

Integrating Enhanced Profiling and Chemometrics to Unveil the Potential Markers for Differentiating Among the Leaves of *Panax ginseng*, *P. quinquefolius* and *P. notoginseng* by Ultra-high Performance Liquid Chromatography/Ion Mobility-Quadrupole Time-of-flight Mass Spectrometry

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Contents

Figure S1 Chemical structures of 60 reference compounds of ginsenosides (**PPT**: protopanaxatriol; **PPD**: protopanaxadiol; **OA**: oleanolic acid; **OT**: ocotillol).

Figure S2 Method development of the UHPLC/IM-QTOF-MS approach by comparing the influence of column temperature (25–40°C) on the separation of ginsenosides from the QC1 sample, by using the BEH Shield RP18 column.

Figure S3 Method development of the UHPLC/IM-QTOF-MS approach by optimizing ramp collision energy (RCE) for HDMS^E of the hybrid scan approach on the Vion IM-QTOF mass spectrometer, to characterize ginsenosides in the negative mode.

Figure S4 Method development of the UHPLC/IM-QTOF-MS approach by optimizing mass-dependent ramp collision energy (MDRCE) for HDDDA of the hybrid scan approach on the Vion IM-QTOF mass spectrometer, to characterize ginsenosides in the negative mode.

Figure S5 PCA score plot for the multivariate statistical analysis of 33 batches of leaf samples representative of PGL, PQL, and PNL.

Table S1 Information of the 33 batches of the leaf samples for *Panax ginseng*, *Panax quinquefolius*, and *Panax notoginseng* analyzed in this work.

Table S2 Information for 60 ginsenoside reference compounds used in this work.

Table S3 Detailed information for the precursor ions list (PIL) used in the data acquisition approach of the hybrid scan approach.

Table S4 Detailed information of the 342 ginsenoside compounds characterized from the leaves of *Panax ginseng*, *Panax quinquefolius*, and *Panax notoginseng*.

Table S5 Detailed information of 42 potential ginsenoside markers diagnostic for differentiating among PGL, PQL, and PNL.

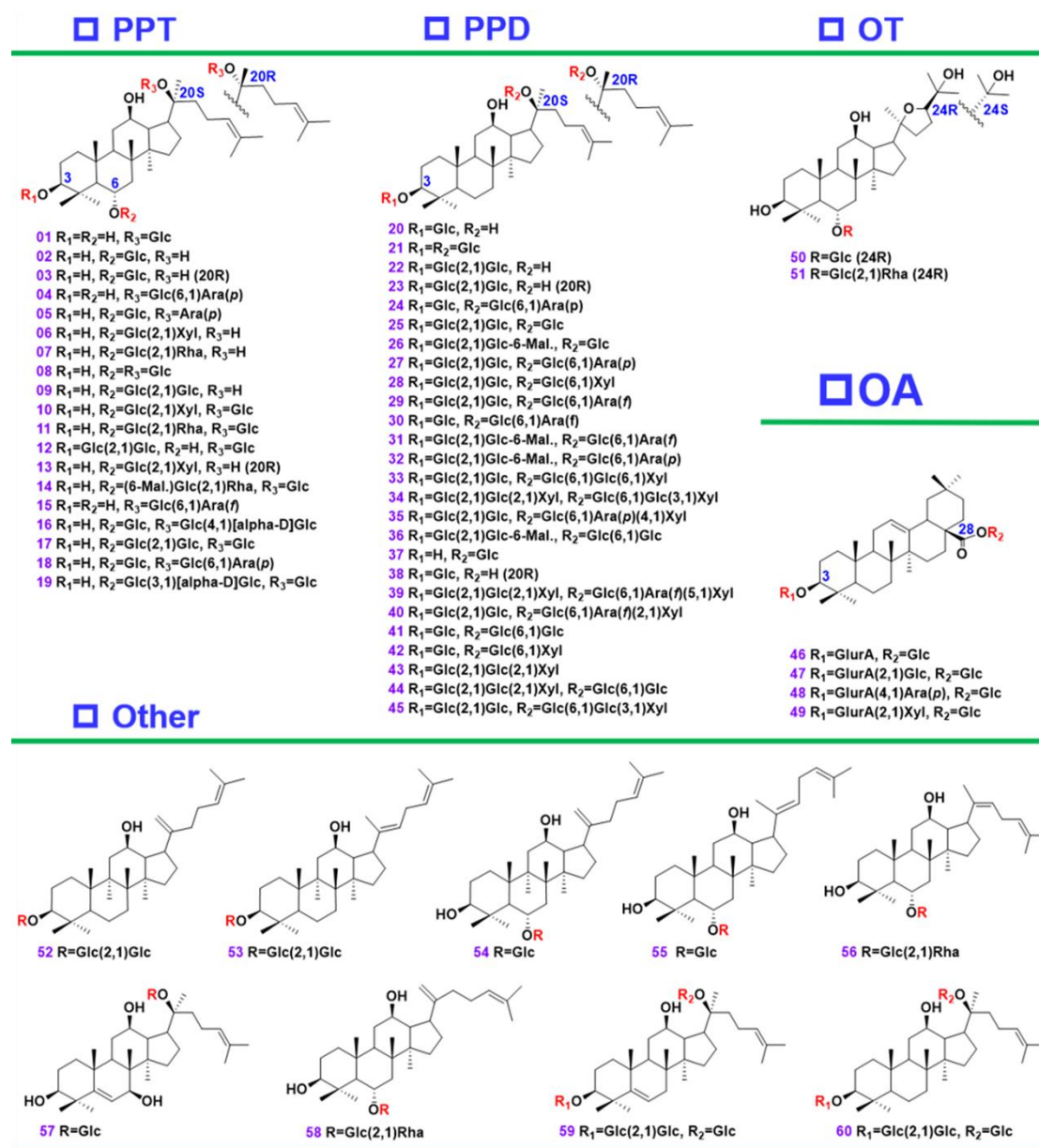


Figure S1 Chemical structures of 60 reference compounds of ginsenosides (**PPT**: protopanaxatriol; **PPD**: protopanaxadiol; **OA**: oleanolic acid; **OT**: ocotillol).

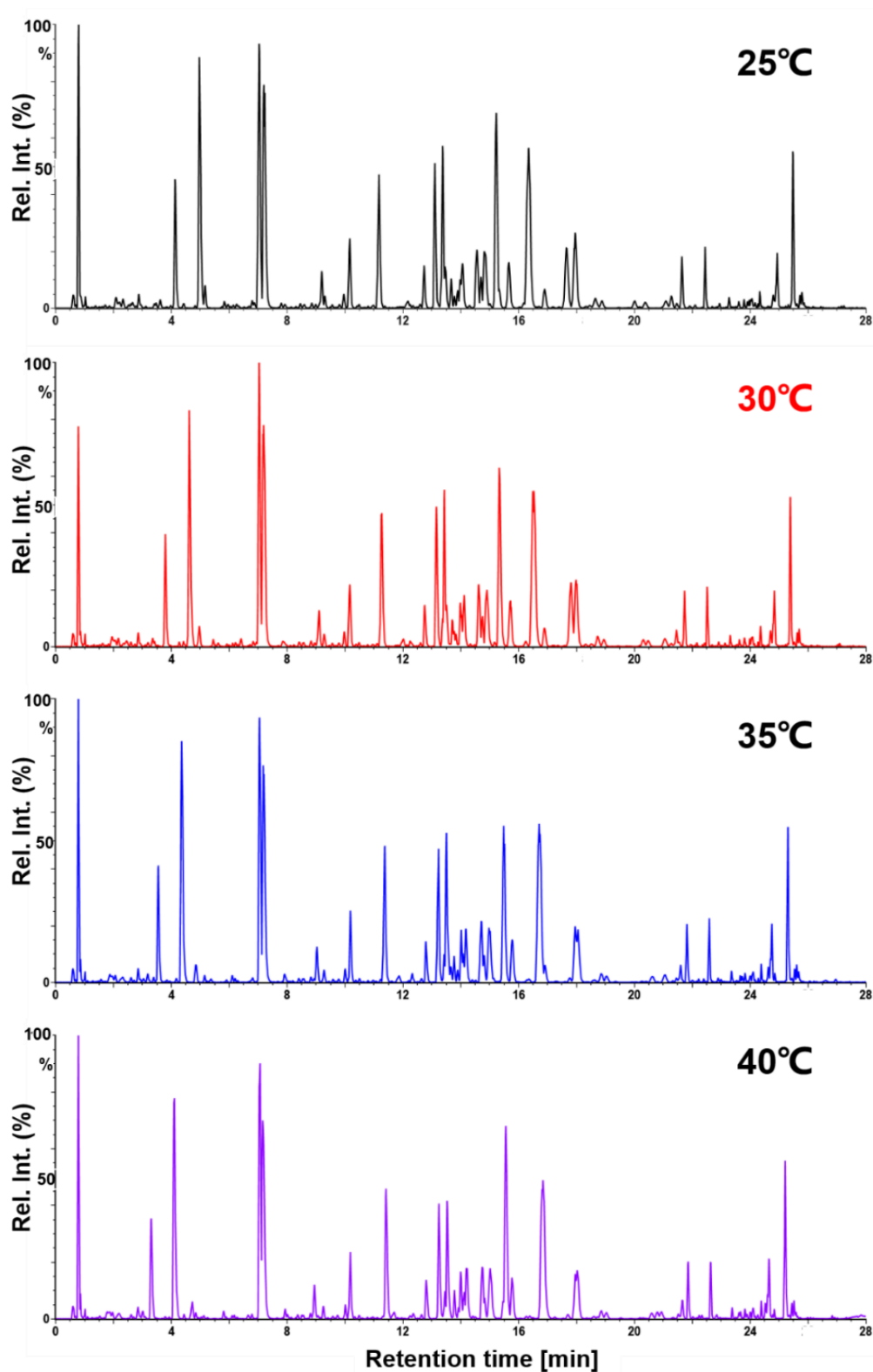


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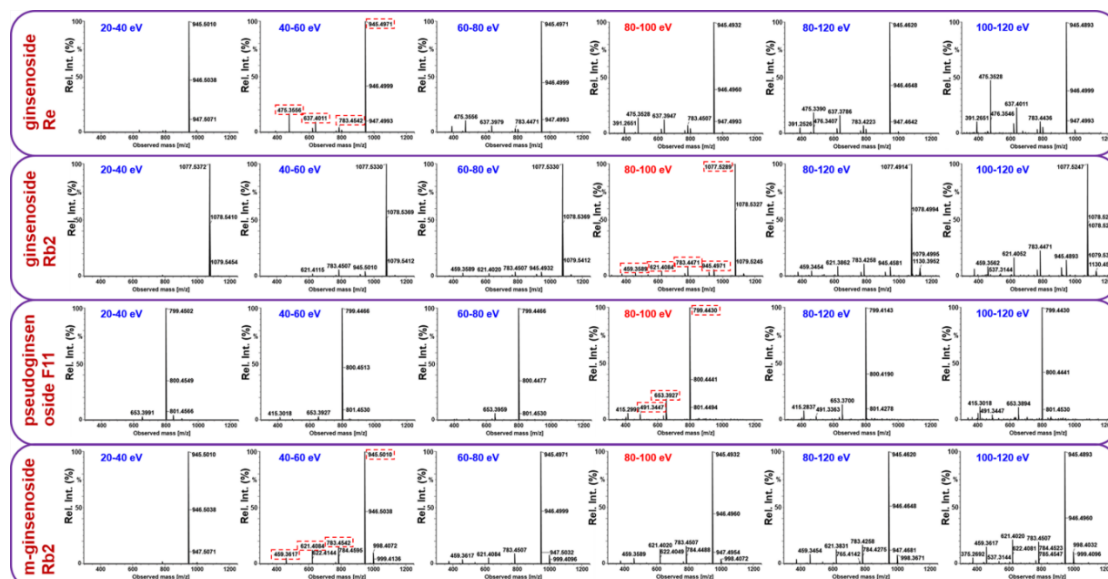


Figure S3 Method development of the UHPLC/IM-QTOF-MS approach by optimizing ramp collision energy (RCE) for HDMS^E of the hybrid scan approach on the Vion IM-QTOF mass spectrometer, to characterize ginsenosides in the negative mode.

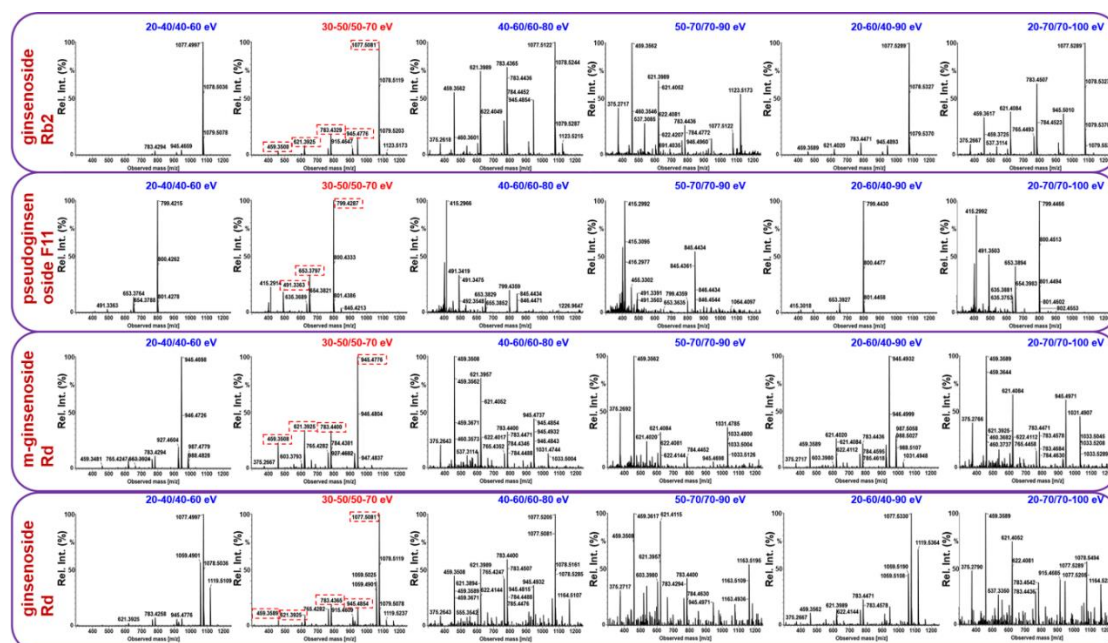


Figure S4 Method development of the UHPLC/IM-QTOF-MS approach by optimizing mass-dependent ramp collision energy (MDRCE) for HDDDA of the hybrid scan approach on the Vion IM-QTOF mass spectrometer, to characterize ginsenosides in the negative mode.

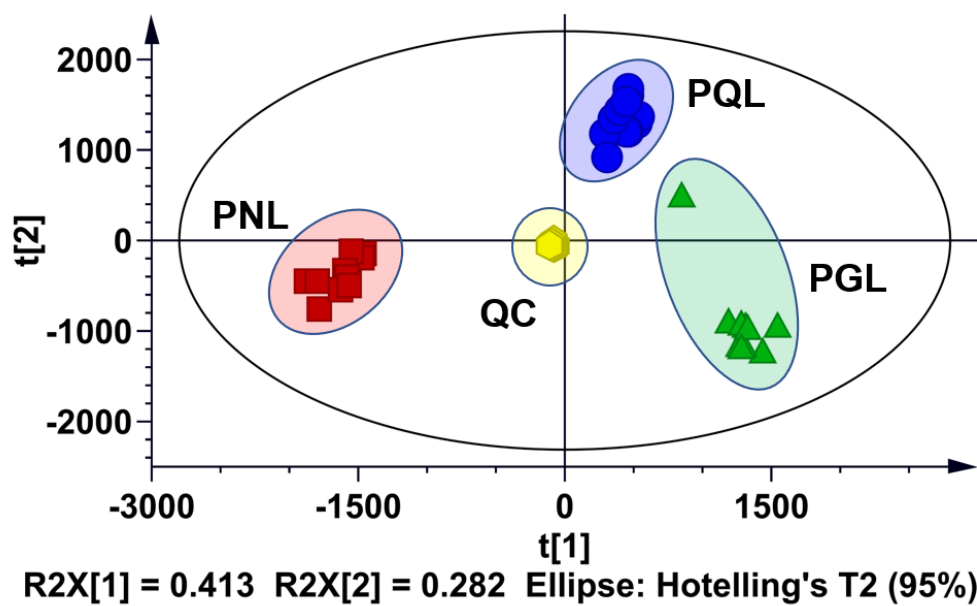


Figure S5 PCA score plot for the multivariate statistical analysis of 33 batches of leaf samples representative of PGL, PQL, and PNL.

Table S1 Information of the 33 batches of the leaf samples for *Panax ginseng*, *Panax quinquefolius*, and *Panax notoginseng* analyzed in this work.

No.	Label	Producing Region	Collection Time
1	PQ-1	Baishan City, Jilin Province	2018.10
2	PQ-2	Baishan City, Jilin Province	2018.10
3	PQ-3	Baishan City, Jilin Province	2018.10
4	PQ-4	Baishan City, Jilin Province	2018.10
5	PQ-5	Baishan City, Jilin Province	2018.10
6	PQ-6	Baishan City, Jilin Province	2018.10
7	PQ-7	Baishan City, Jilin Province	2018.10
8	PQ-8	Baishan City, Jilin Province	2018.10
9	PQ-9	Baishan City, Jilin Province	2018.10
10	PQ-10	Baishan City, Jilin Province	2018.10
11	PQ-11	Baishan City, Jilin Province	2018.10
12	PN-1	Wenshan City, YunNan Province	2018.09
13	PN-2	Wenshan City, YunNan Province	2018.09
14	PN-3	Wenshan City, YunNan Province	2018.09
15	PN-4	Wenshan City, YunNan Province	2018.09
16	PN-5	Wenshan City, YunNan Province	2018.09
17	PN-6	Wenshan City, YunNan Province	2018.09
18	PN-7	Wenshan City, YunNan Province	2018.09
19	PN-8	Wenshan City, YunNan Province	2018.09
20	PN-9	Wenshan City, YunNan Province	2018.09
21	PN-10	Wenshan City, YunNan Province	2018.09
22	PN-11	Wenshan City, YunNan Province	2018.09
23	PG-1	Baishan City, Jilin Province	2018.09
24	PG-2	Baishan City, Jilin Province	2018.09
25	PG-3	Baishan City, Jilin Province	2018.09
26	PG-4	Baishan City, Jilin Province	2018.09
27	PG-5	Baishan City, Jilin Province	2018.09
28	PG-6	Baishan City, Jilin Province	2018.09
29	PG-7	Baishan City, Jilin Province	2018.09
30	PG-8	Baishan City, Jilin Province	2018.09
31	PG-9	Baishan City, Jilin Province	2018.09
32	PG-10	Baishan City, Jilin Province	2018.09
33	PG-11	Baishan City, Jilin Province	2018.09

Table S2 Information for 60 ginsenoside reference compounds used in this work.

No.	Trivial name	M.F.	Exact Mass	Subclass
1	ginsenoside F1	C ₃₆ H ₆₂ O ₉	638.4394	PPT
2	ginsenoside Rh1	C ₃₆ H ₆₂ O ₉	638.4394	
3	20(<i>R</i>)-ginsenoside Rh1	C ₃₆ H ₆₂ O ₉	638.4394	
4	ginsenoside F3	C ₄₁ H ₇₀ O ₁₃	770.4816	
5	20(<i>S</i>)-sanchirrhinoside A ₃	C ₄₁ H ₇₀ O ₁₃	770.4816	
6	notoginsenoside R2	C ₄₁ H ₇₀ O ₁₃	770.4816	
7	ginsenoside Rg2	C ₄₂ H ₇₂ O ₁₃	784.4973	
8	ginsenoside Rg1	C ₄₂ H ₇₂ O ₁₄	800.4922	
9	ginsenoside Rf	C ₄₂ H ₇₂ O ₁₄	800.4922	
10	notoginsenoside R1	C ₄₇ H ₈₀ O ₁₈	932.5345	
11	ginsenoside Re	C ₄₈ H ₈₂ O ₁₈	946.5501	
12	vinaginsenoside R4	C ₄₈ H ₈₂ O ₁₉	962.5450	
13	20(<i>R</i>)-notoginsenoside R2	C ₄₁ H ₇₀ O ₁₃	770.4816	
14	malonyl-floralginsenoside Re1	C ₅₁ H ₈₄ O ₂₁	1032.5505	
15	ginsenoside F5	C ₄₁ H ₇₀ O ₁₃	770.4816	
16	ginsenoside Re3	C ₄₈ H ₈₂ O ₁₉	962.5450	
17	20- <i>O</i> -glucosyl-ginsenoside Rf	C ₄₈ H ₈₂ O ₁₉	962.5450	
18	notoginsenoside Fp1	C ₄₇ H ₈₀ O ₁₈	932.5345	
19	ginsenoside Re2	C ₄₈ H ₈₂ O ₁₉	962.5450	
20	ginsenoside Rh2	C ₃₆ H ₆₂ O ₈	622.4445	PPD
21	ginsenoside F2	C ₄₂ H ₇₂ O ₁₃	784.4973	
22	20(<i>S</i>)-ginsenoside Rg3	C ₄₂ H ₇₂ O ₁₃	784.4973	
23	20(<i>R</i>)-ginsenoside Rg3	C ₄₂ H ₇₂ O ₁₃	784.4973	
24	ginsenoside Rd2	C ₄₇ H ₈₀ O ₁₇	916.5396	
25	ginsenoside Rd	C ₄₈ H ₈₂ O ₁₈	946.5501	
26	malonyl-ginsenoside Rd	C ₅₁ H ₈₄ O ₂₁	1032.5505	
27	ginsenoside Rb2	C ₅₃ H ₉₀ O ₂₂	1078.5924	
28	ginsenoside Rb3	C ₅₃ H ₉₀ O ₂₂	1078.5924	
29	ginsenoside Rc	C ₅₃ H ₉₀ O ₂₂	1078.5924	
30	notoginsenoside Fe	C ₄₇ H ₈₀ O ₁₇	916.5396	
31	malonyl-ginsenoside Rc	C ₅₆ H ₉₂ O ₂₅	1164.5928	
32	malonyl-ginsenoside Rb2	C ₅₆ H ₉₂ O ₂₅	1164.5928	
33	notoginsenoside R4	C ₅₉ H ₁₀₀ O ₂₇	1240.6452	

34	notoginsenoside T	C ₆₄ H ₁₀₈ O ₃₁	1372.6875	OA
35	ginsenoside Ra1	C ₅₈ H ₉₈ O ₂₆	1210.6346	
36	malonyl-ginsenoside Rb1	C ₅₇ H ₉₄ O ₂₆	1194.6033	
37	compound K	C ₃₆ H ₆₂ O ₈	622.4445	
38	20(<i>R</i>)-ginsenoside Rh2	C ₃₆ H ₆₂ O ₈	622.4445	
39	notoginsenoside S	C ₆₃ H ₁₀₆ O ₃₀	1342.6769	
40	ginsenoside Ra2	C ₅₈ H ₉₈ O ₂₆	1210.6346	
41	gypenoside XVII	C ₄₈ H ₈₂ O ₁₈	946.5501	
42	notoginsenoside Fd	C ₄₇ H ₈₀ O ₁₇	916.5396	
43	notoginsenoside Ft1	C ₄₇ H ₈₀ O ₁₇	916.5396	
44	notoginsenoside Fa	C ₅₉ H ₁₀₀ O ₂₇	1240.6452	
45	ginsenoside Ra3	C ₅₉ H ₁₀₀ O ₂₇	1240.6452	
46	chikusetsusaponin IVa	C ₄₂ H ₆₆ O ₁₄	794.4453	
47	ginsenoside Ro	C ₄₈ H ₇₆ O ₁₉	956.4981	
48	chikusetsusaponin IV	C ₄₇ H ₇₄ O ₁₈	926.4875	
49	pseudoginsenoside Rt1	C ₄₇ H ₇₄ O ₁₈	926.4875	OT
50	24(<i>R</i>)-pseudoginsenoside Rt5	C ₃₆ H ₆₂ O ₁₀	654.4343	
51	24(<i>R</i>)-pseudoginsenoside F11	C ₄₂ H ₇₂ O ₁₄	800.4922	Other
52	ginsenoside Rk1	C ₄₂ H ₇₀ O ₁₂	766.4868	
53	ginsenoside Rg5	C ₄₂ H ₇₀ O ₁₂	766.4868	
54	ginsenoside Rk3	C ₃₆ H ₆₀ O ₈	620.4288	
55	ginsenoside Rh4	C ₃₆ H ₆₀ O ₈	620.4288	
56	(20 <i>E</i>)-ginsenoside F4	C ₄₂ H ₇₀ O ₁₂	766.4867	
57	ginsenoside Rh7	C ₃₆ H ₆₀ O ₉	636.4237	
58	ginsenoside Rg6	C ₄₂ H ₇₀ O ₁₂	766.4867	
59	5,6-didehydroginsenoside Rd	C ₄₈ H ₈₀ O ₁₈	944.5345	
60	vinaginsenoside R8	C ₄₈ H ₈₂ O ₁₉	962.5450	

Table S3 Detailed information for the precursor ions list (PIL) used in the data acquisition approach of the hybrid scan approach.

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
1	437.2909	C ₂₄ H ₄₀ O ₄	Chemical formula	+HCOO	Negative
2	503.3378	C ₂₉ H ₄₆ O ₄	Chemical formula	+HCOO	Negative
3	503.3742	C ₃₀ H ₅₀ O ₃	Chemical formula	+HCOO	Negative
4	505.3899	C ₃₀ H ₅₂ O ₃	Chemical formula	+HCOO	Negative
5	517.3535	C ₃₀ H ₄₈ O ₄	Chemical formula	+HCOO	Negative
6	519.3691	C ₃₀ H ₅₀ O ₄	Chemical formula	+HCOO	Negative
7	521.3848	C ₃₀ H ₅₂ O ₄	Chemical formula	+HCOO	Negative
8	523.4004	C ₃₀ H ₅₄ O ₄	Chemical formula	+HCOO	Negative
9	533.3484	C ₃₀ H ₄₈ O ₅	Chemical formula	+HCOO	Negative
10	535.3640	C ₃₀ H ₅₀ O ₅	Chemical formula	+HCOO	Negative
11	537.3797	C ₃₀ H ₅₂ O ₅	Chemical formula	+HCOO	Negative
12	537.4161	C ₃₁ H ₅₆ O ₄	Chemical formula	+HCOO	Negative
13	549.4161	C ₃₂ H ₅₆ O ₄	Chemical formula	+HCOO	Negative
14	551.4317	C ₃₂ H ₅₈ O ₄	Chemical formula	+HCOO	Negative
15	553.3746	C ₃₀ H ₅₂ O ₆	Chemical formula	+HCOO	Negative
16	553.4110	C ₃₁ H ₅₆ O ₅	Chemical formula	+HCOO	Negative
17	563.3953	C ₃₂ H ₅₄ O ₅	Chemical formula	+HCOO	Negative
18	583.3488	C ₃₀ H ₅₀ O ₈	Chemical formula	+HCOO	Negative
19	599.3437	C ₃₀ H ₅₀ O ₉	Chemical formula	+HCOO	Negative
20	611.3801	C ₃₂ H ₅₄ O ₈	Chemical formula	+HCOO	Negative
21	617.4059	C ₃₆ H ₅₈ O ₈	Chemical formula	–H	Negative
22	619.4427	C ₃₂ H ₆₂ O ₈	Chemical formula	+HCOO	Negative

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
23	625.3593	C ₃₂ H ₅₂ O ₉	Chemical formula	+HCOO	Negative
24	633.4008	C ₃₆ H ₅₈ O ₉	Chemical formula	–H	Negative
25	635.4165	C ₃₅ H ₅₈ O ₇	Chemical formula	+HCOO	Negative
26	635.5409	C ₄₂ H ₇₀ O	Chemical formula	+HCOO	Negative
27	649.4321	C ₃₆ H ₆₀ O ₇	Chemical formula	+HCOO	Negative
28	663.4266	C ₄₀ H ₅₈ O ₅	Chemical formula	+HCOO	Negative
29	665.4270	C ₃₆ H ₆₀ O ₈	Chemical formula	+HCOO	Negative
30	666.3985	C ₃₅ H ₅₇ O ₉	Chemical formula	+HCOO	Negative
31	667.4427	C ₃₆ H ₆₂ O ₈	Chemical formula	+HCOO	Negative
32	681.4219	C ₃₆ H ₆₀ O ₉	Chemical formula	+HCOO	Negative
33	683.4376	C ₃₆ H ₆₂ O ₉	Chemical formula	+HCOO	Negative
34	687.4478	C ₄₀ H ₆₄ O ₉	Chemical formula	–H	Negative
35	689.4270	C ₃₈ H ₆₀ O ₈	Chemical formula	+HCOO	Negative
36	695.4012	C ₃₆ H ₅₈ O ₁₀	Chemical formula	+HCOO	Negative
37	697.4169	C ₃₆ H ₆₀ O ₁₀	Chemical formula	+HCOO	Negative
38	697.4532	C ₃₇ H ₆₄ O ₉	Chemical formula	+HCOO	Negative
39	699.4325	C ₃₆ H ₆₂ O ₁₀	Chemical formula	+HCOO	Negative
40	701.4482	C ₃₆ H ₆₄ O ₁₀	Chemical formula	+HCOO	Negative
41	703.4274	C ₃₅ H ₆₂ O ₁₁	Chemical formula	+HCOO	Negative
42	707.4376	C ₃₈ H ₆₂ O ₉	Chemical formula	+HCOO	Negative
43	709.4532	C ₃₈ H ₆₄ O ₉	Chemical formula	+HCOO	Negative
44	711.4325	C ₃₇ H ₆₂ O ₁₀	Chemical formula	+HCOO	Negative
45	713.4285	C ₃₇ H ₆₄ O ₁₀	Chemical formula	+ HCOO	Negative
46	713.4482	C ₃₇ H ₆₄ O ₁₀	Chemical formula	+ HCOO	Negative
47	715.4274	C ₃₆ H ₆₂ O ₁₁	Chemical formula	+HCOO	Negative

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
48	717.4431	C ₃₆ H ₆₄ O ₁₁	Chemical formula	+HCOO	Negative
49	725.4482	C ₃₈ H ₆₄ O ₁₀	Chemical formula	+HCOO	Negative
50	729.4431	C ₃₇ H ₆₄ O ₁₁	Chemical formula	+HCOO	Negative
51	747.4325	C ₄₁ H ₆₄ O ₁₂	Chemical formula	–H	Negative
52	748.5495	C ₄₃ H ₇₅ O ₇	Chemical formula	+HCOO	Negative
53	751.4638	C ₄₀ H ₆₆ O ₁₀	Chemical formula	+HCOO	Negative
54	763.4274	C ₄₁ H ₆₄ O ₁₃	Chemical formula	–H	Negative
55	763.4638	C ₄₂ H ₆₈ O ₁₂	Chemical formula	–H	Negative
56	765.5675	C ₄₈ H ₇₈ O ₇	Chemical formula	–H	Negative
57	767.4587	C ₄₀ H ₆₆ O ₁₁	Chemical formula	+HCOO	Negative
58	769.5988	C ₄₇ H ₈₀ O ₅	Chemical formula	+HCOO	Negative
59	771.4172	C ₃₈ H ₆₂ O ₁₃	Chemical formula	+HCOO	Negative
60	777.4431	C ₄₂ H ₆₆ O ₁₃	Chemical formula	–H	Negative
61	781.4744	C ₄₁ H ₆₈ O ₁₁	Chemical formula	+HCOO	Negative
62	783.4536	C ₄₀ H ₆₆ O ₁₂	Chemical formula	+HCOO	Negative
63	785.4693	C ₄₀ H ₆₈ O ₁₂	Chemical formula	+HCOO	Negative
64	787.4849	C ₄₀ H ₇₀ O ₁₂	Chemical formula	+HCOO	Negative
65	793.4380	C ₄₂ H ₆₆ O ₁₄	Chemical formula	–H	Negative
66	797.4693	C ₄₁ H ₆₈ O ₁₂	Chemical formula	+HCOO	Negative
67	799.4849	C ₄₁ H ₇₀ O ₁₂	Chemical formula	+HCOO	Negative
68	801.4642	C ₄₀ H ₆₈ O ₁₃	Chemical formula	+HCOO	Negative
69	807.4536	C ₄₃ H ₆₈ O ₁₄	Chemical formula	–H	Negative
70	811.4849	C ₄₂ H ₇₀ O ₁₂	Chemical formula	+HCOO	Negative
71	815.4798	C ₄₁ H ₇₀ O ₁₃	Chemical formula	+HCOO	Negative
72	827.4798	C ₄₂ H ₇₀ O ₁₃	Chemical formula	+HCOO	Negative

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
73	829.4955	C ₄₂ H ₇₂ O ₁₃	Chemical formula	+HCOO	Negative
74	830.5033	C ₄₂ H ₇₃ O ₁₃	Chemical formula	+HCOO	Negative
75	831.4748	C ₄₁ H ₇₀ O ₁₄	Chemical formula	+HCOO	Negative
76	843.4748	C ₄₂ H ₇₀ O ₁₄	Chemical formula	+HCOO	Negative
77	843.5111	C ₄₃ H ₇₄ O ₁₃	Chemical formula	+HCOO	Negative
78	844.4826	C ₄₂ H ₇₁ O ₁₄	Chemical formula	+HCOO	Negative
79	845.4904	C ₄₂ H ₇₂ O ₁₄	Chemical formula	+HCOO	Negative
80	847.4697	C ₄₁ H ₇₀ O ₁₅	Chemical formula	+HCOO	Negative
81	847.5061	C ₄₂ H ₇₄ O ₁₄	Chemical formula	+HCOO	Negative
82	849.5006	C ₄₆ H ₇₄ O ₁₄	Chemical formula	–H	Negative
83	853.4955	C ₄₄ H ₇₂ O ₁₃	Chemical formula	+HCOO	Negative
84	857.4904	C ₄₃ H ₇₂ O ₁₄	Chemical formula	+HCOO	Negative
85	859.4697	C ₄₂ H ₇₀ O ₁₅	Chemical formula	+HCOO	Negative
86	861.4853	C ₄₂ H ₇₂ O ₁₅	Chemical formula	+HCOO	Negative
87	863.5010	C ₄₂ H ₇₄ O ₁₅	Chemical formula	+HCOO	Negative
88	871.5061	C ₄₄ H ₇₄ O ₁₄	Chemical formula	+HCOO	Negative
89	873.4853	C ₄₃ H ₇₂ O ₁₅	Chemical formula	+HCOO	Negative
90	875.5010	C ₄₃ H ₇₄ O ₁₅	Chemical formula	+HCOO	Negative
91	877.4802	C ₄₂ H ₇₂ O ₁₆	Chemical formula	+HCOO	Negative
92	879.4959	C ₄₂ H ₇₄ O ₁₆	Chemical formula	+HCOO	Negative
93	887.5010	C ₄₄ H ₇₄ O ₁₅	Chemical formula	+HCOO	Negative
94	903.4959	C ₄₄ H ₇₄ O ₁₆	Chemical formula	+HCOO	Negative
95	913.5166	C ₄₆ H ₇₆ O ₁₅	Chemical formula	+HCOO	Negative
96	925.4802	C ₄₇ H ₇₄ O ₁₈	Chemical formula	–H	Negative
97	939.4959	C ₄₈ H ₇₆ O ₁₈	Chemical formula	–H	Negative

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
98	941.5115	C ₄₈ H ₇₈ O ₁₈	Chemical formula	–H	Negative
99	947.5221	C ₄₆ H ₇₈ O ₁₇	Chemical formula	+HCOO	Negative
100	953.5115	C ₄₉ H ₇₈ O ₁₈	Chemical formula	–H	Negative
101	955.4908	C ₄₈ H ₇₆ O ₁₉	Chemical formula	–H	Negative
102	958.5507	C ₄₈ H ₈₁ O ₁₆	Chemical formula	+HCOO	Negative
103	959.5221	C ₄₇ H ₇₈ O ₁₇	Chemical formula	+HCOO	Negative
104	961.5378	C ₄₇ H ₈₀ O ₁₇	Chemical formula	+HCOO	Negative
105	965.4963	C ₄₅ H ₇₆ O ₁₉	Chemical formula	+HCOO	Negative
106	969.5065	C ₄₉ H ₇₈ O ₁₉	Chemical formula	–H	Negative
107	975.5534	C ₄₈ H ₈₂ O ₁₇	Chemical formula	+HCOO	Negative
108	977.5327	C ₄₇ H ₈₀ O ₁₈	Chemical formula	+HCOO	Negative
109	981.4912	C ₄₅ H ₇₆ O ₂₀	Chemical formula	+HCOO	Negative
110	981.5428	C ₅₁ H ₈₂ O ₁₈	Chemical formula	–H	Negative
111	983.5221	C ₅₀ H ₈₀ O ₁₉	Chemical formula	–H	Negative
112	989.5327	C ₄₈ H ₈₀ O ₁₈	Chemical formula	+HCOO	Negative
113	991.5483	C ₄₈ H ₈₂ O ₁₈	Chemical formula	+HCOO	Negative
114	993.5276	C ₄₇ H ₈₀ O ₁₉	Chemical formula	+HCOO	Negative
115	1005.5276	C ₄₈ H ₈₀ O ₁₉	Chemical formula	+HCOO	Negative
116	1007.5432	C ₄₈ H ₈₂ O ₁₉	Chemical formula	+HCOO	Negative
117	1011.5534	C ₅₂ H ₈₄ O ₁₉	Chemical formula	–H	Negative
118	1023.5382	C ₄₈ H ₈₂ O ₂₀	Chemical formula	+HCOO	Negative
119	1025.5538	C ₄₈ H ₈₄ O ₂₀	Chemical formula	+HCOO	Negative
120	1031.5432	C ₅₁ H ₈₄ O ₂₁	Chemical formula	–H	Negative
121	1033.5589	C ₅₀ H ₈₄ O ₁₉	Chemical formula	+HCOO	Negative
122	1039.5331	C ₄₈ H ₈₂ O ₂₁	Chemical formula	+HCOO	Negative

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
123	1049.5538	C ₅₀ H ₈₄ O ₂₀	Chemical formula	+HCOO	Negative
124	1053.6156	C ₅₉ H ₉₀ O ₁₆	Chemical formula	–H	Negative
125	1057.5225	C ₅₂ H ₈₂ O ₂₂	Chemical formula	–H	Negative
126	1059.5745	C ₅₂ H ₈₆ O ₁₉	Chemical formula	+HCOO	Negative
127	1065.5487	C ₅₀ H ₈₄ O ₂₁	Chemical formula	+HCOO	Negative
128	1071.5382	C ₅₃ H ₈₄ O ₂₂	Chemical formula	–H	Negative
129	1083.5136	C ₄₉ H ₈₂ O ₂₃	Chemical formula	+ HCOO	Negative
130	1087.5331	C ₅₃ H ₈₄ O ₂₃	Chemical formula	–H	Negative
131	1091.5643	C ₅₃ H ₈₈ O ₂₃	Chemical formula	+ HCOO	Negative
132	1093.5800	C ₅₂ H ₈₈ O ₂₁	Chemical formula	+HCOO	Negative
133	1101.5487	C ₅₄ H ₈₆ O ₂₃	Chemical formula	–H	Negative
134	1117.5436	C ₅₄ H ₈₆ O ₂₄	Chemical formula	–H	Negative
135	1121.5749	C ₅₃ H ₈₈ O ₂₂	Chemical formula	+HCOO	Negative
136	1123.5906	C ₅₃ H ₉₀ O ₂₂	Chemical formula	+HCOO	Negative
137	1137.5698	C ₅₃ H ₈₈ O ₂₃	Chemical formula	+HCOO	Negative
138	1137.6062	C ₅₄ H ₉₂ O ₂₂	Chemical formula	+HCOO	Negative
139	1138.6141	C ₅₄ H ₉₃ O ₂₂	Chemical formula	+HCOO	Negative
140	1139.5855	C ₅₃ H ₉₀ O ₂₃	Chemical formula	+HCOO	Negative
141	1151.5855	C ₅₄ H ₉₀ O ₂₃	Chemical formula	+HCOO	Negative
142	1153.6011	C ₅₄ H ₉₂ O ₂₃	Chemical formula	+HCOO	Negative
143	1155.5804	C ₅₃ H ₉₀ O ₂₄	Chemical formula	+HCOO	Negative
144	1157.5961	C ₅₃ H ₉₂ O ₂₄	Chemical formula	+HCOO	Negative
145	1163.5855	C ₅₆ H ₉₂ O ₂₅	Chemical formula	–H	Negative
146	1165.6011	C ₅₅ H ₉₂ O ₂₃	Chemical formula	+HCOO	Negative
147	1167.5804	C ₅₄ H ₉₀ O ₂₄	Chemical formula	+HCOO	Negative

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
148	1169.5961	C ₅₄ H ₉₂ O ₂₄	Chemical formula	+HCOO	Negative
149	1172.6559	C ₅₅ H ₉₉ O ₂₃	Chemical formula	+HCOO	Negative
150	1183.8969	C ₇₀ H ₁₂₂ O ₁₁	Chemical formula	+HCOO	Negative
151	1185.5910	C ₅₄ H ₉₂ O ₂₅	Chemical formula	+HCOO	Negative
152	1185.6579	C ₆₄ H ₉₈ O ₂₀	Chemical formula	–H	Negative
153	1187.6066	C ₅₄ H ₉₄ O ₂₅	Chemical formula	+HCOO	Negative
154	1190.6090	C ₅₇ H ₉₃ O ₂₃	Chemical formula	+HCOO	Negative
155	1191.6168	C ₅₇ H ₉₄ O ₂₃	Chemical formula	+HCOO	Negative
156	1193.5961	C ₅₇ H ₉₄ O ₂₆	Chemical formula	–H	Negative
157	1195.6117	C ₅₆ H ₉₄ O ₂₄	Chemical formula	+HCOO	Negative
158	1197.6274	C ₅₆ H ₉₆ O ₂₄	Chemical formula	+HCOO	Negative
159	1215.5562	C ₅₄ H ₉₀ O ₂₇	Chemical formula	+HCOO	Negative
160	1215.6684	C ₆₅ H ₁₀₀ O ₂₁	Chemical formula	–H	Negative
161	1221.6274	C ₅₈ H ₉₆ O ₂₄	Chemical formula	+HCOO	Negative
162	1239.6379	C ₅₈ H ₉₈ O ₂₅	Chemical formula	+HCOO	Negative
163	1255.6328	C ₅₈ H ₉₈ O ₂₆	Chemical formula	+HCOO	Negative
164	1269.6485	C ₅₉ H ₁₀₀ O ₂₆	Chemical formula	+HCOO	Negative
165	1271.6278	C ₅₈ H ₉₈ O ₂₇	Chemical formula	+HCOO	Negative
166	1277.6900	C ₆₂ H ₁₀₄ O ₂₄	Chemical formula	+HCOO	Negative
167	1285.6434	C ₅₉ H ₁₀₀ O ₂₇	Chemical formula	+HCOO	Negative
168	1296.6356	C ₆₀ H ₉₉ O ₂₇	Chemical formula	+HCOO	Negative
169	1315.6540	C ₆₀ H ₁₀₂ O ₂₈	Chemical formula	+HCOO	Negative
170	1323.6591	C ₆₂ H ₁₀₂ O ₂₇	Chemical formula	+HCOO	Negative
171	1325.6383	C ₆₂ H ₁₀₂ O ₃₀	Chemical formula	–H	Negative
172	1327.6540	C ₆₁ H ₁₀₂ O ₂₈	Chemical formula	+HCOO	Negative

No.	Mass [<i>m/z</i>]	Formula [M]	Formula type	Precursor Ion Species	Polarity
173	1387.6751	C ₆₃ H ₁₀₆ O ₃₀	Chemical formula	+HCOO	Negative
174	1417.6857	C ₆₄ H ₁₀₈ O ₃₁	Chemical formula	+HCOO	Negative

Table S4 Detailed information of the 342 ginsenoside compounds characterized from the leaves of *Panax ginseng*, *Panax quinquefolius*, and *Panax notoginseng*.

No.	t _R (min)	Observed <i>m/z</i>	Adduct	Formula	Mass error (ppm)	Observed CCS (Å ²)	Match or not with Database	ESI-MS ²	Identification	Botany Source
1	1.63	1025.5540	−H, +HCOO	C ₄₈ H ₈₄ O ₂₀	0.19	325.7827	1	979.5484, 799.4835, 653.4278, 491.3758	ginsengenin-S3 or isomer (OT-2Glc-Rha-H ₂ O)	PQL、PGL
2	2.49	861.4859	−H	C ₄₃ H ₇₄ O ₁₇	0.67	297.2756	0	501.2064, 463.2127, 391.2841	C ₂₄ H ₄₀ O ₄ -2Glc-Rha	PGL
3	2.51	993.5283	−H, +HCOO	C ₄₇ H ₈₀ O ₁₉	0.73	315.8650	1	947.5312, 785.4709, 765.4589, 639.4084, 477.3567, 459.3448	notoginsenoside H or isomer (C ₃₀ H ₅₂ O ₃ -2Glc-Rha-H ₂ O)	PQL、PGL
4	2.74	1007.5436	−H, +HCOO	C ₄₈ H ₈₂ O ₁₉	0.46	326.1775	1	961.5380, 781.4744, 635.4165, 491.3735	quinquenoside L2 (OT-2Glc-Rha)	PQL、PGL
5	2.92	877.4811	−H	C ₄₃ H ₇₄ O ₁₈	1.06	298.1563	0	651.4095, 633.4003, 471.3478, 391.2832	C ₂₄ H ₄₀ O ₄ -3Glc	PGL
6	3.16	1007.5421	−H, +HCOO	C ₄₈ H ₈₂ O ₁₉	−1.11	323.6277	1	961.5404, 781.4747, 635.4156, 491.3730	quinquenoside L2 (OT-2Glc-Rha)	PGL
7	3.27	977.5335	−H	C ₄₈ H ₈₂ O ₂₀	0.94	323.4536	1	977.5237, 765.4432, 619.3842, 471.3471, 391.2844	floralginsenoside I or isomer (C ₂₄ H ₄₀ O ₄ -GlurA-2Glc-Bute-H ₂ O)	PQL、PGL
8	3.43	991.5118	−H, +HCOO	C ₄₇ H ₇₈ O ₁₉	−0.09	319.9370	0	945.5065, 765.4428, 619.3872, 457.3313	C ₃₀ H ₅₀ O ₃ -2Glc-Rha-H ₂ O	PGL
9	3.50	1005.5272	−H, +HCOO	C ₄₈ H ₈₀ O ₁₉	−0.41	320.5042	1	797.4637, 779.4590, 633.4013, 471.3472, 453.3354, 391.2836	vinaginsenoside R20 or isomer (C ₂₄ H ₄₀ O ₄ -GlurA-Glc-Rha-2Ace)	PGL
10	3.58	1049.5518	−H, +HCOO	C ₅₀ H ₈₄ O ₂₀	−1.98	333.9221	1	961.5429, 781.4751, 635.4164, 391.2800	6-acetyl ginsenoside Rg3 or isomer (C ₂₄ H ₄₀ O ₄ -3Glc-3Ace)	PGL
11	3.80	1007.5438	−H, +HCOO	C ₄₈ H ₈₂ O ₁₉	0.63	315.3317	1	961.5371, 815.4790, 797.4697, 653.4255, 491.3755	quinquenoside L2 (OT-2Glc-Rha)	PQL
12	3.80	717.4433	−H, +HCOO	C ₃₆ H ₆₄ O ₁₁	0.34	264.1698	1	671.4389, 509.3846, 391.2847	vinaginsenoside R12 (C ₂₄ H ₄₀ O ₄ -GlurA-Mal-H ₂ O)	PQL
13	3.96	1005.5279	−H, +HCOO	C ₄₈ H ₈₀ O ₁₉	0.36	321.3695	1	959.5301, 779.4594, 633.3998, 471.3507, 391.2836	vinaginsenoside R20 or isomer (C ₂₄ H ₄₀ O ₄ -GlurA-Glc-Rha-2Ace)	PQL、PGL
14	4.05	863.5018	−H, +HCOO	C ₄₂ H ₇₄ O ₁₅	0.95	291.6905	1	817.4963, 671.4375, 653.4265, 509.3845, 391.2847	quinquenoside L9 (C ₂₄ H ₄₀ O ₄ -2Glc-2Ace-H ₂ O)	PQL
15	4.08	1023.5385	−H, +HCOO	C ₄₈ H ₈₂ O ₂₀	0.45	325.5498	1	977.5311, 797.4711, 653.4185, 491.3727	yesanchinoside B or isomer (OT-3Glc)	PGL
16	4.18	855.3311	−H	C ₄₀ H ₅₆ O ₂₀	2.23	273.4744	0	809.3235, 805.2941, 761.3037, 491.1670	OT-Rha-Xyl-Mal	PQL
17	4.36	1065.5492	−H, +HCOO	C ₅₀ H ₈₄ O ₂₁	0.46	331.3334	1	959.5297, 779.4575, 633.4018, 471.3490, 391.2820	floralginsenoside H or isomer (C ₂₄ H ₄₀ O ₄ -2Glc-Xyl-Dimal)	PGL
18	4.43	1023.5376	−H, +HCOO	C ₄₈ H ₈₂ O ₂₀	−0.49	330.1241	1	977.5356, 797.4703, 653.4232, 491.3776	yesanchinoside B or isomer (OT-3Glc)	PGL
19	4.56	1255.5926	−H, +HCOO	C ₅₇ H ₉₄ O ₂₇	−3.11	356.5983	1	1209.5893, 1077.5478, 897.4840, 765.4409, 603.3943, 441.3330	notoginsenosides NL-J or isomer (C ₃₀ H ₅₀ O ₂ -3Glc-2Xyl-H ₂ O)	PNL
20	4.64	993.5289	−H	C ₄₈ H ₈₂ O ₂₁	1.28	326.8244	1	781.4419, 551.3724, 457.3310	floralginsenoside K or isomer (C ₃₀ H ₅₀ O ₃ -GlurA-2Glc-2H ₂ O)	PGL
21	4.65	855.3308	−H	C ₄₀ H ₅₆ O ₂₀	1.89	285.3183	0	837.3175, 761.3056, 718.3017, 529.1489, 491.1671	OT-Rha-Xyl-Mal	PQL
22	4.73	1123.5560	−H, +HCOO	C ₅₂ H ₈₆ O ₂₃	1.66	334.7877	0	1077.5480, 945.5038, 765.4449, 603.3872, 441.3361	C ₃₀ H ₅₀ O ₂ -3Glc-Xyl-H ₂ O	PNL
23	4.85	1153.6009	−H, +HCOO	C ₅₄ H ₉₂ O ₂₃	−0.18	341.8606	1	1107.5954, 945.5426, 799.4810, 637.4316, 475.3768	ginsenoside Re8 or isomer (PPT-3Glc-Rha)	PGL

24	4.91	861.4840	–H, +HCOO	C ₄₂ H ₇₂ O ₁₅	–1.62	293.1058	1	815.4784, 653.4262, 491.3739	24(<i>R</i>)-majoroside R1 or isomer (OT-2Glc)	PGL
25	5.00	1039.5338	–H, +HCOO	C ₄₈ H ₈₂ O ₂₁	0.67	329.5945	1	993.5234, 813.4615, 795.4594, 633.4015, 471.3468, 391.2830	floralginsenoside K or isomer (C ₂₄ H ₄₀ O ₄ -2Glc-Rha-Xyl)	PGL
26	5.14	1123.5534	–H, +HCOO	C ₅₂ H ₈₆ O ₂₃	–0.71	329.3828	0	1077.5481, 945.5048, 765.4423, 603.3893, 441.3332	C ₃₀ H ₅₀ O ₂ -3Glc-Xyl-H ₂ O	PNL
27	5.21	1255.5963	–H, +HCOO	C ₅₇ H ₉₄ O ₂₇	–0.08	357.9143	1	1209.5894, 1077.5477, 945.5048, 765.4431, 603.3909, 441.3383	notoginsenosides NL-J or isomer (C ₃₀ H ₅₀ O ₂ -3Glc-2Xyl-H ₂ O)	PNL
28	5.26	1007.5435	–H, +HCOO	C ₄₈ H ₈₂ O ₁₉	0.28	325.0017	1	961.5373, 799.4838, 637.4322, 475.3792, 391.2828	20-glucoginsenoside-Rf or isomer (PPT-3Glc)	PGL
29	5.31	1153.5637	–H, +HCOO	C ₅₃ H ₈₈ O ₂₄	–1.02	335.4078	0	1107.5580, 975.5096, 813.4621, 633.4019, 491.3678	OT-2Glc-2Rha	PNL
30	5.35	1123.5874	–H, +HCOO	C ₅₃ H ₉₀ O ₂₂	–2.97	329.9878	1	1077.5854, 945.5437, 783.4907, 637.4314, 475.3787, 391.2835	floralginsenoside M or isomer (PPT-2Glc-Rha-Xyl)	PGL
31	5.41	1071.5207	–H	C ₄₉ H ₈₄ O ₂₅	–2.06	312.7639	0	1071.5213, 853.2646, 715.4271, 553.3727, 391.3209	C ₂₄ H ₄₀ O ₄ -GlurA-3Glc-H ₂ O	PNL
32^a	5.43	977.5324	–H, +HCOO	C ₄₇ H ₈₀ O ₁₈	–0.31	310.9244	1	801.3646, 669.5836, 553.3723	notoginsenoside Fp1	PGL、PNL、PQL
33	5.46	845.4907	–H, +HCOO	C ₄₂ H ₇₂ O ₁₄	0.35	285.6975	1	751.3661, 675.2654, 591.1338, 391.285	ginsenoside Rg7 or isomer (C ₂₄ H ₄₀ O ₄ -2Glc-2Ace)	PQL、PGL
34	5.48	989.5337	–H, +HCOO	C ₄₈ H ₈₀ O ₁₈	1.04	321.3499	1	943.5221, 763.4640, 617.4056, 391.2849	ginsenoside Rh18 or isomer (C ₂₄ H ₄₀ O ₄ -GlurA-2Rha-2Ace)	PGL
35	5.58	831.4756	–H, +HCOO	C ₄₁ H ₇₀ O ₁₄	1	286.6473	1	785.4644, 653.4259, 491.3741	pseudoginsenoside RT2 or isomer (OT-Glc-Xyl)	PGL
36^a	5.61	977.5331	–H, +HCOO	C ₄₇ H ₈₀ O ₁₈	0.41	318.6038	1	475.3786, 391.2882	notoginsenoside R1	PGL、PNL
37	5.66	991.5103	–H, +HCOO	C ₄₇ H ₇₈ O ₁₉	–1.68	314.8617	0	945.5051, 765.4485, 603.3901, 441.3353	C ₃₀ H ₅₀ O ₂ -3Glc-H ₂ O	PGL、PNL
38	5.67	1123.5894	–H, +HCOO	C ₅₃ H ₉₀ O ₂₂	–1.14	330.4010	1	953.2258, 475.3774	floralginsenoside M or isomer (PPT-2Glc-Rha-Xyl)	PQL、PGL
39	5.75	845.4904	–H, +HCOO	C ₄₂ H ₇₂ O ₁₄	–0.04	291.6491	1	799.4869, 653.4260, 491.3734	24(<i>R</i>)-pseudoginsenoside F11 or isomer (OT-Glc-Rha)	PGL
40	5.83	1167.5812	–H, +HCOO	C ₅₄ H ₉₀ O ₂₄	0.73	344.0055	1	1121.5765, 959.5112, 797.4664, 635.4086, 475.3866	notoginsenoside B or isomer (PPT-GlurA-2Glc-Rha)	PGL
41	5.86	977.5334	–H, +HCOO	C ₄₇ H ₈₀ O ₁₈	0.77	313.1896	1	931.5274, 769.4782, 637.4287, 475.3811, 391.2833	ginsenoside Re4 or isomer (PPT-2Glc-Xyl)	PGL
42	6.12	1163.5483	–H	C ₅₅ H ₈₈ O ₂₆	–0.71	329.3629	1	1119.5719, 1077.5472, 1059.5417, 945.5064, 765.4460, 603.3909, 441.3343	isomer of m-ginsenoside Rc (C ₃₀ H ₅₀ O ₂ -3Glc-Xyl-Mal-3H ₂ O-CO ₂)	PNL
43	6.24	835.4628	–H	C ₄₈ H ₆₈ O ₁₂	–1.23	289.6873	0	527.3080, 441.3351	C ₃₀ H ₅₀ O ₂ -Glc-Rha-Mal	PGL
44^a	6.25	845.4909	–H, +HCOO	C ₄₂ H ₇₂ O ₁₄	0.59	295.5282	1	529.2974, 457.1596, 255.0293	ginsenoside Rg1	PGL、PNL、PQL
45	6.25	917.4211	–H	C ₄₀ H ₇₀ O ₂₃	–2.63	311.5754	0	639.4380, 475.3791	PPT-2Rha-Xyl-H ₂ O	PGL
46	6.25	1025.5541	–H, +HCOO	C ₄₈ H ₈₄ O ₂₀	0.3	332.2994	1	979.5479, 817.4932, 799.4817, 655.4359, 475.3696	ginsengenin-S3 or isomer (PPT-3Glc-2H ₂ O)	PNL、PQL
47^a	6.35	945.5430	–H	C ₄₈ H ₈₂ O ₁₈	0.18	321.1382	1	475.3792, 391.2856	ginsenoside Re	PGL、PNL、PQL
48	6.36	1063.4792	–H	C ₅₃ H ₇₆ O ₂₂	3.47	338.6419	0	1003.4606, 945.5424, 783.4888, 619.4204, 475.3789	PPT-GlueA-2Glc-2CO ₂	PQL
49	6.46	693.2769	–H	C ₃₄ H ₄₆ O ₁₅	0.69	254.5441	0	475.3789, 457.3688	PPT-GlurA-Ace-H ₂ O	PGL

50	6.56	991.5484	–H, +HCOO	C ₄₈ H ₈₂ O ₁₈	0.16	323.4681	1	945.5427, 783.4921, 637.4324, 475.3789, 391.2829	ginsenoside Rg18 or isomer (PPT-3Glc)	PGL
51	6.74	989.5325	–H, +HCOO	C ₄₈ H ₈₀ O ₁₈	–0.18	319.5465	0	943.5298, 781.4739, 635.4157, 475.3757, 391.2826	PPT-GlurA-2Rha	PGL
52	6.75	1169.5954	–H, +HCOO	C ₅₄ H ₉₂ O ₂₄	–0.61	350.5709	1	1123.5906, 961.5338, 799.4872, 637.4262, 475.3817	isomer of ginsenoside V (PPT-4Glc)	PGL
53	6.76	861.4845	–H, +HCOO	C ₄₂ H ₇₂ O ₁₅	–0.93	288.5399	1	815.4788, 699.3955, 553.3359, 489.3589, 391.2846	ginsenoside Rg12 or isomer (C ₂₄ H ₄₀ O ₄ -Glc-Rha-Xyl-2Ace)	PQL、PGL
54	6.84	1025.5531	–H, +HCOO	C ₄₈ H ₈₄ O ₂₀	–0.72	333.6497	1	979.5478, 817.4952, 799.4845, 655.4427, 475.3802	ginsengenin-S3 or isomer (PPT-3Glc-2H ₂ O)	PGL、PNL、PQL
55	6.92	991.5476	–H, +HCOO	C ₄₈ H ₈₂ O ₁₈	–0.74	322.5412	1	945.5410, 783.4851, 637.4315, 475.3793, 391.2853	ginsenoside Rg18 or isomer (PPT-3Glc)	PGL
56	6.99	845.4917	–H, +HCOO	C ₄₂ H ₇₂ O ₁₄	1.66	298.4877	1	799.4845, 653.4267, 491.3736	24(<i>R</i>)-pseudoginsenoside F11 or isomer (OT-Glc-Rha)	PQL
57	7.00	699.4329	–H, +HCOO	C ₃₆ H ₆₂ O ₁₀	0.6	271.9149	1	513.1210, 459.2246	ginsenoside M7cd or isomer (C ₂₂ H ₃₆ O ₁₀ -GlurA-H ₂ O)	PGL
58	7.05	1271.6278	–H, +HCOO	C ₅₈ H ₉₈ O ₂₇	0.11	369.3899	1	1225.6210, 1093.5774, 913.5153, 781.4747, 619.4211, 537.3355, 375.2898	notoginsenosides NL-B2 or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-2Xyl-Bute-H ₂ O)	PNL
59	7.07	1031.5438	–H	C ₅₁ H ₈₄ O ₂₁	0.56	326.7446	1	945.5423, 783.4922, 637.4301, 475.3802, 391.2828	malonylfloralginsenoside Re2 or isomer (PPT-2Glc-Rha-Mal)	PGL
60	7.20	887.5004	–H, +HCOO	C ₄₄ H ₇₄ O ₁₅	–0.69	303.4521	1	841.4952, 781.4871, 637.4321, 475.3807, 391.2834	notoginsenoside Rt or isomer (PPT-2Glc-Ace)	PGL
61	7.31	1169.5959	–H, +HCOO	C ₅₄ H ₉₂ O ₂₄	–0.14	365.2310	1	1123.5881, 961.5142, 781.4737, 619.4224, 537.3445, 375.2941	notoginsenoside A or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-3Glc-Bute-H ₂ O)	PNL
62	7.34	1139.5861	–H, +HCOO	C ₅₃ H ₉₀ O ₂₃	0.53	345.6932	1	1093.5805, 961.5375, 799.4851, 637.4316, 475.3798, 391.2830	floralginsenoside P or isomer (PPT-3Glc-Xyl)	PGL
63	7.38	1033.5573	–H, +HCOO	C ₅₀ H ₈₄ O ₁₉	–1.65	330.3589	1	621.4049, 457.3702, 391.2848	6'''- <i>O</i> -acetyl Ginsenoside Re or isomer (PPT-2Glc-Rha-3Ace)	PGL
64	7.39	1271.6273	–H, +HCOO	C ₅₈ H ₉₈ O ₂₇	–0.35	385.1713	1	1225.6230, 1093.5819, 913.5162, 781.4741, 619.4214, 537.3435, 375.3029	notoginsenosides NL-B2 or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-2Xyl-Bute-H ₂ O)	PNL
65	7.49	1323.6601	–H	C ₆₂ H ₁₀₂ O ₂₇	0.83	365.4381	0	1013.5337, 945.5419, 783.4900, 637.4333, 475.3852, 391.2865	PPT-2Glc-2GlurA-Dimal	PGL
66	7.50	1065.5492	–H, +HCOO	C ₅₀ H ₈₄ O ₂₁	0.49	338.9945	1	979.5452, 799.4841, 655.4398, 491.8954	floralginsenoside H or isomer (OT-3Glc-2CO ₂)	PGL
67	7.52	959.5225	–H	C ₄₈ H ₈₀ O ₁₉	0.46	327.9616	1	687.3303, 457.3281, 391.2854	vinaginsenoside R20 or isomer (C ₂₄ H ₄₀ O ₄ -GlurA-Glc-Rha-2Ace)	PQL、PGL
68	7.57	1031.5445	–H	C ₅₁ H ₈₄ O ₂₁	1.27	324.5273	1	945.5437, 783.4865, 637.4320, 475.3791, 391.2857	malonylfloralginsenoside Re2 or isomer (PPT-2Glc-Rha-Mal)	PQL、PGL
69	7.65	1139.5847	–H, +HCOO	C ₅₃ H ₉₀ O ₂₃	–0.71	354.1549	1	1093.5785, 781.4732, 619.4229, 375.2838	floranotoginsenoside A or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-Xyl-Mal)	PGL、PNL、PQL
70	7.72	847.4704	–H, +HCOO	C ₄₁ H ₇₀ O ₁₅	0.82	292.5686	1	517.2589, 375.1673	floralginsenoside C or isomer (C ₂₄ H ₄₀ O ₃ -Glc-2Xyl)	PGL
71	7.74	1007.5443	–H, +HCOO	C ₄₈ H ₈₂ O ₁₉	1.15	330.3229	1	961.5393, 799.4858, 637.4317, 475.3797, 391.2840	20-glucoginsenoside-Rf or isomer (PPT-3Glc)	PGL
72	7.78	1271.6258	–H, +HCOO	C ₅₈ H ₉₈ O ₂₇	–1.54	365.7701	1	1225.6199, 1093.5779, 961.5310, 799.4845, 781.4729, 637.4304, 475.3764	isomer of chikusetsusaponin LM6 (PPT-3Glc-2Xyl)	PNL

73	7.79	1169.5928	–H, +HCOO	C ₅₄ H ₉₂ O ₂₄	–2.94	347.5191	1	1123.5886, 961.5256, 799.4874, 781.4679, 637.4332, 475.3799	isomer of notoginsenoside A (PPT-4Glc)	PNL
74	7.80	1139.5861	–H, +HCOO	C ₅₃ H ₉₀ O ₂₃	0.58	358.5364	1	1093.5808, 961.5383, 799.4837, 637.4314, 475.3784, 391.2838	floralginsenoside P or isomer (PPT-3Glc-Xyl)	PGL
75	7.82	653.4277	–H	C ₃₆ H ₆₂ O ₁₀	1.06	270.5793	1	459.3480, 373.2743	ginsenoside M7cd or isomer (C ₃₀ H ₅₂ O ₃ -GlurA-H ₂ O)	PGL
76	7.83	961.5368	–H, +HCOO	C ₄₇ H ₈₀ O ₁₇	–1.06	314.1075	1	915.5291, 753.4819, 607.4190, 589.4054, 475.3792, 391.2845	quinquenoside L14 or isomer (PPT-Glc-Rha-Xyl)	PQL
77	7.88	815.4802	–H	C ₄₂ H ₇₂ O ₁₅	0.52	288.7003	1	639.4390, 475.3790, 349.2739	ginsenoside Rg12 or isomer (C ₃₀ H ₅₂ O ₄ -GlurA-Rha-H ₂ O)	PGL
78	7.92	1033.5580	–H, +HCOO	C ₅₀ H ₈₄ O ₁₉	–0.93	334.3474	1	945.5429, 783.4896, 637.4326, 475.3794, 391.2854	pseudoginsenoside RC1 or isomer (PPT-2Glc-Rha-Ace)	PGL
79^a	7.93	1031.5438	–H	C ₅₁ H ₈₄ O ₂₁	0.55	319.9784	1	921.2063, 643.1047, 441.1226	malonylfloralginsenoside Re1	PGL、PNL
80	7.94	827.4805	–H	C ₄₃ H ₇₂ O ₁₅	0.83	292.8315	1	783.4896, 637.4322, 619.4211, 475.3790	PPT-Glc-Rha-CO ₂	PGL
81	7.95	841.4957	–H	C ₄₄ H ₇₄ O ₁₅	0.29	295.0329	1	799.4856, 637.4322, 475.3790	notoginsenoside Rt or isomer (PPT-2Glc-Ace)	PGL
82	8.02	1139.5861	–H, +HCOO	C ₅₃ H ₉₀ O ₂₃	0.51	357.8098	1	1093.5798, 961.5369, 781.4744, 619.4211, 475.3834	floralginsenoside P or isomer (PPT-3Glc-Xyl)	PNL、PQL
83	8.06	935.4855	–H	C ₄₅ H ₇₆ O ₂₀	–0.16	306.3408	1	743.2231, 615.3951, 459.2202	floralginsenoside Kc or isomer (C ₂₂ H ₃₆ O ₁₀ -Glc-Rha-Xyl-2H ₂ O)	PGL
84	8.14	1185.5914	–H, +HCOO	C ₅₄ H ₉₂ O ₂₅	0.38	363.1953	1	1139.5850, 1121.5768, 797.4671, 765.4439, 603.3947, 441.3436	notoginsenoside K or isomer (C ₃₀ H ₅₀ O ₂ -GlurA-3Glc-2H ₂ O)	PGL、PNL
85	8.16	961.5392	–H, +HCOO	C ₄₇ H ₈₀ O ₁₇	1.53	320.7601	1	915.5345, 783.4948, 637.4335, 475.3781, 391.2798	ginsenoside Rh24 or isomer (PPT-Glc-Rha-Xyl)	PGL
86	8.22	1033.5581	–H	C ₅₀ H ₈₄ O ₁₉	–0.85	325.3973	1	945.5425, 783.4955, 637.4314, 475.3786, 391.2835	6'''-O-acetylginsenoside Re or isomer (PPT-2Glc-Rha-Ace)	PGL
87	8.23	1241.6164	–H	C ₅₈ H ₉₈ O ₂₈	–0.65	382.5807	0	765.4470, 603.3895, 441.3375	isomer of notoginsenosides NL-A3 (C ₃₀ H ₅₀ O ₂ -3Glc-Rha-Xyl-2H ₂ O)	PNL
88	8.27	1225.6226	–H	C ₅₈ H ₉₈ O ₂₇	0.26	373.7117	1	985.4420, 835.3929, 765.4470, 603.3895, 475.3782	isomer of chikusetsusaponin LM6 (PPT-3Glc-2Xyl)	PNL
89^a	8.37	815.4818	–H, +HCOO	C ₄₁ H ₇₀ O ₁₃	2.64	293.1066	1	619.4251, 475.3802, 353.2725	20(S)-sanchirrhinoside A3	PQL、PGL
90	8.40	961.5400	–H, +HCOO	C ₄₇ H ₈₀ O ₁₇	2.4	320.3556	1	915.5340, 783.4926, 637.4322, 475.3802, 391.2853	ginsenoside Rh24 or isomer (PPT-Glc-Rha-Xyl)	PGL
91	8.43	1139.5858	–H, +HCOO	C ₅₃ H ₉₀ O ₂₃	0.27	352.1670	1	1093.5804, 961.5397, 799.4846, 781.4745, 637.4311, 475.3790	floralginsenoside P or isomer (PPT-3Glc-Xyl)	PGL、PNL、PQL
92	8.44	993.5293	–H, +HCOO	C ₄₇ H ₈₀ O ₁₉	1.76	325.1149	1	947.5202, 785.4682, 623.4181, 461.3655, 475.3815	notoginsenoside H or isomer (PPT-3Glc-H ₂ O)	PQL、PGL
93	8.50	1109.5730	–H	C ₅₃ H ₉₀ O ₂₄	–1.74	347.1267	1	1109.5797, 945.5598, 765.4462, 459.3878	floranotoginsenoside B or isomer (PPD-3Glc-Rha-H ₂ O)	PGL、PNL
94	8.53	989.5341	–H, +HCOO	C ₄₈ H ₈₀ O ₁₈	1.45	322.3253	1	943.5291, 797.4709, 635.4132, 391.2832	ginsenoside Rh18 or isomer (C ₂₄ H ₄₀ O ₄ -GlurA-2Rha-2Ace)	PGL
95	8.58	1269.6100	–H, +HCOO	C ₅₈ H ₉₆ O ₂₇	–1.69	366.9162	1	1223.6085, 1091.5664, 929.5181, 779.4585, 635.4104, 455.3468	notoginsenoside LK4 or isomer (C ₃₀ H ₄₈ O ₃ -2Glc-Rha-GlurA-2H ₂ O)	PNL
96^a	8.62	961.5376	–H	C ₄₈ H ₈₂ O ₁₉	–0.09	326.8923	1	799.4858, 537.3431, 453.3551, 373.2743	vinaginsenoside R8	PGL、PNL、PQL

97	8.75	1139.5844	–H	C ₅₄ H ₉₂ O ₂₅	–0.99	358.7544	1	945.5424, 765.4452, 441.3355	notoginsenoside K or isomer (C ₃₀ H ₅₀ O ₂ -GlurA-3Glc-2H ₂ O)	PGL
98	8.78	1117.5461	–H	C ₅₄ H ₈₆ O ₂₄	2.24	321.7158	0	999.5222, 797.4686, 765.4453, 453.3353	malonylfloralginsenoside Rd6 or isomer (C ₃₀ H ₄₅ O ₃ -2Glc-Xyl-Dimal-2H ₂ O)	PGL
99^a	8.84	961.5382	–H	C ₄₈ H ₈₂ O ₁₉	0.53	325.9221	1	723.3535, 621.4079, 475.3685, 391.2845	vinaginsenoside R4	PQL、PGL
100	8.89	1155.5824	–H, +HCOO	C ₅₃ H ₉₀ O ₂₄	1.8	365.9944	1	1109.5758, 959.5160, 797.4699, 765.4434, 603.3875, 441.3372	floranotoginsenoside B or isomer (C ₃₀ H ₅₀ O ₂ -GlurA-2Glc-Xyl-2H ₂ O)	PGL、PNL、PQL
101	8.92	871.4698	–H	C ₄₄ H ₇₂ O ₁₇	0.19	287.3434	1	765.4442, 637.4355, 441.3044	notoginsenosides NL-A4 or isomer (C ₃₀ H ₅₀ O ₂ -Glc-Rha-Mal-2H ₂ O)	PNL
102	8.94	977.5337	–H	C ₄₈ H ₈₂ O ₂₀	1.17	320.1125	1	851.4015, 765.4387, 605.3052, 375.2892	ginsenoside I or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-2Ace-H ₂ O)	PGL
103	8.95	1139.5868	–H, +HCOO	C ₅₃ H ₉₀ O ₂₃	1.2	358.1407	1	1093.5810, 961.5382, 799.4852, 781.4837, 637.4307, 475.3781	floralginsenoside P or isomer (PPT-3Glc-Xyl)	PGL、PNL、PQL
104	8.98	1241.6148	–H	C ₅₈ H ₉₈ O ₂₈	–1.9	368.1181	1	1093.5800, 767.1622, 375.2895	notoginsenosides NL-A ₃ (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-2Xyl-2Ace-H ₂ O)	PNL
105	9.05	1179.5808	–H	C ₅₆ H ₉₂ O ₂₆	0.34	349.2273	0	779.4504, 617.4028, 455.3537	OA-GlurA-3Glc-CO ₂ -H ₂ O	PNL、PQL
106	9.08	1007.5437	–H, +HCOO	C ₄₈ H ₈₂ O ₁₉	0.53	326.5110	1	961.5388, 799.4850, 781.4771, 637.4313, 475.3796, 391.2812	20-glucoginsenoside-Rf or isomer (PPT-3Glc)	PGL、PNL、PQL
107	9.09	1269.6141	–H, +HCOO	C ₅₈ H ₉₆ O ₂₇	1.66	365.3296	1	1223.6056, 1091.5644, 959.5195, 797.4689, 779.4584, 617.4051, 455.3579	notoginsenoside LK4 or isomer (C ₃₀ H ₄₈ O ₃ -2Glc-Rha-GlurA-2H ₂ O)	PNL
108	9.10	1109.5740	–H	C ₅₃ H ₉₀ O ₂₄	–0.77	347.4275	1	961.5418, 757.2215, 455.3508	floranotoginsenoside B or isomer (C ₃₀ H ₄₈ O ₃ -3Glc-Xyl-2H ₂ O)	PNL、PQL
109	9.16	1137.5700	–H, +HCOO	C ₅₃ H ₈₈ O ₂₃	0.14	338.0425	1	1091.5634, 959.5247, 779.4591, 617.4014, 375.2901	Notoginsenoside Ng2 or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-Xyl-2Ace)	PGL、PNL
110	9.25	1047.5385	–H	C ₅₁ H ₈₄ O ₂₂	0.36	338.6342	0	1003.5481, 961.5359, 783.4812, 619.4221, 537.3435, 375.2932	C ₂₄ H ₄₀ O ₃ -2Glc-2Xyl-2Ace	PNL、PQL
111	9.34	1195.5754	–H	C ₅₆ H ₉₂ O ₂₇	0.05	362.6939	0	1091.5566, 959.5360, 839.4789, 797.4714, 765.4433, 635.4196, 375.2873	C ₂₄ H ₄₀ O ₃ -2Glc-Rha-Xyl-GlurA-Ace	PGL
112	9.43	1007.5437	–H, +HCOO	C ₄₈ H ₈₂ O ₁₉	0.48	328.6909	1	961.5390, 799.4854, 781.4739, 637.4309, 475.3790	20-glucoginsenoside-Rf or isomer (PPT-3Glc)	PGL、PNL、PQL
113	9.44	831.4750	–H, +HCOO	C ₄₁ H ₇₀ O ₁₄	0.24	293.0606	1	785.4680, 653.4273, 491.3726	pseudoginsenoside RT2 or isomer (OT-Glc-Xyl)	PQL
114	9.47	1033.5586	–H, +HCOO	C ₅₀ H ₈₄ O ₁₉	–0.29	332.4950	1	945.5405, 799.4879, 637.4318, 475.3785, 391.2854	6'''-O-acetylginsenoside Re or isomer (PPT-2Glc-Rha-Ace)	PGL
115	9.48	1155.5805	–H, +HCOO	C ₅₃ H ₉₀ O ₂₄	0.11	357.3715	1	1109.5701, 959.5115, 797.4671, 779.4592, 617.4053, 455.3515	floranotoginsenoside B or isomer (C ₃₀ H ₄₈ O ₃ -3Glc-Xyl-2H ₂ O)	PGL、PNL
116	9.50	1023.5385	–H, +HCOO	C ₄₈ H ₈₂ O ₂₀	0.42	322.4410	1	977.5311, 797.4684, 765.4419, 603.3886, 375.2912	ginsenoside I or isomer (C ₂₄ H ₄₀ O ₃ -2Glc-Rha-Xyl)	PQL、PGL
117	9.65	1109.5719	–H	C ₅₃ H ₉₀ O ₂₄	–2.71	347.8903	1	853.4063, 799.4775, 537.3454, 375.2894	floranotoginsenoside B or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-Glc-2Rha-Mal-H ₂ O)	PGL、PNL
118	9.65	1047.5398	–H	C ₅₁ H ₈₄ O ₂₂	1.61	339.2090	0	1003.5554, 961.5376, 823.4964, 781.4742, 637.4312, 475.3790	PPT-3Glc-Mal	PQL
119	9.70	1137.5692	–H, +HCOO	C ₅₃ H ₈₈ O ₂₃	–0.55	349.2483	1	1091.5642, 959.5222, 797.4685, 779.4569, 635.4166, 617.4045, 375.2964	Notoginsenoside Ng2 or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-Xyl-2Ace)	PGL、PNL、PQL

120^a	9.78	1371.6804	–H	C ₆₄ H ₁₀₈ O ₃ ₁	0.19	393.8447	1	1239.6297, 945.5430, 783.4909, 621.4372	notoginsenoside T	PNL
121^a	9.80	653.4279	–H	C ₃₆ H ₆₂ O ₁₀	1.33	270.8075	1	349.2518, 329.1897, 217.1589	pseudoginsenoside Rt5 (24 <i>R</i>)	PQL
122^a	9.81	799.4856	–H	C ₄₂ H ₇₂ O ₁₄	0.86	298.2295	1	707.3480, 635.4158, 491.3736	24(<i>R</i>)-pseudoginsenoside F11	PQL、PGL
123	9.88	1005.5287	–H, +HCOO	C ₄₈ H ₈₀ O ₁₉	1.12	326.1424	1	959.5221, 797.4687, 779.4589, 617.4049, 455.3542	notoginsenoside G or isomer (C ₃₀ H ₄₈ O ₃ -3Glc-H ₂ O)	PGL
124	9.92	975.5533	–H, +HCOO	C ₄₈ H ₈₂ O ₁₇	–0.06	317.8858	1	929.5475, 767.4953, 621.4367, 475.3791, 391.2847	vinaginsenoside R3 or isomer (PPT-Glc-2Rha)	PGL
125	10.05	991.5123	–H	C ₄₈ H ₈₀ O ₂₁	0.36	316.5524	0	879.3737, 765.4410, 609.2709, 375.2896	C ₂₄ H ₄₀ O ₃ -2Glc-2Rha	PQL
126	10.06	1023.5382	–H, +HCOO	C ₄₈ H ₈₂ O ₂₀	0.05	328.7434	1	879.3737, 765.4410, 609.2709, 547.0343, 375.2896	ginsenoside I or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-2Glc-2Ace-H ₂ O)	PQL、PGL
127	10.08	1047.5391	–H	C ₅₁ H ₈₄ O ₂₂	0.91	329.9378	0	1003.5551, 961.5373, 943.5271, 799.4865, 781.4734, 637.4314, 619.4305, 475.3867, 391.2897	PPT-3Glc-Ace	PGL、PNL、PQL
128	10.10	1049.5538	–H, +HCOO	C ₅₀ H ₈₄ O ₂₀	0.02	338.5780	1	1003.5459, 961.5381, 943.5270, 799.4844, 781.4721, 637.4336, 475.3783, 391.2822	6-acetyl ginsenoside Rg3 or isomer (PPT-3Glc-Ace)	PGL
129	10.13	1195.5748	–H	C ₅₆ H ₉₂ O ₂₇	–0.39	344.2513	0	1151.6013, 1109.5757, 1091.5632, 959.5480, 797.4705, 779.4595, 635.4170, 617.4098, 455.3522	OA-Glc-Rha-3Xyl-2H ₂ O	PNL
130	10.17	801.4646	–H	C ₄₁ H ₇₀ O ₁₅	0.46	292.9902	1	741.4646, 535.0825, 375.2892	floralginsenoside C or isomer (C ₂₄ H ₄₀ O ₃ -Glc-2Xyl)	PGL、PNL、PQL
131	10.20	1063.5343	–H	C ₅₁ H ₈₄ O ₂₃	1.24	339.0396	0	1019.5504, 797.4679, 765.4432, 635.4145, 617.4061, 455.3519	OA-2Glc-Xyl-2Ace-Bute	PQL、PGL
132	10.37	1139.5849	–H, +HCOO	C ₅₃ H ₉₀ O ₂₃	–0.55	354.8594	1	1093.5798, 931.5271, 799.4823, 637.4347, 475.3763,	floralginsenoside P or isomer (PPT-3Glc-Xyl)	PGL
133	10.38	959.5217	–H	C ₄₈ H ₈₀ O ₁₉	–0.4	323.9329	1	959.5223, 797.4728, 635.4147, 599.3975, 473.3623, 455.3524	notoginsenoside G or isomer (C ₃₀ H ₄₈ O ₃ -3Glc-H ₂ O)	PGL、PNL、PQL
134	10.39	845.4899	–H, +HCOO	C ₄₂ H ₇₂ O ₁₄	–0.59	295.8028	1	621.2330, 375.2896	notoginsenoside U or isomer (C ₂₄ H ₄₀ O ₃ -Glc-Xyl-Bute-CO ₂ -H ₂ O)	PNL
135	10.39	991.5133	–H	C ₄₈ H ₈₀ O ₂₁	1.43	316.4481	0	613.3156, 599.4000, 437.3416, 375.2886	C ₂₄ H ₄₀ O ₃ -2Glc-2Rha	PQL
136	10.41	1341.6685	–H	C ₆₃ H ₁₀₆ O ₃ ₀	–0.8	379.6677	1	1077.5898, 783.4893, 621.4377, 537.3461, 443.3483	notoginsenoside Q or isomer (C ₃₀ H ₅₂ O ₂ -2Glc-3Xyl-2Bute-Ace)	PNL
137	10.47	1269.6469	–H	C ₆₀ H ₁₀₂ O ₂ ₈	–1.19	372.0802	1	783.4893, 621.4377, 459.3820, 375.2896	ginsenoside Rb5 or isomer (PPD-5Glc)	PNL
138	10.54	1063.5324	–H	C ₅₁ H ₈₄ O ₂₃	–0.53	342.0060	0	979.5413, 797.4685, 617.4009, 455.3535	OA-2Glc-Xyl-2Ace-Bute	PGL
139^a	10.57	845.4911	–H, +HCOO	C ₄₂ H ₇₂ O ₁₄	0.82	302.0425	1	799.4838, 637.4315, 475.3793, 391.2841	ginsenoside Rf	PGL
140^a	10.68	1239.6383	–H	C ₅₉ H ₁₀₀ O ₂ ₇	0.36	365.9795	1	1077.5813, 897.5236, 783.4910, 621.4365, 459.3843, 375.2904	notoginsenoside Fa	PNL
141	10.68	977.5328	–H, +HCOO	C ₄₇ H ₈₀ O ₁₈	0.12	321.3157	1	931.5283, 799.4854, 637.4312, 475.3791, 391.2840	notoginsenoside FP1 or isomer(PPT-2Glc-Xyl)	PGL、PNL
142	10.78	1065.5483	–H, +HCOO	C ₅₀ H ₈₄ O ₂₁	–0.35	341.2495	1	977.5434, 797.4700, 765.4456, 641.3523, 457.3403	floralginsenoside H or isomer (C ₃₀ H ₅₀ O ₃ -GlurA-Glc-Rha-Ace-2H ₂ O)	PGL

143	10.86	1151.5858	–H, +HCOO	C ₅₄ H ₉₀ O ₂₃	0.25	347.3729	1	1105.5815, 943.5269, 781.4742, 619.4195, 457.3708	5,6-didehydroginsenoside Rb1 or isomer (C ₃₀ H ₅₀ O ₃ -4Glc)	PGL
144	10.90	1063.5331	–H	C ₅₁ H ₈₄ O ₂₃	0.05	336.4027	0	979.5428, 797.4729, 779.4651, 617.3992, 455.3622	OA-2Glc-Xyl-2Ace-Bute	PGL
145	10.93	989.5332	–H, +HCOO	C ₄₈ H ₈₀ O ₁₈	0.54	328.2912	1	943.5269, 781.4713, 619.4227, 457.3789	ginsenoside Rh18 or isomer (C ₃₀ H ₅₀ O ₃ -3Glc)	PGL
146	10.93	1285.6437	–H, +HCOO	C ₅₉ H ₁₀₀ O ₂₇	0.2	369.2964	1	1239.6364, 1077.5845, 945.5410, 783.4897, 621.4349, 459.3842, 375.2975	ginsenoside Ra3 or isomer (PPD-4Glc-Xyl)	PNL
147	11.06	1387.6744	–H, +HCOO	C ₆₃ H ₁₀₆ O ₃₀	–0.5	380.5737	1	1341.6690, 1209.6262, 1077.5840, 945.5443, 783.4892, 621.4383, 459.3826	notoginsenoside Q or isomer (PPD-2Glc-Rha-Xyl-GlurA-Bute-2H ₂ O)	PNL
148^a	11.11	1209.6276	–H	C ₅₈ H ₉₈ O ₂₆	0.25	357.9905	1	999.4559, 879.4133, 747.3764, 537.3441, 459.3843	ginsenoside Ra2	PNL
149^a	11.12	815.4820	–H, +HCOO	C ₄₁ H ₇₀ O ₁₃	2.87	300.1277	1	815.4803, 783.4903, 621.4373, 475.3794, 391.2856	ginsenoside F5	PGL、PNL、PQL
150	11.16	1325.6377	–H	C ₆₂ H ₁₀₂ O ₃₀	–0.46	369.9505	1	1281.6504, 1107.5929, 1089.5905, 1077.5793, 945.5450, 783.4881, 621.4407, 459.3966	malonylginsenoside Ra3 or isomer (PPD-4Glc-Xyl-Mal)	PNL
151	11.20	1107.5964	–H	C ₅₄ H ₉₂ O ₂₃	0.69	270.9253	1	621.4379, 459.3837, 375.2890	ginsenoside Rb1 or isomer (PPD-4Glc)	PGL、PNL、PQL
152	11.21	977.5307	–H	C ₄₈ H ₈₂ O ₂₀	–1.92	320.6493	1	945.5540, 783.4882, 621.4366, 491.3645	yesanchinoside B or isomer (OT-3Glc)	PNL、PQL
153	11.30	1121.5757	–H, +HCOO	C ₅₃ H ₈₈ O ₂₂	0.72	340.2801	1	1075.5797, 913.5180, 781.4794, 457.3754	quinquefoloside-Lb or isomer (C ₃₀ H ₅₀ O ₃ -3Glc-Xyl)	PGL
154^a	11.32	815.4774	–H, +HCOO	C ₄₁ H ₇₀ O ₁₃	–3.17	298.9475	1	815.4795, 769.4742, 529.2983, 475.3785, 391.2851	ginsenoside F3	PGL、PNL、PQL
155	11.33	807.4526	–H	C ₄₃ H ₆₈ O ₁₄	–1.2	294.3666	1	659.2731, 609.1409, 459.3793, 373.2746	isomer of ginsenoside Rs4 (PPD-2Rha-H ₂ O)	PGL
156	11.41	1285.6433	–H, +HCOO	C ₅₉ H ₁₀₀ O ₂₇	–0.08	374.4055	1	945.5424, 769.2605, 373.3166	ginsenoside Ra3 or isomer (5,6-didehydro PPD-GlurA-2Glc-2Xyl-2Ace-H ₂ O)	PNL
157	11.55	807.4529	–H	C ₄₃ H ₆₈ O ₁₄	–0.84	293.3435	1	589.3176, 475.3793, 391.2838	isomer of ginsenoside Rs4 (PPT-2Xyl-Bute)	PGL
158	11.55	815.4815	–H, +HCOO	C ₄₁ H ₇₀ O ₁₃	2.17	301.3002	1	475.3793, 373.2735	isomer of ginsenoside F5 (PPT-Glc-Xyl)	PGL
159^a	11.65	1193.5969	–H	C ₅₇ H ₉₄ O ₂₆	0.79	346.6930	1	1001.4604, 839.4078, 715.3563, 675.3686, 597.3260	m-ginsenoside Rb1	PGL、PNL、PQL
160^a	11.66	1209.6267	–H	C ₅₈ H ₉₈ O ₂₆	–0.48	366.2556	1	1001.4668, 605.4039, 459.3834	ginsenoside Ra1	PNL
161	11.68	1195.6101	–H, +HCOO	C ₅₆ H ₉₄ O ₂₄	–1.36	367.2338	1	947.5473, 621.4358, 459.3927, 375.2857	6"-O-acetylginsenoside Rb1 or isomer (PPD-4Glc-Ace)	PGL、PNL、PQL
162	11.69	1121.5746	–H	C ₅₄ H ₉₀ O ₂₄	–0.24	342.5452	1	999.4573, 675.3686, 441.3739	notoginsenoside B or isomer (C ₃₀ H ₅₀ O ₂ -GlurA-3Glc-H ₂ O)	PGL
163	11.70	1145.6080	–H	C ₅₇ H ₉₄ O ₂₃	–2.87	271.8239	1	765.4796, 537.3430, 459.3834, 375.2893	isomer of ginsenoside Ra7 (PPD-3Glc-Xyl-Bute)	PNL
164^a	11.73	1123.5897	–H, +HCOO	C ₅₃ H ₉₀ O ₂₂	–0.86	343.5379	1	999.4435, 789.2835, 605.4022, 537.3439, 459.3833	ginsenoside Rc	PGL、PNL、PQL
165	11.74	1073.5545	–H	C ₅₃ H ₈₆ O ₂₂	0.63	335.1005	0	1073.5491, 765.4793, 721.2731, 591.2502, 459.3833,	PPD-GlurA-2Xyl-Mal-2CO ₂	PQL
166^a	11.80	1341.6705	–H	C ₆₃ H ₁₀₆ O ₃₀	0.69	384.0701	1	1053.7338, 837.4131, 765.4793, 375.2887	notoginsenoside S	PNL

167	11.86	1295.6273	–H	C ₆₁ H ₁₀₀ O ₂ ₉	–0.33	361.8820	0	1249.5092, 1191.6154, 1077.5823, 1059.5749, 915.5416, 783.4918, 621.4334.459.3798, 375.2877	PPD-Glc-Rha-3Xyl-Mal	PNL
168	11.87	1255.6323	–H	C ₅₉ H ₁₀₀ O ₂ ₈	–0.42	378.8360	1	1077.5955, 1089.5850, 927.5235, 707.3694, 457.3792	3- <i>O</i> -β-D-xylopyranosyl-(1→2)-β-D-glucopyranosyl-(1→2)-β-D-glucopyranosyl-3β,12β,20 <i>S</i> ,24 <i>S</i> -tetrahydroxydammar-25-ene-20- <i>O</i> -β-D-glucopyranosyl-(1→6)-β-D-glucopyranoside or isomer (C ₃₀ H ₅₀ O ₃ -4Glc-Xyl-H ₂ O)	PNL
169^a	11.87	829.4962	–H, +HCOO	C ₄₂ H ₇₂ O ₁₃	0.87	298.7653	1	785.4961, 589.3162, 475.3787, 391.2846	ginsenoside Rg2	PGL、PNL、PQL
170	11.89	1193.5962	–H	C ₅₇ H ₉₄ O ₂₆	0.17	337.2908	1	1107.5955, 1089.5825, 945.5434, 783.4907, 621.4345, 459.3803	isomer of m-ginsenoside Rb1 (PPD-4Glc-Mal)	PQL
171	11.91	1121.5753	–H, +HCOO	C ₅₃ H ₈₈ O ₂₂	0.34	349.5755	1	847.4002, 783.4905, 741.5009, 551.3267, 475.3787	quinquefoloside-Lb or isomer (PPT-2GlurA-Glc-Bute-H ₂ O)	PQL、PGL
172	11.92	845.4913	–H, +HCOO	C ₄₂ H ₇₂ O ₁₄	1.08	304.5754	1	783.4905, 581.0785, 475.3787	ginsenoside-La or isomer (PPT-Xyl-Bute-2CO ₂ -2H ₂ O)	PQL
173^a	11.95	683.4381	–H, +HCOO	C ₃₆ H ₆₂ O ₉	0.76	275.9583	1	597.6910, 489.1295, 213.1271	ginsenoside Rh1	PGL
174	12.03	991.5477	–H, +HCOO	C ₄₈ H ₈₂ O ₁₈	–0.67	328.2080	1	945.5425, 781.4697, 637.4329, 475.3780, 391.2922	ginsenoside Rg18 or isomer (PPT-3Glc)	PGL
175	12.08	1255.6325	–H, +HCOO	C ₅₈ H ₉₈ O ₂₆	–0.25	380.7280	1	1209.6262, 1077.5826, 915.5312, 753.4793, 621.4381, 459.3813	notoginsenoside-FZ or isomer (PPD-3Glc-2Xyl)	PNL
176	12.14	829.4953	–H, +HCOO	C ₄₂ H ₇₂ O ₁₃	–0.2	304.2829	1	783.4833, 637.4359, 475.3789, 391.2841	isomer of ginsenoside Rg2 (PPT-Glc-Rha)	PQL、PGL
177	12.26	1101.5885	–H	C ₅₅ H ₉₀ O ₂₂	3.06	262.1909	0	951.3470, 819.3988, 783.4895, 621.3561, 459.3836, 375.2898	PPD-3Glc-Bute-2CO ₂	PQL
178^a	12.27	1123.5900	–H, +HCOO	C ₅₃ H ₉₀ O ₂₂	–0.52	356.3329	1	785.4749, 707.3664, 605.4039, 459.3836	ginsenoside Rb2	PGL、PNL、PQL
179	12.36	1163.5855	–H	C ₅₆ H ₉₂ O ₂₅	–0.01	344.2092	1	1119.5961, 945.5440, 783.4895, 621.4376, 459.3840	isomer of m-ginsenoside Rc (PPD-3Glc-Xyl-Mal)	PGL、PNL、PQL
180	12.39	1295.6276	–H	C ₆₁ H ₁₀₀ O ₂ ₉	–0.08	364.5308	0	1251.6401, 1209.6271, 1077.5846, 1059.5718, 945.5466, 915.5313, 783.4852, 621.4429, 459.3830, 375.2928	PPD-2Glc-2Rha-Xyl-2CO ₂	PNL
181	12.42	815.4800	–H, +HCOO	C ₄₁ H ₇₀ O ₁₃	0.3	297.5575	1	693.3675, 595.2579, 441.0894	notoginsenoside R2 or isomer (C ₃₀ H ₅₀ O ₂ -2Rha-2H ₂ O)	PGL
182^a	12.55	1123.5911	–H, +HCOO	C ₅₃ H ₉₀ O ₂₂	0.49	353.4245	1	953.4847, 839.4144, 717.3663, 605.4140, 459.3846	ginsenoside Rb3	PGL、PNL、PQL
183	12.56	799.4829	–H	C ₄₂ H ₇₂ O ₁₄	–2.44	300.6810	1	637.4368, 475.3800, 391.2903	ginsenoside-La or isomer (PPT-2Glc)	PGL
184	12.58	1195.5218	–H	C ₅₈ H ₈₄ O ₂₆	3.33	341.8116	0	1109.6206, 1059.5767, 675.3562, 459.3847, 375.2900	PPD-3Glc-Rha-Mal-H ₂ O	PNL、PQL
185	12.59	829.4972	–H, +HCOO	C ₄₂ H ₇₂ O ₁₃	2.13	301.6790	1	691.4311, 615.3083, 441.3761	notoginsenoside SY3 or isomer (C ₃₀ H ₅₀ O ₂ -2Glc-H ₂ O)	PNL
186^a	12.60	635.4149	–H	C ₃₆ H ₆₀ O ₉	–2.4	271.7059	1	525.2773, 443.1931, 329.2538	ginsenoside Rh7	PGL
187	12.68	1091.5634	–H	C ₅₃ H ₈₈ O ₂₃	–0.87	332.1887	1	993.3333, 693.3635, 457.3628	Notoginsenoside Ng2 or isomer (C ₃₀ H ₅₀ O ₃ -GlurA-Glc-Rha-Xyl-H ₂ O)	PQL
188	12.70	1255.6312	–H, +HCOO	C ₅₈ H ₉₈ O ₂₆	–1.32	364.5043	1	1209.6257, 1077.5860, 1047.5771, 945.5434, 783.4893, 621.4321, 459.3840	notoginsenoside-FZ or isomer (PPD-3Glc-2Xyl)	PNL

189	12.71	1163.5844	–H	C ₅₆ H ₉₂ O ₂₅	–0.94	345.4921	1	1119.5946, 1077.5840, 1059.5739, 945.5412, 825.5006, 783.4891, 765.4787, 621.4362, 459.3824, 375.2908	isomer of m-ginsenoside Rc (PPD-3Glc-Xyl-Mal)	PGL、PNL
190	12.74	885.4848	–H	C ₄₅ H ₇₄ O ₁₇	–0.59	288.9251	0	841.5006, 799.4885, 517.3896, 375.2817	PPD-Glc-GlurA-Dimal	PNL
191	12.74	1193.5957	–H	C ₅₇ H ₉₄ O ₂₆	–0.26	362.1214	1	1149.6066, 1107.5953, 1089.5835, 945.5423, 783.4902, 621.4381, 459.3854, 375.2874	isomer of m-ginsenoside Rb1 (PPD-4Glc-Mal)	PQL、PGL
192	12.81	1123.5900	–H, +HCOO	C ₅₃ H ₉₀ O ₂₂	–0.56	351.5175	1	1077.5849, 945.5420, 783.4903, 621.4365, 459.3842, 375.2911	notoginsenoside L or isomer (PPD-3Glc-Xyl)	PNL
193	12.84	1165.5996	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	–1.36	366.1348	1	1119.6037, 1077.5850, 1059.5798, 945.5378, 783.4897, 765.4828, 621.4400, 459.3857	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PNL
194^a	12.84	955.4908	–H	C ₄₈ H ₇₆ O ₁₉	0.07	320.6009	1	955.4960, 571.4021, 465.1603	ginsenoside Ro	PGL、PNL、PQL
195	12.88	1137.6071	–H, +HCOO	C ₅₄ H ₉₂ O ₂₂	0.86	338.3659	1	1091.6000, 945.5448, 783.4900, 765.4748, 621.4406, 459.3839	gypenoside V or isomer (PPD-2Glc-Xyl-GlurA)	PQL、PGL
196	12.91	1295.6277	–H	C ₆₁ H ₁₀₀ O ₂₉	0.01	364.1287	0	1133.5045, 945.5422, 621.4376, 443.3537	C ₃₀ H ₅₂ O ₂ -3Glc-Rha-2Bute-2Ace	PNL
197	12.92	1087.5325	–H	C ₅₃ H ₈₄ O ₂₃	–0.45	363.9683	1	925.4783, 731.4347, 551.3727, 455.3517	stipuleanoside R2 or isomer (OA-GlurA-2Glc-Xyl)	PNL、PQL
198	12.93	941.5118	–H	C ₄₈ H ₇₈ O ₁₈	0.34	316.5504	0	925.4802, 795.4447, 551.3751, 459.3838	isomer of calendulose-B (PPD-Glc-Rha-Xyl-Ace)	PQL
199	12.97	1105.5828	–H	C ₅₄ H ₉₀ O ₂₃	2.55	341.4020	1	915.5359, 459.3832, 375.2900	5,6-didehydroginsenoside Rb1 or isomer (PPD-2Glc-Rha-Xyl-CO ₂)	PGL、PNL
200^a	12.98	1163.5855	–H	C ₅₆ H ₉₂ O ₂₅	0	354.5736	1	1119.5955, 1077.5850, 1059.5750, 945.5428, 783.4904, 621.4368, 459.3839, 375.2869	m-ginsenoside Rb2	PGL、PNL、PQL
201	13.06	943.5286	–H	C ₄₈ H ₈₀ O ₁₈	1.49	323.5357	1	781.4736, 441.3702	ginsenoside Rh18 or isomer (C ₃₀ H ₅₀ O ₂ -GlurA-Glc-Rha-H ₂ O)	PGL
202	13.13	1193.5963	–H	C ₅₇ H ₉₄ O ₂₆	0.24	357.7584	1	1149.6023, 1107.5951, 1089.5881, 945.5432, 927.5298, 783.4909, 621.4324, 459.3777	isomer of m-ginsenoside Rb1 (PPD-4Glc-Mal)	PNL、PQL
203^a	13.21	683.4367	–H, +HCOO	C ₃₆ H ₆₂ O ₉	–1.39	271.9206	1	683.4367, 637.4324, 529.2986, 475.3788	ginsenoside F1	PGL、PNL
204	13.22	737.3542	–H	C ₄₁ H ₅₄ O ₁₂	–0.03	287.5583	0	561.1876, 475.3788	PPT-GlurA-Mal	PGL
205	13.30	1105.5786	–H	C ₅₄ H ₉₀ O ₂₃	–1.26	339.1267	1	967.4445, 897.5241, 837.4105, 605.1036, 537.3440, 459.3837	5,6-didehydroginsenoside Rb1 or isomer (PPD-GlurA-2Glc-Rha)	PNL、PQL
206	13.32	1163.5853	–H	C ₅₆ H ₉₂ O ₂₅	–0.2	344.7831	1	1119.5942, 1077.5842, 1059.5744, 945.5404, 783.4889, 621.4363, 459.3831, 375.2867	isomer of m-ginsenoside Rc (PPD-3Glc-Xyl-Mal)	PGL、PNL、PQL
207	13.36	1059.5373	–H	C ₅₂ H ₈₄ O ₂₂	–0.73	252.3240	0	955.4916, 793.4420, 455.3532	OA-GlurA-2Glc-Ace-CO ₂ -H ₂ O	PQL
208	13.38	1091.5644	–H	C ₅₃ H ₈₈ O ₂₃	0.08	343.4711	1	1091.5617, 933.4142, 839.4105, 573.3251, 459.9779	Notoginsenoside Ng2 or isomer (C ₃₀ H ₅₂ O ₃ -3Glc-Rha)	PQL
209	13.40	955.4913	–H	C ₄₈ H ₇₆ O ₁₉	0.52	334.1731	1	835.4539, 793.4381, 731.4378, 569.3855, 455.3521	chikusetsusaponin V or isomer (OA-2Glc-GlurA)	PQL
210	13.40	725.4487	–H, +HCOO	C ₃₈ H ₆₄ O ₁₀	0.83	285.8828	0	573.1645, 441.2354	C ₃₀ H ₅₀ O ₂ -Xyl-2CO ₂	PQL
211	13.42	1093.5808	–H, +HCOO	C ₅₂ H ₈₈ O ₂₁	0.75	334.9917	1	1047.5763, 915.5352, 783.4894, 753.4815, 621.4387, 459.3865, 375.3030	gypenoside XV or isomer (PPD-2Glc-2Xyl)	PGL、PNL
212	13.48	1295.6301	–H	C ₆₁ H ₁₀₀ O ₂₉	1.81	374.4634	0	1251.6348, 1209.6262, 1191.6170, 1077.5867, 1059.5767, 915.5288, 783.4895, 621.4349, 459.3835	PPD-2Glc-2Rha-Xyl-2CO ₂	PNL

213	13.54	1165.6006	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	–0.44	366.0178	1	1119.6007, 1077.5852, 1059.5759, 945.5440, 915.5366, 783.4919, 765.4775, 621.4390, 459.3945	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PNL、PQL
214	13.75	1091.5647	–H	C ₅₃ H ₈₈ O ₂₃	0.41	341.1041	1	969.4484, 837.4073, 717.3620, 537.3440, 441.3749	Notoginsenoside Ng2 or isomer (C ₃₀ H ₅₀ O ₂ -3Glc-Rha-H ₂ O)	PQL
215	13.76	1163.5856	–H	C ₅₆ H ₉₂ O ₂₅	0.06	338.4176	1	1119.5957, 1077.5845, 1059.5724, 945.5421, 783.4905, 621.4367, 459.3835, 375.2900	isomer of m-ginsenoside Rc (PPD-3Glc-Xyl-Mal)	PGL、PNL、PQL
216	13.80	1105.5796	–H	C ₅₄ H ₉₀ O ₂₃	–0.32	339.4126	1	783.4898, 621.4380, 459.3857, 375.2901	epoxynotoginsenoside A or isomer (PPD-GlurA-2Glc-Rha)	PNL
217	14.17	1107.5606	–H	C ₅₃ H ₈₈ O ₂₄	1.14	341.6669	0	945.5423, 783.4896, 621.4366, 459.3839	PPD-4Glc	PQL
218^a	14.19	945.5424	–H	C ₄₈ H ₈₂ O ₁₈	–0.41	325.4825	1	765.4783, 605.4077, 537.3428, 457.3662, 373.3141	ginsenoside Rd	PGL、PNL、PQL
219	14.22	983.5212	–H	C ₅₀ H ₈₀ O ₁₉	–0.91	321.7443	0	821.4058, 591.9057, 459.3075, 375.2899	isomer of chikusetsusaponin V ethyl ester (PPD-Glc-Rha-Xyl-2Ace)	PGL、PNL
220^a	14.27	925.4771	–H	C ₄₇ H ₇₄ O ₁₈	–3.38	313.8303	1	735.3794, 605.4076, 557.2633, 439.3570	pseudoginsenoside Rt1	PQL
221	14.28	1165.6013	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	0.2	364.4360	1	1119.5960, 1077.5851, 1059.5756, 945.5430, 783.4901, 621.4378, 459.3823	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PNL、PQL
222	14.31	1093.5790	–H	C ₅₃ H ₉₀ O ₂₃	–0.94	348.3157	1	885.2979, 753.4891, 459.4338	floranotoginsenoside A or isomer (C ₃₀ H ₅₂ O ₃ -3Glc-Xyl)	PGL、PNL
223	14.32	1163.5861	–H	C ₅₆ H ₉₂ O ₂₅	0.47	347.1183	1	1119.5930, 1077.5844, 1059.5760, 945.5396, 783.4908, 621.4370, 459.3839, 375.2839	isomer of m-ginsenoside Rc (PPD-3Glc-Xyl-Mal)	PNL
224	14.33	855.4756	–H	C ₄₄ H ₇₂ O ₁₆	0.97	288.8792	1	729.7736, 571.3050, 373.2745	notoginsenosides NL-D or isomer (5,6-didehydro-PPD-Glc-Xyl-Mal-2Ace-H ₂ O)	PNL
225	14.35	943.5273	–H	C ₄₈ H ₈₀ O ₁₈	0.1	321.4684	1	855.4280, 837.4045, 705.3714, 459.4338	ginsenoside Rh18 or isomer (C ₃₀ H ₅₂ O ₃ -Glc-Xyl-2CO ₂ -2Ace-H ₂ O)	PGL
226	14.42	991.5484	–H, +HCOO	C ₄₈ H ₈₂ O ₁₈	0.09	328.3004	1	945.5405, 783.4899, 621.4367, 459.3832, 375.2912	chikusetsusaponin FK7 or isomer (PPD-3Glc)	PGL
227	14.56	1165.6003	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	–0.67	353.0541	1	1119.5951, 1077.5840, 945.5423, 783.4901, 765.4793, 621.4356, 459.3818, 375.2875	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PGL、PNL、PQL
228	14.63	973.4108	–H	C ₄₉ H ₆₆ O ₂₀	3.51	322.1324	0	811.4853, 621.4356, 459.9472	C ₃₀ H ₅₂ O ₃ -2Glc-Dimal-H ₂ O	PNL
229	14.63	857.4907	–H, +HCOO	C ₄₃ H ₇₂ O ₁₄	0.31	308.8542	1	811.4840, 631.3898, 517.3916, 433.2976, 391.2958	20(<i>S</i>)-sanchirhinoside A2 or isomer (C ₂₄ H ₄₀ O ₄ -Glc-Rha-Bute-CO ₂)	PNL
230	14.64	1031.5439	–H	C ₅₁ H ₈₄ O ₂₁	0.72	336.7822	1	943.5255, 925.5184, 781.4746, 619.4170, 457.3686	m-ginsenoside Rd1 or isomer (C ₃₀ H ₅₀ O ₃ -2Glc-Rha-Mal-H ₂ O)	PGL
231	14.64	855.4754	–H	C ₄₄ H ₇₂ O ₁₆	0.83	289.8556	1	811.4853, 621.4357, 459.2648	notoginsenosides NL-D or isomer (PPD-2Rha-Mal-H ₂ O)	PNL
232	14.64	955.3970	–H	C ₄₉ H ₆₄ O ₁₉	0.06	301.2727	1	631.3357, 455.3632	chikusetsusaponin V or isomer (OA-GlurA-2Glc)	PNL
233	14.69	1093.5794	–H, +HCOO	C ₅₂ H ₈₈ O ₂₁	–0.53	343.3002	1	1047.5712, 915.5320, 753.4792, 621.4362, 459.3808, 375.2943	gypenoside XV or isomer (PPD-2Glc-2Xyl)	PGL、PNL
234	14.73	723.4334	–H, +HCOO	C ₃₈ H ₆₂ O ₁₀	1.39	280.3893	0	527.2868, 459.3855	PPD-Xyl-Bute-H ₂ O	PGL
235	14.77	1163.5862	–H	C ₅₆ H ₉₂ O ₂₅	0.61	365.6328	1	1119.6000, 1077.5857, 1059.5762, 945.5416, 783.4902, 765.4790, 621.4381, 459.3848, 375.2966	isomer of m-ginsenoside Rc (PPD-3Glc-Xyl-Mal)	PGL、PNL

236	14.92	1249.5864	–H	C ₅₉ H ₉₄ O ₂₈	0.41	354.8976	0	917.3033, 717.3704, 603.4327, 459.3847, 375.2899	PPD-3Glc-Dimal-Xyl	PNL、PQL
237	15.02	991.5480	–H, +HCOO	C ₄₈ H ₈₂ O ₁₈	–0.33	330.2518	1	945.5413, 783.4893, 621.4351, 459.3855	ginsenoside Rg18 or isomer (PPD-3Glc)	PGL
238	15.20	1165.5992	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	–1.69	352.7174	1	1119.5954, 1077.5850, 1059.5738, 945.5424, 783.4886, 621.4359, 459.3836, 375.2887	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PQL、PGL
239	15.22	1105.5814	–H	C ₅₄ H ₉₀ O ₂₃	1.22	339.0706	1	1059.5734, 927.5333, 765.4804, 603.4309, 441.3734, 373.3116	epoxynotoginsenoside A or isomer (C ₃₀ H ₅₀ O ₂ -GlurA-2Glc-Rha-H ₂ O)	PNL
240	15.24	925.4798	–H	C ₄₇ H ₇₄ O ₁₈	–0.39	322.0344	1	763.4299, 455.3537	isomer of pseudoginsenoside Rt1 (OA-2Glc-Rha)	PQL
241	15.25	1163.5855	–H	C ₅₆ H ₉₂ O ₂₅	0.04	360.4723	1	1119.5934, 1077.5842, 1059.5747, 945.5421, 783.4906, 621.4362, 459.3846, 375.2916	isomer of m-ginsenoside Rc (PPD-3Glc-Xyl-Mal)	PGL、PNL
242	15.29	991.5513	–H, +HCOO	C ₄₈ H ₈₂ O ₁₈	3.16	322.6056	1	945.5396, 783.4905, 621.4367, 459.3890, 375.2864	chikusetsusaponin FK7 or isomer (PPD-3Glc)	PGL
243	15.34	961.5371	–H	C ₄₈ H ₈₂ O ₁₉	–0.62	316.4598	1	785.4966, 571.3987, 501.3960, 443.3528, 375.2898	quinquenoside L2 or isomer (PPD-Glc-Rha-Xyl-CO ₂ -H ₂ O)	PQL
244	15.35	987.5537	–H	C ₅₀ H ₈₄ O ₁₉	0.3	331.3449	1	747.3850, 675.3564, 537.3431, 459.3844	6''-O-acetylginsenoside Rg3 or isomer (PPD-3Glc-Ace)	PQL
245	15.36	1035.5642	–H, +HCOO	C ₅₇ H ₈₂ O ₁₄	–4.53	340.1807	0	827.2967, 459.3844	PPD-3Glc-CO ₂	PQL
246^a	15.36	1031.5437	–H	C ₅₁ H ₈₄ O ₂₁	0.49	335.7891	1	997.4630, 833.4122, 707.3733, 537.3431, 459.3844	m-ginsenoside Rd	PGL、PNL、PQL
247	15.39	815.4804	–H	C ₄₂ H ₇₂ O ₁₅	0.68	295.9323	1	783.4903, 621.4367, 459.3844	floralginsenoside F or isomer (PPD-Glc-Xyl-CO ₂ -H ₂ O)	PQL
248	15.48	691.3543	–H	C ₃₃ H ₅₆ O ₁₅	–0.36	267.8235	0	457.3672	C ₃₀ H ₅₀ O ₃ -Xyl-2Ace-H ₂ O	PGL
249	15.49	1205.5940	–H	C ₅₈ H ₉₄ O ₂₆	–1.65	363.4017	0	1119.5960, 1077.5811, 1059.5736, 945.5462, 765.4857, 621.4346, 459.3861, 375.2870	PPD-3Glc-Xyl-Mal-Ace	PQL
250	15.64	665.4272	–H	C ₃₆ H ₆₂ O ₁₀	0.26	262.8122	1	475.3791, 391.2849	3-formyloxy-20- <i>O</i> - β -D-glucopyranosyl-20(<i>S</i>)-protopanaxtriol or isomer (PPT-Rha-CO ₂)	PGL
251	15.65	679.4433	–H	C ₃₈ H ₆₄ O ₁₀	1.1	274.6643	1	637.4320, 475.3791, 391.2849	20(<i>S</i>)-ginsenoside-Rh1-6'-acetate or isomer (PPT-Glc-Ace)	PGL
252	15.70	1031.5429	–H	C ₅₁ H ₈₄ O ₂₁	–0.33	330.3502	1	945.5427, 783.4959, 621.4353, 459.3784	m-ginsenoside Rd1 or isomer (PPD-3Glc-Mal)	PGL
253	15.72	1165.6004	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	–0.61	366.6294	1	1119.5975, 1077.5842, 1059.5744, 945.5428, 783.4905, 765.4800, 621.4275, 459.3827, 375.2988	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PGL、PNL、PQL
254^a	15.77	1163.5844	–H	C ₅₆ H ₉₂ O ₂₅	–0.93	354.9716	1	733.3892, 649.3070, 459.3835	m-ginsenoside Rc	PNL、PQL
255	15.83	961.5374	–H, +HCOO	C ₄₇ H ₈₀ O ₁₇	–0.44	313.1629	1	915.5354, 621.4343, 459.3847	quinquenoside L10 or isomer (PPD-2Glc-Xyl)	PQL
256^a	15.92	945.5420	–H	C ₄₈ H ₈₂ O ₁₈	–0.89	318.6634	1	793.4351	Gypenoside XVII	PGL、PNL、PQL
257^a	15.95	793.4385	–H	C ₄₂ H ₆₆ O ₁₄	0.64	284.9517	1	455.3526, 423.3259	chikusetsusaponin Iva	PQL、PGL
258	16.07	1165.6028	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	1.47	357.7315	1	1119.5983, 1077.5847, 1059.5765, 945.5432, 783.4893, 621.4381, 459.3846	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PNL、PQL
259	16.14	1033.5587	–H, +HCOO	C ₅₀ H ₈₄ O ₁₉	–0.18	337.0223	1	987.5543, 945.5434, 783.4895, 621.4365, 459.3842, 375.2884	6''-O-acetylginsenoside Rg3 or isomer (PPD-3Glc-Ace)	PGL、PNL、PQL
260	16.16	1075.5690	–H	C ₅₃ H ₈₈ O ₂₂	–0.38	332.3759	1	621.4337, 441.3712	quinquefoloside-Lb or isomer (C ₃₀ H ₅₀ O ₂ -2Glc-2Rha-H ₂ O)	PQL
261	16.17	959.5222	–H	C ₄₈ H ₈₀ O ₁₉	0.07	313.0161	1	779.4584, 621.4380, 459.3817	vinaginsenoside R20 or isomer (PPD-GlurA-2Glc)	PQL

262	16.21	1031.5430	–H	C ₅₁ H ₈₄ O ₂₁	–0.19	319.3662	1	621.4370, 459.3115, 375.2902	m-ginsenoside Rd1 or isomer (PPD-3Glc-Mal)	PGL、PNL、PQL
263	16.36	679.4426	–H	C ₃₈ H ₆₄ O ₁₀	0.07	281.5844	1	517.1345, 391.2864	20(<i>S</i>)-ginsenoside-Rh1-6'-acetate or isomer (PPT-Glc-3Ace)	PGL
264	16.57	987.5536	–H	C ₅₀ H ₈₄ O ₁₉	0.23	339.9146	1	783.4935, 459.3834, 375.2896	6''- <i>O</i> -acetyl-ginsenoside Rg3 or isomer (PPD-3Glc-Ace)	PQL
265	16.68	1075.5688	–H	C ₅₃ H ₈₈ O ₂₂	–0.57	330.0632	1	1075.5680, 763.4547, 441.3621	quinquefoloside-Lb or isomer (C ₃₀ H ₅₀ O ₂ -2Glc-2Rha-H ₂ O)	PQL
266	16.71	1093.5803	–H, +HCOO	C ₅₂ H ₈₈ O ₂₁	0.27	346.2276	1	1047.5745, 915.5314, 783.4888, 621.4353, 459.3842, 375.2888	gypenoside XV or isomer (PPD-2Glc-2Xyl)	PNL
267	16.92	1117.5435	–H	C ₅₄ H ₈₆ O ₂₄	–0.08	342.6260	1	987.5579, 945.5402, 927.5345, 879.5172, 783.4887, 621.4367, 459.3850	malonylfloralginsenoside Rd6 or isomer (PPD-3Glc-Dimal)	PQL
268	17.14	1165.5998	–H, +HCOO	C ₅₅ H ₉₂ O ₂₃	–1.2	353.1780	1	1119.5889, 1077.5830, 1059.5736, 945.5394, 783.4910, 621.4380, 459.3834	pseudoginsenoside F8 or isomer (PPD-3Glc-Xyl-Ace)	PNL
269	17.16	1071.5736	–H	C ₅₄ H ₈₈ O ₂₁	–0.87	339.9531	1	945.5414, 783.4946, 621.4410, 459.3836	ginsenoside Rh25 or isomer (PPD-2Glc-Xyl-Bute-2CO ₂)	PGL
270	17.29	1033.5595	–H, +HCOO	C ₅₀ H ₈₄ O ₁₉	0.56	337.8342	1	987.5564, 945.5432, 927.5307, 783.4904, 765.4816, 621.4374, 459.3836, 375.2856	6''- <i>O</i> -acetyl-ginsenoside Rg3 or isomer (PPD-3Glc-Ace)	PGL、PNL、PQL
271	17.29	725.4490	–H, +HCOO	C ₃₈ H ₆₄ O ₁₀	1.29	282.5953	0	503.2506, 459.3867	PPD-Xyl-CO ₂	PGL
272	17.31	1117.5431	–H	C ₅₄ H ₈₆ O ₂₄	–0.44	336.5106	1	987.5542, 945.5429, 921.5207, 825.5012, 765.4798, 621.4360, 459.3845, 375.2896	malonylfloralginsenoside Rd6 or isomer (PPD-3Glc-Dimal)	PGL、PNL、PQL
273	17.32	1075.5688	–H, +HCOO	C ₅₂ H ₈₆ O ₂₀	–0.54	354.1174	0	909.5181, 825.5043, 705.3525, 459.3849	PPD-3Glc-2Ace	PGL
274	17.35	653.4268	–H	C ₃₆ H ₆₂ O ₁₀	–0.33	264.4534	1	621.4383, 459.3848	ginsenoside M7cd or isomer (PPD-GlurA-H ₂ O)	PGL
275^a	17.37	961.5378	–H, +HCOO	C ₄₇ H ₈₀ O ₁₈	–0.02	317.2583	1	783.4901, 621.4366, 459.3833, 375.2892	notoginsenoside Fe	PGL、PNL、PQL
276	17.39	945.5411	–H	C ₄₈ H ₈₂ O ₁₈	–1.78	324.2638	1	783.6360, 621.4380, 459.3849, 375.2901	chikusetsusaponin FK7 or isomer (PPD-3Glc)	PGL
277	17.46	1031.5429	–H	C ₅₁ H ₈₄ O ₂₁	–0.29	331.5339	1	945.5413, 927.5311, 783.4884, 621.4356, 603.4295, 459.3826, 375.2905	m-ginsenoside Rd1 or isomer (PPD-3Glc-Mal)	PGL、PNL、PQL
278	17.47	1091.5604	–H	C ₅₃ H ₈₈ O ₂₃	–3.56	339.7215	1	673.3501, 475.3078, 375.2896	Notoginsenoside Ng2 or isomer (C ₂₄ H ₄₀ O ₃ -3Glc-Rha-2Ace)	PQL
279	17.47	815.4791	–H	C ₄₂ H ₇₂ O ₁₅	–0.85	290.2999	1	571.3991, 375.1972	floralquinquenoside B or isomer (C ₂₄ H ₄₀ O ₃ -GlurA-Glc-2Ace-H ₂ O)	PQL
280	17.49	829.4950	–H	C ₄₃ H ₇₄ O ₁₅	–0.65	301.9290	1	537.3450, 439.3595, 375.1972	notoginsenoside ST-2 or isomer (C ₂₄ H ₄₀ O ₃ -Glc-2Rha)	PQL
281	17.53	975.5179	–H, +HCOO	C ₄₇ H ₇₈ O ₁₈	0.95	318.1824	1	767.3480, 621.4366, 441.3712	notoginsenosides NL-C1 or isomer (C ₃₀ H ₅₀ O ₂ -2Glc-Rha-H ₂ O)	PQL
282	17.56	1181.6998	–H	C ₆₆ H ₁₀₂ O ₁₈	0.39	264.0835	0	695.3613, 475.3786	PPT-3Glc-Xyl-2CO ₂	PNL
283	17.56	679.4426	–H	C ₃₈ H ₆₄ O ₁₀	–0.11	279.7462	0	591.3326, 459.3704, 375.2899	isomer of 6'-acetyl ginsenoside-F1 (PPD-Xyl-2CO ₂ -2Ace)	PNL
284	17.56	683.4376	–H, +HCOO	C ₃₆ H ₆₂ O ₉	0	268.4041	1	475.3786, 391.2851	ginsenoside Rh13 or isomer (PPT-Glc-2Ace)	PNL
285	17.56	665.4274	–H	C ₃₇ H ₆₂ O ₁₀	0.63	262.5117	1	475.3786	3-formyloxy-20- <i>O</i> -β-D-glucopyranosyl-20(<i>S</i>)-protopanaxtriol or isomer (PPT-Rha-CO ₂)	PNL
286	17.56	769.4384	–H, +HCOO	C ₃₉ H ₆₄ O ₁₂	0.49	280.0159	0	591.3326, 459.3704, 375.2899	PPD-2Xyl	PNL
287	17.60	693.3700	–H	C ₃₃ H ₅₈ O ₁₅	–0.49	267.9330	0	697.3796, 475.3786, 391.2851	PPT-Xyl-Bute-H ₂ O	PNL

288	17.60	953.5124	–H	C ₄₉ H ₇₈ O ₁₈	0.99	313.7691	0	765.4750, 605.4070, 459.2096, 441.3712, 375.2896	isomer of taibaienoside II (C ₃₀ H ₅₀ O ₂ -GlucA-Glc-Xyl-Ace)	PQL
289^a	17.61	961.5385	–H, +HCOO	C ₄₇ H ₈₀ O ₁₇	0.82	317.5831	1	915.5319, 783.4903, 621.4372, 459.3846	notoginsenoside Fd/ginsenoside Rd2	PGL、PNL、PQL
290	17.63	941.5133	–H	C ₄₈ H ₇₈ O ₁₈	1.93	314.1139	0	605.4070, 459.3896, 375.2902	isomer of calenduloside-B (PPD-GlucA-2Xyl-Ace)	PQL
291	17.64	809.4690	–H	C ₄₃ H ₇₀ O ₁₄	–0.39	296.6541	0	637.4304, 391.2856	PPT-Glc-2Mal-2Ace	PGL
292	17.64	1121.5741	–H, +HCOO	C ₅₃ H ₈₈ O ₂₂	–0.74	340.4608	1	915.5327, 783.4897, 621.4368, 459.3842	quinquefoloside-Lb or isomer (PPD-2Glc-2Rha)	PGL、PNL、PQL
293	17.65	1089.5496	–H	C ₅₃ H ₈₆ O ₂₃	0.85	338.3637	0	1043.5599, 915.5327, 783.4897, 621.4368, 459.3842	PPD-2Glc-2Xyl-Ace	PQL
294	17.66	1117.5436	–H	C ₅₄ H ₈₆ O ₂₄	–0.02	346.3432	1	945.5402, 783.4764, 621.4420, 459.3792, 375.2924	malonylfloralginsenoside Rd6 or isomer (PPD-3Glc-Dimal)	PGL、PNL、PQL
295	17.66	943.5266	–H	C ₄₈ H ₈₀ O ₁₈	–0.65	327.5276	0	915.5327, 767.8154, 621.4368, 605.4084, 459.3842	isomer of quinquenoside L1 (PPD-GlucA-Glc-Rha)	PQL、PGL
296	17.66	1073.5543	–H	C ₅₃ H ₈₆ O ₂₂	0.47	336.4461	0	987.5547, 783.4897, 621.4368, 459.3842	PPD-3Glc-Mal-Ace	PQL
297	17.68	1001.5311	–H	C ₅₀ H ₈₂ O ₂₀	–1.49	330.9395	0	915.5327, 375.2900	C ₂₄ H ₄₀ O ₃ -2Glc-Xyl-Mal-2Ace	PQL、PGL
298	17.69	1003.5460	–H, +HCOO	C ₄₉ H ₈₂ O ₁₈	–2.43	331.9447	0	783.4920, 459.3842	PPD-2Glc-Xyl-Ace	PGL、PNL、PQL
299	17.69	829.4938	–H, +HCOO	C ₄₂ H ₇₂ O ₁₃	–2.1	301.1828	1	783.4901, 375.2902	ginsenoside F2 or isomer (C ₂₄ H ₄₀ O ₃ -2Glc-2Ace)	PQL
300	17.70	1107.5961	–H, +HCOO	C ₅₃ H ₉₀ O ₂₁	0.06	347.8494	0	917.5388, 765.4771, 665.3141, 737.5347, 459.3842	PPD-2Glc-Rha-Xyl	PNL
301	17.72	945.5402	–H	C ₄₈ H ₈₂ O ₁₈	–2.77	321.3455	1	853.4433, 771.4500, 615.3455, 375.29	isomer of ginsenoside Rd (C ₂₄ H ₄₀ O ₃ -3Glc)	PGL
302	17.73	813.4644	–H	C ₄₂ H ₇₀ O ₁₅	0.29	309.7221	1	771.4500, 615.3455, 475.3791	isomer of pseudoginsenoside RT8 (PPT-GlucA-Glc)	PGL
303	17.77	827.4780	–H	C ₄₃ H ₇₂ O ₁₅	–2.23	293.8471	0	783.4883, 739.4241, 721.4133, 457.3691	isomer of vinaginsenoside R2 (C ₃₀ H ₅₀ O ₃ -2Xyl-H ₂ O-2CO ₂)	PGL
304	17.77	1033.5580	–H, +HCOO	C ₅₀ H ₈₄ O ₁₉	–0.86	336.7252	1	987.5506, 945.5476, 927.5287, 783.4839, 765.4836, 621.4378, 459.3797, 375.2931	6''-O-acetylginsenoside Rg3 or isomer (PPD-3Glc-Ace)	PGL、PNL、PQL
305^a	17.83	811.4844	–H, +HCOO	C ₄₂ H ₇₀ O ₁₂	–0.69	297.0436	1	739.4230, 631.3267, 531.3124, 391.9970	ginsenoside Rg6	PGL、PNL、PQL
306	17.84	975.5519	–H, +HCOO	C ₄₈ H ₈₂ O ₁₇	–1.59	325.6355	1	929.5470, 783.4909, 621.4379, 459.3862, 375.2914	vinaginsenoside R3 or isomer (PPD-2Glc-Rha)	PGL、PNL
307	17.85	959.5234	–H	C ₄₈ H ₈₀ O ₁₉	1.36	316.8746	1	783.4895, 375.2897	vinaginsenoside R20 or isomer (C ₂₄ H ₄₀ O ₃ -GlucA-2Glc-2Ace)	PGL
308	17.87	941.5114	–H	C ₄₈ H ₇₈ O ₁₈	–0.13	321.2803	0	677.8905, 459.384	isomer of calenduloside-B (PPD-GlucA-2Xyl-Ace)	PQL
309	17.87	725.4474	–H	C ₃₉ H ₆₆ O ₁₂	–0.93	280.7044	0	638.3926, 475.3781, 391.2849	PPT-Glc-2CO ₂	PGL
310	17.87	683.4382	–H	C ₃₇ H ₆₄ O ₁₁	0.91	272.7090	0	621.4378, 459.3838, 375.2912	isomer of notoginsenoside SP20 (PPD-Glc-CO ₂ -H ₂ O)	PQL
311	17.90	1087.5340	–H	C ₅₃ H ₈₄ O ₂₃	0.92	331.2390	0	957.5370, 765.4775, 621.4358, 459.3870, 375.2921	isomer of stipuleanoside R2 (PPD-2Glc-Xyl-Dimal)	PNL
312	17.91	767.4587	–H, +HCOO	C ₄₀ H ₆₆ O ₁₁	0.01	292.1343	1	679.4468, 459.3830	dammar-12,24-dien-3 α ,6 β , 15 α -triol-3 α -arabinopyranosyl-6 β -L-arabinopyranoside (PPD-Glc-Rha)	PNL
313	17.91	871.4694	–H	C ₄₄ H ₇₂ O ₁₇	–0.33	286.8084	1	671.2839, 459.3830	notoginsenosides NL-A4 or isomer (PPD-Glc-Rha-Mal-3H ₂ O)	PNL

314^a	17.91	829.4948	–H	C ₄₃ H ₇₄ O ₁₅	–0.81	303.1545	1	701.4215, 621.4369, 459.3813, 375.3023	ginsenoside F2	PGL、PNL、PQL
315^a	17.92	811.4820	–H, +HCOO	C ₄₂ H ₇₀ O ₁₂	–3.78	301.9209	1	783.4894, 673.3487, 537.3417, 459.3840	(20 <i>E</i>)-ginsenoside F4	PQL、PGL
316	18.04	1077.5500	–H	C ₅₂ H ₈₆ O ₂₃	1.21	334.2100	0	1077.5547, 947.5231, 843.2321, 689.3579, 441.3721	C ₃₀ H ₅₀ O ₂ -3Glc-CO ₂	PQL
317^a	18.04	665.4270	–H, +HCOO	C ₃₆ H ₆₀ O ₈	0.04	275.9321	1	617.2843, 561.2546, 407.2454	ginsenoside Rh4	PGL、PNL、PQL
318^a	18.06	961.5372	–H, +HCOO	C ₄₇ H ₈₀ O ₁₇	–0.67	325.2119	1	915.5348, 783.4882, 621.4334, 459.3860, 375.2844	notoginsenoside Ft1	PNL
319^a	18.25	829.4942	–H, +HCOO	C ₄₂ H ₇₂ O ₁₃	–1.68	301.7299	1	783.4924, 621.4390, 537.3399, 459.3833, 375.2882	20(<i>S</i>)-ginsenoside Rg3/20(<i>R</i>)-ginsenoside Rg3	PGL、PNL、PQL
320	18.33	751.4656	–H	C ₄₁ H ₆₈ O ₁₂	2.37	292.6197	1	587.3456, 443.3528, 355.2621	notoginsenoside-LY or isomer (C ₃₀ H ₅₂ O ₂ -Glc-Rha)	PGL
321	18.35	871.5067	–H, +HCOO	C ₄₄ H ₇₄ O ₁₄	0.77	309.2536	1	825.4988, 783.4892, 621.4362, 459.3836, 375.2952	20(<i>S</i>)-6'- <i>O</i> -acetyl-ginsenoside Rg2 or isomer (PPD-2Glc-2CO ₂)	PQL、PGL
322	18.38	869.4903	–H	C ₄₅ H ₇₄ O ₁₆	–0.15	290.7563	0	807.3026, 675.0103, 589.3029, 443.3576	C ₃₀ H ₅₂ O ₂ -Rha-Xyl-Mal-CO ₂ -H ₂ O	PNL
323	18.42	925.4796	–H	C ₄₇ H ₇₄ O ₁₈	–0.64	334.8115	1	793.4374, 745.4217, 455.3518	isomer of pseudoginsenoside Rt1 (OA-2Glc-Rha)	PQL
324	18.42	799.4855	–H	C ₄₂ H ₇₂ O ₁₄	0.78	302.0369	0	753.4813, 459.3847, 375.2904	isomer of ginsenoside Rh20 (PPD-Glc-Xyl)	PNL、PQL
325	18.49	793.4381	–H	C ₄₂ H ₆₆ O ₁₄	0.16	305.9894	1	613.3765, 569.3851, 455.3534	isomer of chikusetsusaponin IVa (OA-Glc-GlurA)	PQL、PGL
326	18.51	955.4909	–H	C ₄₈ H ₇₆ O ₁₉	0.1	314.5520	0	545.2836, 459.3830	isomer of chikusetsusaponin V (PPD-2Glc-Dimal)	PNL
327	18.59	841.4944	–H	C ₄₄ H ₇₄ O ₁₅	–1.26	312.5749	1	501.3934, 459.3830	notoginsenoside Rt or isomer (PPD-GlurA-Rha-Ace-H ₂ O)	PNL
328^a	18.59	943.5259	–H	C ₄₈ H ₈₀ O ₁₈	–1.32	343.0411	1	765.4785, 717.3825, 577.2686, 533.1749	5,6-didehydroginsenoside Rd	PNL
329	18.69	925.4799	–H	C ₄₇ H ₇₄ O ₁₈	–0.38	319.9587	1	709.3633, 475.3395	elatoside A or isomer (OA-2Glc-Rha)	PNL
330	18.76	945.5069	–H	C ₄₇ H ₇₈ O ₁₉	0.49	314.6011	0	917.5309, 685.0311, 455.0812	C ₃₀ H ₄₈ O ₃ -Glc-2Rha-2H ₂ O	PQL
331	18.77	1033.6502	–H	C ₅₀ H ₉₈ O ₂₁	–2.5	338.0667	0	947.6453, 945.5586, 705.4099, 475.3732	PPT-3Glc-2CO ₂	PGL
332^a	18.84	811.4853	–H, +HCOO	C ₄₂ H ₇₀ O ₁₂	0.51	317.9241	1	727.3281, 513.3023, 337.2050, 313.2515	ginsenoside Rg5/ginsenoside Rk1	PGL、PNL、PQL
333	18.84	793.4393	–H	C ₄₂ H ₆₆ O ₁₄	1.67	310.5840	1	569.3837, 551.3738, 455.3530	isomer of chikusetsusaponin IVa (OA-Glc-GlurA)	PQL
334^a	18.84	667.4432	–H	C ₃₇ H ₆₄ O ₁₀	0.85	271.9445	1	647.0196, 459.0484	20(<i>R</i>)-ginsenoside Rh2/compound K	PGL、PNL、PQL
335	18.94	813.4671	–H	C ₄₂ H ₇₀ O ₁₅	3.5	300.1601	1	545.4661, 459.1716	pseudoginsenoside RT8 or isomer (C ₂₂ H ₃₆ O ₁₀ -Glc-Rha)	PQL
336	18.99	603.3384	–H	C ₃₀ H ₅₂ O ₁₂	–0.36	251.5626	0	441.4910	C ₃₀ H ₅₀ O ₂ -Glc	PNL
337	19.06	763.4271	–H	C ₄₁ H ₆₄ O ₁₃	–0.33	304.7133	1	551.3680, 455.3559	pseudoginsenoside RP1 or isomer (OA-Glc-Rha)	PQL
338	19.74	1015.5854	–H, +HCOO	C ₅₁ H ₈₆ O ₁₇	0.67	331.1417	0	865.1393, 653.3044, 441.2674	C ₃₀ H ₅₀ O ₂ -2Glc-Rha-Bute-2H ₂ O	PNL
339	19.93	1075.6947	–H	C ₆₀ H ₁₀₀ O ₁₆	0.85	347.7870	0	1058.6321, 991.6129, 751.4808, 637.4514, 475.2714, 391.2850	PPT-2Glc-Rha-Mal-CO ₂	PGL
340	20.00	997.5755	–H	C ₅₂ H ₈₆ O ₁₈	1.36	328.0450	0	645.2955, 457.2024	C ₃₀ H ₅₀ O ₃ -2Glc-Xyl-2Ace	PGL
341	20.24	999.5906	–H, +HCOO	C ₅₁ H ₈₆ O ₁₆	0.82	325.6197	0	941.9059, 691.3687, 391.5858	C ₂₄ H ₄₀ O ₄ -2Glc-2Bute-2Ace-H ₂ O	PNL
342	20.71	591.2618	–H	C ₃₄ H ₄₀ O ₉	3.24	261.5674	0	515.2440, 459.2220	C ₂₂ H ₃₆ O ₁₀ -Xyl	PGL

^a: The components identified by comparison with the reference standards.

0: The components identified manually based on the MS information as no hits were found in the in-house ginsenoside library (not reported).

1: The components identified manually based on the MS information successfully matching with the in-house ginsenoside library.

PGL: the leaf of *Panax ginseng*, PQL: the leaf of *Panax quinquefolius*, PNL: the leaf of *Panax notoginseng*.

Mal: The structure identified with a single malonyl substituent.

Dimalonyl: The structure identified with two malonyl substituents.

Ace: The structure identified with an acetyl substituent.

2Ace: The structure identified with two acetyl substituents.

Butenoyl: The structure identified with a butenoyl substituent.

Table S5 Detailed information of 42 potential ginsenoside markers diagnostic for differentiating among PGL, PQL, and PNL.

No.	VIP	<i>m/z</i>	<i>t_R</i> (min)	Assignment	MS ² fragments	Identification	PGL	PQL	PNL
M1 ^a	23.91	845.4904	9.79	[M–H+HCOOH] [–]	707.3480, 635.4158, 491.3736	24(<i>R</i>)–pseudoginsenoside F11	L	H	L
M2 ^a	22.21	991.5484	6.33	[M–H+HCOOH] [–]	945.5427, 783.4921, 637.4324, 475.3789, 391.2829	ginsenoside Re	H	M	L
M3 ^a	19.24	1123.5900	12.49	[M–H+HCOOH] [–]	1077.5842, 945.5421, 783.4897, 621.4370, 459.3842, 375.2899	ginsenoside Rb3	L	H	M
M4 ^a	18.51	683.4376	13.19	[M–H+HCOOH] [–]	683.4367, 637.4324, 529.2986, 475.3788	ginsenoside F1	H	L	L
M5 ^a	17.49	815.4797	11.32	[M–H+HCOOH] [–]	815.4795, 769.4742, 529.2983, 475.3785, 391.2851	ginsenoside F3	H	L	L
M6	16.99	1163.5850	13.28	[M–H] [–]	1119.5942, 1077.5842, 1059.5744, 945.5404, 783.4889, 621.4363, 459.3831, 375.2867	isomer of m–ginsenoside Rc	L	H	M
M7	16.09	725.4481	15.65	[M–H+HCOOH] [–]	637.4320, 475.3791, 391.2849	20(<i>S</i>)–ginsenoside–Rh1–6'–acetate or isomer	H	L	L
M8 ^a	15.20	815.4798	11.11	[M–H+HCOOH] [–]	815.4803, 783.4903, 621.4373, 475.3794, 391.2856	ginsenoside F5	H	L	L
M9 ^a	14.07	1255.6320	11.61	[M–H+HCOOH] [–]	1001.4668, 605.4039, 459.3834	ginsenoside Ra1	L	L	H
M10	13.95	1033.5550	15.34	[M–H+HCOOH] [–]	747.3850, 675.3564, 537.3431, 459.3844	6''– <i>O</i> –acetyl–ginsenoside Rg3 or isomer	M	H	L
M11 ^a	12.51	1007.5430	8.83	[M–H+HCOOH] [–]	723.3535, 621.4079, 475.3685, 391.2845	vinaginsenoside R4	H	M	L
M12 ^a	12.10	1285.6420	10.64	[M–H+HCOOH] [–]	1077.5813, 897.5236, 783.4910, 621.4365, 459.3843, 375.2904	notoginsenoside Fa	L	L	H
M13	11.84	1033.5570	7.91	[M–H+HCOOH] [–]	945.5429, 783.4896, 637.4326, 475.3794, 391.2854	pseudoginsenoside RC1 or isomer	H	L	L
M14 ^a	11.57	961.5376	17.59	[M–H+HCOOH] [–]	915.5319, 783.4903, 621.4372, 459.3846	notoginsenoside Fd/ginsenoside Rd2	L	M	H
M15	9.57	1033.5570	17.35	[M–H+HCOOH] [–]	987.5564, 945.5432, 927.5307, 783.4904, 765.4816, 621.4374, 459.3836, 375.2856	6''– <i>O</i> –acetyl–ginsenoside Rg3 or isomer	M	H	L
M16 ^a	9.52	829.4953	11.85	[M–H+HCOOH] [–]	829.44957, 783.4901, 637.4321, 475.3789, 391.2849	ginsenoside Rg2	H	M	L
M17 ^a	9.47	1255.6320	11.08	[M–H+HCOOH] [–]	999.4559, 879.4133, 747.3764, 537.3441, 459.3843	ginsenoside Ra2	L	L	H
M18	9.37	1163.5850	13.76	[M–H] [–]	1119.5957, 1077.5845, 1059.5724, 945.5421, 783.4905, 621.4367, 459.3835, 375.2900	isomer of m–ginsenoside Rc	L	H	M
M19	9.24	855.3301	4.24	[M–H] [–]	809.3235, 805.2941, 761.3037, 491.1670	OT–Rha–Xyl–Mal	M	H	L
M20	8.90	815.4796	11.52	[M–H+HCOOH] [–]	475.3793, 373.2735	isomer of ginsenoside F5	H	L	L
M21 ^a	8.54	1123.5900	11.71	[M–H+HCOOH] [–]	1077.5851, 945.5426, 765.4794, 621.4376, 459.3844, 375.2903	ginsenoside Rc	H	L	H
M22	8.38	1117.5440	17.31	[M–H] [–]	987.5542, 945.5429, 921.5207, 825.5012, 765.4798, 621.4360, 459.3845, 375.2896	malonylfloralginsenoside Rd6 or isomer	M	H	L
M23	7.70	863.5004	4.04	[M–H+HCOOH] [–]	817.4963, 671.4375, 653.4265, 509.3845, 391.2847	quinquenoside L9	L	H	L
M24 ^a	7.70	1163.5850	12.97	[M–H] [–]	1119.5955, 1077.5850, 1059.5750, 945.5428, 783.4904, 621.4368, 459.3839, 375.2869	m–ginsenoside Rb2	M	H	L
M25 ^a	7.61	1123.5900	12.23	[M–H+HCOOH] [–]	1077.5832, 945.5410, 783.4892, 621.4368, 459.3837	ginsenoside Rb2	H	H	L
M26	7.61	1033.5570	16.18	[M–H+HCOOH] [–]	987.5543, 945.5434, 783.4895, 621.4365, 459.3842, 375.2884	6''– <i>O</i> –acetyl–ginsenoside Rg3 or isomer	H	H	L
M27 ^a	7.40	1193.5950	11.63	[M–H] [–]	1107.5957, 1089.5858, 915.5332, 783.4906, 621.4375, 459.3845	m–ginsenoside Rb1	H	H	L
M28	6.72	1139.5850	8.01	[M–H+HCOOH] [–]	1093.5798, 961.5369, 781.4744, 619.4211, 475.3834	floralginsenoside P or isomer	L	M	H
M29	6.34	977.5325	10.75	[M–H+HCOOH] [–]	931.5283, 799.4854, 637.4312, 475.3791, 391.2840	notoginsenoside FP1 or isomer	L	L	H
M30	6.04	1007.5430	2.69	[M–H+HCOOH] [–]	961.5380, 781.4744, 635.4165, 491.3735	quinquenoside L2 (OT–2Glc–Rha)	H	H	L
M31	6.01	841.4939	18.56	[M–H] [–]	501.3934, 417.2988	notoginsenoside Rt or isomer	L	L	H
M32	5.98	1271.6280	7.78	[M–H+HCOOH] [–]	1225.6199, 1093.5779, 961.5310, 799.4845, 781.4729, 637.4304, 475.3764	isomer of chikusetsusaponin LM6	L	L	H
M33	5.89	977.5309	10.08	[M–H] [–]	879.3737, 765.4410, 609.2709, 547.0343, 375.2896	ginsenoside I or isomer	M	L	H
M34	5.86	1163.5850	12.33	[M–H] [–]	1119.5961, 945.5440, 783.4895, 621.4376, 459.3840	isomer of m–ginsenoside Rc	M	L	H
M35	5.83	1153.6000	11.18	[M–H+HCOOH] [–]	1107.5946, 945.5428, 783.4906, 621.4379, 459.3837, 375.2890	ginsenoside Rb1 or isomer	M	L	H
M36 ^a	5.82	829.4952	17.89	[M–H] [–]	701.4215, 621.4369, 459.3813, 375.3023	ginsenoside F2	H	M	L
M37 ^a	5.62	977.5325	5.49	[M–H+HCOOH] [–]	801.3646, 669.5836, 553.3723	notoginsenoside Fp1	H	H	L
M38	5.59	1139.5840	7.34	[M–H+HCOOH] [–]	1093.5805, 961.5375, 799.4851, 637.4316, 475.3798, 391.2830	floralginsenoside P or isomer	H	L	L
M39	5.18	699.4326	6.96	[M–H+HCOOH] [–]	513.1210, 459.2246	ginsenoside M7cd or isomer	H	L	L

M40	5.14	1139.5850	8.43	[M–H+HCOOH] [–]	1093.5804, 961.5397, 799.4846, 781.4745, 637.4311, 475.3790	floralginsenoside P or isomer	L	M	H
M41^a	5.03	699.4323	9.72	[M–H+HCOOH] [–]	349.2518, 329.1897, 217.1589	pseudoginsenoside Rt5 (24 <i>R</i>)	L	H	L
M42^a	5.00	945.5426	14.17	[M–H] [–]	765.4783, 605.4077, 537.3428, 457.3662, 373.3141	ginsenoside Rd	H	M	L

^a: The components identified by comparison with the reference standards.

