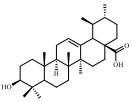
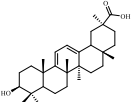
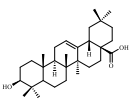
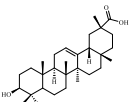
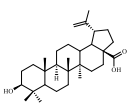
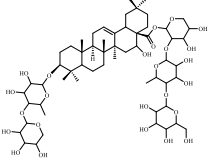
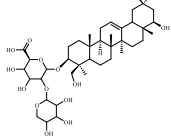
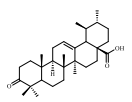
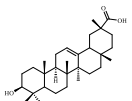
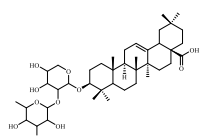
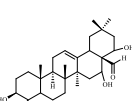
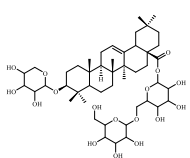
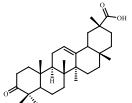
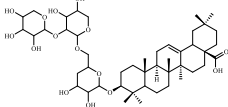
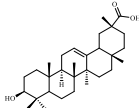
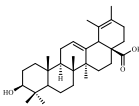
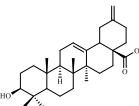
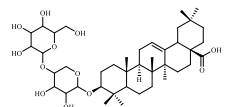
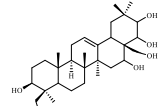
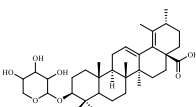
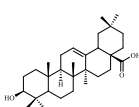
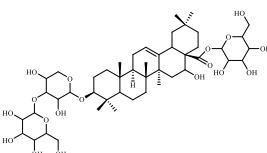
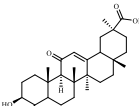
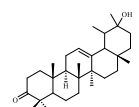
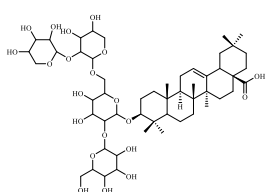
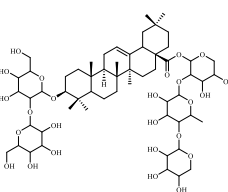
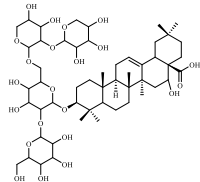
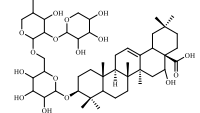
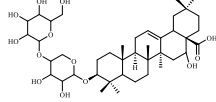
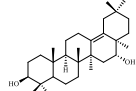
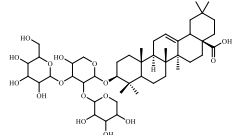
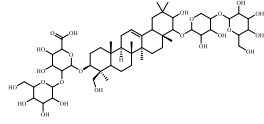
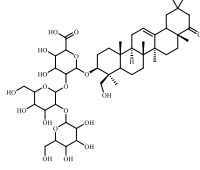
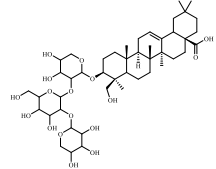
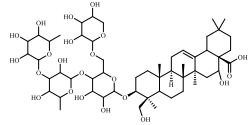
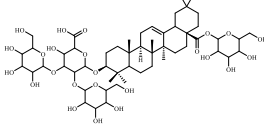
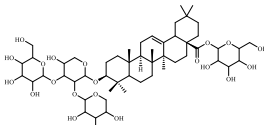


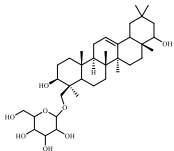
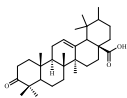
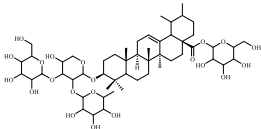
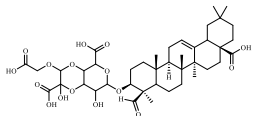
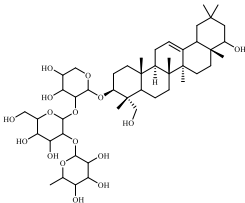
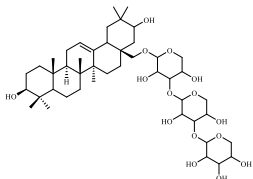
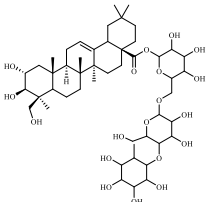
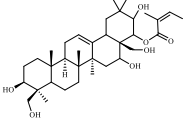
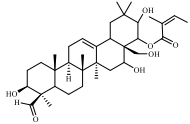
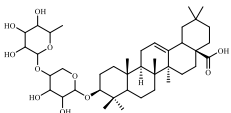
Table S3 The information of pentacyclic triterpenoids was obtained.

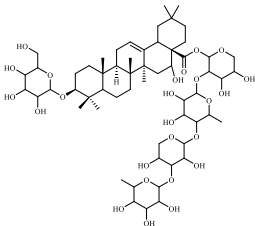
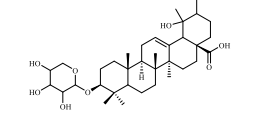
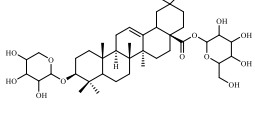
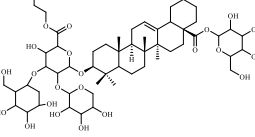
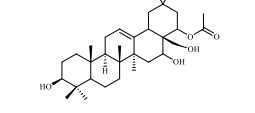
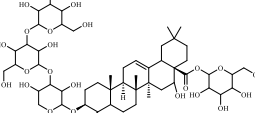
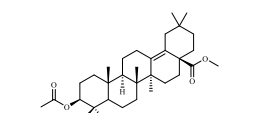
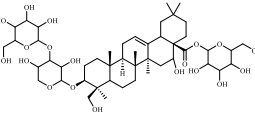
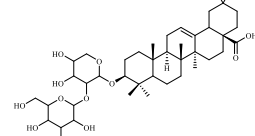
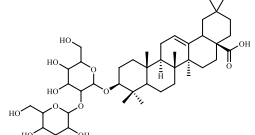
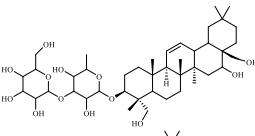
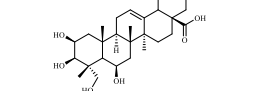
Structure	Compound ID	Name	Formula	<i>m/z</i>	Score
	HMDB0040860	Oleanolic acid 3-[rhamnosyl-(1->4)-glucosyl-(1->6)-glucoside]	C ₄₈ H ₇₈ O ₁₇	971.5	57.1
	HMDB0040826	Medinoside E	C ₅₄ H ₈₈ O ₂₃	1103.6	56.6
	HMDB0035034	Heliantriol B2	C ₃₀ H ₅₀ O ₃	441.3	56.5
	HMDB0036638	Albigenic acid	C ₃₀ H ₄₈ O ₄	473.3	56.5
	HMDB0034650	Soyasaponin II	C ₄₇ H ₇₆ O ₁₇	913.5	56.4
	HMDB0037065	3-Oxo-12,18-ursadien-28-oic acid	C ₃₀ H ₄₄ O ₃	453.3	56
	HMDB0041043	3alpha-Corosolic acid	C ₃₀ H ₄₈ O ₄	455.3	56
	LMPR0106150014	Glycyrrhetic acid	C ₃₀ H ₄₆ O ₄	453.3	55.7
	HMDB0041467	Melilotoside D	C ₅₂ H ₈₆ O ₂₀	1075.5	55.6
	HMDB0031357	Pitheduloside A	C ₄₁ H ₆₆ O ₁₃	767.4	55
	HMDB0038758	Glypallidifloric acid	C ₃₀ H ₄₆ O ₃	437.3	54.9

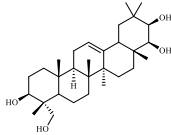
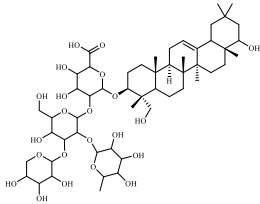
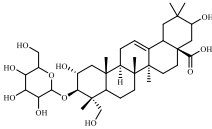
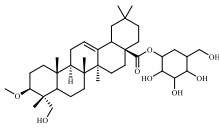
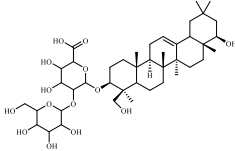
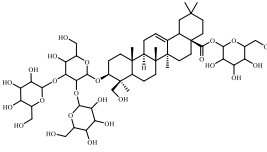
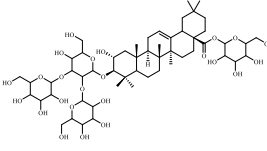
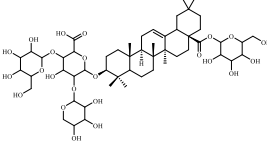
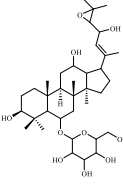
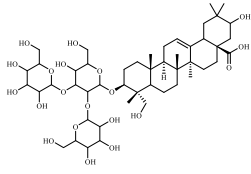
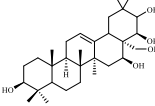
	LMPR010618000 7	ursolic acid	C ₃₀ H ₄₈ O ₃	457.3	54.9
	LMPR010615002 1	9(11)-Dehydroglycyrrhetic acid	C ₃₀ H ₄₆ O ₃	455.3	54.7
	HMDB0002364	Oleanolic acid	C ₃₀ H ₄₈ O ₃	457.3	54.7
	HMDB0034654	Katonic acid	C ₃₀ H ₄₈ O ₃	439.3	54.1
	LMPR010614000 4	Betulinic acid	C ₃₀ H ₄₈ O ₃	439.3	54
	HMDB0040617 5	Helianthoside B	C ₅₈ H ₉₄ O ₂	1189. 6	53.9
	HMDB0039518	Soyasaponin IV	C ₄₁ H ₆₆ O ₁ 3	765.4	53.6
	HMDB0036007	Ursonic acid	C ₃₀ H ₄₆ O ₃	455.3	53.5
	LMPR010615001 9	3-Epikatonic acid	C ₃₀ H ₄₈ O ₃	439.3	53.3
	HMDB0249131	beta-Hederin	C ₄₁ H ₆₆ O ₁ 1	779.4	53.3
	HMDB0034530	Priverogenin A	C ₃₀ H ₄₈ O ₄	455.3	53
	HMDB0036362 7	28-[Glucosyl]-(1->6)-glucosyl]oleanolic acid 3-arabinoside	C ₄₇ H ₇₆ O ₁	911.5	52.7
	HMDB0037054	Katonic acid	C ₃₀ H ₄₆ O ₃	455.3	52.7

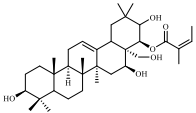
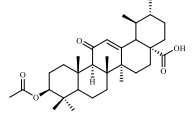
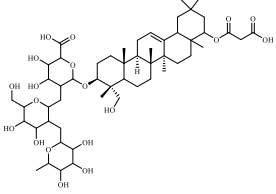
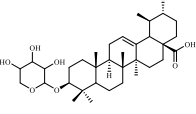
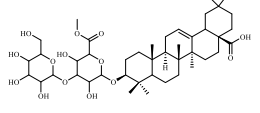
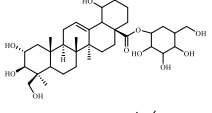
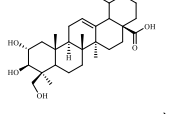
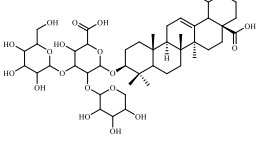
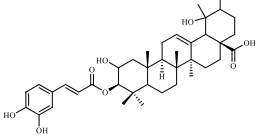
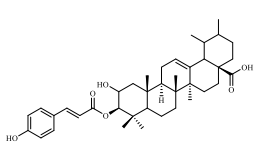
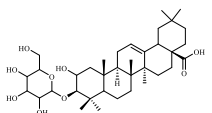
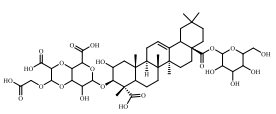
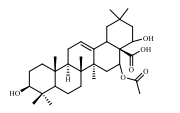
	HMDB0034865	Pitheduloside B	C ₄₆ H ₇₄ O ₁₆	863.4	52.6
	LMPR0106150016	11-Deoxoglycyrrhetic acid	C ₃₀ H ₄₈ O ₃	439.3	52.6
	HMDB0035808	Tomentosolic acid	C ₃₀ H ₄₆ O ₃	455.3	51.9
	HMDB0036653	Micromeric acid	C ₃₀ H ₄₆ O ₃	455.3	51.6
	HMDB0036357	Oleanolic acid 3-[glucosyl-(1->4)-xyloside]	C ₄₁ H ₆₆ O ₁₂	768.4	51.5
	HMDB0034519	Theasapogenol A	C ₃₀ H ₅₀ O ₆	489.3	51.4
	HMDB0037908	18-Dehydrousolic acid 3-arabinoside	C ₃₅ H ₅₄ O ₇	587.3	51.2
	HMDB0036962	3-Epioleanolic acid	C ₃₀ H ₄₈ O ₃	439.3	51.1
	HMDB0036476	Araliasaponin I	C ₄₇ H ₇₆ O ₁₈	909.4	51
	HMDB0034517	beta-Glycyrrhetic acid	C ₃₀ H ₄₆ O ₄	471.3	50.3
	HMDB0033727	gamma-Taraxastanol	C ₃₀ H ₅₀ O ₂	425.3	50.2
	HMDB0034866	Pitheduloside F	C ₅₂ H ₈₄ O ₂₁	1089.5	50.2
	HMDB0031164	Acutoside B	C ₅₈ H ₉₄ O ₂₆	1189.6	49.6

	HMDB0031990	Pitheduloside K	C ₅₂ H ₈₄ O ₂ 2	1078. 5	49.4
	HMDB0031358	Pitheduloside D	C ₄₆ H ₇₄ O ₁ 7	897.4	47.8
	HMDB0041233	Ursolic acid 3-[glucosyl-(1->4)-xyloside]	C ₄₁ H ₆₆ O ₁ 2	751.4	47.8
	HMDB0034664	Coflodiol	C ₃₀ H ₅₀ O ₂	425.3	47.5
	HMDB0040852	Elatoside E	C ₄₆ H ₇₄ O ₁ 6	883.5	46.7
	HMDB0038607	Soyasaponin A2	C ₅₃ H ₈₆ O ₂ 4	1105. 5	46.6
	HMDB0031884	Sandosaponin A	C ₄₈ H ₇₆ O ₁ 9	955.4	45.6
	HMDB0034547	Medicoside C	C ₄₆ H ₇₄ O ₁ 7	943.4	45.6
	HMDB0040945	Helianthoside A	C ₅₃ H ₈₆ O ₂ 1	1076. 5	45.2
	HMDB0034868	Calendulaglycoside A	C ₅₄ H ₈₆ O ₂ 4	1117.5	45.2
	HMDB0040849	Caraganoside A	C ₅₂ H ₈₄ O ₂ 1	1089. 5	44.5

	HMDB0039520	Soyasapogenol B 24-O-beta-D-glucoside	C ₃₆ H ₆₀ O ₈	621.4	43.3
	HMDB0035912	Pomonic acid	C ₃₀ H ₄₆ O ₄	471.3	43.2
	HMDB0040963	Matesaponin 2	C ₅₃ H ₈₆ O ₂ 1	1057. 5	42.4
	HMDB0039400	Basellasaponin B	C ₄₇ H ₆₈ O ₂ 1	1013. 4	40.5
	HMDB0041466	Melilotoside C	C ₄₇ H ₇₈ O ₁ 6	879.5	40.5
	HMDB0033641	(3b,21b)-12-Oleanene-3,21,28-triol 28-[arabinosyl-(1->3)-arabinosyl-(1->3)-arabinoside]	C ₄₅ H ₇₄ O ₁ 5	899.4	39.6
	985643	ASIATICOSIDE	C ₄₈ H ₇₈ O ₁ 9	957.5	38.9
	HMDB0032831	22-Angeloyltheasapogenol A	C ₃₅ H ₅₆ O ₇	571.3	38.8
	HMDB0032832	(3b,16a,21b,22a)-12-Oleanene-3,16,21,23,28-pentol-22-angeloyloxy-23-al	C ₃₅ H ₅₄ O ₇	587.3	38.8
	HMDB0034538	Mubenin B	C ₄₁ H ₆₆ O ₁ 1	752.4	38.8

	44396	CHRYSANTHELLIN A	C ₅₈ H ₉₄ O ₂ 5	1191. 6	38.7
	HMDB0034374	19-Methoxypomolic acid 3-arabinoside	C ₃₆ H ₅₈ O ₈	619.4	38.7
	HMDB0036963	28-Glucosyloleanolic acid 3-arabinoside	C ₄₁ H ₆₆ O ₁ 2	768.4	38.7
	HMDB0039418	Congmunoside XIV	C ₅₇ H ₉₂ O ₂ 3	1145. 6	38.3
	HMDB0034645	22-Acetylpriverogenin B	C ₃₂ H ₅₂ O ₅	517.3	38.3
	HMDB0036477	Araliasaponin III	C ₅₃ H ₈₆ O ₂ 3	1089. 5	38.2
	HMDB0035267	Methyl 3b-hydroxy- 13(18)-oleanen-28-oate	C ₃₃ H ₅₂ O ₄	535.3	38.2
	HMDB0036968	Araliasaponin II	C ₄₇ H ₇₆ O ₁ 9	943.4	38.1
	73571	Cauloside C	C ₄₁ H ₆₆ O ₁ 3	767.4	38
	HMDB0031021	Acutoside A	C ₄₂ H ₆₈ O ₁ 3	798.4	37.9
	HMDB0242746	Saikosaponin A	C ₄₂ H ₆₈ O ₁ 3	798.4	37.9
	LMPR010615003 5	Protobassic acid	C ₃₀ H ₄₈ O ₆	505.3	37.8

	HMDB0034505	Soyasapogenol A	C ₃₀ H ₅₀ O ₄	475.3	37.7
	HMDB0031965	Melilotussaponin O1	C ₅₃ H ₈₆ O ₂ 2	1119.5	37.7
	HMDB0032836	Lucyoside R	C ₃₆ H ₅₈ O ₁ 1	649.3	37.7
	HMDB0036966	28-Glucopyranosyl-3-methyloleanolic acid	C ₃₇ H ₆₀ O ₈	677.4	37.7
	HMDB0034651	Soyasaponin III	C ₄₂ H ₆₈ O ₁ 4	795.4	37.7
	HMDB0039412	Araliasaponin V	C ₅₄ H ₈₈ O ₂ 3	1103.5	37.6
	HMDB0040858	Elatoside D	C ₅₄ H ₈₆ O ₂ 4	1117.5	37.6
	HMDB0031027	Tuberoside B	C ₅₃ H ₈₄ O ₂ 3	1133.5	37.6
	HMDB0039049	Notoginsenoside T1	C ₃₆ H ₆₀ O ₁ 0	675.4	37.6
	HMDB0031376	Congmuyenoside A	C ₄₈ H ₇₈ O ₁ 9	957.5	37.5
	HMDB0034525	Barringtonol C	C ₃₀ H ₅₀ O ₅	491.3	37.4

	HMDB0032835	22-Angeloylbarringtonenol C	C ₃₅ H ₅₆ O ₆	617.4	37.4
	44498	11-OXOURSOLIC ACID ACETATE	C ₃₂ H ₄₈ O ₅	551.3	37.3
	HMDB0038316	Pisumsaponin I	C ₅₁ H ₈₀ O ₂ 1	1009. 5	37.2
	HMDB0040524	Sanguisorbin B	C ₃₅ H ₅₆ O ₇	589.4	37.2
	HMDB0041018	Calendulose G methyl ester	C ₄₃ H ₆₈ O ₁ 4	853.4	37.1
	HMDB0034504	Sericoside	C ₃₆ H ₅₈ O ₁ 1	667.4	37.1
	HMDB0034501	Tomentosic acid	C ₃₀ H ₄₈ O ₆	505.3	37
	HMDB0030976	Durupcoside B	C ₄₇ H ₇₄ O ₁ 8	925.4	36.9
	HMDB0040650	3-trans-Caffeoyltormentic acid	C ₃₉ H ₅₄ O ₈	631.3	36.9
	HMDB0040495	cis-p-Coumaroylcorosolic acid	C ₃₉ H ₅₄ O ₆	619.3	36.8
	HMDB0029606	Maslinic acid 3-O-b-D- glucoside	C ₃₆ H ₅₈ O ₉	617.4	36.8
	HMDB0039401	Basellasaponin C	C ₄₇ H ₆₈ O ₂ 2	983.4	36.7
	HMDB0034529	16-Acetylpriverogenin A	C ₃₂ H ₅₀ O ₅	515.3	36.7

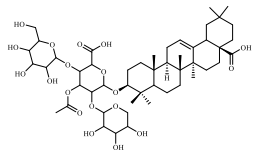
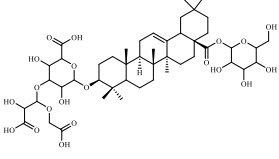
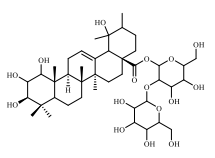
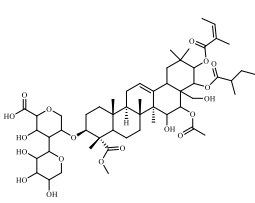
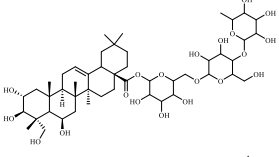
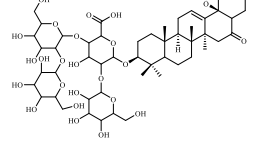
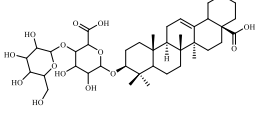
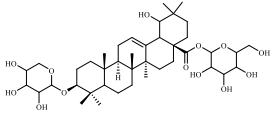
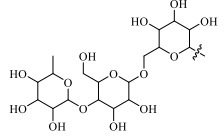
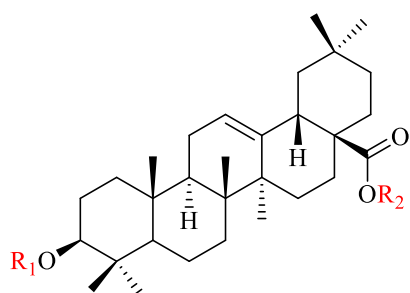
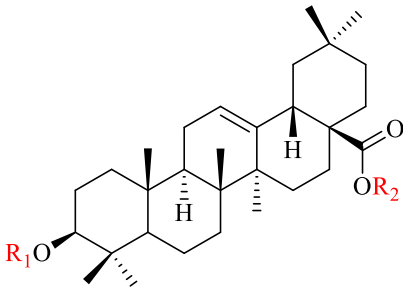
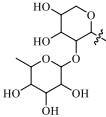
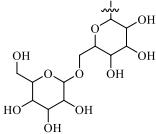
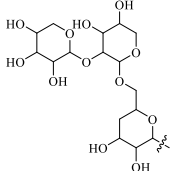
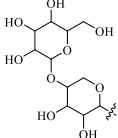
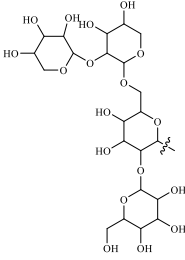
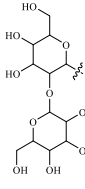
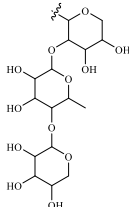
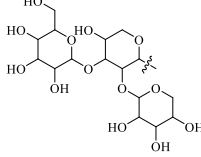
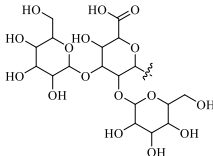
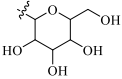
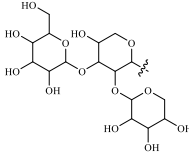
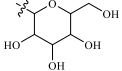
	HMDB0038342	Goyasaponin III	C ₄₉ H ₇₆ O ₁₉	949.4	36.6
	HMDB0033426	Betavulgaroside VI	C ₄₇ H ₇₂ O ₂₁	1011.4	36.6
	HMDB0035449	1beta,2alpha,3beta,19alpha-Tetrahydroxy-12-ursen-28-oic acid 28-O-[b-D-Glucopyranosyl-(1->2)-b-D-glucopyranosyl] ester	C ₄₂ H ₆₈ O ₁₆	829.4	36.5
	HMDB0035343	TR-Saponin C	C ₅₄ H ₈₂ O ₂₁	1111.5	36.4
	86571	Asiaticoside B	C ₄₈ H ₇₈ O ₂₀	973.5	36.3
	HMDB0034926	Camellidin I	C ₅₅ H ₈₆ O ₂₅	1145.5	36.3
	HMDB0033174	Calendulaglycoside E	C ₄₂ H ₆₆ O ₁₄	817.4	36.1
	HMDB0037909	28-Glucosylsarsinolate 3-arabinoside	C ₄₁ H ₆₆ O ₁₃	749.4	36.1

Table S4 Identification of triterpenoid saponin metabolites consistent with the core structure of compound CFT1.

Structure	Name	R ₁	R ₂
	Oleanolic acid	-H	-H
	Oleanolic acid 3-[rhamnosyl-(1->4)-glucosyl-(1->6)-glucoside]		-H



	beta-Hederin		-H
	28-[Glucosyl-(1->6)-glucosyl]oleanolic acid 3-arabinoside		
	Pitheduloside B		-H
	Oleanolic acid 3-[glucosyl-(1->4)-xyloside]		-H
	Pitheduloside F		-H
	Acutoside B		
	Elatoside E		-H
	Calendulaglycoside A		
	Caraganoside A		

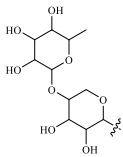
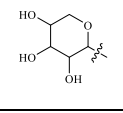
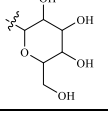
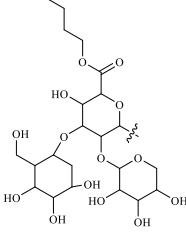
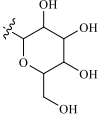
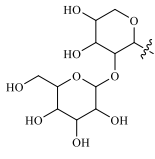
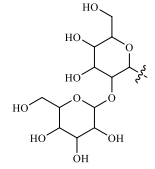
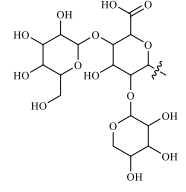
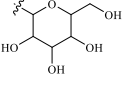
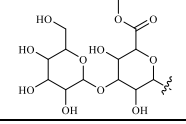
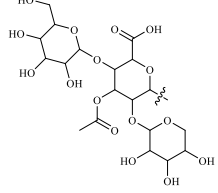
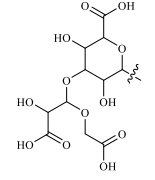
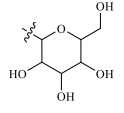
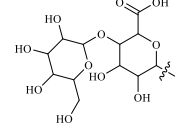
	Mubenin B		-H
	28- Glucosyloleanolic acid 3-arabinoside		
	Congmunoside XIV		
	Cauloside C		-H
	Acutoside A		-H
	Tuberoside B		
	Calendulose G methyl ester		-H
	Goyasaponin III		-H
	Betavulgaroside VI		
	Calendulaglycoside E		-H

Table S6. The summary of the *C. florida* var. *plena* transcriptome.

Transcript	Unigene
Total number of genes	36982
Total length of unigenes(bp)	44667931
Average length of unigenes (bp)	1207.83
N50 (bp)	1757
CDS	28591
SSRs	7562

Table S7. The statistics of annotation on unigenes against public databases..

Database	Number of Annotated Unigenes	Percentage of Annotated Unigenes (%)
Nr	22877	61.86 %
Swissprot	17221	46.57 %
KEGG	4976	13.46 %
KOG	13299	35.96 %
eggNOG	21011	56.81 %
GO	14705	39.76 %
Pfam	15807	42.74 %