SUPPLEMENTARY MATERIAL

Pregnane glycosides from *Gymnema inodorum* and their α-glucosidase inhibitory activity

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ABSTRACT: Two new pregnane glycosides, gyminosides A and B (**1** and **2**) and three known, tinctoroside B (**3**), tinctoroside C (**4**), and gymnepregoside F (**5**) were isolated from the leaves of *Gymnema inodorum* (Lour.) Decne. Their structures were elucidated by physical and chemical methods and comparing with those reported in the literature. All these compounds were evaluated for *α*-glucosidase assay. Compound **5** exhibited the most *α*-glucosidase activity with inhibitory percentage of 63.7 ±4.9 % at the concentration of 200 μM. Compounds **1**-**4** showed significant *α*-glucosidase activity with inhibitory percentage ranging from 40.0 to 52.1 % at the concentration of 200 μM.

Keywords: *Gymnema inodorum,* Asclepiadacaea, pregnane, *α*-glucosidase, gyminoside

Content

Table S1. NMR spectroscopic data for compounds **1** and **2** in CD_3OD.

C	**1**		**2**	
	δ_C	δ_H (mult., *J*, in Hz)	δ_C	δ_H (mult., *J*, in Hz)
1	39.8	1.11 (m)/1.80 (m)	39.7	1.11 (m)/1.80 (m)
2	30.1	1.60 (m)/1.87 (m)	30.1	1.60 (m)/1.87 (m)
3	79.3	3.53 (m)	79.2	3.54 (m)
4	39.8	2.23 (m)/2.37 (m)	39.8	2.23 (m)/2.38 (m)
5	140.3	-	140.1	-
6	119.6	5.35 (br s)	119.8	5.34 (br s)
7	35.2	2.18 (m)/2.22 (m)	35.2	2.17 (m)/2.22 (m)
8	75.1	-	75.0	-
9	44.8	1.51 (m)	44.7	1.51 (m)
10	38.0	-	38.0	-
11	26.0	1.63 (m)/1.94 (m)	26.0	1.61 (m)/1.94 (m)
12	75.4	4.74 (m)	75.3	4.72 (m)
13	57.6	-	57.5	-
14	89.5	-	89.5	-
15	34.0	1.93 (m)/1.97 (m)	34.0	1.93 (m)/1.99 (m)
16	34.3	1.96 (m)	34.3	1.96 (m)
17	88.6	-	88.5	-
18	10.9	1.53 (s)	11.0	1.53 (s)
19	18.5	1.13 (s)	18.5	1.13 (s)
20	75.2	4.76 (m)	75.1	4.74 (m)
21	15.4	1.32 (d, 6.0)	15.4	1.32 (d, 6.0)
12-Ac				
1	173.1	-	173.1	-
2	21.9	1.85 (s)	21.9	1.85 (s)
20-Ant				
1	111.6	-	111.4	-
2	153.5	-	153.5	-
3	111.9	6.74 (d, 8.0)	111.9	6.74 (d, 8.0)
4	135.8	7.41 (ddd, 1.5, 8.0, 8.0)	135.8	7.41 (ddd, 1.5, 8.0, 8.0)
5	115.5	6.62 (ddd, 1.5, 8.0, 8.0)	115.5	6.62 (ddd, 1.5, 8.0, 8.0)
6	133.2	8.08 (dd, 1.5, 8.0)	133.2	8.07 (dd, 1.5, 8.0)
7	169.1	-	169.1	-
N-Me	29.6	2.91 (s)	29.6	2.91 (s)
Cym I				
1	97.3	4.87 (dd, 1.5, 9.5)	97.2	4.87 (dd, 1.5, 9.5)
2	36.8	1.59 (m)/2.06 (m)	36.6	1.60 (m)/2.07 (m)
3	78.5	3.86 (m)	78.5	3.86 (m)
4	83.9	3.24 (m)	83.9	3.24 (m)
5	69.9	3.81 (m)	69.8	3.82 (m)
6	18.5	1.20 (d, 6.5)	18.4	1.20 (d, 6.5)
3-OMe	58.5	3.45 (s)	58.5	3.45 (s)
Cym II				
1	101.1	4.82 (br d, 9.0)	101.3	4.82 (br d, 9.0)
2	36.6	1.62 (m)/2.13 (m)	36.4	1.62 (m)/2.15 (m)
3	78.6	3.86 (m)	78.6	3.86 (m)

4	83.9	3.24 (m)	83.9	3.24 (m)
5	70.0	3.84 (m)	70.0	3.84 (m)
6	18.6	1.23 (d, 6.0)	18.6	1.23 (d, 6.0)
3-OMe	58.6	3.45 (s)	58.6	3.45 (s)
Cym III				
1			101.2	4.80 (dd, 1.5, 9.5)
2			36.6	1.63 (m)/2.18 (m)
3			78.7	3.95 (m)
4			84.0	3.25 (m)
5			70.0	3.76 (m)
6			18.1	1.22 (d, 6.0)
3-OMe			58.6	3.48 (s)
Ole				
1	102.6	4.60 (dd, 1.5, 9.5)	102.6	4.60 (dd, 1.5, 9.5)
2	37.6	1.45 (m)/2.34 (m)	37.5	1.44 (m)/2.34 (m)
3	80.4	3.40 (m)	80.4	3.40 (m)
4	83.7	3.28 (m)	83.8	3.29 (m)
5	72.7	3.39 (m)	72.6	3.39 (m)
6	19.0	1.38 (d, 6.0)	18.9	1.38 (d, 6.0)
3-OMe	57.4	3.44 (s)	57.5	3.43 (s)
All				
1	102.0	4.75 (d, 8.0)	102.1	4.72 (d, 8.0)
2	73.1	3.35 (m)	73.0	3.31 (m)
3	83.2	3.98 (t, 3.0)	83.1	3.93 (t, 3.0)
4	83.8	3.35 (m)	83.8	3.36 (m)
5	70.2	3.86 (m)	70.1	3.86 (m)
6	18.1	1.33 (d, 6.5)	18.7	1.34 (d, 6.5)
3-OMe	61.9	3.62 (s)	61.9	3.61 (s)
Glc				
1	106.4	4.38 (d, 7.5)	106.2	4.37 (d, 7.5)
2	75.6	3.23 (m)	75.4	3.23 (m)
3	78.1	3.31 (m)	78.0	3.29 (m)
4	72.0	3.30 (m)	71.8	3.28 (m)
5	78.0	3.38 (m)	78.0	3.36 (m)
6	63.2	3.70 (dd, 6.0, 12.0) 3.93 (dd, 2.0, 12.0)	63.0	3.67 (dd, 6.0, 12.0) 3.92 (dd, 2.0, 12.0)

Assignments were done by HSQC, HMBC, and COSY experiments; Ac, acetyl; Cym, *β*-D-cymaropyranosyl; Ole, *β*-D-oleandropyranosyl; All, 6-deoxy-3-*O*-methyl-*β*-D-allopyranosyl; glc, *β*-D-glucopyranosyl; Ant, *N*-methylanthraniloyl

Figure S1. The key HMBC and COSY correlations of compounds **1** and **2**

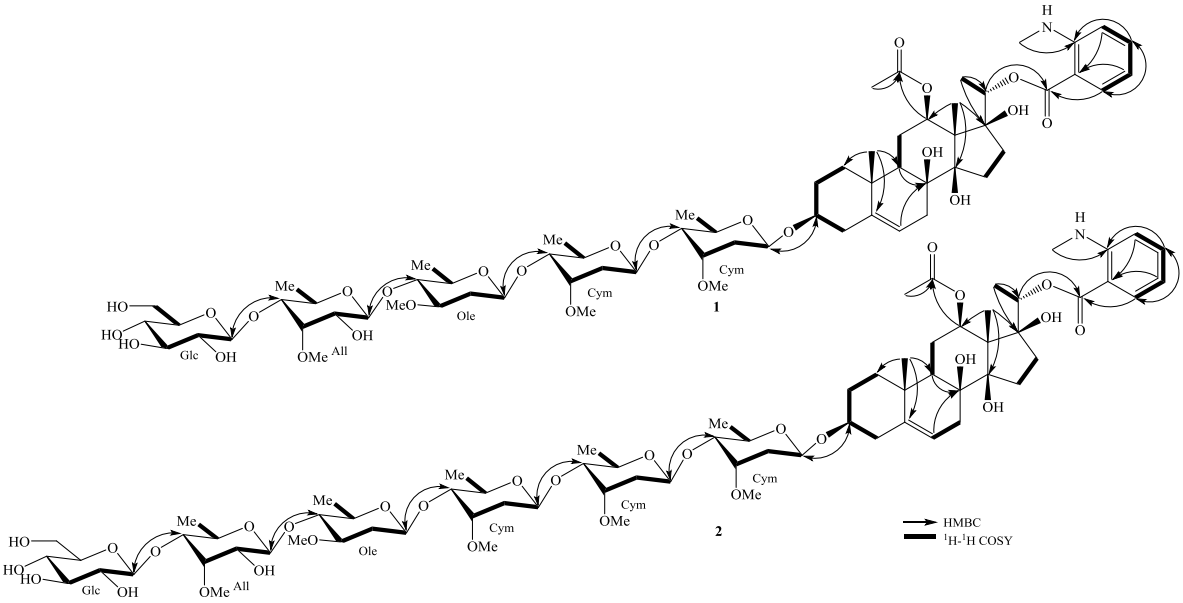

Figure S2. HR-ESI-MS of compound **1**

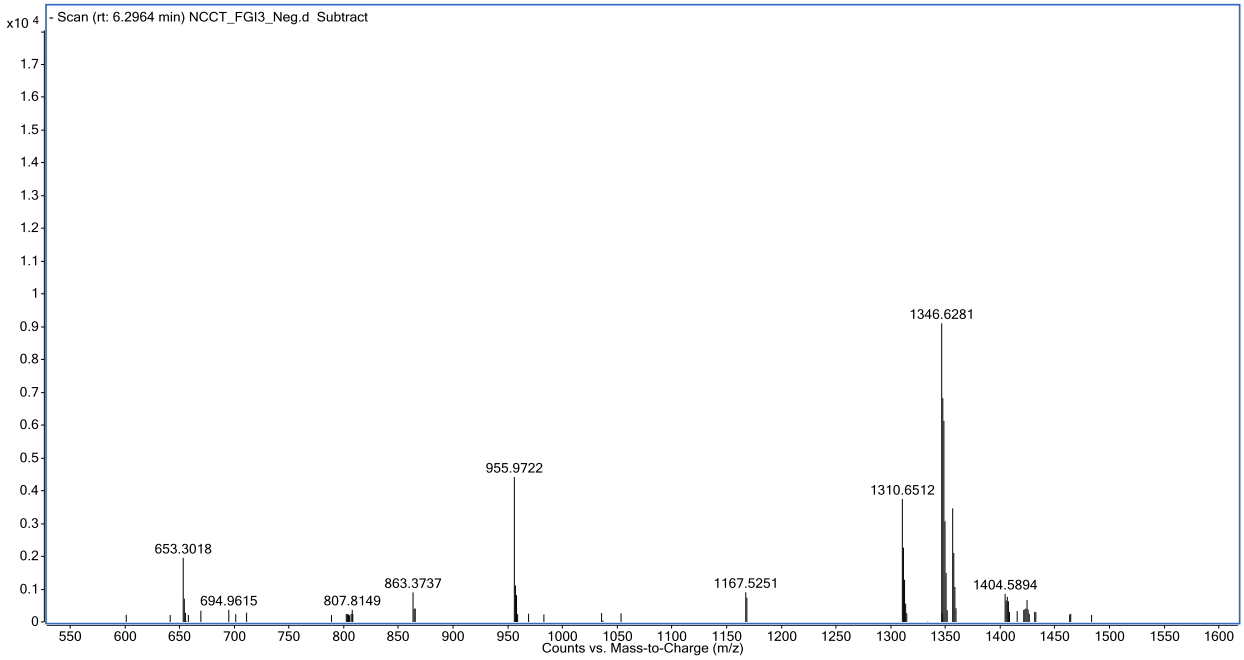

Figure S3. ^{1}H-NMR spectrum of compound **1**

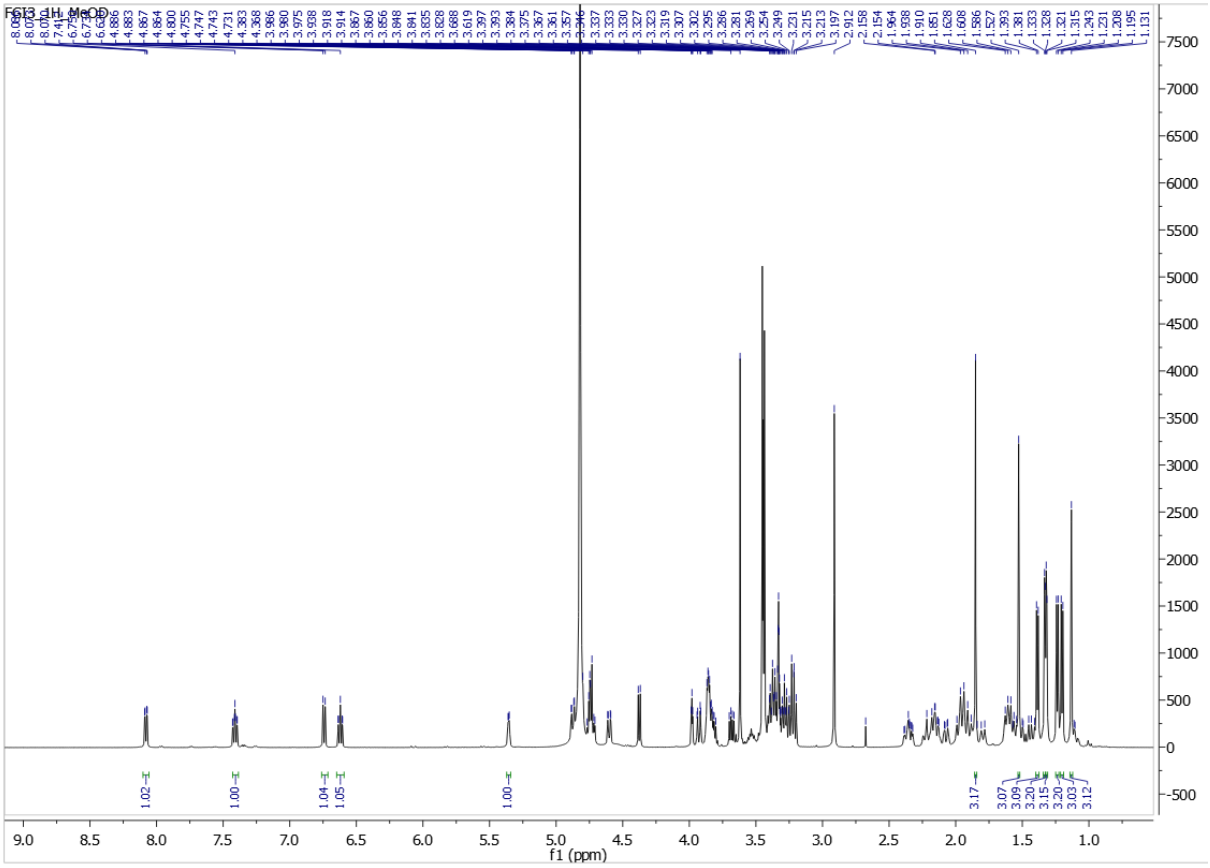

Figure S4. ^{13}C-NMR spectrum of compound **1**

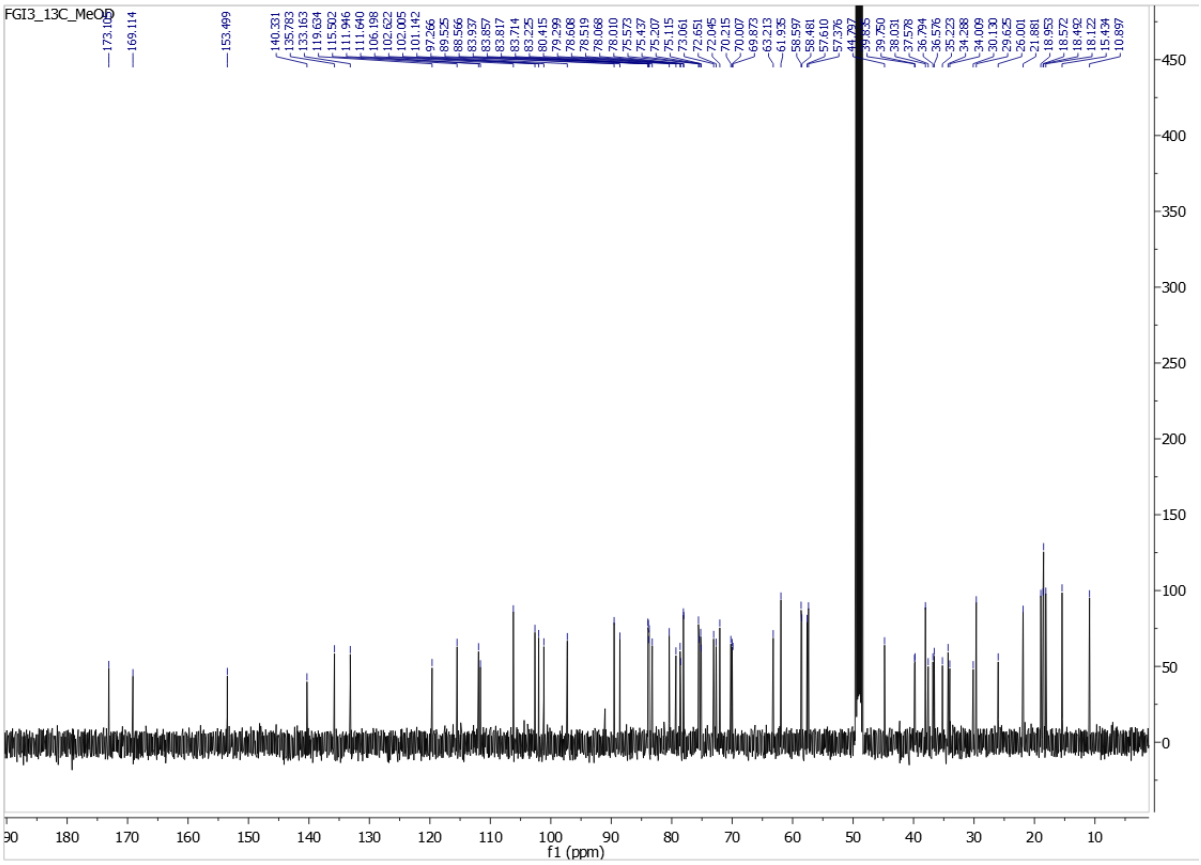

Figure S5. HSQC spectrum of compound **1**

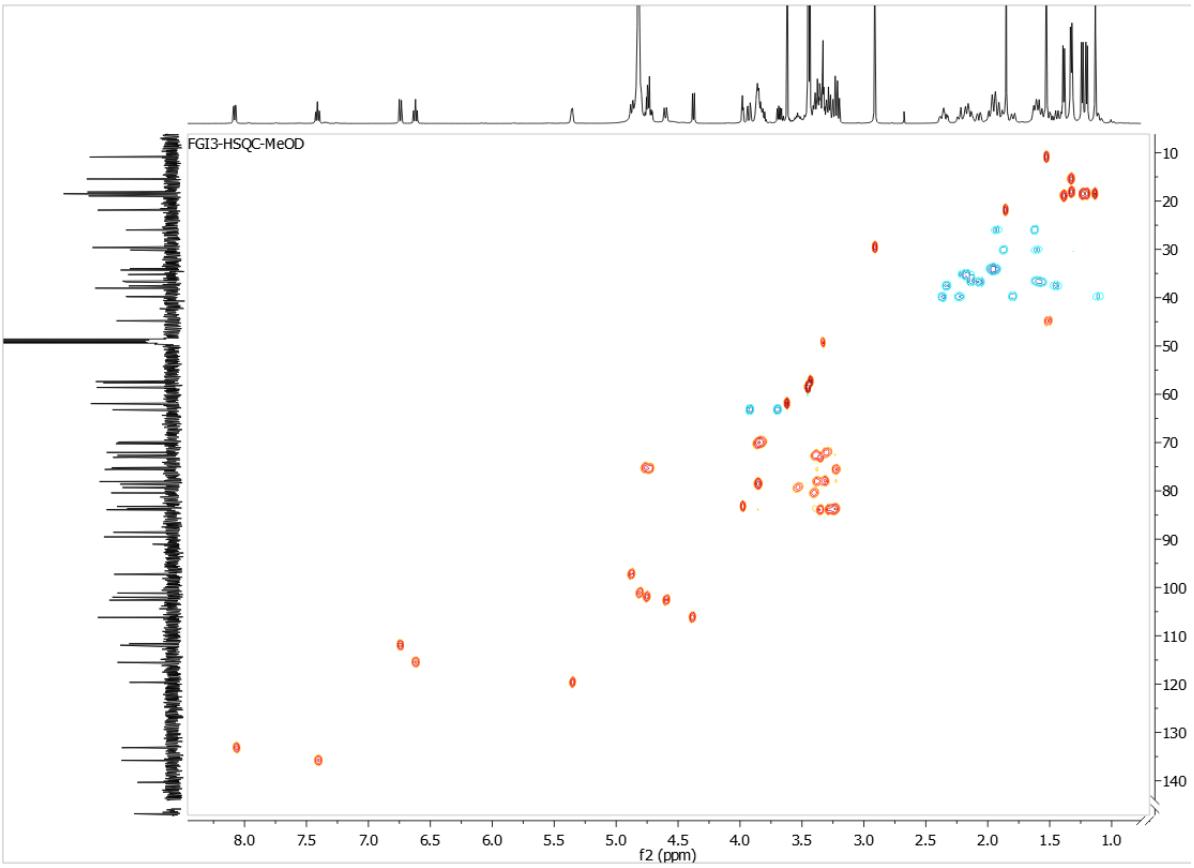

Figure S6. HMBC spectrum of compound **1**

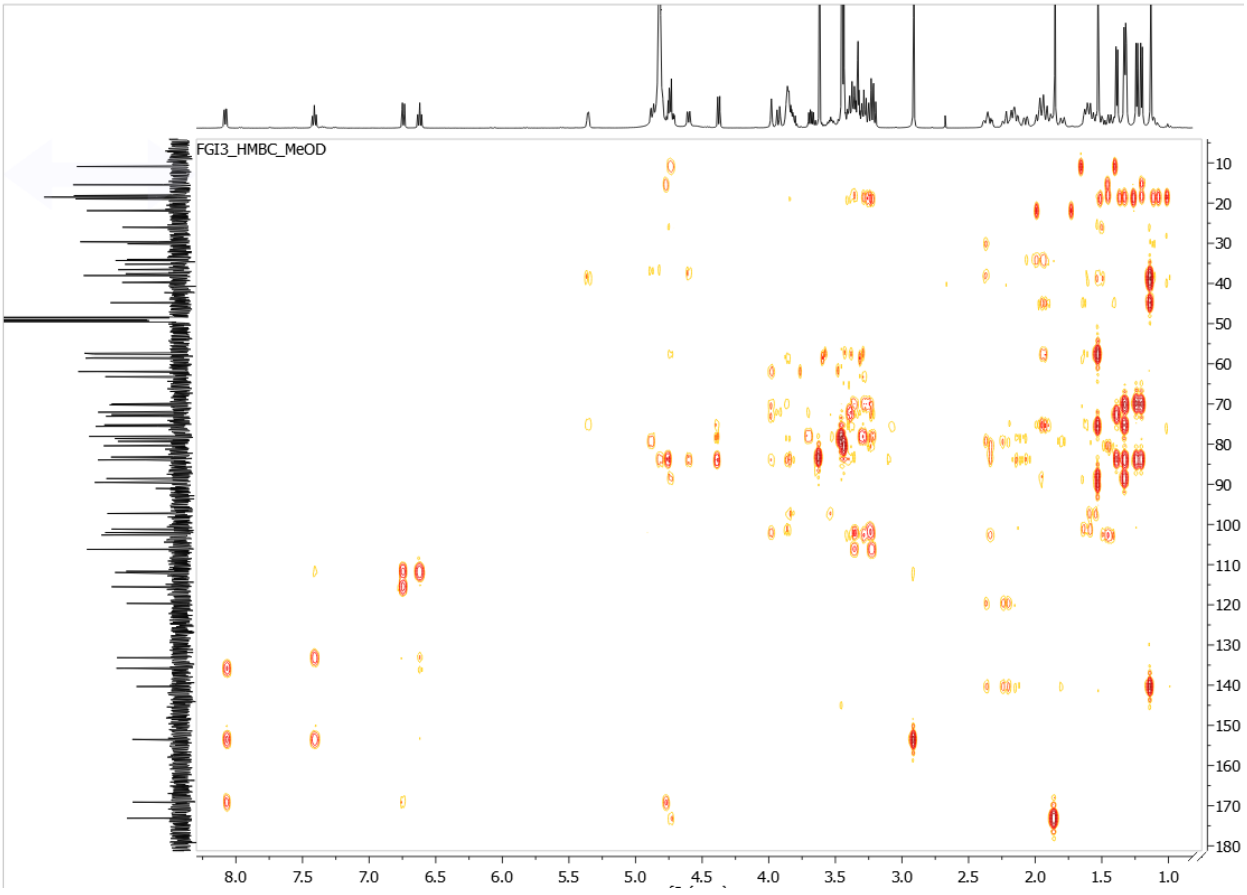

Figure S7. COSY spectrum of compound **1**

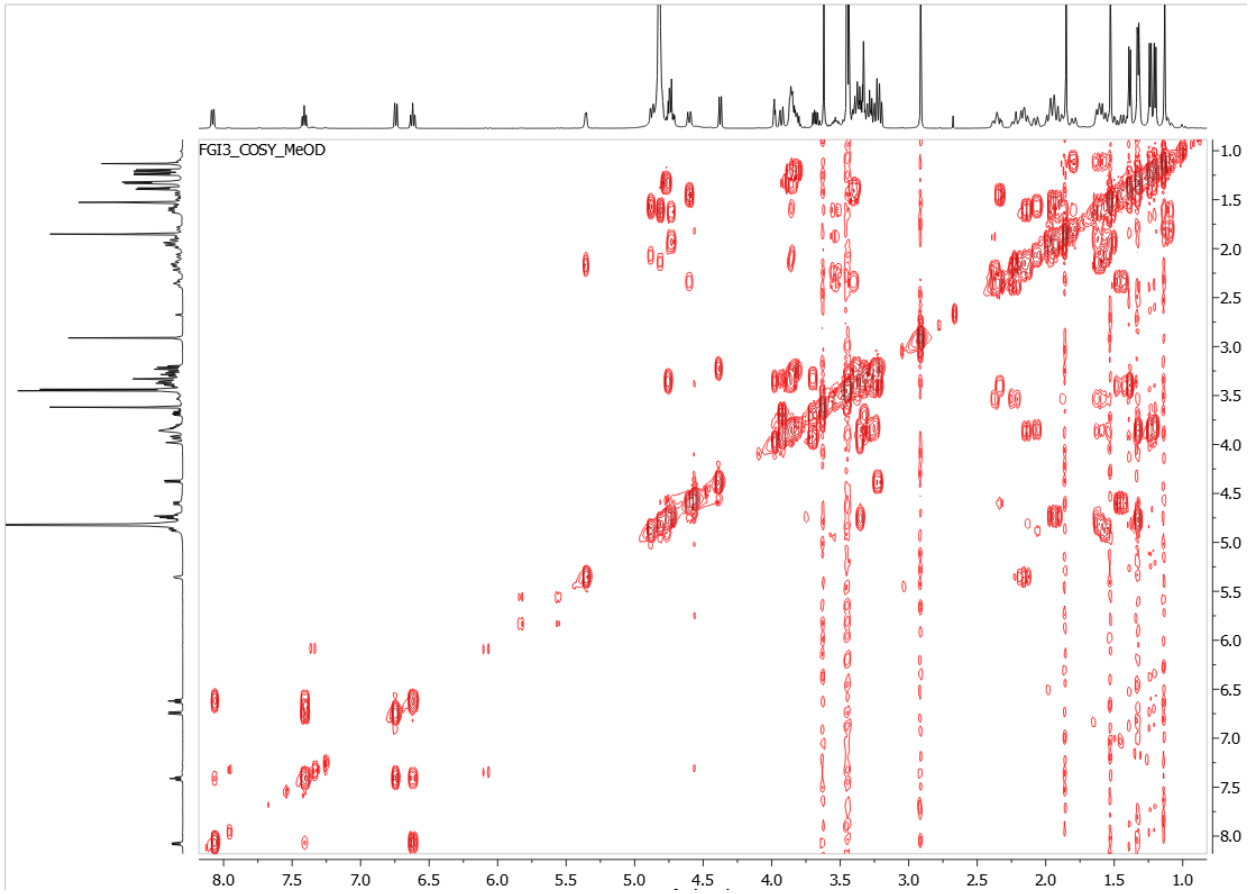

Figure S8. NOESY spectrum of compound **1**

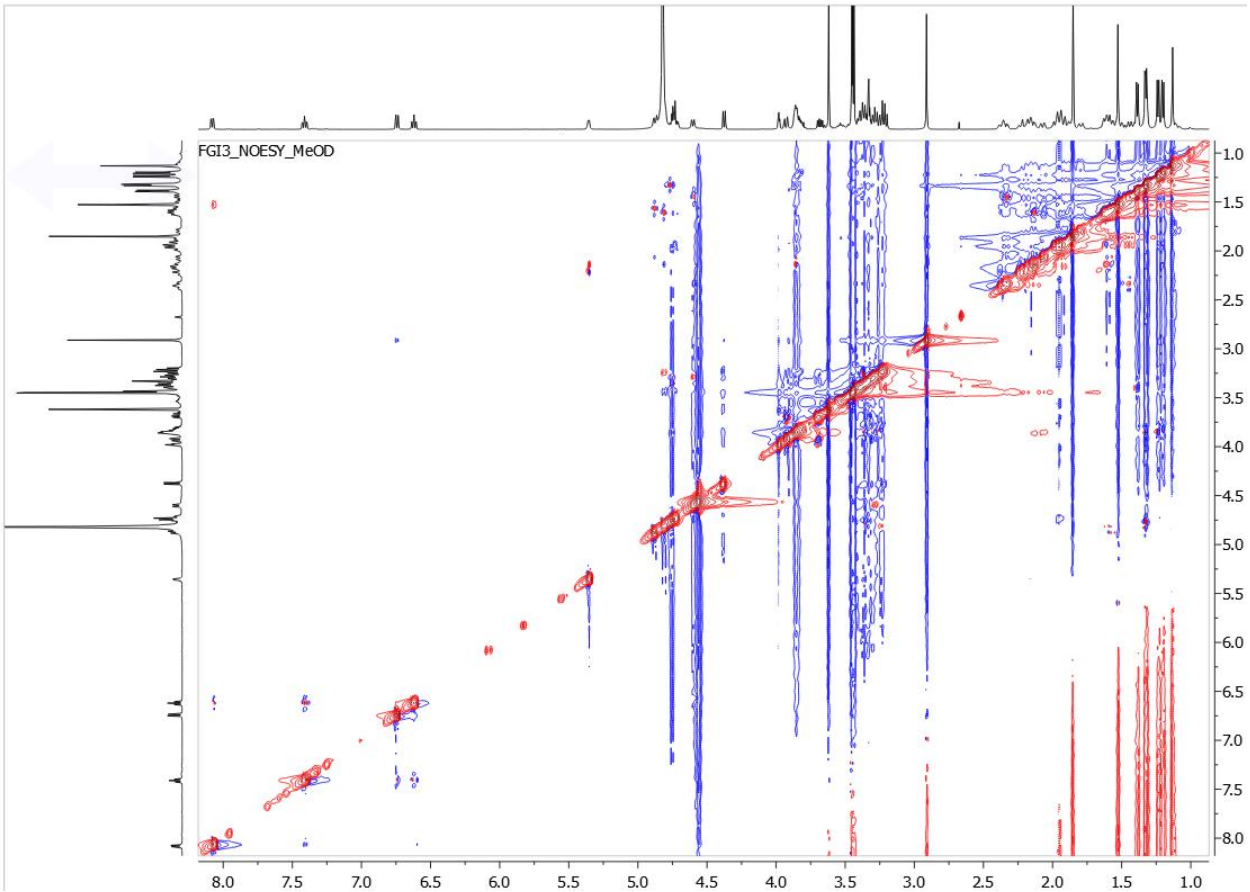

Figure S9. HR-ESI-MS of compound **2**

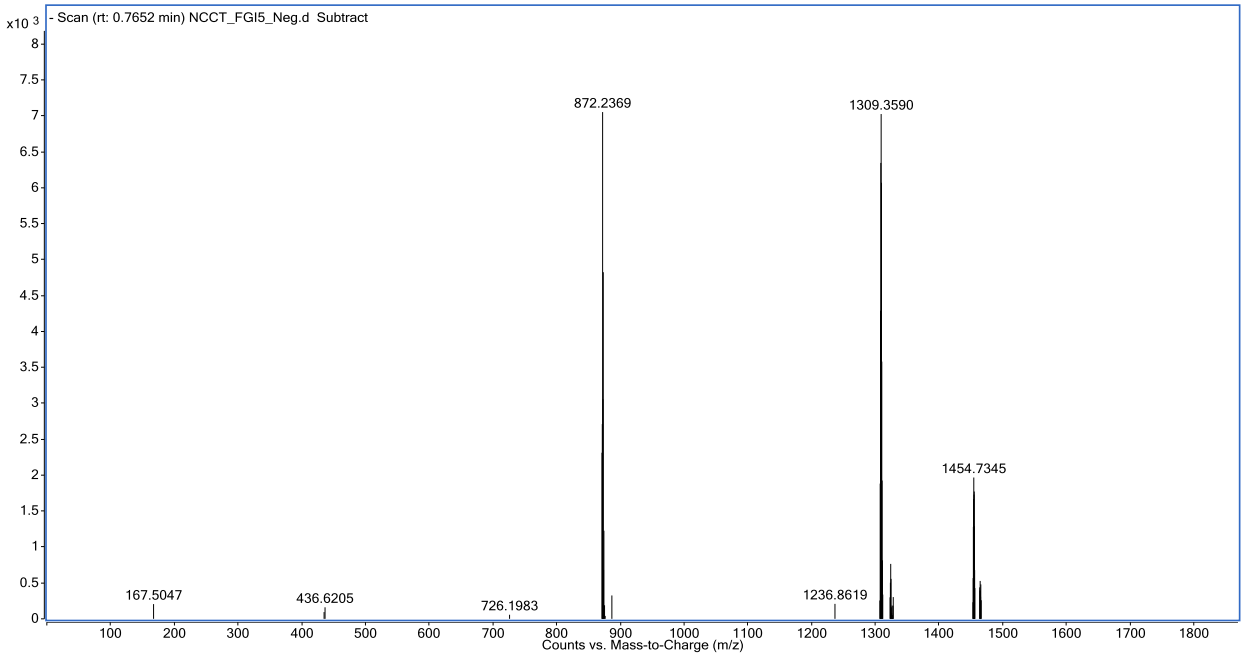

Figure S10. ^{1}H-NMR spectrum of compound **2**

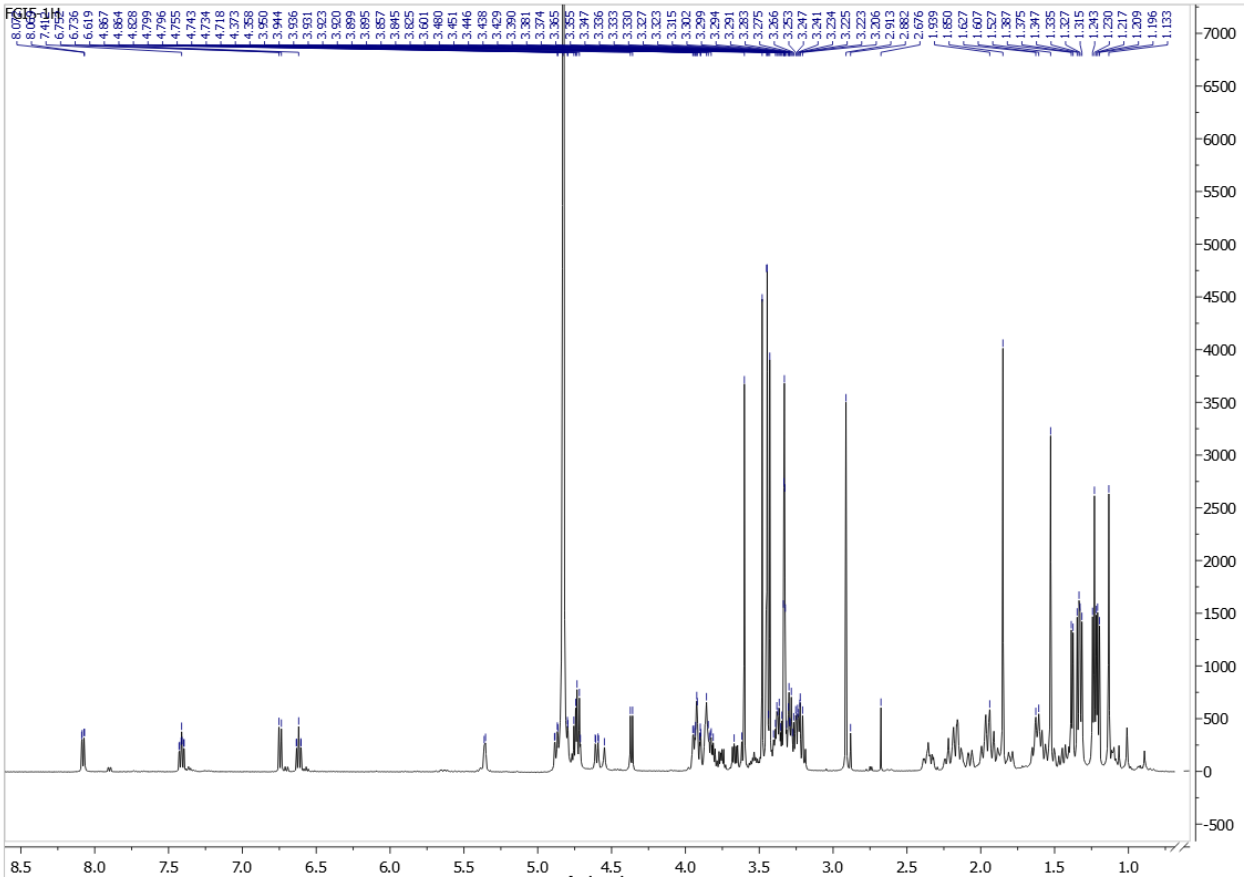

Figure S11. ^{13}C-NMR spectrum of compound **2**

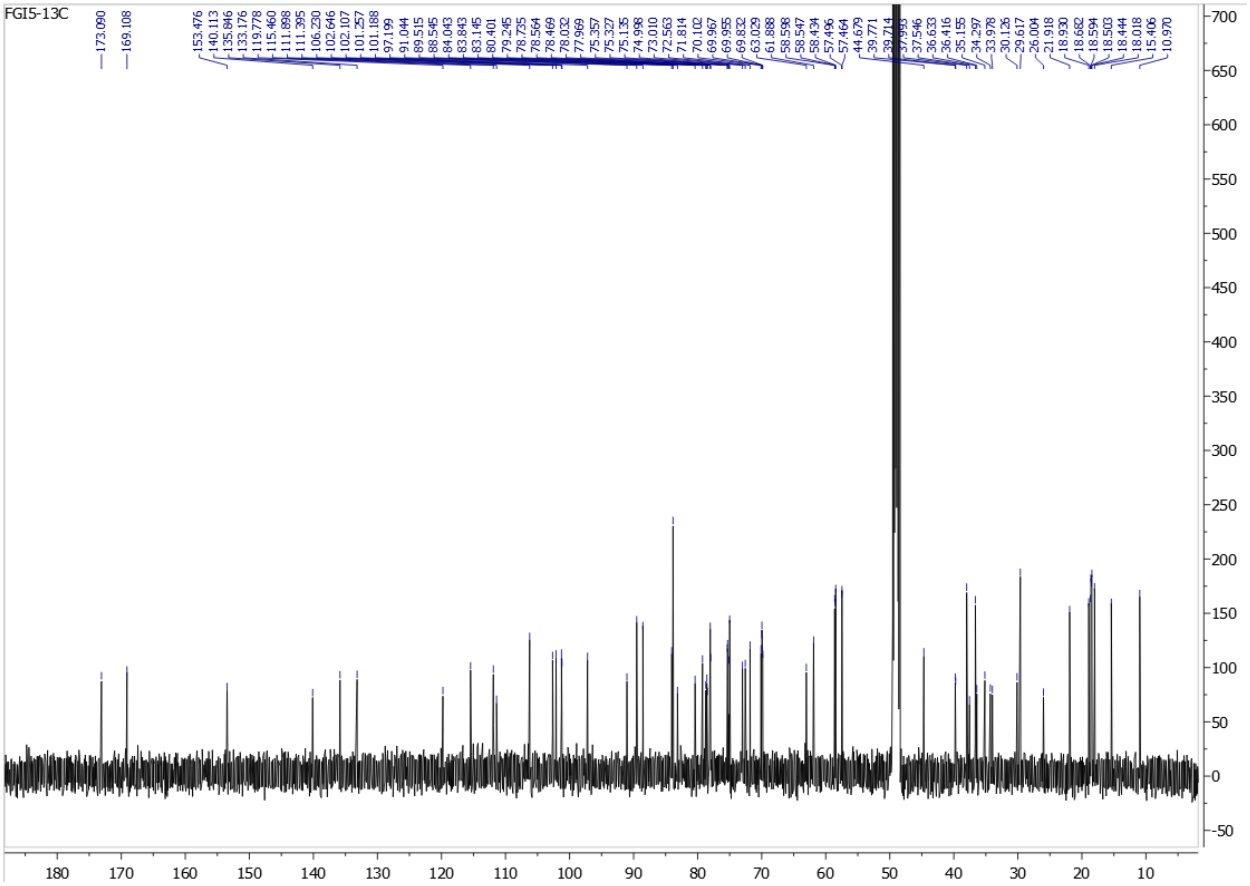

Figure S12. HSQC spectrum of compound **2**

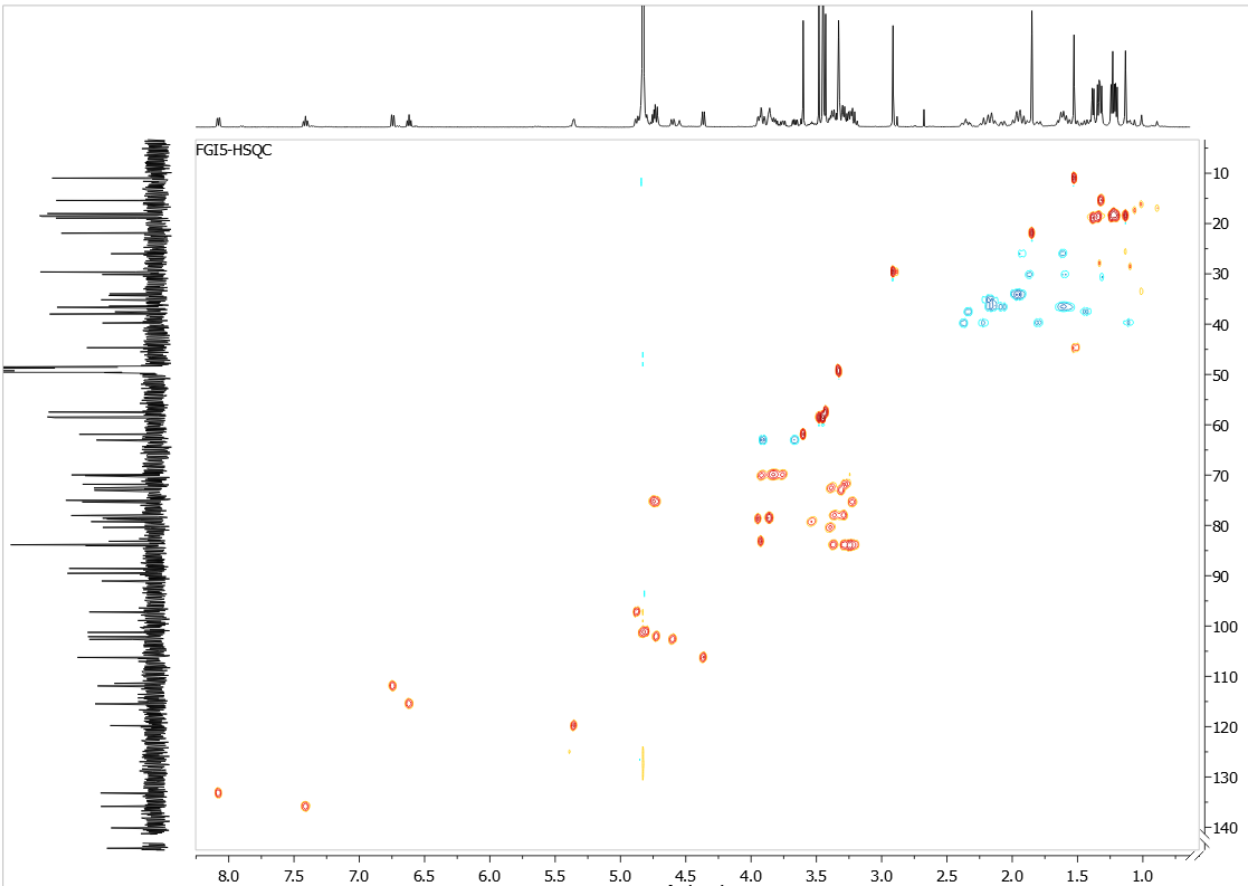

Figure S13. HMBC spectrum of compound **2**

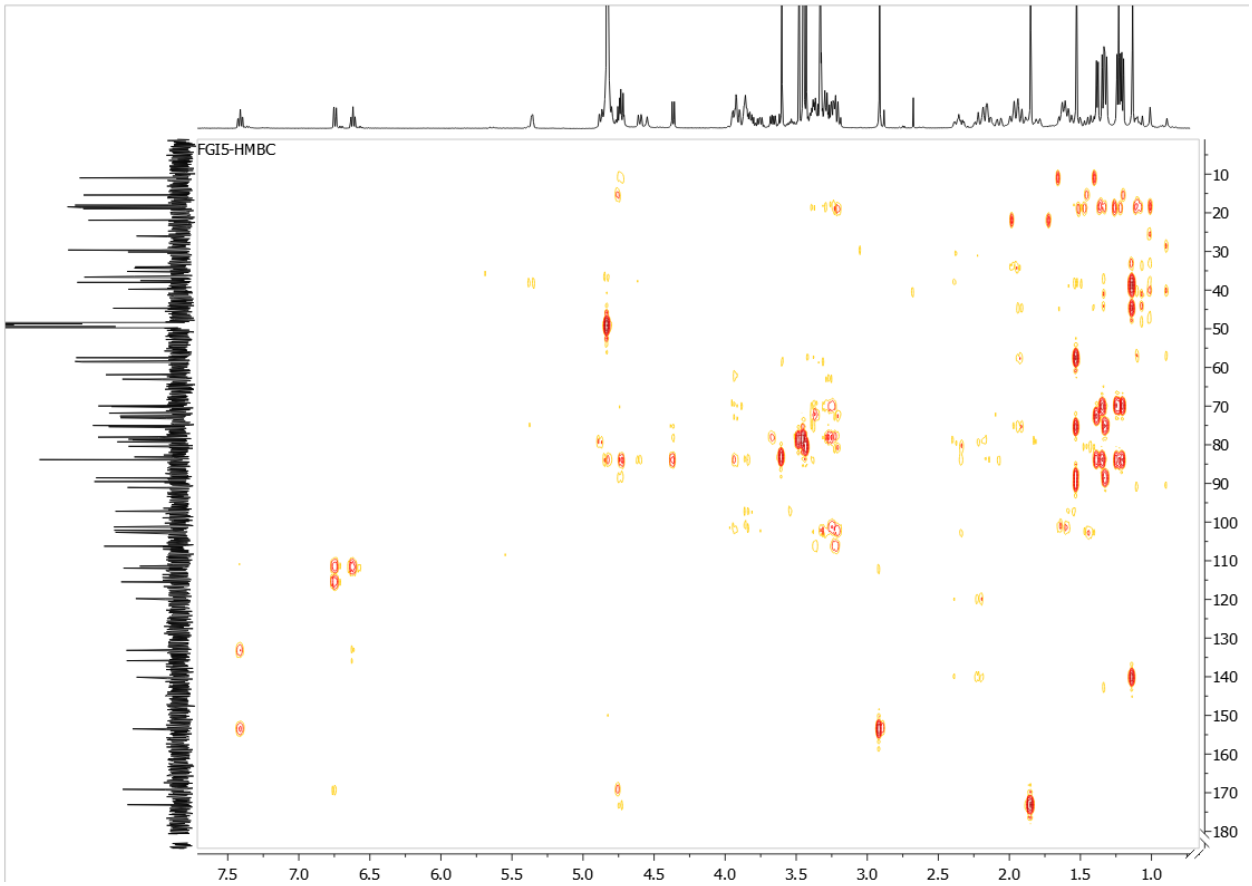

Figure S14. COSY spectrum of compound **2**

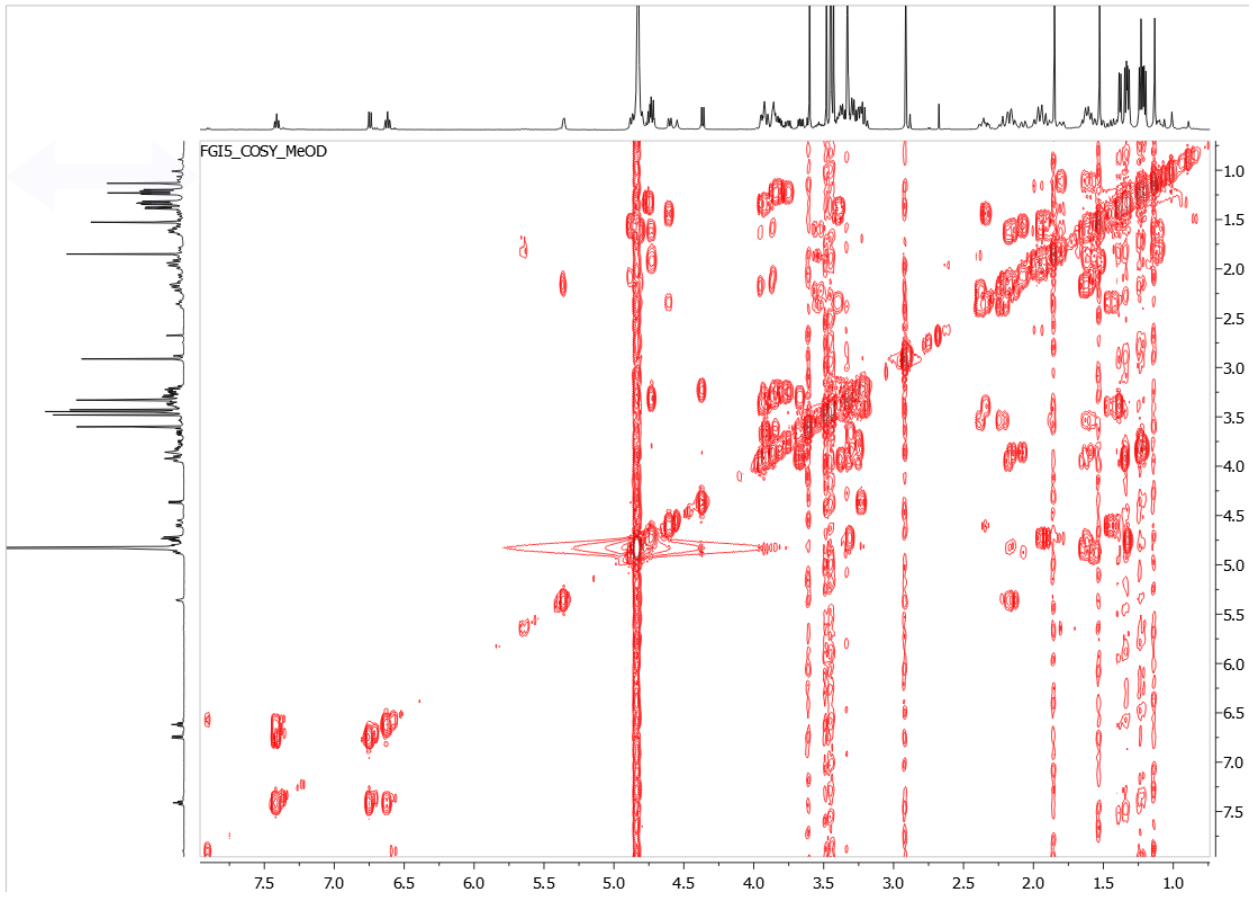

Figure S15. NOESY spectrum of compound **2**

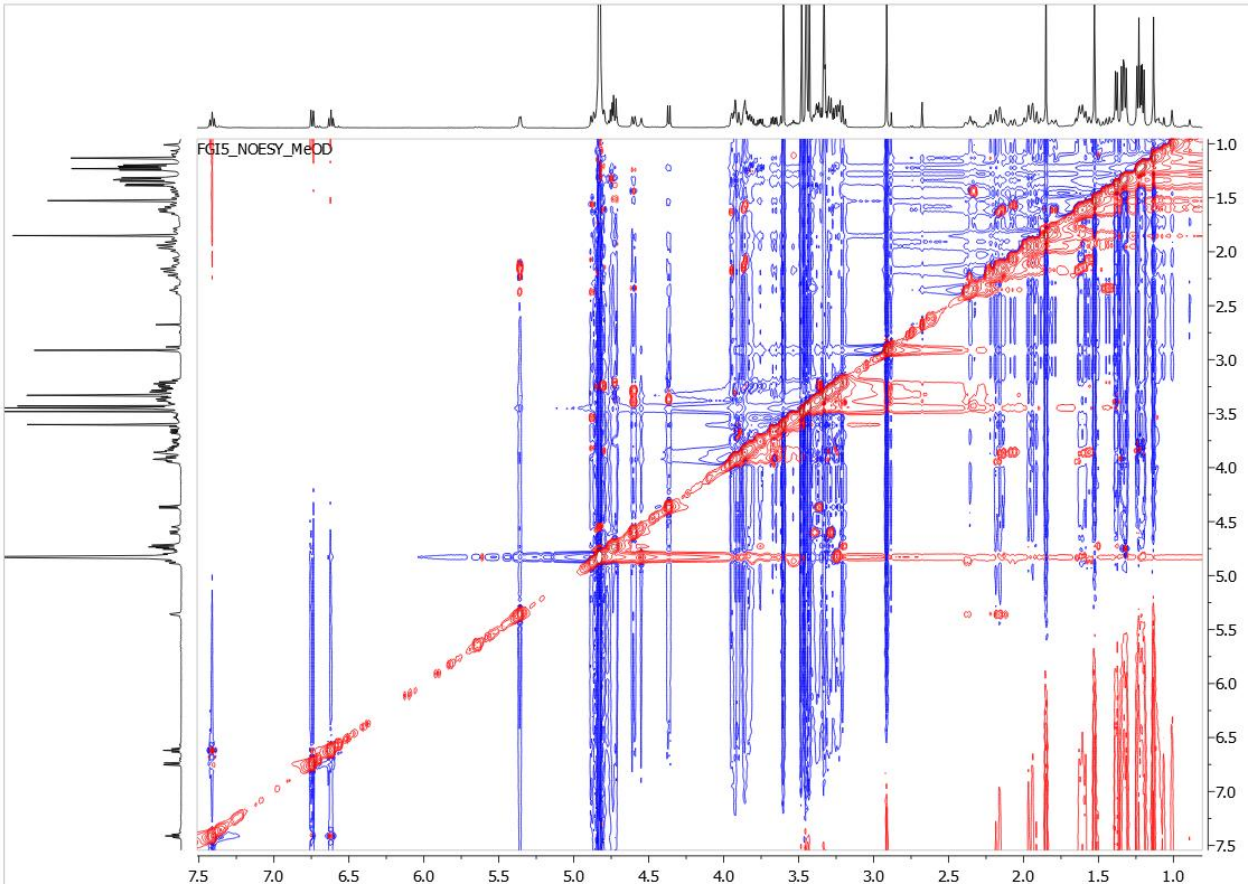

Figure S16. ^{1}H-NMR spectrum of compound **3**

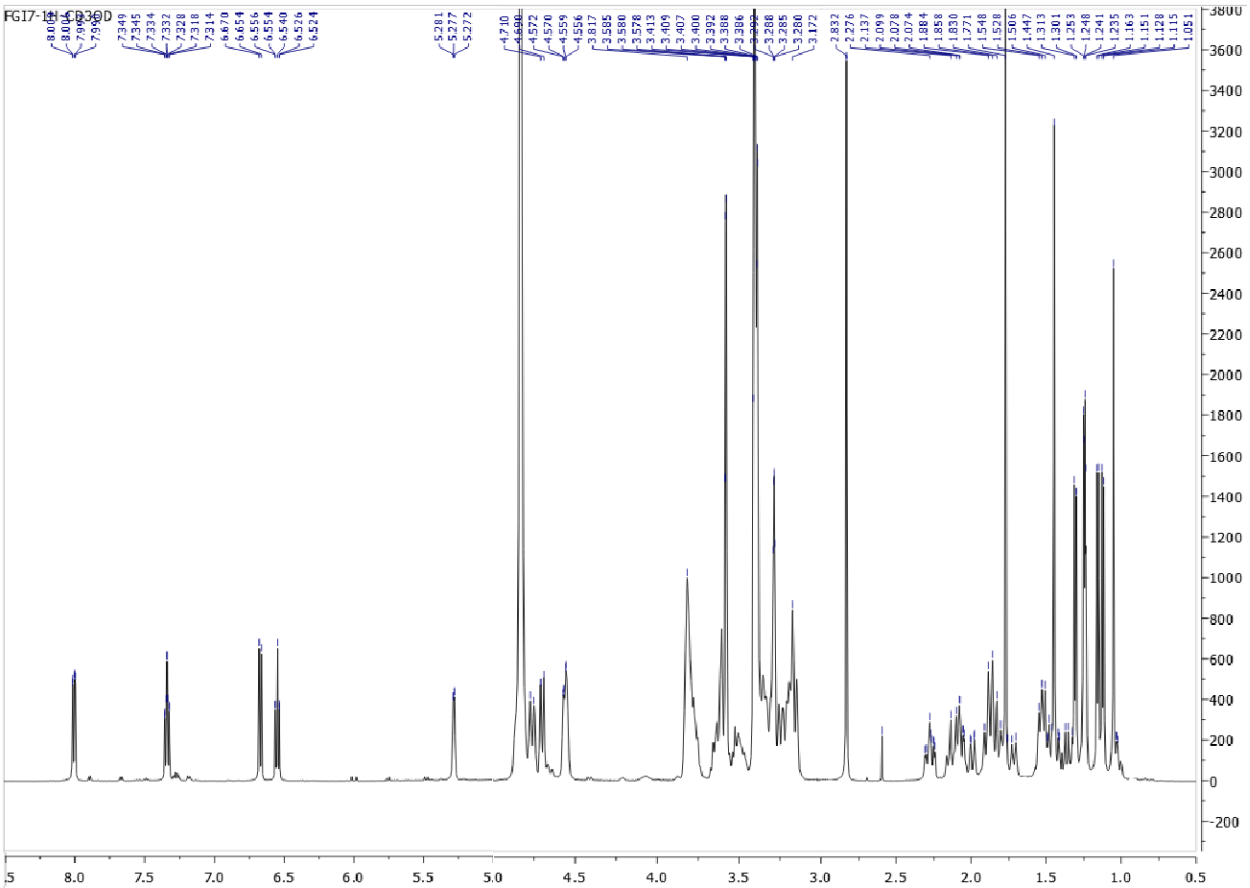

Figure S17. ^{13}C-NMR spectrum of compound **3**

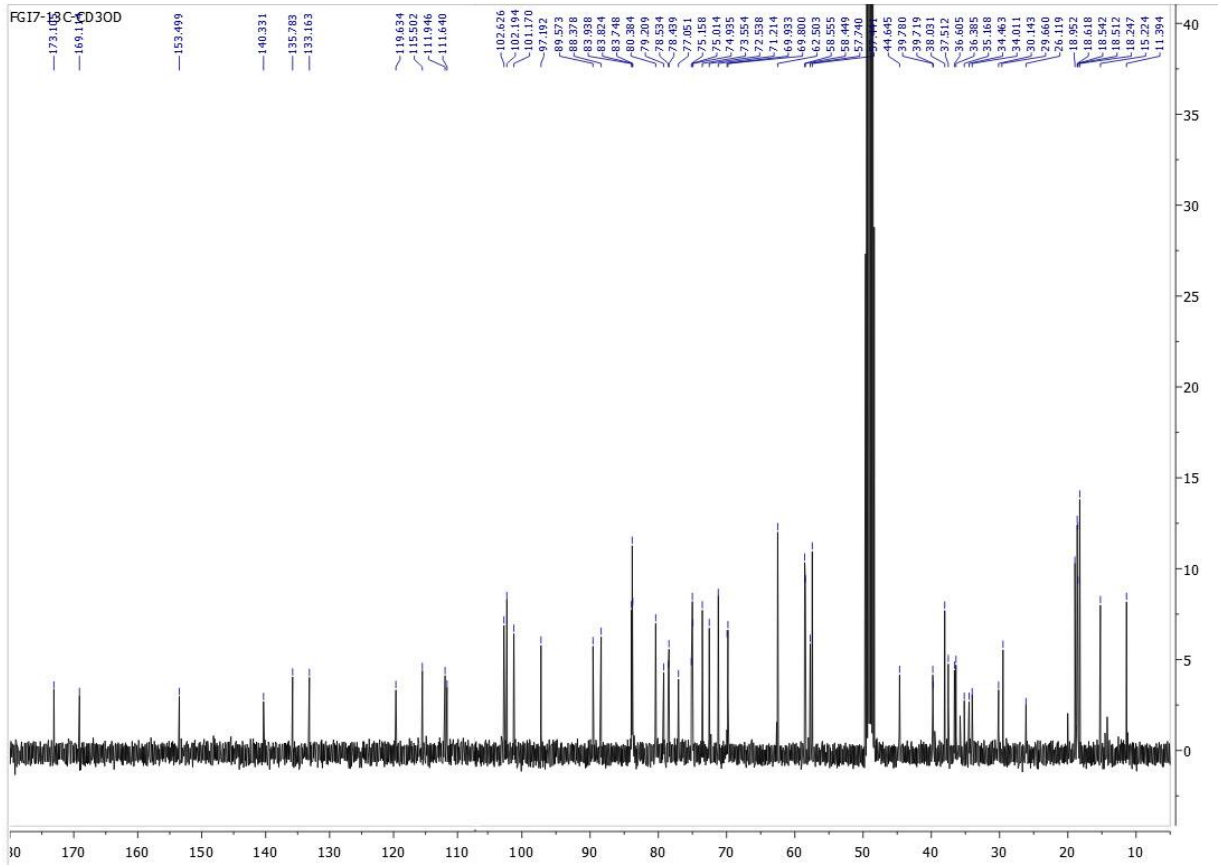

Figure S18. ^{1}H-NMR spectrum of compound **4**

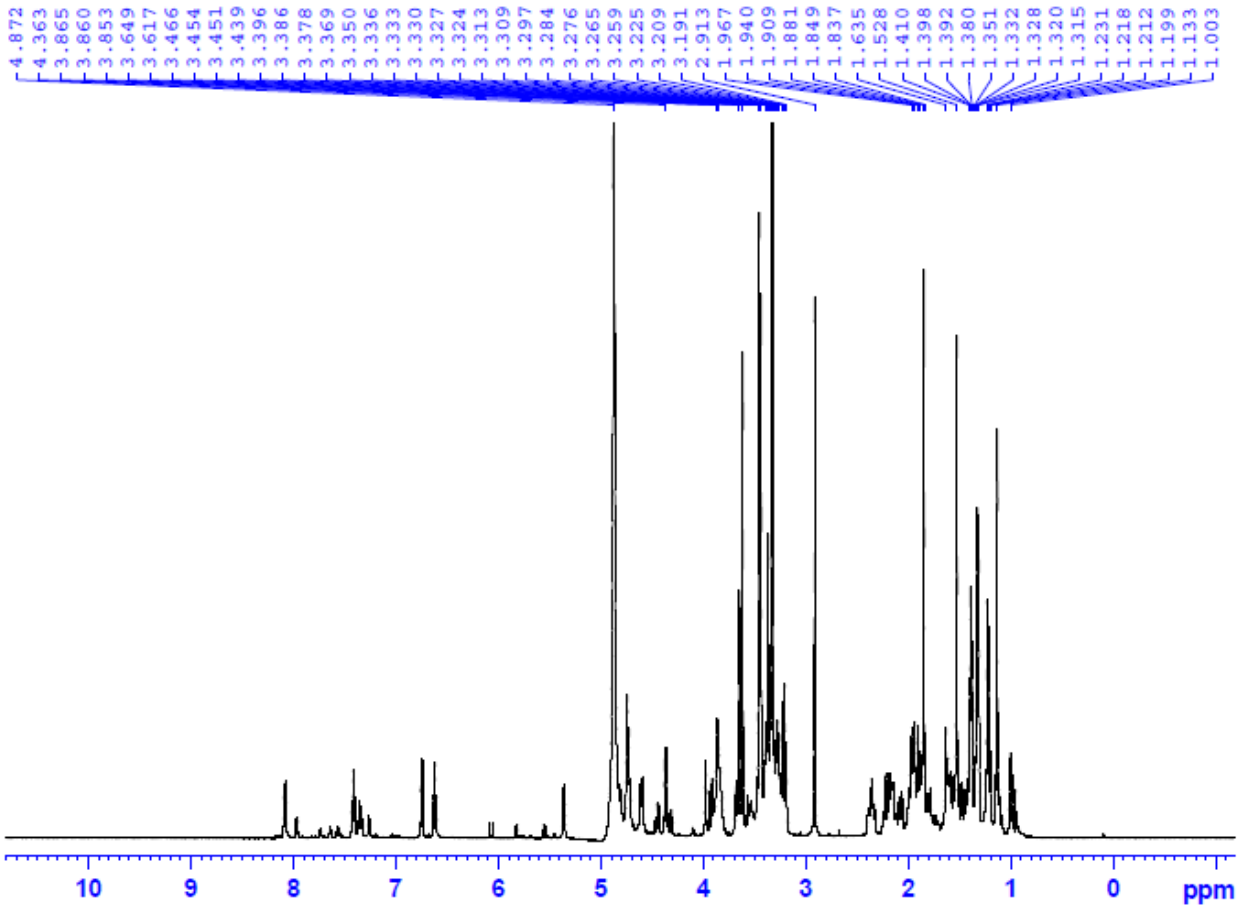

Figure S19. ^{13}C-NMR spectrum of compound **4**

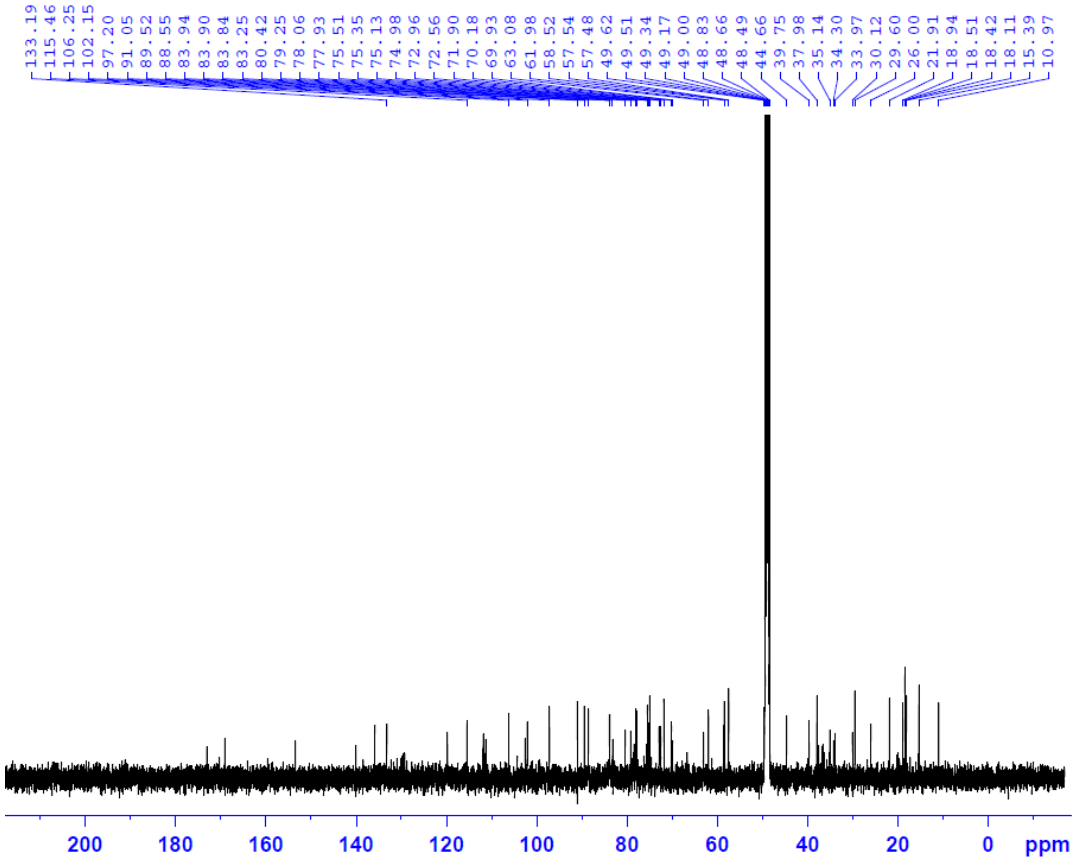

Figure S20. ^{1}H-NMR spectrum of compound **5**

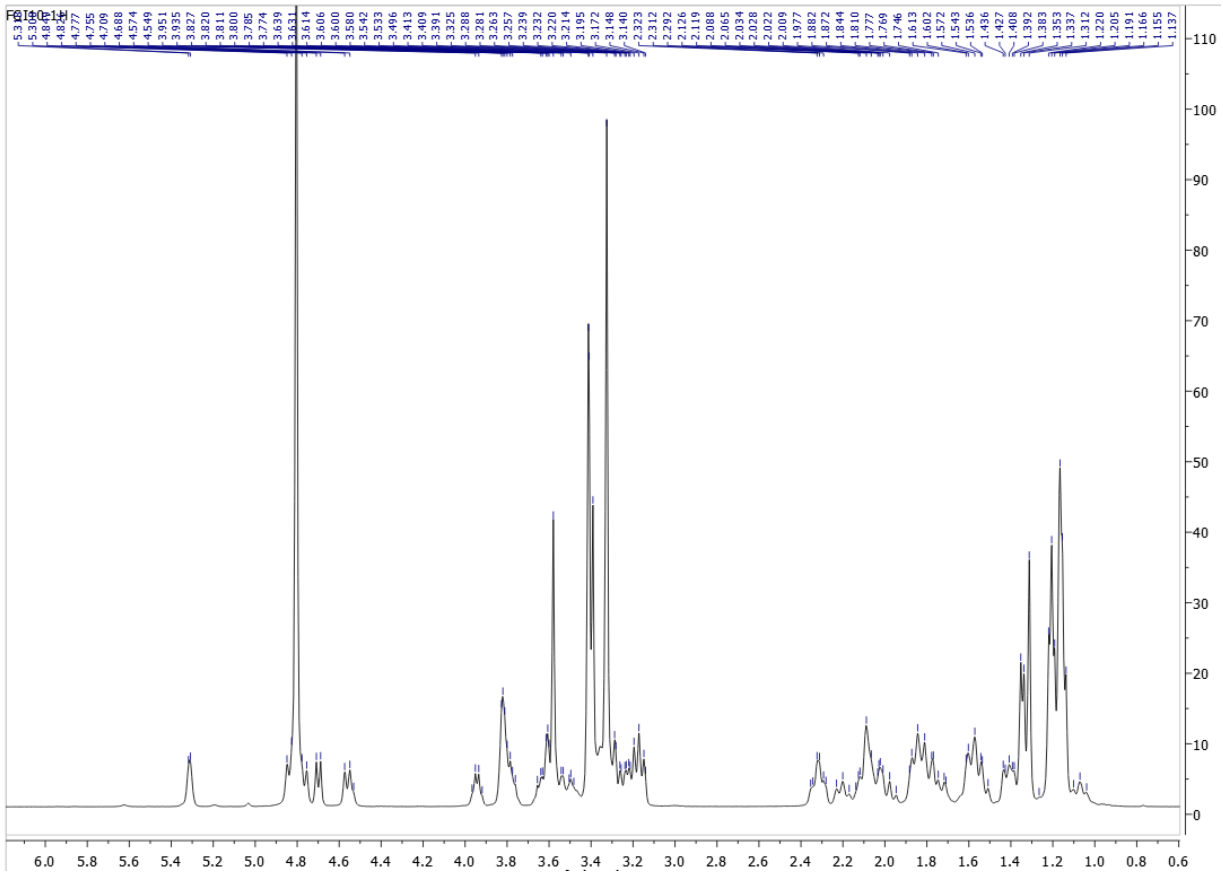

Figure S21. ^{13}C-NMR spectrum of compound **5**

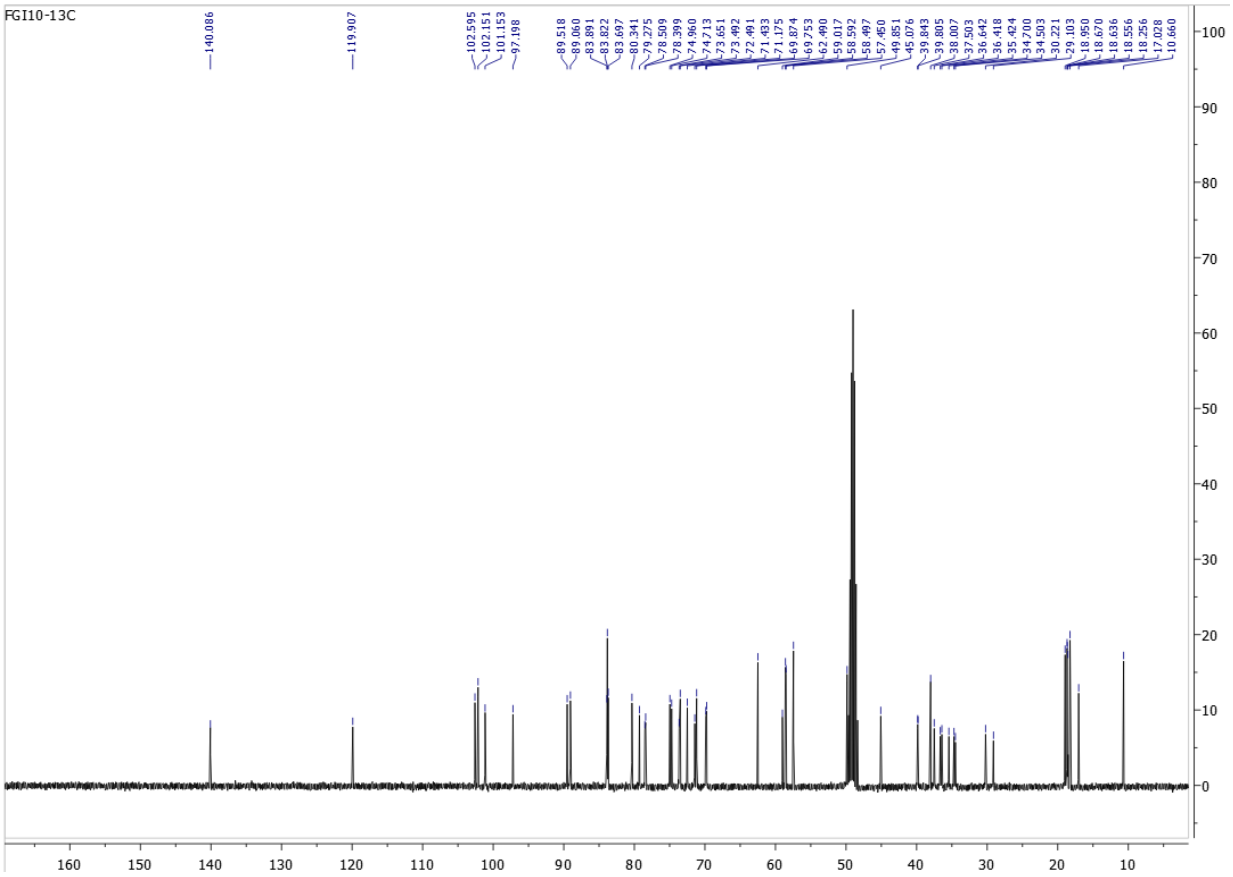

Figure S22. α-Glucosidase inhibitory activity of compounds **1**–**5**