Supplementary Material

Novel inhibitors with sulfamethazine backbone: Synthesis and biological study of multi-target cholinesterases and α-glucosidase inhibitors

Cüneyt Türkeş[a,*], Suleyman Akocak[b,*], Mesut Işık[c], Nebih Lolak[b], Parham Taslimi[d], Mustafa Durgun[e], İlhami Gülçin[f], Yakup Budak[g], and Şükrü Beydemir[h,i]

[a]Department of Biochemistry, Faculty of Pharmacy, Erzincan Binali Yıldırım University, Erzincan 24100, Turkey

[b]Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Adıyaman University, Adıyaman 02040, Turkey

[c]Department of Bioengineering, Faculty of Engineering, Bilecik Şeyh Edebali University, Bilecik 11230, Turkey

[d]Department of Biotechnology, Faculty of Science, Bartın University, Bartın 74100, Turkey

[e]Department of Chemistry, Faculty of Arts and Sciences, Harran University, Şanlıurfa 63290, Turkey

[f]Department of Chemistry, Faculty of Sciences, Atatürk University, Erzurum 25240, Turkey

[g]Department of Chemistry, Faculty of Arts and Sciences, Gaziosmanpaşa University, Tokat 60250, Turkey

[h]Department of Biochemistry, Faculty of Pharmacy, Anadolu University, Eskişehir 26470, Turkey

[i]The Rectorate of Bilecik Şeyh Edebali University, Bilecik 11230, Turkey

[*] Correspondence authors:

Department of Biochemistry, Faculty of Pharmacy, Erzincan Binali Yıldırım University, Erzincan 24100, Turkey; Phone: +90 446 2245344; Fax: +90 446 2245343. E-mail address: cuneyt.turkes@erzincan.edu.tr. ORCID ID: 0000-0002-2932-2789. (C.Türkeş).

Department of Pharmaceutical Chemistry, Faculty of Pharmacy, Adıyaman University, Adıyaman 02040, Turkey; Phone/Fax: +90 416 2021029. E-mail address: sakocak@adiyaman.edu.tr. ORCID ID: 0000-0003-4506-5265. (S.Akocak).

Table of Contents

Figure S1. ^{1}H-NMR spectrum of compound **2a** (400 MHz, in DMSO-d_6).

Figure S2. ^{13}C-NMR spectrum of compound **2a** (100 MHz, in DMSO-d_6).

Figure S3. HR-ESI-MS spectrum of compound **2a**.

Figure S4. ^{1}H-NMR spectrum of compound **2b**(400 MHz, in DMSO-d_6).

Figure S5. ^{13}C-NMR spectrum of compound **2b** (100 MHz, in DMSO-d_6).

Figure S6. HR-ESI-MS spectrum of compound **2b**.

Figure S7. ^{1}H-NMR spectrum of compound **2c** (400 MHz, in DMSO-d_6).

Figure S8. ^{13}C-NMR spectrum of compound **2c** (100 MHz, in DMSO-d_6).

Figure S9. HR-ESI-MS spectrum of compound **2c**.

Figure S10. ^{1}H-NMR spectrum of compound **2d** (400 MHz, in DMSO-d_6).

Figure S11. ^{13}C-NMR spectrum of compound **2d** (100 MHz, in DMSO-d_6).

Figure S12. HR-ESI-MS spectrum of compound **2d**.

Figure S13. ^{1}H-NMR spectrum of compound **2e** (400 MHz, in DMSO-d_6).

Figure S14. ^{13}C-NMR spectrum of compound **2e** (100 MHz, in DMSO-d_6).

Figure S15. HR-ESI-MS spectrum of compound **2e**.

Figure S16. ^{1}H-NMR spectrum of compound **2f** (400 MHz, in DMSO-d_6).

Figure S17. ^{13}C-NMR spectrum of compound **2f** (100 MHz, in DMSO-d_6).

Figure S18. HR-ESI-MS spectrum of compound **2f**.

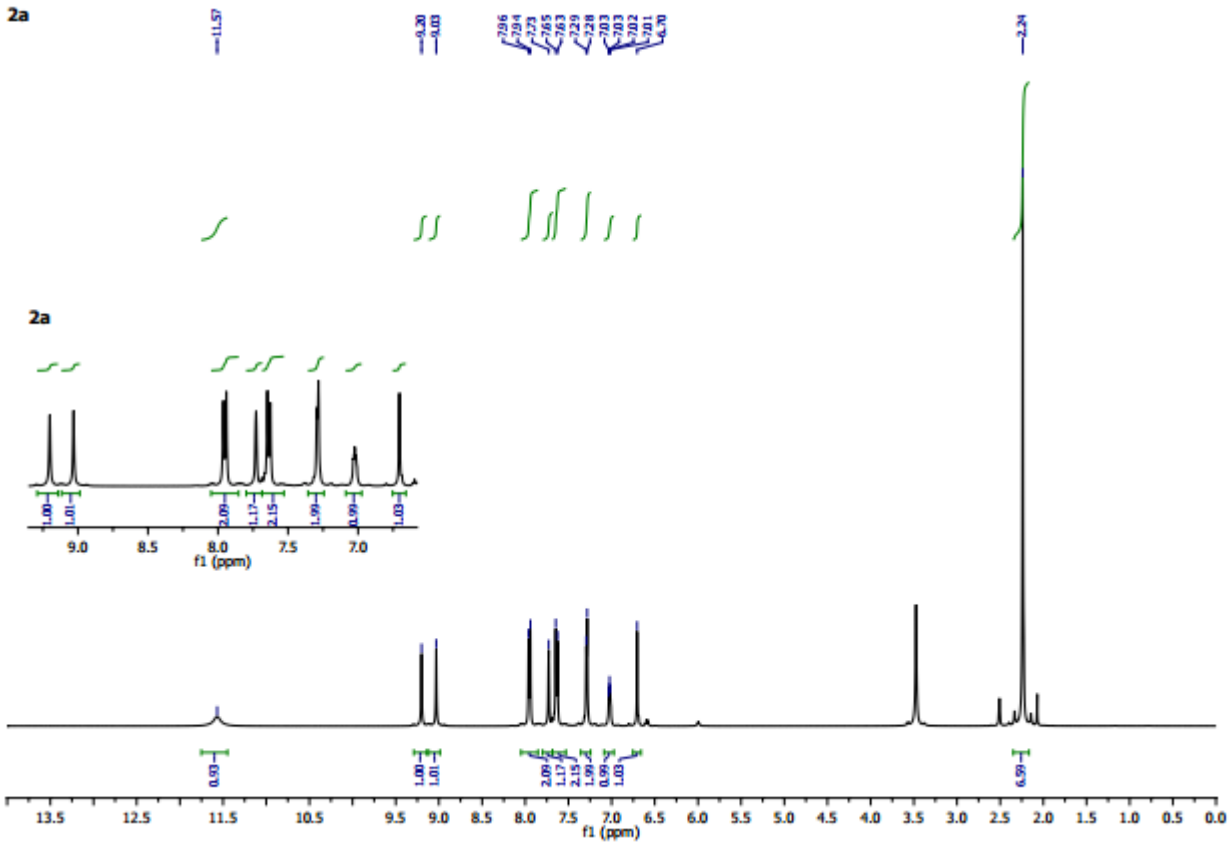


Figure S1. ^{1}H-NMR spectrum of compound **2a** (400 MHz, in DMSO-d_6).

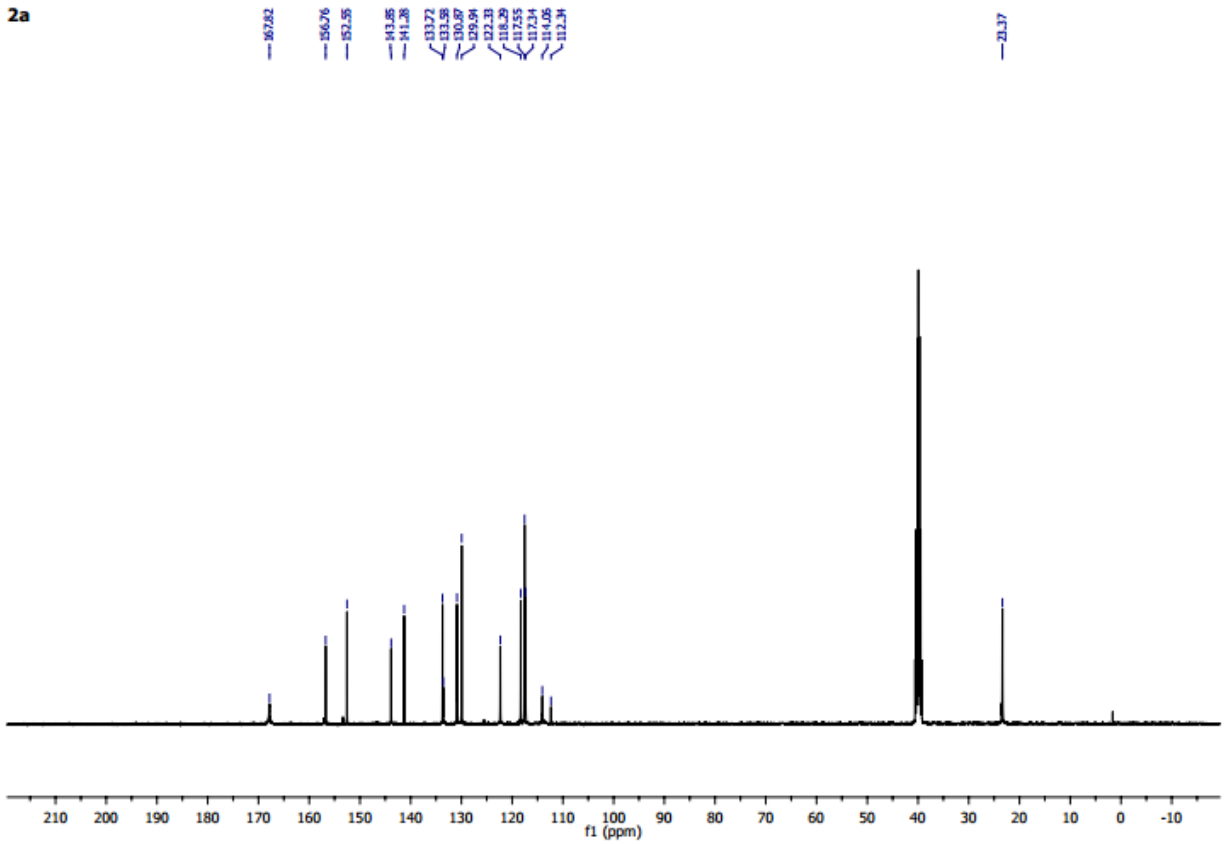


Figure S2. ^{13}C-NMR spectrum of compound **2a** (100 MHz, in DMSO-d_6).

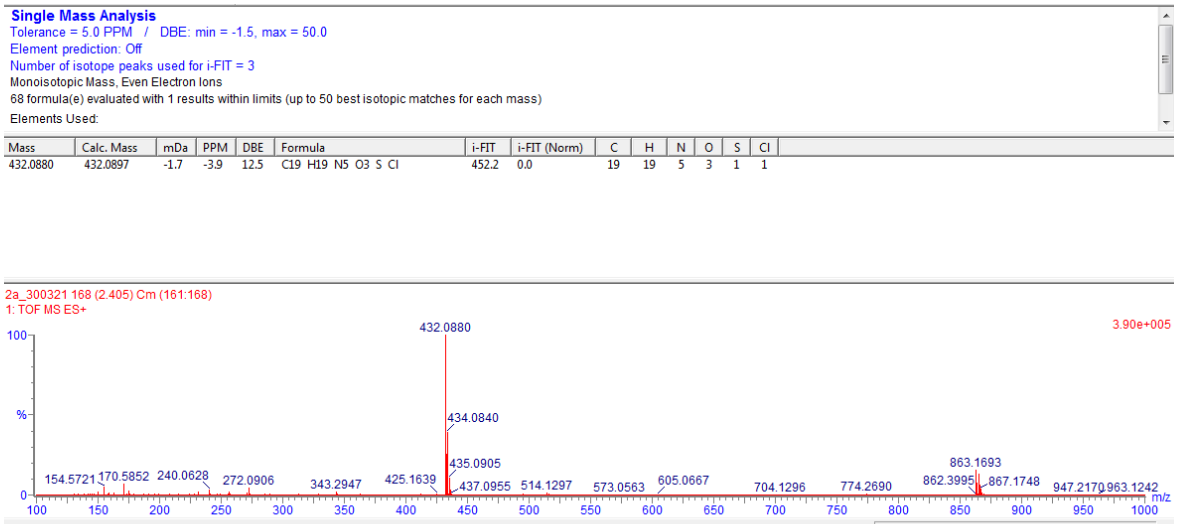


Figure S3. HR-ESI-MS spectrum of compound **2a**.

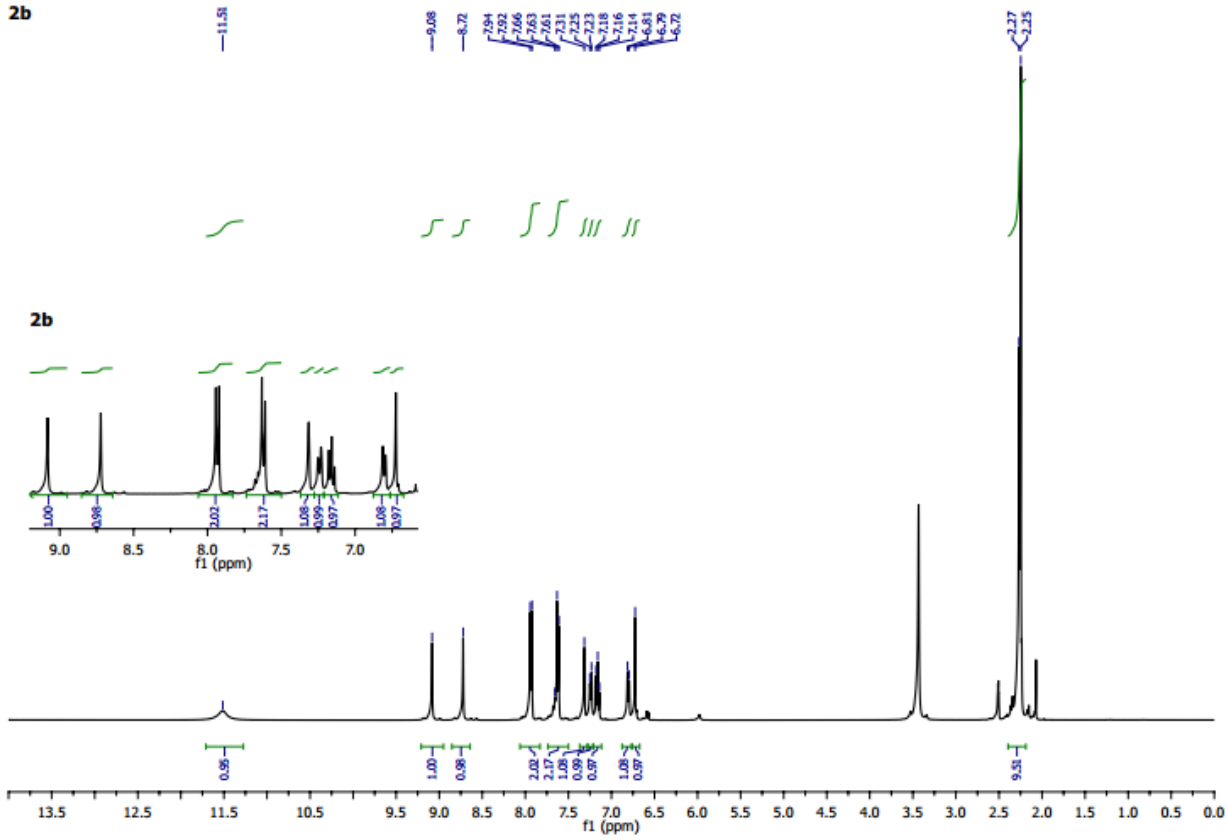


Figure S4. ^{1}H-NMR spectrum of compound **2b** (400 MHz, in DMSO-d_6).

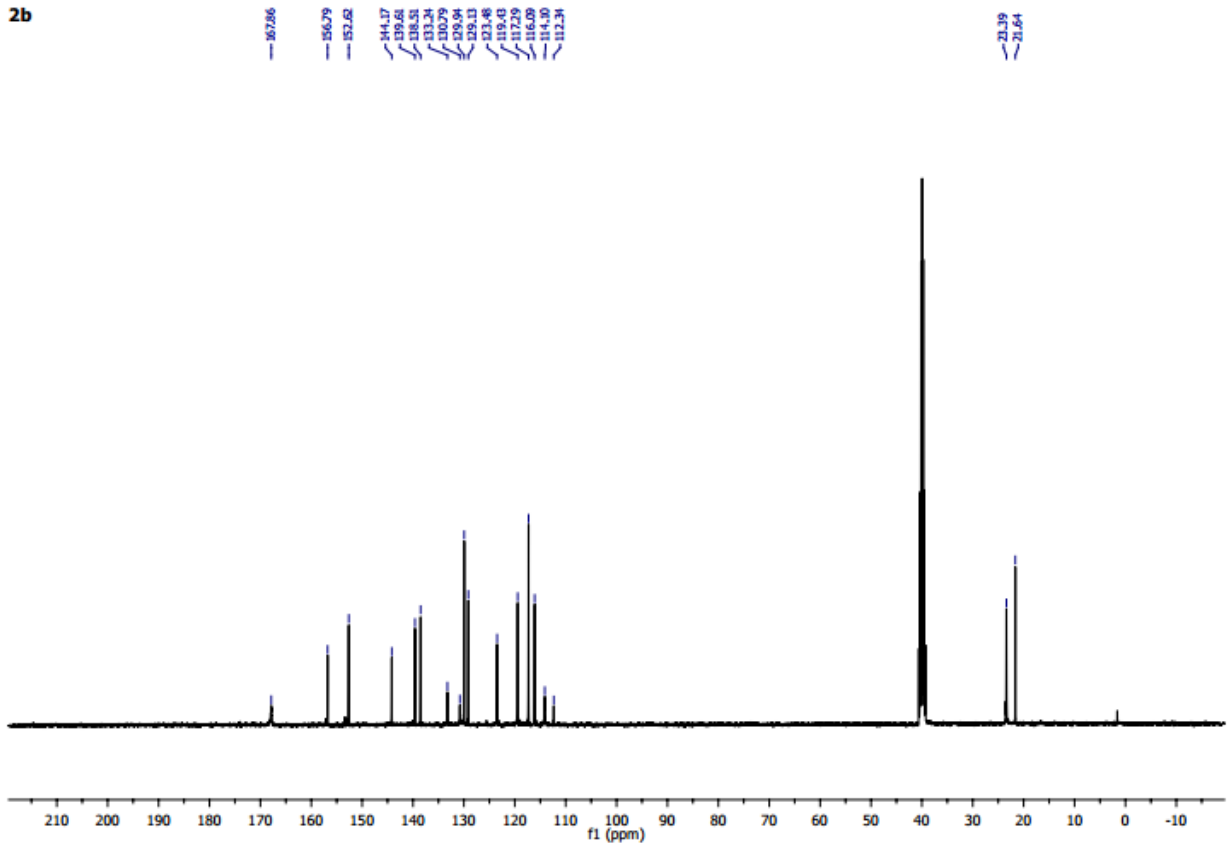


Figure S5. ^{13}C-NMR spectrum of compound **2b** (100 MHz, in DMSO-d_6).

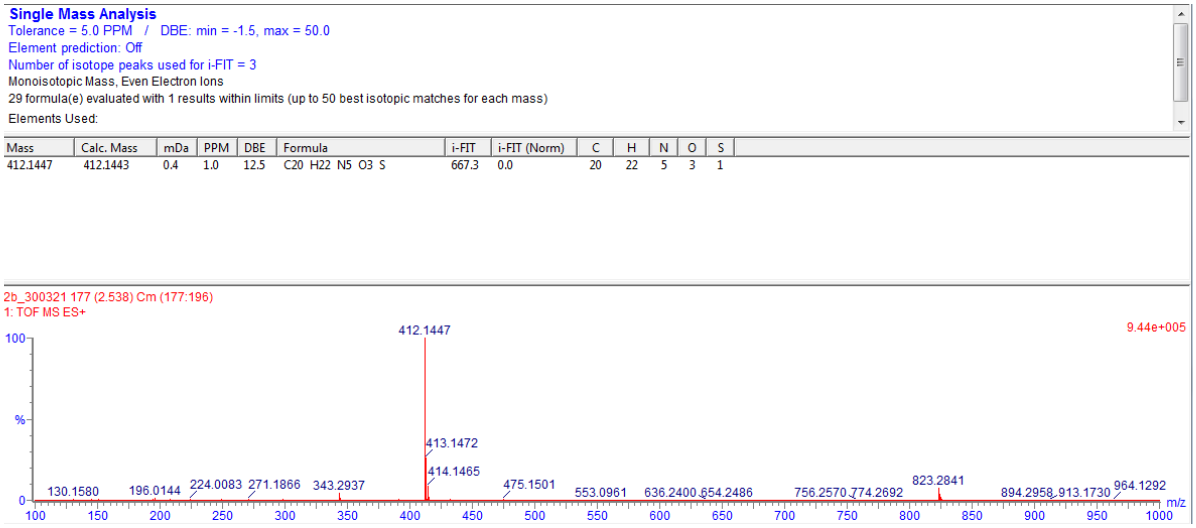


Figure S6. HR-ESI-MS spectrum of compound **2b**.

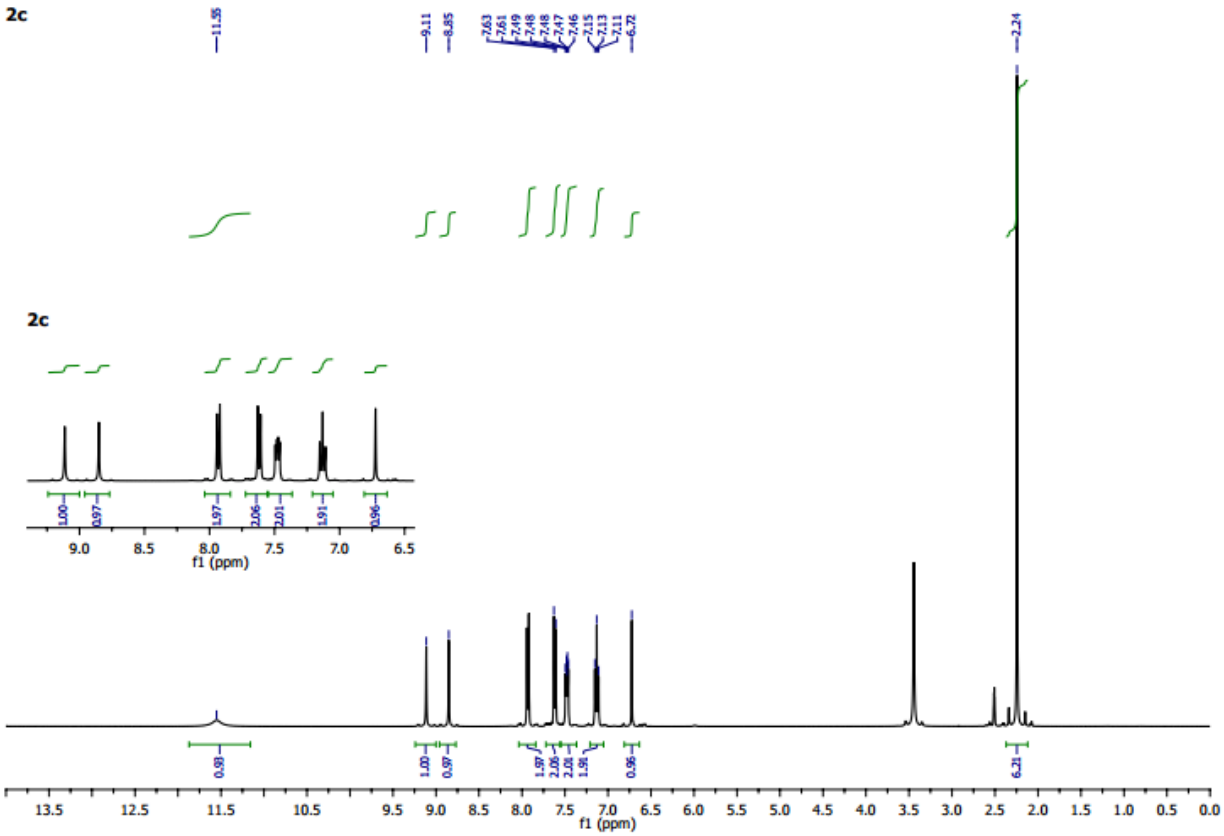


Figure S7. ^{1}H-NMR spectrum of compound **2c** (400 MHz, in DMSO-d_6).

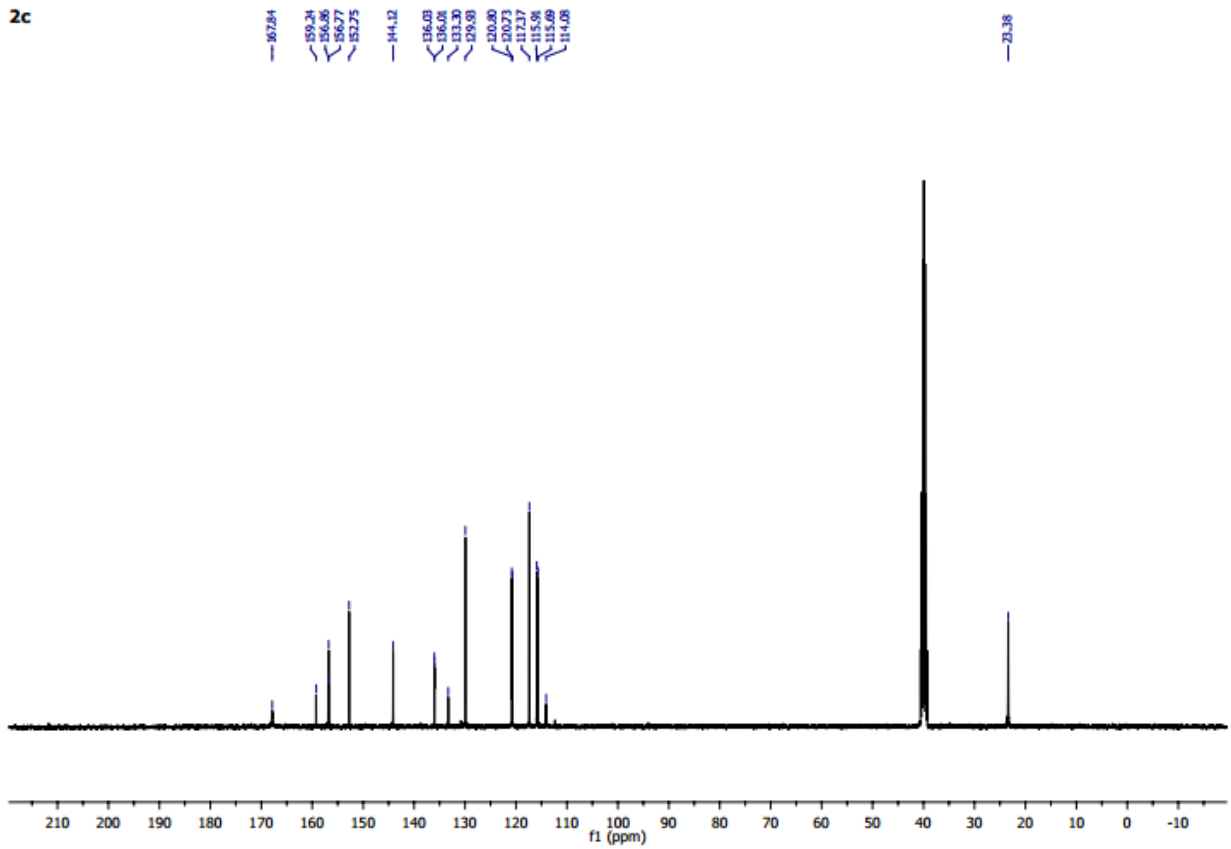


Figure S8. ^{13}C-NMR spectrum of compound **2c** (100 MHz, in DMSO-d_6).

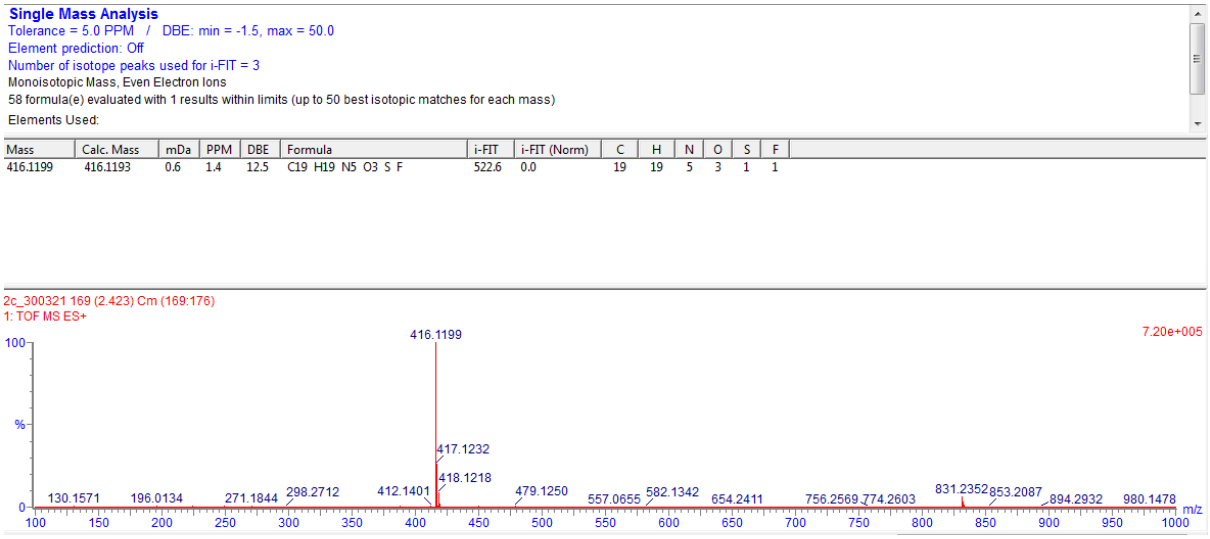


Figure S9. HR-ESI-MS spectrum of compound **2c**.

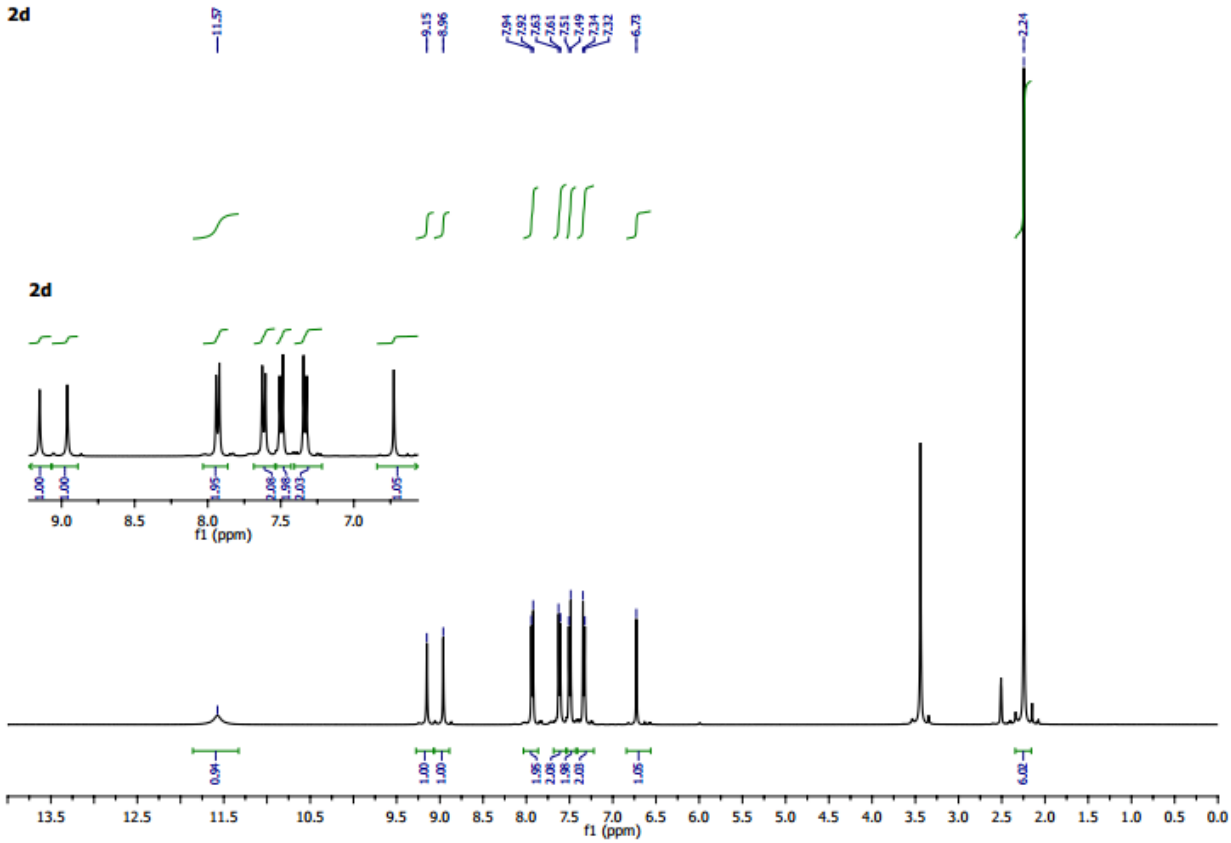


Figure S10. [1]H-NMR spectrum of compound **2d** (400 MHz, in DMSO-d_6).

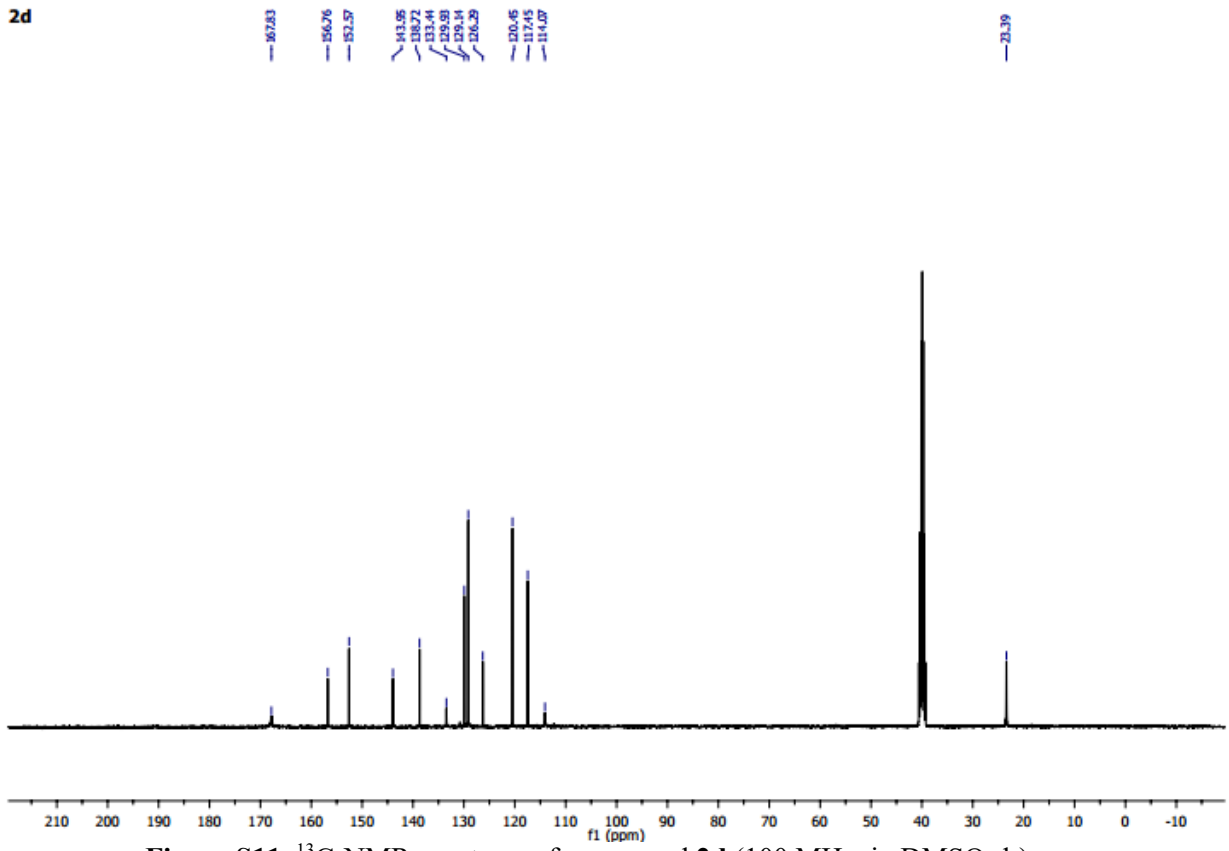


Figure S11. ^{13}C-NMR spectrum of compound **2d** (100 MHz, in DMSO-d_6).

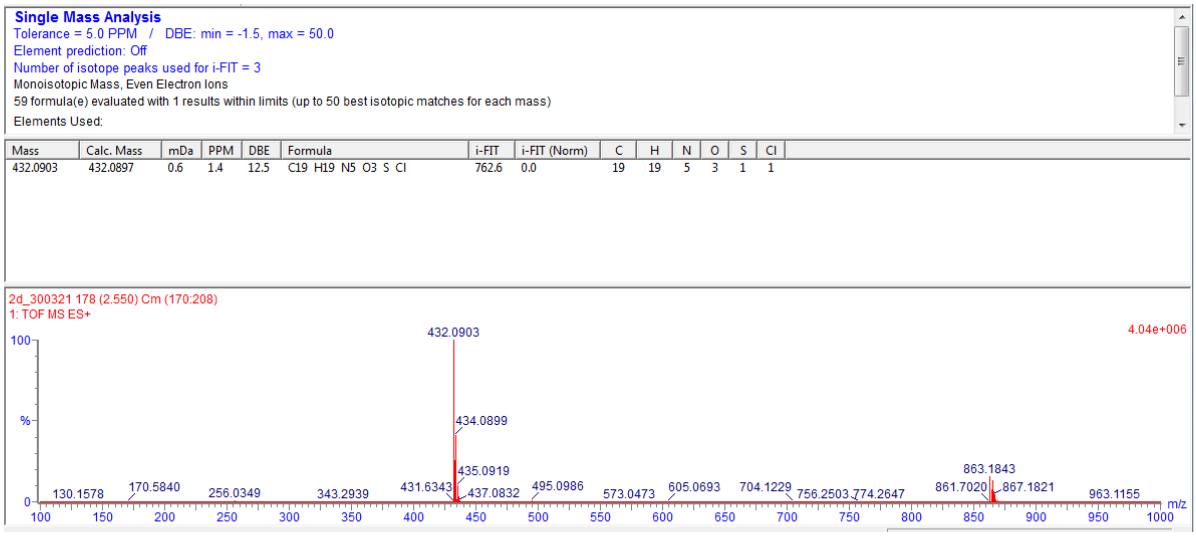


Figure S12. HR-ESI-MS spectrum of compound **2d**.

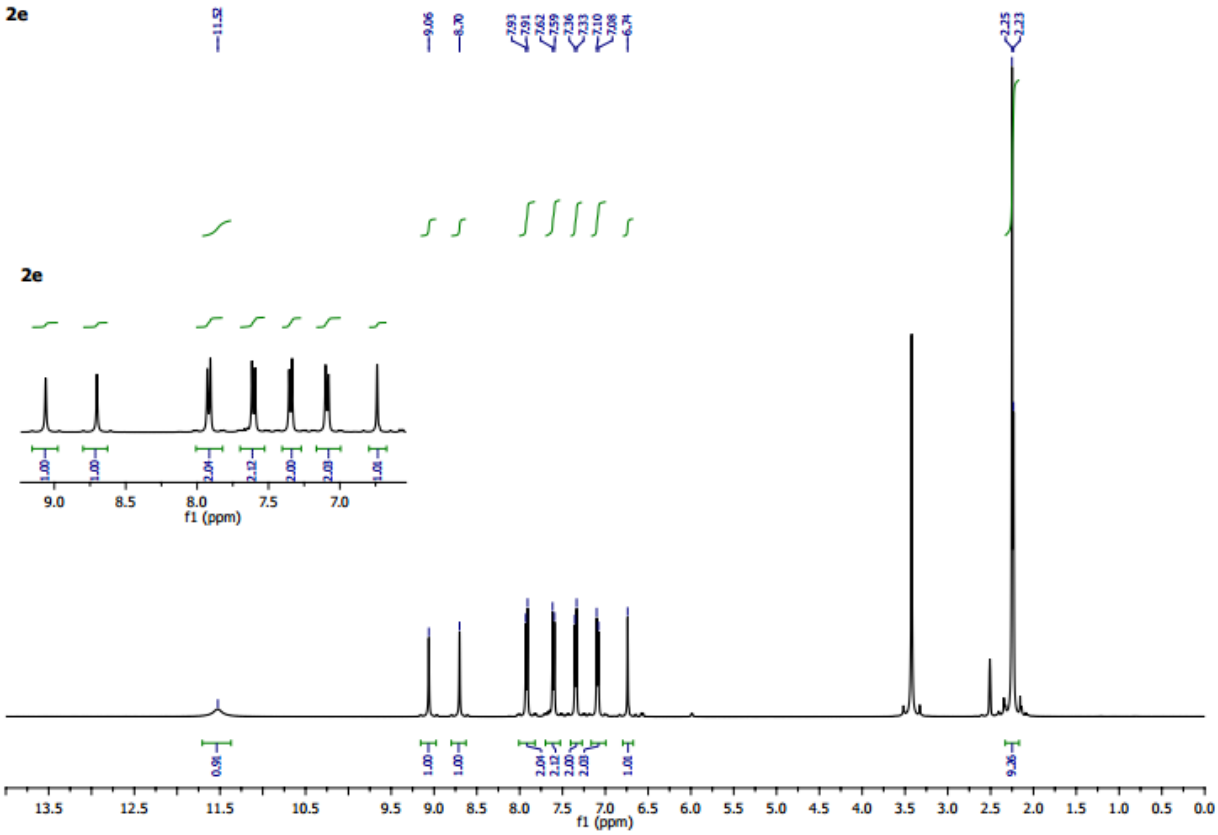


Figure S13. ^{1}H-NMR spectrum of compound **2e** (400 MHz, in DMSO-d_6).

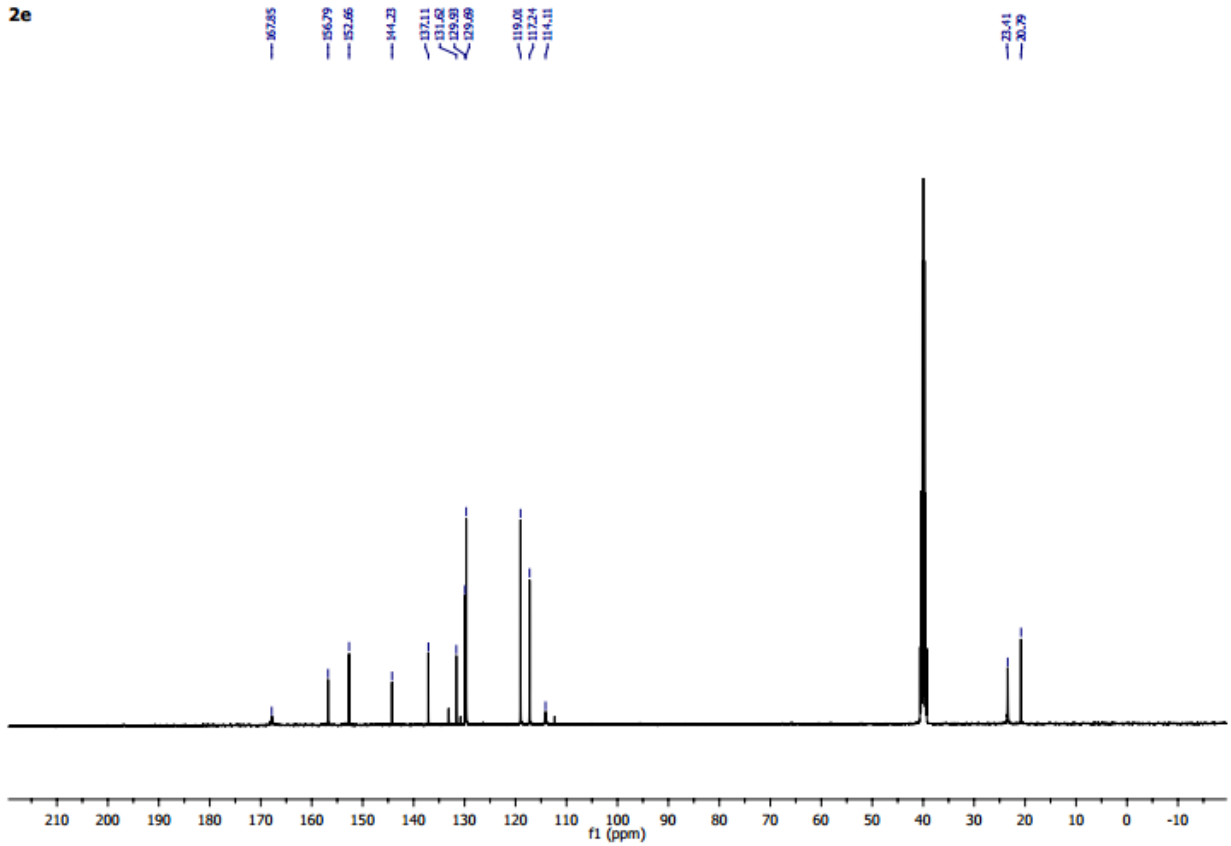


Figure S14. ^{13}C-NMR spectrum of compound **2e** (100 MHz, in DMSO-d_6).

Single Mass Analysis
Tolerance = 5.0 PPM / DBE: min = -1.5, max = 50.0
Element prediction: Off
Number of isotope peaks used for i-FIT = 3
Monoisotopic Mass, Even Electron Ions
62 formula(e) evaluated with 1 results within limits (up to 50 best isotopic matches for each mass)
Elements Used:

Mass	Calc. Mass	mDa	PPM	DBE	Formula	i-FIT	i-FIT (Norm)	C	H	N	O	S	Cl
412.1423	412.1443	-2.0	-4.9	12.5	C20 H22 N5 O3 S	632.0	0.0	20	22	5	3	1	

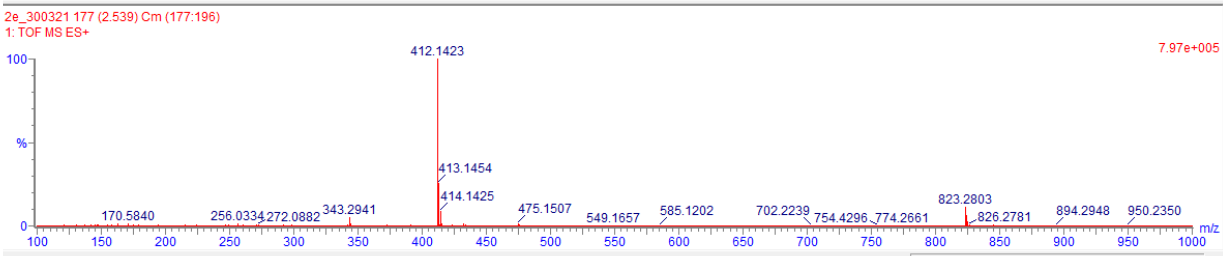


Figure S15. HR-ESI-MS spectrum of compound **2e**.

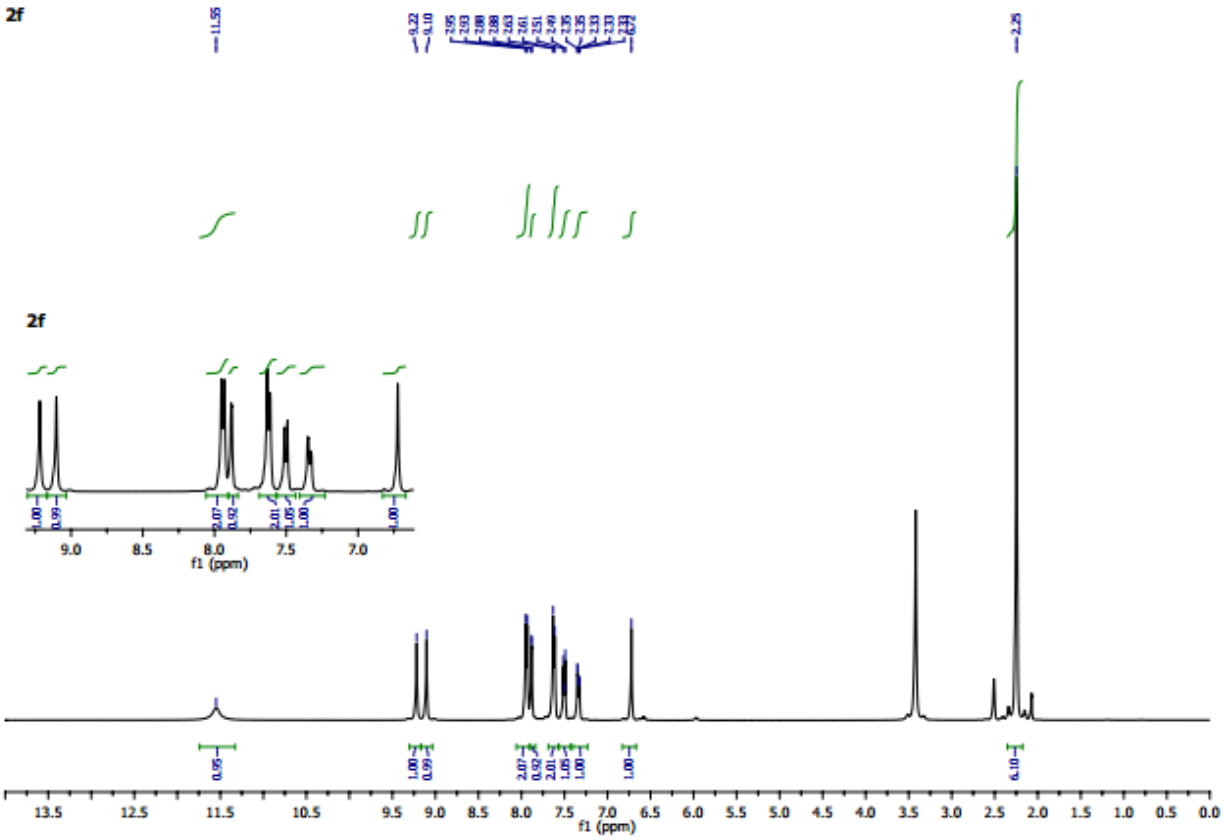


Figure S16. ^{1}H-NMR spectrum of compound **2f** (400 MHz, in DMSO-d_6).

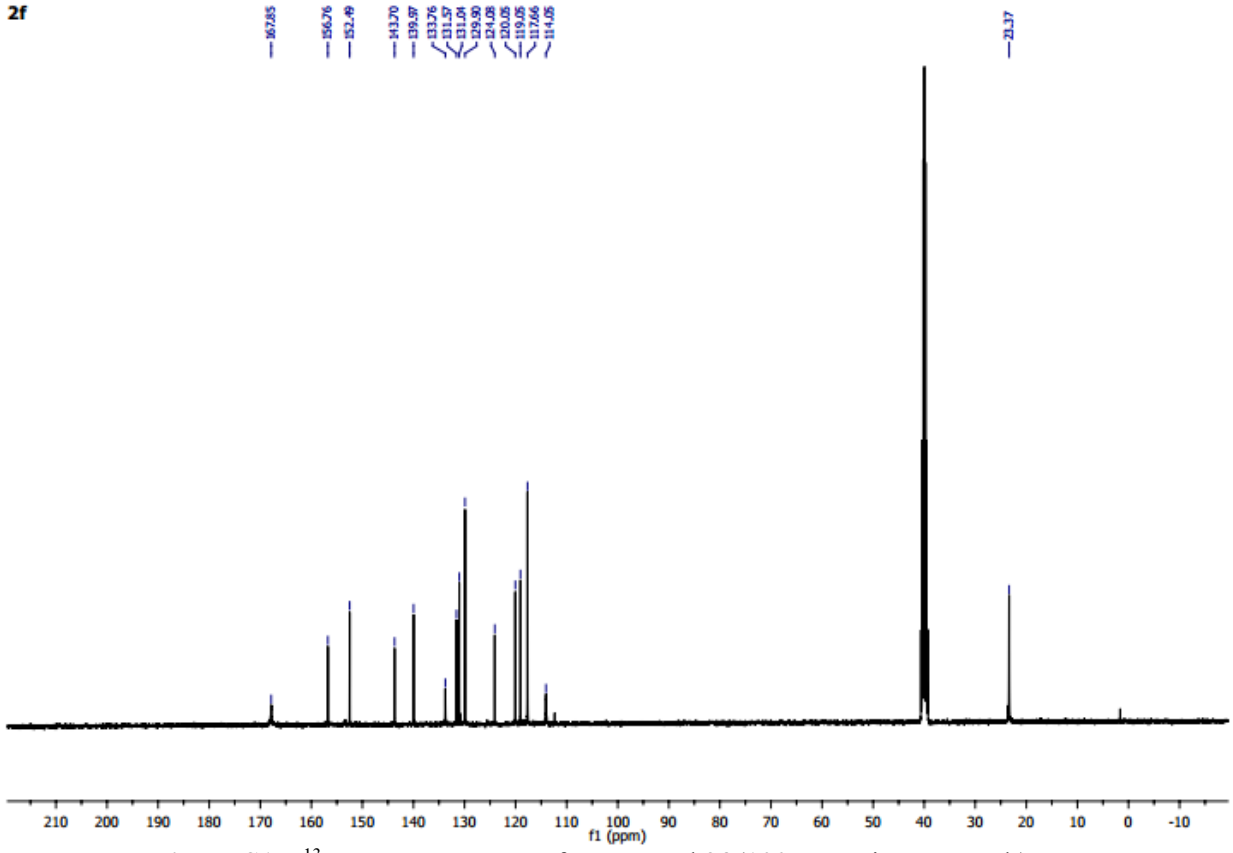


Figure S17. ^{13}C-NMR spectrum of compound **2f** (100 MHz, in DMSO-d_6).

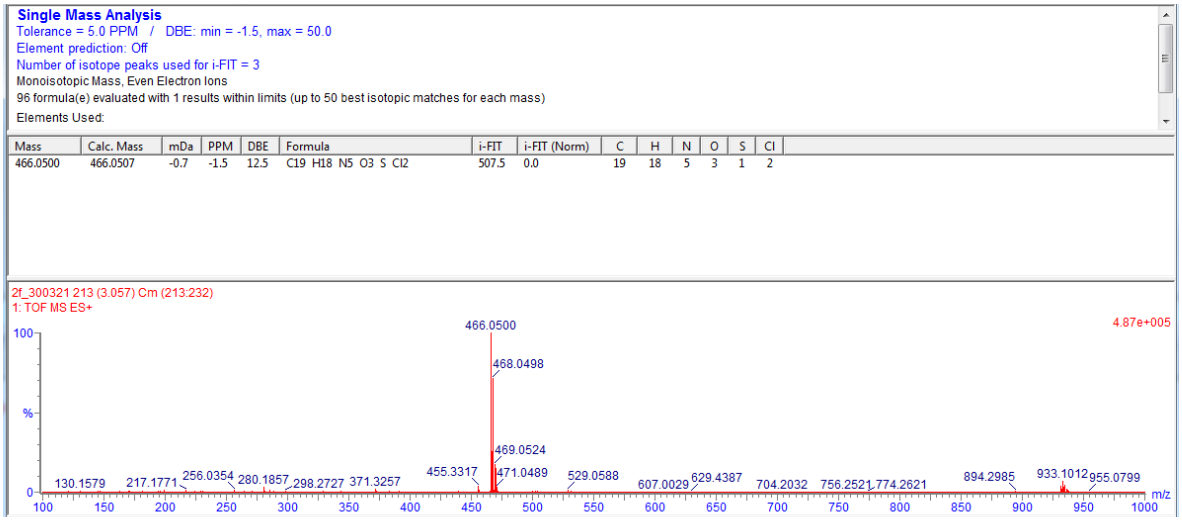


Figure S18. HR-ESI-MS spectrum of compound **2f**.