SUPPORTING INFORMATION

α-Glucosidase inhibitory tetraoxygenated xanthones from the twig extract of *Garcinia cowa* Roxb. ex Choisy

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Abstract

Phytochemical investigation of the twigs of *Garcinia cowa* Roxb. ex Choisy (Clusiaceae), collected in Vietnam, led to the isolation of five tetraoxygenated xanthones, including three new compounds, namely norrubraxanthone (**1**), garcinone G (**2**), and garcinone H (**3**), together with two known compounds, *α*-mangostin (**4**) and rubraxanthone (**5**). The structures of the new compounds were elucidated by comprehensive spectroscopic analyses, including 1D and 2D NMR and high-resolution electrospray ionization mass spectrometry (HR-ESI-MS), and by comparison with literature data. All isolated compounds were evaluated for their *in vitro α*-glucosidase inhibitory activity. Compounds **1**–**5** exhibited potent inhibitory effects, with IC_{50} values ranging from 0.39 to 1.62 μM, which were significantly stronger than that of the positive control acarbose (IC_{50} = 263.01 ± 10.92 μM). Among them, compounds **3** and **4** showed the most pronounced activity, with IC_{50} values of 0.43 ± 0.01 and 0.39 ± 0.01 μM, respectively.

Keywords: Tetraoxygenated xanthone, *Garcinia cowa*, *α*-glucosidase, antidiabetic.

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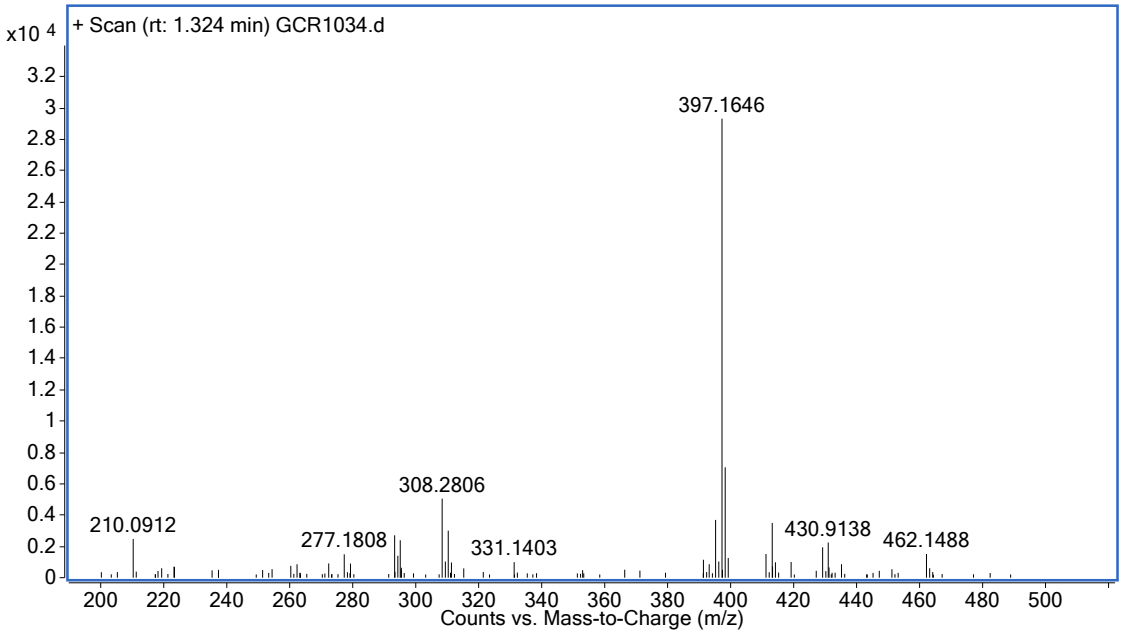

Figure S1. (+)ESI-HR-MS spectrum of compound **1**.

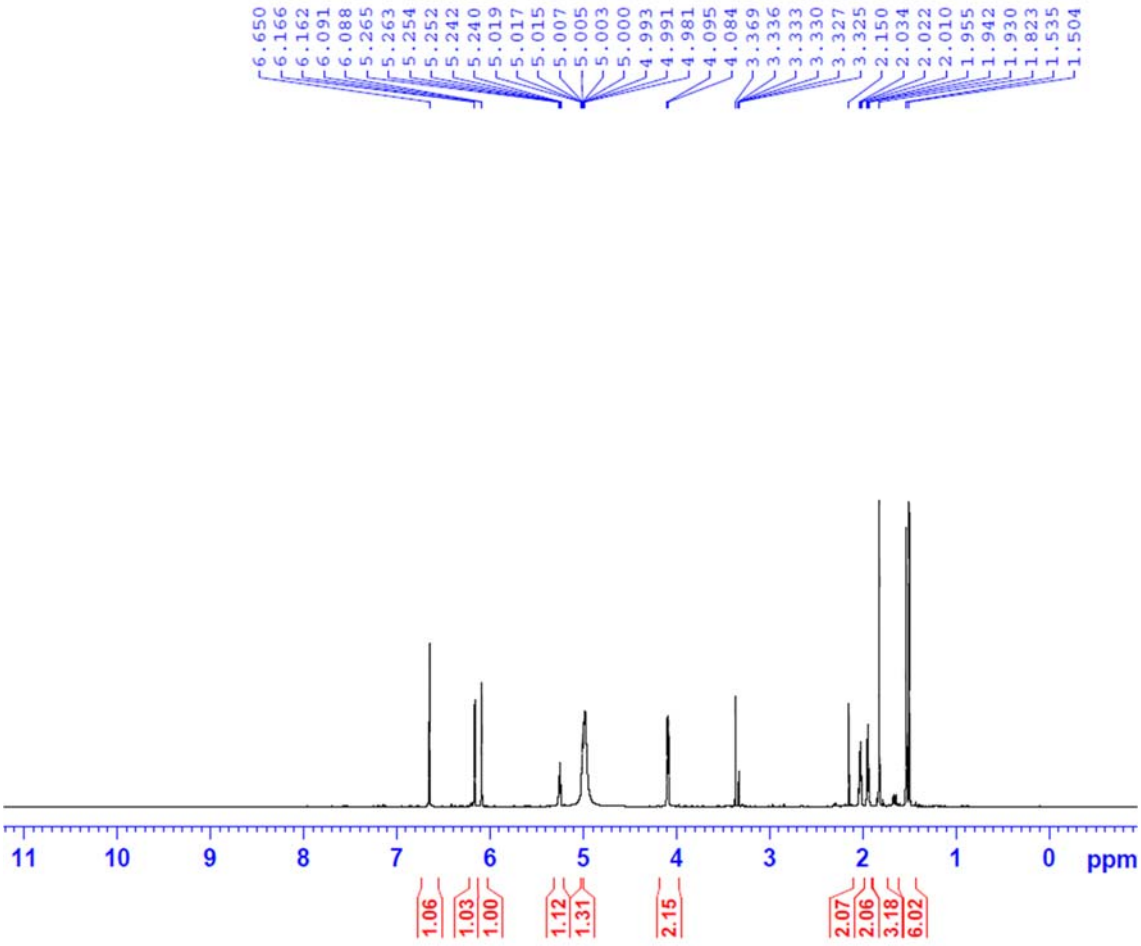

Figure S2. ^{1}H NMR spectrum (in CD_3OD) of compound **1**.

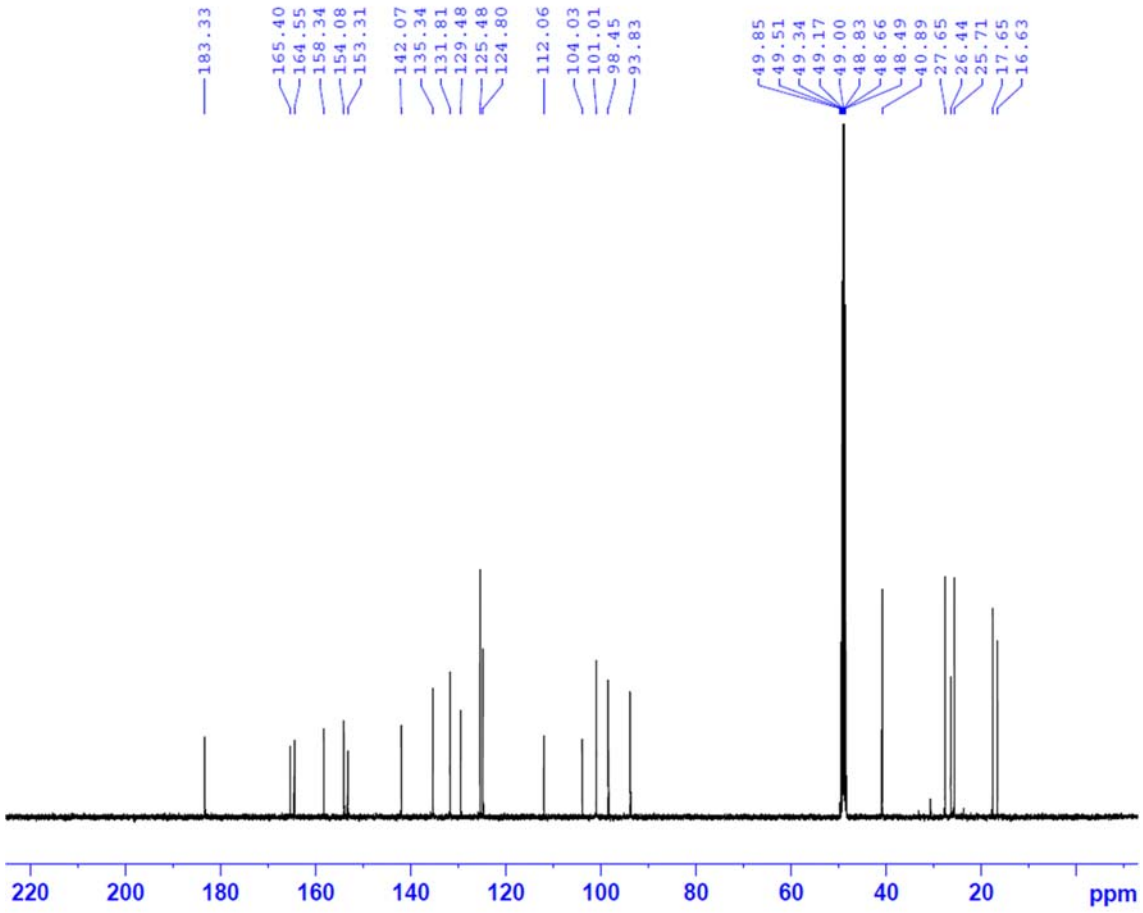

Figure S3. ^{13}C NMR spectrum (in CD_3OD) of compound **1**.

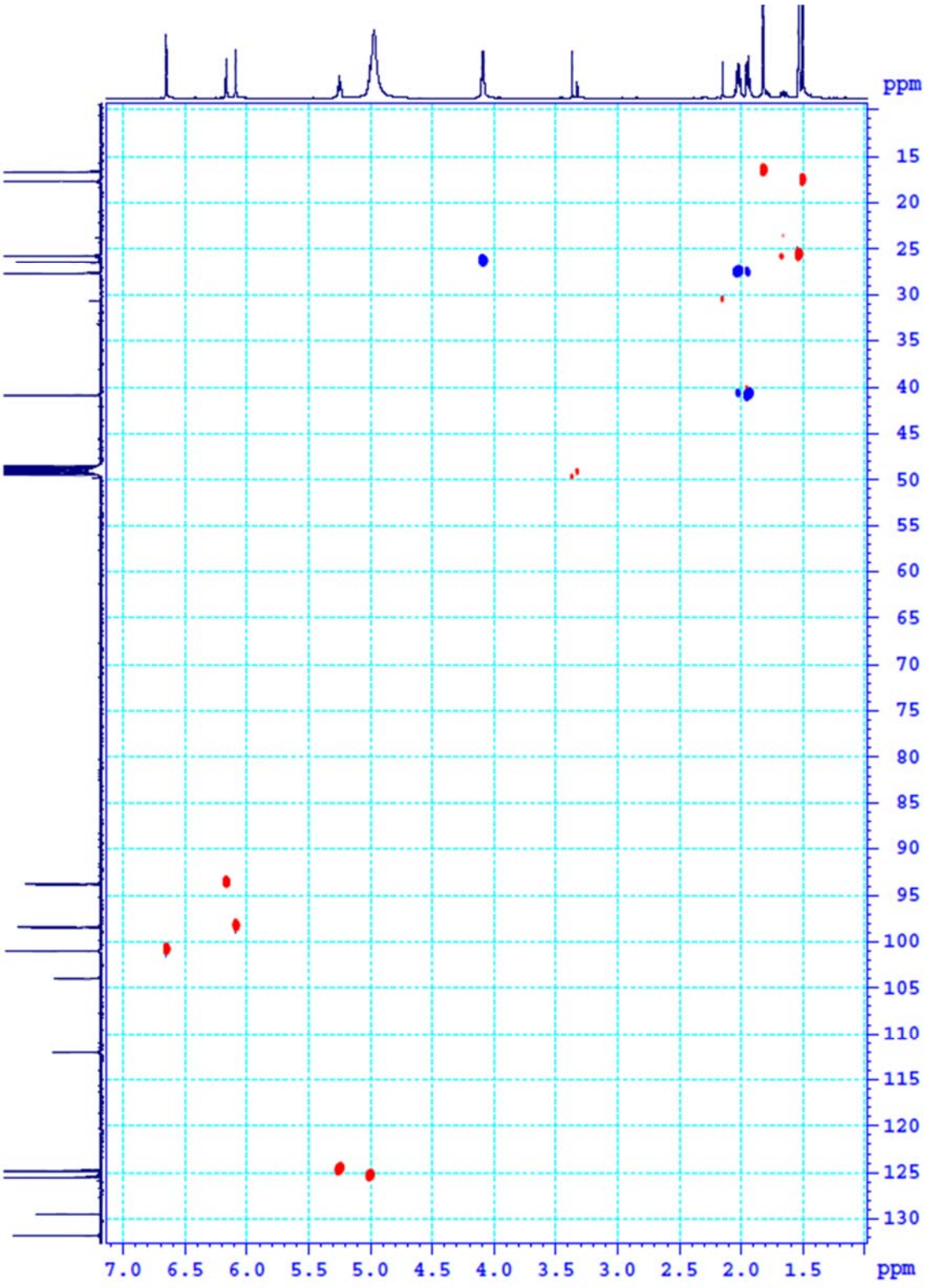

Figure S4. HSQC spectrum of compound **1**.

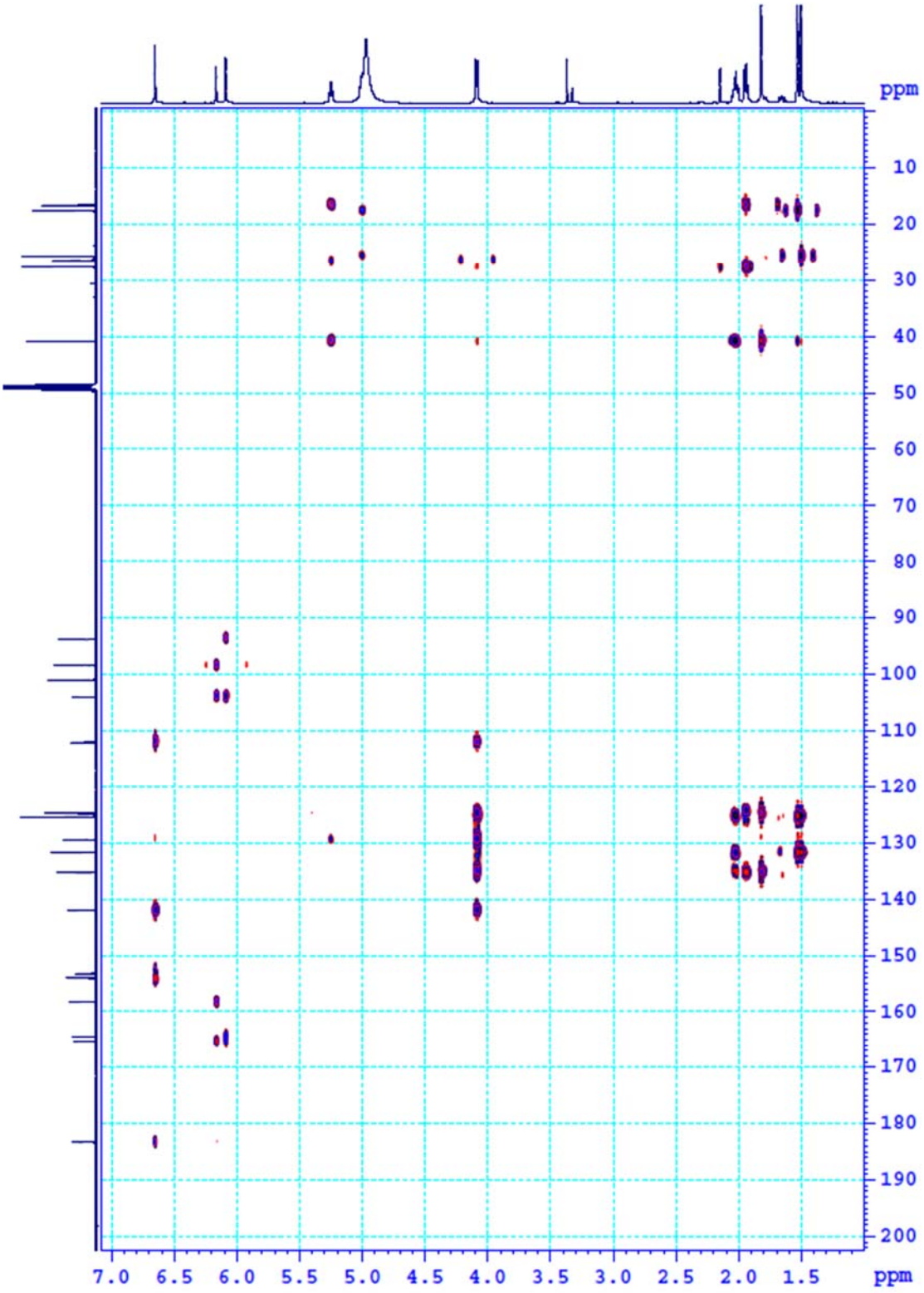

Figure S5. HMBC spectrum of compound **1**.

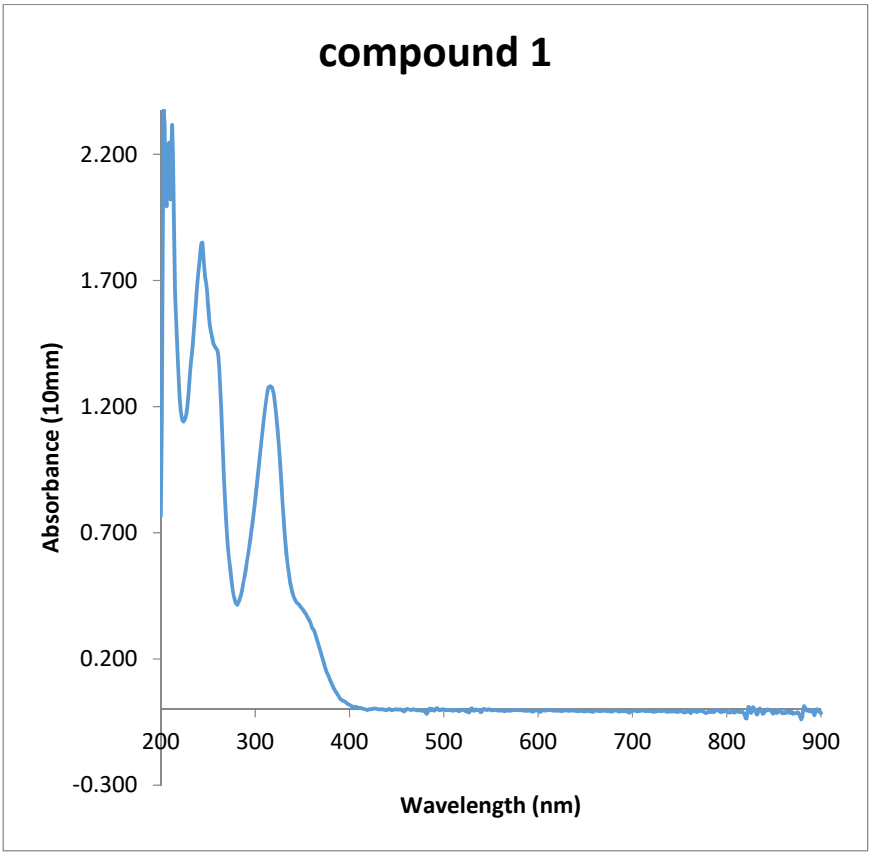

Figure S6. UV spectra of compound **1**.

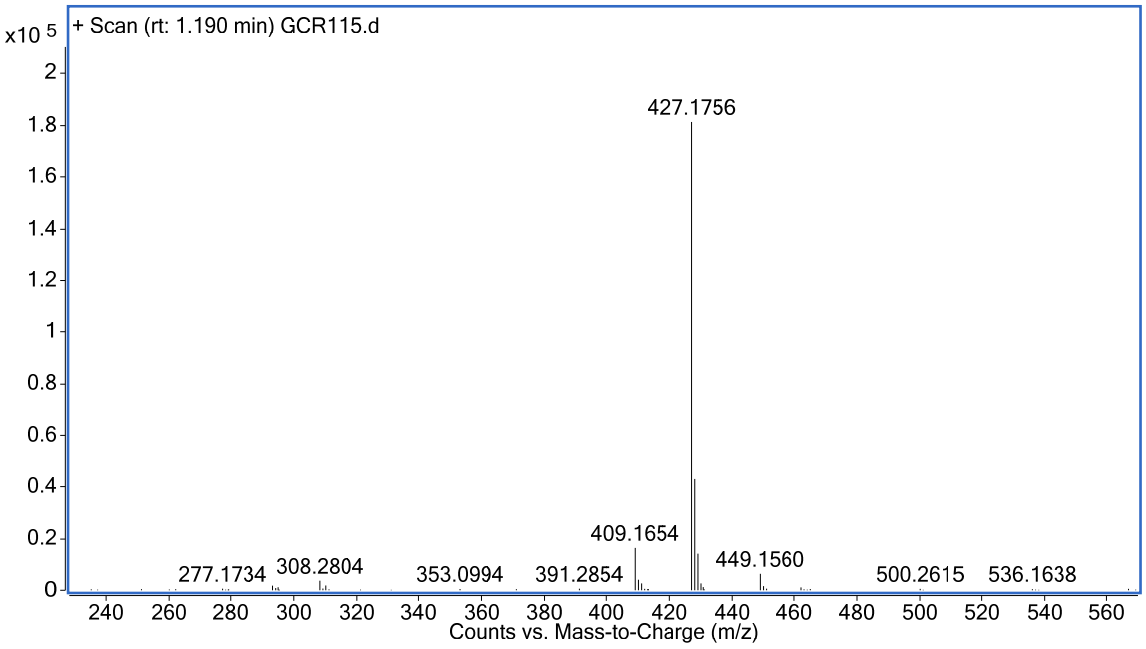

Figure S7. (+)ESI-HR-MS spectrum of compound **2**.

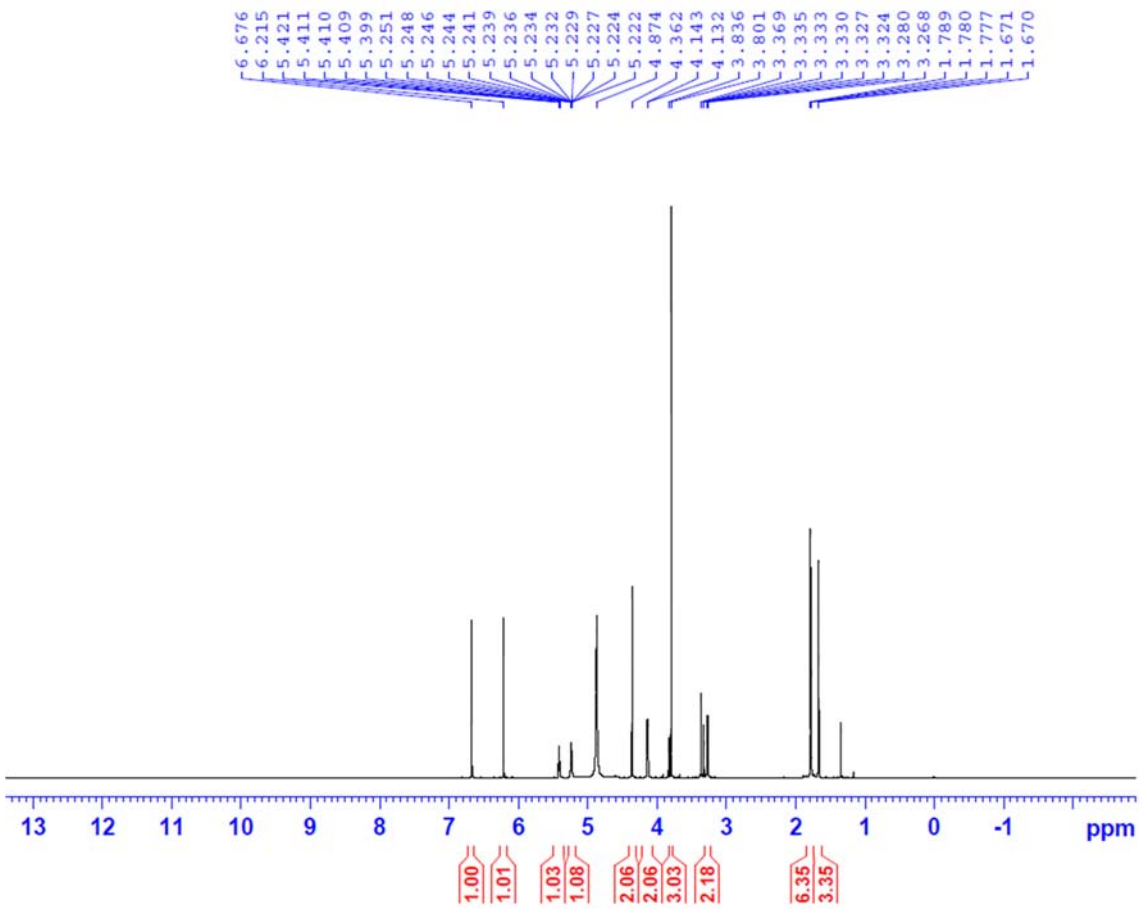

Figure S8. ^{1}H NMR spectrum (in CD_3OD) of compound **2**.

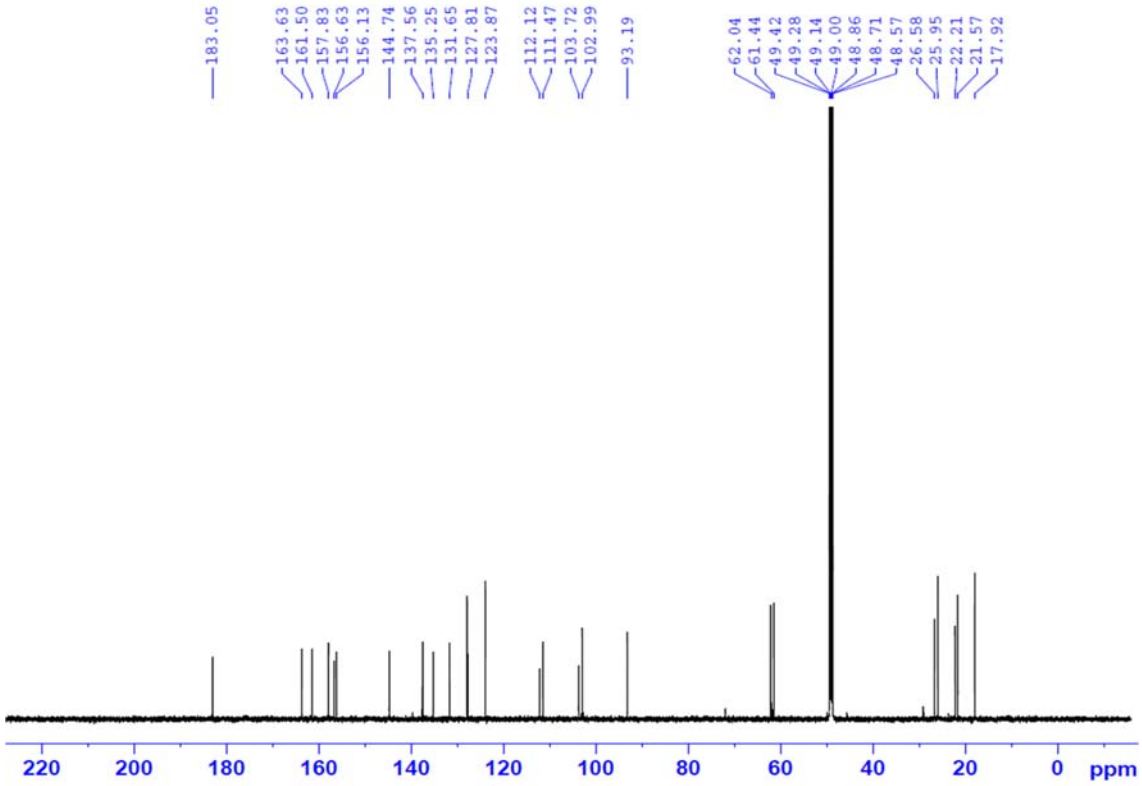

Figure S9. ^{13}C NMR spectrum (in CD_3OD) of compound **2**.

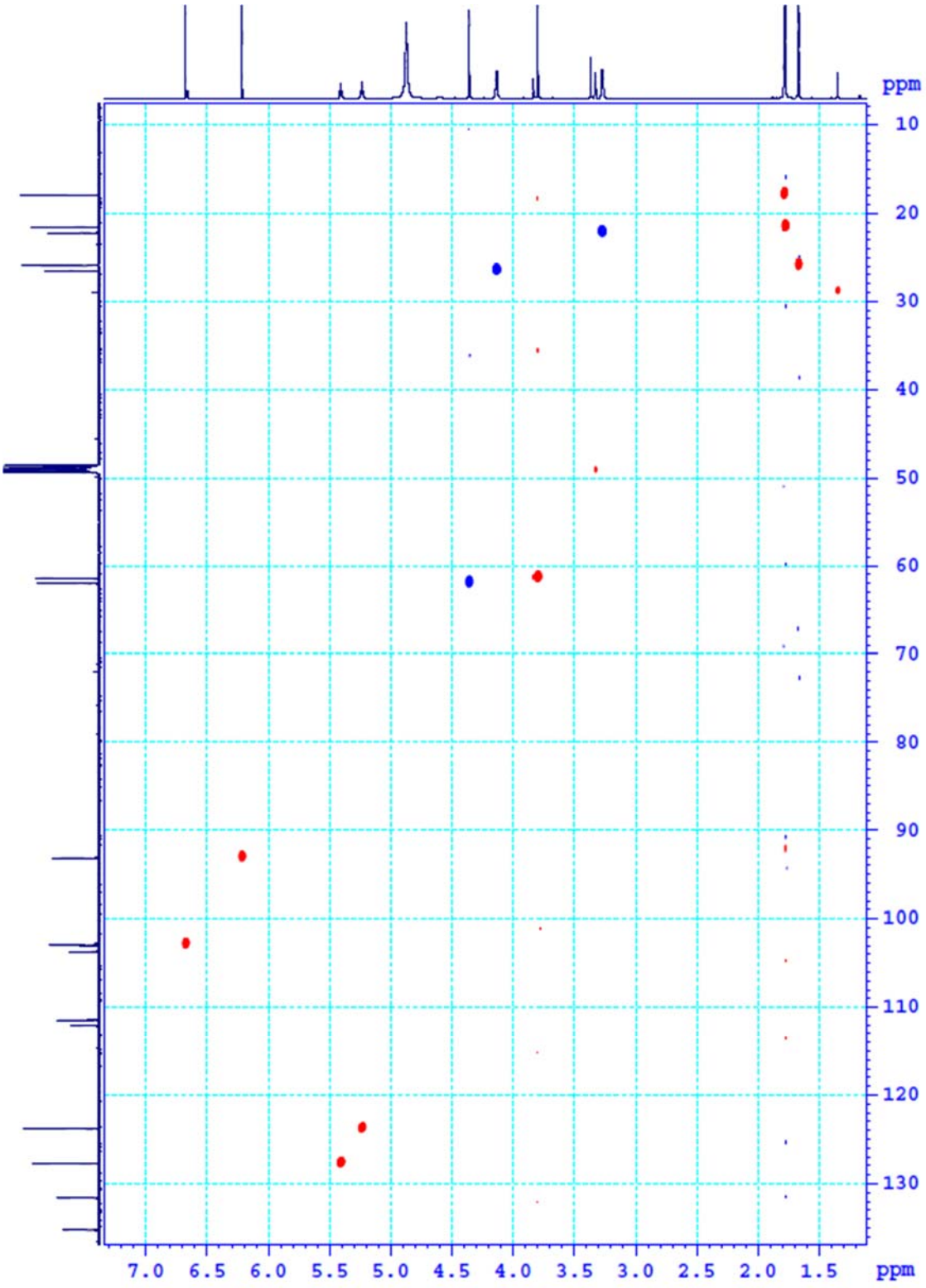

Figure S10. HSQC spectrum of compound **2**.

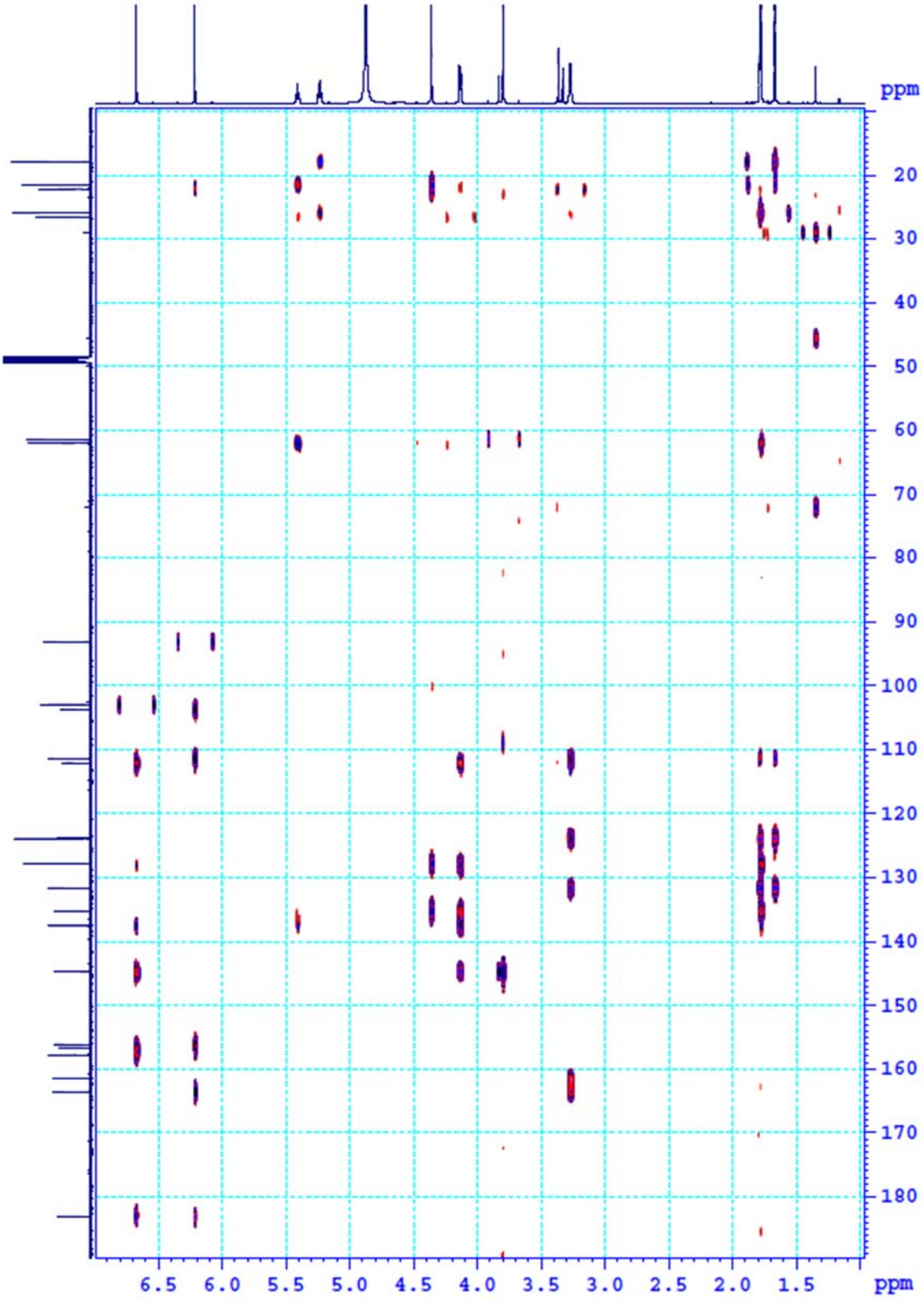

Figure S11. HMBC spectrum of compound **2**.

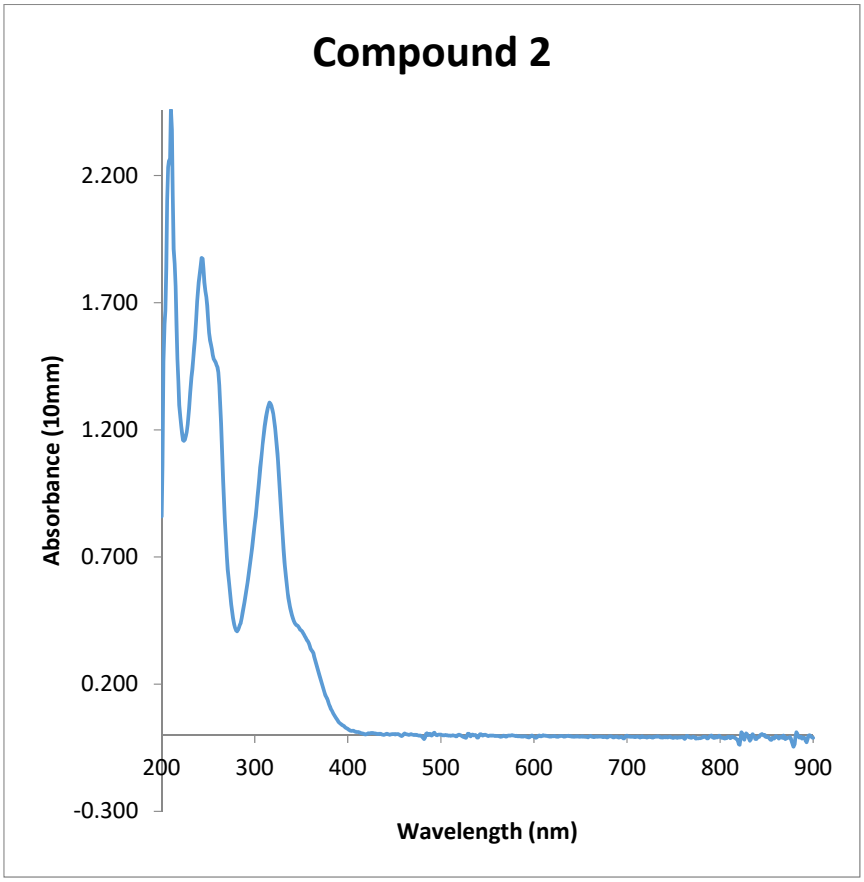

Figure S12. UV spectra of compound **2**.

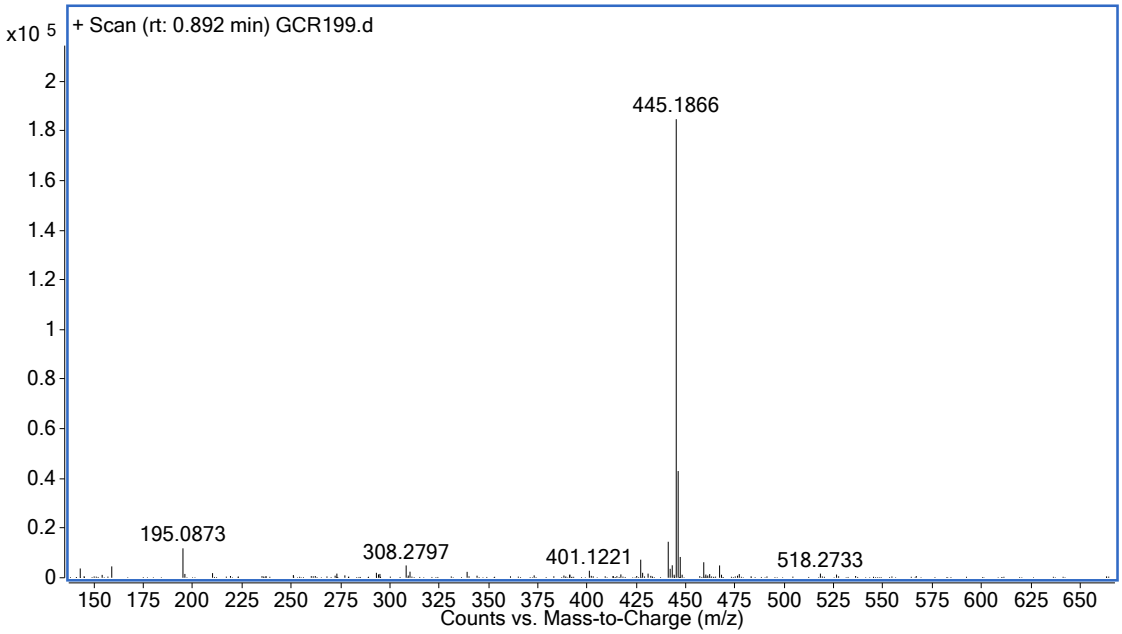

Figure S13. (+)ESI-HR-MS spectrum of compound **3**.

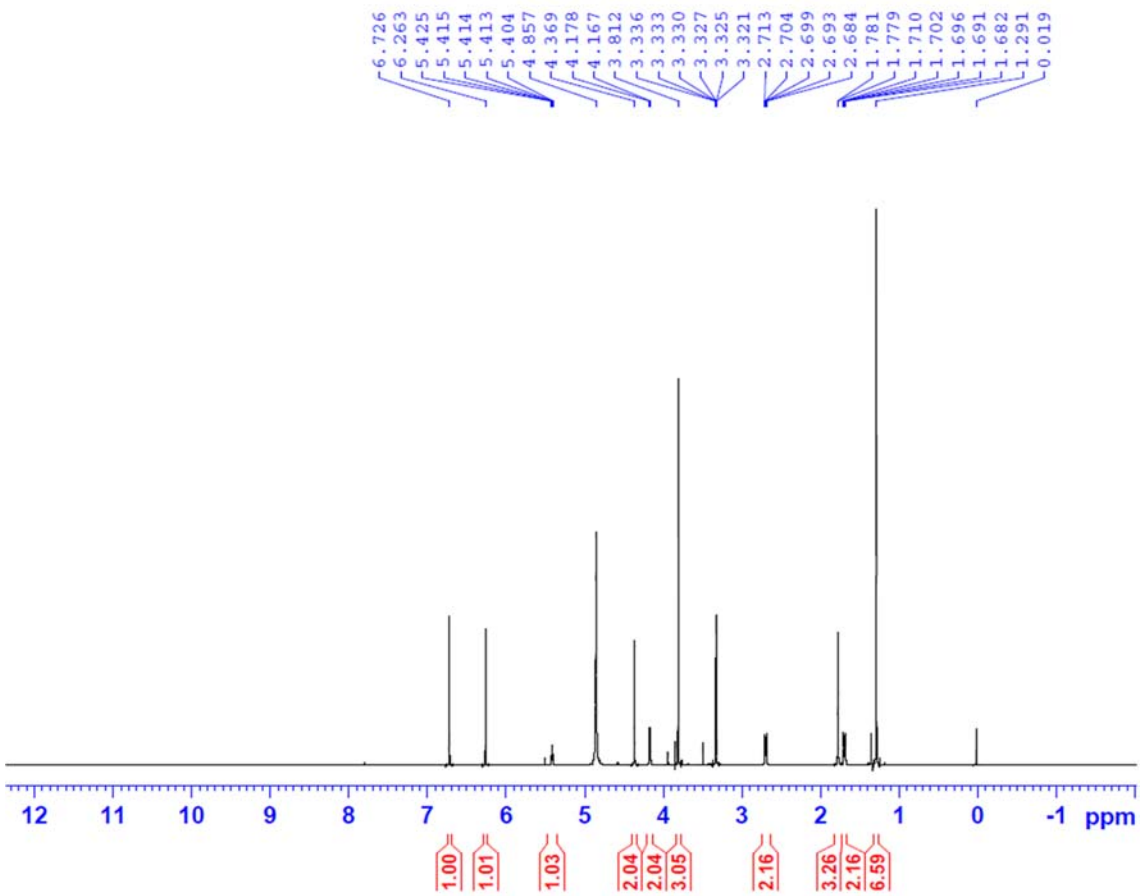

Figure S14. ^{1}H NMR spectrum (in CD_3OD) of compound **3**.

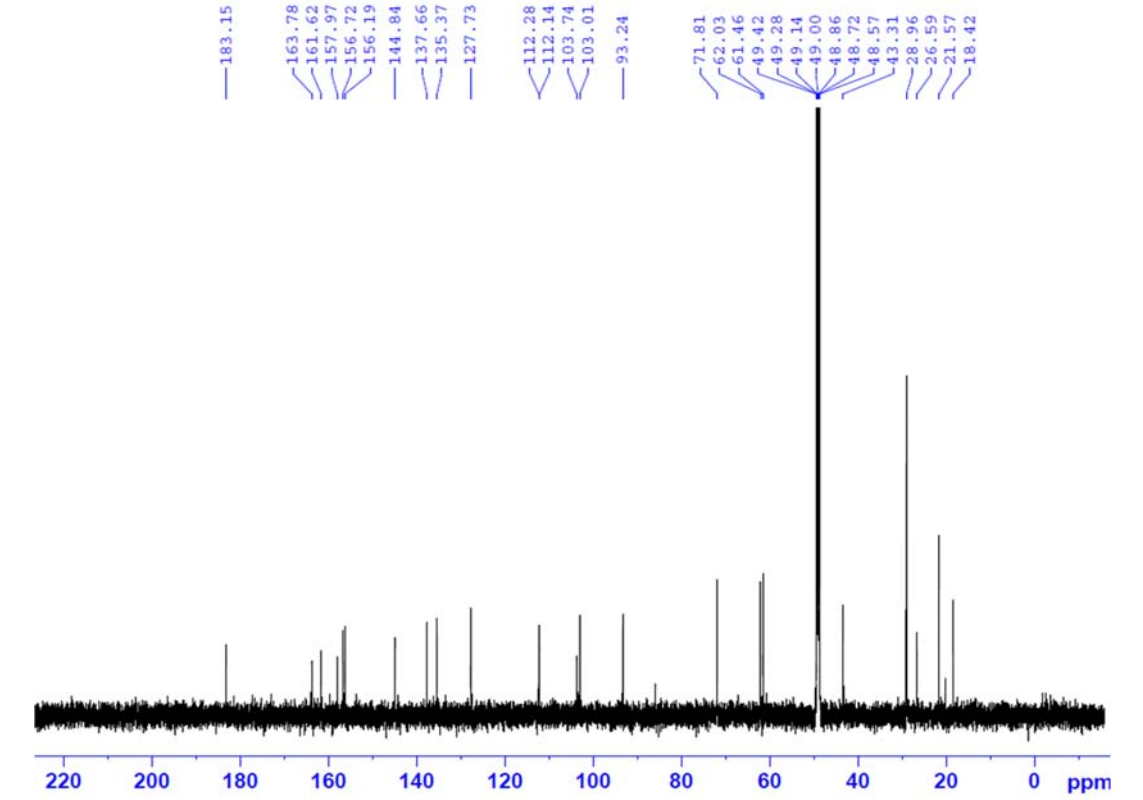

Figure S15. ^{13}C NMR spectrum (in CD_3OD) of compound **3**.

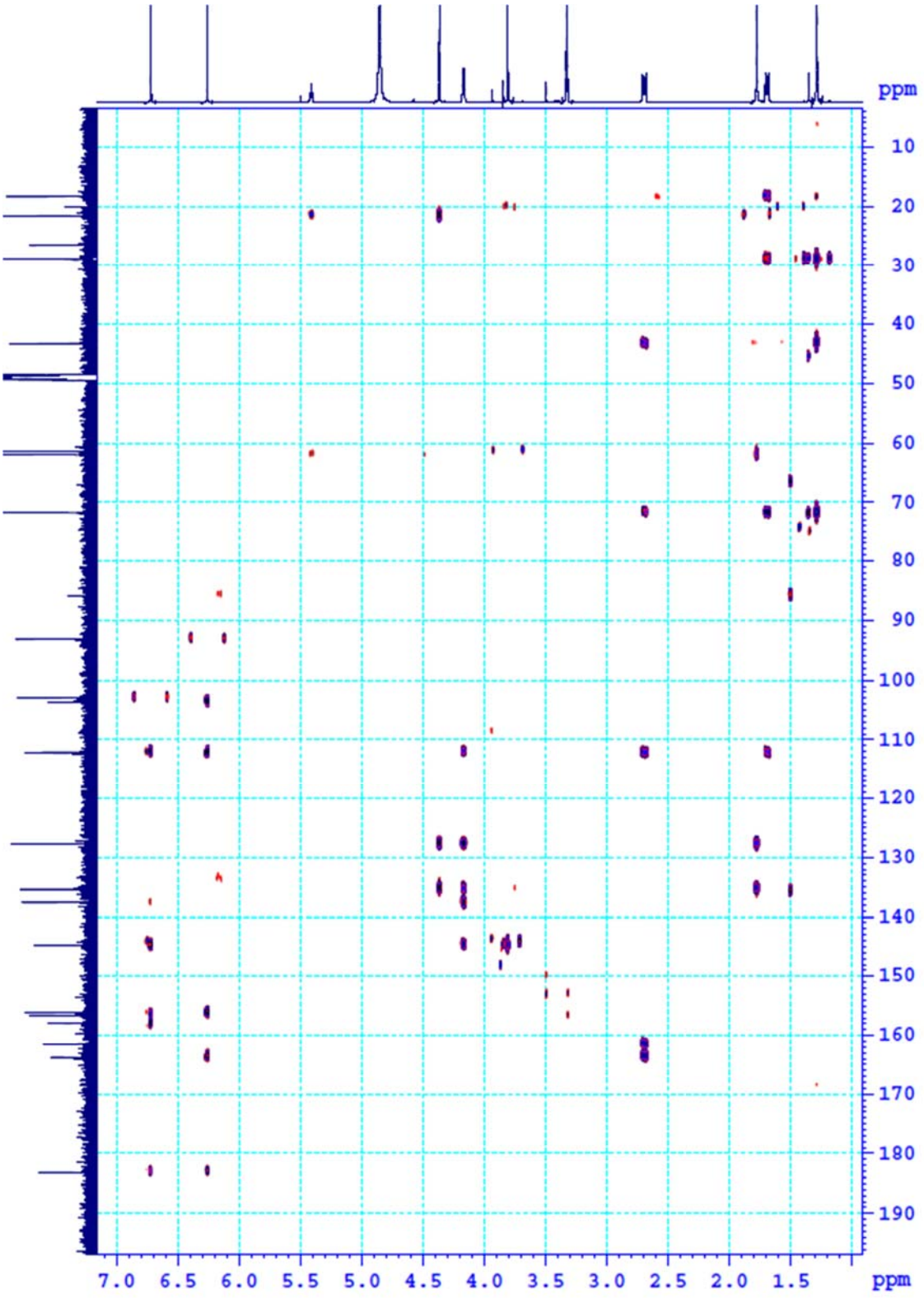

Figure S16. HMBC spectrum of compound **3**.

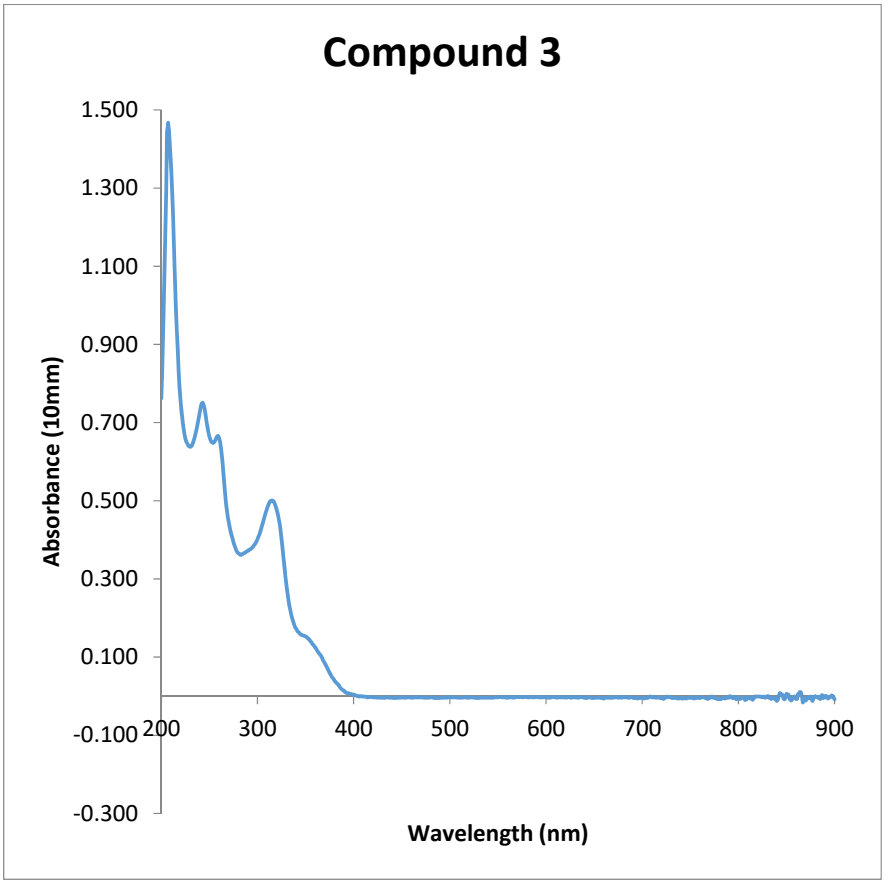

Figure S17. UV spectra of compound **3**.

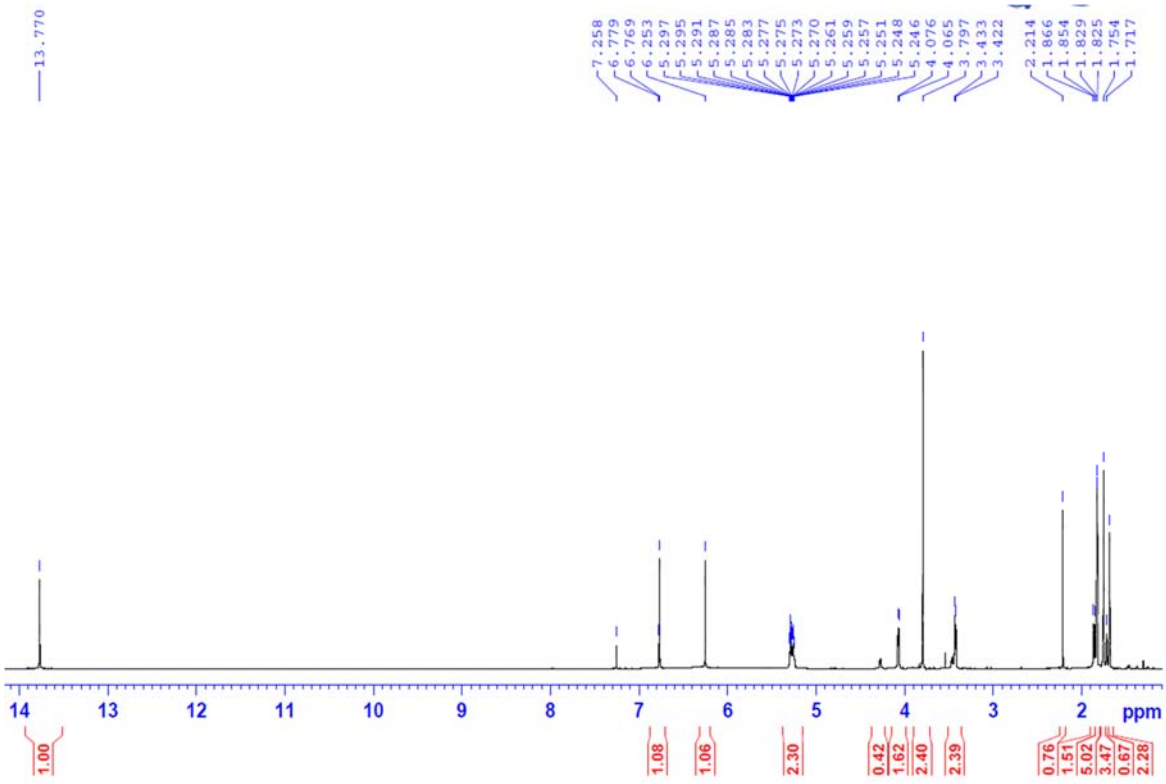

Figure S18. ^{1}H NMR spectrum (in CD_3OD) of compound **4**.

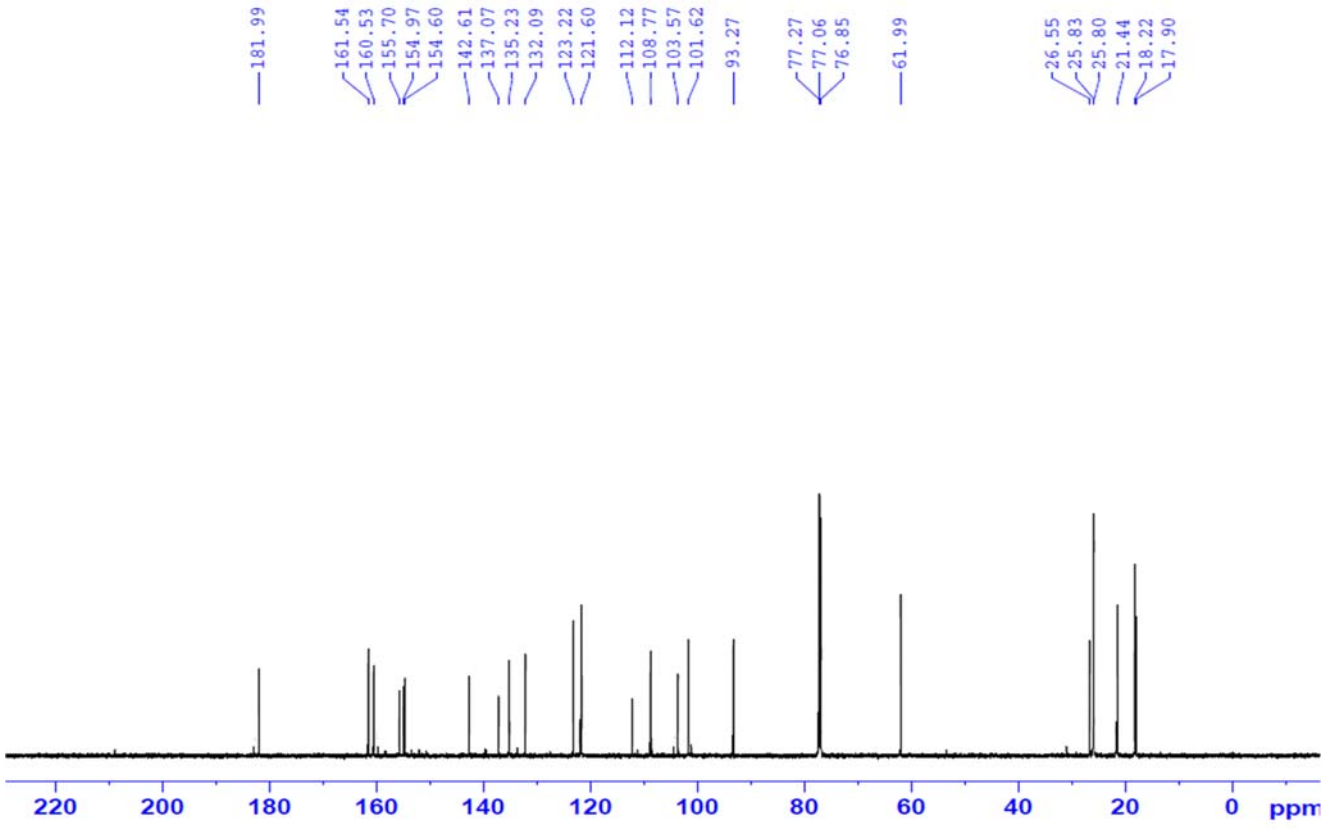

Figure S19. ^{13}C NMR spectrum (in CD_3OD) of compound **4**.

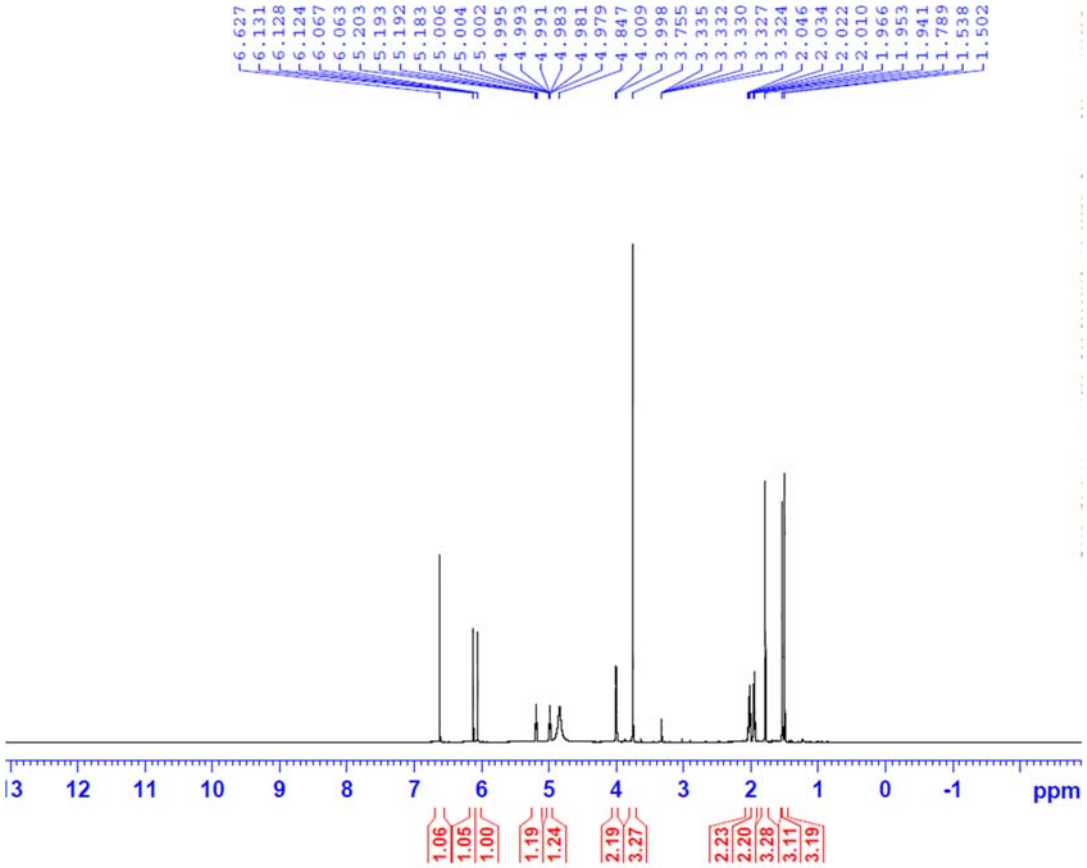

Figure S20. ^{1}H NMR spectrum (in CD_3OD) of compound **5**.

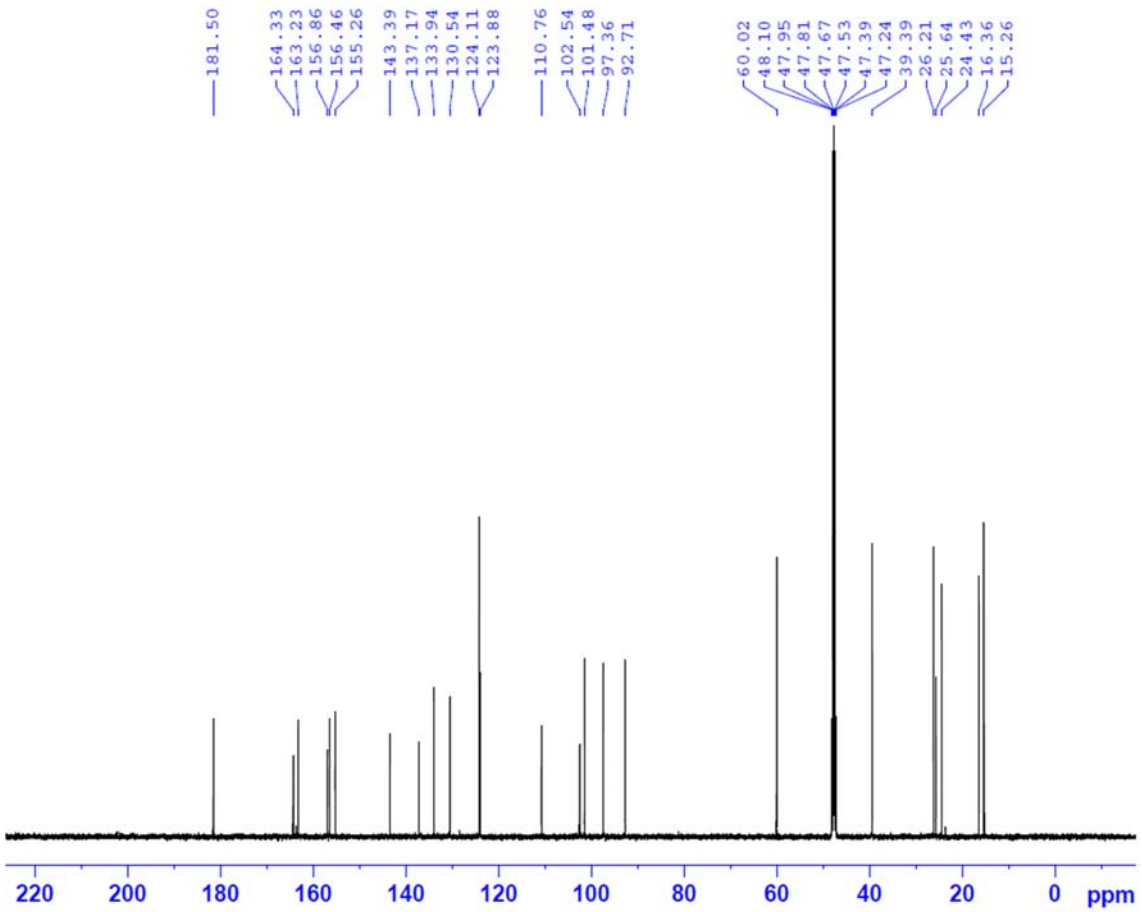

Figure S21. ^{13}C NMR spectrum (in CD_3OD) of compound **5**.

Table S1. α-Glucosidase inhibition effect of compounds **1-5**

No	Compound	Concentration (µg/ml)	Inhibition (%)	IC_{50} (µM)
1	**1**	16	86.5	1.62±0.05
		4	74	
		1	67	
		0,25	32	
		0,06	11	
2	**2**	16	96	0.94±0.14
		4	90.5	
		1	87	
		0,25	40.5	
		0,06	13	
3	**3**	16	98	0.43±0.01
		4	95	
		1	93.5	
		0,25	67,5	
		0,06	11,5	
4	**4**	16	95	0.39±0.01
		4	93	
		1	81	
		0,25	76.5	
		0,06	19	
5	**5**	16	95	0.56±0.03
		4	83	
		1	75	
		0,25	53.5	
		0,06	8	
6	Acarbose	256	72	263.01±10.92
		64	23	
		16	18	
		4	5	
		1	0	