

Figure S1: The PCA analysis for the four groups of samples.

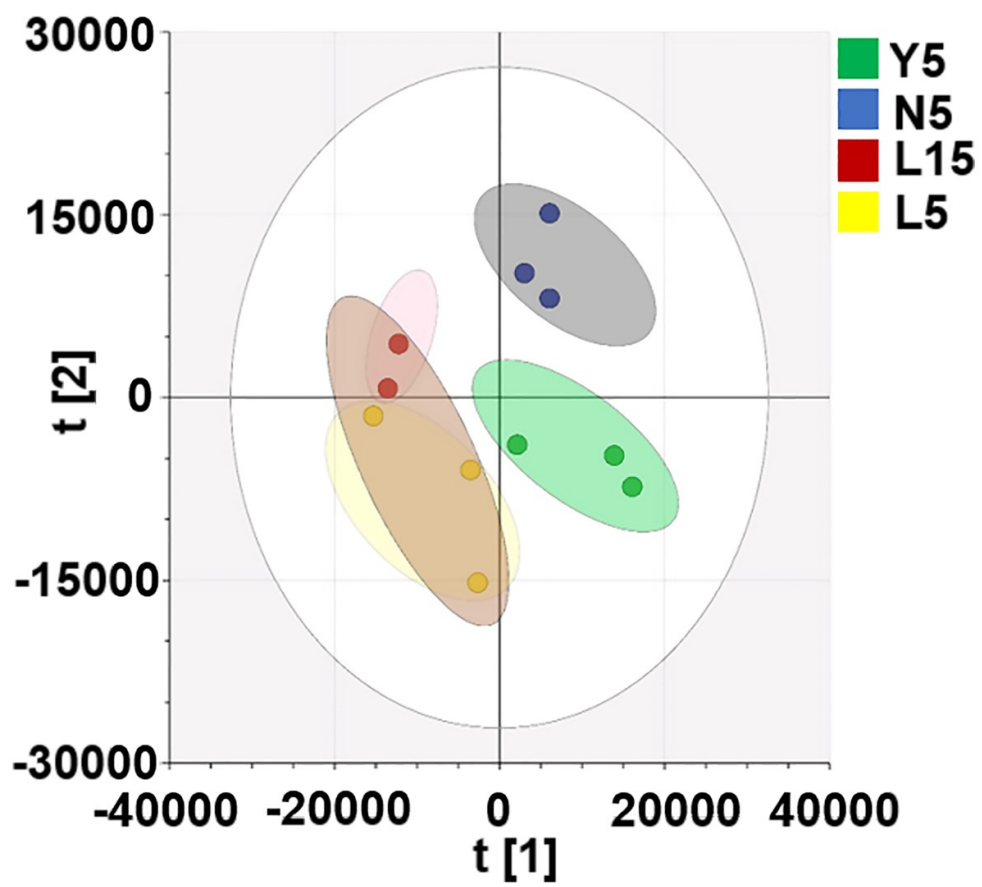


Figure S2: The OPLS-DA analysis for the four groups of samples.

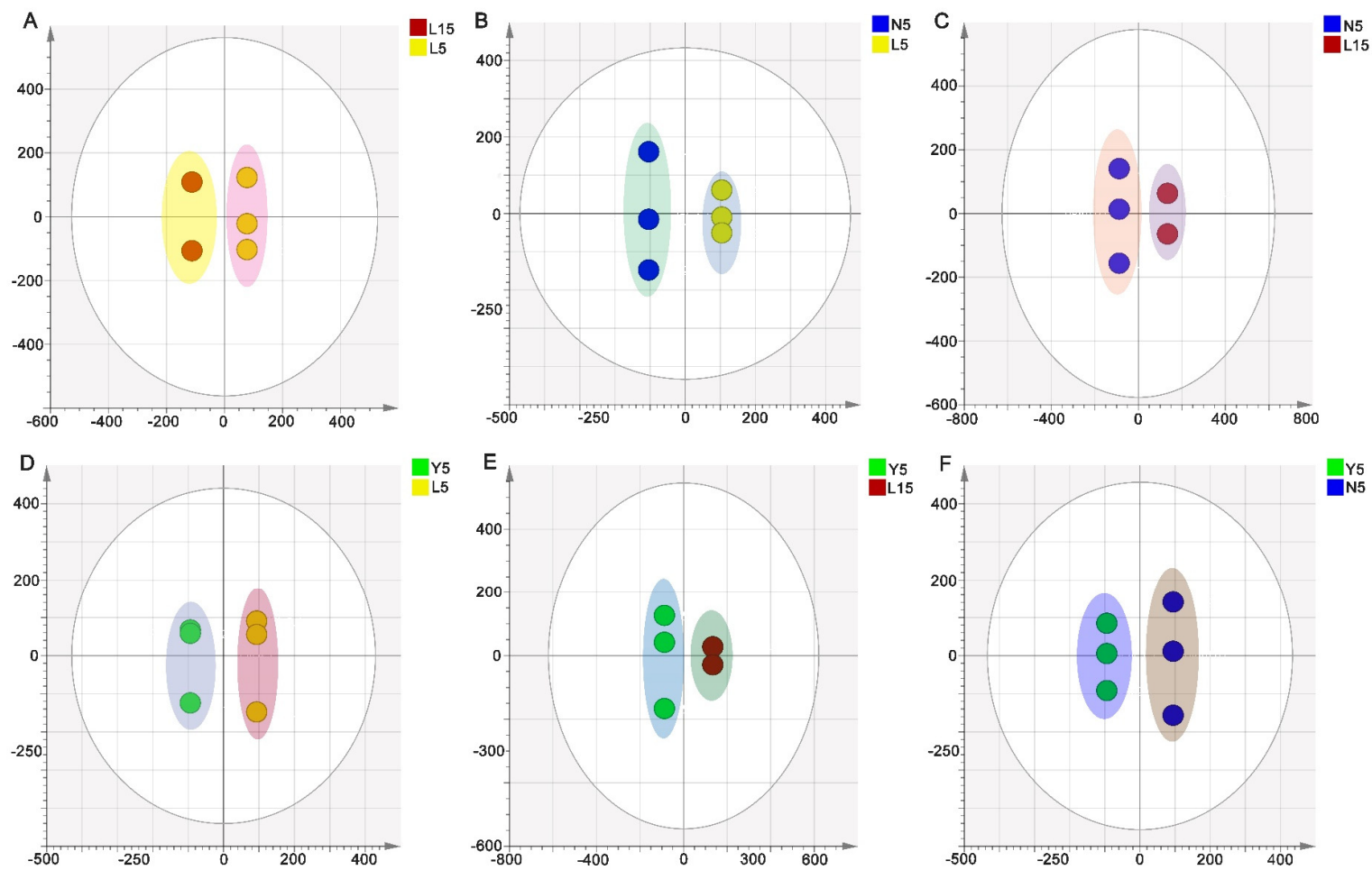


Figure S3: The OPLS-DA analysis for the pairwise comparison of the four groups of samples.

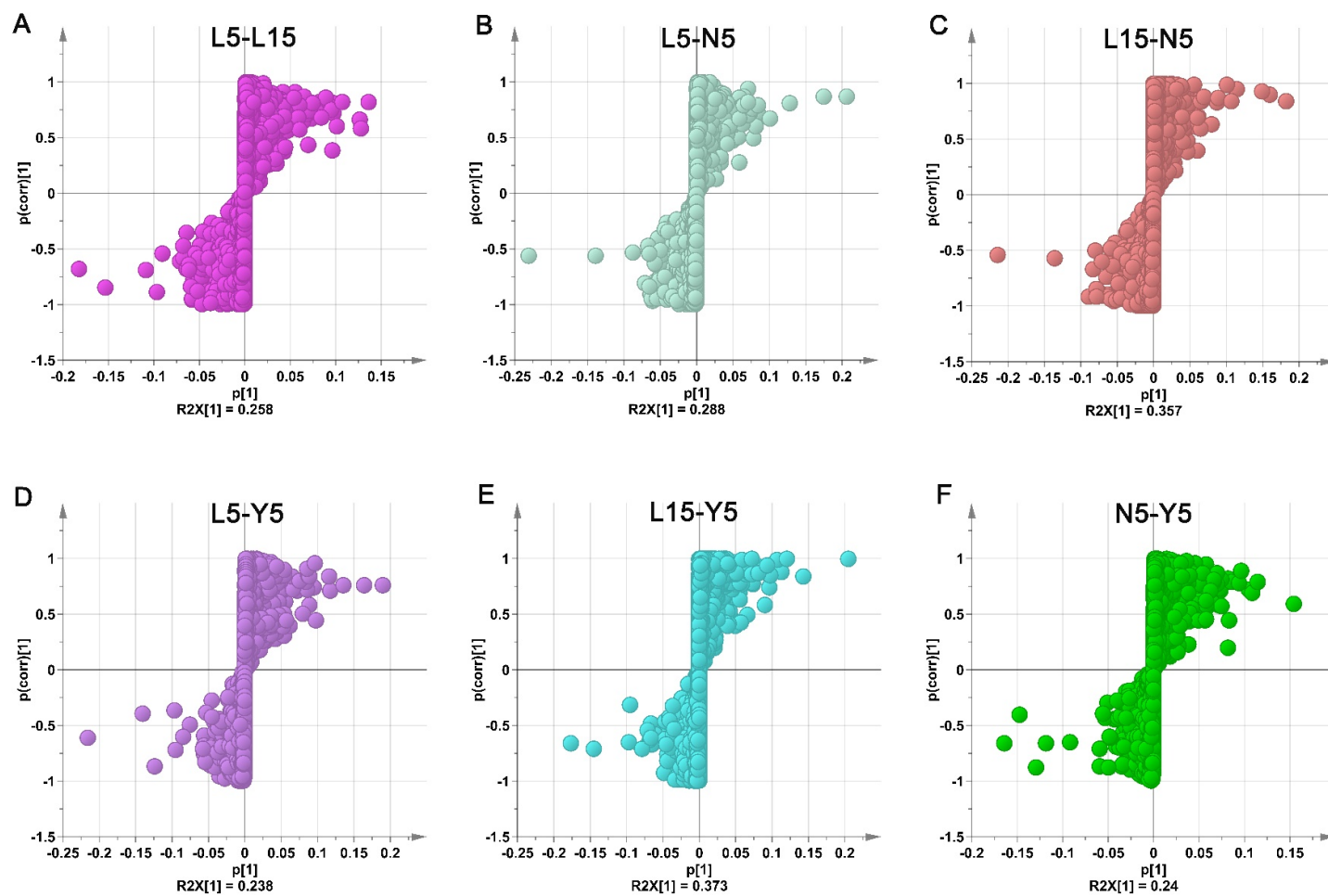


Figure S4: The S-Plot analysis for the pairwise comparison of the four groups of sample.

Table S1 MS and MS/MS of the 237 known ginsenosides

Retention Time	Found at Mass	MS/MS	Name	Formula	Theoretical Mass (Da)	Sources	Error (ppm)
1.18	861.4858	861.4879[M+FA-H] ⁻ 815.4800[M-H] ⁻ 653.4251[M-H-Glc] ⁻ 635.4230[M-H-Glc-H ₂ O] ⁻ 491.3715[M-H-2Glc] ⁻	Panajaponol A/isomer	C ₄₂ H ₇₂ O ₁₅	816.4871	L5、L15、 Y5、N5	-0.86
1.25	863.5005	863.5007[M+FA-H] ⁻ 817.4953[M-H] ⁻ 655.4458[M-H-Glc] ⁻ 493.3921[M-H-2Glc] ⁻	20-S-Rf ₃ / isomer	C ₄₂ H ₇₄ O ₁₅	818.5028	L5、L15、 Y5、N5	-0.37
1.37	1003.5493	1003.5530[M-H] ⁻ 961.5460[M-H-Ac] ⁻ 943.5340[M-H-Ac-H ₂ O] ⁻ 799.4966[M-H-Ac-Glc] ⁻ 637.4406[M-H-Ac-Glc-Glc] ⁻ 475.3464[M-H-Ac-Glc-Glc-Glc] ⁻	6-acetyl ginsenoside-Rg ₃ /isomer	C ₅₀ H ₈₄ O ₂₀	1004.5556	L5、L15、 Y5、N5	-1.49
1.62	841.4954	841.4990[M-H] ⁻ 799.4915[M-H-Ac] ⁻ 781.4738[M-H-Ac-H ₂ O] ⁻ 679.4414[M-H-Glc] ⁻ 637.4319[M-H-Ac-Glc] ⁻ 619.4212[M-H-Ac-Glc-H ₂ O] ⁻ 475.3776[M-H-Ac-Glc-Glc] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、 Y5、N5	-0.48
1.62	827.4795	827.4811[M+FA-H] ⁻ 781.4744[M-H] ⁻ 619.4250[M-H-Glc] ⁻	G-Rh ₁₅ /isomer	C ₄₂ H ₇₀ O ₁₃	782.4816	L5、L15、 Y5、N5	-0.77
1.63	987.5533	987.5576[M-H] ⁻ 945.5478[M-H-Ac] ⁻ 927.5359[M-H-Ac-H ₂ O] ⁻ 799.4704[M-H-Ac-Rha] ⁻ 637.4245[M-H-Ac-Rha-Glc] ⁻ 475.3881[M-H-Ac-Rha-Glc-Glc] ⁻	Pseudoginsenoside Rs ₁ /isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 Y5、N5	-0.41

1.79	1031.544	1031.5449[M-H] ⁻ 987.5586[M-H-CO ₂] ⁻ 945.5471[M-H-CO ₂ -Ac] ⁻ 927.5362[M-H-CO ₂ -Ac-H ₂ O] ⁻ 799.4916[M-H-CO ₂ -Ac-Rha] ⁻ 637.4381[M-H-CO ₂ -Ac-Rha-Glc] ⁻ 475.3786[M-H-CO ₂ -Ac-Rha-1Glc] ⁻	mRd isomer	C ₅₁ H ₈₄ O ₂₁	1032.5505	L5、L15、Y5、N5	-1.26
1.87	861.4859	861.4826[M+FA-H] ⁻ 815.4788[M-H] ⁻ 653.4314[M-H-Glc] ⁻ 491.3729[M-H-2Glc] ⁻	Panajaponol A/isomer	C ₄₂ H ₇₂ O ₁₅	816.4871	L5、L15、Y5	0.61
1.89	885.4879	885.4878[M-H] ⁻ 841.4982[M-H-CO ₂] ⁻ 799.4874[M-H-CO ₂ -Ac] ⁻ 781.4768[M-H-CO ₂ -Ac-H ₂ O] ⁻ 679.4427[M-H-CO ₂ -Glc] ⁻ 637.4336[M-H-CO ₂ -Ac-Glc] ⁻ 619.4224[M-H-CO ₂ -Ac-Glc-H ₂ O] ⁻ 475.3784[M-H-CO ₂ -Ac-2Glc] ⁻	mRg ₁ isomer	C ₄₅ H ₇₄ O ₁₇	886.4926	L5、L15、Y5、N5	-3.50
1.93	1123.5858	1123.5959[M-H] ⁻ 961.5497[M-H-Glc] ⁻ 799.4793[M-H-2Glc] ⁻ 637.4076[M-H-3Glc] ⁻ 475.3864[M-H-4Glc] ⁻	Notoginsenoside Fh7 isomer	C ₅₄ H ₉₂ O ₂₄	1124.5979	L5、L15	3.83
1.95	799.4848	799.4875[M-H] ⁻ 637.4325[M-H-Glc] ⁻ 475.3799[M-H-2Glc] ⁻	Rg ₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、Y5、N5	-0.50
1.96	945.5399	945.5496[M-H] ⁻ 799.4873[M-H-Rha] ⁻ 637.4582[M-H-Glc] ⁻ 475.3807[M-H-Rha-Glc-Glc] ⁻	G-Re isomer	C ₄₈ H ₈₂ O ₁₈	946.5501	L5、L15、Y5、N5	2.54
2.21	885.4873	885.4875[M-H] ⁻ 841.4975[M-H-CO ₂] ⁻ 799.4869[M-H-CO ₂ -Ac] ⁻ 637.4317[M-H-CO ₂ -Ac-Glc] ⁻ 475.3839[M-H-CO ₂ -Ac-2Glc] ⁻	mRg ₁ isomer	C ₄₅ H ₇₄ O ₁₇	886.4926	L5、L15、Y5、N5	-2.82
2.21	841.498	841.4979[M-H] ⁻ 799.4859[M-H-Ac] ⁻ 637.4293[M-H-Ac-Glc] ⁻ 475.3849[M-H-Ac-2Glc] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、Y5、N5	-3.57
2.25	987.5548	987.5547[M-H] ⁻ 945.5413[M-H-Ac] ⁻ 927.5322[M-H-Ac-H ₂ O] ⁻ 799.4837[M-H-Ac-Rha] ⁻ 783.4981[M-H-Ac-Glc] ⁻ 781.4879[M-H-Ac-Rha-H ₂ O] ⁻ 637.4303[M-H-Ac-Glc-Rha] ⁻ 475.3716[M-H-Ac-Glc-Rha-Glc] ⁻	Pseudoginsenoside Rs1/isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、Y5、N5	-1.92

2.34	827.4815	827.4824[M+FA-H] ⁻ 781.4755[M-H] ⁻ 619.4175[M-H-Glc] ⁻ 457.3386[M-H-2Glc] ⁻	G-Rh ₁₅ /isomer	C ₄₂ H ₇₀ O ₁₃	782.4816	L5、L15、 Y5、N5	-2.18
2.72	799.4849	799.4803[M-H] ⁻ 637.4140[M-H-Glc] ⁻ 475.3608[M-H-Glc- Glc] ⁻	Rg ₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、 Y5、N5	-0.63
2.74	885.4877	885.4880[M-H] ⁻ 841.4993[M-H-CO ₂] ⁻ 799.4819[M-H-CO ₂ - Ac] ⁻ 637.4325[M-H-CO ₂ -Ac-Glc] ⁻ 619.4209[M-H-CO ₂ -Ac- Glc-H ₂ O] ⁻ 475.3920[M-H-CO ₂ -Ac-2Glc] ⁻	mRg ₁ isomer	C ₄₅ H ₇₄ O ₁₇	886.4926	L5、L15、 Y5、N5	-3.28
2.77	841.4953	841.5016[M-H] ⁻ 799.4834[M-H-Ac] ⁻ 781.4688[M-H-Ac-H ₂ O] ⁻ 637.4381[M-H-Ac-Glc] ⁻ 619.4221[M-H-Ac-Glc-H ₂ O] ⁻ 475.3735[M-H-Ac-2Glc] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、 Y5、N5	-0.36
2.82	863.4998	863.4849[M+FA-H] ⁻ 817.4966[M-H] ⁻ 655.4481[M-H-Glc] ⁻ 493.3895[M-H-2Glc] ⁻	20-S-Rf ₃ / isomer	C ₄₂ H ₇₄ O ₁₅	818.5028	L5、L15、 Y5、N5	-1.96
2.83	987.5541	987.5572[M-H] ⁻ 945.5459[M-H-Ac] ⁻ 927.5299[M-H-Ac-H ₂ O] ⁻ 799.4982[M-H-Ac-Rha] ⁻ 781.4555[M-H-Ac-Rha-H ₂ O] ⁻ 637.4408[M-H-Ac-Rha-Glc] ⁻ 475.3925[M-H-Ac-Rha-Glc] ⁻	20-S-Rf ₃ / isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 Y5、N5	-1.22
2.87	1031.5437	1031.5450[M-H] ⁻ 987.5545[M-H-CO ₂] ⁻ 927.5376[M-H-CO ₂ - Ac-H ₂ O] ⁻ 799.4965[M-H-CO ₂ -Ac-Rha] ⁻ 637.4275[M-H-CO ₂ - Ac-Rha-Glc] ⁻ 475.3859[M-H-CO ₂ -Ac-Rha-2Glc] ⁻	mRd isomer	C ₅₁ H ₈₄ O ₂₁	1032.5505	L5、Y5、 N5	-0.97
3	861.4824	815.4809[M-H] ⁻ 653.4293[M-H-Glc] ⁻ 635.4135[M-H-Glc- H ₂ O] ⁻ 491.3729[M-H-2Glc] ⁻	Panajaponol A/isomer	C ₄₂ H ₇₂ O ₁₅	816.4871	L5、L15、 Y5、N5	-1.96
3.2	961.5397	961.5397[M-H] ⁻ 799.4887[M-H-Glc] ⁻ 637.4224[M-H-2Glc] ⁻ 475.3553[M-H-3Glc] ⁻	Re ₁ isomer	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、 Y5、N5	-2.60
3.3	947.52	947.5208[M-H] ⁻ 815.4781[M-H-Xyl/Ara] ⁻ 653.4309[M-H- Xyl/Ara-Glc] ⁻ 491.3935[M-H-Xyl/Ara-2Glc] ⁻	Vinaginsenoside R ₆ isomer	C ₄₇ H ₈₀ O ₁₉	948.5294	L15	1.69
3.35	817.498	817.4980[M-H] ⁻ 655.4273[M-H-Glc] ⁻ 493.3653[M-H-2Glc] ⁻	20(S)- Rf ₃ isomer	C ₄₂ H ₇₄ O ₁₅	818.5028	L15、Y5、 N5	-3.67

3.38	815.4816	815.4802[M-H] ⁻	653.4259[M-H-Glc] ⁻	491.3736[M-H-2Glc] 391.2856	Panajaponol A/isomer	C ₄₂ H ₇₂ O ₁₅	816.4871	L5、L15、 Y5、N5	-2.82
3.67	1123.5924	1123.5951[M-H] ⁻	961.5277[M-H-Glc] ⁻	799.4742[M-H-2Glc] ⁻ 637.4282[M-H-3Glc] ⁻	Notoginsenoside Fh7 isomer	C ₅₄ H ₉₂ O ₂₄	1124.5979	L5、L15、 Y5、N5	-2.05
3.68	961.5383		961.5401[M-H] ⁻	799.4852[M-H-Glc] ⁻	G-Re ₃	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、 Y5、N5	-1.14
3.82	831.4767	831.4831[M+FA-H] ⁻	785.4672[M-H] ⁻	653.4260[M-H- Xyl/Ara] ⁻	M-R ₂ /isomer	C ₄₁ H ₇₀ O ₁₄	786.4766	L15、Y5、 N5	2.04
3.97	1093.5796	1093.5849[M-H] ⁻	961.5383[M-H-Xyl/Ara] ⁻	799.5146[M-H- Xyl/Ara-Glc] ⁻	20S-sanchirrhinosides A ₆ isomer	C ₅₃ H ₉₀ O ₂₃	1094.5873	L15、Y5	-0.09
4.15	787.4832	787.4909[M-H] ⁻	655.4474[M-H-Xyl/Ara] ⁻	493.3920[M-H- Xyl/Ara-Glc] ⁻	3β,12β,20,25- tetrahydroxydammarane- 6-O-β-D-Xylopyranosyl- (1→2)-β-D- glucopyranoside isomer	C ₄₁ H ₇₂ O ₁₄	788.4922	L15	1.52
4.48	961.538	961.5409[M-H] ⁻	799.4851[M-H-Glc] ⁻	781.4779[M-H-Glc- H ₂ O] ⁻	Re ₁ isomer	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、 Y5、N5	-0.83
4.61	1007.5436	1007.5537[M+FA-H] ⁻	961.5420[M-H] ⁻	799.4781[M- H-Glc] ⁻	20-glu-G-Rf	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、 Y5、N5	-4.99
4.64	931.5284	931.5332[M-H] ⁻	799.4894[M-H-Ara(f)] ⁻	637.4357[M-H- Ara(f)-Glc] ⁻	G-Re ₄	C ₄₇ H ₈₀ O ₁₈	932.5345	L5、L15、 Y5、N5	-1.82
4.66	845.4894	845.5101[M+FA-H] ⁻	799.4923[M-H] ⁻	653.4353[M-H-Rha] ⁻ 491.3664[M-H-Rha-Glc] ⁻	PG-F ₁₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、 Y5、N5	-9.88

4.68	831.475	831.4847[M+FA-H] ⁻ 785.4700[M-H] ⁻ 653.4272[M-H-Ara/Xyl] ⁻ 635.4084[M-H-Ara/Xyl-H ₂ O] ⁻ 491.3704[M-H-Ara/Xyl-Glc] ⁻	M-R ₂ /isomer	C ₄₁ H ₇₀ O ₁₄	786.4766	L5、L15、Y5、N5	-1.53
4.73	1007.5446	1007.5449[M+FA-H] ⁻ 961.5403[M-H] ⁻ 799.4850[M-H-Glc] ⁻ 637.4181[M-H-2Glc] ⁻	G-Re ₂	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、Y5、N5	-3.22
4.82	1077.5826	1077.5888[M-H] ⁻ 945.5443[M-H-Xyl/Ara] ⁻ 799.4837[M-H-Xyl/Ara-Rha] ⁻ 783.4936[M-H-Xyl/Ara-Glc] ⁻ 637.4249[M-H-Rha-Xyl/Ara-Glc] ⁻ 475.3740[M-H-Rha-Xyl/Ara-2Glc] ⁻	Floralginsenoside M isomer	C ₅₃ H ₉₀ O ₂₂	1078.5924	L5、L15、Y5、N5	1.86
4.85	1093.5789	1093.5856[M-H] ⁻ 931.5350[M-H-Glc] ⁻ 799.4631[M-H-Glc-Xyl/Ara] ⁻ 637.4243[M-H-Xyl/Ara-2Glc] ⁻ 475.3803[M-H-3Glc-Xyl/Ara] ⁻	20S-sanchirrhinosides A ₆ isomer	C ₅₃ H ₉₀ O ₂₃	1094.5873	L5、L15、Y5	0.55
4.9	883.5063	883.5079[M-H] ⁻ 841.4887[M-H-Ac] ⁻ 799.4767[M-H-2Ac] ⁻ 781.4664[M-H-2Ac-H ₂ O] ⁻ 763.4465[M-H-2Ac-2H ₂ O] ⁻ 637.4242[M-H-2Ac-Glc] ⁻ 475.3739[M-H-2Ac-2Glc] ⁻	6',6"-di-O-acetyl Rg ₁ isomer	C ₄₆ H ₇₆ O ₁₆	884.5133	L5、L15、Y5、N5	-0.91
4.91	861.4853	861.4935[M+FA-H] ⁻ 815.4784[M-H] ⁻ 653.4239[M-H-Glc] ⁻ 635.4399[M-H-Glc-H ₂ O] ⁻ 491.3707[M-H-2Glc] ⁻	Panajaponol A/isomer	C ₄₂ H ₇₂ O ₁₅	816.4871	L5、L15、Y5、N5	1.10
5.04	653.4263	653.4280[M-H] ⁻ 491.3788[M-Glc] ⁻	PG-RT ₅ isomer	C ₃₆ H ₆₂ O ₁₀	654.4343	L5、L15、Y5、N5	0.31
5.19	1107.5973	1107.5999[M-H] ⁻ 961.5520[M-H-Rha] ⁻ 945.5238[M-H-Glc] ⁻ 927.4901[M-H-Glc-H ₂ O] ⁻ 783.5103[M-H-2Glc] ⁻ 637.4377[M-H-2Glc-Rha] ⁻ 475.3802[M-H-3Glc-Rha] ⁻	Yesanchinoside E/isomer	C ₅₄ H ₉₂ O ₂₃	1108.6029	L5	-1.99
5.19	931.5284	977.5361[M+HCOO] ⁻ 931.5323[M-H] ⁻ 799.4895[M-H-Xyl] ⁻ 637.4340[M-H-Xyl-Glc] ⁻	NG-R ₁	C ₄₇ H ₈₀ O ₁₈	932.5345	L5、L15、Y5、N5	-1.82
5.22	1077.586	1077.5891[M-H] ⁻ 945.5427[M-H-Ara/Xyl] ⁻ 931.5314[M-H-Rha] ⁻ 799.5007[M-H-Rha-Ara/Xyl] ⁻ 637.4326[M-H-Rha-Xyl/Ara-Glc] ⁻ 475.3805[M-H-Rha-Xyl/Ara-2Glc] ⁻	Floralginsenoside M isomer	C ₅₃ H ₉₀ O ₂₂	1078.5924	L5、L15、Y5、N5	-1.30

5.28	801.4938	801.4938[M-H] ⁻ 655.4284[M-H-Rha] ⁻ 493.3736[M-H-Rha-Glc] ⁻	20(R)-G-Rf ₂ isomer	C ₄₂ H ₇₄ O ₁₄	802.5079	N5	7.86
5.3	799.4853	799.4887[M-H] ⁻ 653.4289[M-H-Rha] ⁻ 635.4220[M-H-Rha-H ₂ O] ⁻ 491.3738[M-H-Rha-Glc] ⁻	PG-F ₁₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、 N5	-1.13
5.34	961.5397	961.5439[M-H] ⁻ 799.4901[M-H-Glc] ⁻ 637.4361[M-H-2Glc] ⁻ 475.3979[M-H-3Glc] ⁻	G-Re ₁	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、 Y5、N5	-2.60
5.35	1003.5427	1003.5500[M-H] ⁻ 961.5477[M-H-Ac] ⁻ 799.4829[M-H-Ac-Glc] ⁻ 637.4480[M-H-Ac-Glc-Glc] ⁻ 475.3933[M-H-Ac-Glc-Glc-Glc] ⁻ 885.4974[M-H] ⁻ 841.4966[M-H-CO ₂] ⁻ 799.4868[M-H-CO ₂ -Ac] ⁻ 679.4388[M-H-CO ₂ -Glc] ⁻ 637.4320[M-H-CO ₂ -Ac-Glc] ⁻ 619.4206[M-H-CO ₂ -Ac-Glc-H ₂ O] ⁻ 475.3780[M-H-CO ₂ -Ac-2Glc] ⁻	6-acetyl ginsenoside-Rg ₃ /isomer	C ₅₀ H ₈₄ O ₂₀	1004.5556	L5、L15、 Y5、N5	5.08
5.44	885.482	885.482	mRg ₁ isomer	C ₄₅ H ₇₄ O ₁₇	886.4926	L5、L15、 Y5、N5	3.16
5.46	861.4864	861.4869[M+FA-H] ⁻ 815.4838[M-H] ⁻ 653.4208[M-H-Glc] ⁻ 491.3700[M-H-2Glc] ⁻	Panajaponol A/isomer	C ₄₂ H ₇₂ O ₁₅	816.4871	L5、L15、 Y5、N5	-5.52
5.47	841.497	841.4979[M-H] ⁻ 799.4883[M-H-Ac] ⁻ 679.4424[M-H-Glc] ⁻ 637.4333[M-H-Ac-Glc] ⁻ 619.4212[M-H-Ac-Glc-H ₂ O] ⁻ 571.4000 475.3784[M-H-Ac-2Glc] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、 Y5、N5	-2.38
5.54	931.5264	931.5268[M-H] ⁻ 799.4871[M-H-Xyl/Ara] ⁻ 637.4097[M-H-Xyl/Ara-Glc] ⁻ 637.4328[M-H-Xyl/Ara-Glc] ⁻ 475.3707 [M-H-Xyl/Ara-2Glc] ⁻	Re4 isomer/NG-R ₁ isomer	C ₄₇ H ₈₀ O ₁₈	932.5345	L5、L15、 Y5、N5	0.32
5.6	1107.5946	1107.5993[M-H] ⁻ 945.5454[M-H-Glc] ⁻ 799.4826[M-H-Glc-Rha] ⁻ 637.4536[M-H-Glc-Rha-Glc] ⁻ 475.3969[M-H-Glc-Glc-Glc-Rha] ⁻	Yesanchinoside E/isomer	C ₅₄ H ₉₂ O ₂₃	1108.6029	L5、L15、 N5	0.45
5.76	883.5036	883.5039[M-H] ⁻ 841.4901[M-H-Ac] ⁻ 799.4997[M-H-2Ac] ⁻ 637.4221[M-H-2Ac-Glc] ⁻ 475.3955[M-H-2Ac-2Glc] ⁻	6',6"-di-O-acetyl Rg ₁ isomer	C ₄₆ H ₇₆ O ₁₆	884.5133	L5、L15	2.15

5.77	845.493	845.4931[M+HCOO] ⁻	799.4878[M-H] ⁻	637.4344[M-H-Glc] ⁻	G-Rg ₁	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、 Y5、N5	-4.25
			475.3796[M-H-2Glc] ⁻						
5.81	991.5497	991.5509[M+HCOO] ⁻	945.5451[M-H] ⁻	783.4931[M-H-Glc] ⁻	G-Re	C ₄₈ H ₈₂ O ₁₈	946.5501	L5、L15、 Y5、N5	-2.96
			637.4339[M-H-Glc-Rha] ⁻						
					β-D-Glucopyranoside, (3β, 6α,12β,20 <i>R</i>)-3,12,20- trihydroxydammar-24- en-6-yl 2- <i>O</i> -β-D- Xylopyranosyl-, 6- acetate isomer				
5.92	811.4851	811.4875[M-H] ⁻	769.4769[M-H-C ₂ H ₂ O] ⁻	637.4332[M-H- C ₂ H ₂ O-Ara] ⁻		C ₄₃ H ₇₂ O ₁₄	812.4922	L5、L15、 Y5、N5	-0.86
			475.3822[M-H-C ₂ H ₂ O-Ara-Glc] ⁻	457.3785[M-H- C ₂ H ₂ O-Ara-Glc-H ₂ O] ⁻					
6.03	841.4946	841.4992[M-H] ⁻	799.4870[M-H-Ac] ⁻	781.4783[M-H-Ac-H ₂ O] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、 Y5、N5	0.48
			637.4433[M-H-Ac-Glc] ⁻	571.3910 475.3696[M-H-Ac-2Glc] ⁻					
6.07	931.5273	931.5295[M-H] ⁻	799.4904[M-H-Ara/Xyl] ⁻	637.4383[M-H- Ara/Xyl-Glc] ⁻	Re4 isomer/NG-R ₁ isomer	C ₄₇ H ₈₀ O ₁₈	932.5345	L5、L15	-0.64
			475.3807[M-H-Ara/Xyl-2Glc] ⁻						
6.09	769.4723	769.4764[M-H] ⁻	637.4358[M-H-Xyl/Ara] ⁻	475.3834 [M-H- Xyl/Ara-Glc] ⁻	F ₃ isomer	C ₄₁ H ₇₀ O ₁₃	770.4816	L15、Y5	1.95
6.12	885.4868	885.4981[M-H] ⁻	841.4957[M-H-CO ₂] ⁻	799.4857[M-H-CO ₂ - Ac] ⁻	mRg ₁ isomer	C ₄₅ H ₇₄ O ₁₇	886.4926	L5、L15、 Y5	-2.26
			781.4785[M-H-CO ₂ -Ac-H ₂ O] ⁻	637.4350[M-H-CO ₂ -Ac- Glc] ⁻					
			475.3668[M-H-CO ₂ -Ac-2Glc] ⁻						
6.13	825.496	825.5019[M-H] ⁻	783.4912[M-H-Ac] ⁻	765.4817[M-H-Ac-H ₂ O] ⁻	Rs ₃ isomer	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、L15、 Y5、N5	4.97
			621.4336[M-H-Ac-Glc] ⁻	459.3839[M-H-Ac-2Glc] ⁻					
6.14	1031.5427	1031.5427[M-H] ⁻	989.5603[M-H-Ac] ⁻	945.5464[M-H-Ac- CO ₂] ⁻	mRd isomer	C ₅₁ H ₈₄ O ₂₁	1032.5505	L15、Y5	0.00
			799.4866[M-H-Ac-Rha] ⁻	637.4181[M-H-Ac-Rha-Glc] ⁻					
			475.3799[M-H-Ac-CO ₂ -Rha-2Glc] ⁻						
6.15	831.4744	831.4778[M+FA-H] ⁻	785.4726[M-H] ⁻	653.4287[M-H- Xyl/Ara] ⁻	M-R ₂ /isomer	C ₄₁ H ₇₀ O ₁₄	786.4766	L5、L15	-4.84
			491.3841[M-H-Xyl/Ara-Glc] ⁻						

6.16	969.5454	969.5454[M-H-H ₂ O] ⁻ H-2H ₂ O-Ac] ⁻	927.5341[M-H-H ₂ O-Ac] ⁻ 765.4705[M-H-H ₂ O-Ac-Glc] ⁻ Ac-2Glc] ⁻	909.5226[M-H- 621.4331[M-H-Ac-3Glc] ⁻ 459.3891[M-H-Ac-3Glc] ⁻	6'''-O-acetylgypenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、 L15、 Y5、 N5	-3.14
6.18	1123.5938	1123.5953[M-H] ⁻ 637.4347[M-H-3Glc] ⁻	961.5364[M-H-Glc] ⁻ 475.3801[M-H-4Glc] ⁻	799.4912[M-H-2Glc] ⁻	Notoginsenoside Fh ₇ isomer	C ₅₄ H ₉₂ O ₂₄	1124.5979	L5、 L15、 Y5、 N5	-3.29
6.19	825.4991	825.5018[M-H] ⁻ 679.4401[M-H-Rha] ⁻ Ac-Rha-H ₂ O] ⁻	783.495[M-H-Ac] ⁻ 637.4332[M-H-Ac-Rha] ⁻ 571.4032	765.4748[M-H-Ac-H ₂ O] ⁻ 619.4226[M-H-Ac-Rha-Glc] ⁻ 475.3756[M-H-Ac-Rha-Glc] ⁻	β-D-Glucopyranoside, (3β, 6α,12β,20 <i>R</i>)-3,12,20- trihydroxydammar-24- en-6-yl 2- <i>O</i> -(6-deoxy-α- L-mannopyranosyl)-, 6- acetate isomer	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、 L15、 N5	1.21
6.2	799.4847	799.4860[M-H] ⁻	637.4330[M-H-Glc] ⁻	475.3830[M-H-2Glc] ⁻	Rg ₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、 L15、 Y5	-0.38
6.26	1029.5618	1029.5673[M-H] ⁻ 783.5020[M-H-Ac-Ac-Glc] ⁻	987.5567[M-H-Ac] ⁻ 621.4281[M-H-Ac-Ac-2Glc] ⁻ 459.3810[M-H-Ac-Ac-3Glc] ⁻	945.5432[M-H-2Ac] ⁻	Diacetyl-G-Rd isomer	C ₅₂ H ₈₆ O ₂₀	1030.5712	Y5	1.55
6.29	679.4419	679.4447[M-H] ⁻	637.4311[M-H-Ac] ⁻ 475.3802[M-H-Ac-Glc] ⁻	619.4212[M-H-Ac-H ₂ O] ⁻	20 <i>R</i> -ginsenoside Rh ₁ 6'- acetate isomer	C ₃₈ H ₆₄ O ₁₀	680.4499	L15、 Y5、 N5	0.29
6.29	955.4992	957.5016[M-H] ⁻	956.4995[M-H] ⁻	794.4441[M-H-Glc] ⁻	G-Ro	C ₄₈ H ₇₆ O ₁₉	956.4981	L5、 L15、 Y5、 N5	-9.30
6.37	845.4893	845.4843	799.4884	653.4308	491.3699	PG-F ₁₁ isomer	C ₄₂ H ₇₂ O ₁₄	L15、 N5	-5.00
6.43	931.5232	931.5243[M-H] ⁻ Ara/Xyl-Glc] ⁻	799.4716[M-H-Ara/Xyl] ⁻ 475.3887[M-H-Ara/Xyl-2Glc] ⁻	637.4242[M-H-Ara/Xyl-2Glc] ⁻	Re ₄ isomer/NG-R ₁ isomer	C ₄₇ H ₈₀ O ₁₈	932.5345	L5、 L15	3.76

6.51	811.4834	811.4895[M-H] ⁻ Ara/Xyl] ⁻	769.4773[M-H-Ac] ⁻ 475.3959[M-H-Ac-Ara/Xyl-Glc] ⁻	637.4368[M-H-Ac- trihydroxydammar-24- en-6-yl 2- <i>O</i> -β-D- Xylopyranosyl-, 6- acetate isomer	C ₄₃ H ₇₂ O ₁₄	812.4922	L5、L15、 Y5	1.23
6.52	1093.5808	1093.5847[M-H] ⁻ Glc] ⁻	961.5435[M-H-Xyl/Ara] ⁻ 799.4910[M-H-Glc-Xyl/Ara] ⁻ 475.3764[M-H-3Glc-Xyl/Ara] ⁻	931.5202[M-H- 20S-sanchirrhinosides A ₆ isomer	C ₅₃ H ₉₀ O ₂₃	1094.5873	L5、L15、 Y5、N5	-1.19
6.54	1003.5454	1003.5481[M-H] ⁻ 637.4175[M-H-Ac-Glc-Glc] ⁻	961.5396[M-H-Ac] ⁻ 475.3772[M-H-Ac-Glc-Glc-Glc] ⁻	799.4832[M-H-Ac-Glc] ⁻ 6-acetyl ginsenoside- Rg ₃ /isomer	C ₅₀ H ₈₄ O ₂₀	1004.5556	L15、Y5、 N5	2.39
6.54	769.4724	769.4772[M-H] ⁻	637.4407[M-H-Xyl/Ara] ⁻ Xyl/Ara-Glc] ⁻	475.3722[M-H- F ₃ isomer	C ₄₁ H ₇₀ O ₁₃	770.4816	L15、Y5	1.82
6.64	947.522	947.5277[M+FA-H] ⁻ Xyl/Ara] ⁻	901.5203[M-H] ⁻ 637.4319[M-H-2Xyl/Ara] ⁻ 475.3788[M-H-2Xyl/Ara- Glc] ⁻	769.4726[M-H- chikusetsusaponin LM ₂ isomer	C ₄₆ H ₇₈ O ₁₇	902.5239	L15	-4.66
6.74	925.4818		925.4842[M-H] ⁻	CS-IV	C ₄₇ H ₇₄ O ₁₈	926.4875	L5、L15、 Y5、N5	-2.27
6.81	1153.6172	1153.6211[M+FA-H] ⁻ 783.4902[M-H-Glc-Glc] ⁻ 459.3881[M-H-Glc-Glc-Glc-Glc] ⁻	1107.5999[M-H] ⁻ 621.4482[M-H-Glc-Glc-Glc] ⁻	945.5462[M-H-Glc] ⁻ Rb ₁ isomer	C ₅₄ H ₉₂ O ₂₃	1108.6029	L5、L15、 Y5、N5	-4.33
6.95	825.5009	825.4978[M-H] ⁻	783.4903[M-H-Ac] ⁻ 475.3888[M-H-Ac-Rha-Glc] ⁻	637.4395[M-H-Ac-Rha] ⁻ β-D-Glucopyranoside, (3β, 6α,12β,20 <i>R</i>)-3,12,20- trihydroxydammar-24- en-6-yl 2- <i>O</i> -(6-deoxy-α-	C ₄₄ H ₇₄ O ₁₄	826.5079	Y5、N5	-0.97

		L-mannopyranosyl)-, 6-acetate isomer					
6.98	1149.6074	1149.6056[M-H] ⁻ 1107.5958[M-H-Ac] ⁻ 1089.5855[M-H-Ac-H ₂ O] ⁻ 987.5480[M-H-Glc] ⁻ 945.5435[M-H-Ac-Glc] ⁻ 927.5342[M-H-Ac-Glc-H ₂ O] ⁻ 783.4877[M-H-Ac-2Glc] ⁻ 621.4405[M-H-Ac-3Glc] ⁻ 459.3881[M-H-Ac-4Glc] ⁻	Q-R ₁ isomer	C ₅₆ H ₉₄ O ₂₄	1150.6135	L5、L15、Y5、N5	-1.48
7.04	769.473	769.4780[M-H] ⁻ 637.4293[M-H-Ara/Xyl] ⁻ 619.4254[M-H-Ara/Xyl-H ₂ O] ⁻ 475.3819[M-H-Ara/Xyl-Glc] ⁻	F ₃ isomer	C ₄₁ H ₇₀ O ₁₃	770.4816	L5、L15、Y5、N5	1.04
7.08	1119.5959	1119.5964 1077.5883 1059.5768	R-s ₂ isomer	C ₅₅ H ₉₂ O ₂₃	1120.6029	L5、L15、Y5、N5	-0.71
7.13	1077.5817	1077.5881[M-H] ⁻ 945.5424[M-H-Xyl/Ara] ⁻ 783.4820[M-H-Xyl/Ara-Glc] ⁻ 621.4493[M-H-Xyl/Ara-2Glc] ⁻ 459.3929[M-H-Xyl/Ara-3Glc] ⁻	Rb ₂ isomer	C ₅₃ H ₉₀ O ₂₂	1078.5924	L5、L15、Y5、N5	2.69
7.13	793.4396	793.4404[M-H] ⁻ 631.3859[M-H-Glc] ⁻ 613.3744[M-H-Glc-H ₂ O] ⁻ 569.3856[M-H-Glc-CO ₂] ⁻ 455.3530[M-H-Glc-GlcA] ⁻	CS-Iva	C ₄₂ H ₆₆ O ₁₄	794.4453	L5、L15、Y5、N5	-2.65
7.17	915.5306	915.5325[M-H] ⁻ 783.4918[M-H-Xyl/Ara] ⁻ 637.4339[M-H-Xyl/Ara-Rha] ⁻ 475.3944[M-H-Xyl/Ara-Rha-Glc] ⁻	β-D-Glucopyranoside, (3β, 6α,12β)-3,12-dihydroxy-20-(β-D-Xylopyranosyloxy) dammar-24-en-6-yl 2-O-(6-deoxy-α-L-mannopyranosyl)-isomer	C ₄₇ H ₈₀ O ₁₇	916.5396	L5、L15、Y5、N5	1.31

7.27	679.4408	679.4489[M-Ac] ⁻ 637.4302[M-H] ⁻ 475.3788[M-H-Glc] ⁻	20R-ginsenoside Rh1 6 ⁺ -acetate isomer	C ₃₈ H ₆₄ O ₁₀	680.4499	L15、Y5、N5	1.91
7.36	841.4969	841.5016[M-H] ⁻ 805.4004[M-H-H ₂ O] ⁻ 799.4845[M-H-Ac] ⁻ 781.4655[M-H-Ac-H ₂ O] ⁻ 637.4320[M-H-Ac-Glc] ⁻ 475.3926[M-H-Ac-2Glc] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、Y5、N5	-2.26
7.41	1119.5978	1119.5997[M-H] ⁻ 1077.5891[M-H-Ac] ⁻ 1059.5795[M-H-Ac-H ₂ O] ⁻ 945.5502[M-H-Ac-Xyl/Ara] ⁻ 783.4929[M-H-Ac-Xyl/Ara-Glc] ⁻ 765.4853[M-H-Ac-Xyl/Ara-Glc-H ₂ O] ⁻ 621.4379[M-H-Ac-Xyl/Ara-2Glc] ⁻ 459.3871[M-H-Ac-Xyl/Ara-3Glc] ⁻	Rs1 isomer	C ₅₅ H ₉₂ O ₂₃	1120.6029	L5、L15、Y5、N5	-2.41
7.48	1163.589	1163.5697[M-H] ⁻ 1119.5992[M-HCOO] ⁻ 1077.5875[M-H-HCOO-Ac] ⁻ 1059.5772[M-H-HCOO-Ac-H ₂ O] ⁻ 945.5770[M-H-HCOO-Ac-Xyl/Ara] ⁻ 783.4948[M-H-HCOO-Ac-Xyl/Ara-Glc] ⁻ 765.4912[M-H-HCOO-Ac-Xyl/Ara-Glc-H ₂ O] ⁻ 621.4249[M-H-HCOO-Ac-Xyl/Ara-2Glc] ⁻ 459.3936[M-H-HCOO-Ac-Xyl/Ara-3Glc] ⁻	Malonyl-ginsenosideRc isomer	C ₅₆ H ₉₂ O ₂₅	1164.5928	L5、L15、Y5、N5	-3.44
7.49	1059.5786	1059.5801 945.5463 783.5000 621.4579	Quinquenoside I isomer	C ₅₂ H ₈₆ O ₁₉	1014.5763	L15、Y5、N5	-4.54
7.52	1149.6075	1149.6048 1107.5995 1089.5870 1077.5993 987.5319 945.5390 783.4874 621.4255	Q-R1 isomer	C ₅₆ H ₉₄ O ₂₄	1150.6135	L5、L15、N5	-1.57
7.54	1077.5881	1077.5852[M-H] ⁻ 945.5452[M-H-Xyl/Ara] ⁻ 915.5419[M-H-Glc] ⁻ 783.4926[M-H-Glc-Xyl/Ara] ⁻ 765.4782[M-H-Glc-Xyl/Ara-H ₂ O] ⁻ 621.4221[M-H-2Glc-Xyl/Ara] ⁻ 459.3994[M-H-3Glc-Xyl/Ara] ⁻	Rb2 isomer	C ₅₃ H ₉₀ O ₂₂	1078.5924	L5、L15、Y5、N5	-3.25

7.65	931.5248	931.5227[M-H] ⁻ Xyl/Ara-H ₂ O] ⁻	799.4649[M-H-Xyl/Ara] ⁻ 637.3980[M-H-Xyl/Ara-Glc] ⁻ Xyl/Ara-2Glc] ⁻	781.4975[M-H- 475.3746[M-H-	Re ₄ isomer/NG-R ₁ isomer	C ₄₇ H ₈₀ O ₁₈	932.5345	L15、Y5、 N5	2.04
7.69	829.4938	829.4938[M+FA-H] ⁻	783.4847[M-H] ⁻ 475.3752[M-H-Glc-Rha] ⁻	621.4377[M-H-Glc] ⁻	Rg ₂ isomer	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	6.13
7.71	961.5355	961.5419[M-H] ⁻	799.4892[M-H-Glc] ⁻ 475.3792[M-H-3Glc] ⁻	637.4323[M-H-2Glc] ⁻	Re ₁ isomer	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、 Y5、N5	1.77
7.76	679.4408	679.4396[M-Ac] ⁻	637.4322[M-H] ⁻ 475.3744[M-H-Ac-Glc] ⁻	619.4113[M-H-H ₂ O] ⁻	20R-ginsenoside Rh1 6'- acetate isomer	C ₃₈ H ₆₄ O ₁₀	680.4499	L15、Y5、 N5	1.91
7.8	815.479	815.4803[M-H] ⁻	653.4264[M-H-Glc] ⁻ Glc] ⁻	491.3828[M-H-Glc- Glc] ⁻	Panajaponol A/isomer	C ₄₂ H ₇₂ O ₁₅	816.4871	L5、L15、 Y5、N5	0.37
7.97	1119.5946	1119.5988[M-H] ⁻ H ₂ O] ⁻	1077.5883[M-H-Ac] ⁻ 945.5323[M-H-Ac-Xyl/Ara] ⁻ Xyl/Ara-Glc] ⁻	1059.5782[M-H-Ac- 783.4965[M-H-Ac- 621.4344[M-H-Ac-Xyl/Ara-2Glc] ⁻ 459.3851[M-H-Ac-Xyl/Ara-3Glc] ⁻	Rs ₁ isomer	C ₅₅ H ₉₂ O ₂₃	1120.6029	L5、L15、 Y5、N5	0.45
7.97	1059.5706	1059.5786[M+FA-H] ⁻ C ₄ H ₄ O-H ₂ O] ⁻	945.5333[M-H-C ₄ H ₄ O] ⁻ 765.4869[M-H-C ₄ H ₄ O-Glc-H ₂ O] ⁻ H-C ₄ H ₄ O-2Glc] ⁻	927.5494[M-H- 621.4231[M- 459.3881[M-H-C ₄ H ₄ O-3Glc] ⁻	Quinquenoside I isomer	C ₅₂ H ₈₆ O ₁₉	1014.5763	L15、N5	3.35
8.09	987.5542	987.5578[M-H] ⁻	945.5469[M-H-Ac] ⁻ 841.4994[M-H-Rha] ⁻	927.5306[M-H-Ac-H ₂ O] ⁻ 799.5353[M-H-Ac-Rha] ⁻ 637.4142[M-H- Ac-Rha-Glc] ⁻	Pseudoginsenoside Rs ₁ /isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 Y5、N5	-1.32
8.19	807.4815	807.4815[M-H] ⁻	765.4404[M-H-Ac] ⁻ 441.3430[M-H-Ac-2Glc] ⁻	603.3835[M-H-Ac-Glc] ⁻	20Z-ginsenoside-Rs ₄ isomer	C ₄₄ H ₇₂ O ₁₃	808.4973	L5、L15、 Y5、N5	9.91
8.25	841.4976	841.4957[M-H] ⁻	799.4828[M-H-Ac] ⁻ 679.4316[M-H-Glc] ⁻	781.4806[M-H-Ac-H ₂ O] ⁻ 637.4337[M-H-Ac-Glc] ⁻ 619.4211[M-H- Ac-Glc-H ₂ O] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、 Y5、N5	-3.09

8.31	945.5443	945.5464[M-H] ⁻ 783.4924[M-H-Glc] ⁻ 621.4346[M-H-2Glc] ⁻ 459.3801[M-H-3Glc] ⁻	Rd isomer	C ₄₈ H ₈₂ O ₁₈	946.5501	L5、L15、 Y5、N5	-2.12
8.34	829.4948	829.4947[M+FA-H] ⁻ 783.4879[M-H] ⁻ 637.4256[M-H-Rha] ⁻ 619.4134[M-H-Rha-H ₂ O] ⁻ 475.3664[M-H-Rha-Glc] ⁻	Rg ₂ isomer	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	2.04
8.4	987.5528	987.5528[M-H] ⁻ 945.5436[M-H-Ac] ⁻ 927.5336[M-H-Ac- H ₂ O] ⁻ 765.4803[M-H-Ac-H ₂ O-Glc] ⁻ 621.4381[M-H-Ac- 2Glc] ⁻ 459.3827[M-H-Ac-3Glc] ⁻	6'''-O-acetylgypenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 Y5、N5	0.10
8.6	1031.546	1031.5472[M-H] ⁻ 987.5576[M-H-CO ₂] ⁻ 945.5482[M-H-CO ₂ - Ac] ⁻ 927.5375[M-H-CO ₂ -Ac-H ₂ O] ⁻ 783.4942[M-H-CO ₂ -Ac- Glc] ⁻ 765.4810[M-H-CO ₂ -Ac-Glc-H ₂ O] ⁻ 621.4350[M-H-CO ₂ - Ac-2Glc] ⁻ 459.3804[M-H-CO ₂ -Ac-3Glc] ⁻	Malonyl-ginsenoside Re isomer	C ₅₁ H ₈₄ O ₂₁	1032.5505	L5、L15、 Y5、N5	-3.20
8.69	783.4893	783.4907[M-H] ⁻ 621.4342[M-H-Glc] ⁻ 459.3858[M-H-2Glc] ⁻	20(S)-G-Rg ₃ isomer	C ₄₂ H ₇₂ O ₁₃	784.4973	N5	0.26
8.75	961.5357	961.5382[M-H] ⁻ 799.4880[M-H-Glc] ⁻ 781.4725[M-H-Glc- H ₂ O] ⁻ 679.4304 637.4469[M-H-2Glc] ⁻ 475.3603[M-H-3Glc] ⁻	Re ₁ isomer	C ₄₈ H ₈₂ O ₁₉	962.545	L5、L15、 Y5、N5	1.56
8.77	831.4737	831.4722[M+FA-H] ⁻ 785.4706[M-H] ⁻ 653.4274[M-H- Xyl/Ara] ⁻ 491.3850[M-H-Xyl/Ara-Glc] ⁻	M-R ₂ /isomer	C ₄₁ H ₇₀ O ₁₄	786.4766	L5、L15、 Y5、N5	-2.29
8.9	977.5219	977.5219[M+FA-H] ⁻ 931.5304[M-H] ⁻ 799.4721[M-H- Xyl/Ara] ⁻ 637.4305[M-H-Xyl/Ara-Glc] ⁻ 475.3873[M-H- Xyl/Ara-2Glc] ⁻	Re ₄ isomer/NG-R ₁ isomer	C ₄₇ H ₈₀ O ₁₈	932.5345	L5、L15、 Y5、N5	6.76
8.98	913.5198	913.5173[M+FA-H] ⁻ 867.5149[M-H] ⁻ 781.4694[M-H-C ₄ H ₄ O- H ₂ O] ⁻ 799.4615[M-H-C ₄ H ₄ O] ⁻ 637.4379[M-H-C ₄ H ₄ O-Glc] ⁻ 619.4215[M-H-C ₄ H ₄ O-Glc-H ₂ O] ⁻ 475.38249[M-H-C ₄ H ₄ O-2Glc] ⁻	koryoginsenoside- R ₁ /isomer	C ₄₆ H ₇₆ O ₁₅	868.5184	L5、L15、 Y5、N5	-4.96
9.06	1031.548	1031.5461[M-H] ⁻ 987.5568[M-H-CO ₂] ⁻ 945.5492[M-H-CO ₂ - Ac] ⁻ 783.4991[M-H-CO ₂ -Ac-Glc] ⁻ 621.4164[M-H-CO ₂ -Ac- Glc-Glc] ⁻ 459.3901[M-H-CO ₂ -Ac-Glc-Glc-Glc] ⁻	Malonyl-ginsenoside Re isomer	C ₅₁ H ₈₄ O ₂₁	1032.5505	L5、L15、 Y5、N5	-5.14

9.06	987.553	987.5548[M-H] ⁻ 783.4851[M-H-Ac-Glc] ⁻ 459.3694[M-H-Ac-Glc-Glc-Glc] ⁻	945.5493[M-H-Ac] ⁻ 621.4411[M-H-Ac-Glc-Glc] ⁻	927.5308[M-H-Ac-H ₂ O] ⁻	6'''-O-acetylgyenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 Y5、N5	-0.10
9.08	1239.632	1107.5982[M-H-Xyl] ⁻	945.5493[M-H-Xyl-Glc] ⁻		NG-R ₄	C ₅₅ H ₁₀₀ O ₃₀	1240.6299	L5、L15、 Y5、N5	-7.99
9.09	845.4926	845.4900[M+HCOO] ⁻ 475.3802[M-H-2Glc] ⁻	799.4860[M-H] ⁻ 637.4344[M-H-Glc] ⁻		20(S)-G-Rf-1a	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、 Y5、N5	-2.00
9.09	799.4869	799.4891[M-H] ⁻ 637.4353[M-H-Glc] ⁻ 475.3801[M-H-2Glc] ⁻			20(S)-G-Rf	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、 Y5、N5	-3.13
9.09	799.4869	799.4891[M-H] ⁻ 637.4353[M-H-Glc] ⁻ 475.3801[M-H-2Glc] ⁻			20(R)-G-Rf	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、 Y5、N5	-3.13
9.15	913.4741	913.4822[M+FA-H] ⁻ 637.4326[M-H-C ₄ H ₄ O-Glc] ⁻ 1107.6022[M-H-Glc] ⁻ 1089.5601[M-H-Glc-H ₂ O] ⁻ 945.5489[M-H-Glc-Glc] ⁻ 783.4800[M-H-Glc-Glc-Glc] ⁻ 459.3861[M-H-Glc-Glc-Glc-Glc-Glc] ⁻ 947.5275[M+FA-H] ⁻ 901.5202[M-H] ⁻ 769.4802[M-H-Xyl/Ara] ⁻ 637.4297[M-H-2Xyl/Ara] ⁻ 475.3774[M-H-2Xyl/Ara-Glc] ⁻	867.5110[M-H] ⁻ 799.4850[M-H-C ₄ H ₄ O] ⁻ 475.3892[M-H-C ₄ H ₄ O-2Glc] ⁻		koryoginsenoside- R ₁ /isomer	C ₄₆ H ₇₆ O ₁₅	868.5184	L5、L15、 Y5、N5	-0.46
9.52	1269.65	1107.6022[M-H-Glc] ⁻ 1089.5601[M-H-Glc-H ₂ O] ⁻ 945.5489[M-H-Glc-Glc] ⁻ 783.4800[M-H-Glc-Glc-Glc] ⁻ 459.3861[M-H-Glc-Glc-Glc-Glc-Glc] ⁻ 947.5275[M+FA-H] ⁻ 901.5202[M-H] ⁻ 769.4802[M-H-Xyl/Ara] ⁻ 637.4297[M-H-2Xyl/Ara] ⁻ 475.3774[M-H-2Xyl/Ara-Glc] ⁻			Ra ₀ isomer	C ₆₀ H ₁₀₂ O ₂₈	1270.6558	L5、L15、 Y5、N5	-1.58
9.66	947.5235	947.5275[M+FA-H] ⁻ 901.5202[M-H] ⁻ 769.4802[M-H-Xyl/Ara] ⁻ 637.4297[M-H-2Xyl/Ara] ⁻ 475.3774[M-H-2Xyl/Ara-Glc] ⁻			chikusetsusaponin LM ₂ isomer	C ₄₆ H ₇₈ O ₁₇	902.5239	L5、L15、 Y5、N5	-4.55
9.67	845.4901	845.4864[M+FA-H] ⁻ 475.3758[M-H-2Glc] ⁻	799.4923[M-H] ⁻ 637.4226[M-H-Glc] ⁻		Rg ₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L15、Y5、 N5	-9.88
9.75	945.5404	945.5440[M-H] ⁻ 459.3732[M-H-3Glc] ⁻	783.4906[M-H-Glc] ⁻ 621.4374[M-H-2Glc] ⁻		Rd isomer	C ₄₈ H ₈₂ O ₁₈	946.5501	L5、L15、 Y5、N5	2.01
9.77	1031.5434	1031.5494[M-H] ⁻ 783.5040[M-H-CO ₂ -Ac-Glc] ⁻ 459.3853[M-H-CO ₂ -Ac-3Glc] ⁻	987.5551[M-H-CO ₂] ⁻ 621.4093[M-H-CO ₂ -Ac-2Glc] ⁻	945.5428[M-H-CO ₂ -Ac] ⁻	Malonyl-ginsenoside Re isomer	C ₅₁ H ₈₄ O ₂₁	1032.5505	L15、Y5、 N5	-0.68

9.78	987.5535	987.5529[M-H] ⁻ H ₂ O] ⁻	945.5419[M-H-Ac] ⁻ 783.4873[M-H-Ac-Glc] ⁻	927.5268[M-H-Ac- 765.4957[M-H-Ac-Glc-H ₂ O] ⁻ 621.4374[M-H-Ac-2Glc] ⁻	6'''-O-acetylgypenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 Y5、N5	-0.61
9.83	815.4818	815.4829[M+HCOO] ⁻	769.4762[M-H] ⁻ Xyl] ⁻	637.4333[M-H- 475.3792[M-H-Xyl-Glc] ⁻	20(S)-NG-R ₂	C ₄₁ H ₇₀ O ₁₃	770.4816	L5、L15、 Y5、N5	-3.12
9.83	769.4761	769.4793[M-H] ⁻	637.4369[M-H-Ara] ⁻ Glc] ⁻	475.3803[M-H-Ara- Glc] ⁻	G-F ₃	C ₄₁ H ₇₀ O ₁₃	770.4816	L5、 L15、 Y5、N5	-2.99
10.25	1209.6298	1077.5890[M-H-Xyl] ⁻ 783.4951[M-H-Xyl-Ara(f)-Glc] ⁻	945.5514[M-H-Xyl-Ara(f)] ⁻ 621.4350[M-H-Xyl-Ara(f)- 2Glc] ⁻		G-Ra ₂	C ₅₈ H ₉₈ O ₂₆	1210.6346	L5、L15、 Y5、N5	-2.48
10.39	887.4989	887.5080[M+FA-H] ⁻ 781.4728[M-H-Ac-H ₂ O] ⁻	841.5007[M-H] ⁻ 637.4221[M-H-Ac-Glc] ⁻	799.4905[M-H-Ac] ⁻ 475.3722[M-H-Ac-2Glc] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、 Y5、N5	-6.77
10.42	1029.563	1029.5696[M-H] ⁻ 783.4938[M-H-2Ac-Glc] ⁻	987.5551[M-H-Ac] ⁻ 621.4501[M-H-2Ac-2Glc] ⁻	945.5430[M-H-2Ac] ⁻ 459.4029[M-H-2Ac-3Glc] ⁻	Diacetyl-G-Rd isomer	C ₅₂ H ₈₆ O ₂₀	1030.5712	L15、Y5、 N5	0.39
10.42	1239.6404	1107.5963[M-H-Xyl] ⁻	945.5535[M-H-Xyl-Glc] ⁻ 783.4811[M-H-Xyl-2Glc] ⁻		G-Ra ₃	C ₅₉ H ₁₀₀ O ₂₇	1240.6452	L5、L15、 Y5、N5	-2.42
10.47	769.4748	769.4790[M-H] ⁻	637.4347[M-H-Xyl] ⁻ Glc] ⁻	475.3819[M-H-Xyl- Glc] ⁻	20(R)-NG-R ₂	C ₄₁ H ₇₀ O ₁₃	770.4816	L5、L15、 Y5	-1.30
10.49	1107.5974		1107.6017[M-H] ⁻		G-Rb ₁	C ₅₄ H ₉₂ O ₂₃	1108.6029	L5、L15、 Y5、N5	-2.08
10.55	783.4924	783.4928[M-H] ⁻	637.4318[M-H-Rha] ⁻ Glc] ⁻	475.3794[M-H-Rha- Glc] ⁻	20(S)-G-Rg ₂	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	-3.70

10.55	783.4924	783.4928[M-H] ⁻ 637.4318[M-H-Rha-Glc] ⁻ 475.3794[M-H-Rha-Glc] ⁻	20(R)-G-Rg ₂	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、Y5、N5	-3.70
10.64	913.5193	913.5207[M+FA-H] ⁻ 867.5122[M-H] ⁻ 799.4863[M-H-C ₄ H ₄ O] ⁻ 781.4766[M-H-C ₄ H ₄ O-H ₂ O] ⁻ 637.4431[M-H-C ₄ H ₄ O-Glc] ⁻ 619.4244[M-H-C ₄ H ₄ O-Glc-H ₂ O] ⁻ 475.3763[M-H-C ₄ H ₄ O-2Glc] ⁻	koryoginsenoside-R ₁ /isomer	C ₄₆ H ₇₆ O ₁₅	868.5184	L5、L15、Y5、N5	-1.84
10.64	683.4398	683.4405[M+FA-H] ⁻ 637.4328[M-H] ⁻ 475.3751[M-H-Glc] ⁻	F ₁ isomer	C ₃₆ H ₆₂ O ₉	638.4394	L5、L15、Y5、N5	-1.88
10.78	827.4786	827.4932[M+FA-H] ⁻ 781.4815[M-H] ⁻ 635.4420[M-H-Rha-Glc] ⁻ 473.3696[M-H-Rha-Glc] ⁻	ginsenoside Rh ₁₄ isomer	C ₄₂ H ₇₀ O ₁₃	782.4816	N5	-9.85
10.84	987.5531	987.5546 945.5432 927.5393 783.4911 621.4502	6'''-O-acetylgypenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L15、N5	-0.20
10.97	829.413	829.5156[M+FA-H] ⁻ 783.4889[M-H] ⁻ 637.4366[M-H-Rha-Glc] ⁻ 475.3769[M-H-Rha-Glc] ⁻	Rg ₂ isomer	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、Y5、N5	0.77
10.97	793.4395	793.4411[M-H] ⁻ 731.4369 631.3752[M-H-Glc] ⁻ 613.3723[M-H-Glc-H ₂ O] ⁻ 455.3515[M-H-Glc-GlcA]	CS-Iva isomer	C ₄₂ H ₆₆ O ₁₄	794.4453	L5、L15、Y5、N5	-2.52
11.04	1209.6294	1077.5893[M-H-Xyl] ⁻ 945.5445[M-H-Xyl-Ara(p)] ⁻ 783.4912[M-H-Xyl-Ara(p)-Glc] ⁻	G-Ra ₁	C ₅₈ H ₉₈ O ₂₆	1210.6346	L5、L15、Y5、N5	-2.15
11.06	1123.5928	1123.5928[M+HCOO] ⁻ 1077.5920[M-H] ⁻ 945.5500[M-H-Ara(f)] ⁻ 783.4880[M-H-Ara(f)-Glc] ⁻	G-Rc	C ₅₃ H ₉₀ O ₂₂	1078.5924	L5、L15、Y5、N5	-6.87
11.12	683.4397	683.4425[M+HCOO] ⁻ 637.4366[M-H] ⁻ 475.3809[M-H-Glc] ⁻	20(S)-G-Rh ₁	C ₃₆ H ₆₂ O ₉	638.4393	L5、L15、Y5、N5	-8.00
11.12	683.4397	683.4425[M+HCOO] ⁻ 637.4366[M-H] ⁻ 475.3809[M-H-Glc] ⁻	20(R)-G-Rh ₁	C ₃₆ H ₆₂ O ₉	638.4393	L5、L15、Y5、N5	-8.00
11.19	845.4871	845.4671[M+FA-H] ⁻ 799.4874[M-H] ⁻ 637.4502[M-H-Glc] ⁻ 475.3769[M-H-2Glc] ⁻	Rg ₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、Y5、N5	-3.75

11.43	913.518	913.5177[M+FA-H] ⁻ 867.5096[M-H] ⁻ 799.4952[M-H-C ₄ H ₄ O] ⁻ 781.4744[M-H-C ₄ H ₄ O-H ₂ O] ⁻ 637.4505[M-H-C ₄ H ₄ O-Glc] ⁻ 619.4416[M-H-C ₄ H ₄ O-Glc-H ₂ O] ⁻ 475.3893[M-H-C ₄ H ₄ O-2Glc] ⁻	koryoginsenoside-R ₁ /isomer	C ₄₆ H ₇₆ O ₁₅	868.5184	L5、L15、Y5、N5	1.15
11.55	1077.5876	1077.5888[M-H] ⁻ 945.5490[M-H-Ara(p)] ⁻ 783.4941[M-H-Ara(p)-Glc] ⁻	G-Rb ₂	C ₅₃ H ₉₀ O ₂₂	1078.5924	L5、L15、Y5、N5	-2.78
11.55	1077.5876	1077.5888[M-H] ⁻	G-Rb ₃	C ₅₃ H ₉₀ O ₂₂	1078.5924	L5、L15、Y5、N5	-2.78
11.58	825.4972	825.4998[M-H] ⁻ 783.4838[M-H-Ac] ⁻ 765.4795[M-H-Ac-H ₂ O] ⁻ 621.4407[M-H-Ac-Glc] ⁻ 603.4303[M-H-Ac-Glc-H ₂ O] ⁻ 459.3765[M-H-Ac-2Glc] ⁻	Rs ₃ isomer	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、L15、Y5、N5	3.51
11.6	845.4915	845.4839[M+FA-H] ⁻ 799.4891[M-H] ⁻ 637.4364[M-H-Glc] ⁻ 475.3769[M-H-2Glc] ⁻	Rg ₁ isomer	C ₄₂ H ₇₂ O ₁₄	800.4922	L5、L15、Y5	-5.88
11.77	841.4951	841.4975[M-H] ⁻ 799.4912[M-H-Ac] ⁻ 679.4430[M-H-Glc] ⁻ 781.4742[M-H-Ac-H ₂ O] ⁻ 637.4256[M-H-Ac-Glc] ⁻ 619.4249[M-H-Ac-Glc-H ₂ O] ⁻ 475.3691[M-H-Ac-2Glc] ⁻	noto-Rt/isomer	C ₄₄ H ₇₄ O ₁₅	842.5028	L5、L15、Y5、N5	-0.12
11.82	1209.6284	1077.5880[M-H-Xyl] ⁻ 1047.5737[M-H-Glc] ⁻ 945.5471[M-H-Xyl-Ara(p)] ⁻ 783.4912[M-H-Xyl-Ara(f)-Glc] ⁻ 765.4903[M-H-Xyl-Ara(f)-Glc-H ₂ O] ⁻ 621.4420[M-H-Xyl-Ara(f)-2Glc] ⁻ 459.3802[M-H-Xyl-Ara(f)-3Glc] ⁻	G-Ra ₁ isomer	C ₅₈ H ₉₈ O ₂₆	1210.6346	L5、L15、Y5、N5	-1.32
11.91	825.4982	825.4972[M-H] - 783.5059[M-H-Ac] ⁻ 765.4744[[M-H-Ac-H ₂ O] ⁻ 621.4430[M-H-Ac-Glc] ⁻ 475.3766[M-H-Ac-Glc-Rha] ⁻	β-D-Glucopyranoside, (3β, 6α,12β,20 <i>R</i>)-3,12,20-trihydroxydammar-24-en-6-yl 2- <i>O</i> -(6-deoxy-α-L-mannopyranosyl)-, 6-acetate isomer	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、L15、Y5、N5	2.30

11.97	969.5422	969.5422	927.5105	783.4861	621.4352	459.3712	6'''-O-acetylgypenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 N5	0.10
12	785.467	785.4922[M+FA-H] ⁻ Xyl/Ara] ⁻	739.4622[M-H] ⁻ 475.3762[M-H-2Xyl/Ara] ⁻	607.4191[M-H- Xyl/Ara] ⁻			β-D-Xylopyranoside, (3β, 6α,12β)-3,12,20- trihydroxydammar-24-en- 6-yl 2-O-Xylopyranosyl- isomer	C ₄₀ H ₆₈ O ₁₂	740.4711	L15、Y5	1.49
12.07	1149.6077	1149.6140[M-H] ⁻ 945.5271[M-H-Ac-Glc] ⁻	1107.5995[M-H-Ac] ⁻ 783.4751[M-H-Ac-2Glc] ⁻				Q-R ₁	C ₅₆ H ₉₄ O ₂₄	1150.6135	L5、L15、 Y5、N5	-1.74
12.08	869.4886	869.4886[M-H] ⁻ 765.4845[M-H-CO ₂ -Ac-H ₂ O] ⁻ 459.3842[M-H-CO ₂ -Ac-2Glc] ⁻	825.5047[M-H-CO ₂] ⁻ 621.4388[M-H-CO ₂ -Ac- Glc] ⁻	783.4911[M-H-CO ₂ - Ac] ⁻			β-D-Glucopyranoside, (3β, 12β)-20-[[6-O-(2- carboxyacetyl)-β-D- glucopyranosyl]oxy]- 12-hydroxydammar-24- en-3-yl isomer	C ₄₅ H ₇₄ O ₁₆	870.4977	L5、L15、 Y5、N5	1.50
12.1	683.4369	683.4372[M+FA-H] ⁻	637.4343[M-H] ⁻	475.3808[M-H-Glc] ⁻			F ₁ isomer	C ₃₆ H ₆₂ O ₉	638.4394	L5、L15、 Y5、N5	-4.24
12.14	1047.5746	1047.5763[M-H] ⁻ 2Xyl/Ara] ⁻	915.5345[M-H-Xyl/Ara] ⁻ 621.4351[M-H-2Xyl/Ara-Glc] ⁻	783.4937[M-H- 2Xyl/Ara] ⁻			Notoginsenoside O isomer	C ₅₂ H ₈₈ O ₂₁	1048.5818	L5、L15、 Y5、N5	-0.57
12.17	1013.5757	1013.5757[M-H] ⁻ C ₄ H ₄ O-Glc] ⁻	945.5216[M-H-C ₄ H ₄ O] ⁻ 621.4246[M-H-C ₄ H ₄ O-Glc-Glc] ⁻ 459.3778[M-H- C ₄ H ₄ O-Glc-Glc-Glc] ⁻	783.4902[M-H- C ₄ H ₄ O-Glc-Glc-Glc] ⁻			Quinquenoside I isomer	C ₅₂ H ₈₆ O ₁₉	1014.5763	L5、Y5、 N5	-7.10
12.3	829.495	829.5220[M+FA-H] ⁻	783.4936[M-H] ⁻ 475.3775[M-H-2Glc] ⁻	621.4401[M-H-Glc] ⁻			Rg ₂ isomer	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	-5.23

12.31	825.5011	825.4991[M-H] ⁻ 783.4947[M-H-Ac] ⁻ 765.4786[M-H-Ac-H ₂ O] ⁻ 663.4434[M-H-Glc] ⁻ 621.4706[M-H-Ac-Glc] ⁻ 459.3755[M-H-Ac-2Glc] ⁻	Rs ₃ isomer	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、L15、 Y5、N5	-1.21
12.36	763.4303	763.4304[M-H-Xyl/Ara] 631.3865[M-H-Xyl/Ara] ⁻ 455.3466[M-H-Xyl/Ara-GlcA] ⁻	3-O-[R-L-Arabinopyranosyl(1f2)-β-D-glucuronopyranosyl] oleanolic acid isomer	C ₄₁ H ₆₄ O ₁₃	764.4347	L5、L15、 Y5、N5	-4.45
12.4	929.5482	929.5522[M-H] ⁻ 767.5045[M-H-Glc] ⁻ 605.4526[M-H-2Glc] ⁻ 459.3850[M-H-2Glc-Rha] ⁻	Gypenoside X isomer	C ₄₈ H ₈₂ O ₁₇	930.5552	L5、L15、 Y5、N5	-0.86
12.45	1119.5937	1119.6016[M-H] ⁻ 1077.5889[M-H-Ac] ⁻ 1059.5754[M-H-Ac-H ₂ O] ⁻ 945.5460[M-H-Ac-Xyl/Ara] ⁻ 927.5327[M-H-Ac-Xyl/Ara-H ₂ O] ⁻ 915.5334[M-H-Ac-Glc] ⁻ 783.4920[M-H-Ac-Glc-Xyl/Ara] ⁻ 765.4832[M-H-Ac-Glc-Xyl/Ara-H ₂ O] ⁻ 621.4377[M-H-Ac-2Glc-Xyl/Ara] ⁻ 459.3698[M-H-Ac-3Glc-Xyl/Ara] ⁻	Rs ₁ isomer	C ₅₅ H ₉₂ O ₂₃	1120.6029	L5、L15、 Y5、N5	1.25
12.56	991.5505	991.5525[M+HCOO] ⁻ 945.5460[M-H] ⁻ 783.4973[M-H-Glc] ⁻ 621.4388[M-H-2Glc] ⁻	G-Rd	C ₄₈ H ₈₂ O ₁₈	946.5501	L5、L15、 Y5、N5	-3.91
12.68	1077.5874	1077.5859[M-H] ⁻ 945.5425[M-H-Xyl/Ara] ⁻ 783.4687[M-H-Xyl/Ara-Glc] ⁻ 621.4494[M-H-Xyl/Ara-2Glc] ⁻ 459.3653[M-H-Xyl/Ara-3Glc] ⁻	Rb ₁ isomer	C ₅₃ H ₉₀ O ₂₁	1078.5924	L15、Y5、 N5	-2.60
12.76	765.4793	765.4793[M-H] ⁻ 603.3942[M-H-Glc] ⁻ 441.3382[M-H-2Glc] ⁻	G-Rk ₁	C ₄₂ H ₇₀ O ₁₂	766.4867	L5、L15、 Y5、N5	-0.52
12.79	1149.6056	1149.6084[M-H] ⁻ 1107.5950[M-H-Ac] ⁻ 1089.5862[M-H-Ac-H ₂ O] ⁻ 945.5474[M-H-Ac-Glc] ⁻ 783.4985[M-H-Ac-2Glc] ⁻ 621.4451[M-H-Ac-3Glc] ⁻ 459.3763[M-H-Ac-4Glc] ⁻	Q-R ₁ isomer	C ₅₆ H ₉₄ O ₂₄	1150.6135	L5、L15、 Y5、N5	0.09

12.9	1119.5972	1119.6023[M-H] ⁻ C ₂ H ₂ O] ⁻	1077.5944[M-H-C ₂ H ₂ O] ⁻ 1059.5786[M-H-Ac] ⁻	1077.6355[M-H- C ₂ H ₂ O] ⁻	Rs ₂	C ₅₅ H ₉₂ O ₂₃	1120.6029	L5、L15、 Y5、N5	-1.88
12.9	1119.5972	1119.6023[M-H] ⁻ C ₂ H ₂ O] ⁻	1077.5944[M-H-C ₂ H ₂ O] ⁻ 1059.5786[M-H-Ac] ⁻	1077.6355[M-H- C ₂ H ₂ O] ⁻	Rs ₁	C ₅₅ H ₉₂ O ₂₃	1120.6029	L5、L15、 Y5、N5	-1.88
12.99	871.5036	871.5212[M+FA-H] ⁻ 637.4444[M-H-Ac-Rha] ⁻	825.5077[M-H] ⁻ 475.3821[M-H-Ac-Rha-Glc] ⁻	783.4969[M-H-Ac] ⁻	β-D-Glucopyranoside, (3β, 6α,12β,20 <i>R</i>)-3,12,20- trihydroxydammar-24- en-6-yl 2- <i>O</i> -(6-deoxy-α- L-mannopyranosyl)-, 6- acetate isomer	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、L15、 Y5、N5	-9.21
13	1047.5722	1047.5785[M-H] ⁻ 783.4876[M-H-2Xyl/Ara] ⁻ 459.4064[M-H-2Xyl/Ara-2Glc] ⁻	915.5464[M-H-Xyl/Ara] ⁻ 621.4268[M-H-2Xyl/Ara-Glc] ⁻		Notoginsenoside O isomer	C ₅₂ H ₈₈ O ₂₁	1048.5818	L5、L15、 Y5、N5	1.72
13.05	1175.6198	1175.6281[M-H] ⁻ C ₄ H ₄ O-H ₂ O] ⁻ C ₄ H ₄ O-2Glc] ⁻ H-C ₄ H ₄ O-3Glc] ⁻	1107.6023[M-H-C ₄ H ₄ O] ⁻ 945.5458[M-H-C ₄ H ₄ O-Glc] ⁻ 765.4780[M-H-C ₄ H ₄ O-2Glc-H ₂ O] ⁻ 459.3930[M-H-C ₄ H ₄ O-4Glc] ⁻	1089.5882[M-H- C ₄ H ₄ O-2Glc] ⁻ 783.4935[M-H- C ₄ H ₄ O-2Glc-H ₂ O] ⁻ 621.4361[M- H-C ₄ H ₄ O-3Glc] ⁻ 459.3930[M-H-C ₄ H ₄ O-4Glc] ⁻	β-D-Glucopyranoside, (3β, 12β)-20-[(6- <i>O</i> -β-D- glucopyranosyl-β-D- glucopyranosyl)oxy]- 12-hydroxydammar-24- en-3-yl 2- <i>O</i> -[6- <i>O</i> -[(2 <i>E</i>)- 1-oxo-2-buten-1-yl]-β- D-glucopyranosyl]- isomer	C ₅₈ H ₉₆ O ₂₄	1176.6292	L5、L15、 Y5、N5	1.36
13.18	945.5438	945.5491[M-H] ⁻	783.4911[M-H-Glc] ⁻ 459.3912[M-H-3Glc] ⁻	621.4233[M-H-2Glc] ⁻	Rd isomer	C ₄₈ H ₈₂ O ₁₈	946.5501	L5、L15、 Y5、N5	-1.59
13.19	913.5175	913.5067[M+FA-H] ⁻ 637.4354[M-H-C ₄ H ₄ O-Glc] ⁻	867.5118[M-H] ⁻ 475.3766[M-H-C ₄ H ₄ O-2Glc] ⁻	799.4870[M-H-C ₄ H ₄ O] ⁻	koryoginsenoside- R ₁ /isomer	C ₄₆ H ₇₆ O ₁₅	868.5184	L5、L15、 Y5、N5	-1.38

13.42	1145.6106	1145.6186[M-H] ⁻ 1077.5918[M-H-C ₄ H ₄ O] ⁻ 1059.5801[M-H-C ₄ H ₄ O-H ₂ O] ⁻ 945.5450[M-H-C ₄ H ₄ O-Xyl/Ara] ⁻ 783.4872[M-H-C ₄ H ₄ O-Xyl/Ara-Glc] ⁻ 765.4993[M-H-C ₄ H ₄ O-Xyl/Ara-Glc-H ₂ O] ⁻ 621.4356[M-H-C ₄ H ₄ O-Xyl/Ara-2Glc] ⁻ 459.3738[M-H-C ₄ H ₄ O-Xyl/Ara-3Glc] ⁻	ginsenoside Ra ₇ isomer	C ₅₇ H ₉₄ O ₂₃	1146.6186	L5、L15、Y5、N5	0.17
13.45	1119.5962	1119.5975[M-H] ⁻ 1077.5926[M-H-Ac] ⁻ 1059.5864[M-H-Ac-H ₂ O] ⁻ 945.5513[M-H-Ac-Xyl/Ara] ⁻ 915.5329[M-H-Ac-Glc] ⁻ 783.5016[M-H-Ac-Glc-Xyl/Ara] ⁻ 621.4504[M-H-Ac-2Glc-Xyl/Ara] ⁻ 459.5302[M-H-Ac-3Glc-Xyl/Ara] ⁻	Rs ₁ isomer	C ₅₅ H ₉₂ O ₂₃	1120.6029	L5、L15、Y5、N5	-0.98
13.49	969.5092	969.516[M-H] ⁻ 807.4603[M-H-Glc] ⁻ 609.3828[M-H-2Glc-2H ₂ O] ⁻ 455.3540[M-H-2Glc-gluA-CH ₂] ⁻	G-Ro methyl ester	C ₄₈ H ₇₆ O ₁₉	970.5137	L5、L15、Y5、N5	-3.40
13.57	827.4787	827.4883[M+FA-H] ⁻ 781.4707[M-H] ⁻ 619.4312[M-H-Glc] ⁻ 457.3872[M-H-2Glc] ⁻	G-Rh ₁₅ /isomer	C ₄₂ H ₇₀ O ₁₃	782.4816	L5、L15、Y5、N5	3.97
13.77	827.4814	827.4802[M+HCOO] ⁻ 781.4798[M-H] ⁻ 619.4225[M-H-Glc] ⁻ 457.3717[M-H-2Glc] ⁻	G-Rg ₉	C ₄₂ H ₇₀ O ₁₃	782.4816	L5、L15、Y5、N5	-7.60
13.78	987.5549	987.5549[M-H] ⁻ 945.5439[M-H-Ac] ⁻ 927.5337[M-H-Ac-H ₂ O] ⁻ 783.4908[M-H-Ac-Glc] ⁻ 765.4852[M-H-Ac-H ₂ O-Glc] ⁻ 621.4333[M-H-Ac-2Glc] ⁻ 459.4046[M-H-Ac-3Glc] ⁻	6'''-O-acetylgypenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、Y5、N5	-2.03
13.78	915.5343	915.5353[M-H] ⁻ 783.4908[M-H-Ara/Xyl] ⁻ 621.4370[M-H-Ara/Xyl-Glc] ⁻ 459.3812[M-H-Ara/Xyl-2Glc] ⁻	CS-III isomer	C ₄₇ H ₈₀ O ₁₇	916.5396	L5、L15、Y5、N5	-2.73
13.81	913.5163	913.5406[M+FA-H] ⁻ 867.5107[M-H] ⁻ 799.4865[M-H-C ₄ H ₄ O] ⁻ 781.4857[M-H-C ₄ H ₄ O-H ₂ O] ⁻ 637.4456[M-H-C ₄ H ₄ O-Glc] ⁻ 571.4121 475.3700[M-H-C ₄ H ₄ O-2Glc]	koryoginsenoside-R ₁ /isomer	C ₄₆ H ₇₆ O ₁₅	868.5184	L5、N5	-0.12
13.89	637.4332	637.4349[M-H] ⁻ 475.3828[M-H-Glc] ⁻	G-Rh ₁₉	C ₃₆ H ₆₂ O ₉	638.4394	L5、L15、Y5、N5	-2.51

14.08	807.4911	807.4943[M-H] ⁻ 765.4824[M-H-Ac] ⁻ 747.4726[M-H-Ac-H ₂ O] ⁻ 603.4296[M-H-Ac-Glc] ⁻ 441.3694[M-H-Ac-2Glc] ⁻	Rs ₄ isomer	C ₄₄ H ₇₂ O ₁₃	808.4973	L5、L15、 Y5、N5	-1.98
14.1	783.4914	783.4913[M-H] ⁻ 621.4361[M-H-Glc] ⁻	DHDGG	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15	-2.43
14.26	987.5523	987.5542[M-H] ⁻ 945.5451[M-H-Ac] ⁻ 927.5273[M-H-Ac-H ₂ O] ⁻ 783.4858[M-H-Ac-Glc] ⁻ 765.4884[M-H-Ac-Glc-H ₂ O] ⁻ 621.4309[M-H-Ac-Glc-Glc] ⁻ 459.3818[M-H-Ac-Glc-Glc-Glc] ⁻	6'''-O-acetylgypenoside XVII isomer	C ₅₀ H ₈₄ O ₁₉	988.5607	L5、L15、 Y5、N5	0.61
14.39	811.4871	811.4896[M+HCOO] ⁻ 765.4833[M-H] ⁻ 619.4246[M-H-Rha] ⁻ 457.3736[M-H-Rha-Glc] ⁻	G-Rg ₆	C ₄₂ H ₇₀ O ₁₂	766.4867	L5、L15、 Y5、N5	-5.75
14.39	765.4814	765.482[M-H] ⁻ 619.4232[M-H-Rha] ⁻	G-F ₄	C ₄₂ H ₇₀ O ₁₂	766.4867	L5、L15、 Y5、N5	-3.27
14.46	797.4706	751.4951[M-H] ⁻ 797.4733[M+HCOO] ⁻ 619.4275[M-H-Xyl] ⁻	DHDXG	C ₄₂ H ₇₂ O ₁₁	752.5075	L5、L15、 Y5、N5	6.12
14.5	807.4544	645.4015[M-H-Glc] ⁻ 807.4582[M-H] ⁻	CS-Iva methyl ester	C ₄₃ H ₆₈ O ₁₄	808.4609	L5、L15、 Y5	-1.61
14.5	725.4486	725.4466[M+FA-H] ⁻ 679.4402[M-H] ⁻ 637.4289[M-H-Ac] ⁻ 475.3965[M-H-Ac-Glc] ⁻	β-D-Glucopyranoside, (3β, 6α,12β,20S)-6-(acetyloxy) -3,12-dihydroxydammar- 24-en-20-yl isomer	C ₃₈ H ₆₄ O ₁₀	680.4499	L5、L15、 Y5、N5	2.80
14.68	1059.577	1059.5753[M+FA-H] ⁻ 1013.5717[M-H] ⁻ 945.5444[M-H-C ₄ H ₄ O] ⁻ 927.5337[M-H-C ₄ H ₄ O-H ₂ O] ⁻ 783.4901[M-H-C ₄ H ₄ O-Glc] ⁻ 765.4861[M-H-C ₄ H ₄ O-Glc-H ₂ O] ⁻ 621.4401[M-H-C ₄ H ₄ O-2Glc] ⁻ 459.3767[M-H-C ₄ H ₄ O-3Glc] ⁻	Quinquenoside I isomer	C ₅₂ H ₈₆ O ₁₉	1014.5763	L5、L15、 Y5、N5	-3.16
14.68	975.5552	975.5552[M+FA-H] ⁻ 929.5511[M-H] ⁻ 783.4878[M-H-Rha] ⁻ 621.4535[M-H-Rha-Glc] ⁻ 459.3782[M-H-Rha-Glc-Glc] ⁻	Gypenoside X isomer	C ₄₈ H ₈₂ O ₁₇	930.5552	L5、L15、 Y5、N5	-3.98
14.68	811.4877	811.4762[M+FA-H] ⁻ 765.4814[M-H] ⁻ 619.4101[M-H-Rha] ⁻ 457.3726[M-H-Rha-Glc] ⁻	G-Rg ₆ isomer	C ₄₂ H ₇₀ O ₁₂	766.4867	L5、L15、 Y5、N5	-3.27

14.83	665.4286	665.4299[M+HCOO] ⁻	619.4241[M-H] ⁻	G-Rk ₃	C ₃₆ H ₆₀ O ₈	620.4288	L5、L15、 Y5、N5	-5.00
14.83	665.4286	665.4299[M+HCOO] ⁻	619.4241[M-H] ⁻	G-Rh ₄	C ₃₆ H ₆₀ O ₈	620.4288	L5、L15、 Y5、N5	-5.00
14.98	783.491	783.4913[M-H] ⁻	621.4361[M-H-Glc] ⁻	G-F ₂	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	-1.91
15.34	827.4784	827.4749[M+FA-H] ⁻	781.4764[M-H] ⁻	G-Rh ₁₅ /isomer	C ₄₂ H ₇₀ O ₁₃	782.4816	L5、L15、 Y5、N5	-3.33
		457.3858[M-H-2Glc] ⁻	619.4216[M-H-Glc] ⁻					
15.39	1013.5701	1013.5723[M-H] ⁻	945.5463[M-H-C ₄ H ₄ O] ⁻	Quinquenoside I isomer	C ₅₂ H ₈₆ O ₁₉	1014.5763	L5、L15、 Y5、N5	-1.58
		927.5273[M-H-C ₄ H ₄ O-H ₂ O] ⁻	783.4935[M-H-C ₄ H ₄ O-Glc] ⁻					
		765.4950[M-H-C ₄ H ₄ O-Glc-H ₂ O] ⁻	621.4445[M-H-C ₄ H ₄ O-2Glc] ⁻	Diacetyl-G-Rd isomer	C ₅₂ H ₈₆ O ₂₀	1030.5712	L5、L15、 Y5、N5	-1.26
15.6	1029.5647	459.3787[M-H-C ₄ H ₄ O-3Glc] ⁻	987.5458[M-H-Ac] ⁻					
		945.5502[M-H-2Ac] ⁻	783.5046[M-H-2Ac-Glc] ⁻	β-D-Glucopyranoside, (3β, 12β)-3-(β-D-glucopyranosyloxy)-12-hydroxydammar-24-en-20-yl, 6-(2 <i>E</i>)-2-butenolate isomer	C ₄₆ H ₇₆ O ₁₄	852.5235	L15、Y5	6.69
16.16	851.51	851.5100[M-H] ⁻	783.4875[M-H-C ₄ H ₄ O] ⁻					
		621.4525[M-H-C ₄ H ₄ O-Glc] ⁻	459.3966[M-H-C ₄ H ₄ O-2Glc] ⁻	20(S)-G-Rg ₃	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	-3.83
16.18	783.4925	783.4947[M-H] ⁻	621.4389[M-H-Glc] ⁻	20(R)-G-Rg ₃	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	-3.83
16.18	783.4925	783.4947[M-H] ⁻	621.4389[M-H-Glc] ⁻					

16.46	829.4954	829.5001[M+FA-H] ⁻ 783.4931[M-H] ⁻ 621.4475[M-H-Glc] ⁻ 459.3833[M-H-2Glc] ⁻	F ₂ isomer	C ₄₂ H ₇₂ O ₁₃	784.4973	L5、L15、 Y5、N5	-4.59
16.97	459.3845	459.3845[M+H] ⁺ 441.3741[M+H-H ₂ O] ⁺	DEDT	C ₃₀ H ₅₀ O ₃	458.376	L5、L15、 Y5、N5	-1.52
17.01	475.3787	475.3786[M-H] ⁻ 391.2836[M-H-C ₆ H ₁₂] ⁻	20(S)-PPT	C ₃₀ H ₅₂ O ₄	476.3866	L5、L15、 Y5、N5	0.21
17.01	475.3787	475.3786[M-H] ⁻ 391.2836[M-H-C ₆ H ₁₂] ⁻	20(R)-PPT	C ₃₀ H ₅₂ O ₄	476.3866	L5、L15、 Y5、N5	0.21
17.18	799.4847	799.4891[M+FA-H] ⁻ 753.4784[M-H] ⁻ 621.4433[M-H- Xyl/Ara] ⁻ 459.3814[M-H-Xyl/Ara-Glc] ⁻	G-C-Y isomer	C ₄₁ H ₇₀ O ₁₂	754.4867	L5、L15、 Y5、N5	0.66
17.35	827.4803	827.4759[M+FA-H] ⁻ 781.4773[M-H] ⁻ 619.4345[M-H-Glc] ⁻ 457.3735[M-H-2Glc] ⁻	G-Rh ₁₅ /isomer	C ₄₂ H ₇₀ O ₁₃	782.4816	L5、L15、 Y5、N5	-4.48
17.55	799.4844	799.4859[M+FA-H] ⁻ 753.4824[M-H] ⁻ 621.4417[M-H- Xyl/Ara] ⁻ 459.3995[M-H-Xyl/Ara-Glc] ⁻	G-C-Y isomer	C ₄₁ H ₇₀ O ₁₂	754.4867	L5、Y5、 N5	-4.65
17.7	871.5045	871.5041[M+FA-H] ⁻ 825.4979[M-H] ⁻ 783.4866[M-H-Ac] ⁻ 621.4428[M-H-Ac-Glc] ⁻ 459.3854[M-H-Ac-Glc-Glc]	Rs ₃ isomer	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、Y5、 N5	2.67
18.33	871.5073	871.4739[M+HCOO] ⁻ 825.5006[M-H] ⁻ 783.4949[M-H- C ₂ H ₂ O] 765.4761[M-H-Ac] ⁻ 621.4482[M-H-Glc] ⁻ 459.3823[M-H-2Glc] ⁻	20(S)-G-Rs ₃	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、L15、 Y5、N5	-0.61
18.33	871.5073	871.4739[M+HCOO] ⁻ 825.5006[M-H] ⁻ 783.4949[M-H- C ₂ H ₂ O] 765.4761[M-H-Ac] ⁻ 621.4482[M-H-Glc] ⁻ 459.3823[M-H-2Glc] ⁻	20(R)-G-Rs ₃	C ₄₄ H ₇₄ O ₁₄	826.5079	L5、L15、 Y5、N5	-0.61
18.44	807.4548	807.4572[M-H] ⁻ 609.3828[M-H-Glc-2H ₂ O] ⁻ 537.3592 455.3544[M-H-GlcA-6'-O-Me-Glc]	ZB-RI-6' methyl ester	C ₄₃ H ₆₈ O ₁₄	808.4609	L15	-2.11
18.44	807.4889	807.4889[M-H] ⁻ 609.3828[M-H-Glc-2H ₂ O] ⁻	Rs ₄	C ₄₄ H ₇₂ O ₁₃	808.4973	L15	0.74

18.45	797.4658	797.4840[M+FA-H] ⁻ Xyl/Ara] ⁻	751.4632[M-H] ⁻ 457.3681[M-H-Xyl/Ara-Glc] ⁻	619.4250[M-H- noto-T ₅ isomer	C ₄₁ H ₆₈ O ₁₂	752.4711	L5、L15、 Y5、N5	0.13
19.06	663.4096	663.4111[M+FA-H] ⁻	617.4134[M-H] ⁻	455.3506[M-H-Glc] ⁻ Oleanolic acid-28-O-β-D- glucopyranoside/isomer	C ₃₆ H ₅₈ O ₈	618.4132	L5、L15、 Y5、N5	-12.96
19.07	665.4161	665.4419[M+FA-H] ⁻	619.4148[M-H] ⁻	457.3730[M-H-Glc] ⁻ G-Rh ₄ isomer	C ₃₆ H ₆₀ O ₈	620.4288	N5	10.00
19.9	667.4459	621.4392[M-H] ⁻	459.3852[M-H-Glc] ⁻	G-C-K	C ₃₆ H ₆₂ O ₈	622.4445	L5、L15、 Y5、N5	-4.02
19.93	765.4815	765.4820[M-H] ⁻	603.4280[M-H-Glc] ⁻	441.3389[M-H-2Glc] ⁻ G-Rg ₅	C ₄₂ H ₇₀ O ₁₂	766.4867	L5、L15、 Y5、N5	-3.40
20.06	667.4412	667.4391[M+FA-H] ⁻	621.4330[M-H] ⁻	459.3945[M-H-Glc] ⁻ G-C-K isomer	C ₃₆ H ₆₂ O ₈	622.4445	L5、L15、 Y5	5.95
20.68	649.346	649.3596[M+FA-H] ⁻	603.4193[M-H] ⁻	441.2927[M-H-Glc] ⁻ Rh ₃ isomer	C ₃₆ H ₆₀ O ₇	604.4339	L5、L15、 Y5、N5	0.33
21.02	621.4371	621.4382[M-H] ⁻	459.3831[M-H-Glc] ⁻	20(S)-G-Rh ₂	C ₃₆ H ₆₂ O ₈	622.4445	L5、L15、 Y5、N5	-0.64
21.02	621.4371	621.4382[M-H] ⁻	459.3831[M-H-Glc] ⁻	20(S)-G-Rh ₂	C ₃₆ H ₆₂ O ₈	622.4445	L5、L15、 Y5、N5	-0.64
21.29	665.4263	665.4260[M+FA-H] ⁻	619.4224[M-H] ⁻	457.3760[M-H-Glc] ⁻ G-Rh ₄ isomer	C ₃₆ H ₆₀ O ₈	620.4288	L5、L15、 Y5、N5	-2.26
21.68	459.3819	459.3819[M+H] ⁺	441.3741[M+H-H ₂ O] ⁺	DDT	C ₃₀ H ₅₀ O ₃	458.376	L5、L15、 Y5、N5	4.14
21.91	807.4905	807.4898[M-H] ⁻ 603.4212[M-H-Ac-Glc] ⁻	765.4821[M-H-Ac] 441.3721[M-H-Ac-2Glc]	747.4694[M-H-Ac-H ₂ O] ⁻ Rs ₄ isomer	C ₄₄ H ₇₂ O ₁₃	808.4973	L5、L15、 Y5	-1.24
23.72	649.4337	649.4332[M+HCOO] ⁻	603.4311[M-H] ⁻	G-Rh ₃	C ₃₆ H ₆₀ O ₇	604.4339	L5、L15、 Y5、N5	-8.29

23.72	649.4337	649.4332[M+HCOO] ⁻	603.4311[M-H] ⁻	G-Rk ₂	C ₃₆ H ₆₀ O ₇	604.4339	L5、L15、 Y5、N5	-8.29
25.54	505.3891	505.3847[M+HCOO] ⁻	459.3830[M-H] ⁻	20(S)-PPD	C ₃₀ H ₅₂ O ₃	460.3916	L5、L15、 Y5、N5	1.74
25.54	505.3891	505.3847[M+HCOO] ⁻	459.3830[M-H] ⁻	20(S)-PPD	C ₃₀ H ₅₂ O ₃	460.3916	L5、L15、 Y5、N5	1.74

Table S2 MS and MS/MS of the 75 potential new ginsenosides

No	RT	Found Mass	MS/MS	Identification	Name	Formula	Theoretical Mass (Da)	Sources	Error (ppm)
1	1.39	973.5384	973.5392[M-H] ⁻ 931.5222[M-H-Ac] ⁻ 913.5125[M-H-Ac-H ₂ O] ⁻ 799.4752[M-H-Ac-Xyl/Ara] ⁻ 637.4390[M-H-Ac-Xyl/Ara-Glc] ⁻ 475.3570[M-H-Ac-Xyl/Ara-2Glc] ⁻	PPT-Glc-Glc- Xyl/Ara-acetyl	acetyl-NG- R1A	C ₄₉ H ₈₂ O ₁₉	974.545	L5,L15,Y5	-1.23
2	1.4	1017.527	1017.5282[M-H] ⁻ 973.5391[M-H-CO ₂] ⁻ 931.5300[M-H-CO ₂ -Ac] ⁻ 799.4940[M-H-CO ₂ -Ac-Xyl/Ara] ⁻ 637.4293[M-H-CO ₂ -Ac-Xyl/Ara-Glc] ⁻ 475.3634[M-H-CO ₂ -Ac-Xyl/Ara-2Glc] ⁻	PPT-Glc-Glc- Xyl/Ara-malonyl	malonyl- NG-R1	C ₅₀ H ₈₂ O ₂₁	1018.5349	L5,L15,Y5,N5	0.10
3	1.48	739.4243	739.3379[M-H] ⁻ 695.4553[M-H-CO ₂] ⁻ 653.4397[M-H-CO ₂ -Ac] ⁻ 635.4165[M-H-CO ₂ -Ac-H ₂ O] ⁻ 491.3845[M-H-CO ₂ -Ac-Glc] ⁻	PG-Glc-malonyl	malonyl- PG-RT5	C ₃₉ H ₆₄ O ₁₃	740.4347	N5	3.52
4	1.5	961.5377	961.5370[M-H] ⁻ 799.4818[M-H-Glc] ⁻ 781.4803[M-H-Glc-H ₂ O] ⁻ 653.4289[M-H-Glc-Rha] ⁻ 491.3668[M-H-2Glc-Rha]	PG-Glc-Glc-Rha	PG-F11-G1	C ₄₈ H ₈₂ O ₁₉	962.545	L5,L15,Y5,N5	-0.52
5	1.54	913.5142	913.5169[M-H] ⁻ 781.4893[M-H-Xyl/Ara] ⁻ 619.4175[M-H-Xyl/Ara-Glc] ⁻ 457.3573[M-H-Xyl/Ara-2Glc] ⁻	PPT-C17- V1/V2-Glc-Glc- Xyl/Ara	DHDXG-G1	C ₄₇ H ₇₈ O ₁₇	914.5239	L15	2.08

6	1.69	1047.5372	1047.4597[M-H] ⁻ 1003.5481[M-H-CO ₂] ⁻ 961.5407[M-H-CO ₂ -Ac] ⁻ 943.5309[M-H-CO ₂ -Ac-H ₂ O] ⁻ 799.4768[M-H-CO ₂ -Ac-Glc] ⁻ 637.4257[M-H-CO ₂ -Ac-Glc-Glc] ⁻ 475.3680[M-H-CO ₂ -Ac-3Glc] ⁻	PPT-Glc-Glc-Glc-malonyl	malonyl-Re2-A	C ₅₁ H ₈₄ O ₂₂	1048.5454	L5,Y5,N5	0.38
7	1.9	927.5	927.5353[M-H] ⁻ 883.4862[M-H-CO ₂] ⁻ 841.4944[M-H-CO ₂ -Ac] ⁻ 799.5072[M-H-CO ₂ -2Ac] ⁻ 781.4763[M-H-CO ₂ -2Ac-H ₂ O] ⁻ 637.4274[M-H-CO ₂ -2Ac-Glc] ⁻ 475.3788[M-H-CO ₂ -2Ac-2Glc] ⁻	PPT-Glc-Glc-malonyl-acetyl	malonyl-acetyl-Rg1A	C ₄₇ H ₇₆ O ₁₈	928.5032	L5,L15,Y5,N5	-4.96
8	1.9	927.5306	927.5353[M-H] ⁻ 799.5072[M-H-Rha+H ₂ O] ⁻ 781.4763[M-H-Rha] ⁻ 637.4274[M-H-Rha-Glc+H ₂ O] ⁻ 619.4185[M-H-Rha-Glc] ⁻ 475.3788[M-H-Rha-Glc-Glc+H ₂ O] ⁻	PPT-C17-V1-Glc-Glc-Rha	Rg6-G1	C ₄₈ H ₈₀ O ₁₇	928.5396	L5,L15,Y5,N5	1.29
9	2.02	953.5194	953.5194[M-H] ⁻ 909.4709[M-H-CO ₂] ⁻ 867.4609[M-H-CO ₂ -Ac] ⁻ 799.4744[M-H-CO ₂ -Ac-C ₄ H ₄ O] ⁻ 637.4358[M-H-CO ₂ -Ac-C ₄ H ₄ O-Glc] ⁻ 475.3771[M-H-CO ₂ -Ac-C ₄ H ₄ O-2Glc] ⁻	PPT-Glc-Glc-malonyl-butene acyl	malonyl-butene acyl-Rg1	C ₄₉ H ₇₈ O ₁₈	954.5188	L5,L15,Y5,N5	-8.81
10	2.36	929.5391	929.5237[M-H] ⁻ 783.4800[M-H-Rha] ⁻ 621.4264[M-H-Rha-Glc] ⁻ 475.4109[M-H-Rha-Glc-Rha] ⁻	PPT-Rha-Glc-Rha	Rg2-G1	C ₄₈ H ₈₂ O ₁₇	930.5552	N5	8.93
11	2.48	961.5352	961.5350[M-H] ⁻ 815.4813[M-H-Rha] ⁻ 653.4181[M-H-Rha-Glc] ⁻ 491.3826[M-H-Rha-Glc-Glc] ⁻	PG-Glc-Glc-Rha	PG-F11-G2	C ₄₈ H ₈₂ O ₁₉	962.545	L5,Y5,N5	2.08
12	3.36	1139.5866	1139.5807[M+FA-H] ⁻ 1093.5745[M-H] ⁻ 961.5355[M-H-Ara/Xyl] ⁻ 815.4787[M-H-Xyl/Ara-Rha] ⁻ 653.4234[M-H-Xyl/Ara-Rha-Glc] ⁻ 491.3770[M-H-Xyl/Ara-Rha-2Glc] ⁻	PG-Glc-Glc-Xyl/Ara-Rha	PG-F11-GX1	C ₅₃ H ₉₀ O ₂₃	1094.5873	L15,Y5,N5	4.57
13	4.68	833.4806	833.4836[M+FA-H] ⁻ 787.4791[M-H] ⁻ 655.4330[M-H-Xyl/Ara] ⁻ 493.3797[M-H-Xyl/Ara-Glc] ⁻	PPT-C17-V3/V4-Glc-Xyl/Ara	Rsyz1	C ₄₁ H ₇₄ O ₁₄	788.4922	L15,Y5	6.73
14	4.81	855.4718	855.3784[M-H] ⁻ 811.4839[M-H-CO ₂] ⁻ 679.4563[M-H-CO ₂ -Xyl/Ara] ⁻ 637.4364[M-H-CO ₂ -Ac-Xyl/Ara] ⁻ 475.3786[M-H-CO ₂ -Ac-Xyl/Ara-Glc] ⁻	PPT-Glc-Xyl/Ara-malonyl	malonyl-F3A	C ₄₄ H ₇₂ O ₁₆	856.482	Y5,N5	2.81

15	4.91	927.4958	927.5027[M-H] ⁻ 883.5069[M-H-CO ₂] ⁻ 841.4992[M-H-CO ₂ -Ac] ⁻ 799.4887[M-H-CO ₂ -2Ac] ⁻ 637.4183[M-H-CO ₂ -2Ac-Glc] ⁻ 475.3675[M-H-CO ₂ -2Ac-2Glc] ⁻	PPT-Glc-Glc-malonyl-acetyl	malonyl-acetyl-Rg1B	C ₄₇ H ₇₆ O ₁₈	928.5032	L5,L15,Y5,N5	-0.43
16	4.94	1063.5711	1063.5715[M-H] ⁻ 931.5293[M-H-Xyl/Ara] ⁻ 913.4992[M-H-Xyl/Ara-H ₂ O] ⁻ 799.4959[M-H-2Xyl/Ara] ⁻ 637.4197[M-H-2Xyl/Ara-Glc] ⁻ 475.3858[M-H-2Xyl/Ara-2Glc] ⁻	PPT-Glc-Glc-Xyl/Ara-Xyl/Ara	Re1-X1	C ₅₂ H ₈₈ O ₂₂	1064.5767	L5,L15,Y5,N5	-2.07
17	5.23	867.4752	867.4691[M-H] ⁻ 823.4857[M-H-CO ₂] ⁻ 781.4791[M-H-CO ₂ -Ac] ⁻ 763.4678[M-H-CO ₂ -Ac-H ₂ O] ⁻ 619.4139[M-H-CO ₂ -Ac-Glc] ⁻ 601.4099[M-H-CO ₂ -Ac-Glc-H ₂ O] ⁻ 457.3628[M-H-CO ₂ -Ac-2Glc] ⁻	PPT-C17-V1/V2-Glc-Glc-malonyl	malonyl-Rg9	C ₄₅ H ₇₂ O ₁₆	868.482	L5,L15	-1.15
18	5.24	1047.5332	1047.5392[M-H] ⁻ 1003.5535[M-H-CO ₂] ⁻ 961.5421[M-H-CO ₂ -Ac] ⁻ 799.4758[M-H-CO ₂ -Ac-Glc] ⁻ 637.4244[M-H-CO ₂ -Ac-2Glc] ⁻ 475.3817[M-H-CO ₂ -Ac-3Glc] ⁻	PPT-Glc-Glc-Glc-malonyl	malonyl-Re2-B	C ₅₁ H ₈₄ O ₂₂	1048.5454	L15,Y5,N5	4.20
19	5.27	823.4844	823.4831[M-H] ⁻ 781.4692[M-H-Ac] ⁻ 763.4840[M-H-Ac-H ₂ O] ⁻ 619.4307[M-H-Ac-Glc] ⁻ 457.3747[M-H-Ac-2Glc] ⁻	PPT-C17-V1/V2-Glc-Glc-acetyl	acetyl-Rg9	C ₄₄ H ₇₂ O ₁₄	824.4922	L15,Y5	0.00
20	5.52	1121.5748	1121.5820[M-H] ⁻ 959.5284[M-H-Glc] ⁻ 797.4781[M-H-2Glc] ⁻ 635.4177[M-H-3Glc] ⁻ 473.3593[M-H-4Glc] ⁻	PPT-C17-V5-Glc-Glc-Glc-Glc	Rh-4G	C ₅₄ H ₉₀ O ₂₄	1122.5822	L5,L15,Y5,N5	-0.36
21	5.62	975.5131	975.5230[M+FA-H] ⁻ 929.5099[M-H] ⁻ 797.4873[M-H-Xyl/Ara] ⁻ 635.4114[M-H-Xyl/Ara-Glc] ⁻ 617.4074[M-H-Xyl/Ara-Glc-H ₂ O] ⁻ 473.3614[M-H-Xyl/Ara-2Glc] ⁻	PPT-C17-V5-Glc-Glc-Xyl/Ara	RH-2GX	C ₄₇ H ₇₈ O ₁₈	930.5188	L15	1.18
22	5.76	927.4945	927.5334[M-H] ⁻ 883.5071[M-H-CO ₂] ⁻ 841.4904[M-H-CO ₂ -Ac] ⁻ 799.5156[M-H-CO ₂ -2Ac] ⁻ 637.4343[M-H-CO ₂ -2Ac-Glc] ⁻ 475.3852[M-H-CO ₂ -2Ac-2Glc] ⁻	PPT-Glc-Glc-malonyl-acetyl	malonyl-acetyl-Rg1C	C ₄₇ H ₇₆ O ₁₈	928.5032	L5,L15	0.97
23	5.94	855.4744	811.4870[M-CO ₂] ⁻ 769.4764[M-H-CO ₂ -Ac] ⁻ 637.4296[M-H-CO ₂ -Ac-Xyl/Ara] ⁻ 475.3806[M-H-CO ₂ -Ac-Xyl/Ara-Glc] ⁻	PPT-Glc-Xyl/Ara-malonyl	malonyl-F3B	C ₄₄ H ₇₂ O ₁₆	856.482	L15,Y5	-0.23

24	6.09	943.5259	943.5243[M-H] ⁻	797.4652[M-H-Rha] ⁻	635.4301[M-H-Rha-Glc] ⁻	PPT-C17-V5-Glc-Glc-Rha	Rh-2GR	C ₄₈ H ₈₀ O ₁₈	944.5345	L5,Y5,N5	0.85
				473.3596[M-H-Rha-2Glc] ⁻							
25	6.14	1073.5542	1073.5571[M-H] ⁻	1029.5684[M-H-CO ₂] ⁻	987.5569[M-H-CO ₂ -Ac] ⁻	PPD-Glc-Glc-Glc-malonyl-acetyl	malonyl-acetyl-Rd	C ₅₃ H ₈₆ O ₂₂	1074.5611	L15,Y5,N5	-0.84
			945.5459[M-H-CO ₂ -2Ac] ⁻	783.4915[M-H-CO ₂ -2Ac-Glc] ⁻	621.4386[M-H-CO ₂ -2Ac-2Glc] ⁻						
				459.3961[M-H-CO ₂ -2Ac-3Glc] ⁻							
26	6.15	1117.5416	1117.5461[M-H] ⁻	1073.5553[M-H-CO ₂] ⁻	1029.5668[M-H-2CO ₂] ⁻	PPD/PPD-C17-V4-Glc-Glc-Glc-malonyl-malonyl	D-malonyl-Rd	C ₅₆ H ₈₆ O ₂₄	1118.5509	L5,L15,Y5,N5	1.34
			987.5565[M-H-2CO ₂ -Ac] ⁻	969.5464[M-H-2CO ₂ -Ac-H ₂ O] ⁻							
			945.5429[M-H-2CO ₂ -2Ac] ⁻	927.5361[M-H-2CO ₂ -2Ac-H ₂ O] ⁻							
			765.4773[M-H-2CO ₂ -2Ac-H ₂ O-Glc] ⁻	621.4378[M-H-2CO ₂ -2Ac-2Glc] ⁻							
				459.3860[M-H-2CO ₂ -2Ac-3Glc] ⁻							
27	6.2	869.4865	869.4844[M-H] ⁻	825.5026[M-H-CO ₂] ⁻	783.4917[M-H-CO ₂ -Ac] ⁻	PPT-Glc-Rha-malonyl	malonyl-Rg2	C ₄₅ H ₇₄ O ₁₆	870.4977	L5,L15,N5	3.91
			793.4476	637.4411[M-H-CO ₂ -Ac-Rha] ⁻	619.4101[M-H-CO ₂ -Ac-Rha-H ₂ O] ⁻						
				475.3715[M-H-CO ₂ -Ac-Rha-Glc] ⁻							
28	6.39	797.4661	797.4844[M-H] ⁻	635.4112[M-H-Glc] ⁻	617.4116[M-H-Glc-H ₂ O] ⁻	PPT-C17-V5-Glc-Glc	Rh-2G1	C ₄₂ H ₇₀ O ₁₄	798.4766	L5,L15,Y5,N5	3.39
				473.3679[M-H-2Glc] ⁻							
29	6.68	959.523	959.5224[M-H] ⁻	797.4642[M-H-Glc] ⁻	635.4078[M-H-2Glc] ⁻	PPT-C17-V5-Glc-Glc-Glc	Rh-3G	C ₄₈ H ₈₀ O ₁₉	960.5249	L5,L15	-6.15
				473.3716[M-H-3Glc] ⁻							
30	7.29	1091.6066	1091.6066[M-H] ⁻	946.5538[M-H-Rha] ⁻	799.4800[M-H-2Rha] ⁻	PPT-Glc-Glc-Rha-Rha	Re-G	C ₅₄ H ₉₂ O ₂₂	1092.608	L5,L15	-5.86
			637.4425[M-H-2Rha-Glc] ⁻	475.3918[M-H-2Rha-2Glc] ⁻							
31	7.44	987.5562	987.5562[M+FA-H] ⁻	945.5393[M+FA-H-Ac] ⁻	927.5407[M+FA-H-Ac-H ₂ O] ⁻	PPD/PPD-C17-V4-Xyl/Ara-Rha-Glc-acetyl	acetyl-Rh2-XR	C ₄₉ H ₈₂ O ₁₇	942.5552	L5,L15,Y5,N5	-3.50
			783.5059[M+FA-H-Ac-Glc] ⁻	637.4343[M+FA-H-Ac-Glc-Rha] ⁻							
			571.3929	459.3821[M-H-Ac-Glc-Rha-Xyl/Ara] ⁻							
32	7.45	1019.5413	1019.5463[M+FA-H] ⁻	973.5403[M-H] ⁻	931.5293[M-H-Ac] ⁻	PPT-Glc-Glc-Xyl/Ara-acetyl	acetyl-NG-R1B	C ₄₉ H ₈₂ O ₁₉	974.545	L15	-3.18
			799.4878[M-H-Ac-Xyl/Ara] ⁻	637.4327[M-H-Ac-Xyl/Ara-Glc] ⁻							
				475.3585[M-H-Ac-Xyl/Ara-2Glc] ⁻							

33	7.8	843.4773	843.4719[M+FA-H] ⁻ 797.4668[M-H] ⁻ 635.4044[M-H-Glc] ⁻ 473.3833[M-H-2Glc] ⁻	PPT-C17-V5- Glc-Glc	Rh-2G2	C ₄₂ H ₇₀ O ₁₄	798.4766	L5,L15,Y5,N5	2.51
34	7.84	913.515	913.5058[M-H] ⁻ 781.4751[M-H-Xyl/Ara] ⁻ 619.4176[M-H-Xyl/Ara-Glc] ⁻ 457.3746[M-H-Xyl/Ara-2Glc] ⁻	PPT-C17- V1/V2-Glc-Glc- Xyl/Ara	DHDXG-G2	C ₄₇ H ₇₈ O ₁₇	914.5239	L15	1.20
35	7.9	1029.5249	1029.5187[M-H] ⁻ 985.5372[M-H-CO ₂] ⁻ 943.5307[M-H-CO ₂ -Ac] ⁻ 781.4715[M-H-CO ₂ -Ac-Glc] ⁻ 619.4207[M-H-CO ₂ -Ac-2Glc] ⁻ 457.3752[M-H-CO ₂ -Ac-3Glc] ⁻	PPT-C17- V1/V2-Glc-Glc- Glc-malonyl	malonyl- DHD3G	C ₅₁ H ₈₂ O ₂₁	1030.5349	L5,L15,Y5,N5	2.14
36	7.98	985.5349	985.5349[M-H] ⁻ 943.5256[M-H-Ac] ⁻ 935.5104 781.4708[M-H-Ac- Glc] ⁻ 763.4356[M-H-Ac-Glc-H ₂ O] ⁻ 619.4235[M-H-Ac-2Glc] ⁻ 457.3626[M-H-Ac-3Glc] ⁻	PPT-C17- V1/V2-Glc-Glc- Glc-acetyl	acetyl- DXD3G	C ₅₀ H ₈₂ O ₁₉	986.545	L5,L15,Y5,N5	2.33
37	8.19	975.5574	929.5482[M-H] ⁻ 783.4916[M-H-Rha] ⁻ 765.4714[M-H-Rha-H ₂ O] ⁻ 637.4445[M-H-2Rha] ⁻ 619.4189[M-H-2Rha-H ₂ O] ⁻ 475.3790[M-H-2Rha- Glc] ⁻	PPD/PPD-C17- V4-Glc-Rha-Rha	C-K-2R	C ₄₈ H ₈₂ O ₁₇	930.5552	L5,L15,Y5,N5	-0.86
38	8.29	1099.57	1099.5700[M-H] ⁻ 1055.5461[M-H-CO ₂] ⁻ 987.5577[M-H-CO ₂ -C ₄ H ₄ O] ⁻ 945.5549[M-H-CO ₂ -C ₄ H ₄ O-Ac] ⁻ 783.4609[M-H-CO ₂ -Ac-C ₄ H ₄ O-Glc] ⁻ 621.4250[M-H-CO ₂ -Ac-Glc-Glc] ⁻ 459.4136[M-H-CO ₂ -Ac-C ₄ H ₄ O-3Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc-Glc- butene acyl- acetyl	butene acyl- acetyl-Rd1	C ₅₅ H ₈₈ O ₂₂	1100.5767	L5,L15,Y5,N5	-1.00
39	8.38	973.5338	973.5386[M+FA-H] ⁻ 927.5333[M-H] ⁻ 781.4906[M-H-Rha] ⁻ 619.4229[M-H-Rha-Glc] ⁻ 457.3663[M-H-Rha-2Glc] ⁻	PPT-C17- V1/V2-Glc-Glc- Rha	RG6-G2	C ₄₈ H ₈₀ O ₁₇	928.5396	L5,L15,Y5,N5	-1.62
40	8.66	1055.5735	1055.5735[M-H] ⁻ 987.5559[M-H-C ₄ H ₄ O] ⁻ 945.5475[M-H-C ₄ H ₄ O-Ac] ⁻ 783.4845[M-H-C ₄ H ₄ O-Ac-Glc] ⁻ 621.4413[M-H-C ₄ H ₄ O-Ac-2Glc] ⁻ 459.3570[M-H-C ₄ H ₄ O-Ac-3Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc-Glc- butene acyl- acetyl	butene acyl- acetyl-Rd2	C ₅₄ H ₈₈ O ₂₀	1056.5869	L5,L15,Y5,N5	5.31

			973.5344[M+FA+H] ⁻	927.5315[M-H] ⁻	799.4842[M-H-Rha+H ₂ O] ⁻	PPT-C17-					
41	9.06	973.5344	637.4384[M-H-Rha-Glc+H ₂ O] ⁻	475.3809[M-Rha-2Glc+H ₂ O] ⁻	457.3656[M-H-Rha-2Glc] ⁻	V1/V2-Glc-Glc-Rha	RG6-G3	C ₄₈ H ₈₀ O ₁₇	928.5396	L5,L15,Y5,N5	0.32
42	9.49	797.469	797.4732[M-H] ⁻	635.4156[M-H-Glc] ⁻	473.3723[M-H-2Glc] ⁻	PPT-C17-V5-Glc-Glc	Rh-2G3	C ₄₂ H ₇₀ O ₁₄	798.4766	L5,L15,Y5,N5	-0.25
43	9.61	999.5537	999.5562[M-H] ⁻	931.5240[M-H-C ₄ H ₄ O] ⁻	799.5457[M-H-C ₄ H ₄ O-Xyl/Ara] ⁻	PPT-Glc-Glc-Xyl/Ara-butene acyl	butene acyl-NG-R1	C ₅₁ H ₈₄ O ₁₉	1000.5607	L15,Y5	-0.80
44	9.81	1089.5816	1089.5887[M-H ₂ O-H] ⁻	945.5582[M-H-Glc] ⁻	927.5169[M-H-Glc-H ₂ O] ⁻	PPT-Glc-GlcA-Xyl/Ara-Glc	NG-R1-GA	C ₅₃ H ₈₈ O ₂₄	1108.5666	L5,L15,N5	-1.08
45	9.85	883.4658	883.4760[M+FA-H] ⁻	837.4935[M-H] ⁻	769.4886[M-H-C ₄ H ₄ O] ⁻	PPT-Glc-Xyl/Ara-butene acyl	butene acyl-NG-R2	C ₄₅ H ₇₄ O ₁₄	838.5079	L5,L15,Y5,N5	7.88
46	9.9	1091.5655	1091.5655[M-H] ⁻	915.5721[M-H-GlcA] ⁻	783.4803[M-H-GlcA-Xyl/Ara] ⁻	PPD/PPD-C17-V4-Glc-Glc-Xyl/Ara-GlcA	CS-III-GA	C ₅₃ H ₈₈ O ₂₃	1092.5716	L15,Y5,N5	-1.56
47	9.91	957.5433	957.5450[M-H] ⁻	915.5336[M-H-Ac] ⁻	765.4829[M-H-Ac-Ara/Xyl-H ₂ O] ⁻	PPD/PPD-C17-V4-Glc-Glc-Xyl/Ara-acetyl	acetyl-CS-III A	C ₄₉ H ₈₂ O ₁₈	958.5501	L5,L15,Y5,N5	-1.04
48	9.91	1001.5334	1001.5341[M-H] ⁻	957.5440[M-H-CO ₂] ⁻	915.5331[M-H-CO ₂ -Ac] ⁻	PPD/PPD-C17-V4-Glc-Glc-GlcA-acetyl	acetyl-F2-GA1	C ₅₀ H ₈₂ O ₂₀	1002.5399	L5,L15,Y5,N5	-1.30

49	9.97	1105.5767	1105.5853[M-H] ⁻ 943.5257[M-H-Glc] ⁻ 781.4860[M-H-2Glc] ⁻ 619.4215[M-H-3Glc] ⁻ 457.3757[M-H-4Glc] ⁻	PPT-C17- V1/V2-Glc-Glc- Glc-Glc	DHD4G	C ₃₄ H ₉₀ O ₂₃	1106.5873	L5,L15,Y5,N5	2.53
50	10.15	973.573	973.5730[M-H] ⁻ 945.5348[M-H-CO] ⁻ 783.4910[M-H-CO-Glc] ⁻ 637.4468[M-H-CO-Glc-Rha] ⁻ 475.4179[M-H-CO-Glc-Rha-Glc] ⁻	PPT-Glc-Glc- Rha-formyl	formyl-F2-R	C ₅₀ H ₈₆ O ₁₈	974.5814	Y5,N5	0.62
51	10.17	767.4604	767.4543[M-H] ⁻ 635.4190[M-H-Xyl/Ara] ⁻ 473.3615[M-H-Xyl/Ara-Glc] ⁻	PPT-C17-V5- Glc-Xyl/Ara	Rh-GX1	C ₄₁ H ₆₈ O ₁₃	768.466	Y5,N5	-2.87
52	10.22	957.5418	957.5405[M-H] ⁻ 915.5364[M-H-Ac] ⁻ 783.4952[M-H-Ac-Ara/Xyl] ⁻ 621.4454[M-H-Ac-Ara/Xyl-Glc] ⁻ 459.3717[M-H-Ac-Ara/Xyl-2Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc- Xyl/Ara-acetyl	acetyl-CS- IIIB	C ₄₉ H ₈₂ O ₁₈	958.5501	L5,L15,Y5,N5	0.52
53	10.31	1001.5343	1001.5397[M-H] ⁻ 957.5495[M-H-CO ₂] ⁻ 915.5383[M-H-CO ₂ -Ac] ⁻ 783.4975[M-H-Ac-GlcA] ⁻ 765.4897[M-H-Ac-GlcA-H ₂ O] ⁻ 621.4340[M- H-Ac-GlcA-Glc] ⁻ 459.3897[M-H-Ac-GlcA-2Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc- GlcA-acetyl	acetyl-F2- GA2	C ₅₀ H ₈₂ O ₂₀	1002.5399	L5,L15,Y5,N5	-2.20
54	10.39	1013.5667	1013.5721[M-H] ⁻ 945.5460[M-H-C ₄ H ₄ O] ⁻ 927.5272[M-H-C ₄ H ₄ O-H ₂ O] ⁻ 799.4930[M-H-C ₄ H ₄ O-Rha] ⁻ 637.4264[M-H-C ₄ H ₄ O-Rha-Glc] ⁻ 475.3868[M-H-C ₄ H ₄ O-Rha-2Glc] ⁻	PPT-Glc-Glc- Rha-butene acyl	butene acyl- F2-R	C ₅₂ H ₈₆ O ₁₉	1014.5763	L5,L15,Y5,N5	1.78
55	10.82	1073.5571	1073.5555[M-H] ⁻ 1029.5678[M-H-CO ₂] ⁻ 987.5572[M-H-CO ₂ -Ac] ⁻ 969.5451[M-H-CO ₂ -Ac-H ₂ O] ⁻ 945.5452[M-H-CO ₂ -2Ac] ⁻ 927.5335[M-H- CO ₂ -2Ac-H ₂ O] ⁻ 909.5230[M-H-CO ₂ -2Ac-2H ₂ O] ⁻ 765.4762[M-H-CO ₂ - 2Ac-H ₂ O-Glc] ⁻ 621.4462[M-H-CO ₂ -2Ac-2Glc] ⁻ 459.3963[M-H-CO ₂ - 2Ac-3Glc] ⁻	PPD-Glc-Glc- Glc-malonyl- acetyl	acetyl-Rd	C ₅₃ H ₈₆ O ₂₂	1074.5611	L5,L15,Y5,N5	-3.54
56	10.98	861.459	861.4590[M-H] ⁻ 793.4165[M-H-C ₄ H ₄ O] ⁻ 617.3394[M-H-C ₄ H ₄ O-GlcA] ⁻ 455.3483[M-H-C ₄ H ₄ O-GlcA-Glc] ⁻	OA-Glc-GlcA- butene acyl	butene acyl- CS-Iva	C ₄₆ H ₇₀ O ₁₅	862.4715	L5,L15,Y5,N5	5.46
57	11.16	971.5612	971.5612[M-H] ⁻ 929.5514[M-H-Ac] ⁻ 911.5376[M-H-Ac-H ₂ O] ⁻ 765.4803[M-H-Ac-H ₂ O-Rha] ⁻ 621.4465[M-H-Ac-Rha-Glc] ⁻ 459.3873[M-H-Ac-Rha-2Glc] ⁻	PPD/C17(D)-V4- Glc-Glc-Rha- acetyl	acetyl-F2- R1	C ₅₀ H ₈₄ O ₁₈	972.5658	L5,L15,Y5,N5	-3.29

Index	Retention time (min)	Mass (Da)	Formula	Mass (Da)	Formula	PPD/PPD-C17- V4-Glc-Glc-Rha- malonyl	malonyl-F2- R	$C_{51}H_{84}O_{20}$	1016.5556	L5,L15,Y5,N5	-0.98
58	11.16	1015.5488	1015.5528[M-H] ⁻ 911.5392[M-H-CO ₂ -Ac-H ₂ O] ⁻ 765.4818[M-H-CO ₂ -Ac-Rha-H ₂ O] ⁻ 459.3858[M-H-CO ₂ -Ac-Rha-2Glc] ⁻	971.5609[M-H-CO ₂] ⁻ 783.4926[M-H-CO ₂ -Ac-Rha] ⁻ 621.4449[M-H-CO ₂ -Ac-Rha-Glc] ⁻	929.5409[M-H-CO ₂ -Ac] ⁻						
59	11.36	813.4626	813.4670[M+FA-H] ⁻ 473.3540[M-H-Xyl/Ara-Glc] ⁻	767.4590[M-H] ⁻ 635.4168[M-H-Xyl/Ara] ⁻		PPT-C17-V5- Glc-Xyl/Ara	Rh-GX2	$C_{41}H_{68}O_{13}$	768.466	L15,Y5	-1.04
60	11.42	1179.6138	1179.6188[M-H] ⁻ 753.4945[M-H-2Ara/Xyl-Glc] ⁻ 459.3824[M-H-3Ara/Xyl-2Glc] ⁻	1047.5720[M-H-Ara/Xyl] ⁻ 621.4445[M-H-3Ara/Xyl-Glc] ⁻	915.5444[M-H-2Ara/Xyl] ⁻	PPD/PPD-C17- V4-Glc-Glc- Ara/Xyl- Ara/Xyl-Ara/Xyl	CS-III-X1	$C_{57}H_{96}O_{25}$	1180.6241	L5,L15,Y5,N5	2.12
61	11.68	1055.579	1055.5840[M-H] ⁻ 765.4825[M-H-C ₄ H ₄ O-Ac-Glc-H ₂ O] ⁻ 459.3762[M-H-C ₄ H ₄ O-Ac-3Glc] ⁻	987.5533[M-H-C ₄ H ₄ O] ⁻ 621.4443[M-H-C ₄ H ₄ O-Ac-2Glc] ⁻	945.5510[M-H-C ₄ H ₄ O-Ac] ⁻	PPD/PPD-C17- V4-Glc-Glc-Glc- acetyl-butene acyl	butene acid- Rc	$C_{54}H_{88}O_{21}$	1056.5869	L5,L15,Y5,N5	0.09
62	11.82	1091.5974	1091.6068[M-H] ⁻ 621.4470[M-H-Rha-2Glc] ⁻	945.5576[M-H-Rha] ⁻ 459.4131[M-H-Rha-3Glc] ⁻	783.4961[M-H-Rha-Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc-Glc- Rha	Rd-R	$C_{54}H_{92}O_{22}$	1092.608	L5,L15,Y5,N5	2.57
63	12	1179.6154	1179.6168[M-H] ⁻ 753.4839[M-H-2Ara/Xyl-Glc] ⁻ 459.3888[M-H-3Ara/Xyl-2Glc] ⁻	1047.5746[M-H-Ara/Xyl] ⁻ 621.4416[M-H-3Ara/Xyl-Glc] ⁻	915.5237[M-H-2Ara/Xyl] ⁻	PPD/PPD-C17- V4-Glc-Glc- Ara/Xyl- Ara/Xyl-Ara/Xyl	CS-III-X2	$C_{57}H_{96}O_{25}$	1180.6241	L5,L15,Y5,N5	0.76
64	12.03	943.5281	943.5291[M-H] ⁻ 457.3768[M-H-3Glc] ⁻	781.4732[M-H-Glc] ⁻ 619.4165[M-H-2Glc] ⁻		PPT-C17- V1/V2-Glc-Glc- Glc	DHD3G	$C_{48}H_{80}O_{18}$	944.5345	L5,L15,Y5,N5	-1.48

65	12.18	1055.5786	1055.5786[M-H] ⁻ 765.4871[M-H-Ac-C ₄ H ₄ O-Glc-H ₂ O] ⁻ 459.3911[M-H-Ac-C ₄ H ₄ O-3Glc] ⁻	1013.5735[M-H-Ac] ⁻ 621.4685[M-H-Ac-C ₄ H ₄ O-2Glc] ⁻	945.5372[M-H-Ac-C ₄ H ₄ O] ⁻ 621.4685[M-H-Ac-C ₄ H ₄ O-2Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc-Glc- acetyl-butene acyl	acetyl- butene acyl- Rd	C ₅₄ H ₈₈ O ₂₂	1056.5869	L5,L15,Y5,N5	0.47
66	12.2	1099.5695	1099.5695[M-H] ⁻ 945.5487[M-H-CO ₂ -Ac-C ₄ H ₄ O] ⁻ 621.4371[M-H-CO ₂ -Ac-C ₄ H ₄ O-2Glc] ⁻	1055.5874[M-H-CO ₂] ⁻ 783.52797[M-H-CO ₂ -Ac-C ₄ H ₄ O-Glc] ⁻ 459.3907[M-H-CO ₂ -Ac-C ₄ H ₄ O-3Glc] ⁻	1013.5702[M-H-CO ₂ -Ac] ⁻ 783.52797[M-H-CO ₂ -Ac-C ₄ H ₄ O-Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc-Glc- butene acyl- malonyl	butene acyl- malonyl-Rd	C ₅₅ H ₈₈ O ₂₂	1100.5767	L5,L15,Y5,N5	-0.55
67	12.3	799.4819	799.4771[M+FA-H] ⁻ 475.3784[M-H-Rha-Xyl/Ara] ⁻	753.4806[M-H] ⁻ 607.4226[M-H-Rha] ⁻	607.4226[M-H-Rha] ⁻	PPT-Xyl/Ara- Rha	PPTXR	C ₄₁ H ₇₀ O ₁₂	754.4867	L15,N5	-2.26
68	13.84	837.4989	837.5072[M-H] ⁻ 475.3821[M-H-C ₄ H ₄ O-Xyl/Ara-Glc] ⁻	769.4752[M-HC ₄ H ₄ O] ⁻ 637.4264[M-H-C ₄ H ₄ O-Xyl/Ara] ⁻	637.4264[M-H-C ₄ H ₄ O-Xyl/Ara] ⁻	PPT-Glc- Xyl/Ara-butene acyl	butene acyl- F3	C ₄₅ H ₇₄ O ₁₄	838.5079	L5,L15,Y5	1.43
69	13.89	851.4765	807.4902[M-H-CO ₂] ⁻ 603.4176[M-H-CO ₂ -Ac-Glc] ⁻	765.4788[M-H-CO ₂ -Ac] ⁻ 441.3685[M-H-CO ₂ -Ac-2Glc] ⁻	747.4723[M-H-CO ₂ -Ac-H ₂ O] ⁻ 441.3685[M-H-CO ₂ -Ac-2Glc] ⁻	PPD-C17- V1/V2-Glc-Glc- malonyl	malonyl- Rk1	C ₄₅ H ₇₂ O ₁₅	852.4871	L5,L15LY5LN5	3.29
70	14.06	681.4182	681.4309[M+FA-H] ⁻ 1145.6066[M-H] ⁻	635.4208[M-H] ⁻ 1077.6177[M-H-C ₄ H ₄ O] ⁻	473.3624[M-H-Glc] ⁻ 945.5502[M-H-C ₄ H ₄ O-Xyl/Ara] ⁻	PPT-C17-V5-Glc	Rh6	C ₃₆ H ₆₀ O ₉	636.4237	L5,L15,Y5	-7.71
71	14.91	1145.6067	799.5008[M-H-C ₄ H ₄ O-Xyl/Ara-Rha] ⁻ 637.4499[M-H-C ₄ H ₄ O-Xyl/Ara-Rha-Glc] ⁻ 475.3885[M-H-C ₄ H ₄ O-Xyl/Ara-Rha-2Glc] ⁻	781.4819[M-H-C ₄ H ₄ O-Xyl/Ara-Rha-H ₂ O] ⁻ 637.4499[M-H-C ₄ H ₄ O-Xyl/Ara-Rha-Glc] ⁻	781.4819[M-H-C ₄ H ₄ O-Xyl/Ara-Rha-H ₂ O] ⁻ 637.4499[M-H-C ₄ H ₄ O-Xyl/Ara-Rha-Glc] ⁻	PPT-Glc-Glc- Rha-Xyl/Ara- butene acyl	butene acyl- Re-X	C ₅₇ H ₉₄ O ₂₃	1146.6186	L5,L15,Y5,N5	3.58
72	14.99	957.5413	957.5446[M-H] ⁻ 621.4494[M-H-Ac-Xyl/Ara-Glc] ⁻	915.5333[M-H-Ac] ⁻ 459.3788[M-H-Ac-Xyl/Ara-2Glc] ⁻	783.4858[M-H-Ac-Xyl/Ara] ⁻ 459.3788[M-H-Ac-Xyl/Ara-2Glc] ⁻	PPD/PPD-C17- V4-Glc-Glc- Xyl/Ara-acetyl	acetyl-CS- IIIC	C ₄₉ H ₈₂ O ₁₈	958.5501	L5,L15,Y5,N5	1.04
73	15.19	665.4269	665.4262[M+FA-H] ⁻ 619.4147[M-H] ⁻	619.4147[M-H] ⁻ 473.4978[M-H-Rha] ⁻	473.4978[M-H-Rha] ⁻	PPT-C17-V5- Rha	RH7	C ₃₆ H ₆₀ O ₈	620.4288	L5,L15,Y5,N5	10.00

			971.5585[M-H] ⁻	929.5492[M-H-Ac] ⁻	911.5554[M-H-Ac-H ₂ O] ⁻	PPD/C17(D)-V4-						
74	16.52	971.5564	783.4815[M-H-Ac-Rha] ⁻	621.4260[M-H-Ac-Rha-Glc] ⁻	459.2371[M-H-	Glc-Glc-Rha-	acetyl-F2-	C ₅₀ H ₈₄ O ₁₈	972.5658	L5,L15,N5	1.65	
			Ac-Rha-2Glc] ⁻			acetyl	R2					
75	25.68	667.4005	667.4005[M-H] ⁻	491.3416[M-H-GlcA] ⁻		PG-GlcA	PG-GA	C ₃₆ H ₆₀ O ₁₁	668.4136	L5,L15,Y5	7.94	

Table S3 Semi-quantitative contents of 312 ginsenosides

Rt	L15	Y5	N5	L5	Rt	L15	Y5	N5	L5
1.18	4.90E+04	1.10E+05	8.50E+04	4.10E+04	9.06	6.00E+04	8.10E+04	4.80E+04	1.10E+05
1.25	2.60E+04	4.20E+04	8.20E+03	9.80E+03	9.06	3.90E+04	3.20E+04	3.30E+04	5.20E+04
1.37	1.60E+04	3.00E+04	2.20E+04	9.90E+03	9.08	3.60E+04	4.70E+04	2.50E+04	3.40E+04
1.39	1.10E+04	4.50E+04	1.80E+04	0.00E+00	9.09	7.10E+06	6.70E+06	4.50E+06	3.30E+06
1.40	1.00E+04	4.70E+04	1.60E+04	3.00E+03	9.09	4.30E+06	3.10E+06	2.60E+06	1.80E+06
1.48	0.00E+00	0.00E+00	0.00E+00	4.10E+03	9.09	4.30E+06	3.10E+06	2.60E+06	1.80E+06
1.50	4.90E+04	4.90E+04	4.10E+04	2.20E+04	9.15	1.60E+04	1.50E+04	1.20E+04	6.10E+03
1.54	0.00E+00	4.30E+03	0.00E+00	0.00E+00	9.49	3.60E+03	3.70E+03	2.10E+03	3.20E+03
1.62	6.60E+04	5.60E+04	4.30E+05	1.60E+04	9.52	1.50E+03	4.40E+03	1.80E+03	2.30E+03
1.62	4.70E+04	2.60E+04	3.40E+04	1.10E+04	9.61	0.00E+00	3.70E+03	1.60E+03	0.00E+00
1.63	1.40E+04	2.70E+05	3.80E+05	3.40E+04	9.66	3.50E+04	2.60E+03	9.30E+03	8.00E+03
1.69	1.40E+04	0.00E+00	1.20E+04	8.30E+03	9.67	0.00E+00	1.60E+04	3.10E+03	1.80E+03
1.79	7.20E+04	5.20E+04	3.30E+05	4.10E+04	9.75	3.40E+03	7.50E+03	4.90E+03	6.60E+03
1.87	4.50E+03	3.70E+03	2.70E+03	0.00E+00	9.77	0.00E+00	6.90E+04	5.60E+04	9.20E+04
1.89	1.80E+06	1.00E+06	8.40E+05	8.00E+04	9.78	2.70E+04	3.80E+04	2.20E+04	1.80E+04
1.90	2.70E+04	1.40E+04	2.80E+04	3.10E+04	9.81	1.20E+04	1.10E+04	0.00E+00	3.30E+03
1.90	2.70E+04	1.40E+04	2.80E+04	3.10E+04	9.83	1.00E+06	5.40E+06	2.50E+06	2.40E+05
1.93	7.70E+03	5.50E+04	0.00E+00	0.00E+00	9.83	2.80E+05	2.70E+06	1.40E+06	1.10E+05
1.95	2.90E+04	1.60E+04	1.50E+04	1.70E+04	9.85	1.70E+04	1.00E+04	1.70E+04	8.70E+04
1.96	2.70E+04	1.20E+04	2.50E+04	1.20E+04	9.90	0.00E+00	4.70E+04	2.20E+04	1.50E+04
2.02	1.40E+04	1.10E+05	6.90E+04	2.00E+04	9.91	3.30E+05	3.00E+05	2.40E+05	2.30E+05
2.21	9.90E+04	7.20E+04	4.80E+04	5.70E+05	9.91	1.50E+05	1.60E+05	1.30E+05	1.60E+05
2.21	1.10E+05	1.00E+06	3.60E+04	5.80E+05	9.97	6.40E+04	1.70E+05	5.80E+04	3.80E+04
2.25	9.00E+04	3.70E+05	6.00E+05	1.30E+06	10.15	0.00E+00	0.00E+00	3.10E+03	2.30E+03
2.34	5.10E+04	3.80E+04	2.00E+04	6.70E+03	10.17	0.00E+00	0.00E+00	1.80E+03	1.20E+03
2.36	0.00E+00	0.00E+00	0.00E+00	3.10E+03	10.22	3.60E+04	2.70E+04	2.10E+04	2.50E+04
2.48	3.40E+03	0.00E+00	2.50E+03	2.90E+03	10.25	1.10E+05	2.10E+05	9.60E+04	1.20E+05
2.72	1.50E+03	5.50E+03	3.50E+03	1.30E+03	10.31	2.10E+04	3.00E+04	2.40E+04	2.20E+04
2.74	1.30E+04	1.20E+04	6.20E+03	1.10E+04	10.39	8.50E+03	5.20E+03	1.10E+04	8.60E+03
2.77	1.10E+04	9.80E+03	5.10E+03	1.80E+04	10.39	5.90E+03	2.60E+03	6.60E+03	8.90E+03
2.82	4.70E+03	4.20E+03	1.80E+03	1.60E+03	10.42	0.00E+00	3.60E+04	3.30E+03	7.20E+04
2.83	1.80E+04	1.10E+04	1.30E+04	3.60E+03	10.42	1.40E+05	1.60E+05	6.10E+04	7.70E+04
2.87	3.70E+04	0.00E+00	2.20E+04	1.60E+04	10.47	6.00E+03	1.80E+04	8.90E+03	0.00E+00
3.00	7.10E+04	9.40E+04	2.00E+04	2.10E+04	10.49	7.70E+06	1.10E+07	6.20E+06	6.80E+06
3.20	1.80E+04	2.40E+04	8.40E+03	3.60E+03	10.55	1.30E+06	9.50E+05	7.90E+05	1.20E+06
3.30	0.00E+00	4.70E+03	0.00E+00	0.00E+00	10.55	1.30E+06	9.50E+05	7.90E+05	1.20E+06
3.35	0.00E+00	6.20E+03	4.30E+03	3.70E+03	10.64	2.90E+04	2.80E+04	1.90E+04	1.20E+04
3.36	0.00E+00	8.30E+04	2.70E+03	3.20E+03	10.64	4.60E+04	5.10E+04	2.90E+04	2.90E+04
3.38	1.30E+05	6.30E+04	1.60E+04	4.20E+04	10.78	0.00E+00	0.00E+00	0.00E+00	2.10E+03
3.67	7.80E+03	4.60E+04	2.20E+04	1.20E+04	10.82	9.40E+04	8.00E+04	5.20E+04	1.90E+05
3.68	3.60E+05	6.10E+05	3.10E+05	1.70E+05	10.84	0.00E+00	3.00E+03	0.00E+00	6.70E+03

3.82	0.00E+00	9.30E+03	5.30E+03	9.40E+02	10.97	1.00E+04	2.50E+04	1.50E+04	6.70E+03
3.97	0.00E+00	3.50E+04	5.90E+03	0.00E+00	10.97	2.30E+05	1.80E+05	1.60E+05	1.50E+05
4.15	0.00E+00	2.10E+03	0.00E+00	0.00E+00	10.98	4.50E+03	3.10E+03	2.50E+03	2.20E+03
4.48	1.60E+05	2.40E+06	9.60E+05	4.00E+05	11.04	1.30E+05	2.40E+05	7.90E+04	1.50E+05
4.61	1.80E+03	2.60E+05	9.70E+02	1.30E+05	11.06	1.80E+06	3.00E+06	1.20E+06	2.20E+06
4.64	1.70E+05	1.50E+05	8.70E+04	3.70E+04	11.12	4.50E+03	6.50E+03	3.30E+03	2.40E+03
4.66	4.60E+03	1.50E+03	4.90E+03	6.50E+03	11.12	4.50E+03	6.50E+03	3.30E+03	2.40E+03
4.68	0.00E+00	2.20E+04	7.40E+03	0.00E+00	11.16	8.90E+04	6.00E+04	4.10E+04	3.90E+04
4.68	2.30E+04	3.30E+03	4.90E+04	8.60E+03	11.16	4.50E+04	3.60E+04	1.70E+04	2.60E+04
4.73	2.30E+06	1.80E+06	6.10E+05	3.00E+05	11.19	2.90E+03	3.70E+03	2.20E+03	2.10E+03
4.81	0.00E+00	0.00E+00	3.90E+03	1.60E+03	11.36	0.00E+00	5.30E+03	4.00E+03	0.00E+00
4.82	4.30E+04	4.00E+04	3.40E+04	2.40E+04	11.42	3.20E+04	5.00E+04	2.20E+04	1.40E+04
4.85	7.20E+03	2.40E+05	6.00E+04	0.00E+00	11.43	9.00E+03	5.60E+03	5.90E+03	2.20E+03
4.90	7.50E+03	9.00E+03	3.50E+03	4.90E+03	11.55	5.70E+06	5.50E+06	3.90E+06	4.10E+06
4.91	5.40E+03	9.70E+03	3.90E+03	4.40E+03	11.55	5.70E+06	5.50E+06	3.90E+06	4.10E+06
4.91	5.00E+03	5.70E+03	2.90E+03	3.90E+03	11.58	6.30E+03	4.30E+03	4.50E+03	2.80E+04
4.94	5.30E+04	3.00E+04	1.40E+04	1.00E+04	11.60	3.10E+03	3.20E+03	2.50E+03	0.00E+00
5.04	3.60E+03	3.00E+03	1.40E+03	4.00E+03	11.68	1.60E+04	8.70E+03	1.50E+04	1.40E+04
5.19	8.00E+04	0.00E+00	0.00E+00	0.00E+00	11.77	6.50E+04	2.40E+04	1.40E+04	2.30E+04
5.19	3.30E+05	3.40E+06	1.20E+06	6.60E+04	11.82	4.30E+04	3.70E+04	1.40E+04	2.10E+04
5.22	8.80E+04	8.20E+04	7.80E+04	8.10E+04	11.82	3.30E+04	3.30E+04	1.80E+04	2.20E+04
5.23	1.20E+04	6.80E+03	0.00E+00	0.00E+00	11.91	3.00E+03	3.60E+03	2.00E+04	5.90E+03
5.24	0.00E+00	2.50E+04	1.50E+04	5.00E+03	11.97	7.10E+03	2.90E+03	0.00E+00	6.90E+03
5.27	0.00E+00	5.00E+03	2.10E+03	0.00E+00	12.00	4.00E+04	1.00E+05	4.00E+04	3.00E+04
5.28	0.00E+00	0.00E+00	0.00E+00	6.60E+03	12.00	0.00E+00	1.10E+04	7.60E+03	0.00E+00
5.30	4.80E+04	4.50E+04	0.00E+00	3.70E+04	12.03	1.60E+04	2.50E+04	1.70E+04	3.30E+04
5.34	3.60E+05	4.60E+05	4.80E+05	2.10E+05	12.07	2.90E+06	3.40E+06	9.50E+05	1.40E+06
5.35	1.40E+04	9.90E+03	1.10E+04	9.40E+03	12.08	3.80E+04	3.20E+04	1.30E+04	5.10E+04
5.44	4.70E+05	9.90E+04	1.80E+05	1.40E+05	12.10	1.70E+04	3.30E+04	1.50E+04	1.40E+04
5.46	2.10E+04	2.90E+04	1.50E+04	1.90E+04	12.14	1.50E+04	6.30E+04	3.50E+04	1.90E+04
5.47	1.30E+06	3.50E+05	4.10E+05	3.80E+05	12.17	7.20E+03	0.00E+00	5.60E+03	2.20E+03
5.52	2.00E+04	1.10E+05	7.60E+04	1.60E+04	12.18	2.20E+04	9.70E+03	1.40E+04	8.20E+03
5.54	8.40E+03	5.50E+04	2.20E+04	6.60E+04	12.20	2.30E+04	1.30E+04	2.70E+04	2.20E+04
5.60	1.70E+03	1.70E+04	0.00E+00	5.30E+04	12.30	7.00E+03	1.90E+03	3.40E+03	2.60E+03
5.62	0.00E+00	6.50E+03	0.00E+00	0.00E+00	12.30	0.00E+00	2.20E+03	0.00E+00	2.00E+03
5.76	1.20E+04	1.20E+04	0.00E+00	0.00E+00	12.31	1.60E+04	1.30E+04	4.60E+04	5.60E+03
5.76	1.20E+04	1.40E+04	0.00E+00	0.00E+00	12.36	1.00E+04	1.10E+04	1.60E+04	1.50E+04
5.77	1.30E+07	1.30E+07	1.00E+07	6.60E+06	12.40	3.30E+04	5.90E+03	2.10E+04	3.20E+04
5.81	5.40E+06	6.00E+06	1.30E+07	1.10E+07	12.45	1.10E+05	6.30E+05	3.20E+05	4.90E+05
5.92	5.60E+04	2.70E+05	1.80E+05	1.30E+04	12.56	2.90E+06	3.60E+06	2.40E+06	3.10E+06
5.94	0.00E+00	4.30E+04	1.60E+04	0.00E+00	12.68	0.00E+00	1.10E+04	3.10E+03	9.60E+03
6.03	7.10E+04	5.10E+04	9.00E+03	1.90E+04	12.76	1.80E+03	4.60E+03	1.80E+03	4.70E+03
6.07	1.90E+04	1.10E+04	0.00E+00	0.00E+00	12.79	6.70E+04	9.50E+04	4.40E+04	3.60E+04
6.09	7.40E+03	0.00E+00	5.30E+03	6.50E+03	12.90	7.10E+05	6.80E+05	5.50E+05	6.10E+05

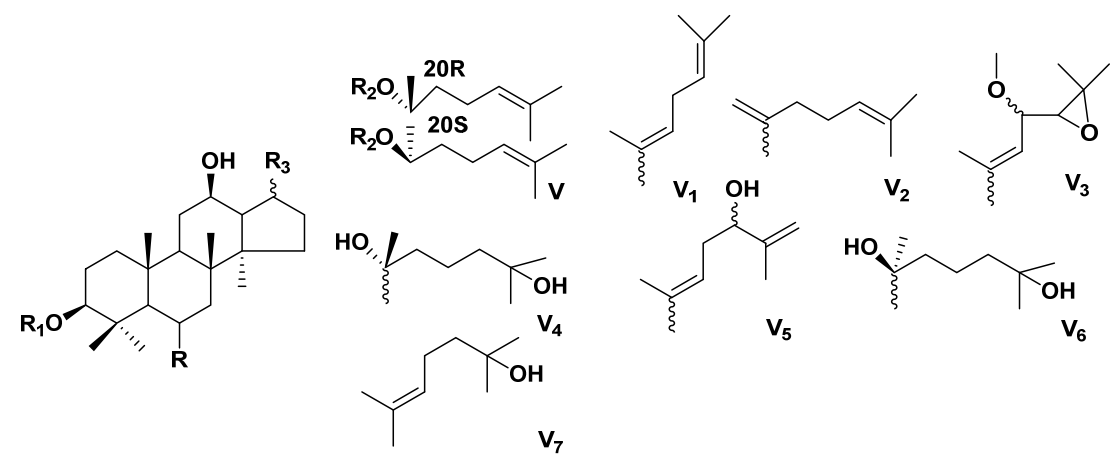
6.09	0.00E+00	1.00E+04	5.70E+03	0.00E+00	12.90	7.10E+05	6.80E+05	5.50E+05	6.10E+05
6.12	2.70E+04	3.60E+04	9.80E+03	0.00E+00	12.99	6.60E+03	3.80E+03	3.20E+03	5.10E+03
6.13	4.90E+04	3.60E+04	3.60E+04	7.00E+04	13.00	2.60E+04	1.50E+04	1.20E+04	4.10E+04
6.14	0.00E+00	1.40E+05	7.10E+04	4.90E+05	13.05	5.10E+05	4.40E+05	3.70E+05	1.90E+05
6.14	0.00E+00	7.20E+04	9.10E+04	0.00E+00	13.18	6.20E+04	6.40E+04	3.80E+04	6.10E+04
6.15	6.40E+03	1.40E+06	1.90E+06	2.50E+06	13.19	3.90E+04	8.30E+03	1.60E+04	1.00E+04
6.15	0.00E+00	3.80E+04	0.00E+00	0.00E+00	13.42	9.50E+04	5.70E+04	1.50E+05	6.40E+04
6.16	7.30E+04	2.30E+05	2.60E+05	4.30E+05	13.45	7.10E+03	5.90E+04	2.40E+04	2.80E+04
6.18	5.70E+03	4.80E+04	1.60E+04	2.50E+04	13.49	1.80E+03	4.30E+03	3.70E+04	1.80E+04
6.19	6.10E+04	4.20E+04	0.00E+00	6.10E+04	13.57	9.90E+03	5.20E+03	2.70E+03	2.40E+03
6.20	8.90E+03	8.50E+03	8.10E+03	1.70E+04	13.77	1.30E+04	9.30E+03	2.80E+03	3.00E+03
6.20	1.80E+04	1.20E+04	9.50E+03	0.00E+00	13.78	1.10E+05	5.80E+05	1.90E+05	9.00E+05
6.26	0.00E+00	0.00E+00	1.20E+05	0.00E+00	13.78	7.10E+04	1.00E+05	4.30E+05	4.20E+04
6.29	0.00E+00	3.40E+04	4.30E+04	3.00E+04	13.81	3.90E+03	0.00E+00	0.00E+00	1.30E+03
6.29	1.20E+07	1.20E+07	1.10E+07	9.20E+06	13.84	1.90E+03	4.60E+03	5.10E+03	0.00E+00
6.37	0.00E+00	1.30E+04	0.00E+00	1.20E+04	13.89	1.10E+04	1.80E+04	9.10E+03	6.20E+03
6.39	5.60E+03	5.10E+03	1.10E+04	1.10E+04	13.89	1.20E+03	1.50E+03	2.10E+03	1.60E+03
6.43	8.30E+03	2.80E+03	0.00E+00	0.00E+00	14.06	2.00E+03	2.50E+03	2.50E+03	0.00E+00
6.51	6.20E+03	2.10E+04	1.20E+04	0.00E+00	14.08	4.90E+04	5.60E+04	1.90E+04	2.80E+04
6.52	1.10E+04	3.10E+04	3.50E+04	8.00E+03	14.10	1.10E+03	1.50E+03	0.00E+00	0.00E+00
6.54	0.00E+00	3.90E+03	3.80E+03	3.00E+03	14.26	4.20E+04	5.80E+04	3.00E+04	1.50E+05
6.54	0.00E+00	5.10E+03	3.40E+03	0.00E+00	14.39	3.50E+04	1.00E+04	6.80E+03	1.00E+04
6.64	0.00E+00	2.50E+04	0.00E+00	0.00E+00	14.39	1.40E+04	1.00E+04	2.80E+03	6.10E+03
6.68	6.70E+03	6.70E+03	0.00E+00	0.00E+00	14.46	2.30E+03	1.80E+04	3.80E+03	2.80E+03
6.74	1.70E+05	1.50E+05	7.30E+04	5.10E+04	14.50	9.30E+03	1.40E+04	5.10E+03	0.00E+00
6.81	1.20E+05	1.50E+05	1.40E+05	1.10E+05	14.50	1.80E+03	3.00E+03	1.20E+03	1.40E+03
6.95	0.00E+00	0.00E+00	5.90E+03	5.00E+03	14.68	6.40E+04	5.50E+04	7.30E+04	6.90E+04
6.98	5.00E+06	4.20E+06	5.00E+06	4.20E+06	14.68	3.80E+04	5.30E+04	2.00E+04	1.70E+04
7.04	1.00E+04	1.10E+04	5.40E+03	2.30E+04	14.68	4.20E+04	2.50E+04	1.60E+04	2.40E+04
7.08	5.20E+06	4.20E+06	3.60E+06	4.20E+06	14.83	8.80E+03	7.60E+03	2.90E+03	3.90E+03
7.13	2.70E+05	1.70E+05	1.10E+05	8.90E+04	14.83	8.80E+03	7.60E+03	2.90E+03	3.90E+03
7.13	2.50E+05	3.80E+05	4.00E+05	5.30E+05	14.91	1.70E+03	2.10E+03	3.40E+03	2.00E+03
7.17	7.60E+03	1.30E+04	2.00E+04	8.40E+03	14.98	2.70E+03	4.40E+03	2.80E+03	3.80E+03
7.27	0.00E+00	5.60E+04	1.80E+04	1.40E+04	14.99	1.40E+04	1.10E+04	2.90E+03	1.00E+04
7.29	2.50E+04	1.40E+04	0.00E+00	0.00E+00	15.19	1.10E+04	8.50E+03	4.20E+03	4.50E+03
7.36	2.10E+04	3.20E+04	1.50E+04	1.10E+04	15.34	1.80E+03	1.80E+03	1.00E+03	7.70E+02
7.41	1.20E+06	2.50E+06	2.20E+06	4.00E+06	15.39	1.10E+04	2.00E+04	1.90E+04	1.60E+04
7.44	1.90E+04	1.30E+04	6.00E+03	3.50E+03	15.60	8.40E+03	8.40E+03	2.60E+03	1.30E+04
7.45	0.00E+00	1.20E+04	0.00E+00	0.00E+00	16.16	0.00E+00	3.30E+03	9.90E+02	0.00E+00
7.48	7.90E+04	5.00E+04	8.80E+05	1.10E+06	16.18	2.90E+04	4.50E+04	9.70E+02	4.20E+04
7.49	0.00E+00	5.00E+04	3.90E+04	3.50E+04	16.18	2.90E+04	4.50E+04	9.70E+02	4.20E+04
7.52	6.40E+04	9.00E+04	0.00E+00	3.20E+04	16.46	5.90E+03	9.50E+03	3.80E+03	6.40E+03
7.54	1.50E+05	1.30E+05	1.10E+05	8.90E+04	16.52	1.10E+03	2.90E+03	0.00E+00	1.70E+03
7.65	0.00E+00	9.50E+03	5.70E+03	1.10E+03	16.97	1.70E+04	3.40E+04	1.70E+04	2.10E+04

7.69	5.50E+03	3.70E+03	3.00E+03	1.50E+03	17.01	1.10E+03	2.50E+03	1.30E+03	1.70E+03
7.71	2.50E+04	7.50E+04	4.20E+04	3.50E+04	17.01	1.10E+03	2.50E+03	1.30E+03	1.70E+03
7.76	0.00E+00	4.90E+03	1.70E+03	1.50E+03	17.18	5.30E+03	1.10E+04	1.80E+03	8.90E+03
7.80	1.40E+04	2.60E+04	1.30E+04	2.00E+04	17.35	2.40E+03	4.20E+03	2.20E+03	2.50E+03
7.80	1.20E+04	1.80E+04	9.70E+03	7.00E+03	17.55	5.80E+03	0.00E+00	7.70E+03	1.30E+04
7.84	0.00E+00	1.10E+04	0.00E+00	0.00E+00	17.70	1.30E+03	0.00E+00	1.90E+03	6.00E+03
7.90	2.90E+04	2.00E+04	2.20E+04	2.60E+04	18.33	2.10E+04	6.40E+03	3.30E+03	9.10E+03
7.97	9.50E+05	3.40E+05	7.10E+05	2.30E+05	18.33	2.10E+05	6.40E+03	3.30E+03	9.10E+03
7.97	0.00E+00	1.50E+04	2.00E+04	1.70E+04	18.44	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.98	1.80E+04	1.50E+04	1.50E+04	1.70E+04	18.44	0.00E+00	0.00E+00	0.00E+00	0.00E+00
8.09	6.40E+04	2.30E+06	2.60E+06	1.50E+06	18.45	1.60E+03	9.20E+02	2.00E+03	2.20E+03
8.19	6.40E+03	2.10E+04	1.60E+04	1.40E+04	19.06	7.10E+03	4.60E+03	1.10E+03	4.30E+03
8.19	1.60E+03	3.40E+03	2.20E+03	4.50E+03	19.07	0.00E+00	0.00E+00	0.00E+00	1.60E+03
8.25	9.20E+03	4.80E+03	3.80E+03	3.30E+03	19.90	3.40E+03	6.50E+02	9.30E+02	4.20E+03
8.29	3.00E+04	0.00E+00	1.80E+04	1.90E+04	19.93	3.60E+04	2.20E+04	5.60E+03	1.40E+04
8.31	5.90E+04	4.20E+04	4.40E+04	5.50E+04	20.06	3.40E+03	4.60E+03	6.30E+03	0.00E+00
8.34	1.70E+04	1.40E+04	7.70E+03	3.80E+03	20.68	1.40E+05	7.90E+04	1.50E+05	1.90E+04
8.38	1.60E+04	2.40E+04	2.10E+04	2.90E+04	21.02	1.40E+03	1.30E+03	1.40E+03	1.50E+03
8.40	1.60E+06	1.10E+06	9.20E+05	1.50E+06	21.02	1.40E+03	1.30E+03	1.40E+03	1.50E+03
8.60	1.10E+06	1.10E+06	3.20E+06	1.60E+06	21.29	1.80E+03	7.40E+02	2.90E+03	1.50E+03
8.66	4.10E+04	4.70E+04	2.50E+04	3.40E+04	21.68	2.90E+03	6.60E+03	4.00E+03	3.60E+03
8.69	0.00E+00	0.00E+00	0.00E+00	6.30E+03	21.91	4.40E+04	2.10E+04	1.10E+03	0.00E+00
8.75	3.50E+04	3.20E+04	2.00E+04	2.80E+04	23.72	1.20E+03	1.20E+03	1.30E+03	1.30E+03
8.77	1.50E+03	3.10E+04	1.30E+04	3.10E+03	23.72	1.20E+03	1.20E+03	1.30E+03	1.30E+03
8.90	5.40E+03	5.20E+03	1.70E+03	3.10E+03	25.54	3.70E+02	9.20E+02	8.80E+02	6.60E+02
8.98	9.20E+04	8.20E+04	7.90E+04	3.10E+04	25.54	3.70E+02	9.20E+02	8.80E+02	6.60E+02
9.06	7.20E+04	9.90E+04	8.80E+04	1.50E+05	25.68	1.10E+06	6.40E+05	2.40E+05	0.00E+00

Table S4 Ginseng samples analyzed in this study

Code no	Location	Time or Batch No.	Age (years)	category
L15JC1-24	Caiyuan Town Ji 'an, Jilin Province	PL15JC0124	15	Ginseng cultivated in the forest
L15JC2-2	Caiyuan Town Ji 'an, Jilin Province	PL15JI0202	15	Ginseng cultivated in the forest
L5JC1-1	Caiyuan Town Ji 'an, Jilin Province	PL05JC0101	5	Ginseng cultivated in the forest
L5JC2-4	Caiyuan Town Ji 'an, Jilin Province	PL05JC0204	5	Ginseng cultivated in the forest
L5JC4-1	Caiyuan Town Ji 'an, Jilin Province	PL05JC0401	5	Ginseng cultivated in the forest
Y5JC1-10	Caiyuan Town Ji 'an, Jilin Province	PY05JC0110	5	Ginseng cultivated in the mountains
Y5JT2-1	Taishang Town Ji 'an, Jilin Province	PY05JT0201	5	Ginseng cultivated in the mountains
Y5JC3-9	Caiyuan Town Ji 'an, Jilin Province	PY05JC0309	5	Ginseng cultivated in the mountains
N5JM1-1	Maxian Town Ji 'an, Jilin Province	PN05JM0101	5	Ginseng cultivated in farmland
N5JY2-2	Yulin Town Ji 'an, Jilin Province	PN05JY0202	5	Ginseng cultivated in farmland
N5JL3-2	Liangshui Town Ji 'an, Jilin Province	PN05JL0302	5	Ginseng cultivated in farmland

Table S5 Structure of the 63 ginsenoside standards



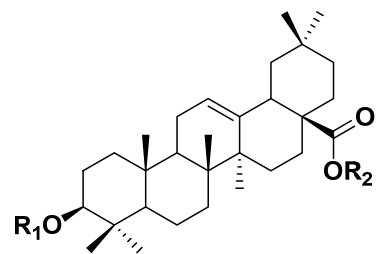
Protopanaxadiol&Protopanaxatriol (PPD&PPT)

No.	Compound	R	R1	R2	R3	No.	Compound	R	R1	R2	R3	No.	Compound	R	R1	R2	R3
12	NG R4	-	-Glc(2-1)Glc	-Glc(6-1)Xyl	-V	26	20(S)-Rh1	-O-Glc	-H	-H	-V	38	G Rg6	-OGlc(2-1)Rha	-H	-	V2
18	G Ra2	-	-Glc(2-1)Glc	-Glc(6-1)Ara(f)(2-1)Xyl	-V	27	20(R)-Rh1	-O-Glc	-H	-H	-V	39	F4	-OGlc(2-1)Rha	-H	-	V1

19	G Ra ₃	-	-Glc(2-1)Glc	-Glc(6-1)Glc(3-1)Xyl	-V	7	G Rg ₁	-O-Glc	-H	-Glc	-V	42	G Rk ₃	-OGlc	-H	-	V 2
21	G Rb ₁	-	-Glc(2-1)Glc	-Glc(6-1)Glc	-V	13	20(S)-Rf-1a	-OGlc(4-1)Glc	-H	-H	-V	43	G Rh ₄	-Glc	-H	-	V 1
24	G Ra ₁	-	-Glc(2-1)Glc	-Glc(6-1)Ara(p)(4-1)Xyl	-V	14	20(S)-Rf	-OGlc(2-1)Glc	-H	-H	-V	40	DHDXG	-OGlc(2-1)Xyl	-H	-	V 1
25	G Rc	-	-Glc(2-1)Glc	-Glc(6-1)Ara(f)	-V	15	20(R)-Rf	-OGlc(2-1)Glc	-H	-H	-V	44	G Rg ₉	-OGlc(2-1)Glc	-H	-	V 1
28	G Rb ₂	-	-Glc(2-1)Glc	-Glc(6-1)Ara(p)	-V	22	20(S)-Rg ₂	-OGlc(2-1)Rha	-H	-H	-V	59	DDT	-OH	-H	-	V 2
29	G Rb ₃	-	-Glc(2-1)Glc	-Glc(6-1Xyl)	-V	23	20(R)-Rg ₂	-OGlc(2-1)Rha	-H	-H	-V	48	DEDT	-OH	-H	-	V 1
30	Q-R ₁	-	-Glc(2-1)Glc(6)Ac	-Glc(6-1)Glc	-V	4	G Re ₂	-OGlc(3-1)Glc	-H	-Glc	-V	53	Rs ₄	-	-Glc(2-1)Glc(6)Ac	-	V 1
31	G Rd	-	-Glc(2-1)Glc	-Glc	-V	8	G Re	-OGlc(2-1)Rha	-H	-Glc	-V	32	Rk ₁	-	-Glc(2-1)Glc	-	V 2

33	G Rs ₂	-	-Glc(2-1)Glc(6)Ac	-Glc(6-1)Ara(f)	-V	2	20-glu-Rf	-OGlc(2-1)Glc	-H	-Glc	-	55	Rg ₅	-	-Glc(2-1)Glc	-	-
34	G Rs ₁	-	-Glc(2-1)Glc(6)Ac	-Glc(6-1)Ara(p)	-V	6	G Re ₁	-O-Glc	-H	-Glc(3-1)Glc	-	37	DHDGG	-	-Glc(2-1)Glc	-	V
45	G F ₂	-	-Glc	-Glc	-V	1	G Re ₃	-O-Glc	-H	-Glc(4-1)Glc	-	60	Rh ₃	-	-Glc	-	V
46	20-(S)-Rg ₃	-	-Glc(2-1)Glc	-H	-V	3	G Re ₄	-O-Glc	-H	-Glc(6-1)Ara(f)	-	61	Rk ₂	-	-Glc	-	V
47	20-(R)-Rg ₃	-	-Glc(2-1)Glc	-H	-V	49	20(S)-PPT	-OH	-H	-H	-						2
51	20-(S)-Rs ₃	-	-Glc(2-1)Glc(6)Ac	-H	-V	50	20(R)-PPT	-OH	-H	-H	-						
52	20-(R)-Rs ₃	-	-Glc(2-1)Glc(6)Ac	-H	-V	17	G F ₃	-OH	-H	-Glc(6-1)Ara(p)	-						
56	G-C-K	-	-H	-Glc	-V	5	NG R ₁	-OGlc(2-1)Xyl	-H	-Glc	-						
57	20-(S)-Rh ₂	-	-Glc	-H	-V	16	20-(S)-NG-R ₂	-OGlc(2-1)Xyl	-H	-H	-						
58	20-(R)-Rh ₂	-	-Glc	-H	-V	20	20-(R)-NG-R ₂	-OGlc(2-1)Xyl	-H	-H	-						
62	20-(S)-PPD	-	-H	-H	-V	36	G RH ₁₉	-OH	-	-H	-						

63 20-(R)-
PPD - -H -H -V



Oleanolic (OA)

NO.	Compound	R ₁	R ₂
35	G Ro methyl ester	-GlcA(6'-OMe,2-1)Glc	-Glc
9	G Ro	-GlcA(2-1)Glc	-Glc
41	CS-Iva methyl ester	-H	-GlcA(6'-OMe,2-1)Glc
54	ZB-RI-6' methyl ester	-GlcA(6'-OMe,2-1)Glc	-H
10	CS-IV	-GlcA(4-1)Ara(f)	-Glc
11	CS-Iva	-GlcA	-Glc