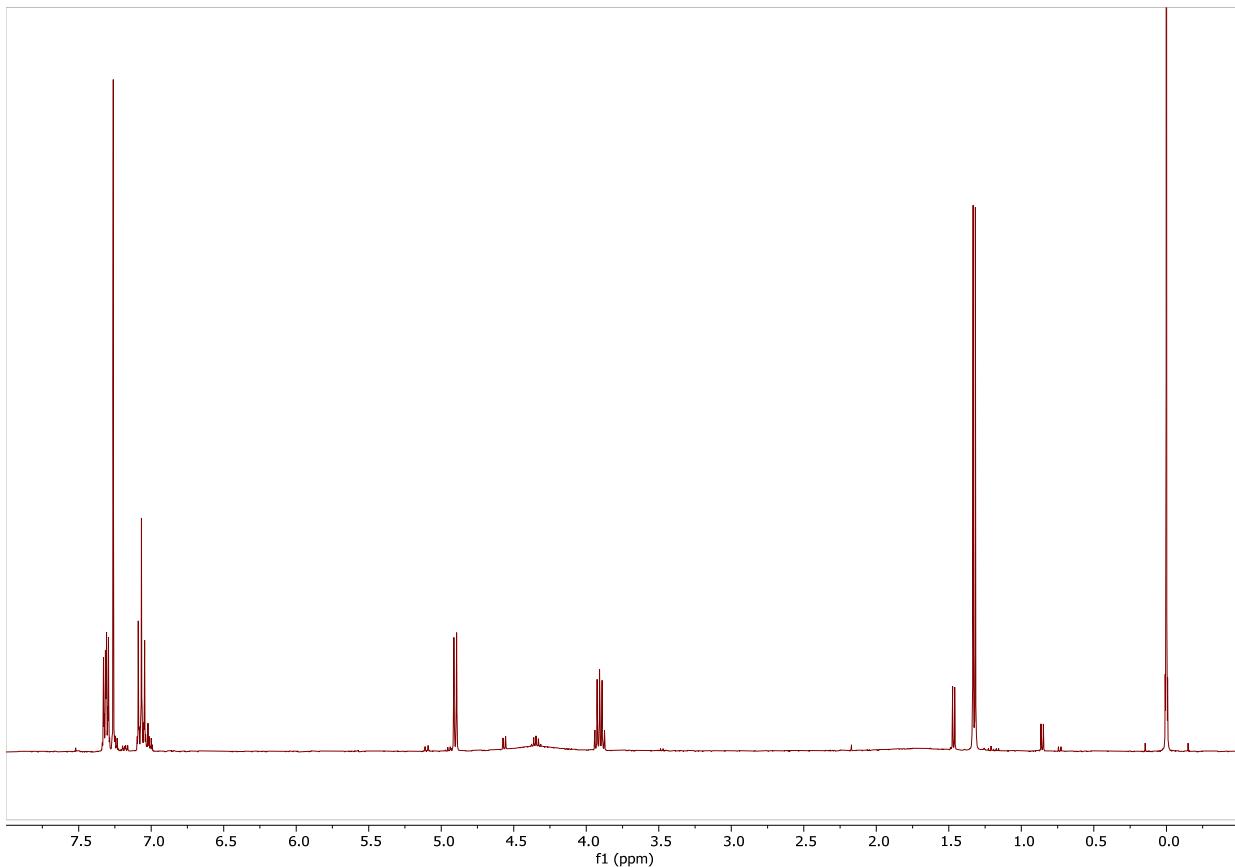
**Figure S2.** Carbon NMR spectrum (100 MHz,  $\text{CDCl}_3$ ) 4B-MAR.



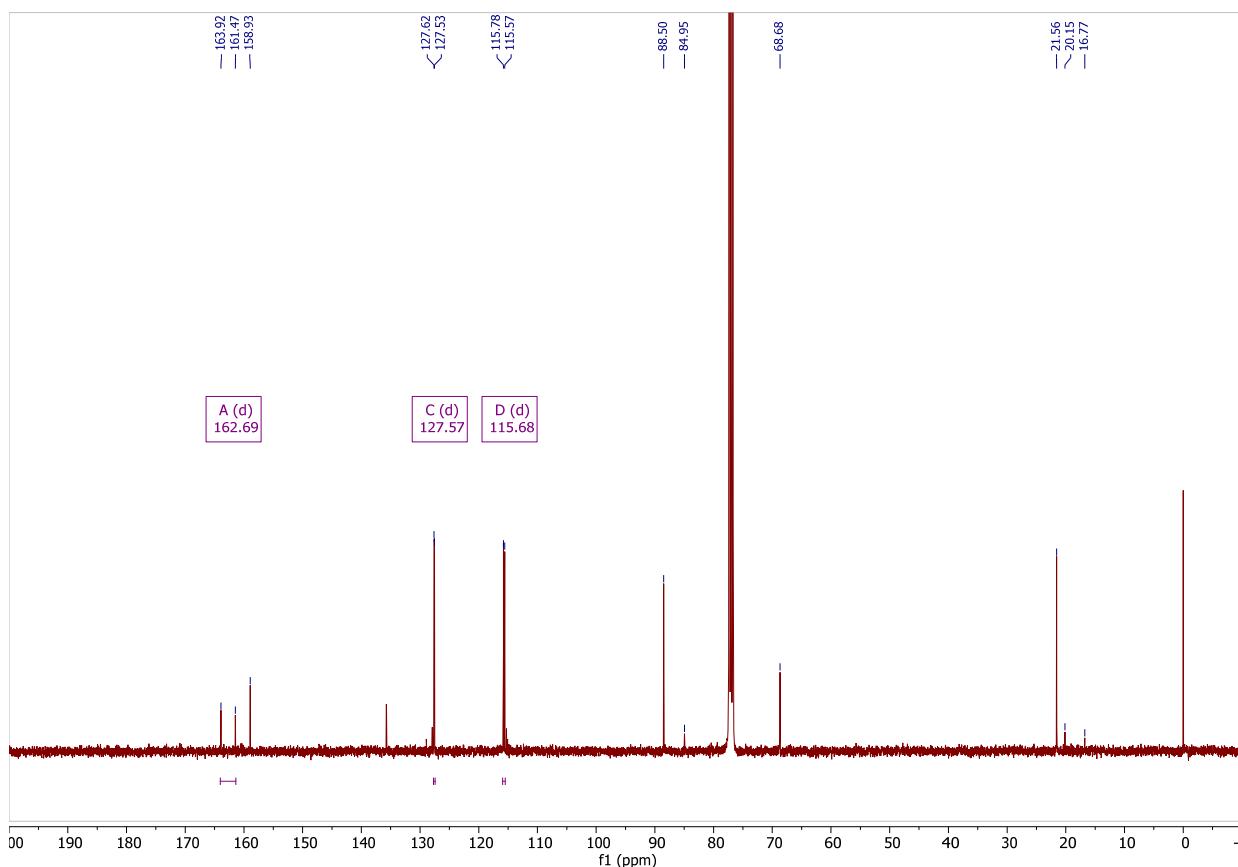
**Figure S3.** Proton NMR spectrum (400 MHz,  $\text{CDCl}_3$ ) 4C-MAR.



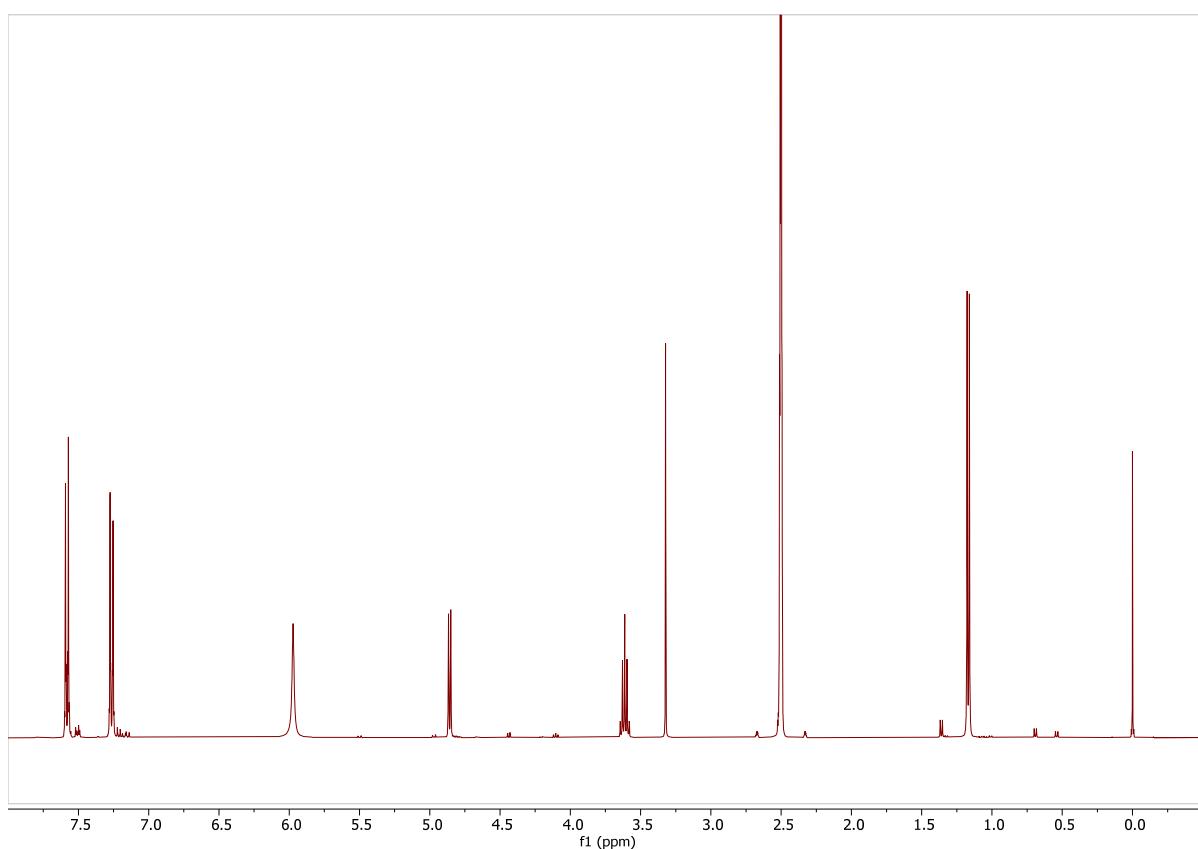
**Figure S4.** Carbon NMR spectrum (100 MHz,  $\text{CDCl}_3$ ) 4C-MAR.



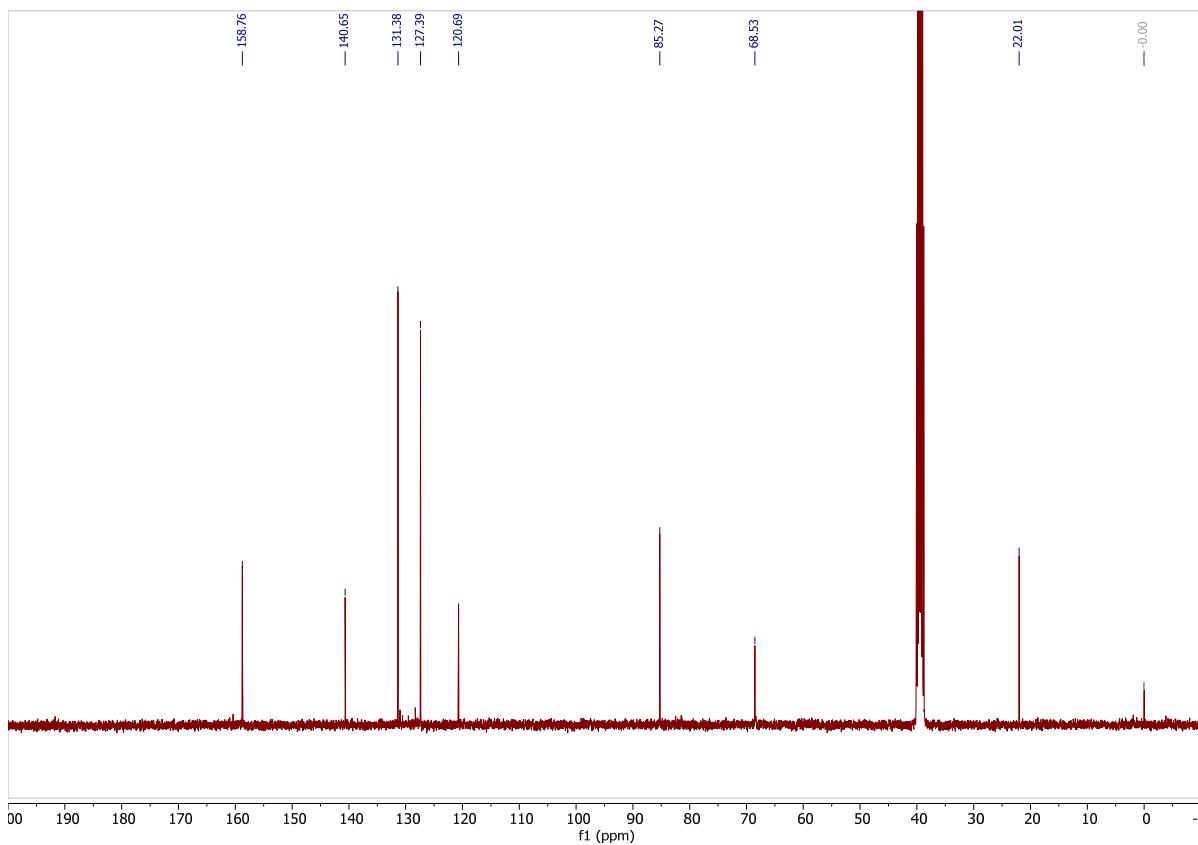
**Figure S5.** Proton NMR spectrum (400 MHz,  $\text{CDCl}_3$ ) 4F-MAR.



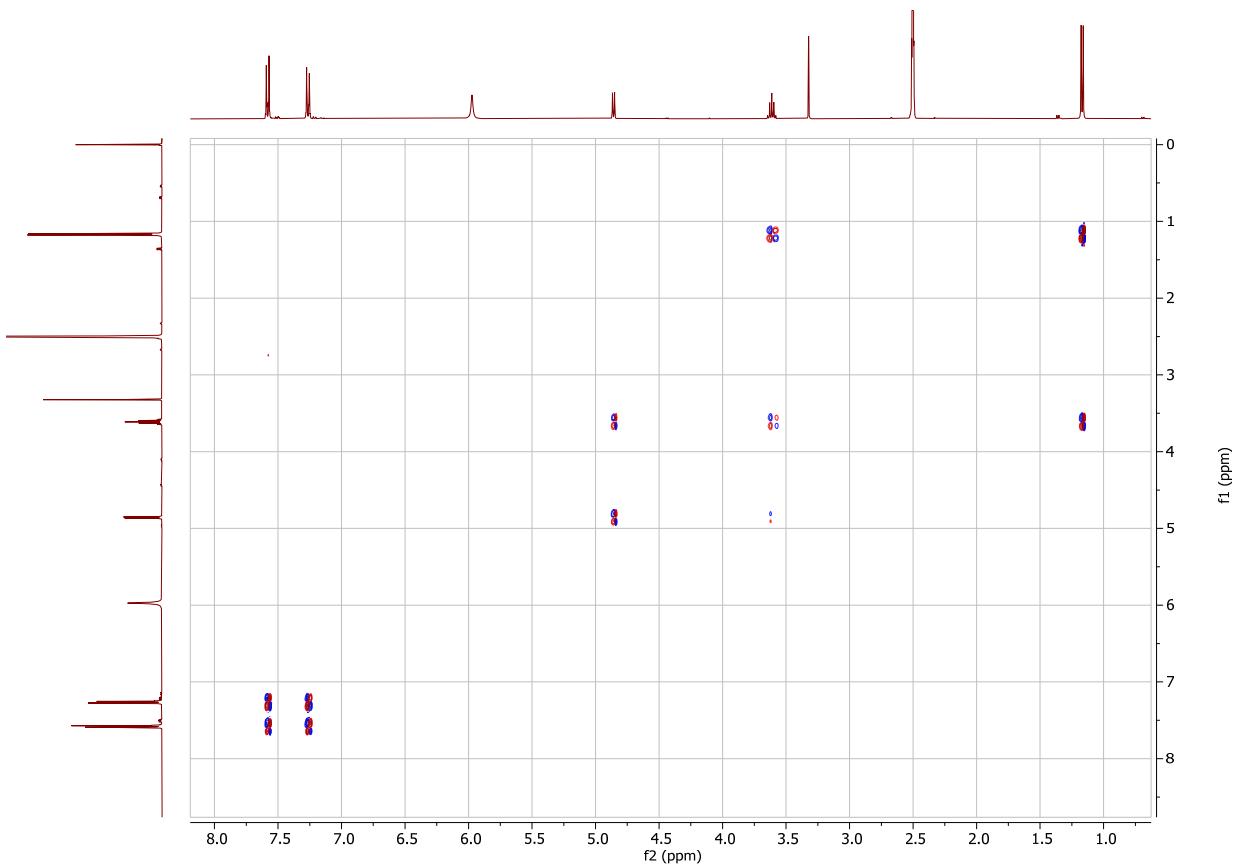
**Figure S6.** Carbon NMR spectrum (100 MHz,  $\text{CDCl}_3$ ) 4F-MAR. The centers of the doublets caused by heteronuclear  $^{19}\text{F}-^{13}\text{C}$ - $J$ -couplings are given in the boxes.



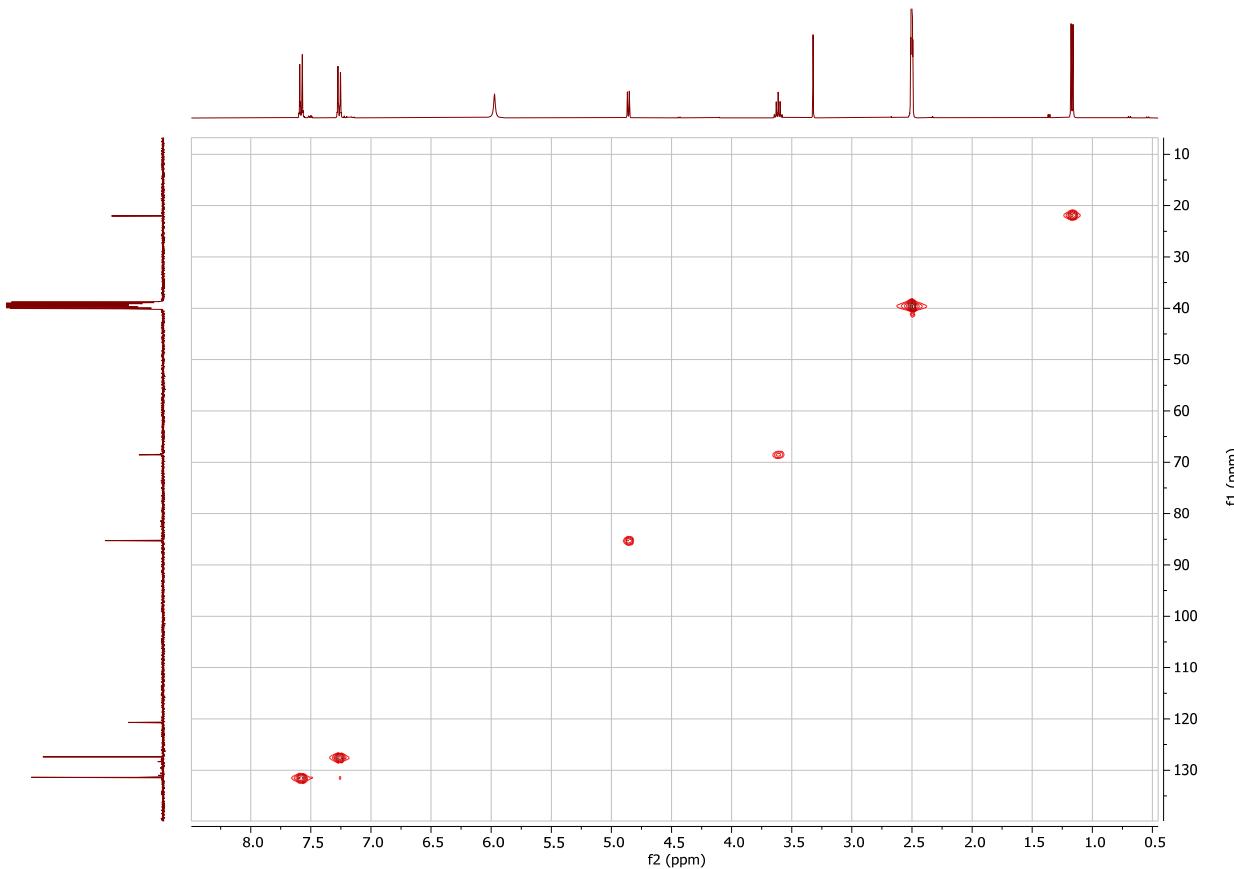
**Figure S7.** Proton NMR spectrum (400 MHz, DMSO- $d_6$ ) 4B-MAR.



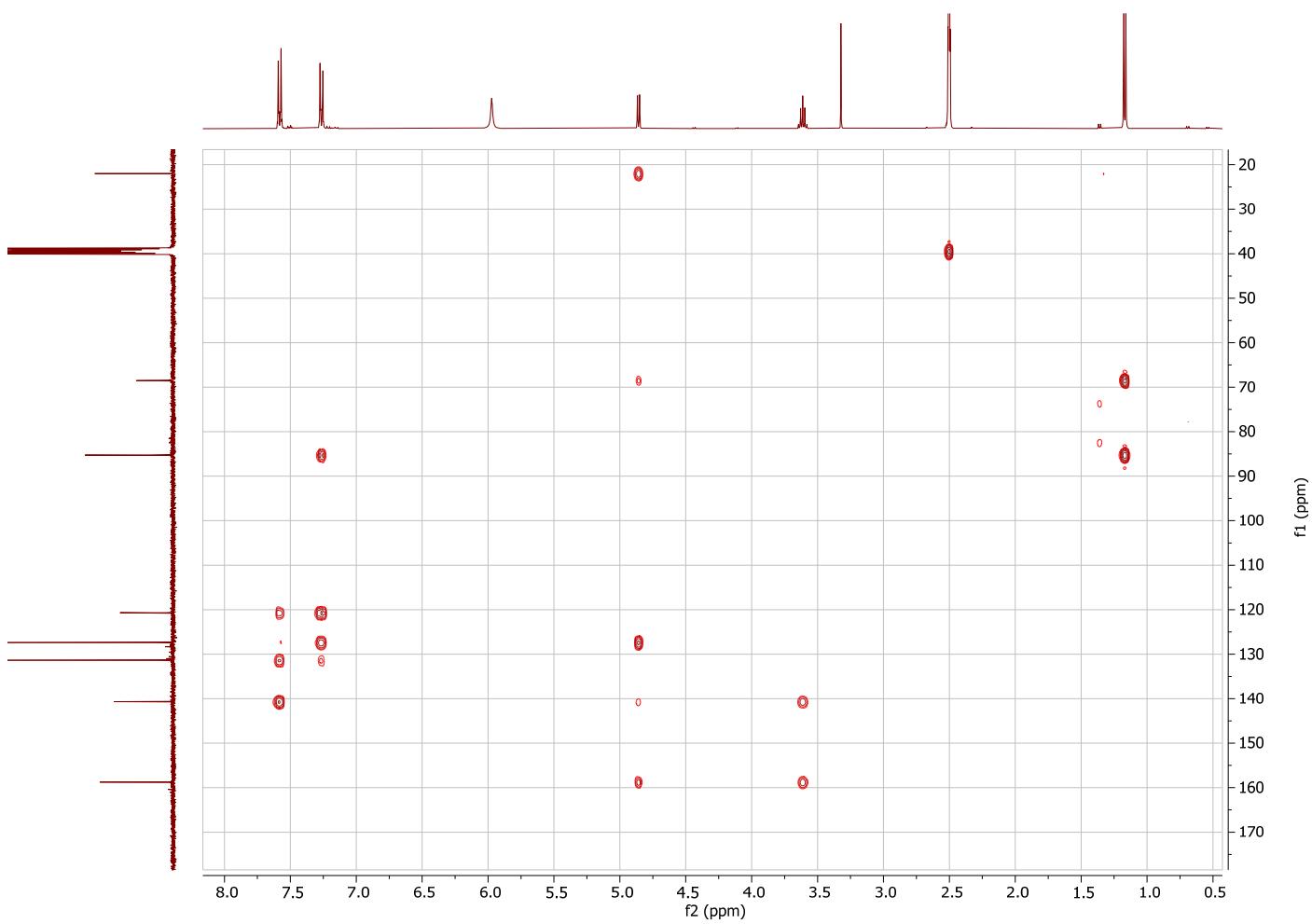
**Figure S8.** Carbon NMR spectrum (100 MHz, DMSO- $d_6$ ) 4B-MAR.



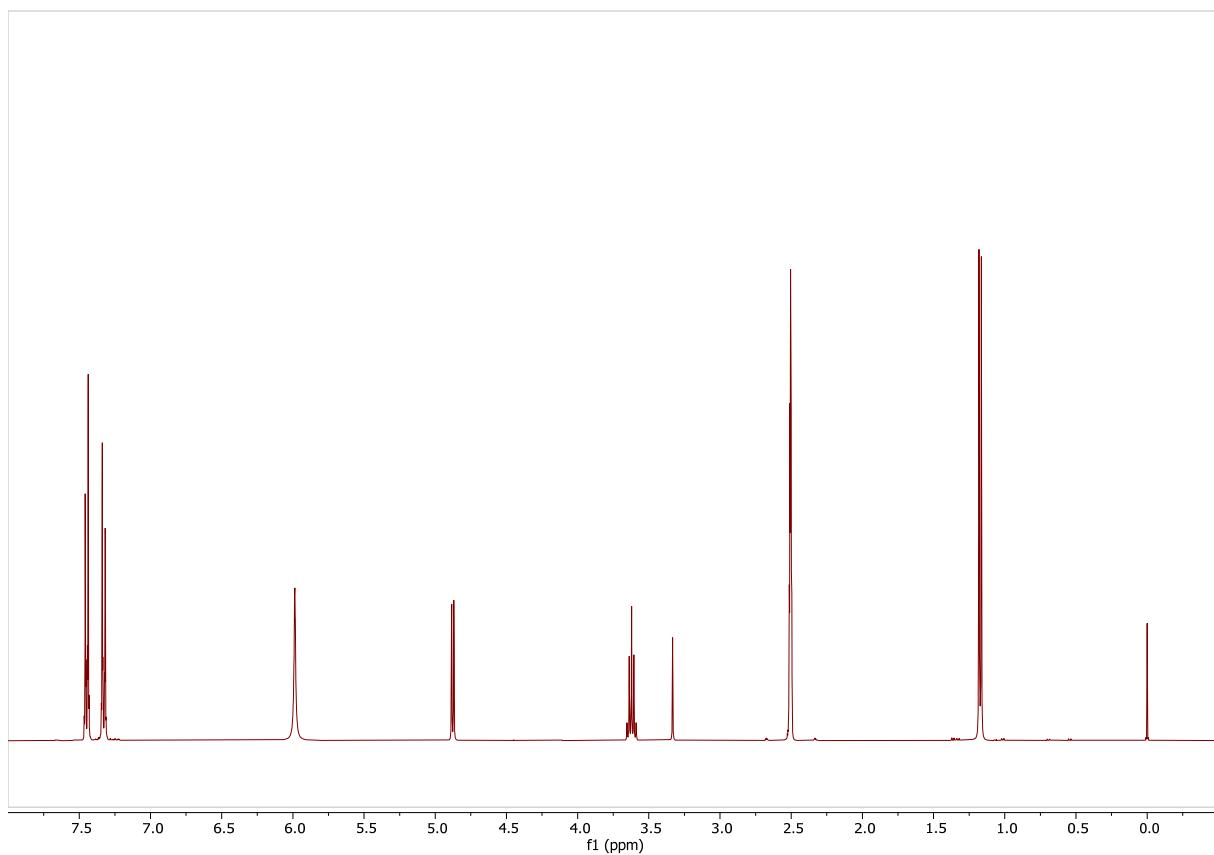
**Figure S9.** DQF-COSY NMR spectrum (400 MHz, DMSO-d<sub>6</sub>) 4B-MAR.



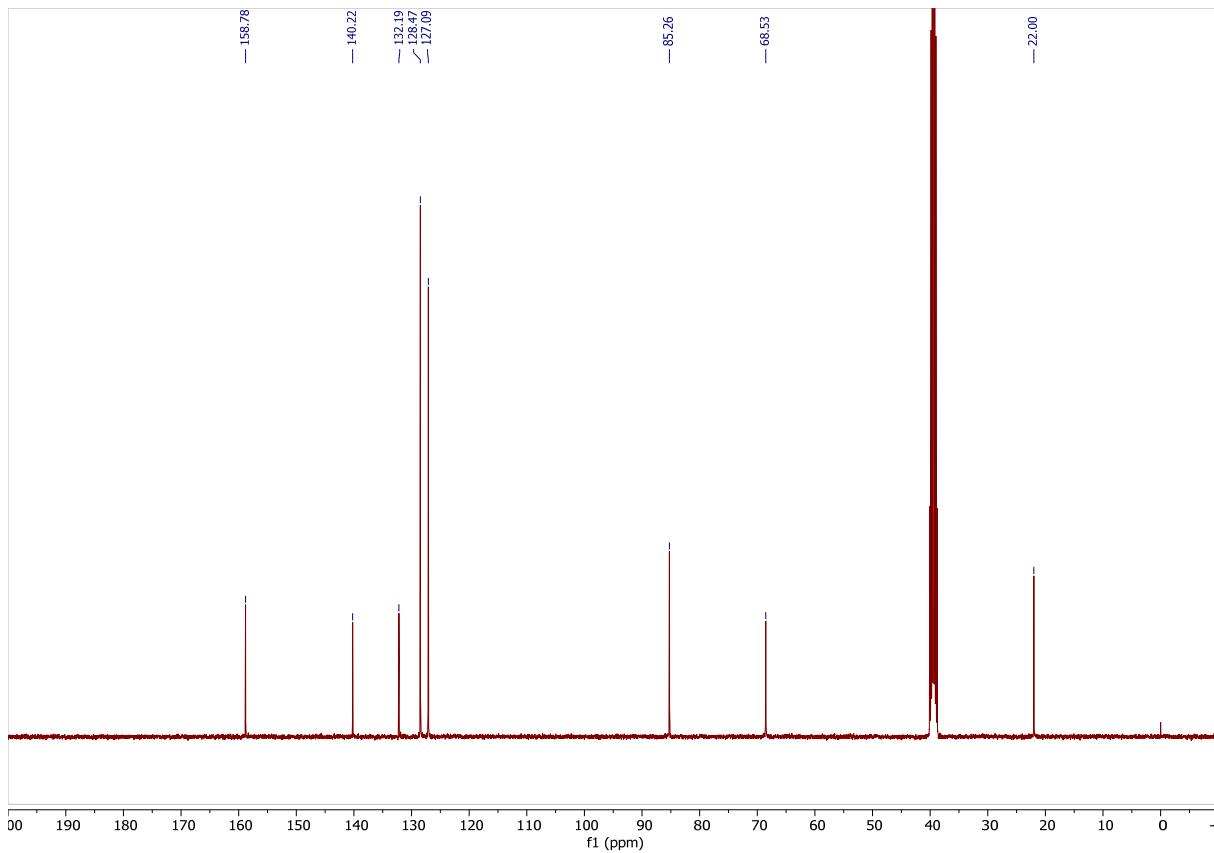
**Figure S10.** HSQC NMR spectrum (100/400 MHz, DMSO-d<sub>63</sub>) 4B-MAR.



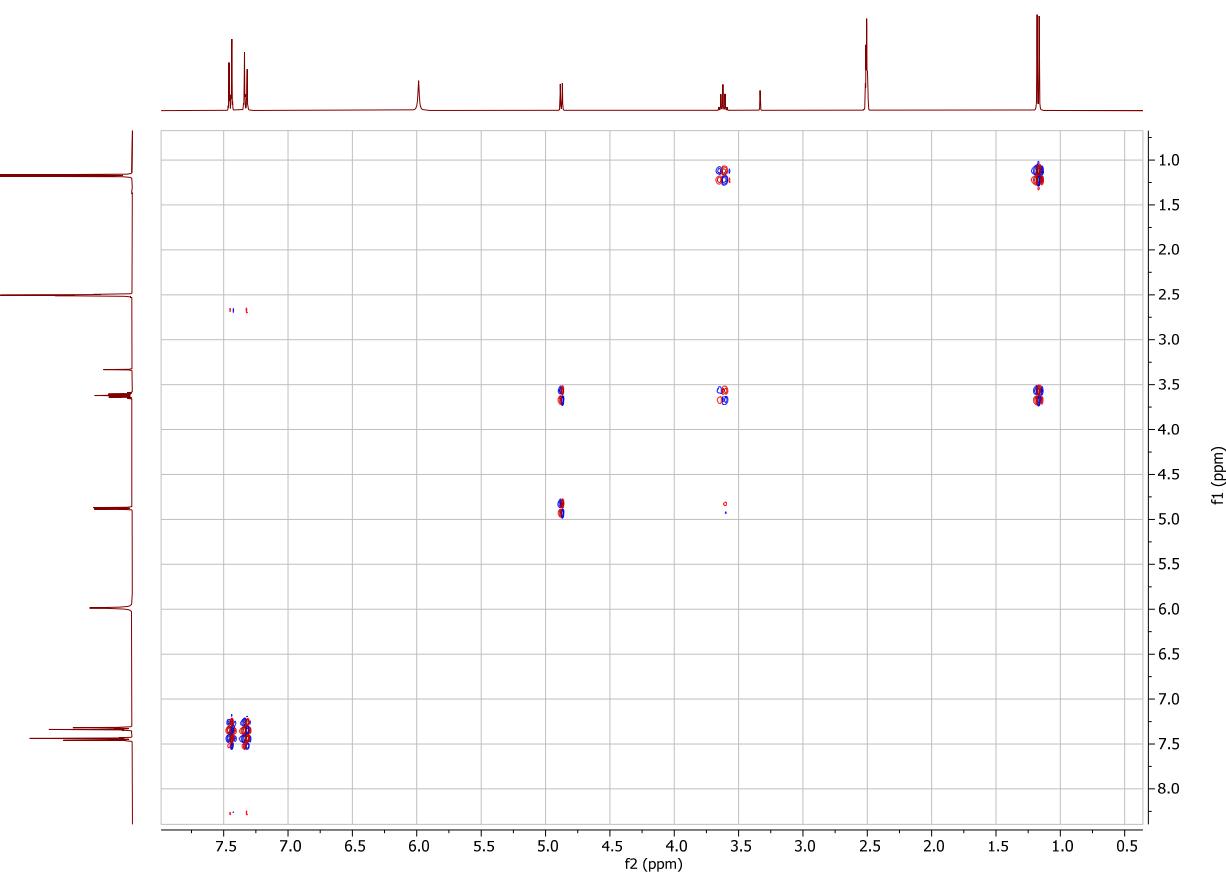
**Figure S11.** HMBC NMR spectrum (100/400 MHz, DMSO-d<sub>6</sub>) 4B-MAR.



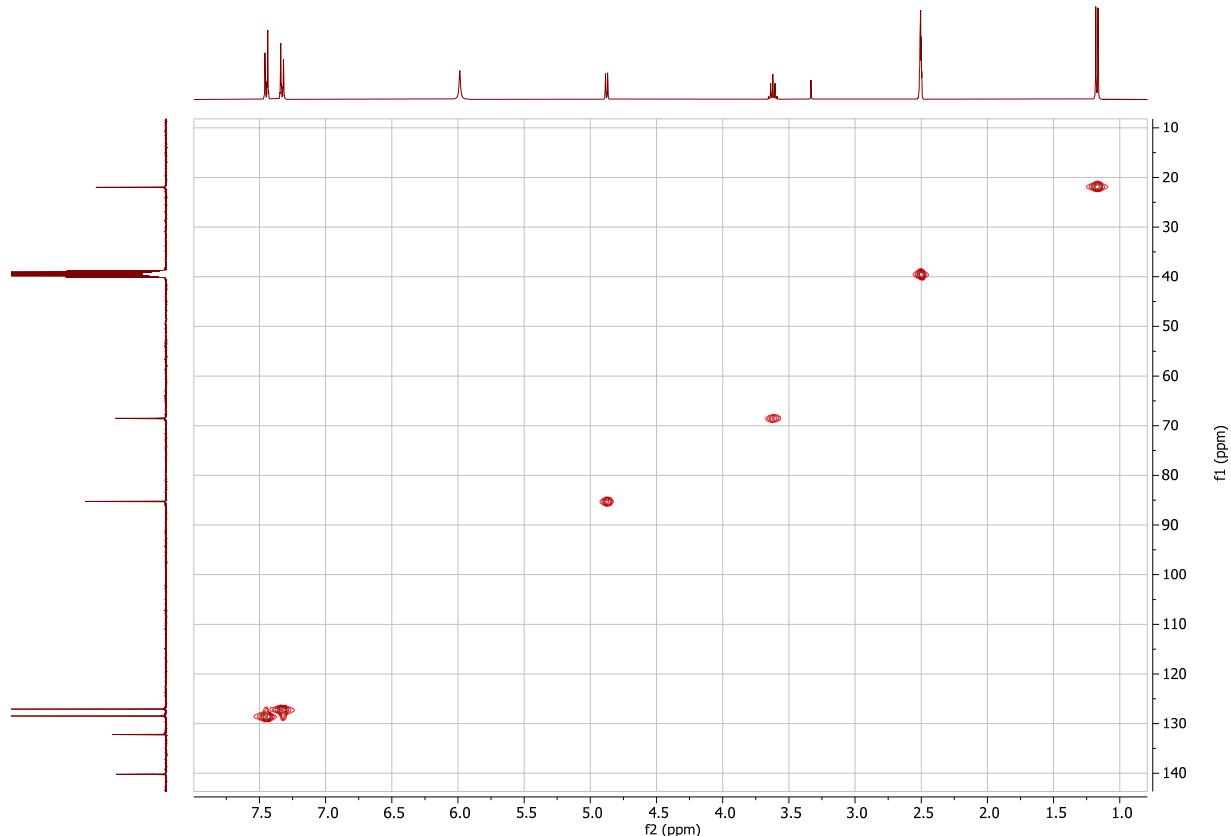
**Figure S12.** Proton NMR spectrum (400 MHz,  $\text{DMSO-d}_6$ ) 4C-MAR.



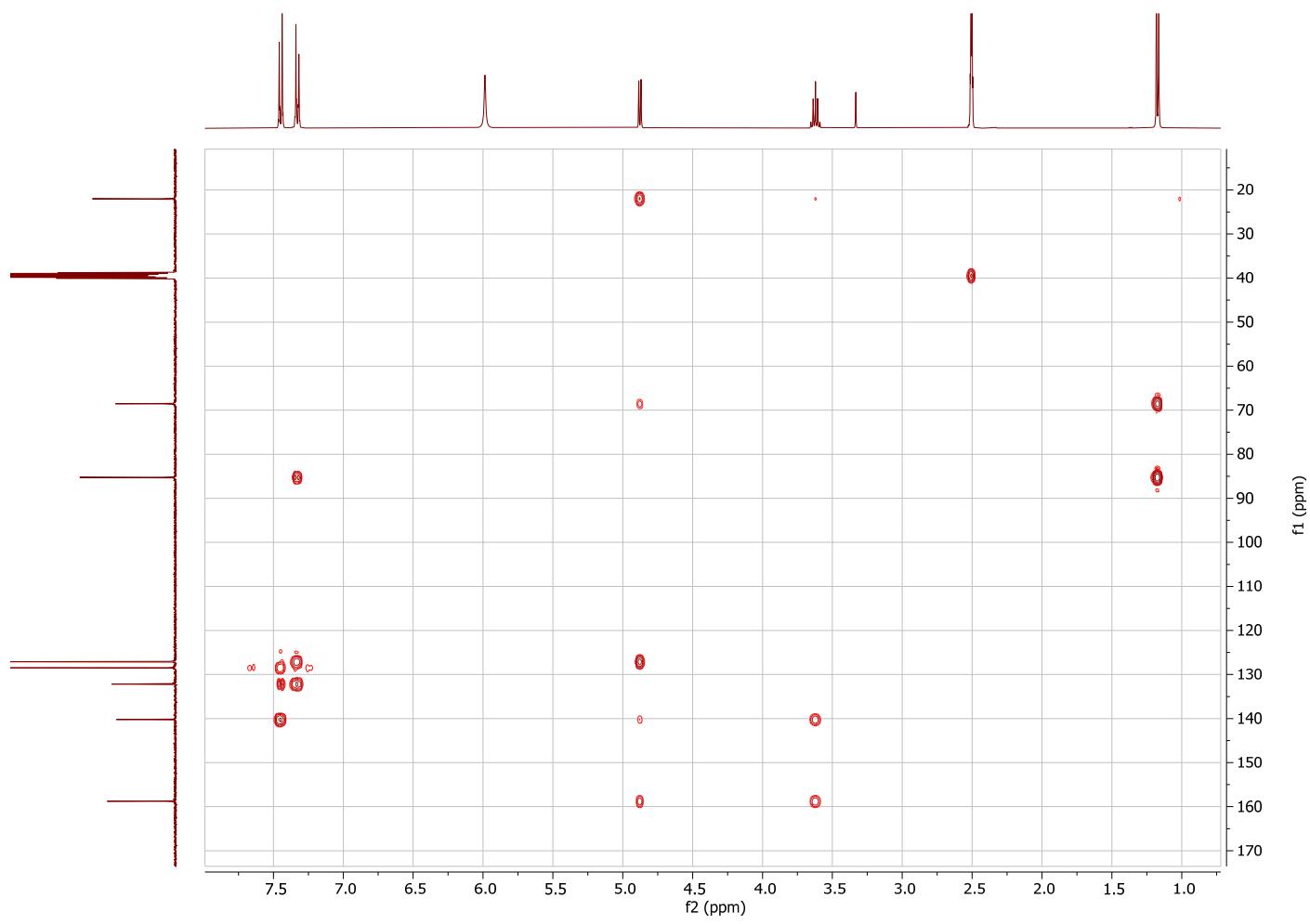
**Figure S13.** Carbon NMR spectrum (100 MHz,  $\text{DMSO-d}_6$ ) 4C-MAR.



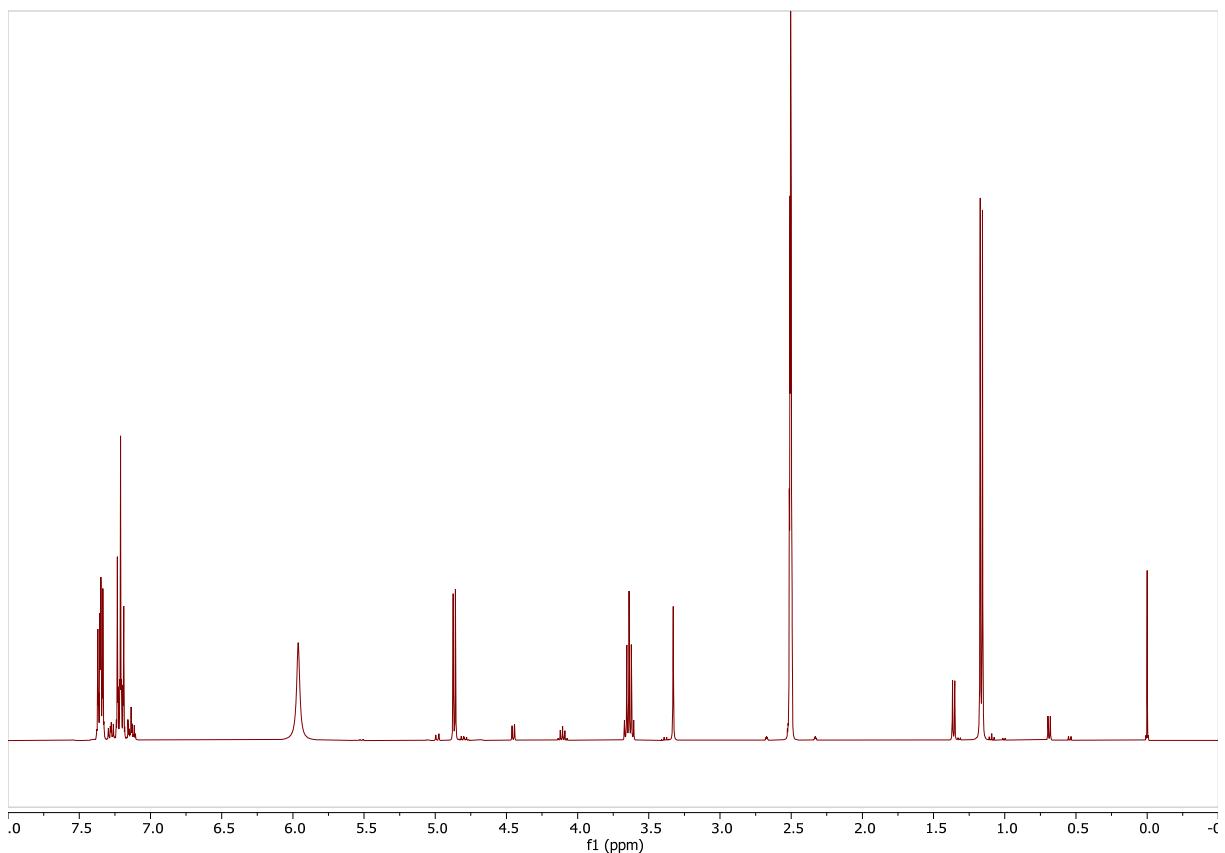
**Figure S14.** DQF-COSY NMR spectrum (400 MHz, DMSO- $d_6$ ) 4C-MAR.



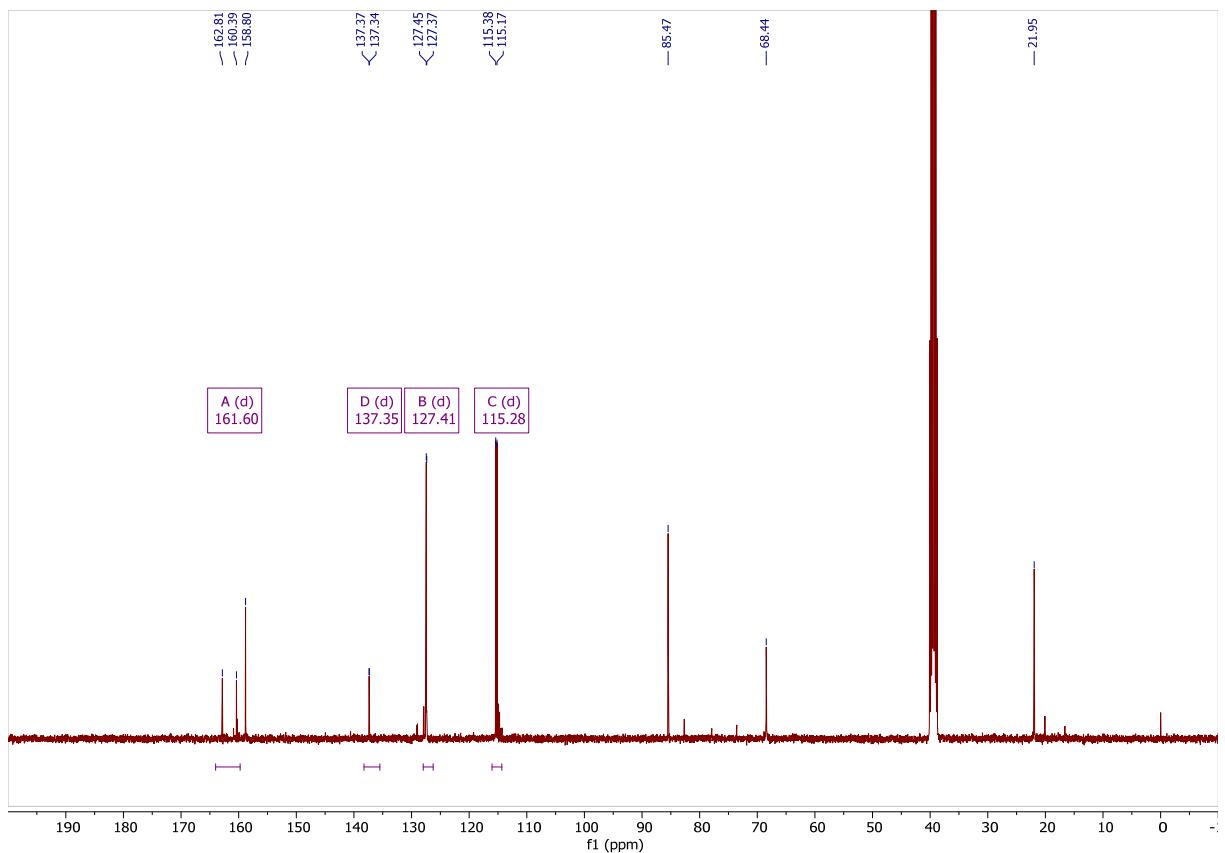
**Figure S15.** HSQC NMR spectrum (100/400 MHz, DMSO- $d_{63}$ ) 4C-MAR.



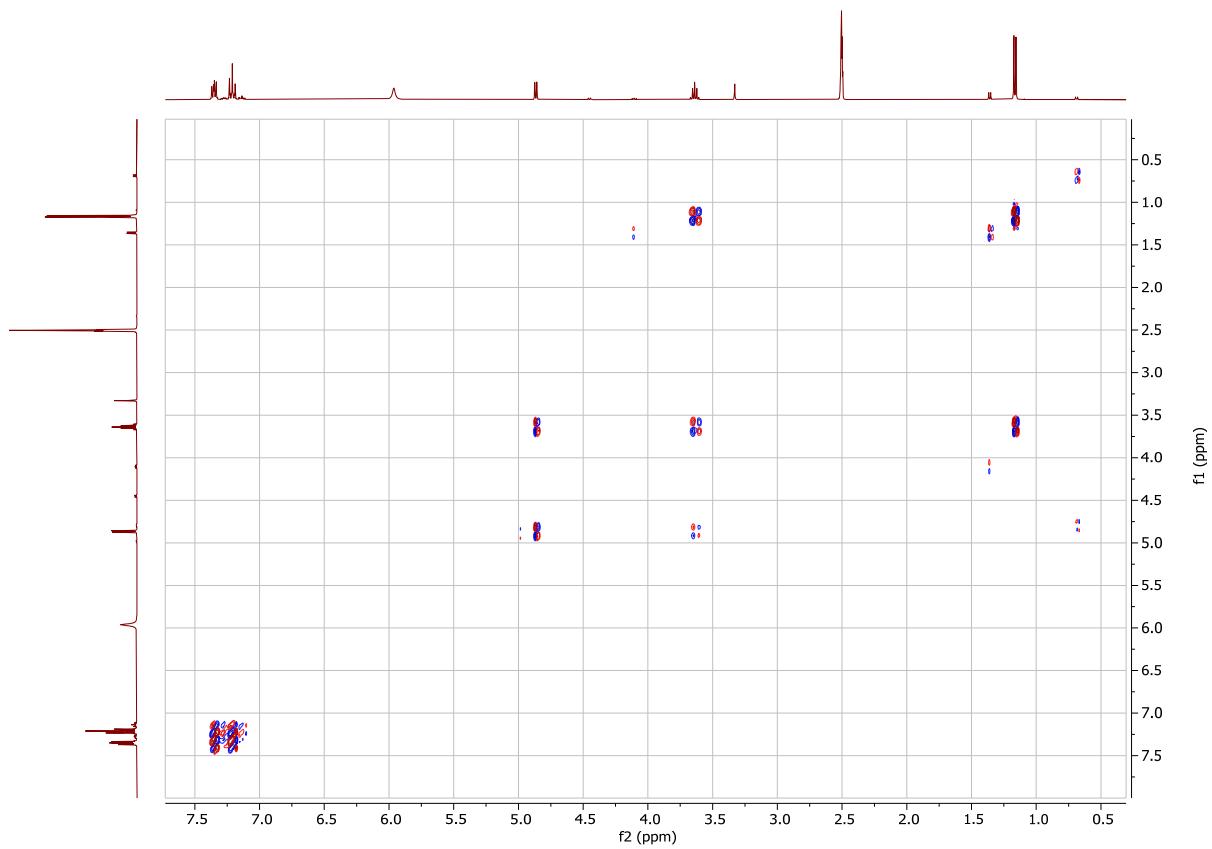
**Figure S16.** HMBC NMR spectrum (100/400 MHz, DMSO-d<sub>6</sub>) 4C-MAR.



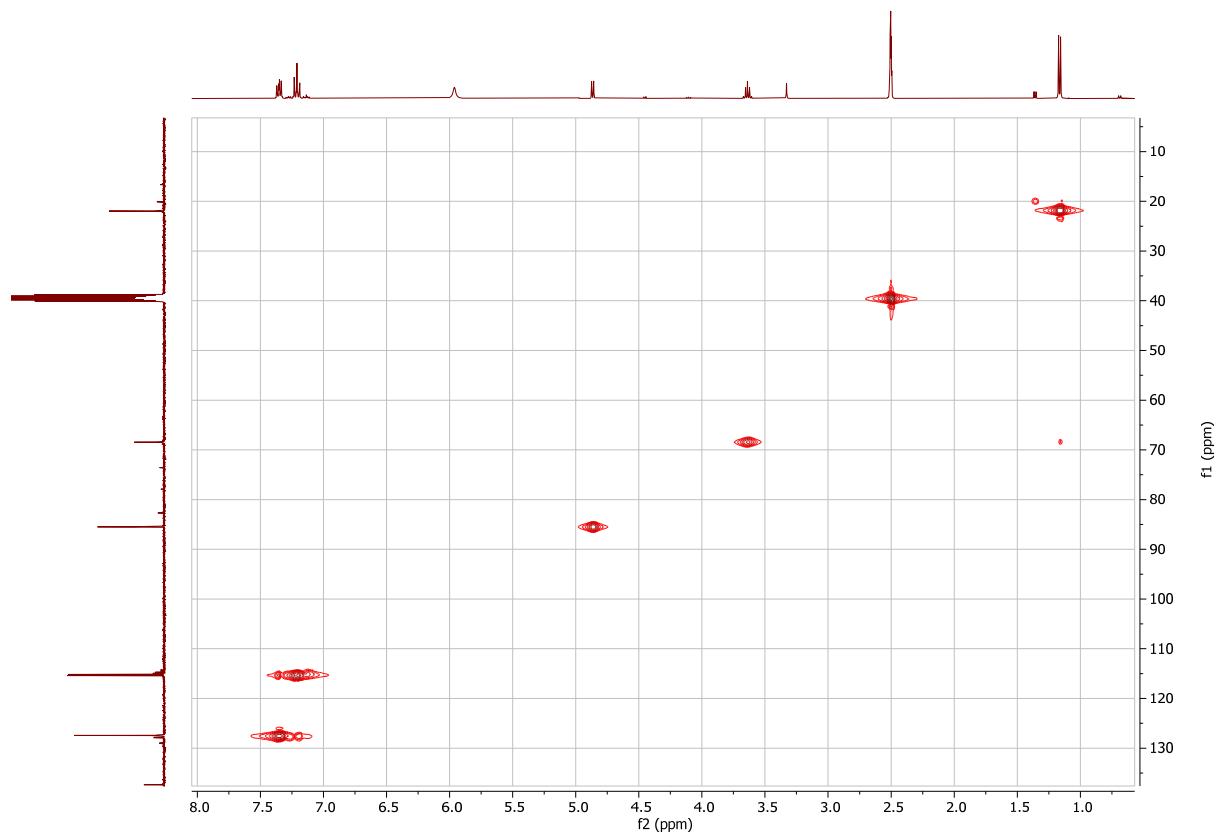
**Figure S17.** Proton NMR spectrum (400 MHz, DMSO- $d_6$ ) 4F-MAR.



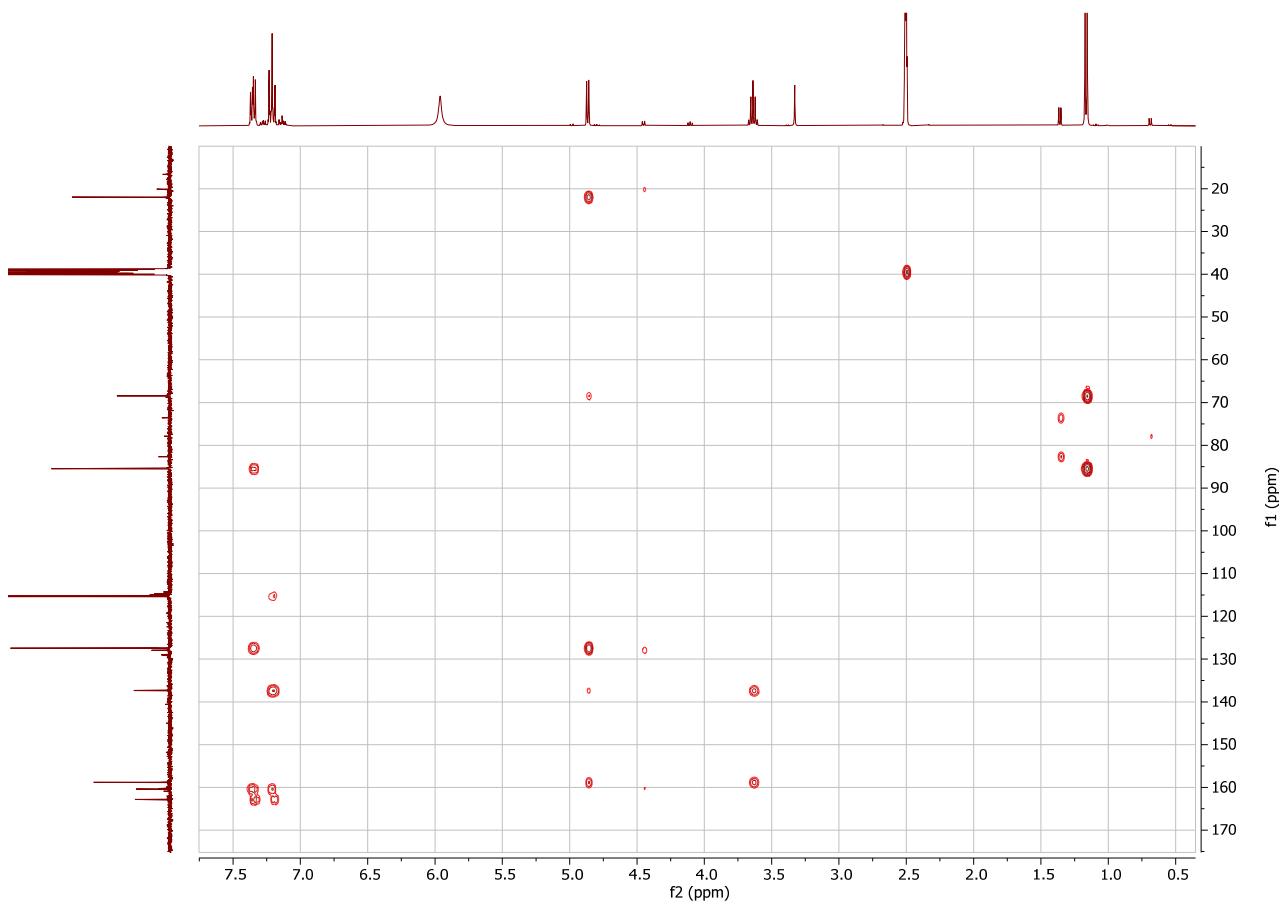
**Figure S18.** Carbon NMR spectrum (100 MHz, DMSO- $d_6$ ) 4F-MAR. The centers of the doublets caused by heteronuclear  $^{19}\text{F}, ^{13}\text{C}$ -*J*-couplings are given in the boxes.



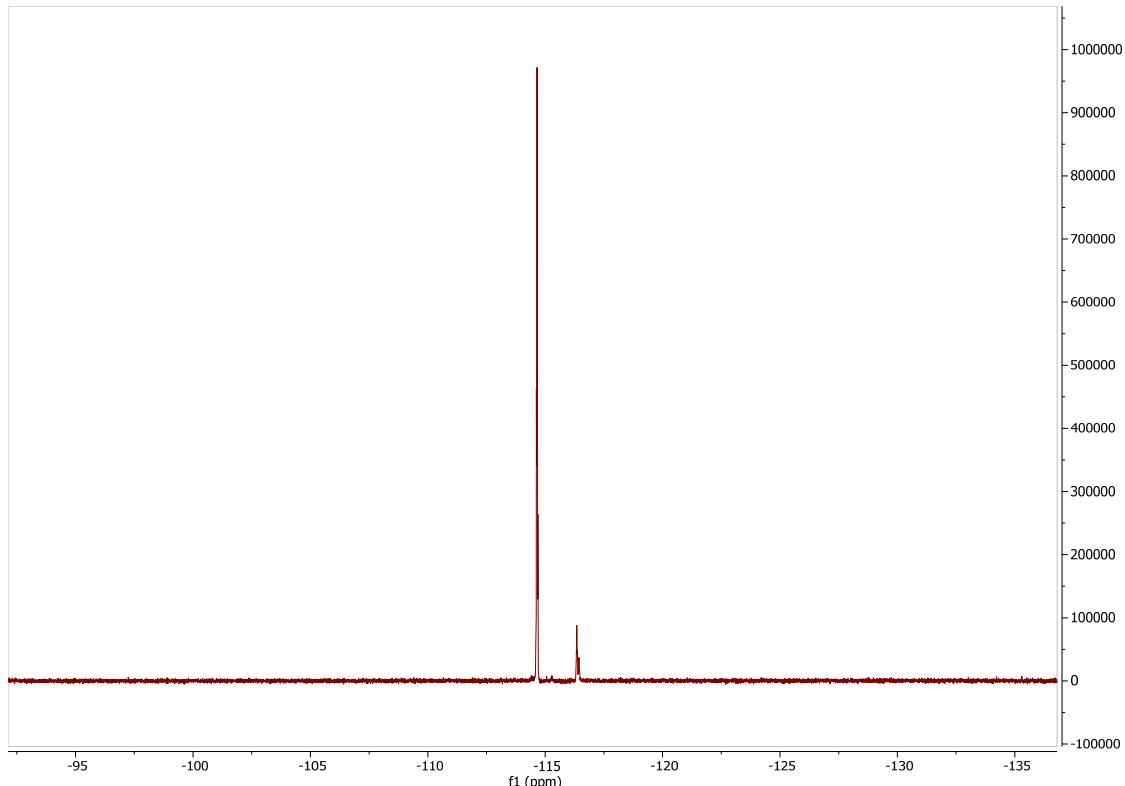
**Figure S19.** DQF-COSY NMR spectrum (400 MHz, DMSO-d<sub>6</sub>) 4F-MAR.



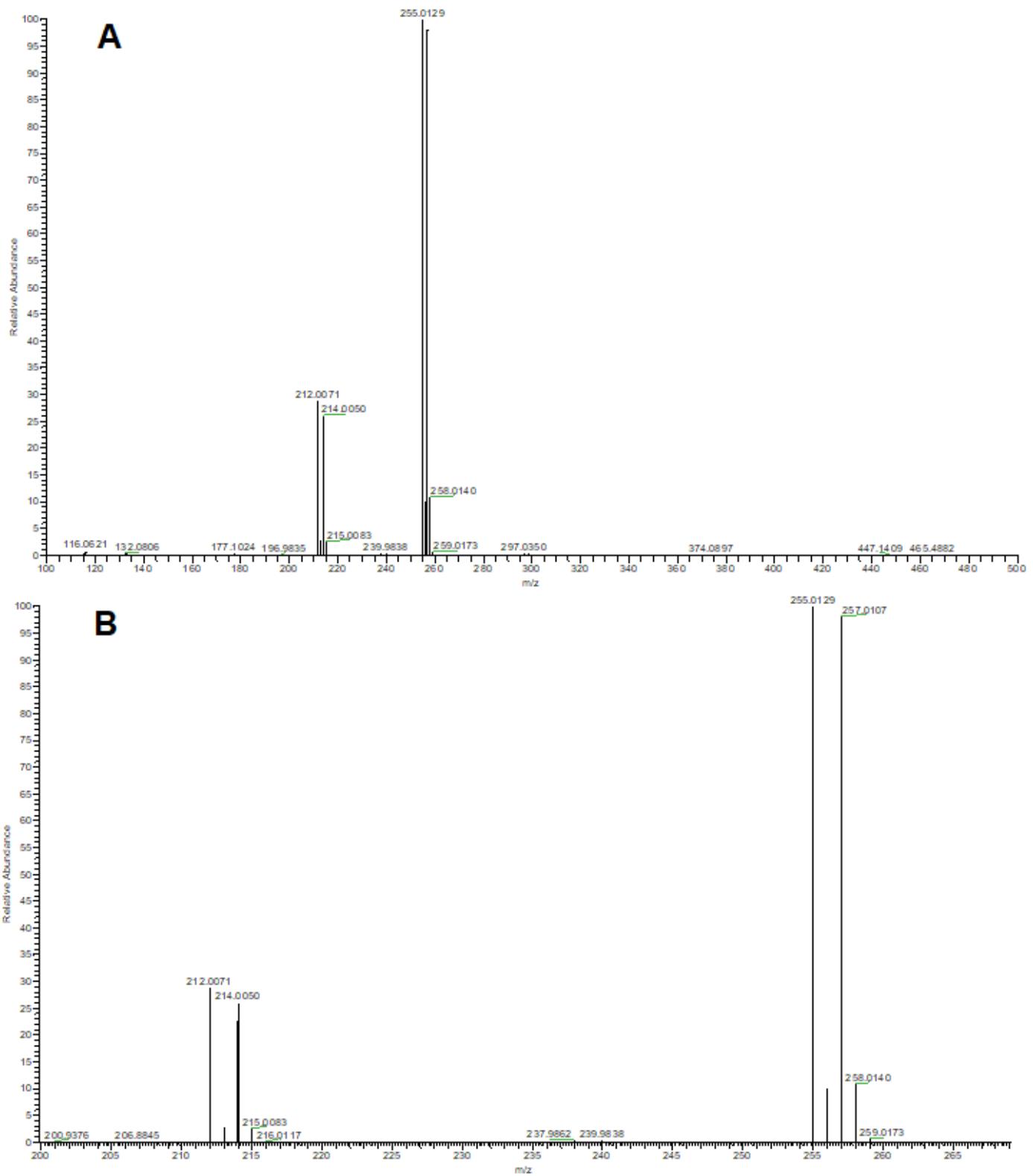
**Figure S20.** HSQC NMR spectrum (100/400 MHz, DMSO-d<sub>6</sub>) 4F-MAR.



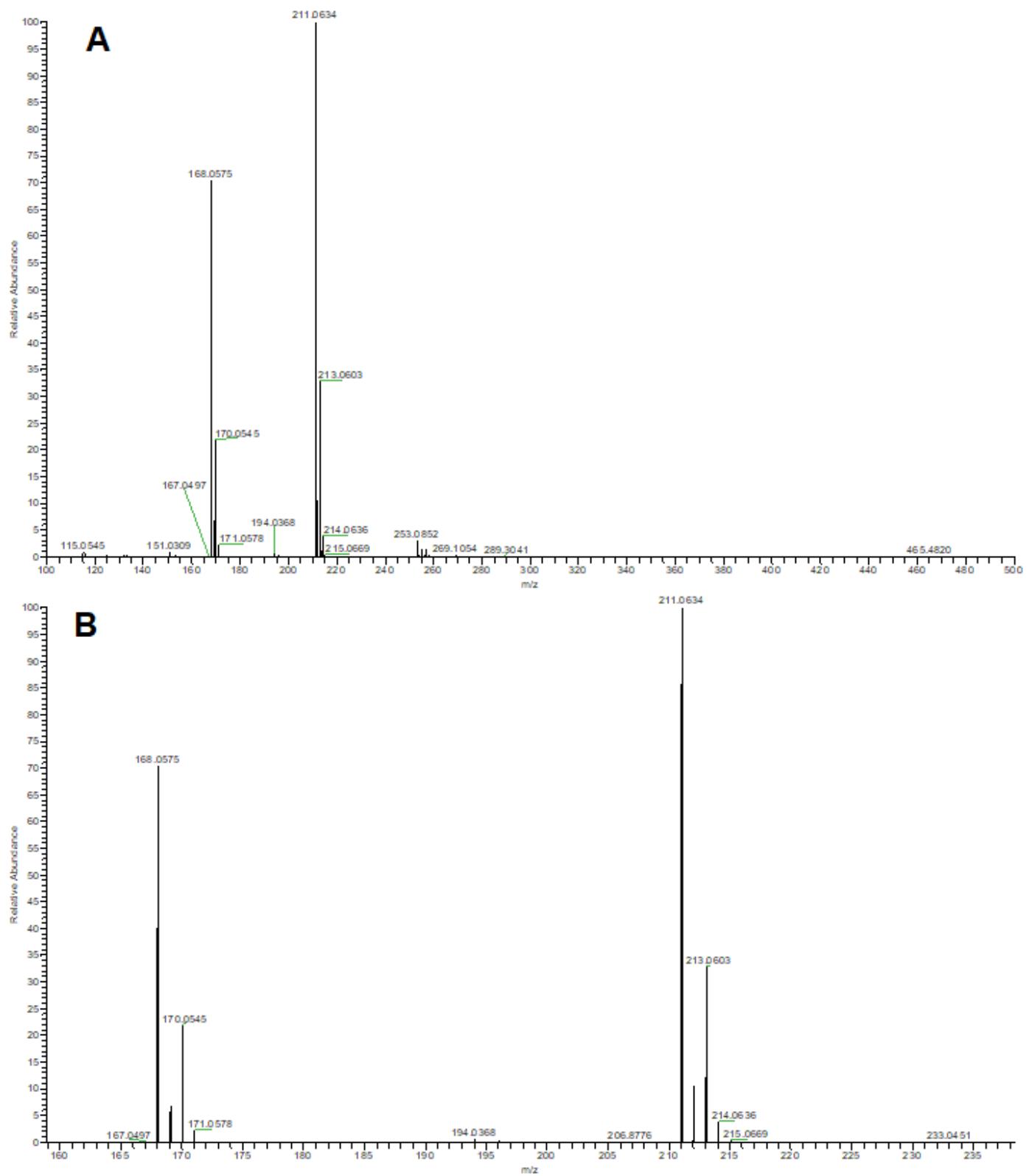
**Figure S21.** HMBC NMR spectrum (100/400 MHz, DMSO-d<sub>6</sub>) 4F-MAR.



**Figure S22.** <sup>19</sup>F NMR spectrum (377 MHz, DMSO-d<sub>6</sub>) 4F-MAR



**Figure S23.** HESI positive mode full MS spectrum of 4B-MAR (A: full view,  $m/z$  100-500, B: detailed view,  $m/z$  200-270)



**Figure S24.** HESI positive mode full MS spectrum of 4C-MAR (A: full view,  $m/z$  100-500, B: detailed view,  $m/z$  160-240)

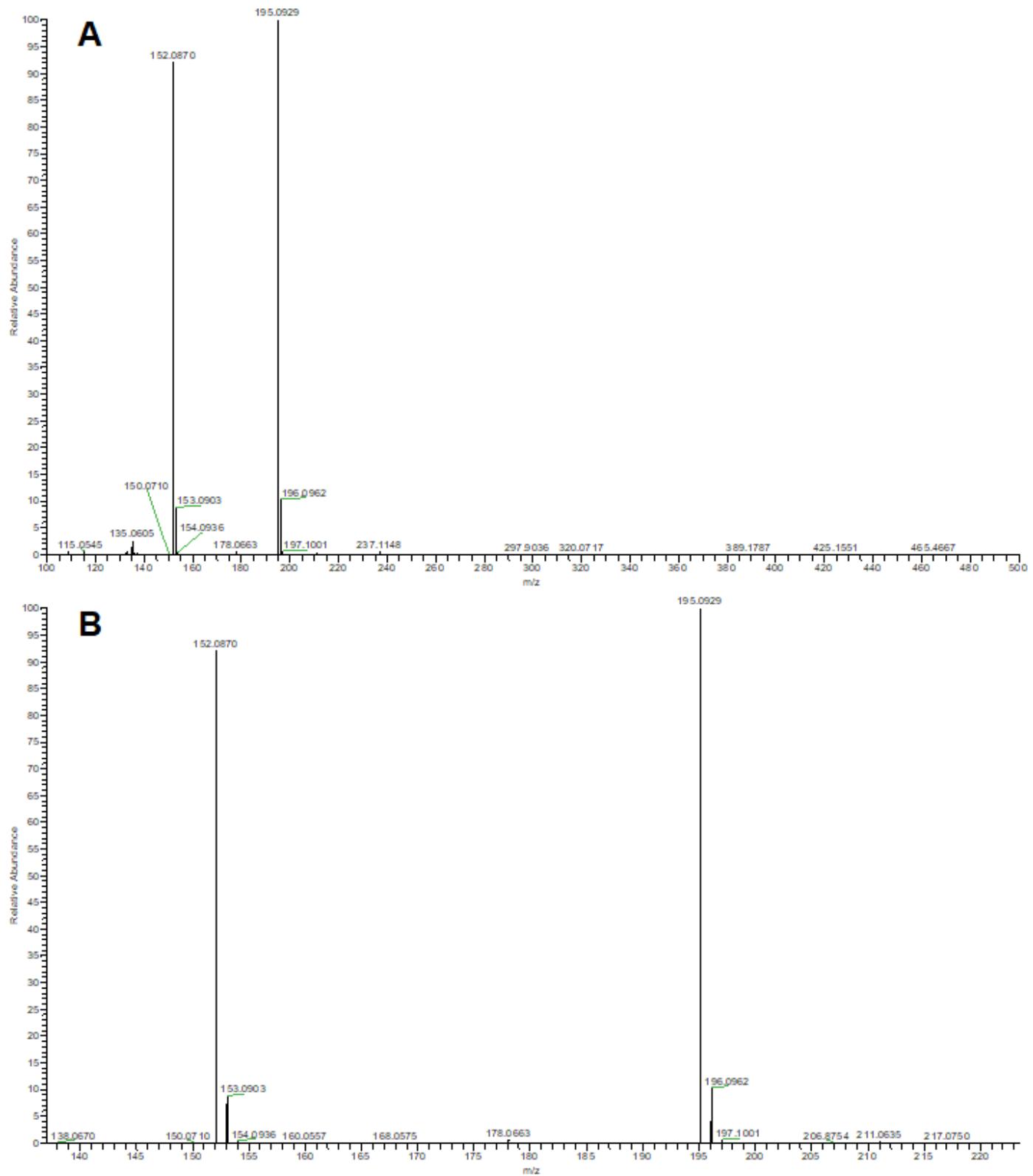
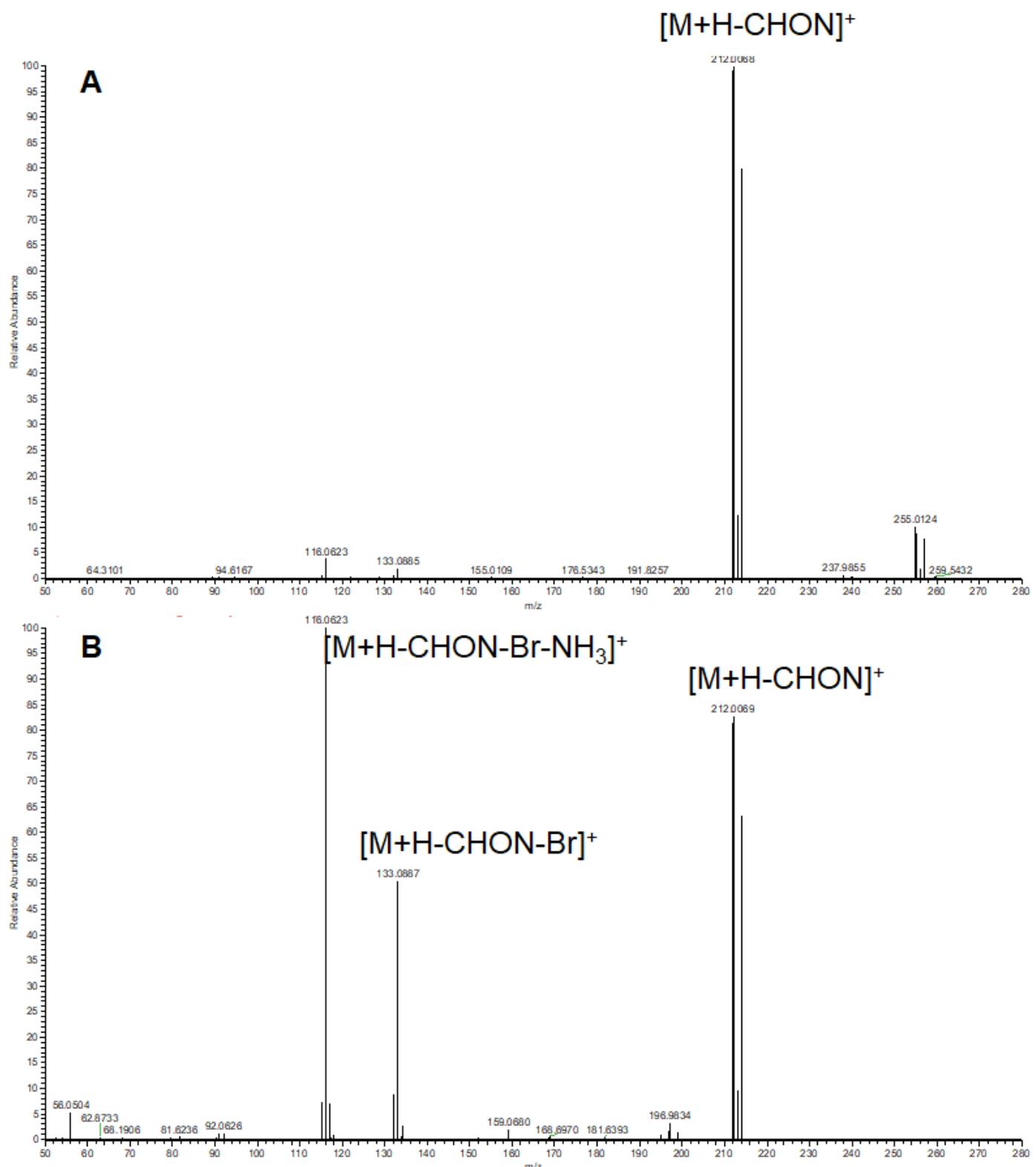
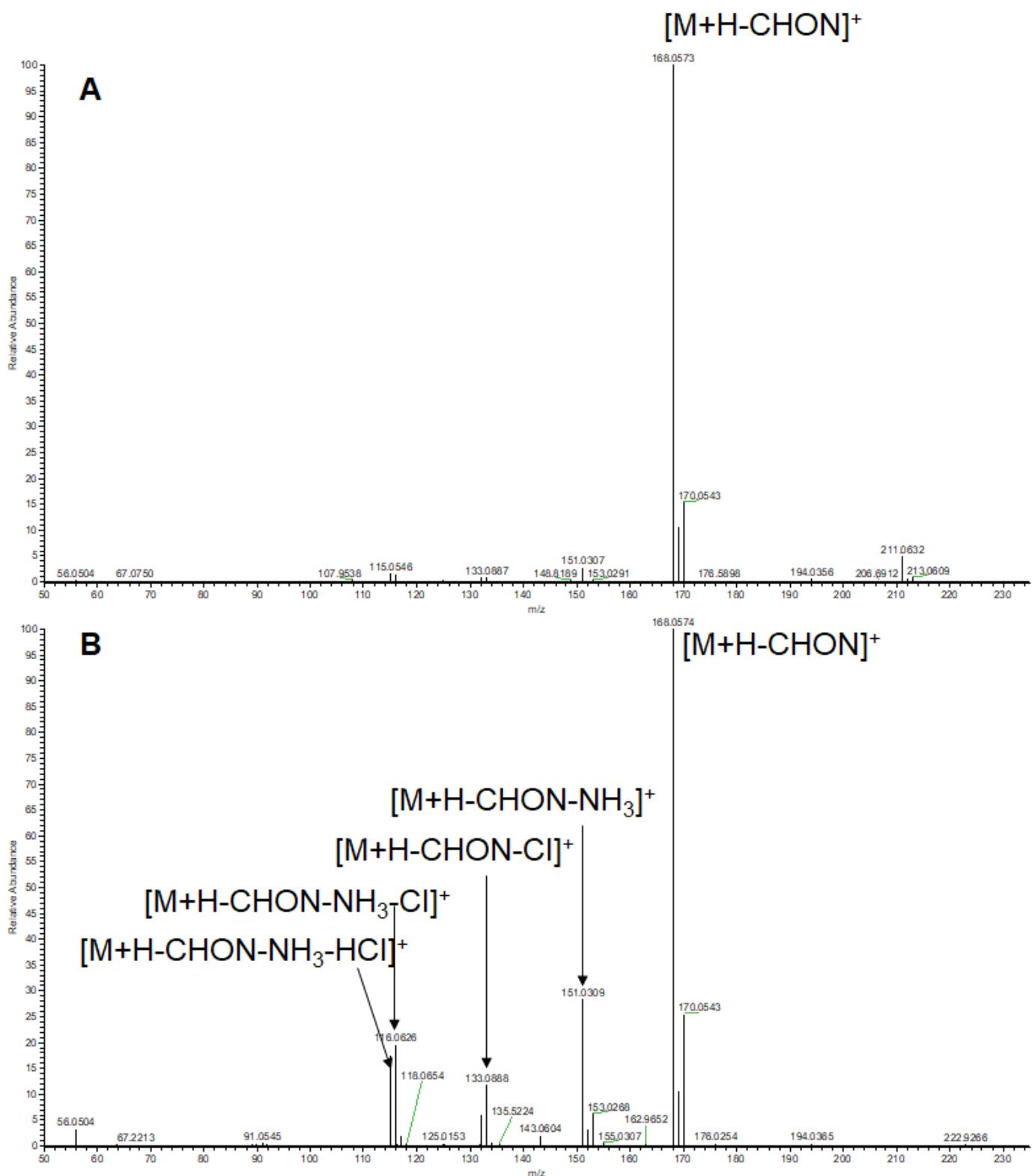


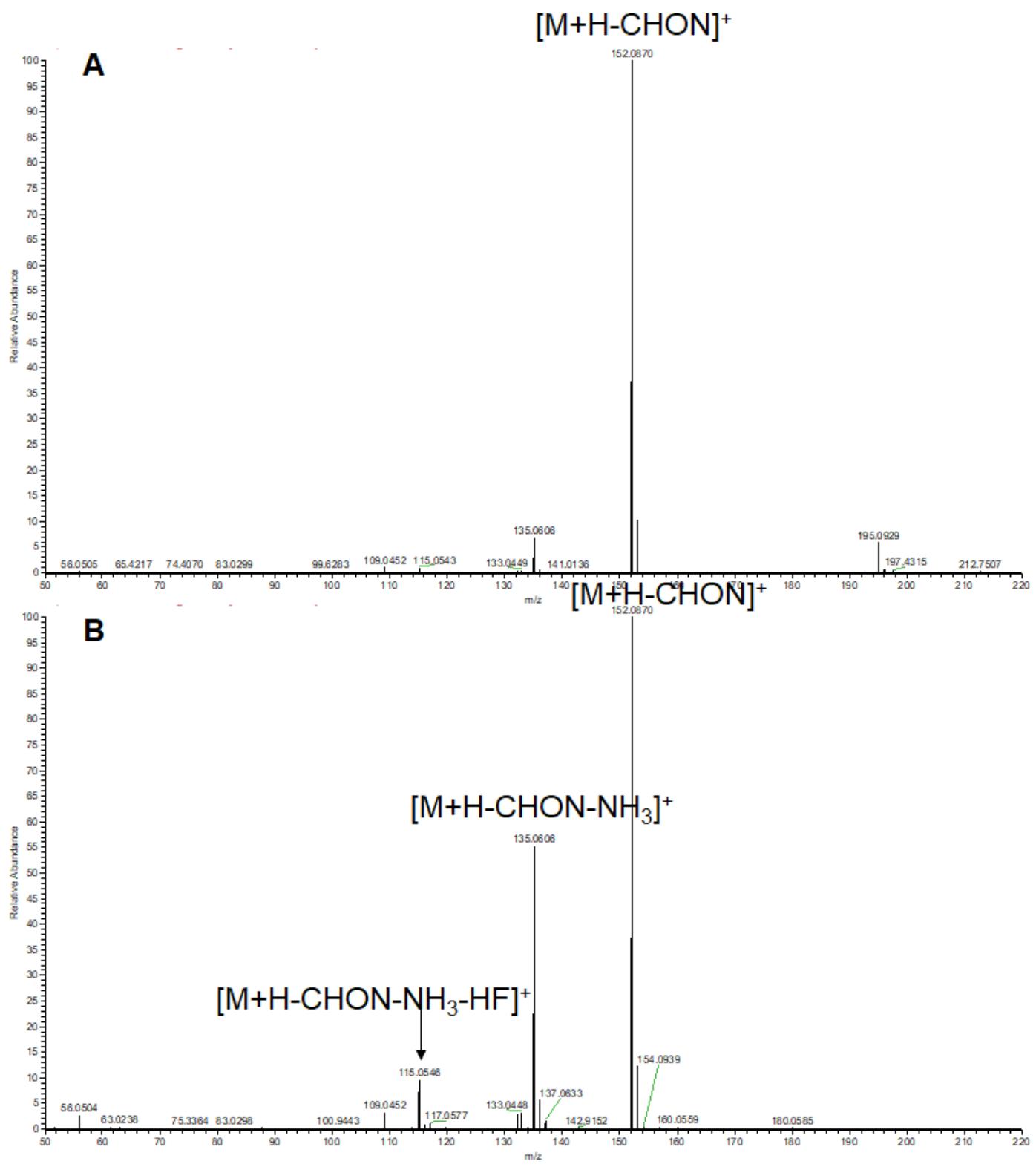
Figure S25. HESI positive mode full MS spectrum of 4F-MAR (A: full view,  $m/z$  100-500, B: detailed view,  $m/z$  140-220)



**Figure S26.** HESI positive mode MS/MS spectrum of 4B-MAR (A: normalized collision energy 18, B: normalized collision energy 45)



**Figure S27.** HESI positive mode MS/MS spectrum of 4C-MAR (A: normalized collision energy 18, B: normalized collision energy 45)



**Figure S28.** HESI positive mode MS/MS spectrum of 4F-MAR (A: normalized collision energy 18, B: normalized collision energy 45)