Supplementary Materials

Production of bioactive compounds from callus of *Pueraria thomsonii* Benth with promising cytotoxic and antibacterial activities

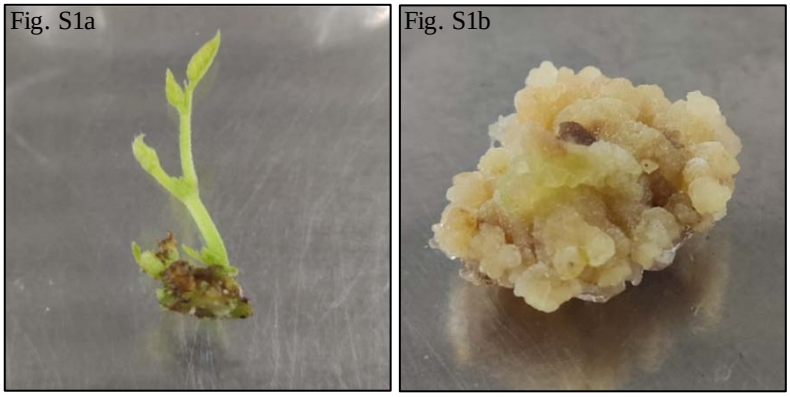


Fig. S1 Collection and callus induction of *P. thomsonii*, (S1a) Collected tender shoots of *P. thomsonii*. (S1b) Healthy and well grown callus of *P. thomsonii*

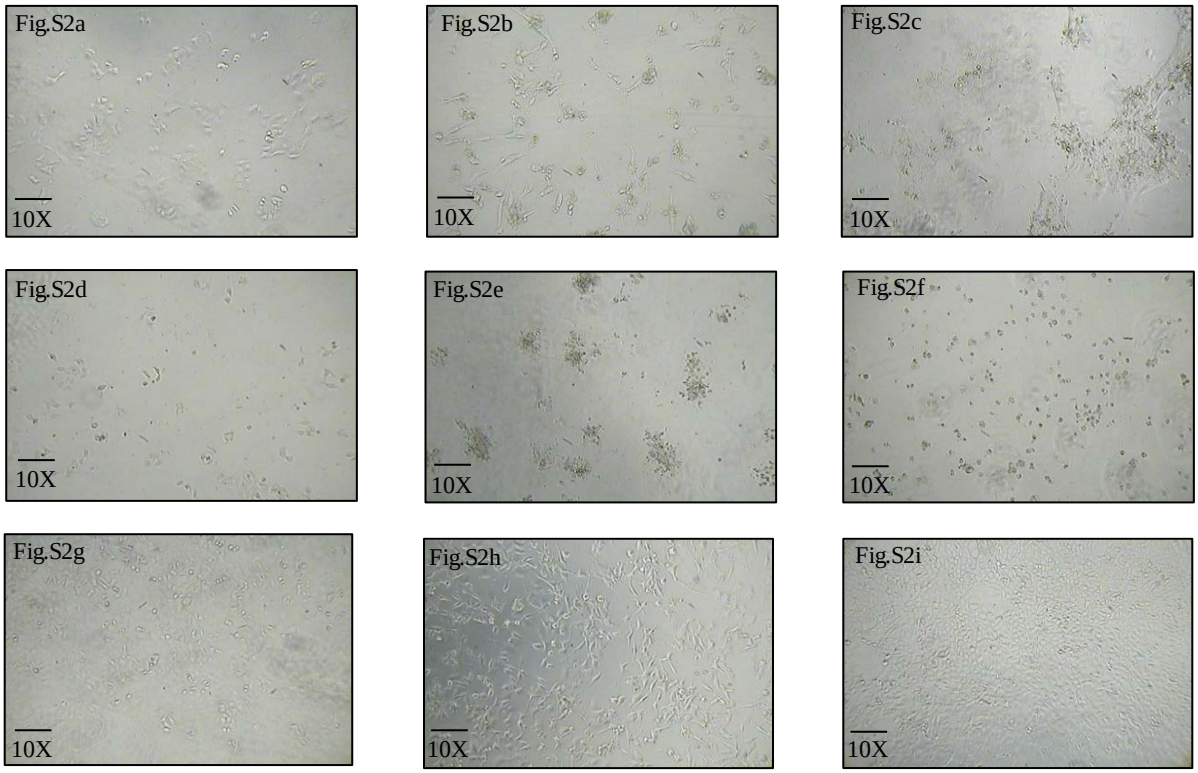


Fig. S2 Cytotoxic activity of A549, 4T1 and NC1-H1975; (S2a-c) calli extracts against A549, 4T1 and NC1-H1975; (S2d-f) standard drug doxorubicin against A549, 4T1 and NC1-H1975; (S2g-i) blank control without treatment of 4T1 and NC1-H1975, respectively

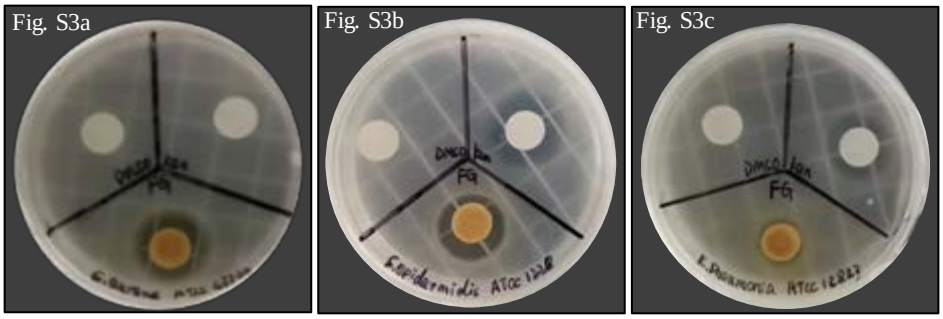
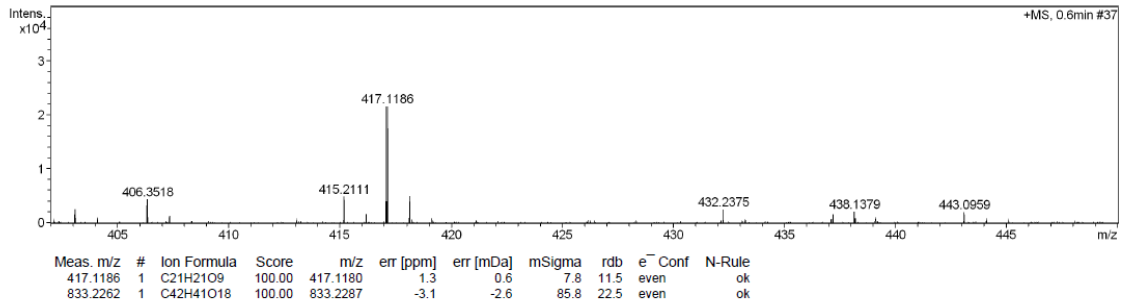


Fig. S3 Antibacterial activity of calli extracts of *P. thomsonii* using disc diffusion assay, (S3a) Plate showing antibacterial activity against *Staphylococcus aureus* (ATCC 43300, MRSA), (S3b) Methicillin resistant *Staphylococcus epidermidis* (ATCC 12228, MRSE), (S3c) *Klebsiella pneumonia* (ATCC 13883)



Meas. m/z	#	Ion Formula	Score	m/z	err [ppm]	err [mDa]	mSigma	rdb	e⁻ Conf	N-Rule
417.1186	1	C21H21O9	100.00	417.1180	1.3	0.6	7.8	11.5	even	ok
833.2262	1	C42H41O18	100.00	833.2287	-3.1	-2.6	85.8	22.5	even	ok

Fig. S4 The HRESIMS spectrum of compound 1 (daidzin)

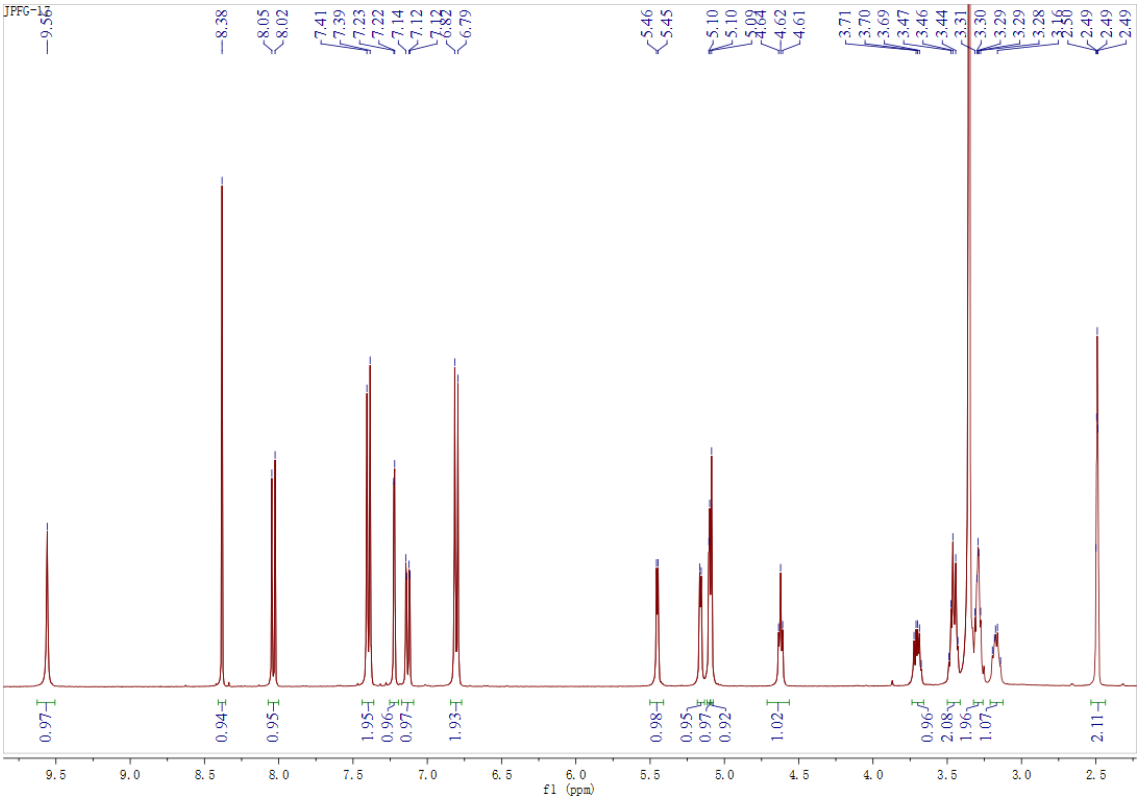


Fig. S5 The ^{1}H NMR spectrum of compound 1 (daidzin)

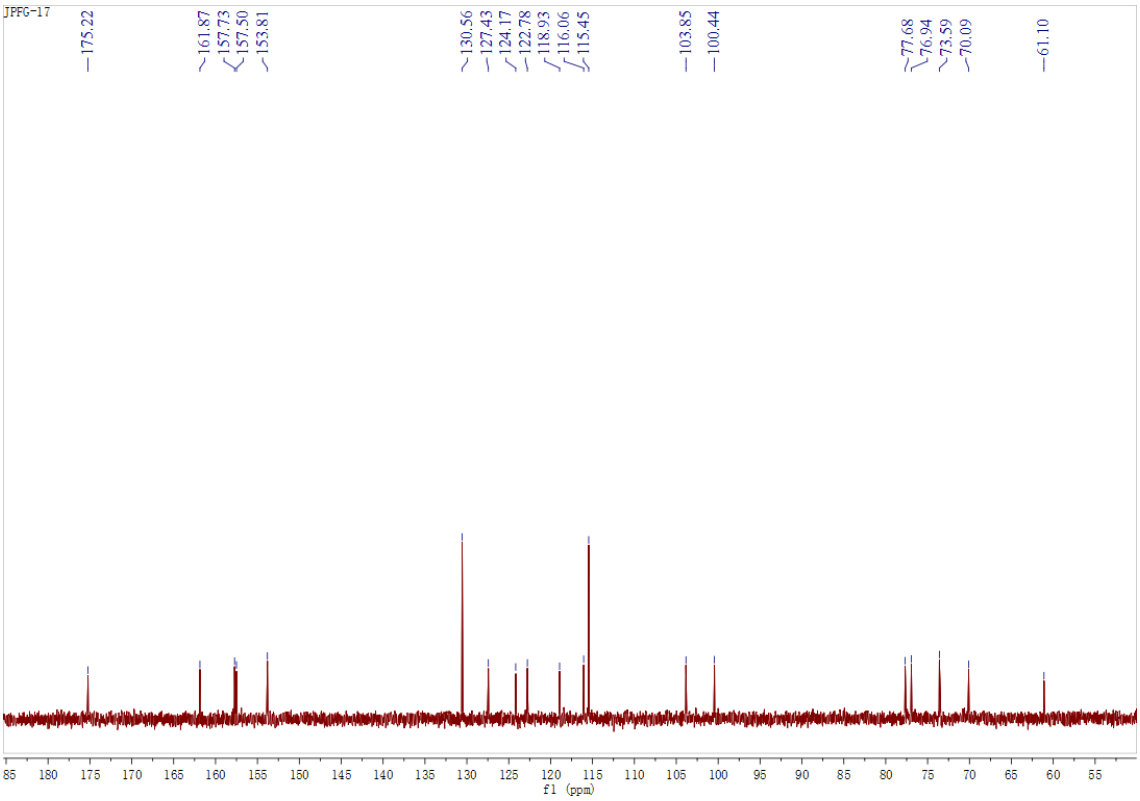


Fig. S6 The ^{13}C NMR spectrum of compound 1 (daidzin)

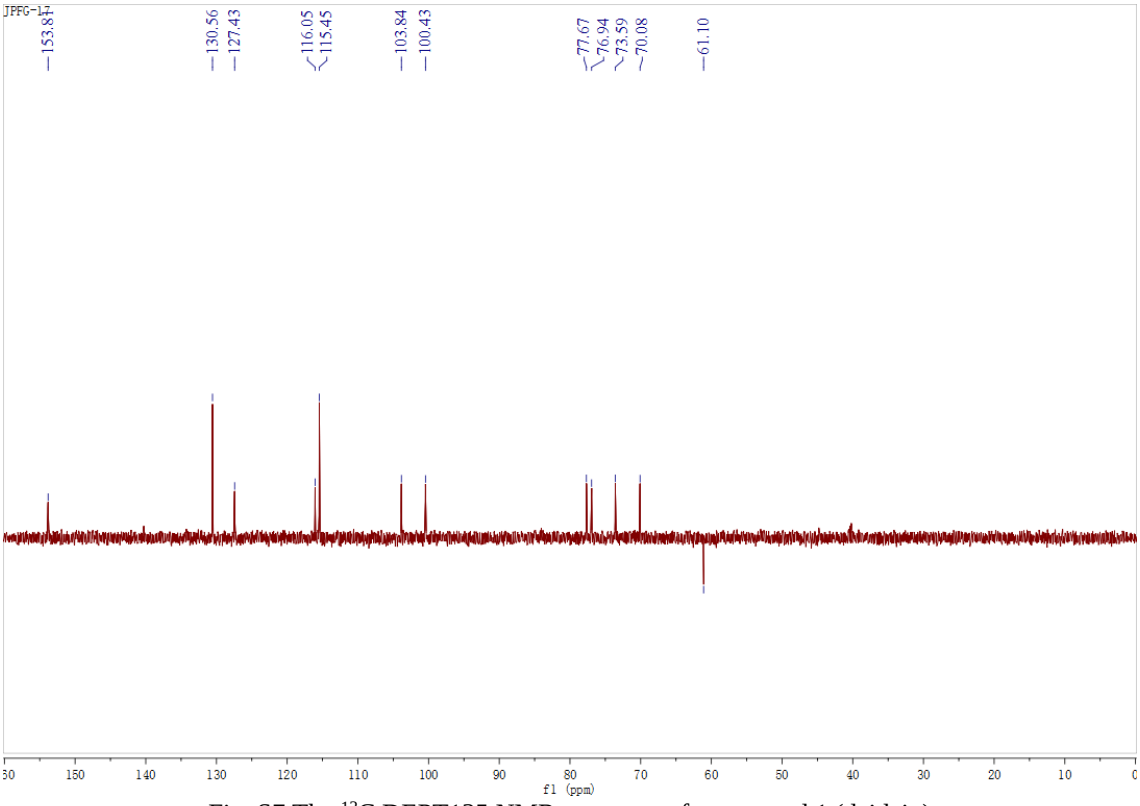
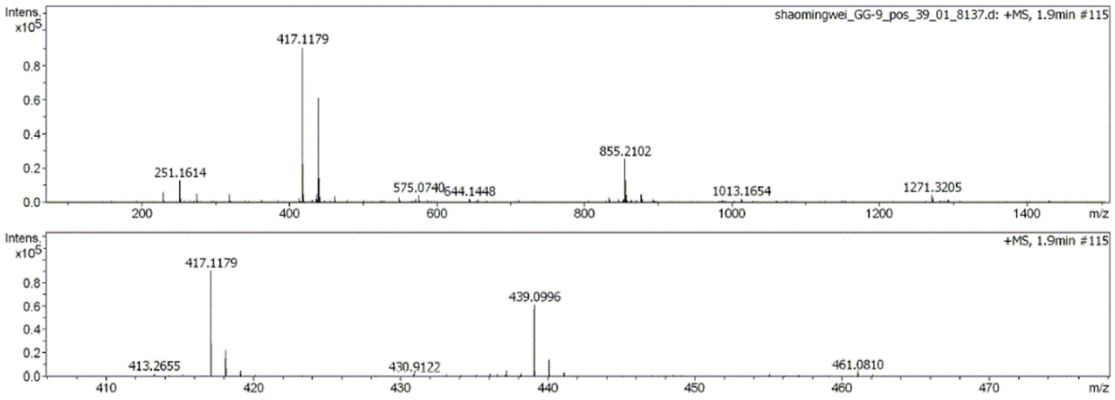


Fig. S7 The ^{13}C DEPT135 NMR spectrum of compound 1 (daidzin)



Meas. m/z	#	Ion Formula	Score	m/z	err [ppm]	err [mDa]	mSigma	rdb	e¯ Conf	N-Rule
417.1179	1	C21H21O9	100.00	417.1180	-0.2	-0.1	7.5	11.5	even	ok
439.0996	1	C21H20NaO9	100.00	439.1000	0.8	0.3	4.2	11.5	even	ok
833.2287	1	C42H41O18	100.00	833.2287	0.0	0.0	23.5	22.5	even	ok

Fig. S8 The HRESIMS spectrum of compound 2 (puerarin)

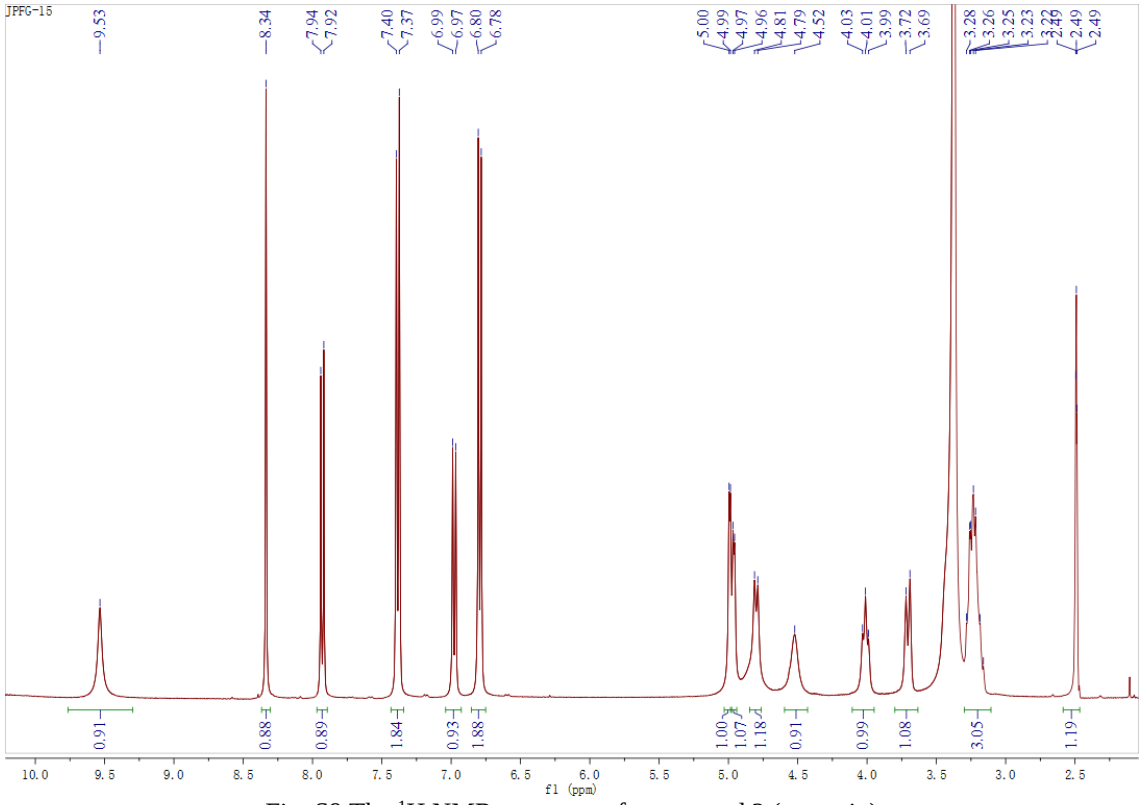


Fig. S9 The ^{1}H NMR spectrum of compound 2 (puerarin)

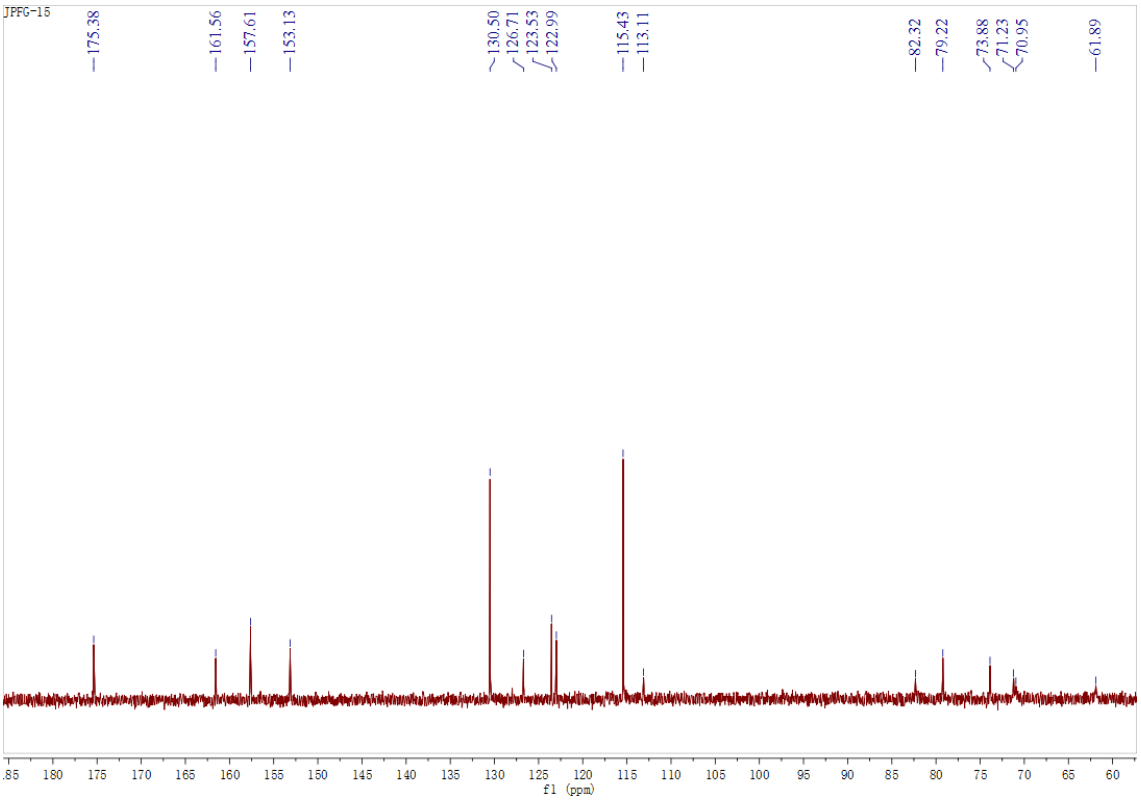


Fig. S10 The ^{13}C NMR spectrum of compound 2 (puerarin)

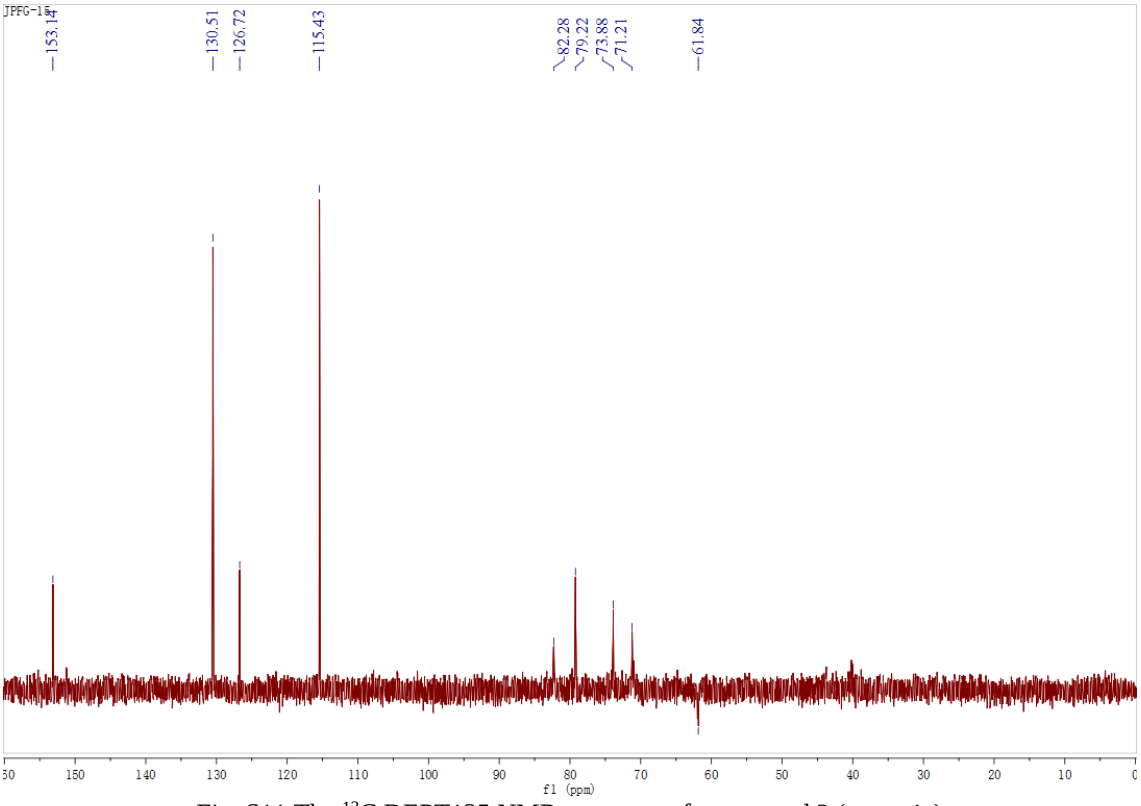
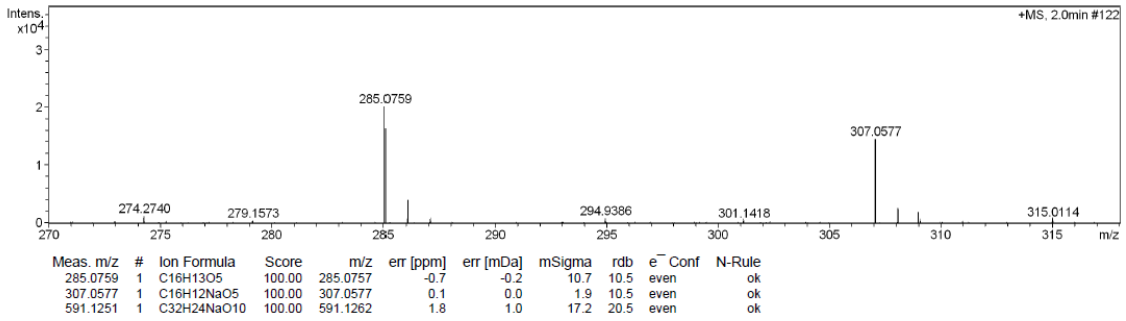


Fig. S11 The ^{13}C DEPT135 NMR spectrum of compound 2 (puerarin)



Meas. m/z	#	Ion Formula	Score	m/z	err [ppm]	err [mDa]	mSigma	rdb	e⁻ Conf	N-Rule
285.0759	1	C16H13O5	100.00	285.0757	-0.7	-0.2	10.7	10.5	even	ok
307.0577	1	C16H12NaO5	100.00	307.0577	0.1	0.0	1.9	10.5	even	ok
591.1251	1	C32H24NaO10	100.00	591.1262	1.8	1.0	17.2	20.5	even	ok

Fig. S12 The HRESIMS spectrum of compound 3 (biochanin A)

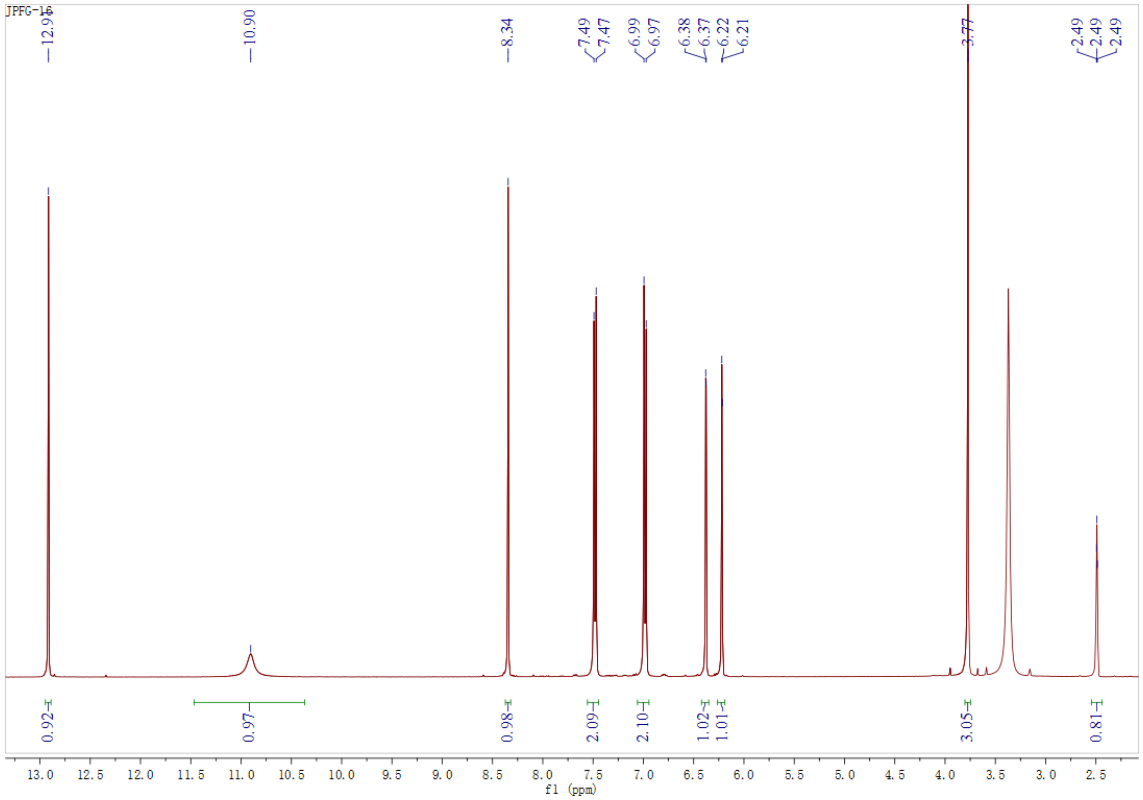


Fig. S13. The ^{1}H NMR spectrum of compound 3 (biochanin A)

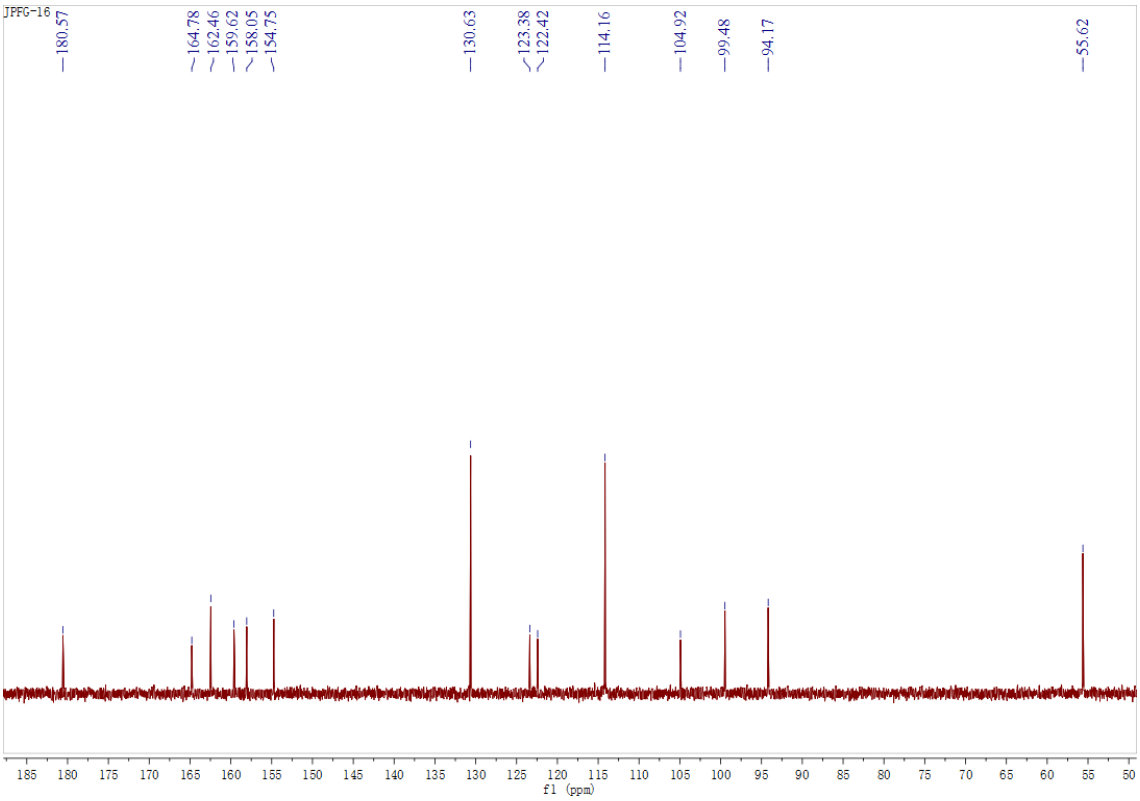


Fig. S14 The ^{13}C NMR spectrum of compound 3 (biochanin A)

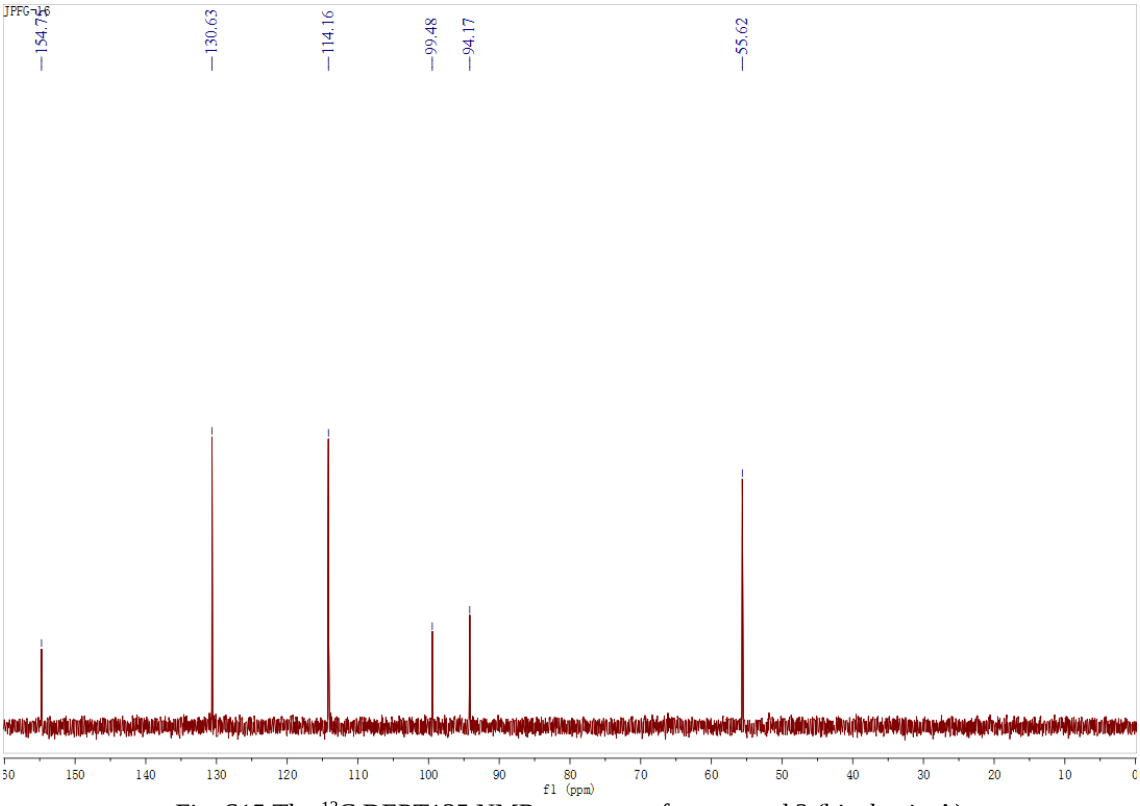
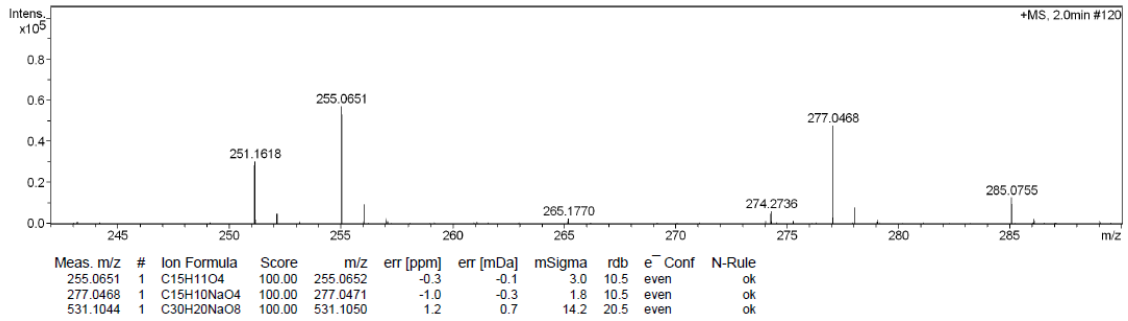


Fig. S15 The ^{13}C DEPT135 NMR spectrum of compound 3 (biochanin A)



Meas. m/z	#	Ion Formula	Score	m/z	err [ppm]	err [mDa]	mSigma	rdb	e⁻ Conf	N-Rule
255.0651	1	C15H11O4	100.00	255.0652	-0.3	-0.1	3.0	10.5	even	ok
277.0468	1	C15H10NaO4	100.00	277.0471	-1.0	-0.3	1.8	10.5	even	ok
531.1044	1	C30H20NaO8	100.00	531.1050	1.2	0.7	14.2	20.5	even	ok

Fig. S16 The HRESIMS spectrum of compound 4 (daidzein)

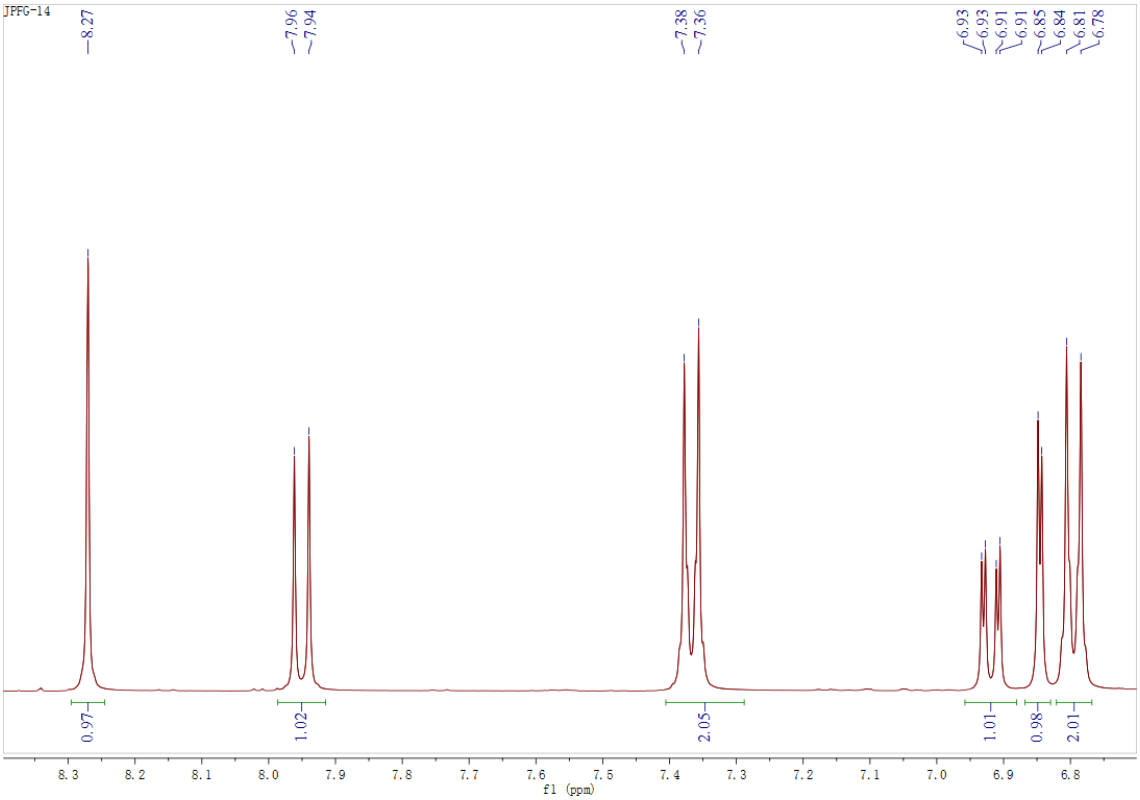


Fig. S17 The ^{1}H NMR spectrum of compound 4 (daidzein)

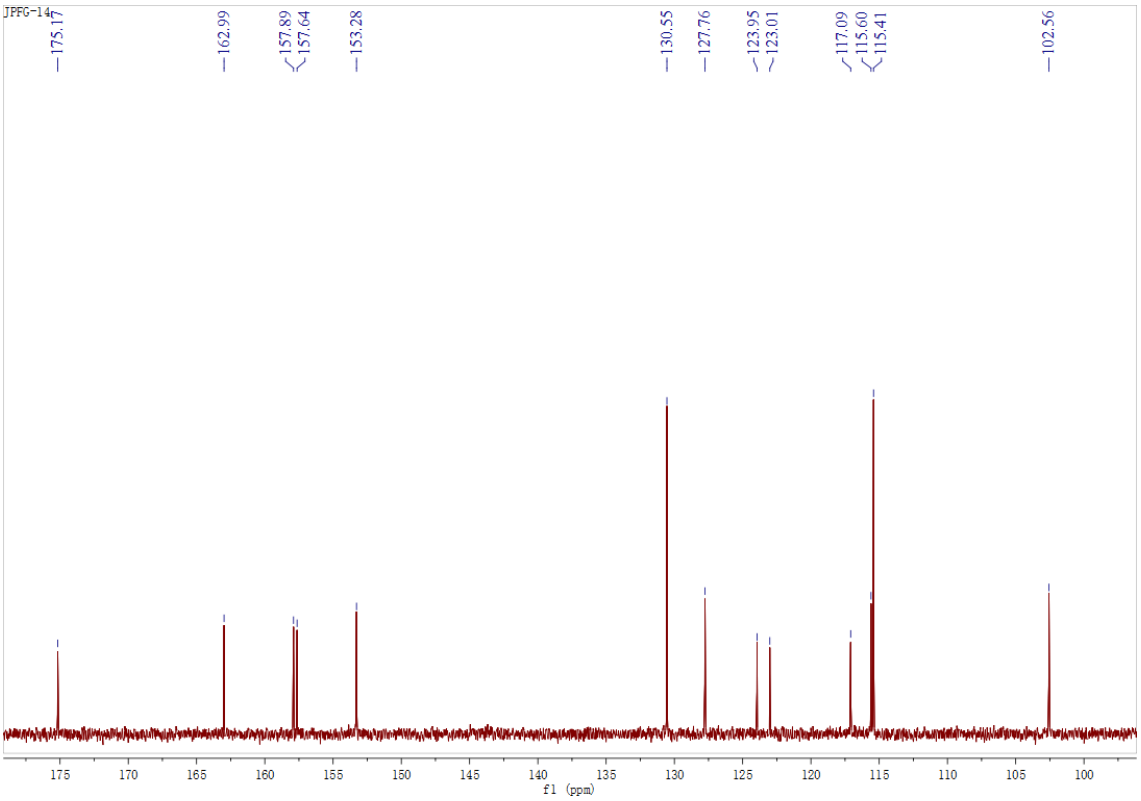


Fig. S18 The ^{13}C NMR spectrum of compound 4 (daidzein)

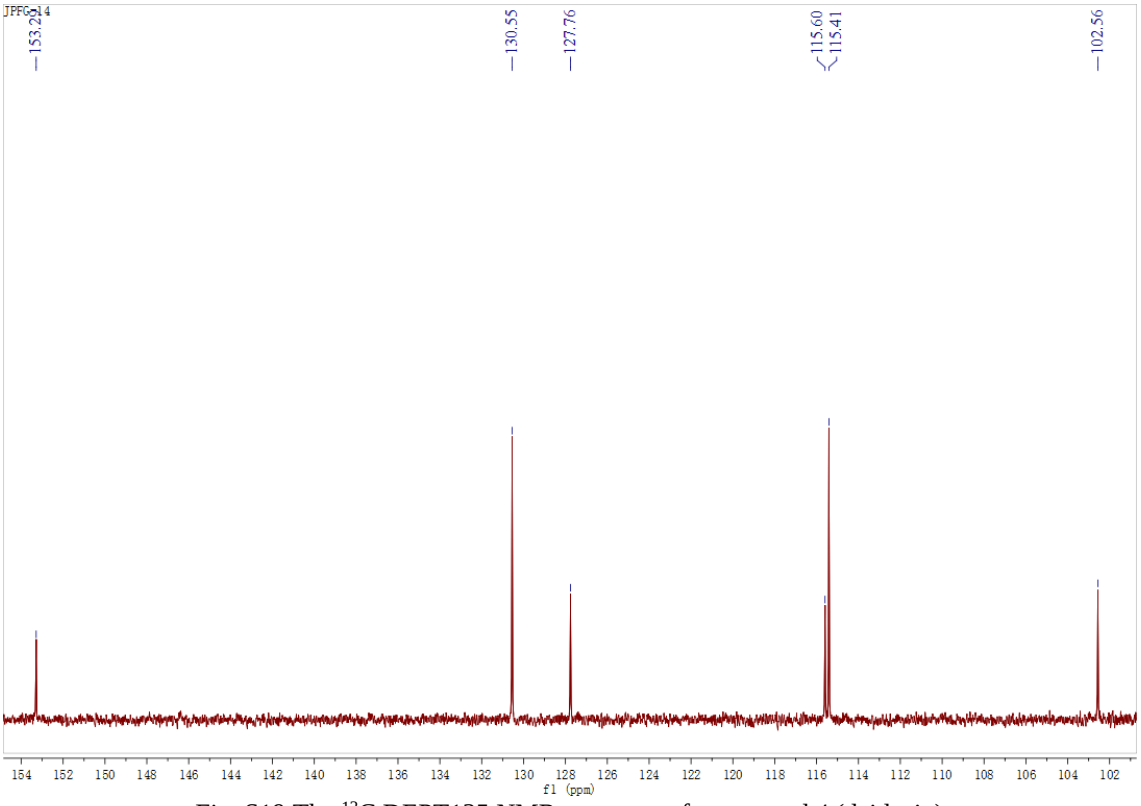
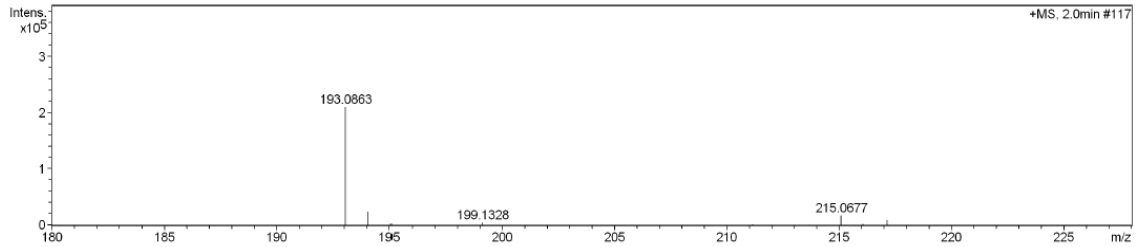


Fig. S19 The ^{13}C DEPT135 NMR spectrum of compound 4 (daidzein)



Meas. m/z	#	Ion Formula	Score	m/z	err [ppm]	err [mDa]	mSigma	rdb	e⁻ Conf	N-Rule
193.0863	1	C11H13O3	100.00	193.0859	-2.1	-0.4	3.9	5.5	even	ok
215.0677	1	C11H12NaO3	100.00	215.0679	0.7	0.1	0.6	5.5	even	ok

Fig. S20 The HRESIMS spectrum of compound 5 (ethyl 3-(4-hydroxyphenyl)acrylate)

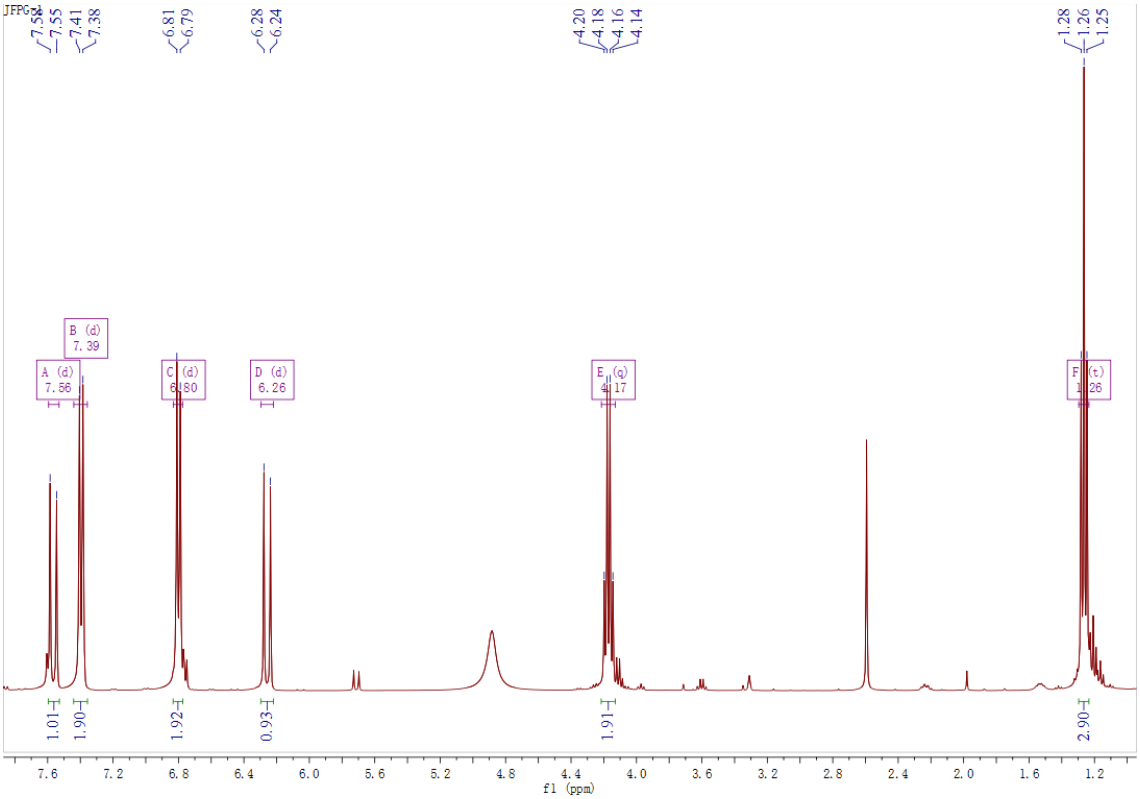


Fig. S21 The ^{1}H NMR spectrum of compound 5 (ethyl 3-(4-hydroxyphenyl)acrylate)

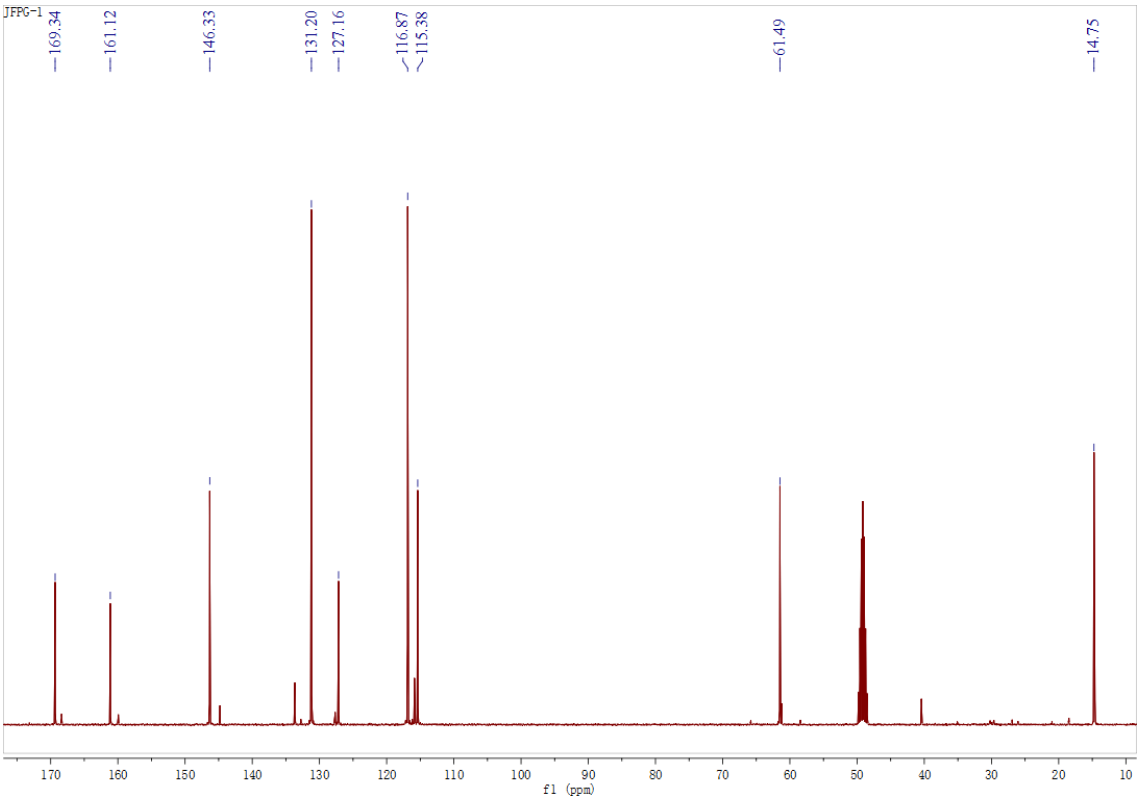


Fig. S22. The ^{13}C NMR spectrum of compound 5 (ethyl 3-(4-hydroxyphenyl)acrylate)

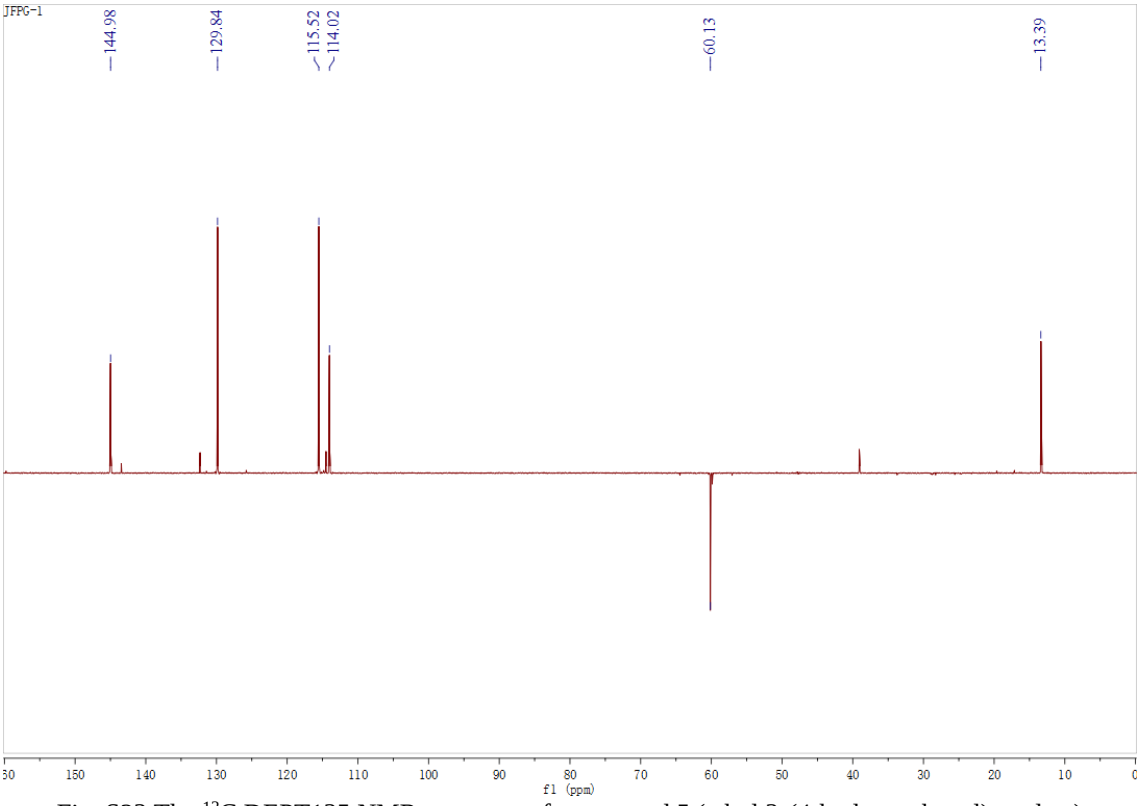
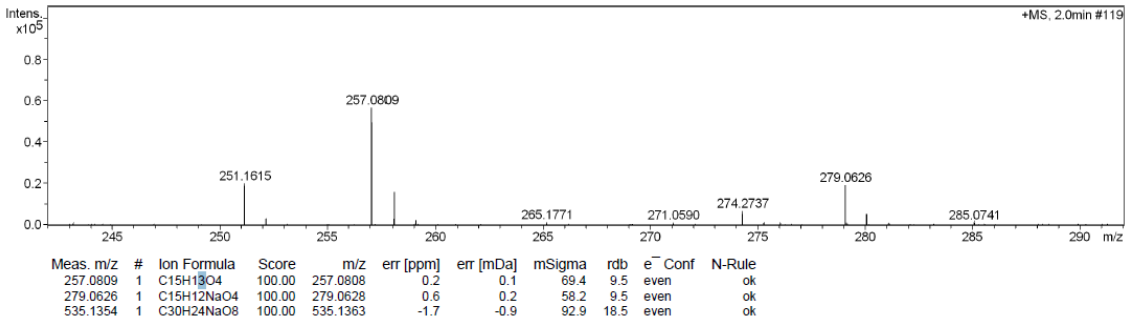


Fig. S23 The ^{13}C DEPT135 NMR spectrum of compound 5 (ethyl 3-(4-hydroxyphenyl)acrylate)



Meas. m/z	#	Ion Formula	Score	m/z	err [ppm]	err [mDa]	mSigma	rdb	e⁻ Conf	N-Rule
257.0809	1	C15H13O4	100.00	257.0808	0.2	0.1	69.4	9.5	even	ok
279.0626	1	C15H12NaO4	100.00	279.0628	0.6	0.2	58.2	9.5	even	ok
535.1354	1	C30H24NaO8	100.00	535.1363	-1.7	-0.9	92.9	18.5	even	ok

Fig. S24 The HRESIMS spectrum of compound 6 (liquiritigenin)

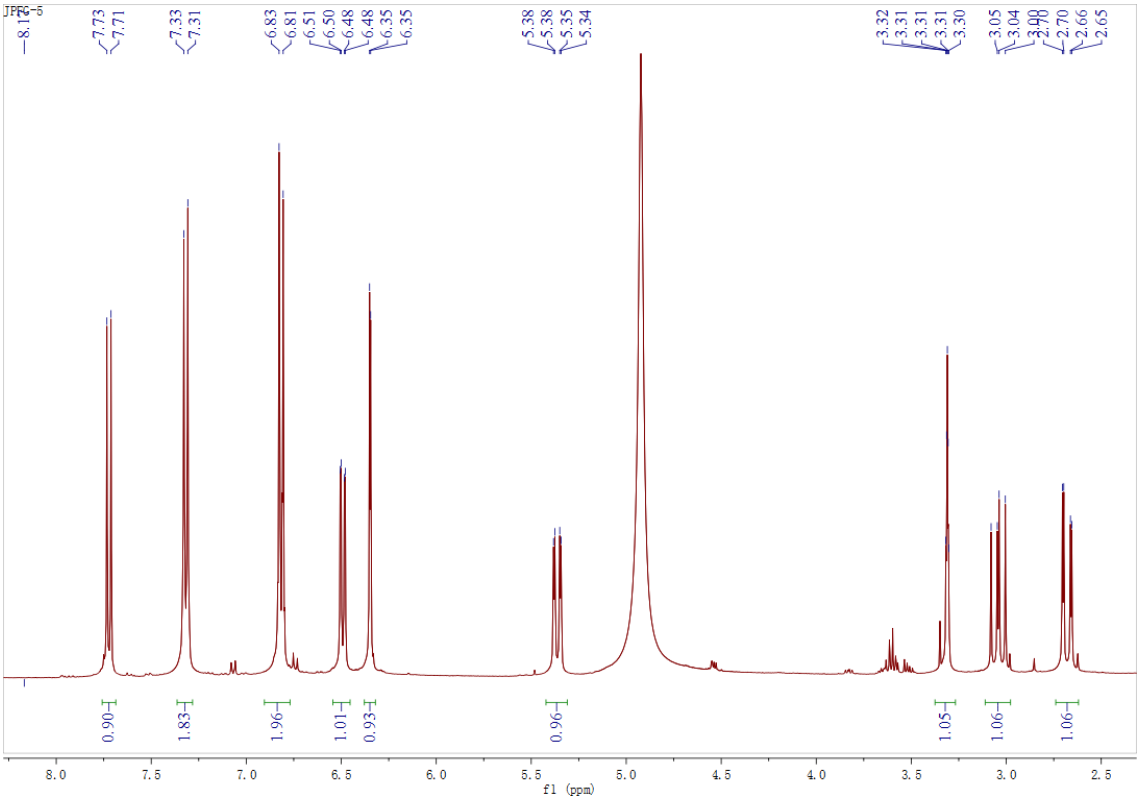


Fig. S25 The ^{1}H NMR spectrum of compound 6 (liquiritigenin)

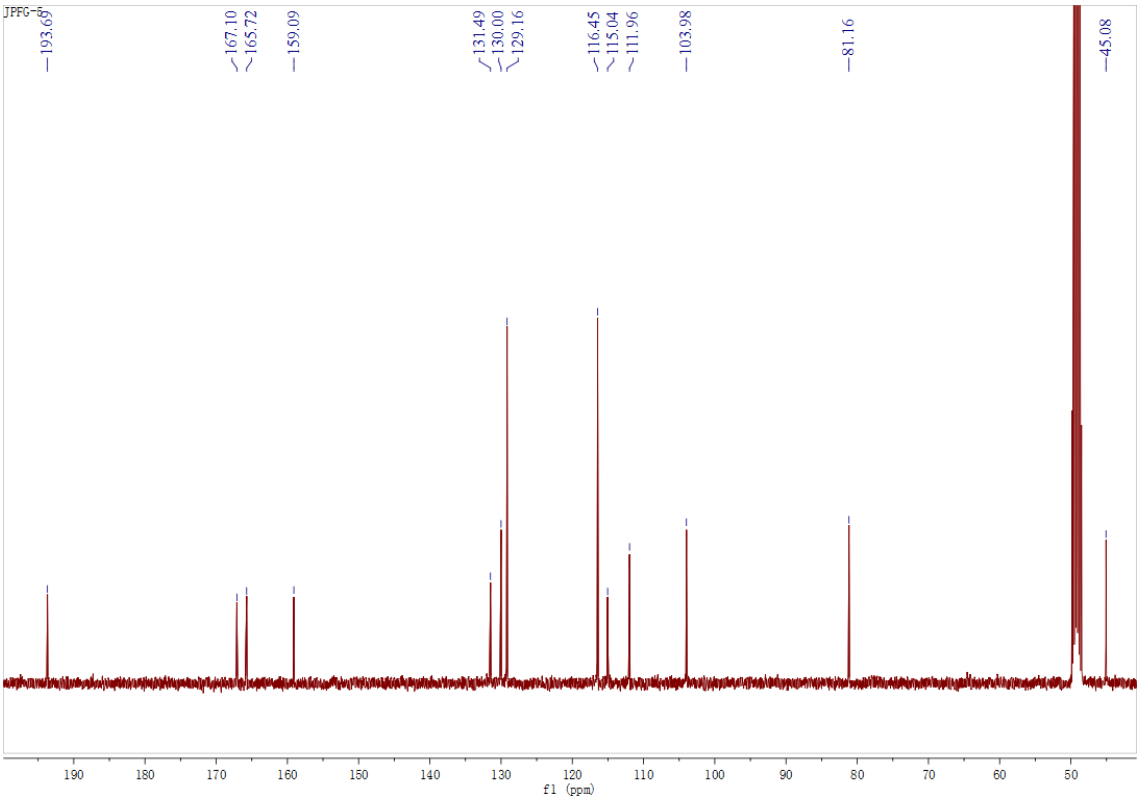


Fig. S26 The ^{13}C NMR spectrum of compound 6 (liquiritigenin)

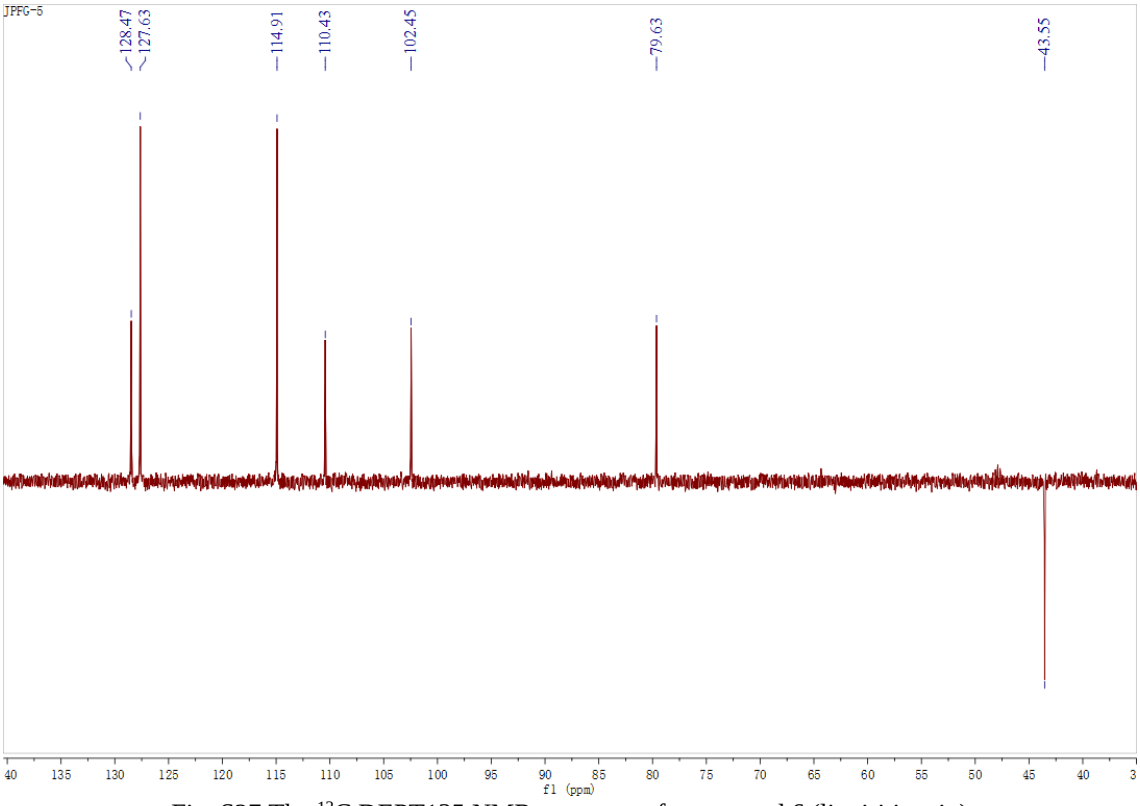


Fig. S27 The ^{13}C DEPT135 NMR spectrum of compound 6 (liquiritigenin)

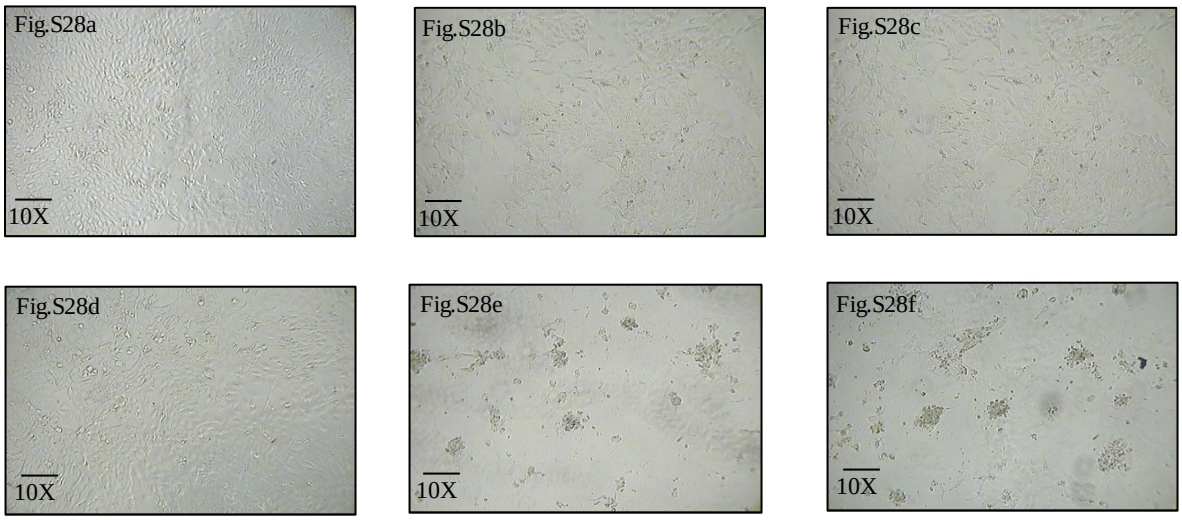


Fig. S28 Cytotoxic activity of compounds **(1-6)** on 4T1: (S28a) daidzin, (S28b) puerarin, (S28c) biochanin A, (S28d) daidzein, (S28e) p-coumaric acid etyl ester and (S28f) liquiritigenin

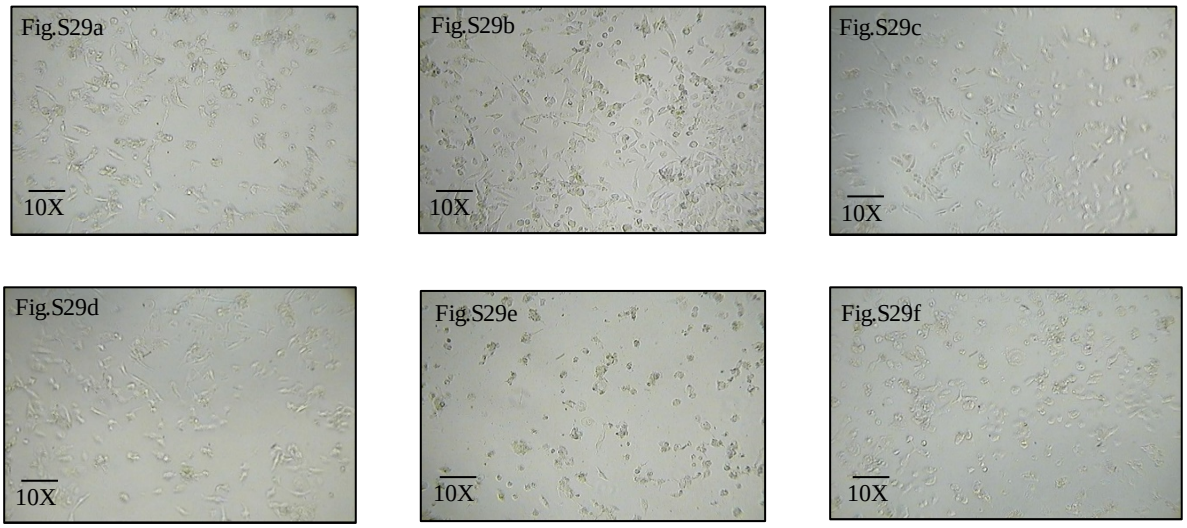
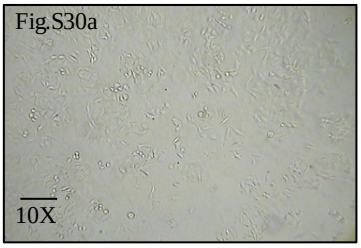
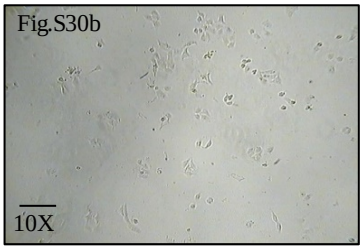


Fig. S29 Cytotoxic activity of compounds **(1-6)** on NC1-H1975: (S29a) daidzin, (S29b) puerarin, (S29c) biochanin A, (S29d) daidzein (S29e) p-coumaric acid etyl ester and (S29f) liquiritigenin





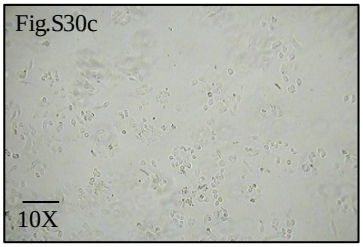
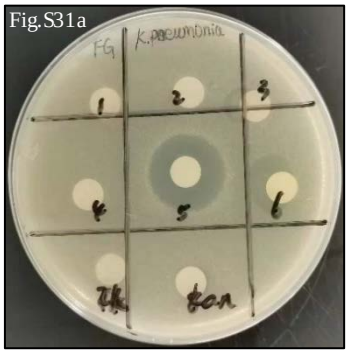
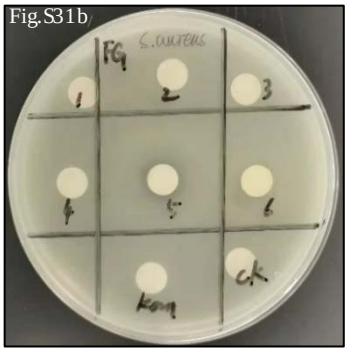


Fig. S30 Cytotoxic activity of compounds **(1-6)** on A549: (S30a) biochanin A, (S30b) p-coumaric acid ethyl ester and (S30c) liquiritigenin





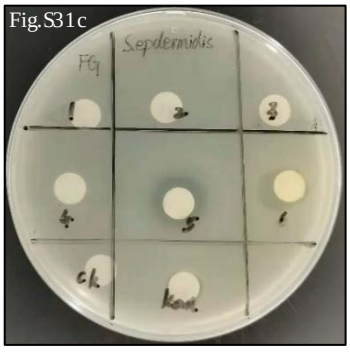


Fig. S31 Antibacterial activity of compounds (**1-6)** using disc diffusion assay (S31a). *K. pneumonia*, (S31b) MRSE and (S31c) MRSA