Supporting Information

Flavonoids from the fruits of *Phyllanthus acidus* (L.) Skeels with anti-*α*-glucosidase activity

Abstract: Eleven flavonoids including one new flavonol glycoside, quercetin-3-*O*-(2-*α*-L-rhamnopyranosyl)-*β*-D-glucuronopyranosyl methyl ester (1), were isolated for the first time from the fruits of *Phyllanthus acidus* (L.) Skeels (Phyllanthaceae). Their structures were determined by extensive spectroscopic data. The known flavonoids, quercetin-3-*O*-*β*-D-glucuronide methyl ester (3), quercetin-3-*O*-(2"-*α*-L-rhamnopyranosyl-6"-*O*-*α*-L-rhamnopyranosyl)-*β*-D-glucopyranoside (**5**), myricetin (**9**), and 6-methoxy-naringenin (**11**) were isolated for the first time from the genus *Phyllanthus*. Flavonoids **4**, **6** and **9** (IC_{50} = 6.01, 6.32, and 7.84 μM, respectively) showed stronger *α*-glucosidase inhibitory activities than the positive control, acarbose (IC_{50} = 306.45 μM). The fruits of *P. acidus* might be further developed as an anti-diabetic food supplement.

Keywords:

Phyllanthaceae; *Phyllanthus acidus* (L.) Skeels; flavonoids; anti-*α*-glucosidase activity

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Figure S2. Key HMBC (H → C) correlations of compound **1**

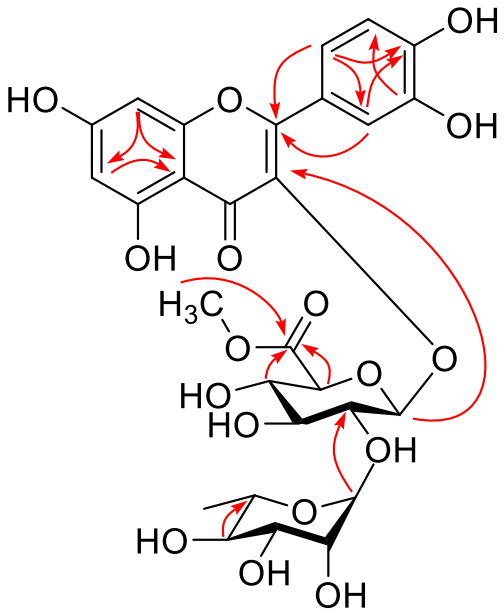


Figure S3. ^{1}H NMR spectrum of compound **1**

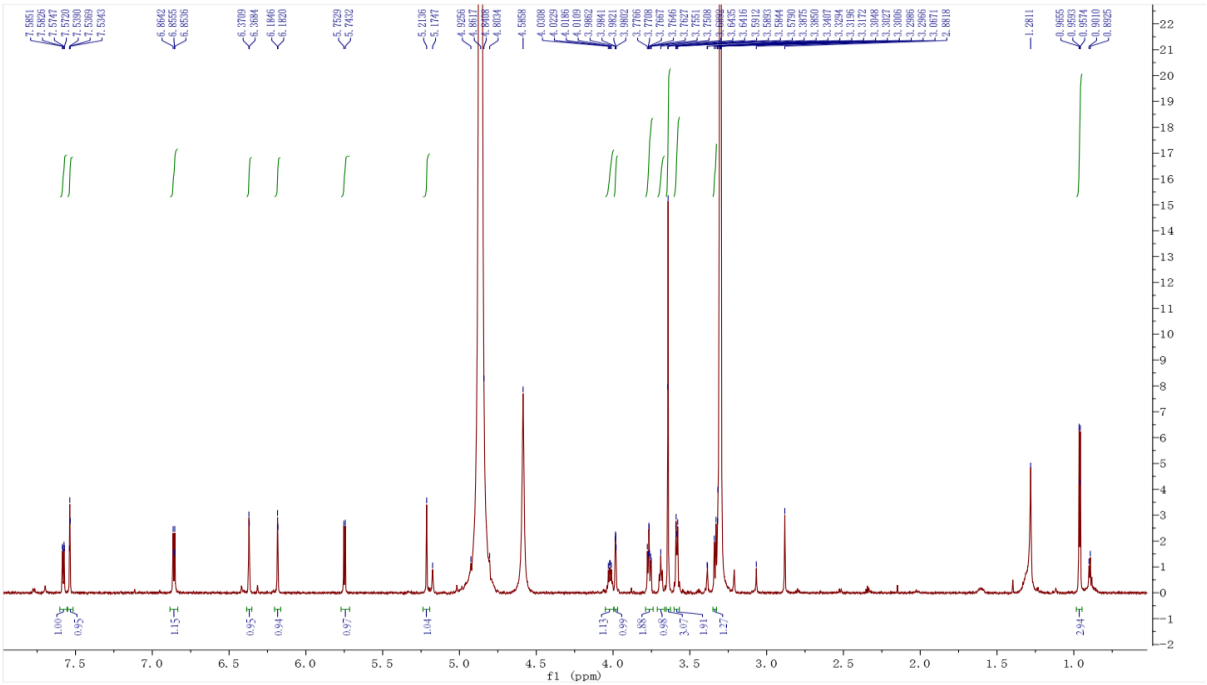


Figure S4. ^{13}C NMR spectrum of compound **1**

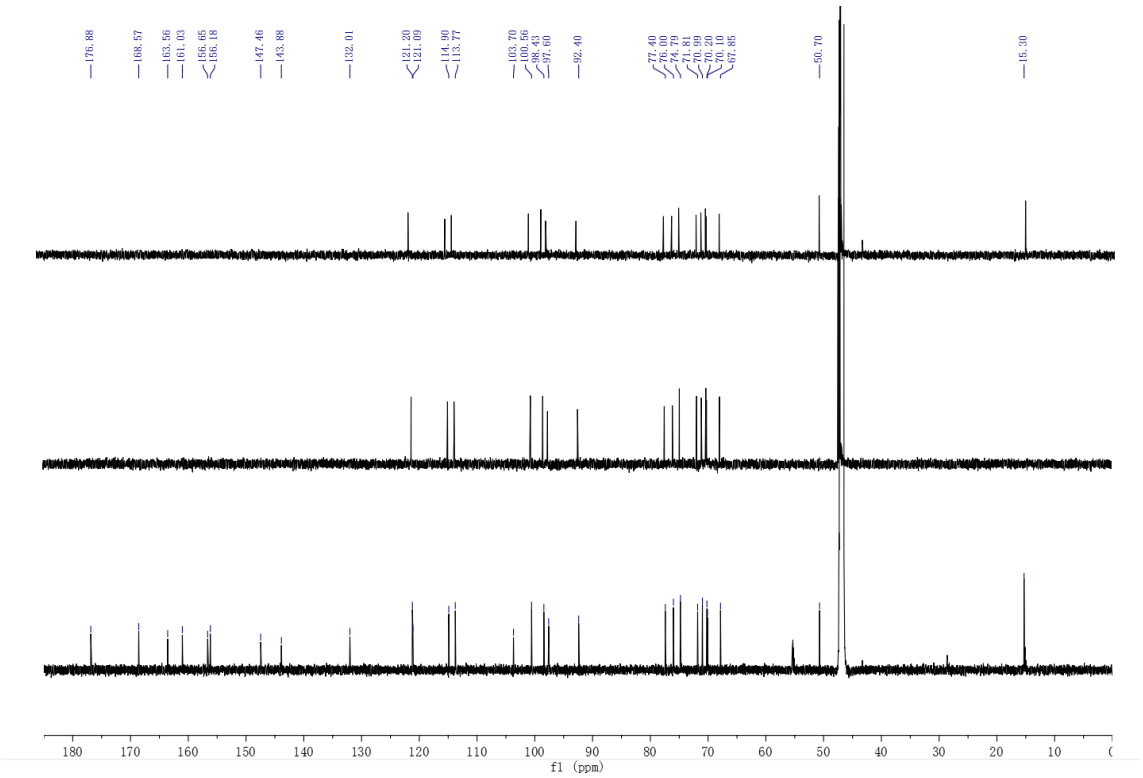


Figure S5. HSQC spectrum of compound **1**

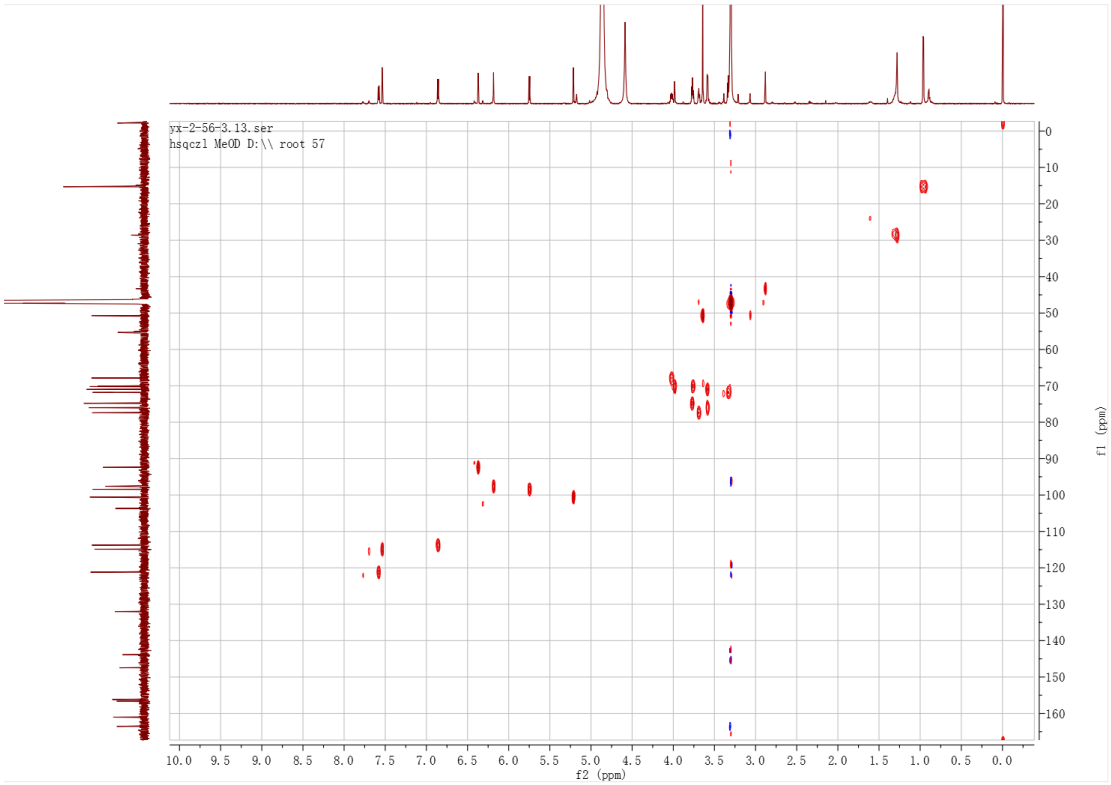


Figure S6. HMBC spectrum of compound **1**

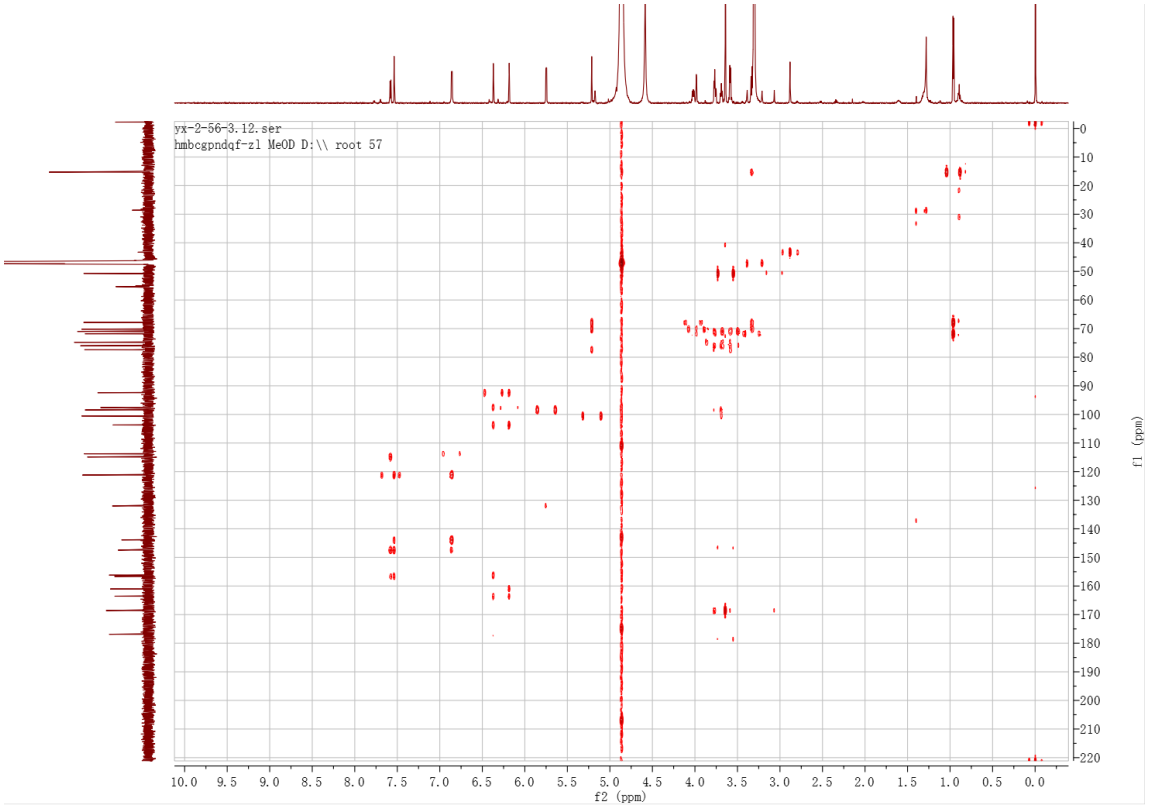


Figure S7. ^{1}H-^{1}H COSY spectrum of compound **1**

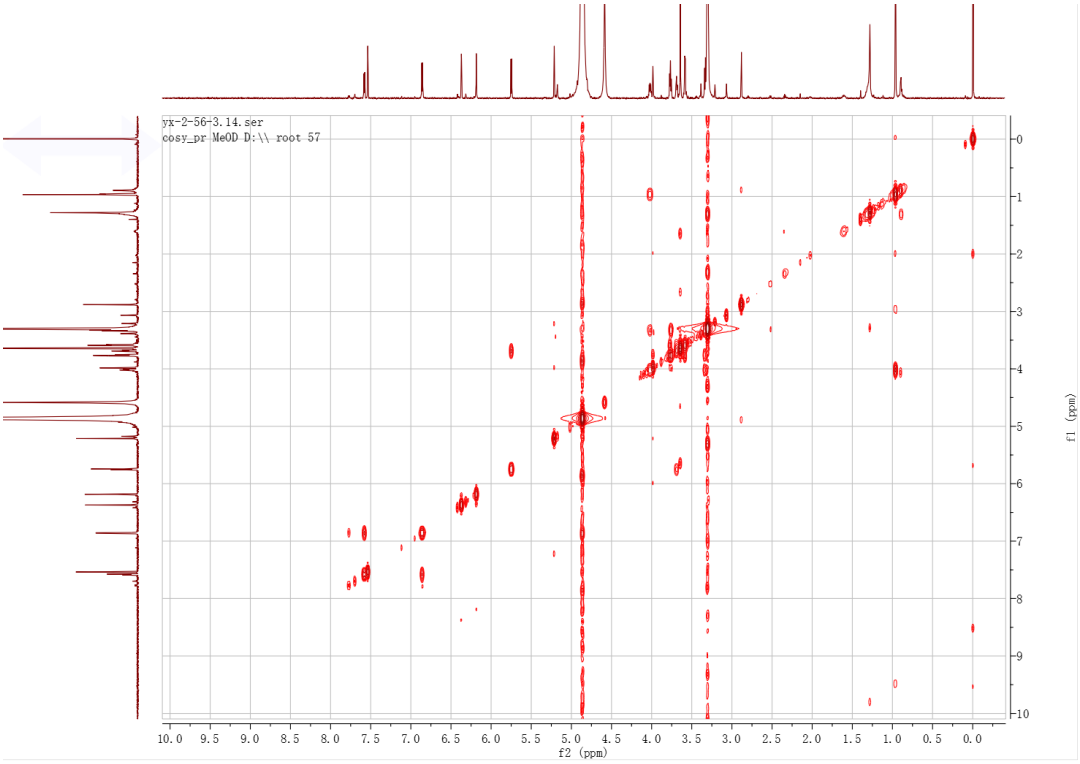


Figure S8. ROESY spectrum of compound **1**

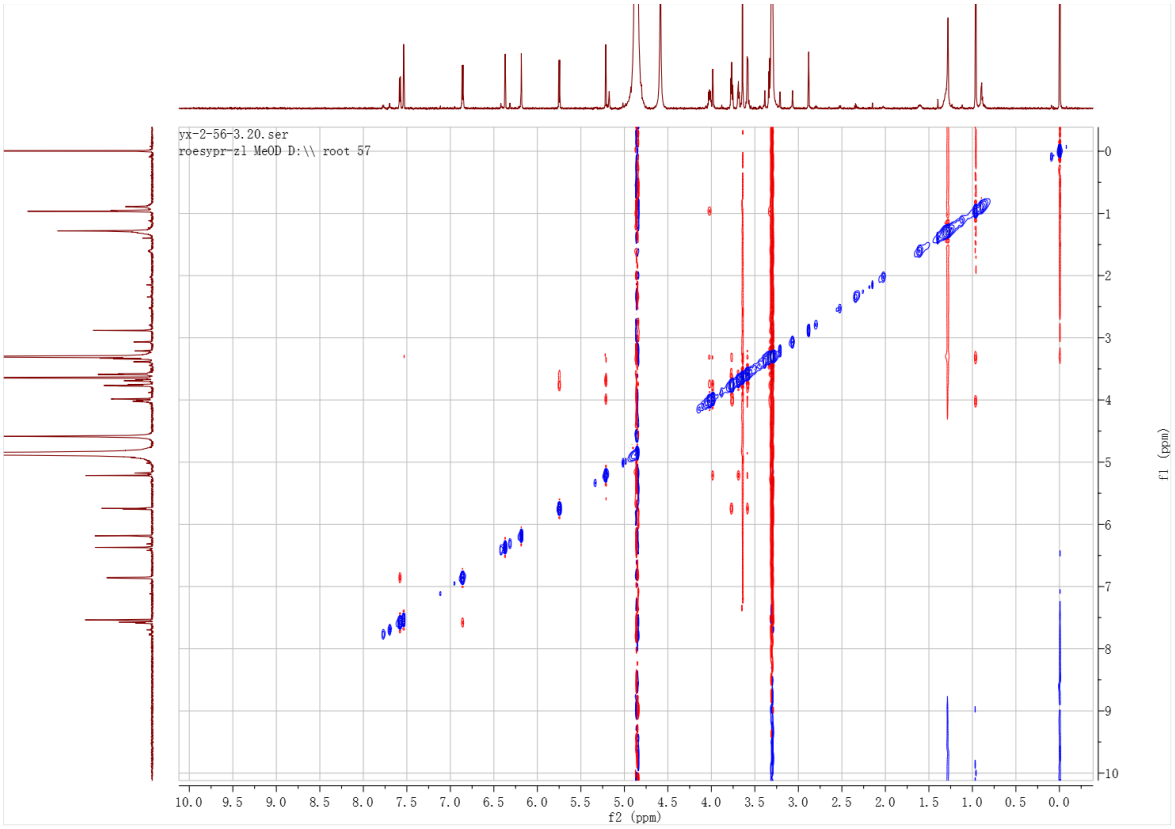


Figure S9. Negative ESIMS spectrum of compound **1**

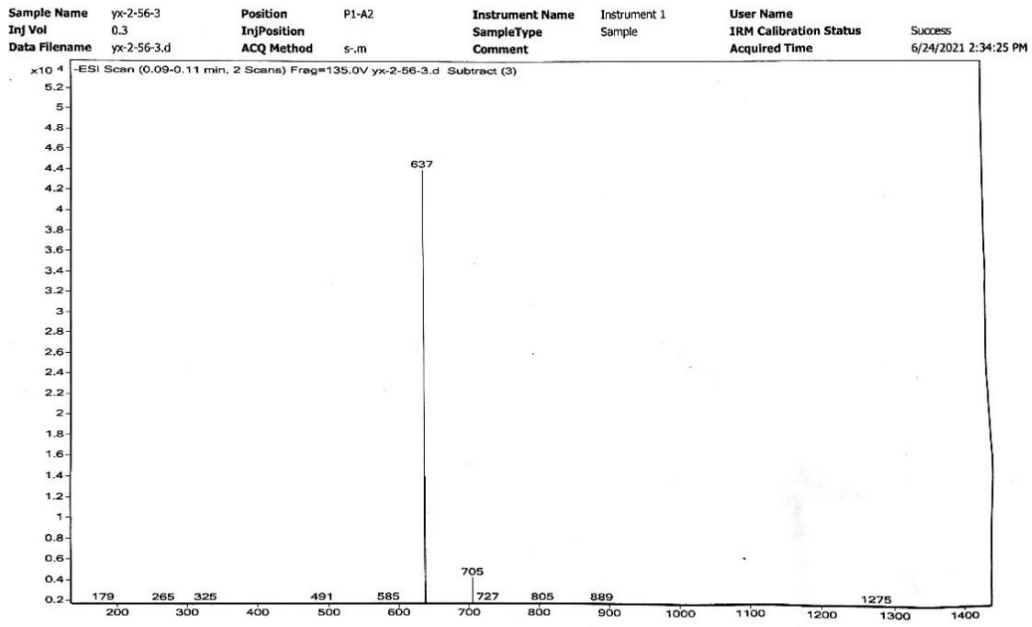


Figure S10. HRESIMS spectrum of compound **1**

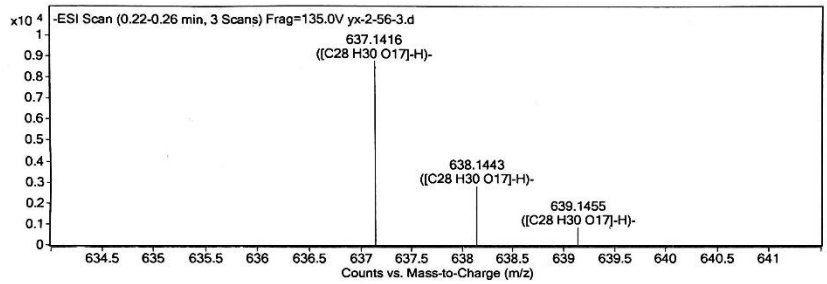
Qualitative Analysis Report

Data Filename	yx-2-56-3.d	**Sample Name**	yx-2-56-3
Sample Type	Sample	**Position**	P1-A2
Instrument Name	Instrument 1	**User Name**	
Acq Method	s-.m	**Acquired Time**	6/24/2021 2:34:25 PM
IRM Calibration Status	[redacted]	**DA Method**	Default.m
Comment			

Sample Group	**Info.**
Acquisition SW Version	6200 series TOF/6500 series Q-TOF B.05.01 (B5125.2)

User Spectra

Fragmentor Voltage	Collision Energy	Ionization Mode
135	0	ESI



Peak List

m/z	z	Abund	Formula	Ion
68.9957		4786.2		
96.9602		4687.82		
112.9856	1	7382.49		
119.0358		3140.37		
637.1416	1	8807.66	C28 H30 O17	(M-H)-
638.1443	1	2817.79	C28 H30 O17	(M-H)-
955.9712	1	2802.36		
966.0006	1	23623.78		
967.0035	1	4847.16		
982.9904	1	9655.19		
1033.9882	1	20229.27		
1034.9912	1	4227.83		

Formula Calculator Element Limits

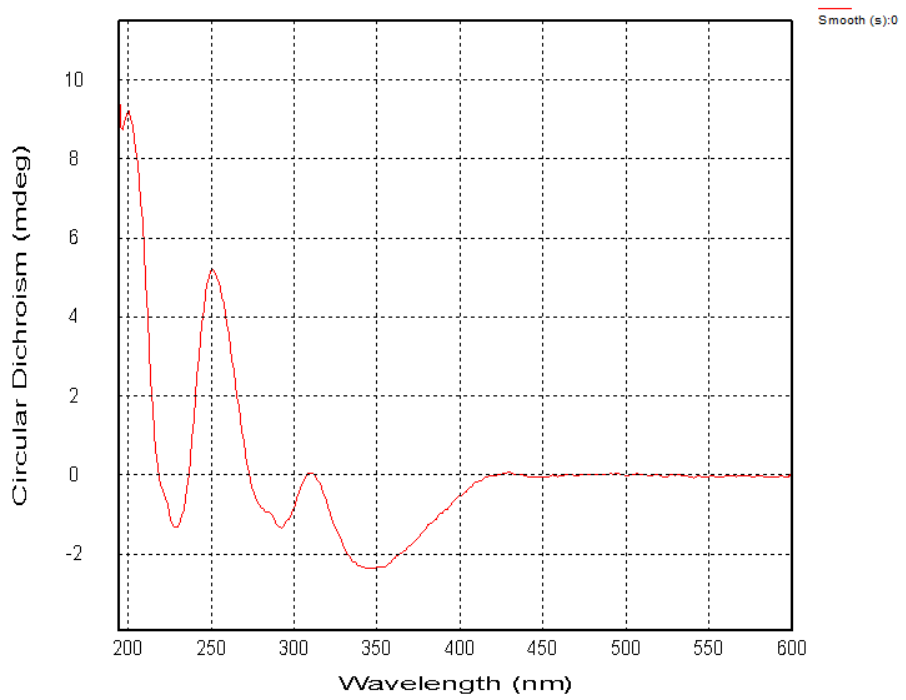
Element	Min	Max
C	3	60
H	0	120
O	0	30

Formula Calculator Results

Formula	CalculatedMass	CalculatedMz	Mz	Diff. (mDa)	Diff. (ppm)	DBE
C28 H30 O17	638.1483	637.1410	637.1416	-0.60	-0.94	14.0000

--- End Of Report ---

Figure S11. CD and UV spectra of compound **1**



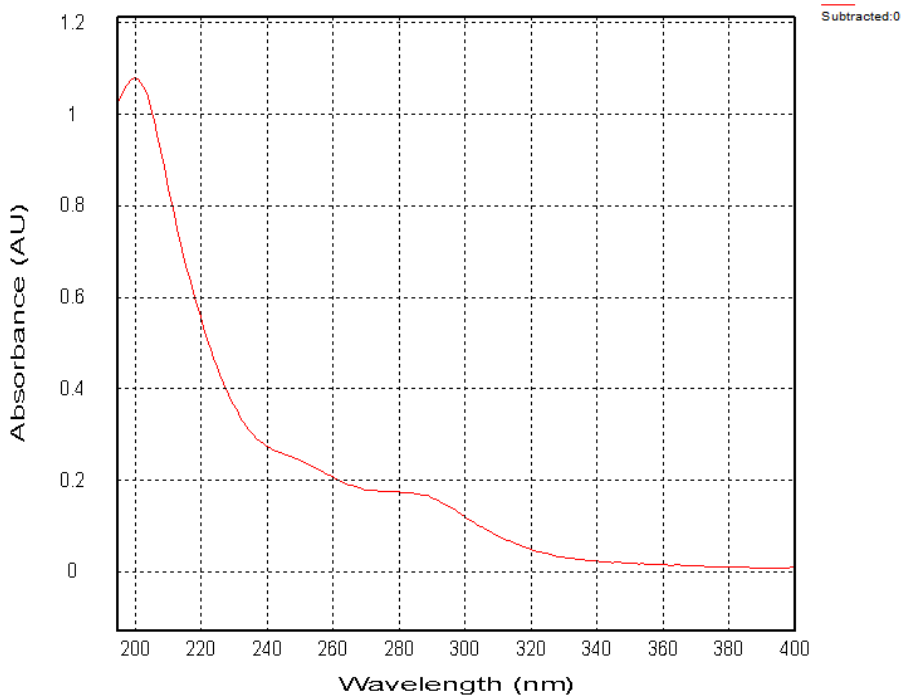


Table S1. α-Glucosidase inhibitory activities of compounds **2-11**

Compd.	Concentration（μM）	IC_{50} (μM)	Inhibition rate（%）
Acarbose	400	306.45±7.01	55.03±0.49
2	50		0.51±1.17
3	50		14.16±2.52
4		6.01±0.14	
5	50		-5.45±1.89
6		6.32±0.31	
7	50		-3.41±3.18
8	50		24.46±2.17
9		7.84±0.33	
10	50		20.89±2.35
11	50		9.37±2.59