Supporting Information

***Rec. Nat. Prod*. 12:5 (2018) 460-469**

Rapid Profiling and Identification of Triterpene Saponins in Three Different *Cephalaria* Species by UPLC-ESI-MS/MS

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S 1. Validation Results of LC-MS/MS Measurements

No	Compounds	Purity of Reference Compounds(%)	Linear regression equation	Correlation coefficients	LOD (μg/kg)	LOQ (μg/kg)	RSD (%)	Mean Recovery (%)
1	Davisianoside A	97.5	y = 28284x - 124.09	0.9997	3.47	11.56	7.8	94.2
2	Aytachoside A	95.9	y = 51167x + 931.4	0.9995	0.04	0.14	4.5	95.8
3	Anemoclemoside A	99.2	y = 32238x - 239.51	0.9997	1.96	6.52	2.6	94.1
4	Akebia Saponin D	99.7	y = 353893x + 4581.7	0.9995	0.17	0.57	6.8	96.4
5	Gazipashoside B	100.0	y = 20045x + 82.039	0.9999	0.05	0.16	6.3	91.2
6	Aristatoside B	99.2	y = 25037x - 202.75	0.9989	0.16	0.54	6.2	94.6
7	Cilicicoside I	99.7	y = 18845x - 93.366	0.9995	0.32	1.07	1.5	100.2
8	Macranthoidin B	96.7	y = 8891.6x + 89	0.9998	0.05	0.16	3.8	94.6
9	Aristatoside A	98.8	y = 26522x - 71.643	0.9991	0.77	2.57	8.5	99.1
10	Decaisoside E	99.8	y = 182132x - 174	0.9999	0.02	0.06	2.9	92.1
11	Macranthoidin A	99.8	y = 151828x - 963.37	0.9994	0.51	1.71	7.1	95.7
12	Elmalienoside C	100.0	y = 47906x + 307.24	0.9998	0.41	1.35	2.4	94.8
13	Elmalienoside A	99.6	y = 179516x + 773.8	0.9999	0.06	0.21	3.9	96.8
14	Balansoid D	97.5	y = 144694x + 186.52	0.9997	0.08	0.28	4.4	96.1
15	Dipsacoside B	99.2	y = 105452x - 589.63	0.9996	0.31	1.02	7.7	101.9
16	Elmalienoside B	100.0	y = 21637x - 140.58	0.9998	1.94	6.47	8.7	105.9
17	Balansoid B	99.9	y = 120421x + 368.67	0.9999	0.23	0.75	8.9	92.6
18	Gazipashoside A	99.9	y = 142368x - 1421.6	0.9997	1.08	3.60	5.8	91.3
19	Scoposide C	99.6	y = 10400x + 43.638	0.9999	0.30	1.00	8.9	90.8
20	Balansoid C	98.5	y = 45076x - 0.6019	0.9999	0.04	0.15	8.2	91.1
21	Comp1*	100.0	y = 125553x - 678.94	0.9995	1.90	6.33	4.0	97.8
22	Scoposide B	99.9	y = 69463x - 409.19	0.9987	0.61	2.04	7.2	95.2
23	Decaisoside D	99.0	y = 50598x - 259.08	0.9996	5.56	18.55	8.0	96.2
24	Comp2*	99.7	y = 124869x - 130.93	0.9997	1.86	6.20	1.2	95.2
25	Aristatoside C	93.7	y = 7474.1x - 26.409	0.9996	6.16	20.53	6.0	92.1
26	Scoposide F	99.7	y = 70425x + 410.37	0.9998	0.87	2.91	5.1	93.0
27	Sapindoside C	99.8	y = 14230x + 19.968	0.9999	3.19	10.64	5.2	98.9
28	Scoposide G	99.6	y = 6524.1x - 8.9959	0.9999	0.37	1.22	4.5	97.1
29	Scoposide A	99.8	y = 4902.3x - 0.7102	0.9999	0.30	1.00	4.7	91.3
30	α-Hederin	100.0	y = 25324x - 85.064	0.9998	2.59	8.62	7.0	94.6
31	Scoposide D	92.1	y = 102197x + 624.96	0.9974	0.10	0.35	7.1	98.8
32	Isacoside	96.5	y = 17258x + 149.08	0.9993	4.53	15.10	2.4	91.3
33	Sapindoside B	100.0	y = 8193.6x - 16.119	0.9998	1.05	3.48	3.4	98.7
34	Lycicoside II	98.7	y = 100698x - 70.859	0.9998	0.52	1.75	4.0	100.5
35	Macranthoside A	98.6	y = 35428x - 4.7529	0.9999	0.72	2.39	4.5	100.9
36	Davisianoside B	97.6	y = 3496.6x + 7.6733	0.9998	2.88	9.59	6.2	92.5
37	Balansoid A	99.3	y = 18248x - 48.888	0.9999	1.82	6.08	8.4	90.0
38	Hederagenin	96.6	y = 4035.8x - 9.3593	0.9998	0.29	0.96	4.9	92.6
39	Scoposide E	99.4	y = 854.66x - 6.1706	0.9997	1.10	3.66	2.4	98.8

40	β-Sitosterol glucoside	99.0	y = 123352x - 186.79	0.9999	0.09	0.28	4.2	97.9

Comp1* : 3-O-β-D-glucopyranosyl-(1→3)-α-L-rhamnopyranosyl-(1→2)-α-L-arabinopyranosyl hederagenin 28-O-β-D- glucopyranosyl ester

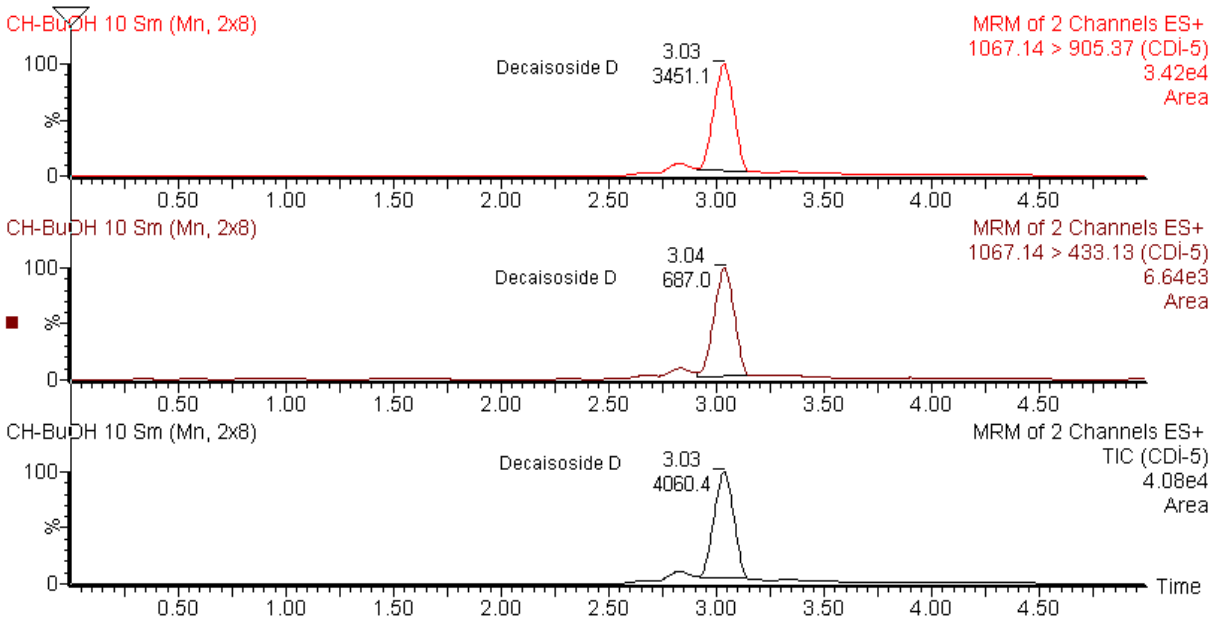
Comp2* : 3-O-α-L-rhamnopyranosyl-(1→2)-α-L-arabinopyranosyl hederagenin 28-O-β-D-glucopyranosyl ester

S 2. Identification of saponins by UPLC-ESI-MS/MS.

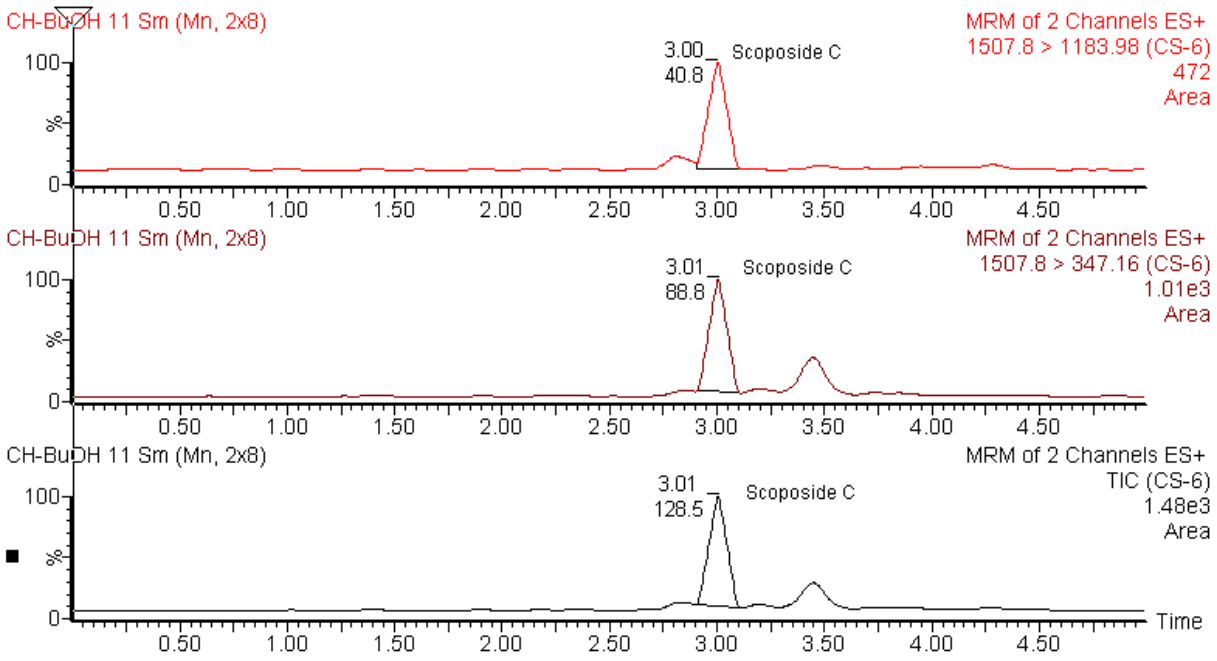
Peak No	Compounds and Related References	RT (min)	Molecular Formula	Observed Precursor Ions (m/z)	Calculated Ions (m/z)	Observed Transition Ions (m/z)	Cone Energy (V)	Collision Energy (V)
1	Davisianoside A [19]	1.89	$C_{65}H_{106}O_{31}Na_2$	1406.0	1428.6508	347.12	100	80
						1081.5	100	70
2	Aytachoside A [20]	2.05	$C_{59}H_{96}O_{26}Na$	1243.61	1243.6082	477.15	100	80
						1081.44	100	65
3	Anemoclemoside A [25]	2.7	$C_{35}H_{56}O_8$	627.16	604.3975	537.3	65	40
						583.43	65	40
4	Akebia saponin D [26]	2.76	$C_{47}H_{76}O_{18}$	951.25	929.10	347.16	100	60
						627.48	100	55
5	Gazipashoside B [23]	2.82	$C_{64}H_{103}O_{31}$	1391.96	1367.6483	1067.81	120	75
						346.96	120	80
6	Aristatoside B [22]	2.82	$C_{70}H_{114}O_{35}Na$	1537.70	1537.7033	347.16	100	85
						1213.49	100	70
7	Cilicicoside I [18]	2.83	$C_{71}H_{117}O_{36}Na$	1568.0	1568.20	347.16	100	80
						1244.26	100	70
8	Macranthoidin B [27]	2.84	C65H106O32	1421.14	1399.5179	1097.55	120	70
						493.10	120	75
9	Aristatoside A [22]	2.84	$C_{71}H_{116}O_{36}Na$	1567.7	1567.7139	347.19	100	90
						639.13	100	90
10	Decaisoside E [28]	2.87	$C_{58}H_{94}O_{26}Na$	1229.87	1229.5931	432.99	100	75
						346.92	100	75
11	Macranthoidin A [29]	2.88	$C_{59}H_{96}O_{27}Na$	1259.60	1259.6031	935.40	120	70
						347.06	120	70
12	Elmalienoside C [4]	2.89	$C_{58}H_{94}O_{26}Na$	1230.50	1229.5926	905.87	130	70
						347.39	130	80
13	Elmalienoside A [4]	2.91	$C_{59}H_{96}O_{27}Na$	1259.60	1259.6031	935.39	160	70
						346.91	160	75
14	Balansoid D [30]	2.91	$C_{64}H_{104}O_{30}Na$	1375.60	1375.6505	347.21	130	75
						1051.48	130	70
15	Dipsacoside B [31]	2.92	$C_{53}H_{86}O_{22}Na$	1097.55	1097.5503	773.08	120	65
						346.94	120	65
16	Elmalienoside B [4]	2.92	$C_{53}H_{86}O_{22}Na$	1098.56	1097.55	774.15	60	60
						347.84	60	72
17	Balansoid B [30]	2.93	$C_{64}H_{104}O_{30}Na$	1375.60	1375.6505	347.10	130	80
						1051.4	130	70
18	Gazipashoside A [23]	3.00	$C_{64}H_{103}O_{30}$	1375.46	1351.654	347.19	130	75
						1051.55	130	60
19	Scoposide C [5]	3.01	$C_{69}H_{112}O_{34}Na$	1507.80	1507.6933	347.16	130	80
						1183.98	130	70
20	Balansoid C	3.03	$C_{58}H_{94}O_{25}Na$	1213.60	1213.5976	447.19	130	73

	[30]					1051.19	130	70
21	Comp 1*	3.03	$C_{53}H_{86}O_{22}Na$	1097.55	1097.5503	935.39	100	60
	[32]					330.96	100	70
22	Scoposide B	3.04	$C_{64}H_{104}O_{30}Na$	1375.66	1375.6505	1051.37	100	70
	[5]					347.03	100	80
23	Decaisoside D	3.05	$C_{52}H_{84}O_{21}$	1067.14	1045.2367	433.13	130	65
	[28]					905.37	130	55
24	Comp 2*	3.07	$C_{47}H_{76}O_{17}Na$	935.49	935.4975	773.48	110	55
	[33]					184.97	110	60
25	Aristatoside C	3.07	$C_{57}H_{92}O_{25}Na$	1200.09	1199.582	595.15	120	70
	[22]					1156.12	120	60
26	Scoposide F	3.09	$C_{58}H_{93}O_{25}$	1213.50	1189.6011	889.30	100	60
	[24]					346.97	100	75
27	Sapindoside C	3.10	$C_{52}H_{84}O_{21}Na$	1068.40	1045.2367	1024.26	150	60
	[34]					595.66	150	60
28	Scoposide G	3.15	$C_{58}H_{94}O_{25}Na$	1213.59	1213.5976	1051.19	100	60
	[24]					346.88	100	75
29	Scoposide A	3.17	$C_{53}H_{101}O_{20}Na$	1082.50	1057.6892	757.59	120	60
	[5]					347.51	120	65
30	α-Hederin	3.2	$C_{41}H_{66}O_{12}Na$	773.44	773.444	729.04	100	45
	[35]					583.46	100	50
31	Scoposide D	3.22	$C_{52}H_{84}O_{20}Na$	1051.54	1051.5448	889.40	120	55
	[5]					845.47	120	55
32	Isacoside	3.22	$C_{64}H_{104}O_{30}Na$	1375.6	1375.6505	625.14	100	90
	[21]					771.40	100	85
33	Sapindoside B	3.24	$C_{46}H_{74}O_{16}Na$	905.48	905.4869	861.25	110	55
	[36]					583.34	110	55
34	Lycicoside II	3.24	$C_{52}H_{83}O_{20}Na$	1051.70	1027.5483	889.29	120	55
	[18]					301.07	120	65
35	Macranthoside A	3.26	$C_{47}H_{76}O_{17}Na$	935.50	935.4975	462.93	150	60
	[37]					330.95	150	60
36	Davisianoside B	3.26	$C_{53}H_{86}O_{21}Na$	1082.61	1081.5554	609.34	100	65
	[19]					477.35	100	65
37	Balansoid A	3.27	$C_{52}H_{84}O_{20}Na$	1051.80	1051.5448	447.12	120	60
	[30]					579.12	120	60
38	Hederagenin	3.36	$C_{30}H_{48}O_4$	495.30	472.6997	451.40	70	24
	[32]					-	-	-
39	Scoposide E	3.43	$C_{46}H_{73}O_{15}$	890.47	865.4949	845.87	100	50
	[5]					-	-	-
40	*β*-Sitosterol glucoside [38]	3.96	$C_{35}H_{60}O_6$	1175.78*	576.85	599.03	100	50
						202.92	100	60

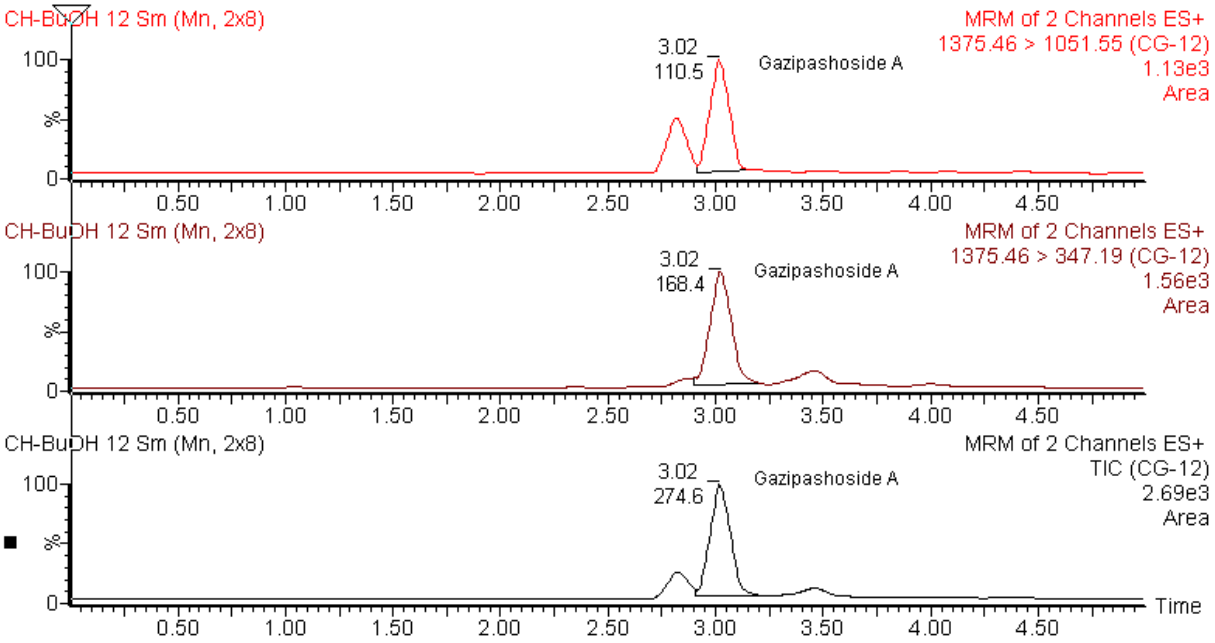
*Dimeric molecular weight



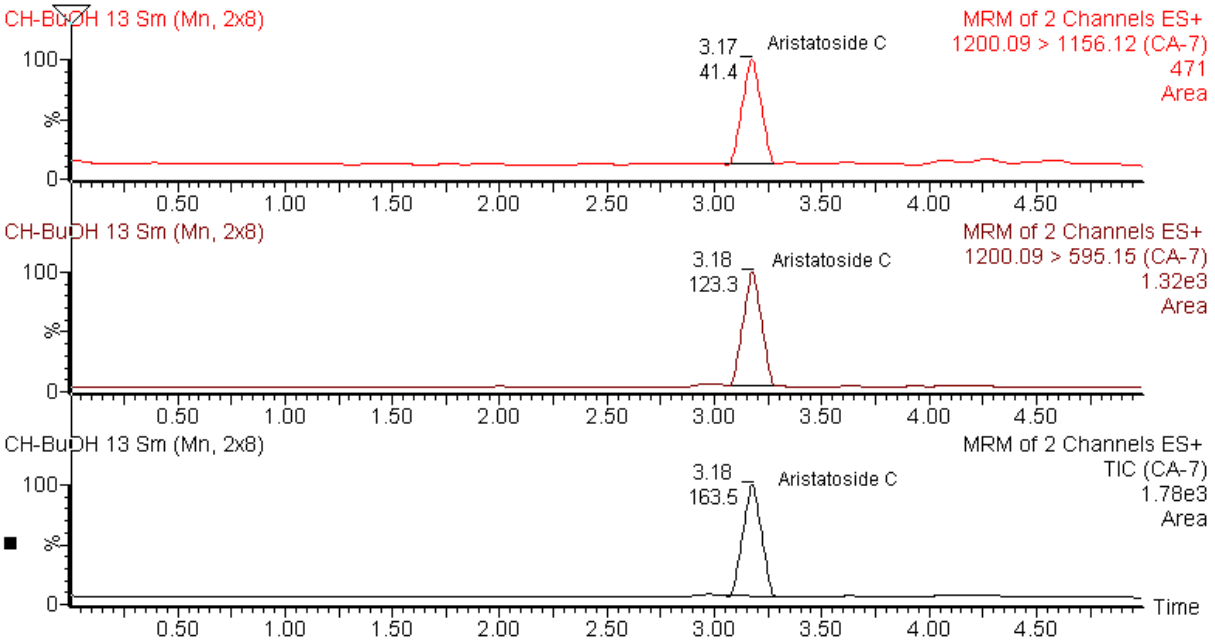
S 3. Chromatograms of Decaisoside D (*m/z*: 1067.14 —> 905.37, 1067.14 —> 433.13 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta*.



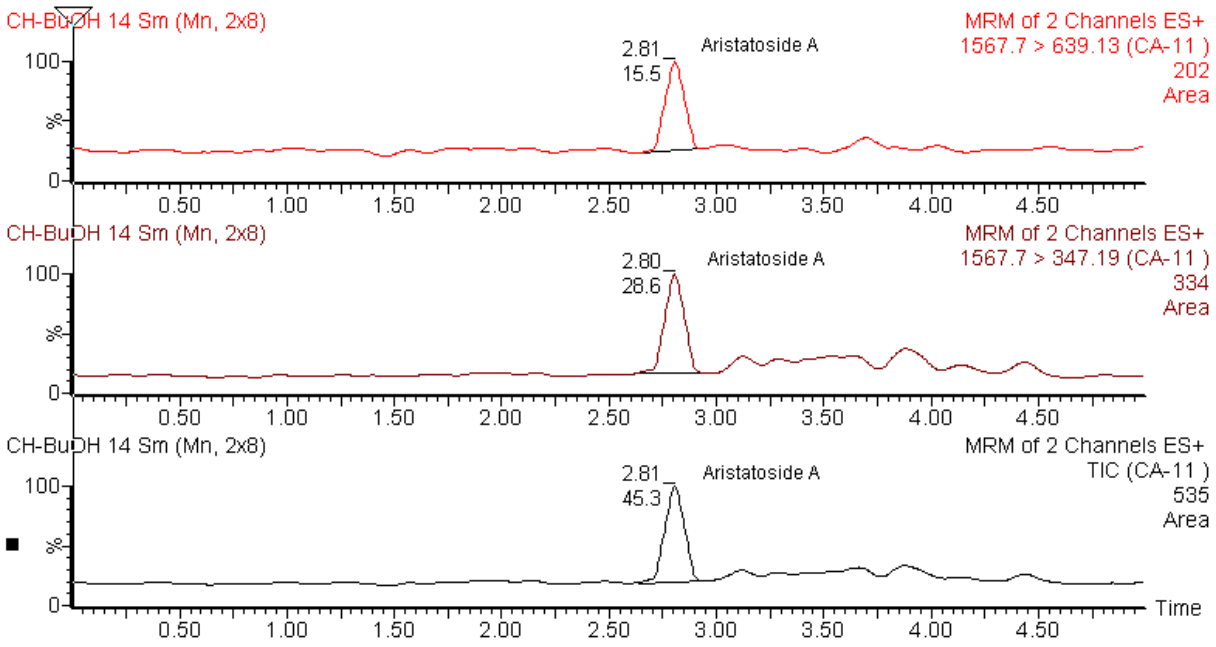
S 4. Chromatograms of Scoposide C (*m/z*: 1507.80 —> 11833.98, 1507.80 —> 347.16 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



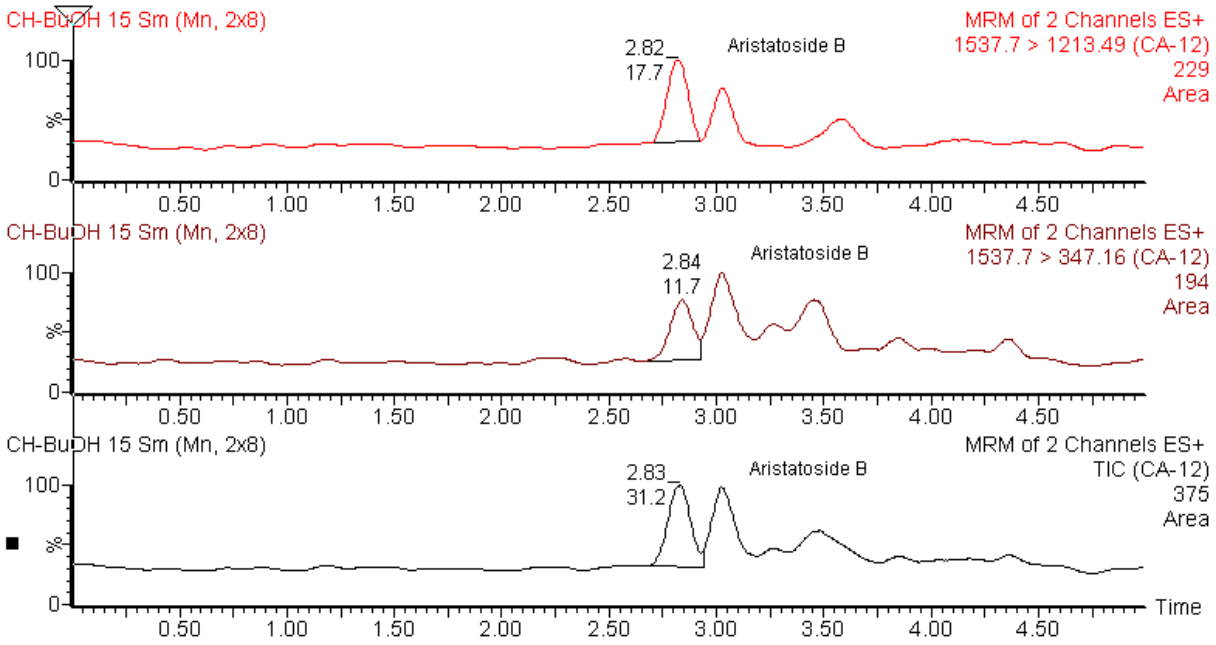
S 5. Chromatograms of Gazipashoside A (*m/z*: 1375.46 —> 1051.55, 1375.46 —> 347.19 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



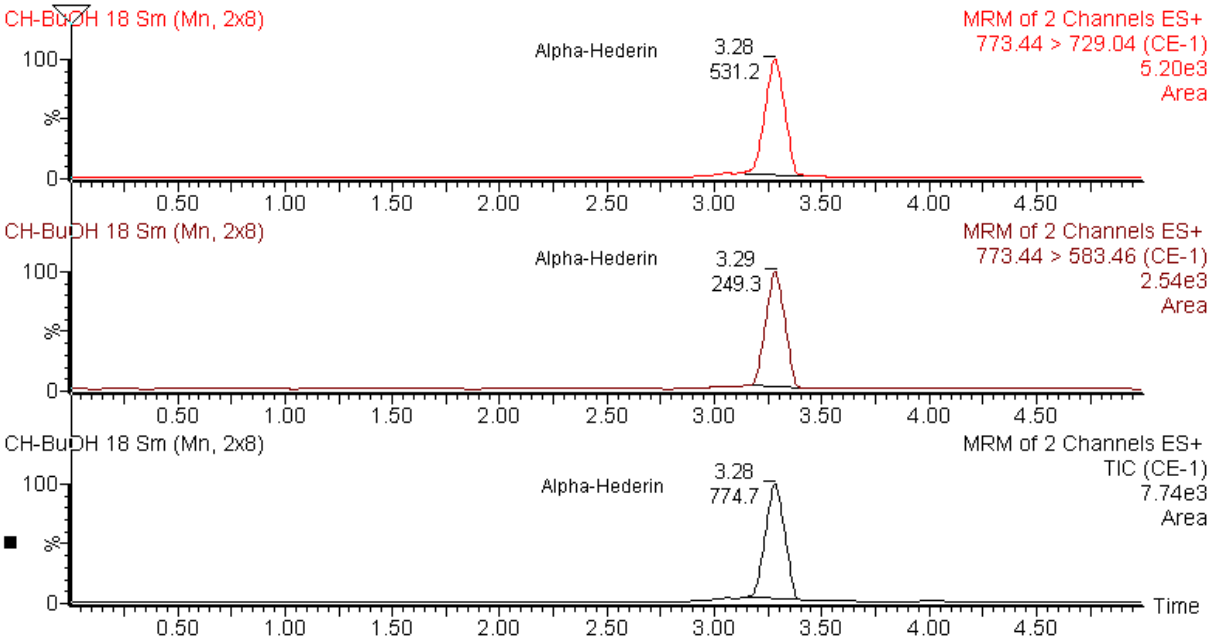
S 6. Chromatograms of Aristatoside C (*m/z*: 1200.09 —> 1156.12, 1200.09 —> 595.15 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



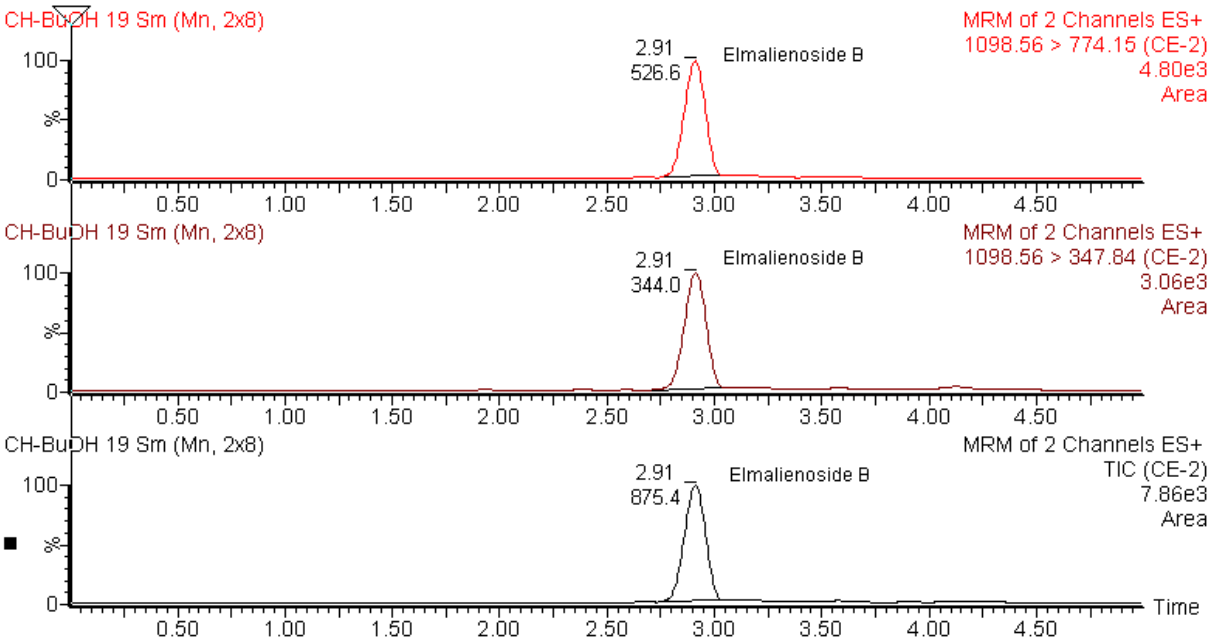
S 7. Chromatograms of Aristatoside A (*m/z*: 1567.70 —> 639.13, 1567.7—> 347.19 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



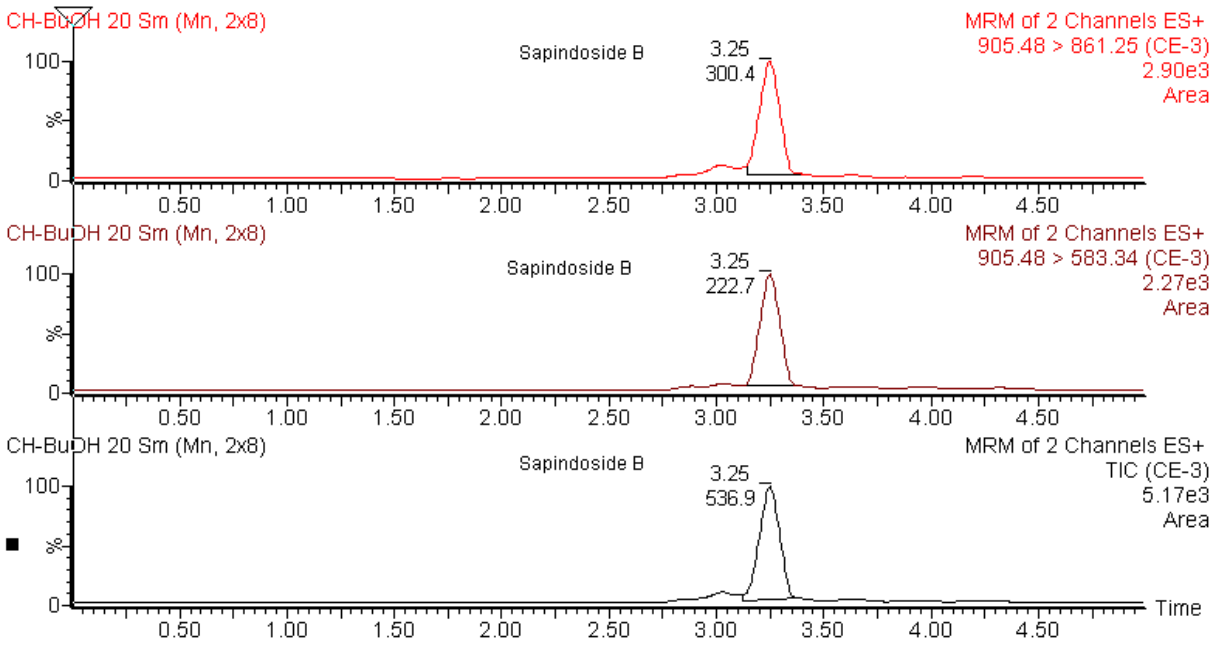
S 8. Chromatograms of Aristatoside B (*m/z*: 1537.70 —> 1213.49, 1537.70 —> 347.16 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



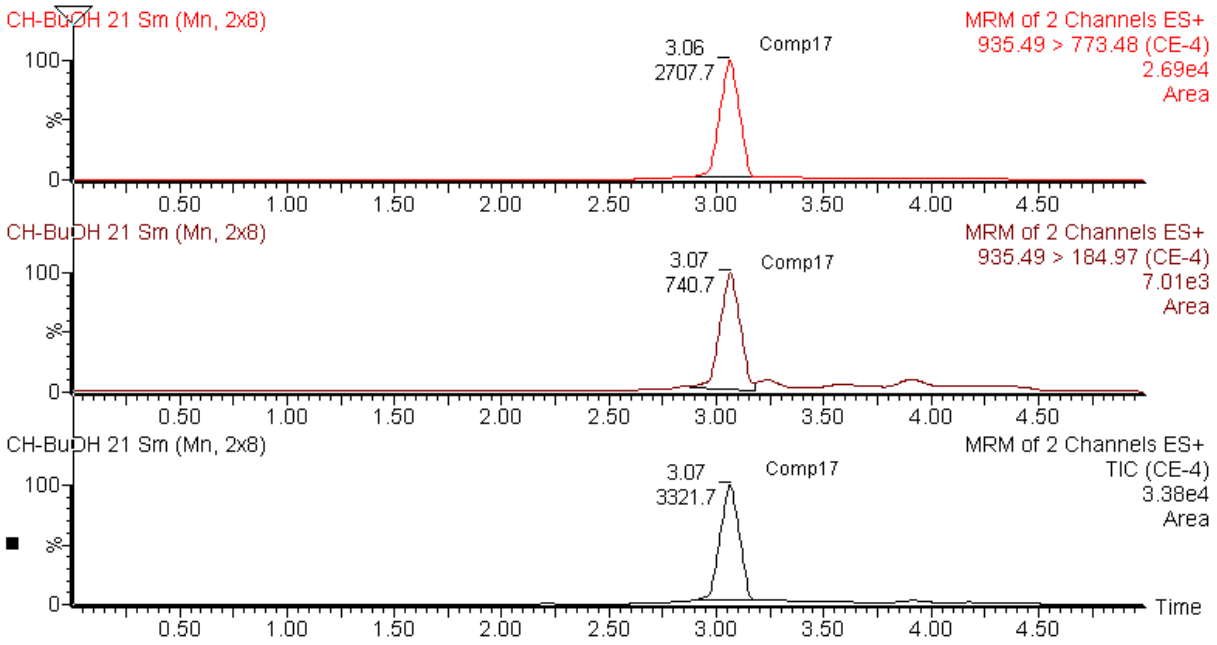
S 9. Chromatograms of α-Hederin (*m/z*: 773.44 —> 729.04, 773.44 —> 583.46 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



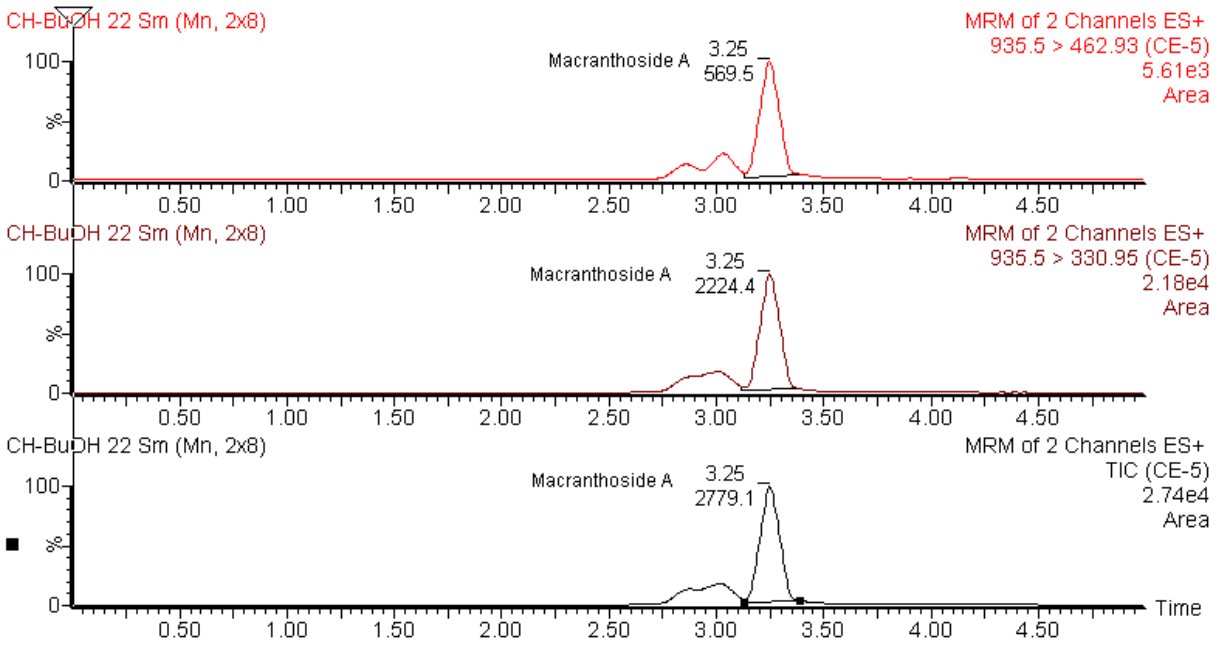
S 10. Chromatograms of Elmalienoside B (*m/z*: 1098.56 —> 774.15, 1098.56 —> 347.84 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



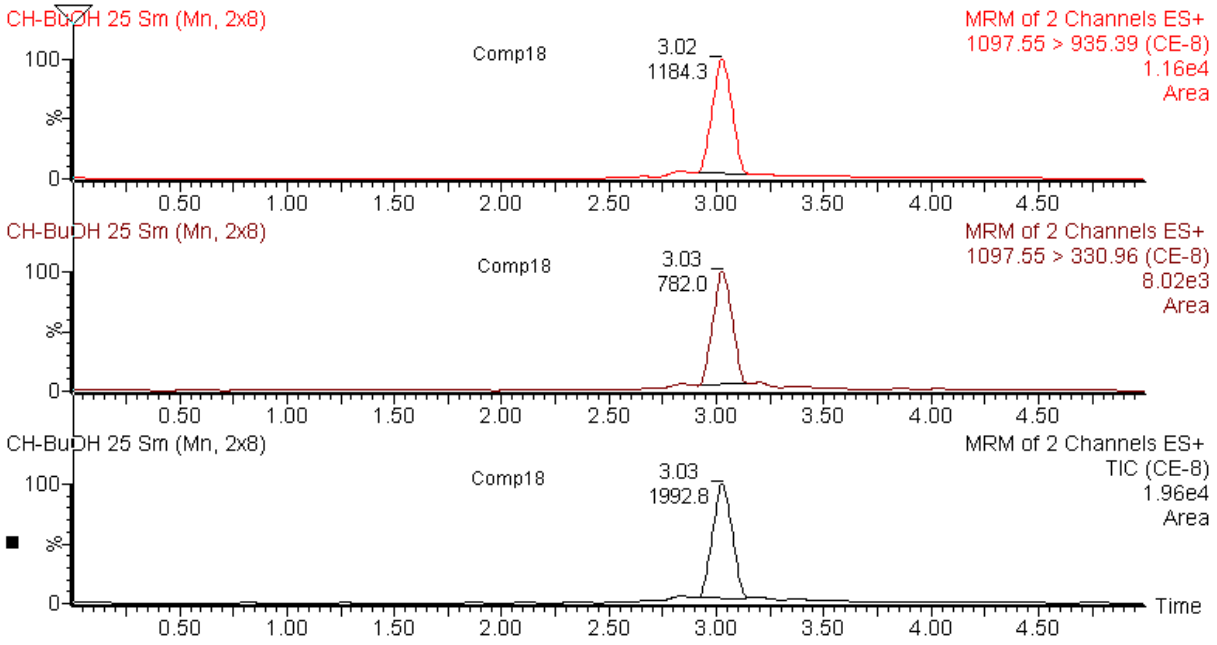
S 11. Chromatograms of Sapindoside B (*m/z*: 905.48 —> 861.25, 905.48 —> 583.34 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



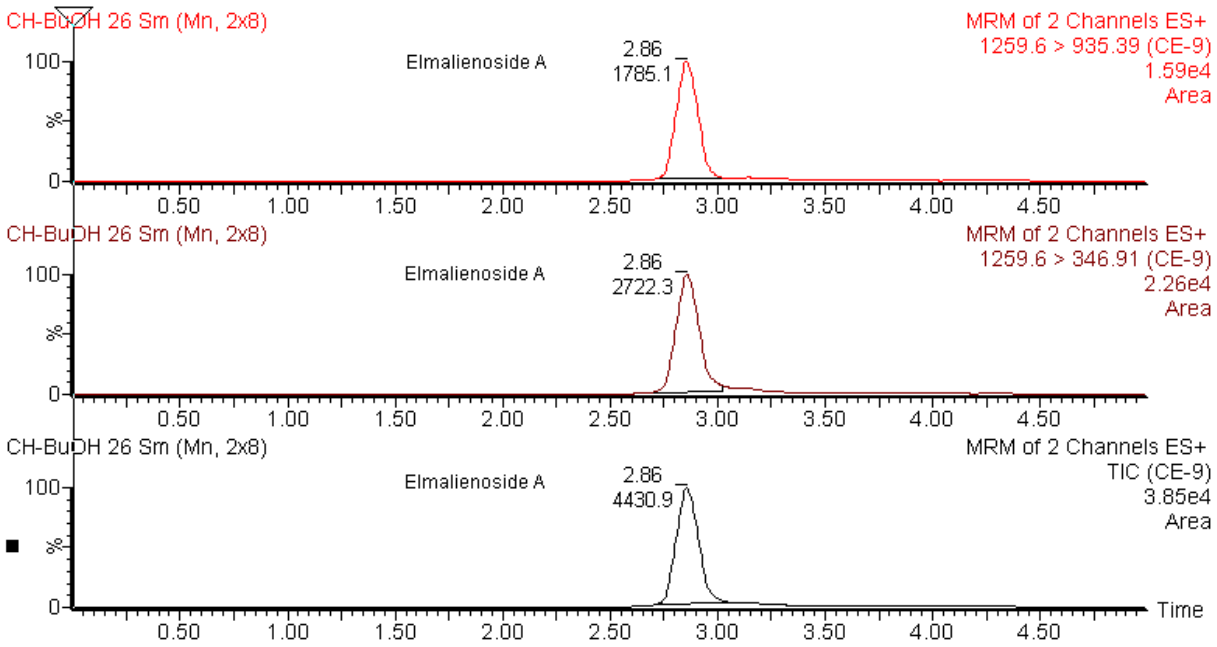
S 12. Chromatograms of 3-O-α-L-rhamnopyranosyl-(1→2)-α-L-arabinopyranosyl hederagenin 28-O-β-D-glucopyranosyl ester (*m/z*: 935.49 —> 773.48, 935.49 —> 184.97 and TIC), compound obtained UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



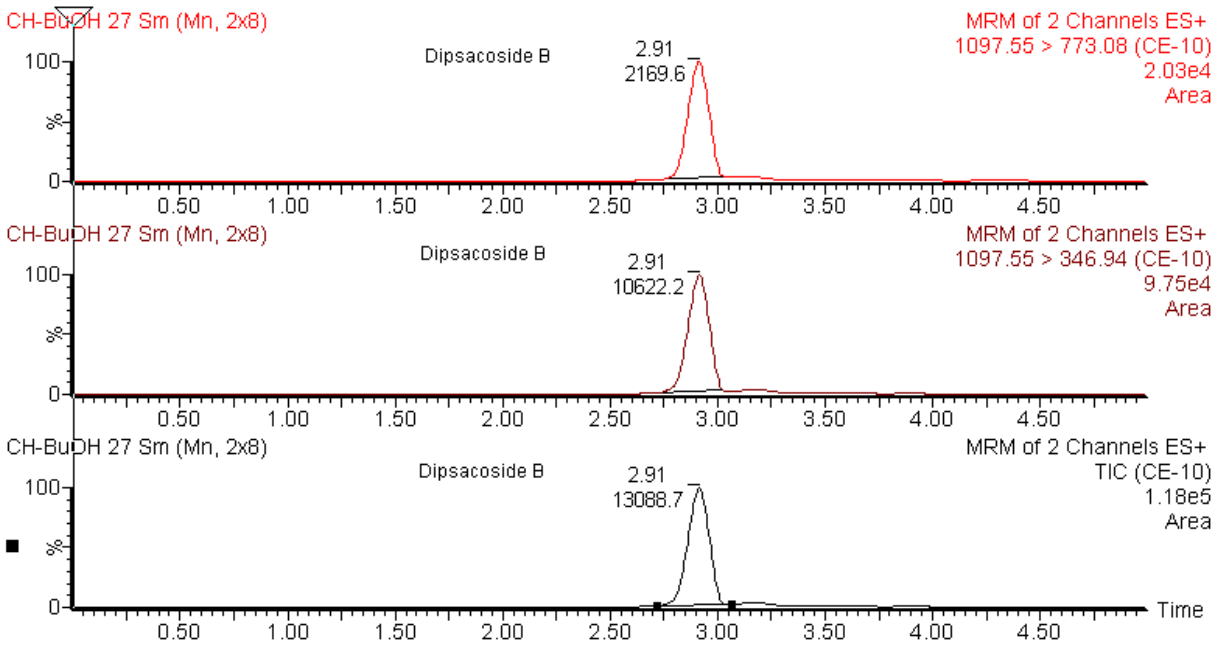
S 13. Chromatograms of Macranthoside A (*m/z*: 935.50 —> 462.93, 935.50 —> 330.95 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



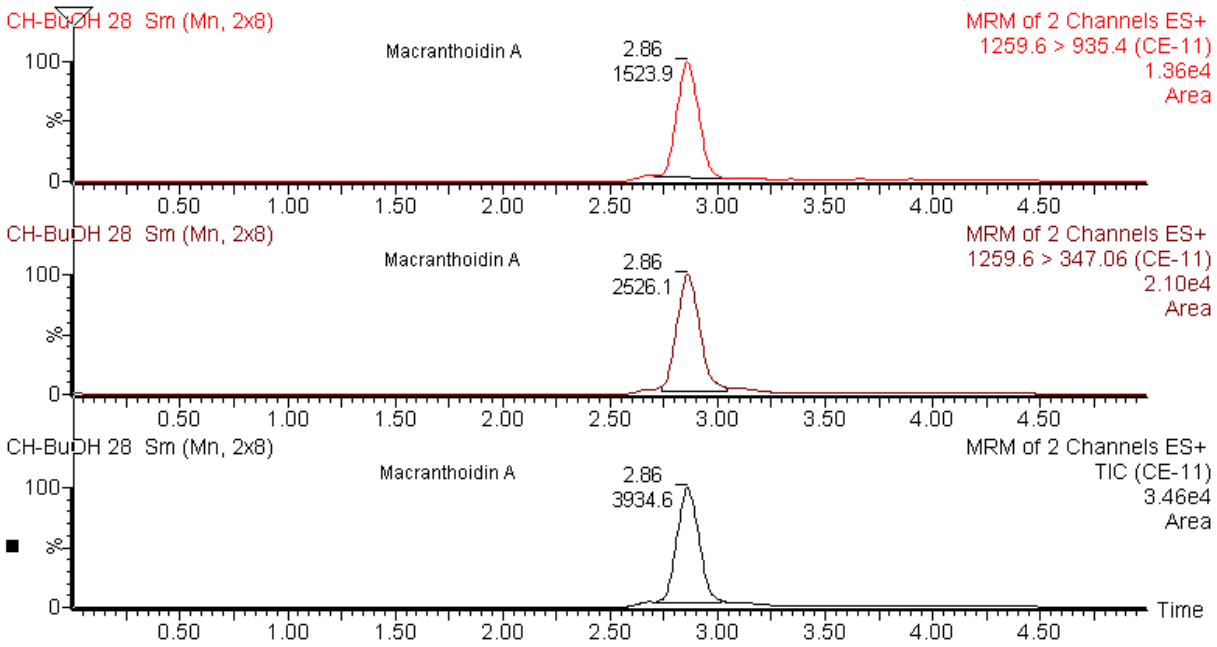
S 14. Chromatograms of 3-O-β-D-glucopyranosyl-(1→3)-α-L-rhamnopyranosyl-(1→2)-α-L arabinopyranosyl hederagenin 28-O-β-D- glucopyranosyl ester (*m/z*: 1097.55 —> 935.39, 1097.55 —> 330.96 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



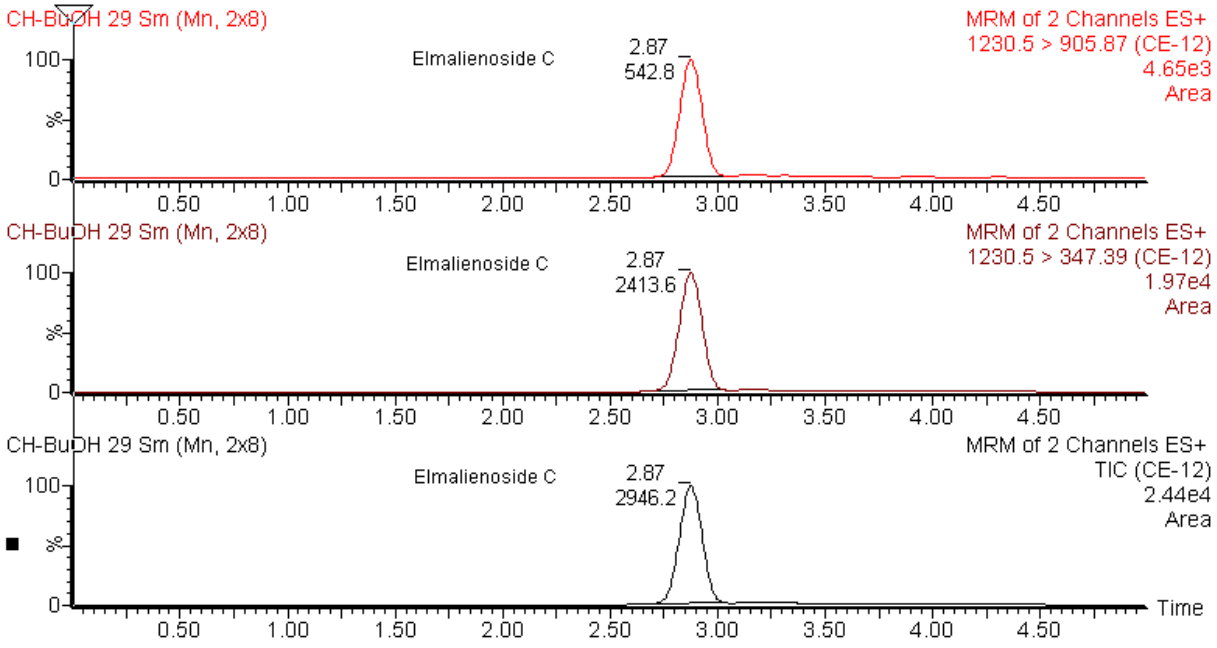
S 15. Chromatograms of Elmalienoside A (*m/z*: 1259.6 —> 935.39, 1259.60 —> 346.91 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



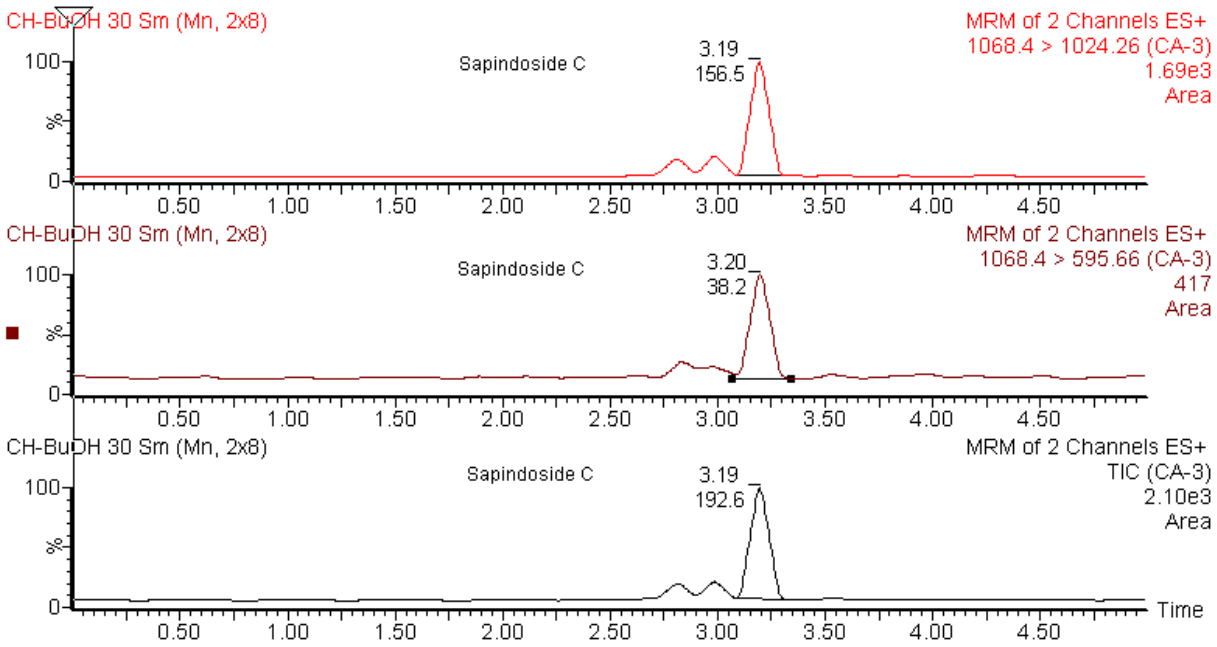
S 16. Chromatograms of Dipsacoside B (*m/z*: 1097.55 —> 773.08, 1097.55 —> 346.94 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



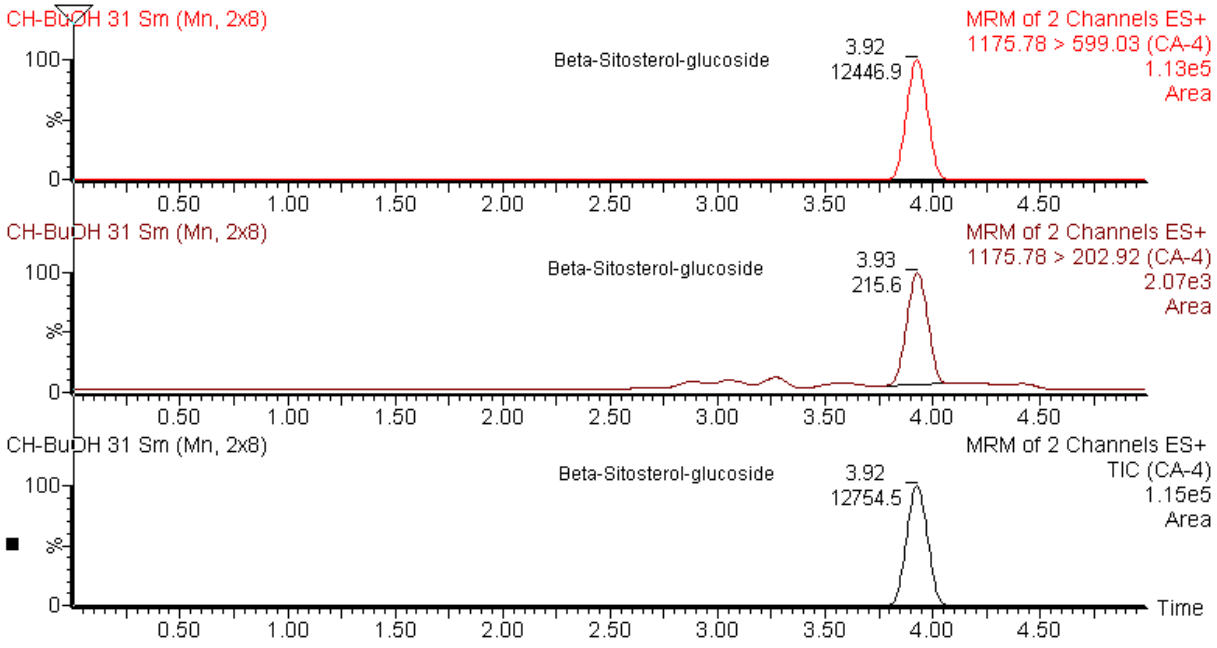
S 17. Chromatograms of Macranthoidin A (*m/z*: 1259.60 —> 935.40, 1259.60 —> 347.06 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



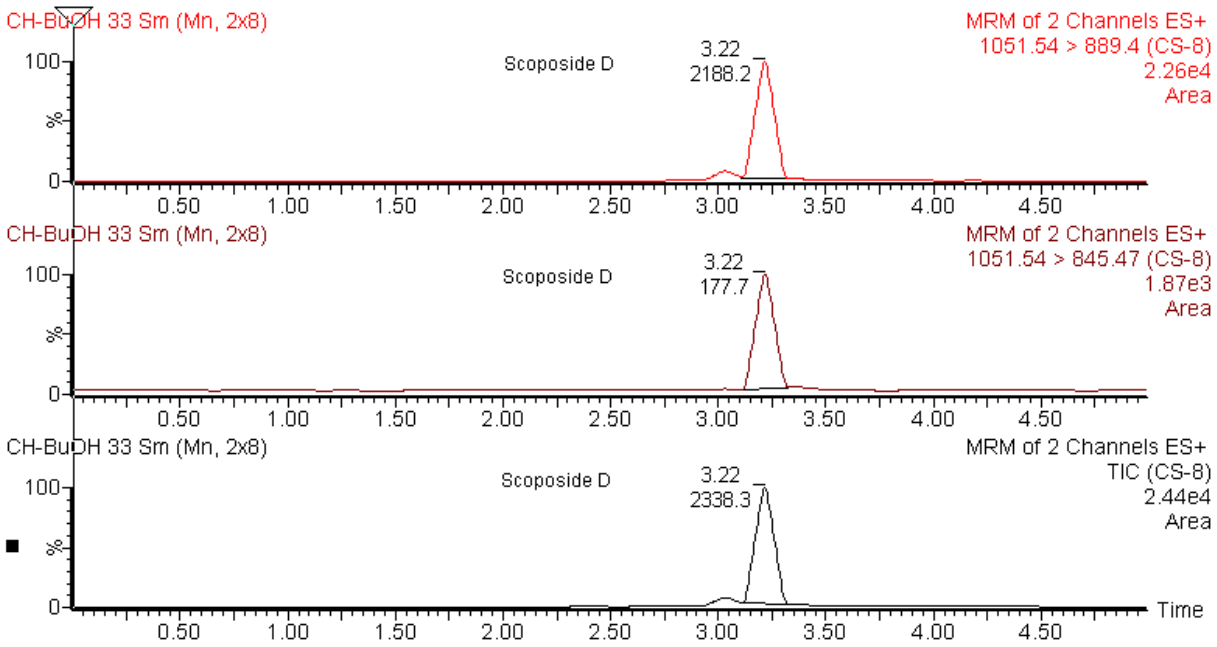
S 18. Chromatograms of Elmalienoside C (*m/z*: 1230.50 —> 905.87, 1230.50 —> 347.39 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



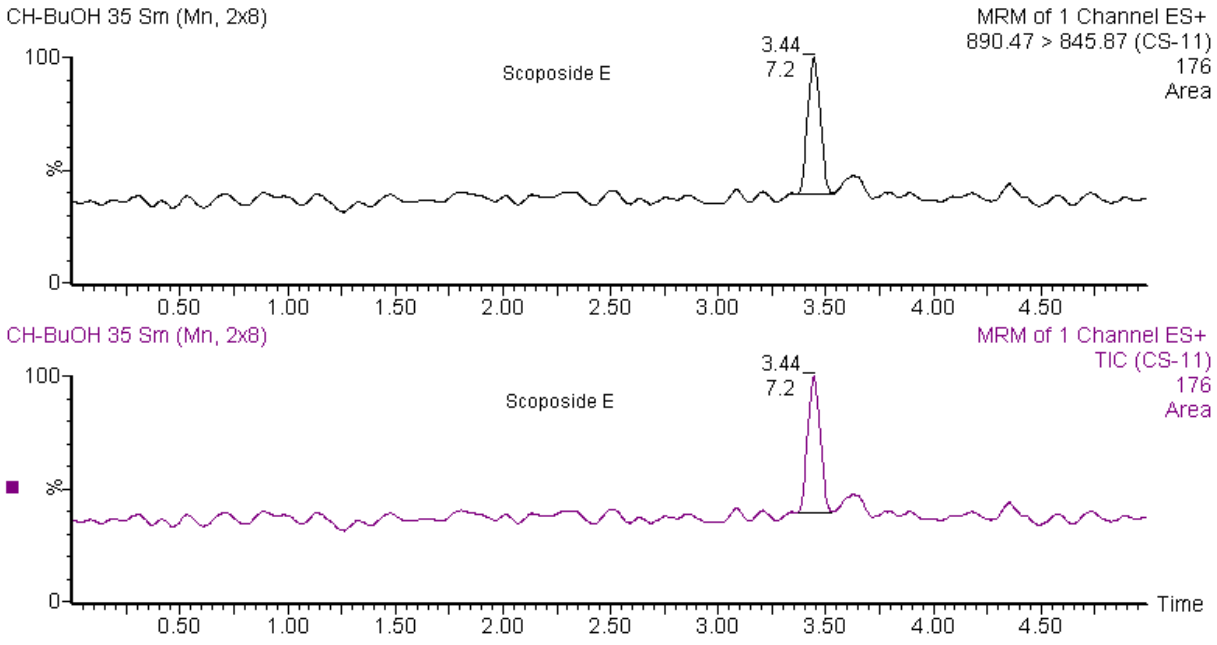
S 19. Chromatograms of Sapindoside C (*m/z*: 1068.40 —> 1024.26, 1068.40 —> 595.66 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



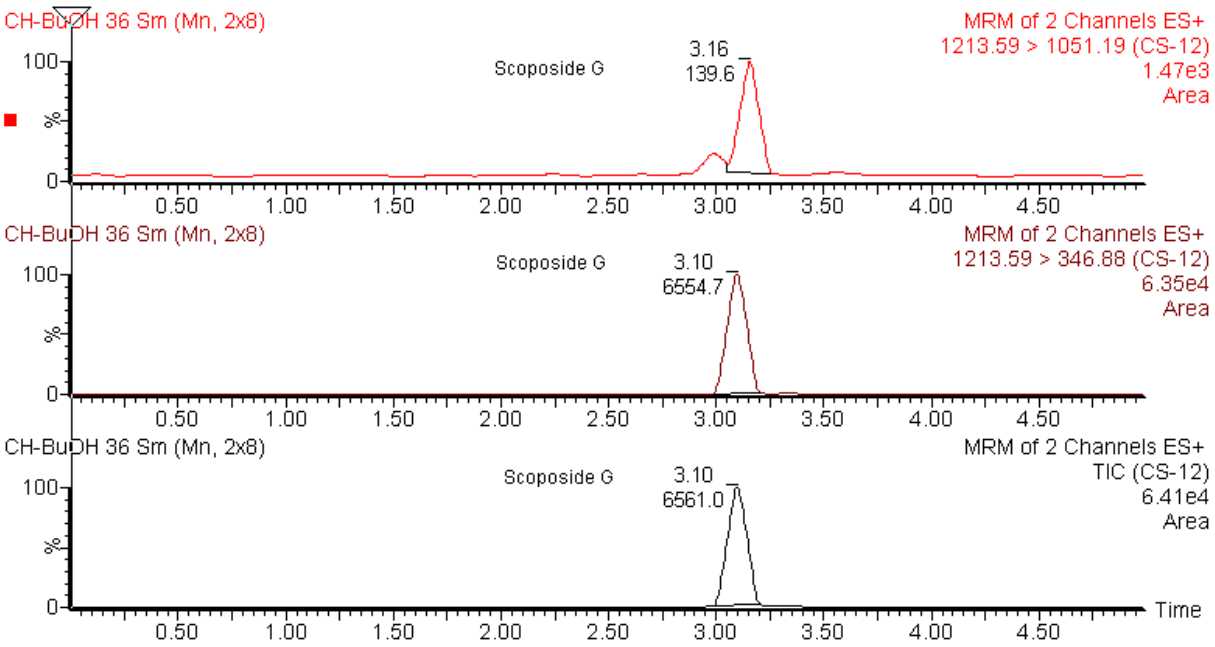
S 20. Chromatograms of β-Sitosterol-Glucoside (*m/z*: 1175.78 —> 599.03, 1175.78 —> 202.92 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta*



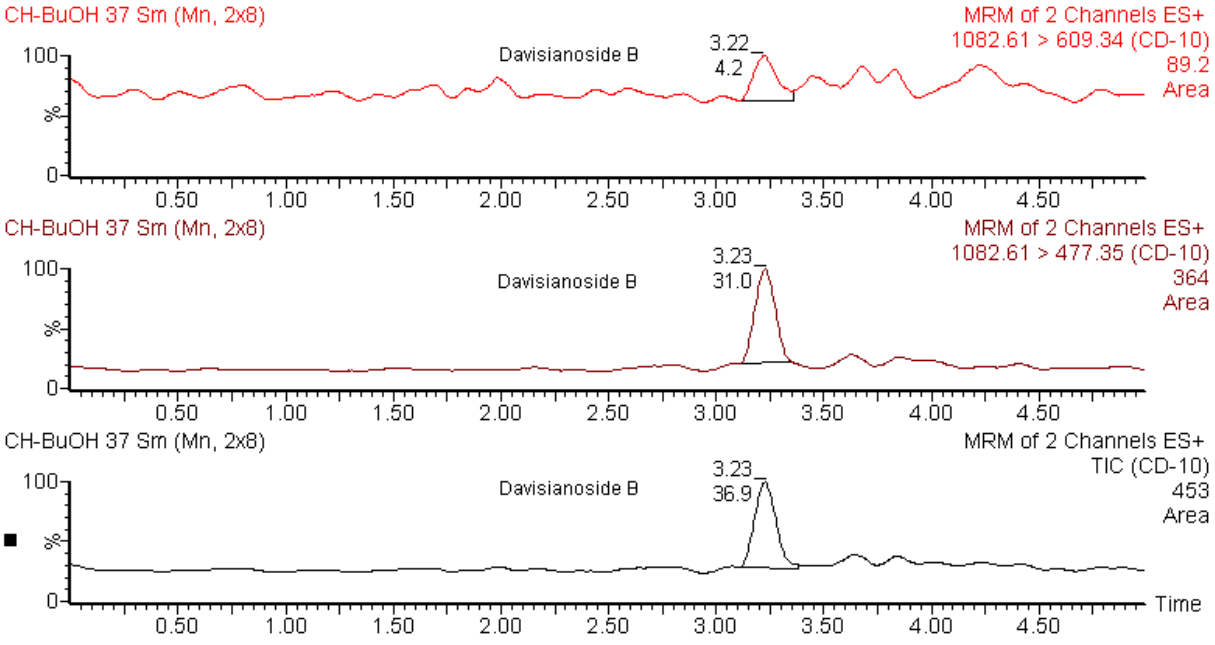
S 21. Chromatograms of Scoposide D (*m/z*: 1051.54 —> 889.40, 1051.54 —> 845.47 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta*.



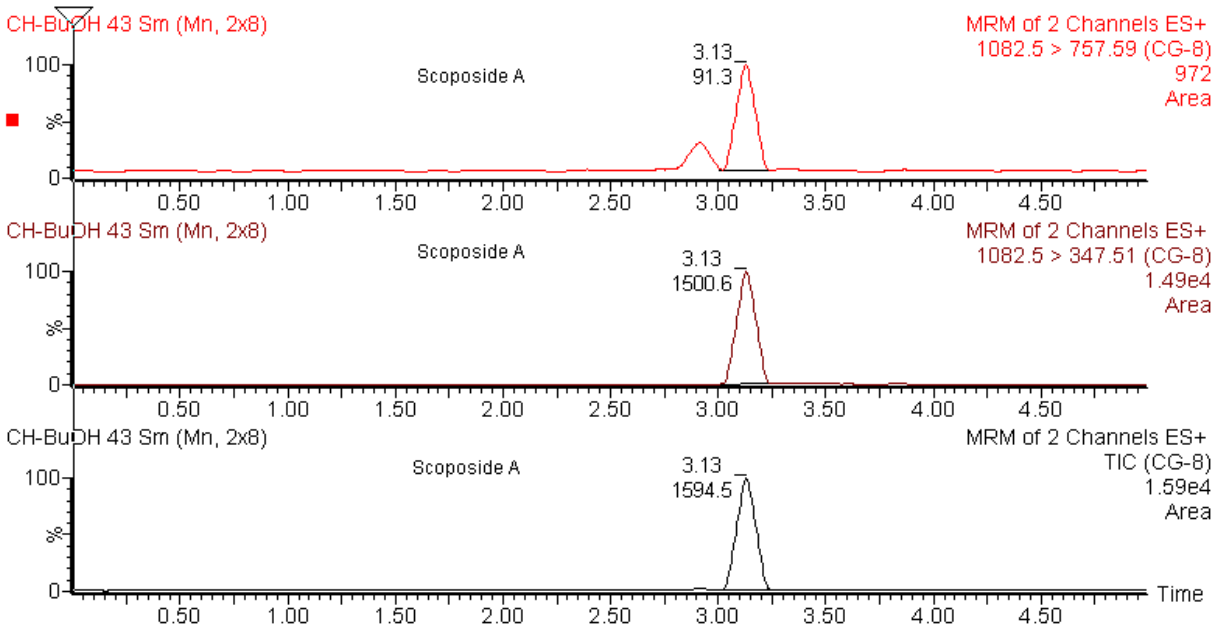
S 22. Chromatograms of Scoposide E (*m/z*: 890.47 —> 845.87 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta*.



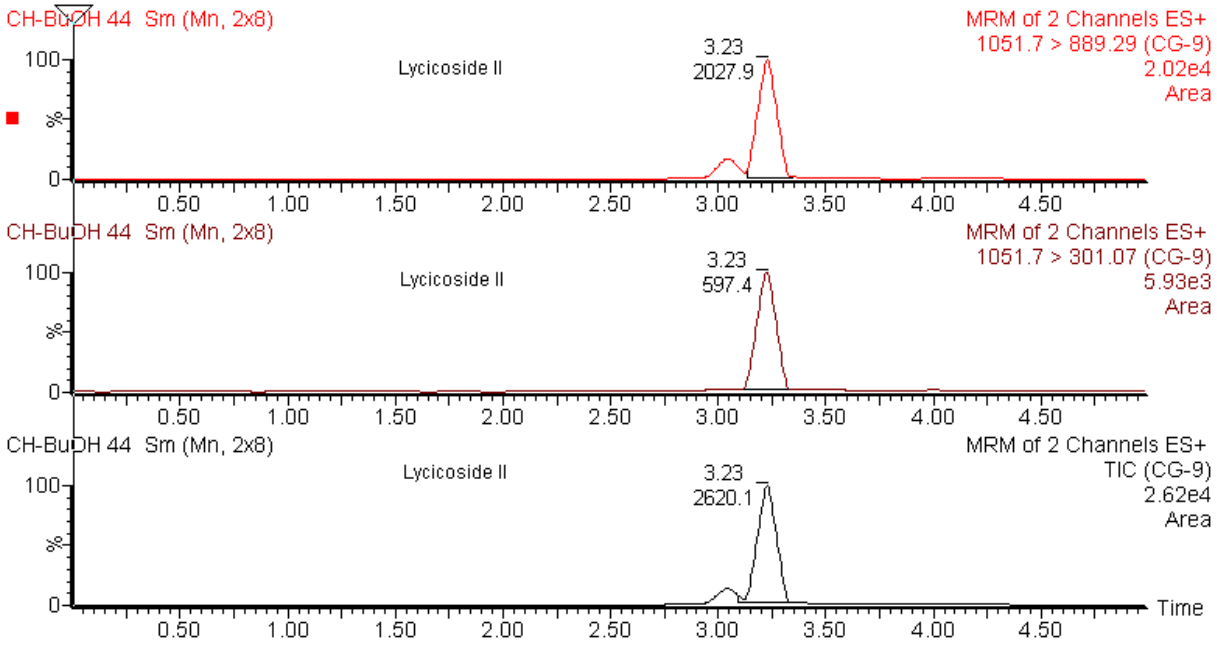
S 23. Chromatograms of Scoposide G (*m/z*: 1213.59 —> 1051.19, 1213.59 —> 346.88 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



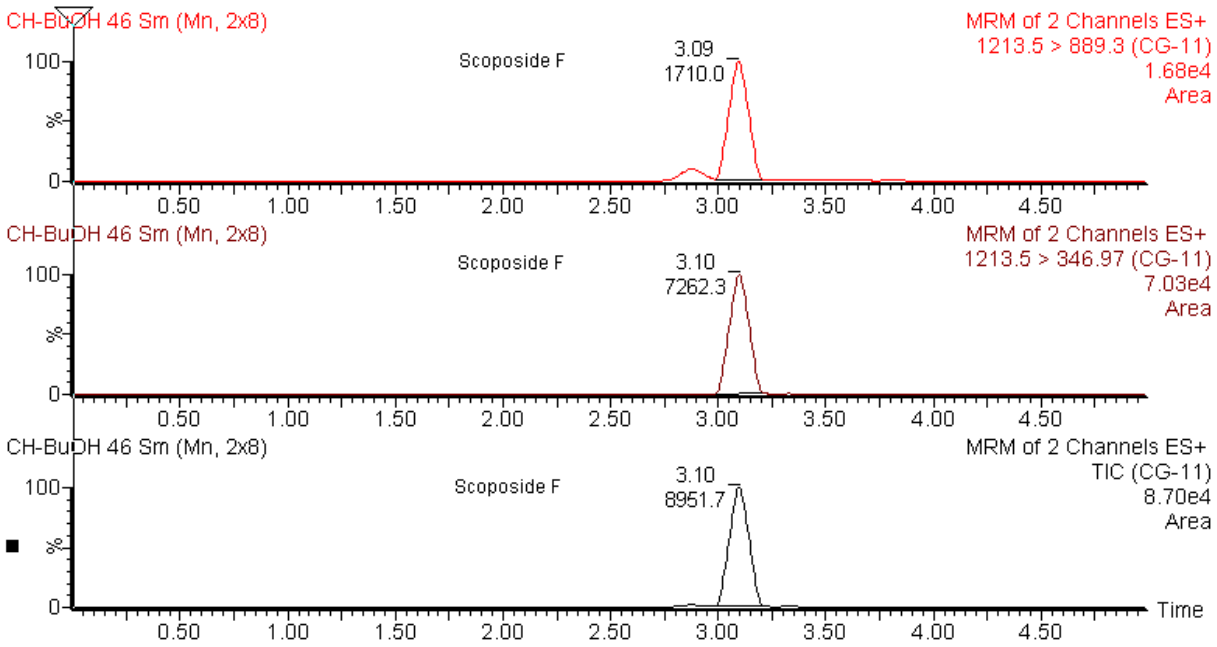
S 24. Chromatograms of Davisianoside B (*m/z*: 1082.61 —> 609.34, 1082.61 —> 477.35 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



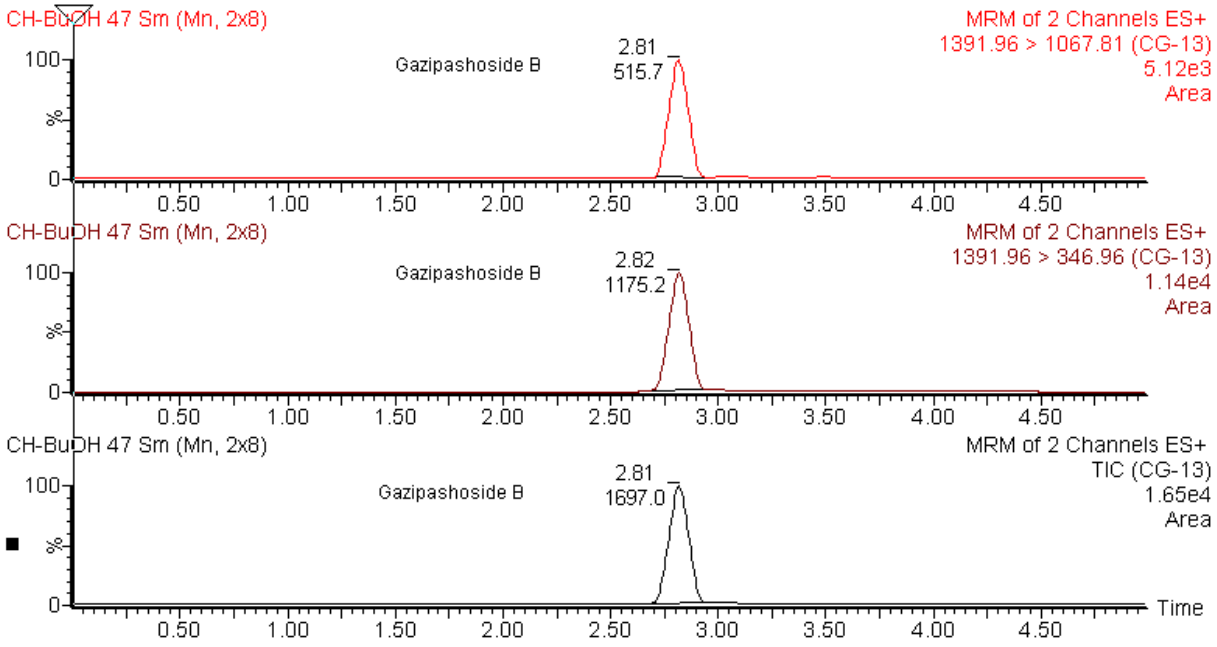
S 25. Chromatograms of Scoposide A (*m/z*: 1082.50 —> 757.59, 1082.50 —> 347.51 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



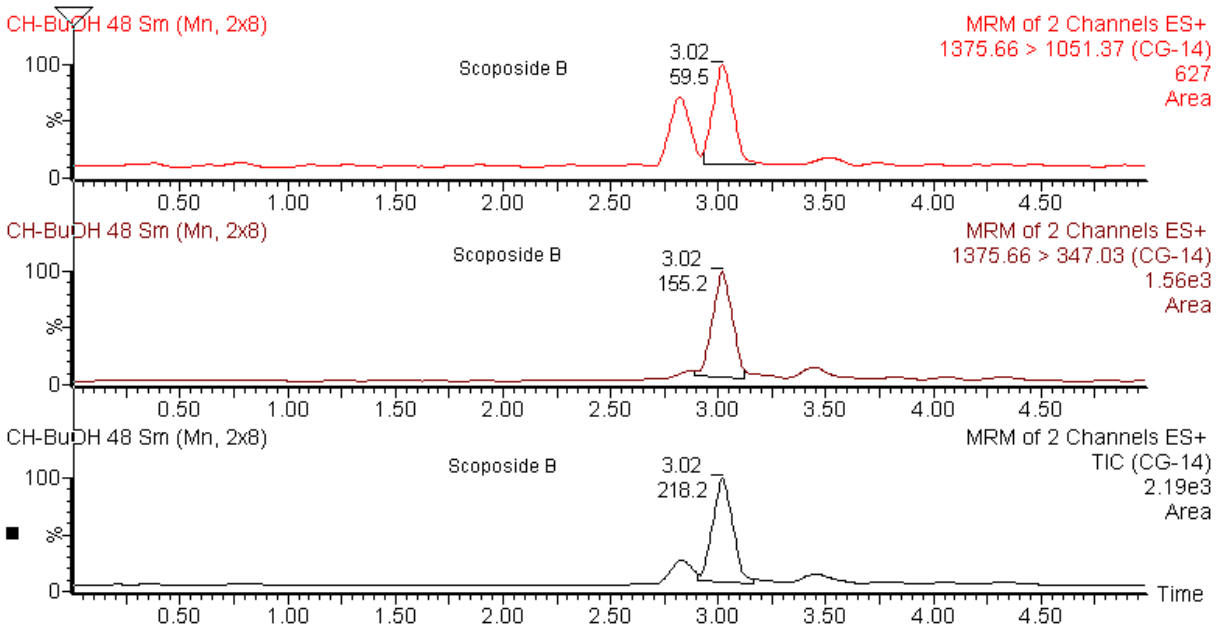
S 26. Chromatograms of Lycicoside II (*m/z*: 1051.70 —> 889.29, 1051.70 —> 301.07 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



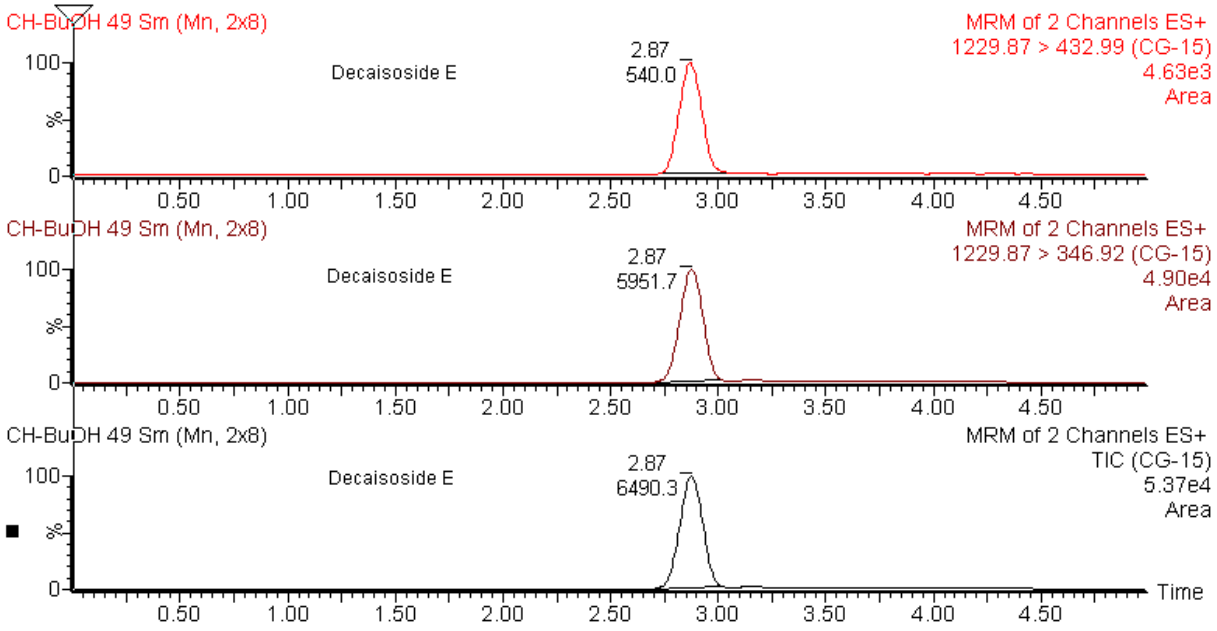
S 27. Chromatograms of Scoposide F (*m/z*: 1213.50 —>889.30, 1213.50 —> 346.97 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



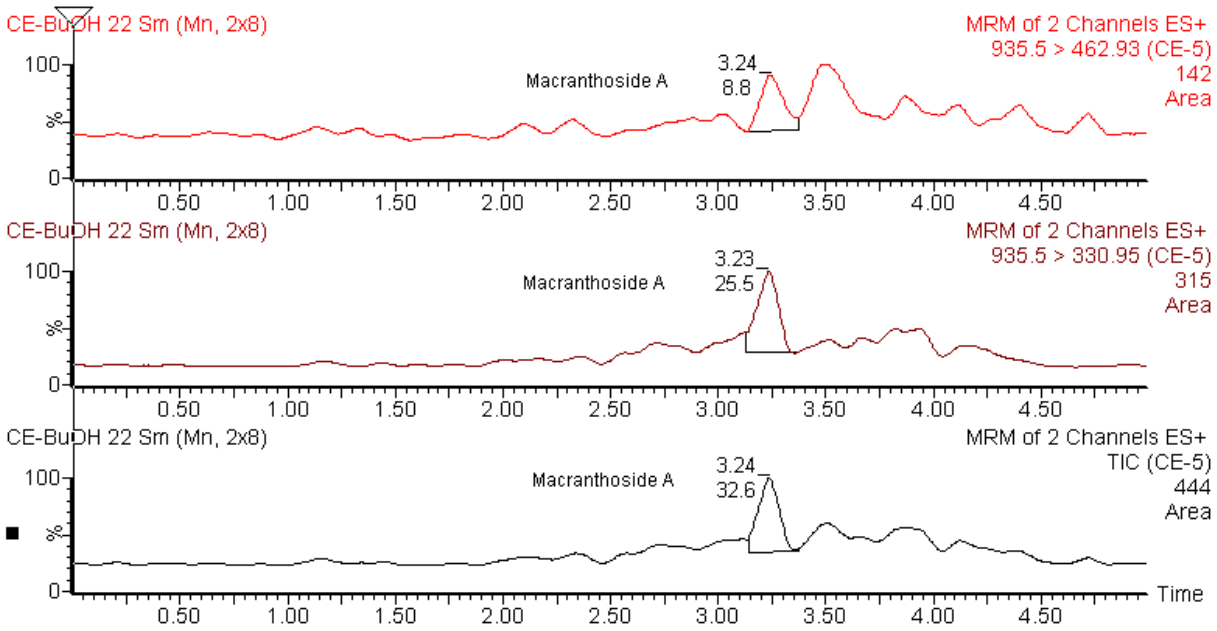
S 28. Chromatograms of Gazipashoside B (*m/z*: 1391.96 —> 1067.81, 1391.96 —> 346.96 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



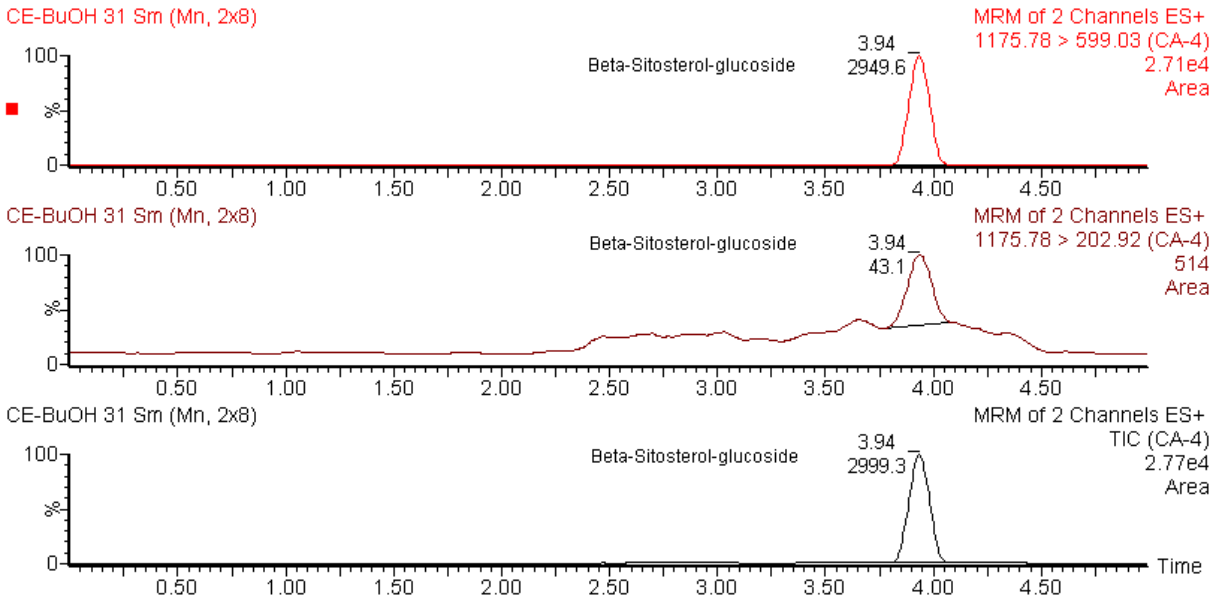
S 29. Chromatograms of Scoposide B (*m/z*: 1375.66 —> 1051.37, 1375.66 —> 347.03 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



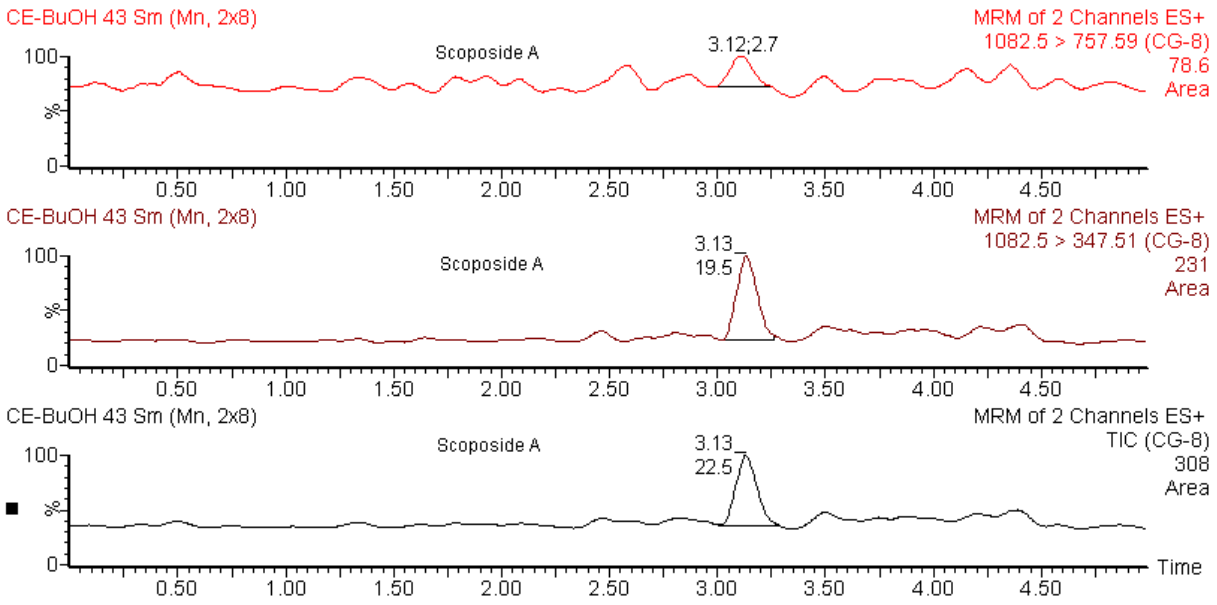
S 30. Chromatograms of Decaisoside E (*m/z*: 1229.87 —> 432.99, 1229.87 —> 346.92 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. hirsuta.*



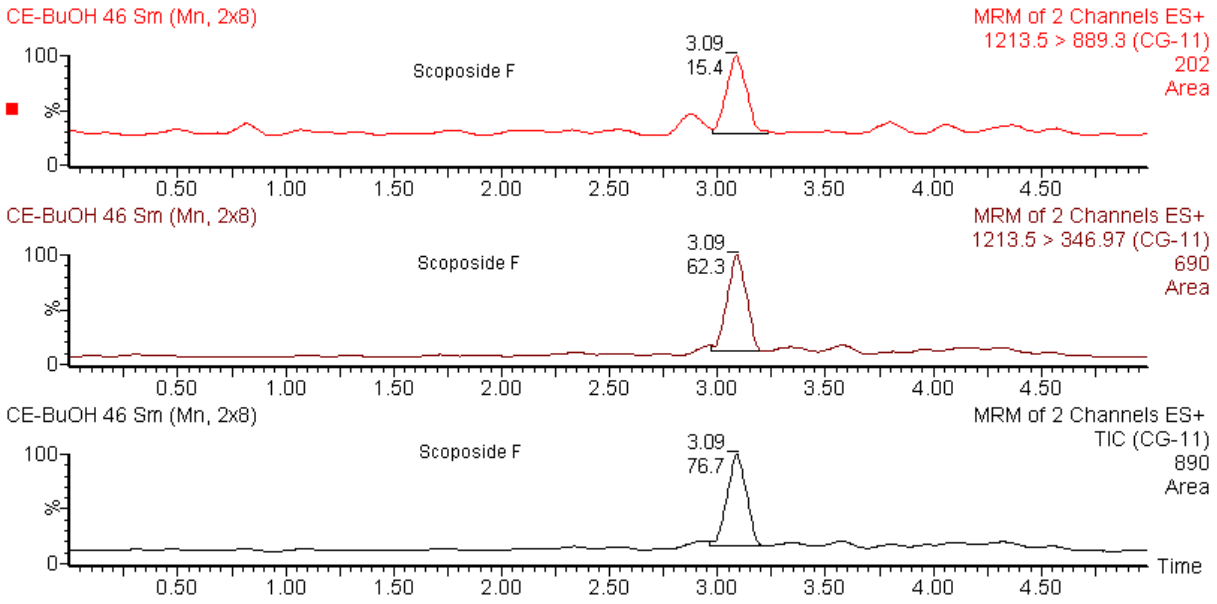
S 31. Chromatograms of Macranthoside A (*m/z*: 935.50 —> 462.93, 935.50 —> 330.95 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. elazigensis* var. *elazigensis.*



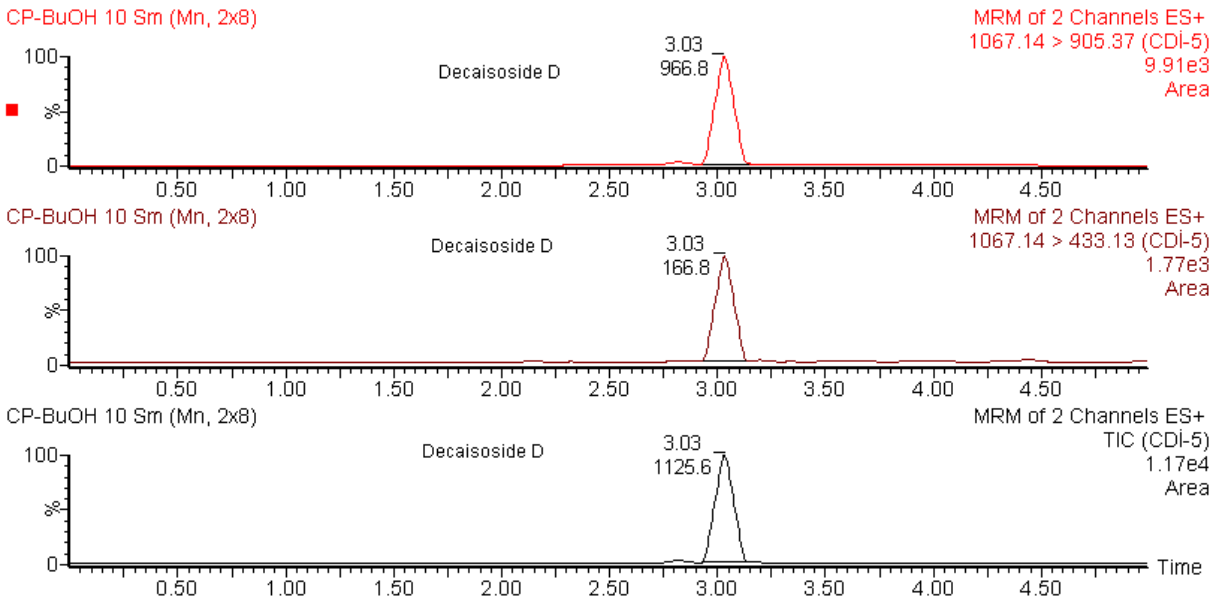
S 32. Chromatograms of β-Sitosterol-Glucoside (*m/z*: 1175.78 —> 599.03, 1175.78 —> 202.92 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. elazigensis* var. *elazigensis.*



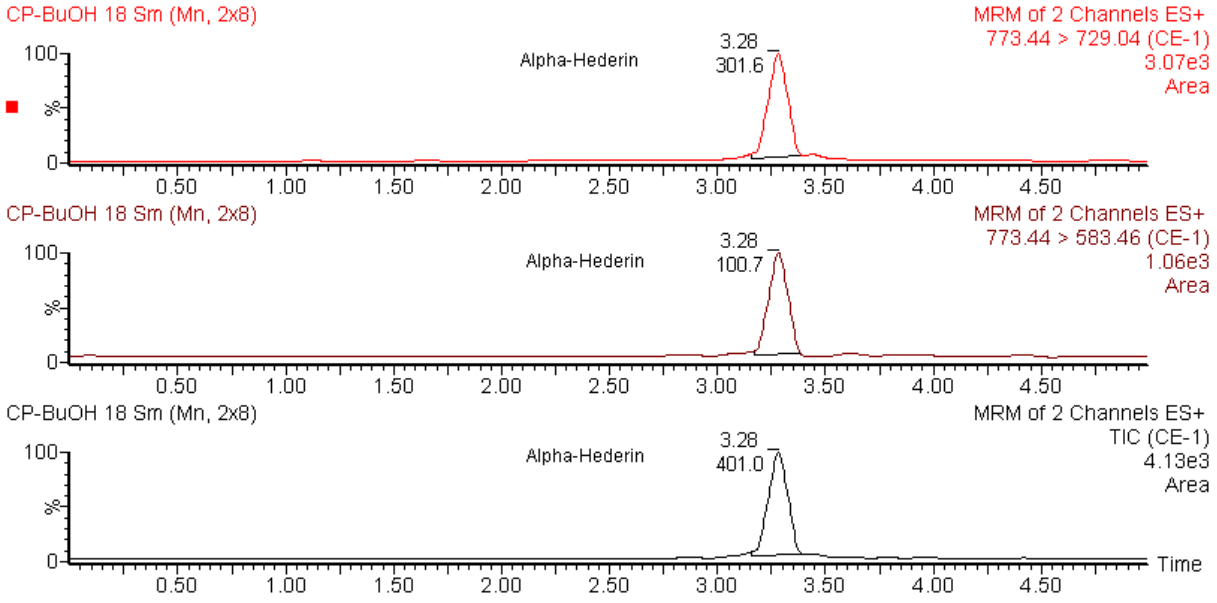
S 33. Chromatograms of Scoposide A (*m/z*: 1082.50 —> 757.59, 1082.50 —> 347.51 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. elazigensis* var. *elazigensis.*



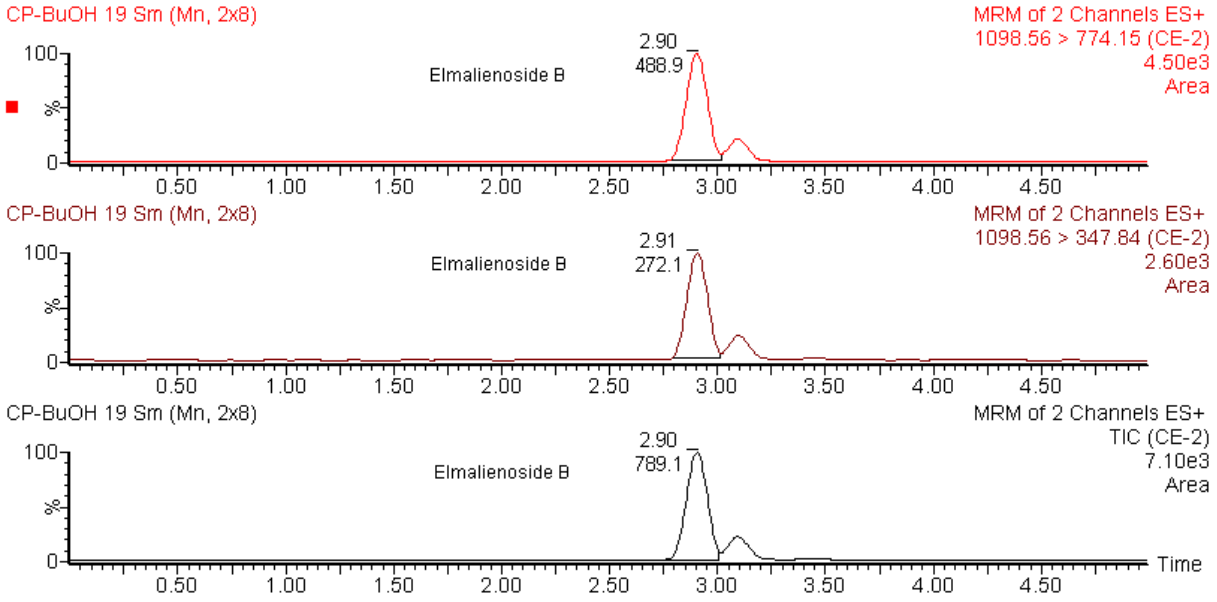
S 34. Chromatograms of Scoposide F (*m/z*: 1213.50 —> 889.30, 1213.50 —> 346.97 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. elazigensis* var. *elazigensis.*



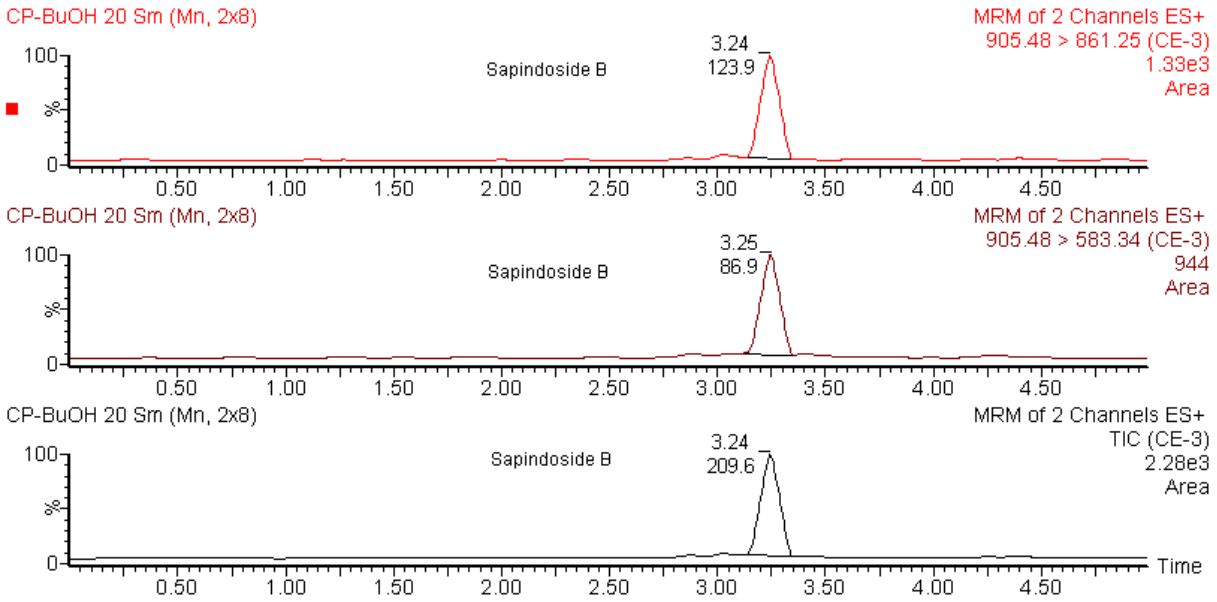
S 35. Chromatograms of Decaisoside D (*m/z*: 1067.14 —> 905.37, 1067.14 —> 433.13 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



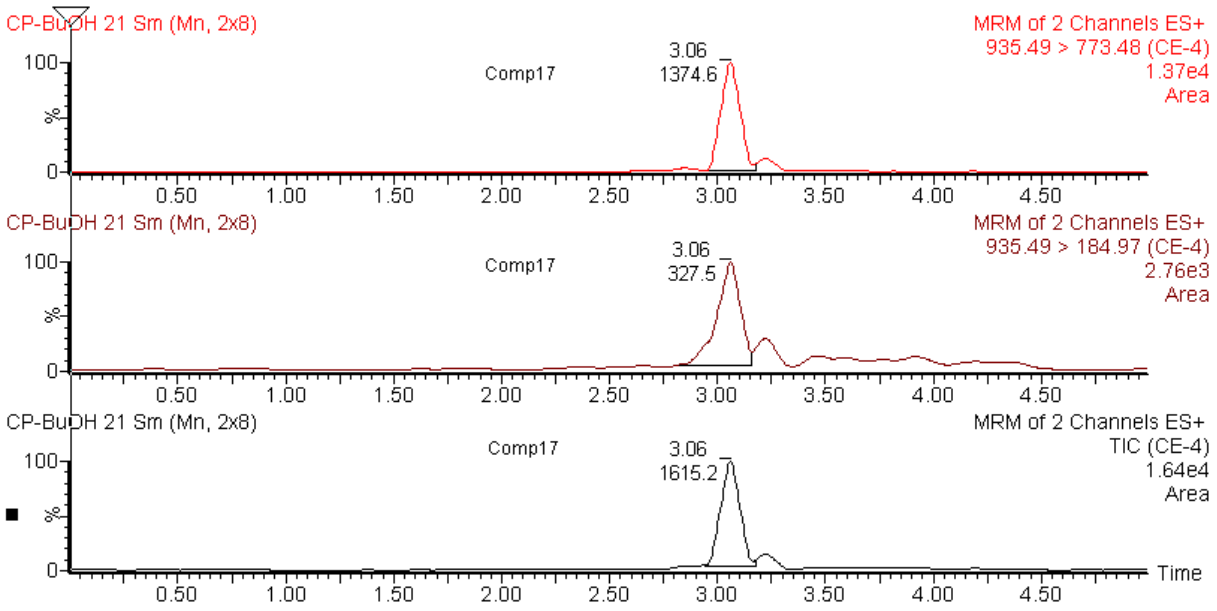
S 36. Chromatograms of α-Hederin (*m/z*: 773.44 —> 729.04, 773.44 —> 583.46 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



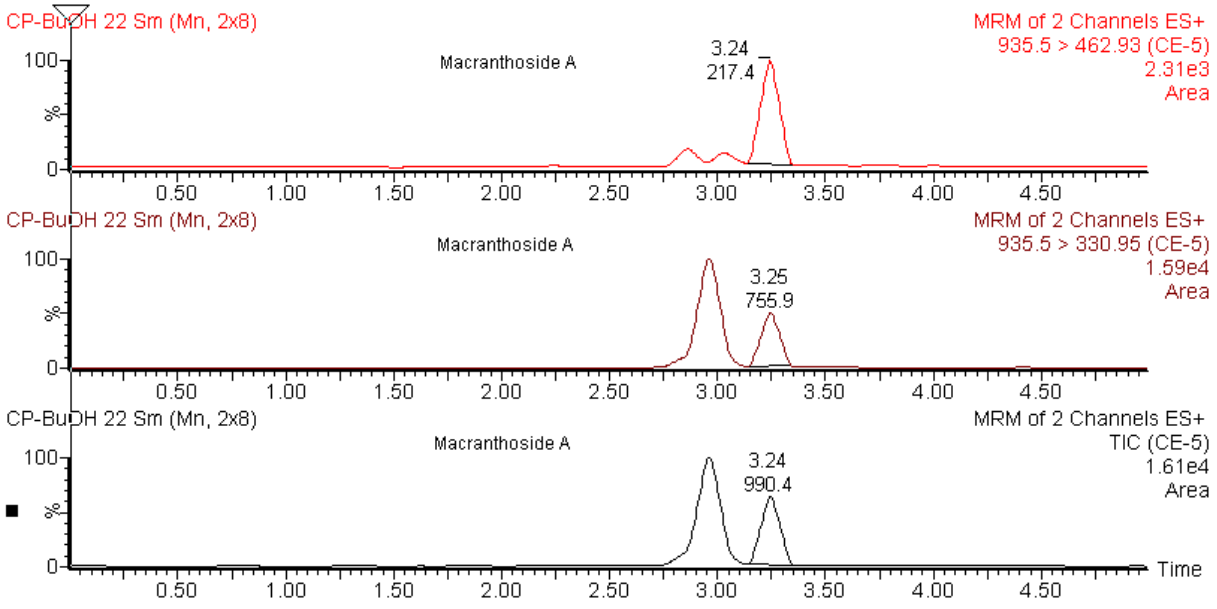
S 37. Chromatograms of Elmalienoside B (*m/z*: 1098.56 —> 774.15, 1098.56 —> 347.84 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



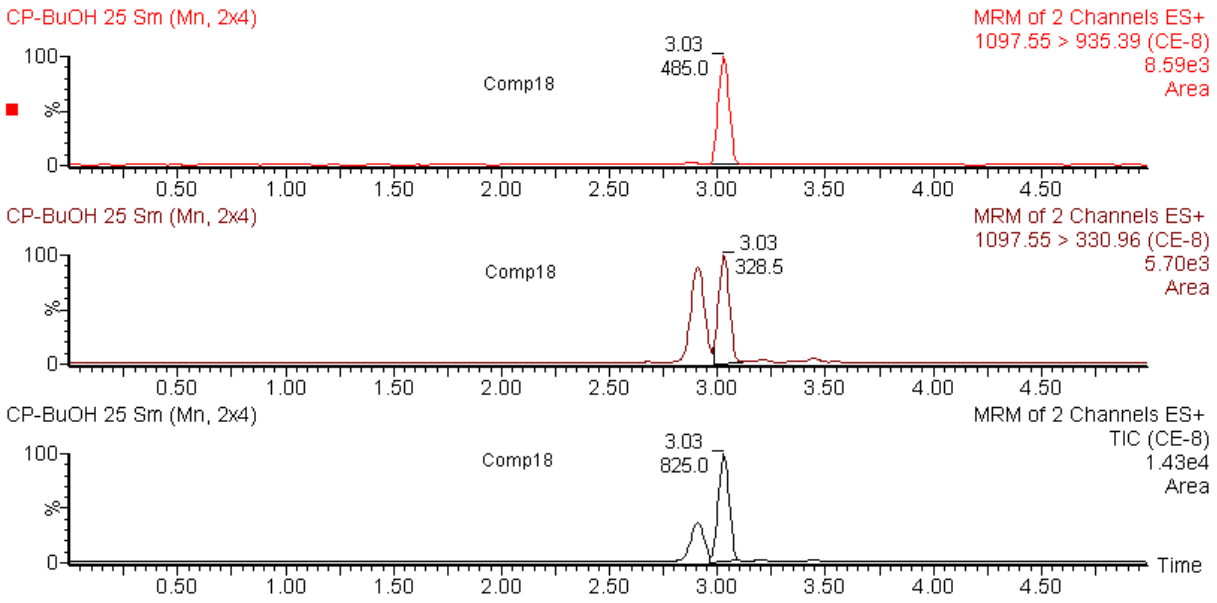
S 38. Chromatograms of Sapindoside B (*m/z*: 905.48 —> 861.25, 905.48 —> 583.34 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



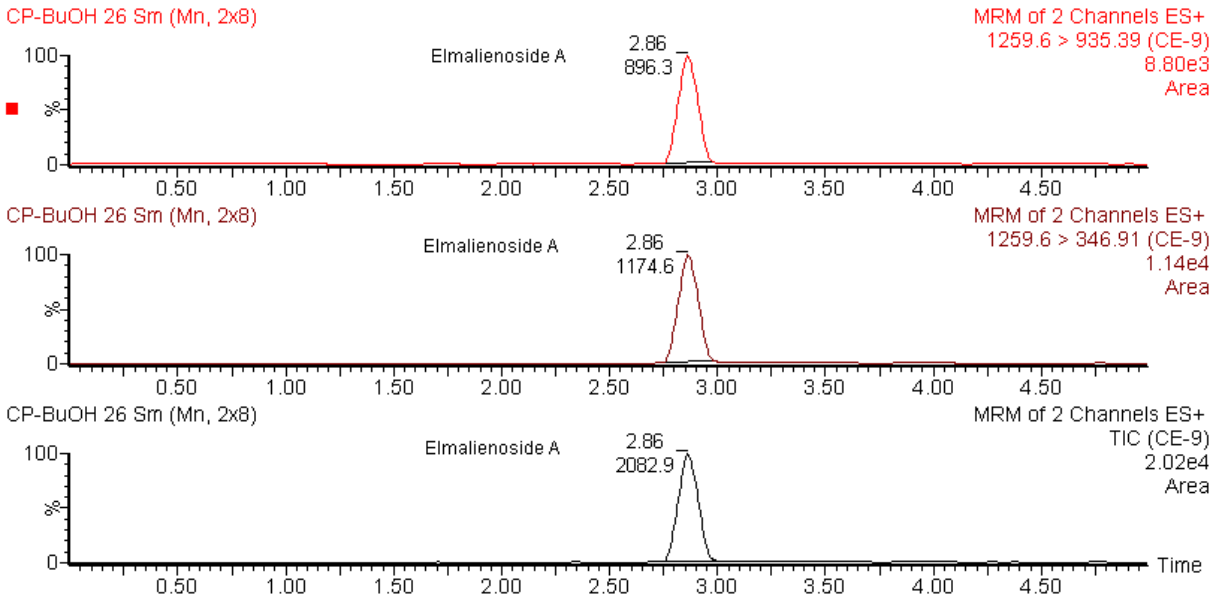
S 39. Chromatograms of 3-O-α-L-rhamnopyranosyl-(1→2)-α-L-arabinopyranosyl hederagenin 28-O-β-D-glucopyranosyl ester (*m/z*: 935.49 —> 773.48, 935.49 —> 184.97 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



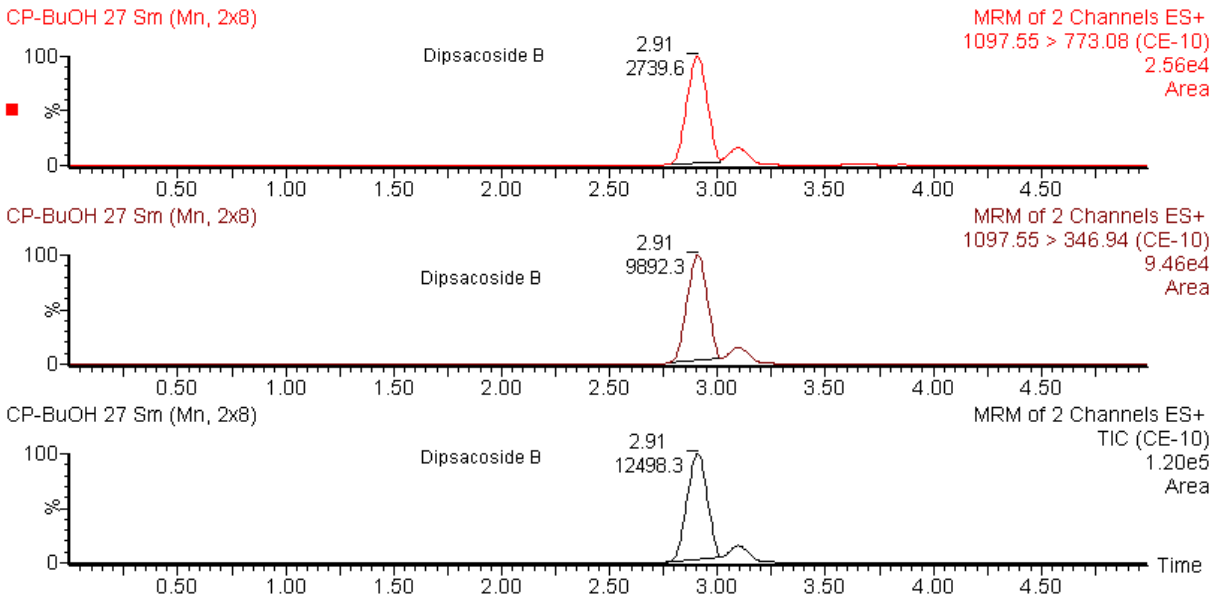
S 40. Chromatograms of Macranthoside A (*m/z*: 935.50 —> 462.93, 935.50 —> 330.95 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



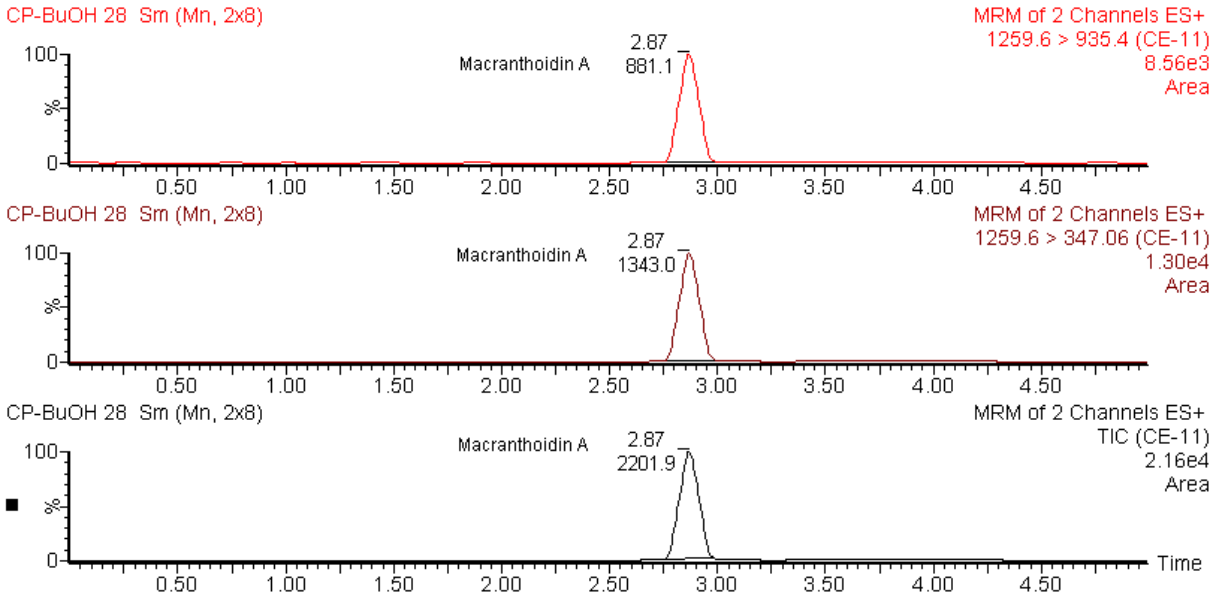
S 41. Chromatograms of 3-O-β-D-glucopyranosyl-(1→3)-α-L-rhamnopyranosyl-(1→2)-α-L-arabinopyranosyl hederagenin 28-O-β-D-glucopyranosyl ester (*m/z*: 1097.55 —> 935.39, 1097.55 —> 330.96 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



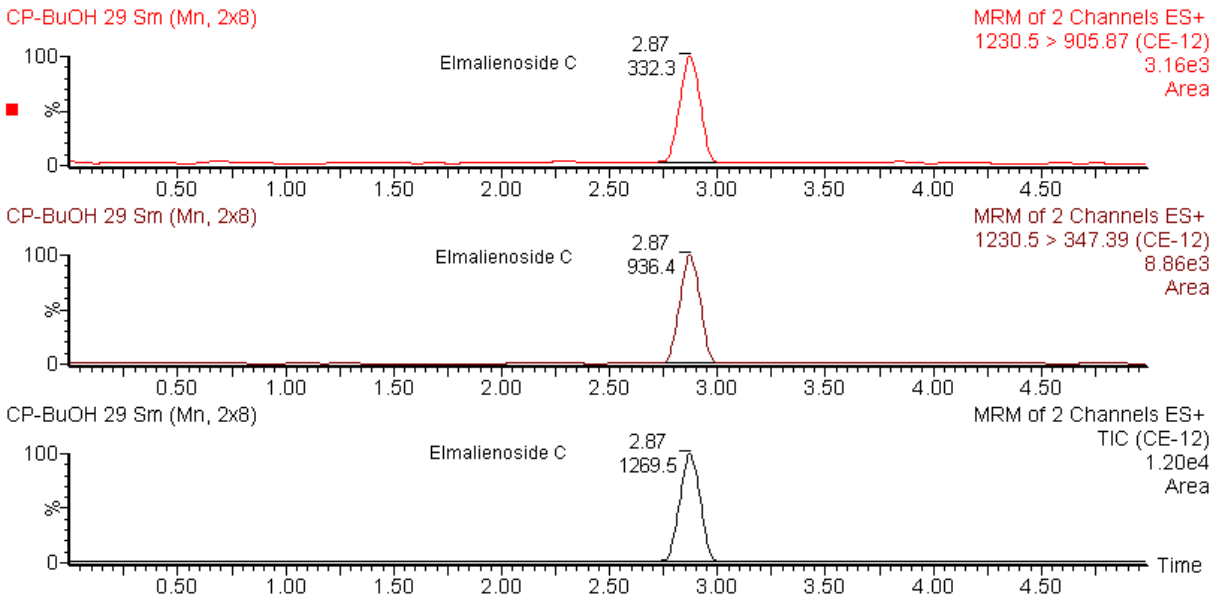
S 42. Chromatograms of Elmalienoside A (*m/z*: 1259.60 —> 935.39, 1259.60 —> 346.91 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*



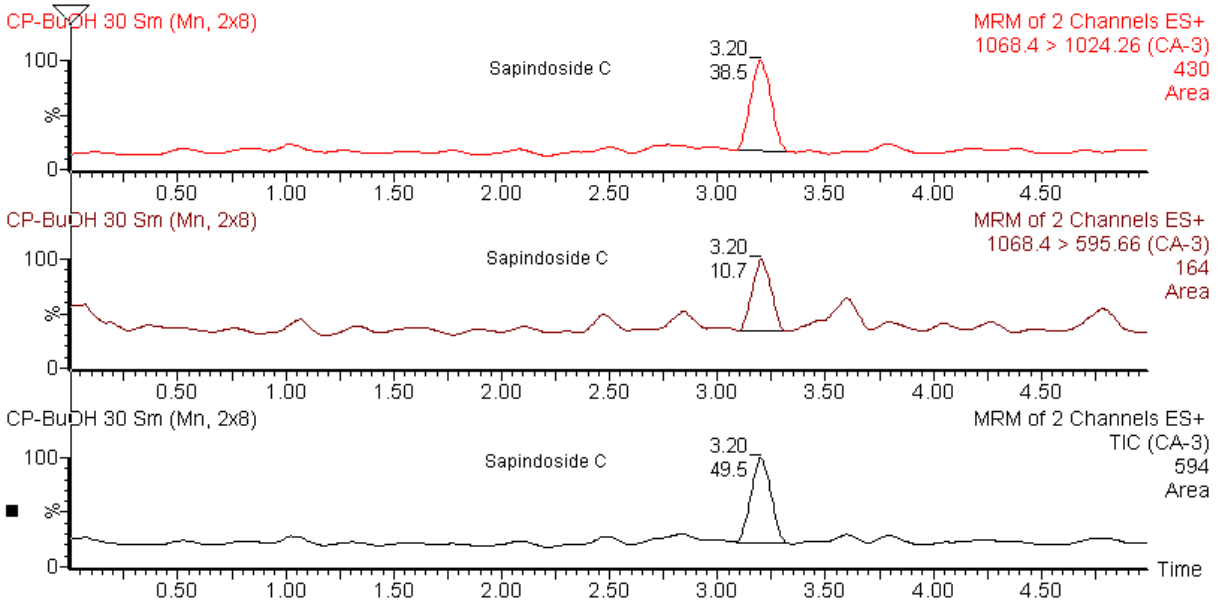
S 43. Chromatograms of Dipsacoside B (*m/z*: 1097.55 —> 773.08, 1097.55 —> 346.94 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



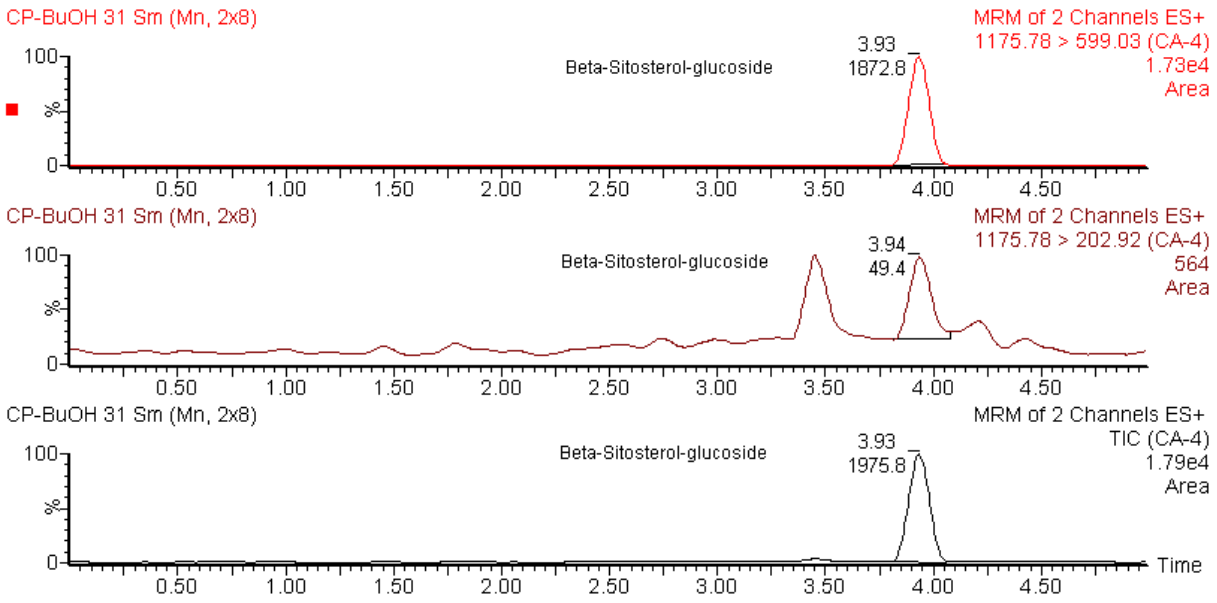
S 44. Chromatograms of Macranthoidin A (*m/z*: 1259.60 —> 935.40, 1259.60 —> 347.06 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



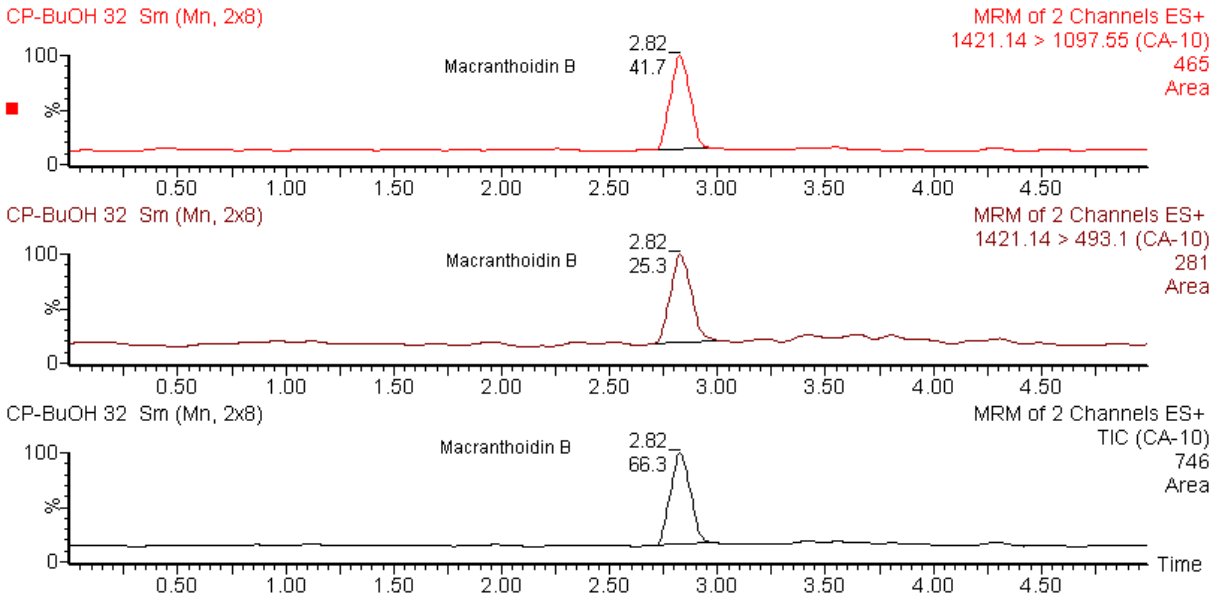
S 45. Chromatograms of Elmalienoside C (*m/z*: 1230.50 —> 905.87, 1230.50 —> 347.39 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



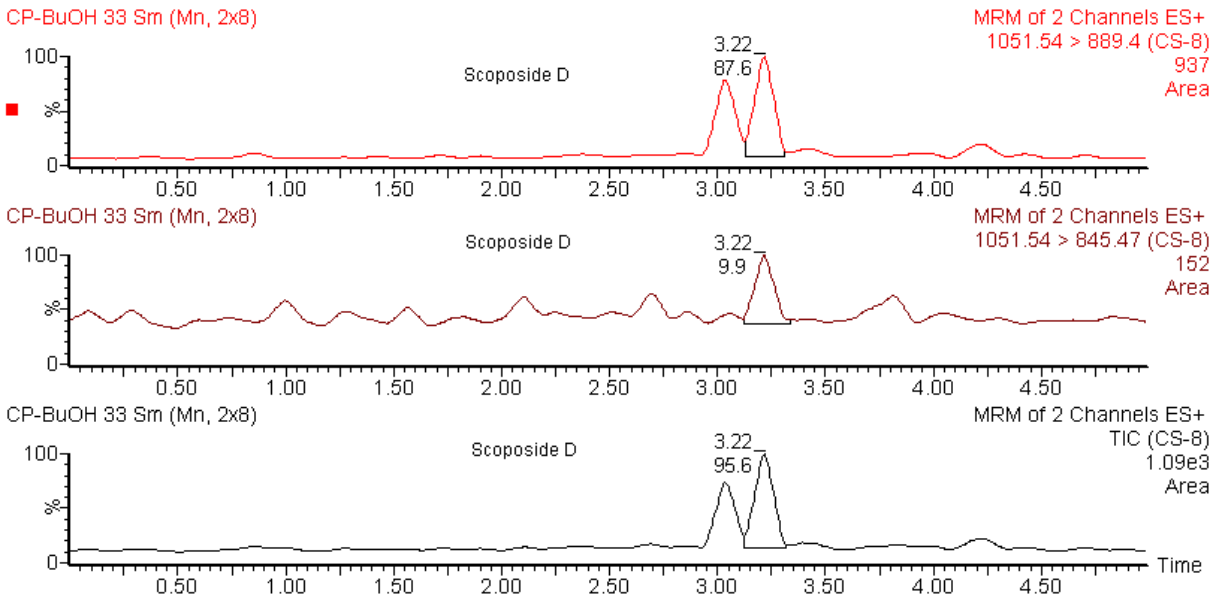
S 46. Chromatograms of Sapindoside C (*m/z*: 1068.40 —> 1024.26, 1068.40 —> 595.66 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



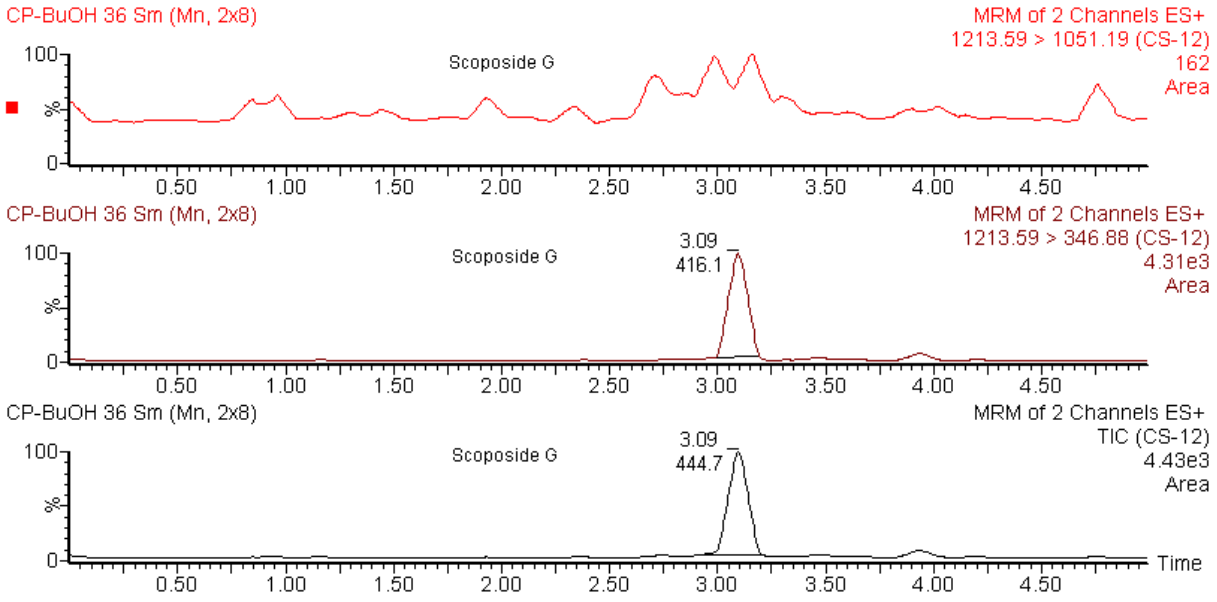
S 47. Chromatograms of β-Sitosterol-Glucoside (*m/z*: 1175.78 —> 599.03, 1175.78 —> 202.92 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



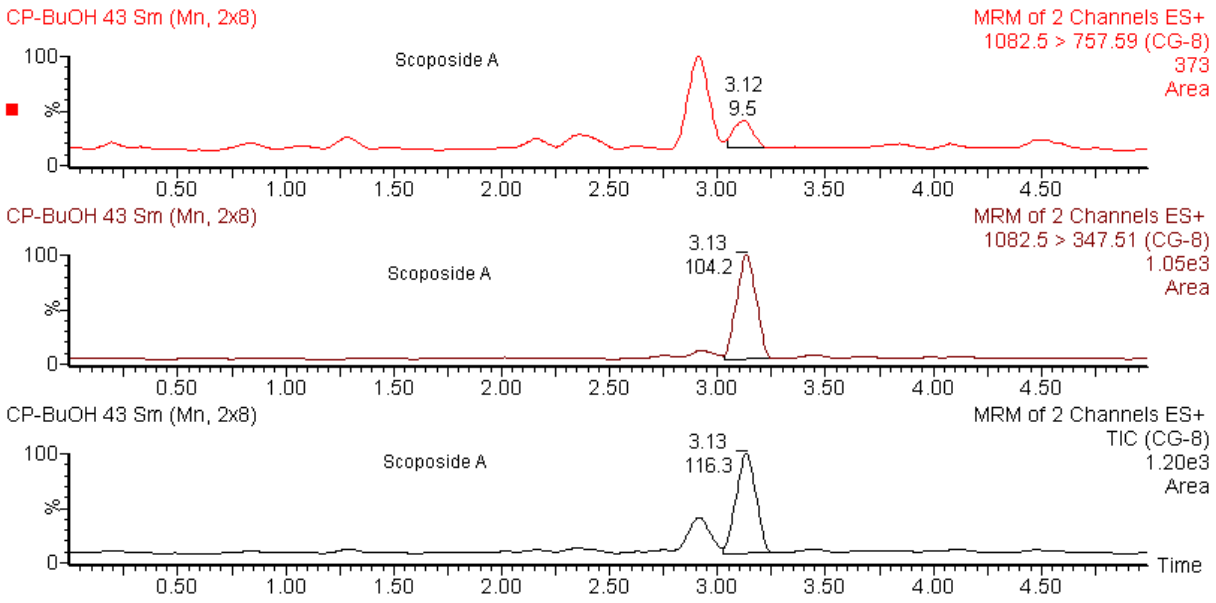
S 48. Chromatograms of Macranthoidin B (*m/z*: 1421.14 —> 1097.55, 1421.14 —> 493.1 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



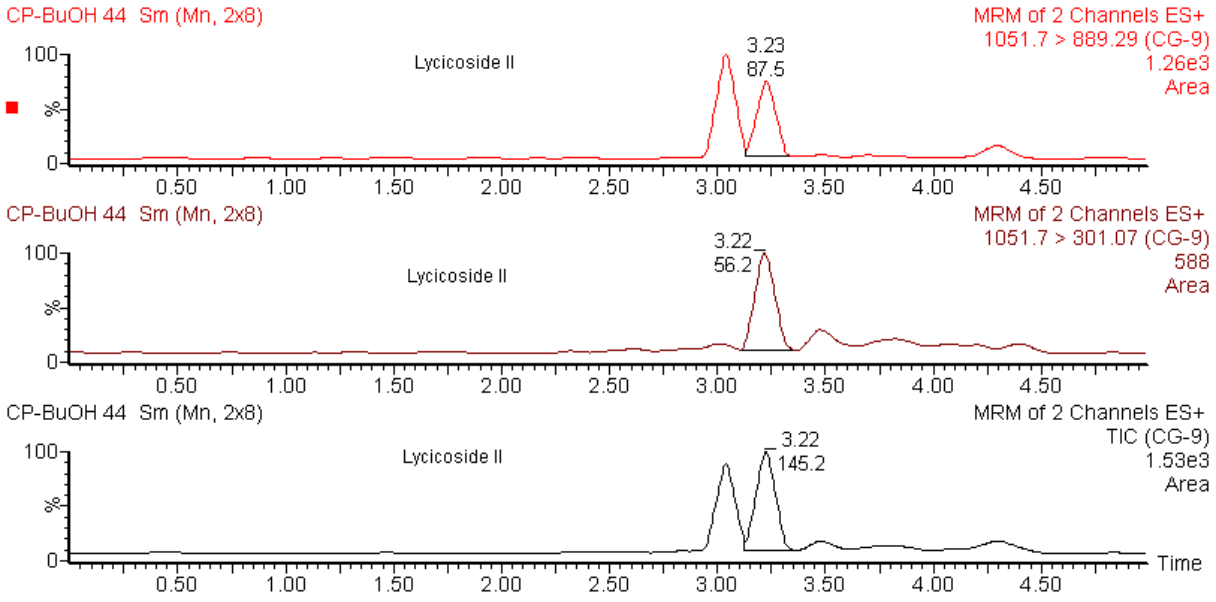
S 49. Chromatograms of Scoposide D (*m/z*: 1051.54 —> 889.40, 1051.54 —> 845.47 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



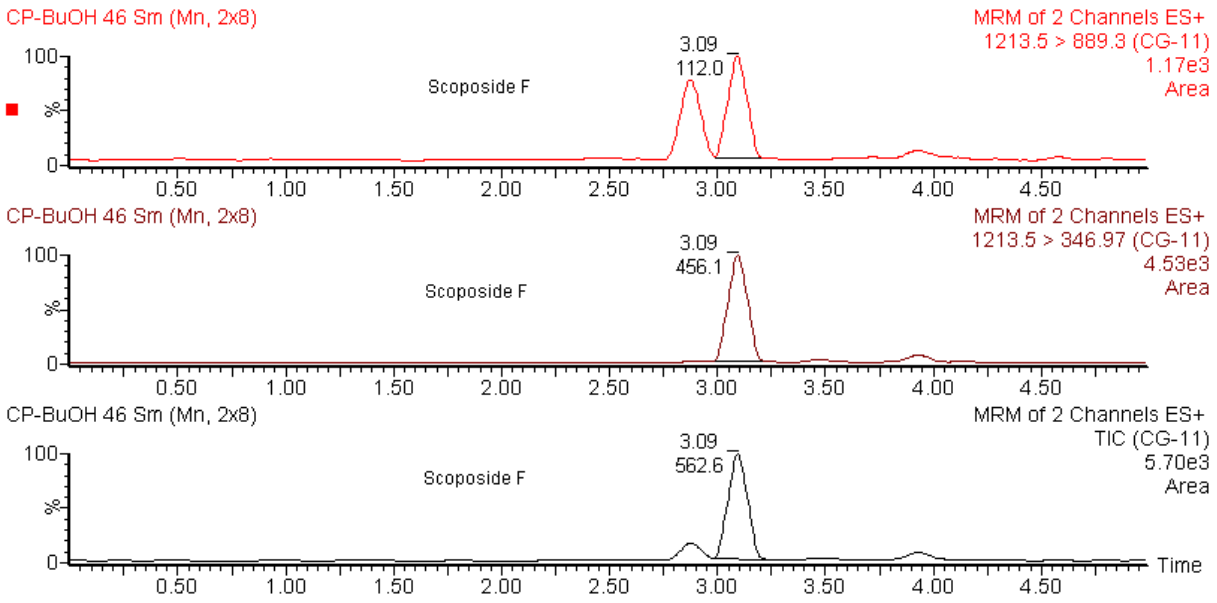
S 50. Chromatograms of Scoposide G (*m/z*: 1213.59 —> 1051.19, 1213.59 —> 346.88 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



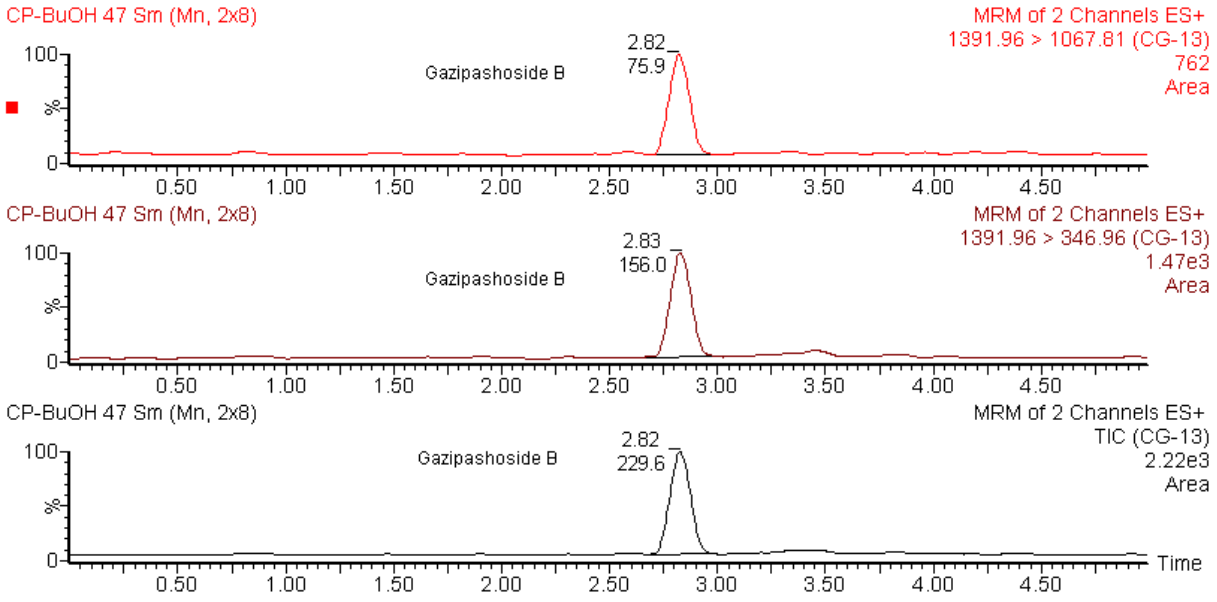
S 51. Chromatograms of Scoposide A (*m/z*: 1082.50 —> 757.59, 1082.50 —> 347.51 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



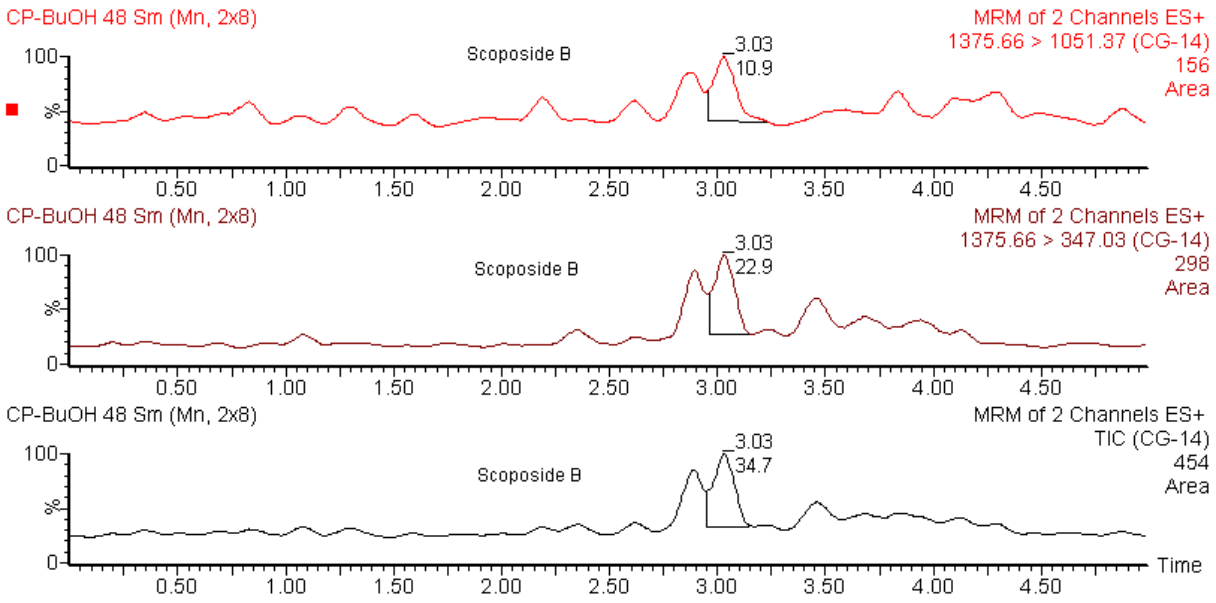
S 52. Chromatograms of Lycicoside II (*m/z*: 1051.70 —> 889.29, 1051.70 —> 301.07 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



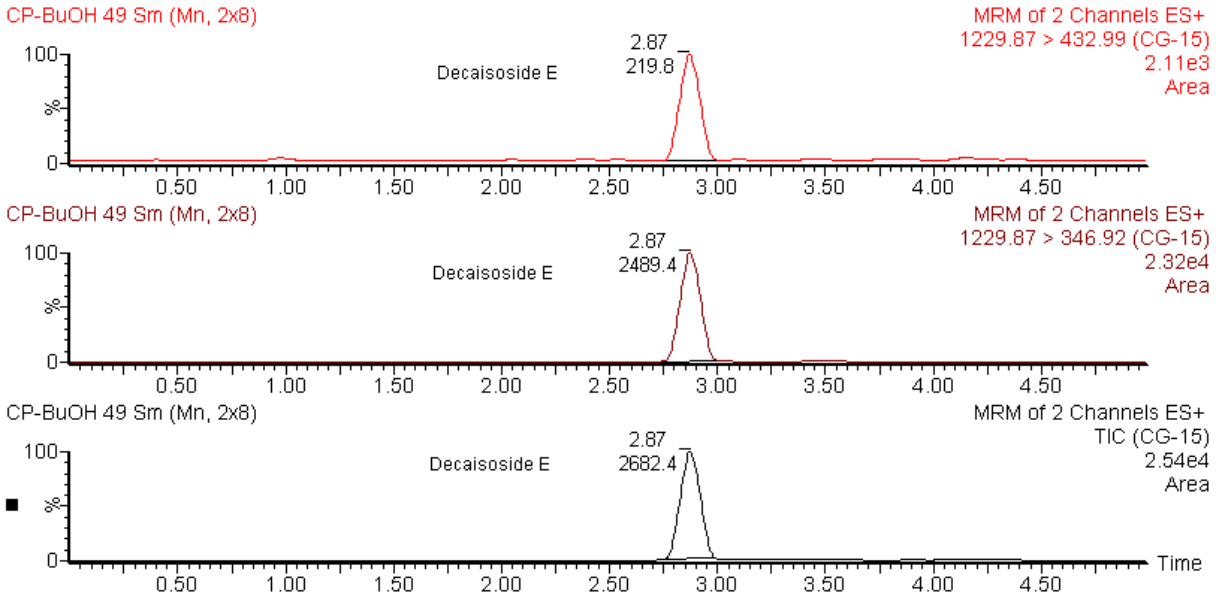
S 53. Chromatograms of Scoposide F (*m/z*: 1213.50 —> 889.30, 1213.50 —> 346.97 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



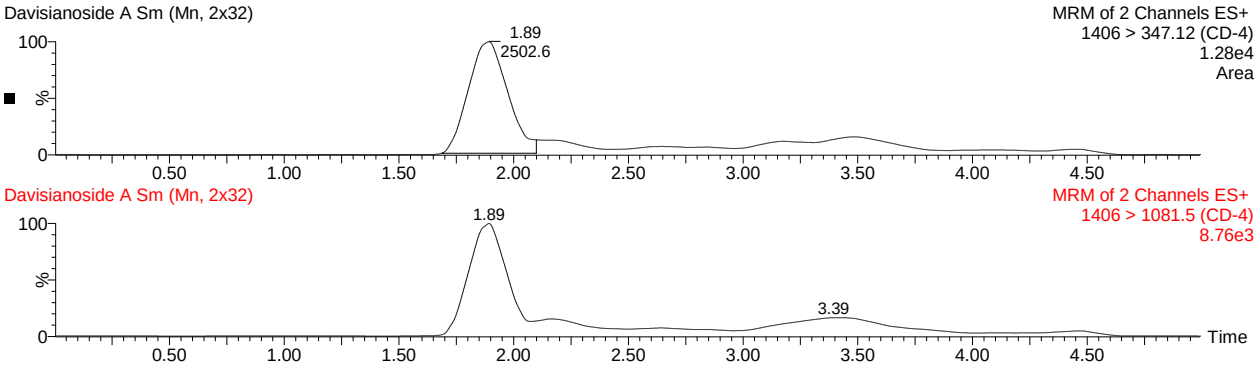
S 54. Chromatograms of Gazipashoside B (*m/z*: 1391.96 —> 1067.81, 1391.96 —> 346.96 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera.*



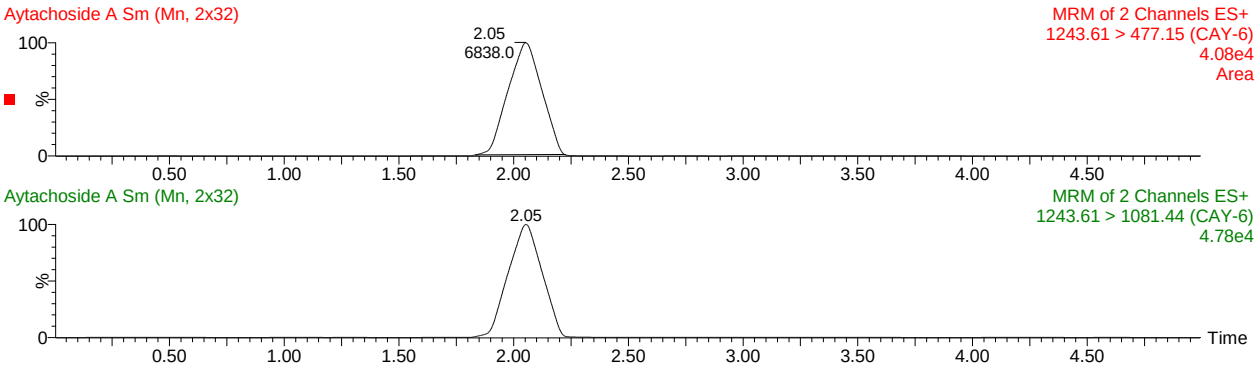
S 55. Chromatograms of Scoposide B (*m/z*: 1375.66—>1051.37, 1375.66—>347.03 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



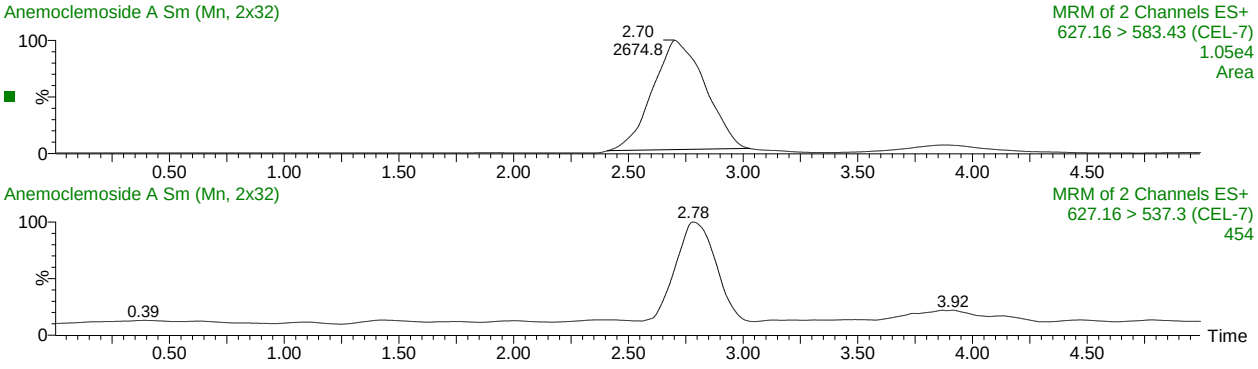
S 56. Chromatograms of Decaisoside E (*m/z*: 1229.87 —> 432.99, 1229.87 —> 346.92 and TIC), compound obtained by UPLC–ESI-MS-MS in the positive ion mode for crude extract solution in *C. procera*.



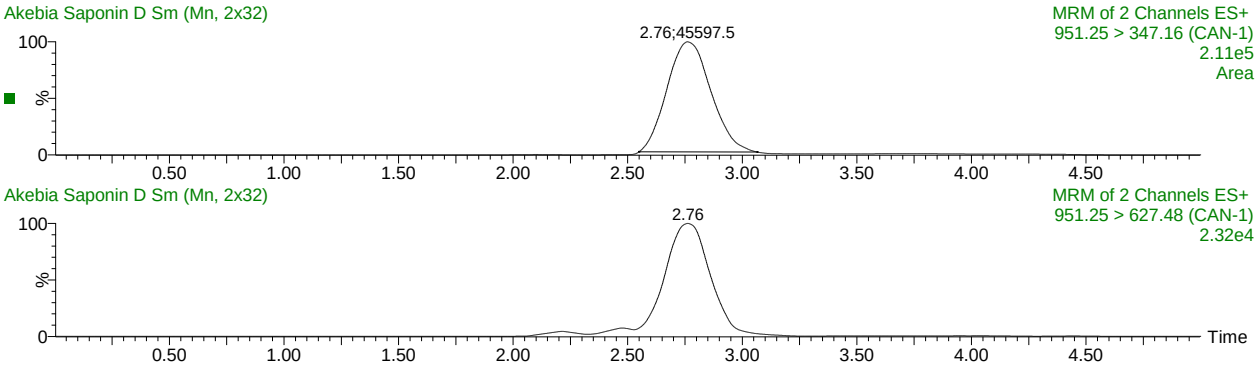
S 57: Chromatograms of Davisianoside A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



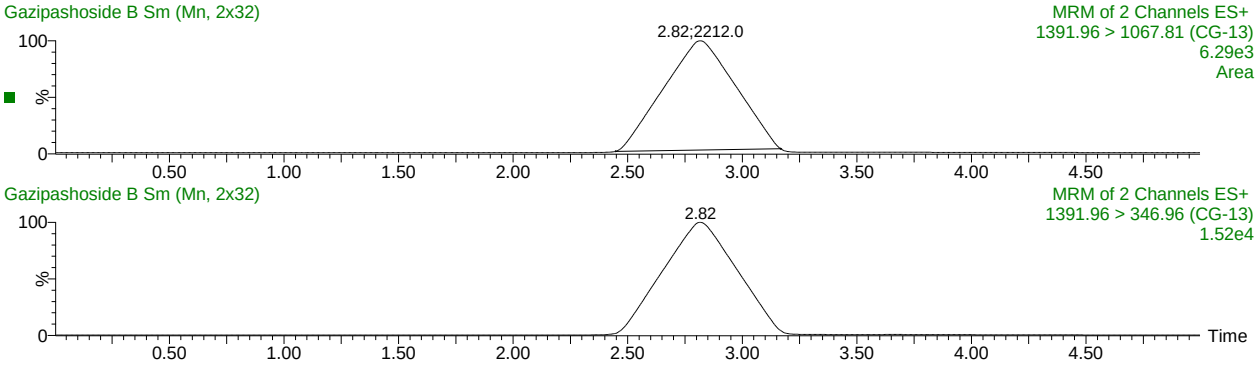
S 58: Chromatograms of Aytachoside A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



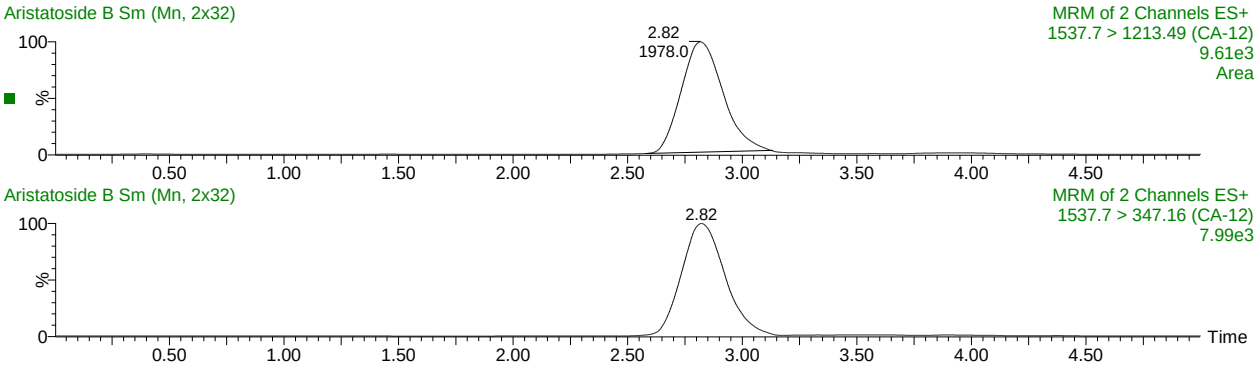
S 59: Chromatograms of Anemoclemoside A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



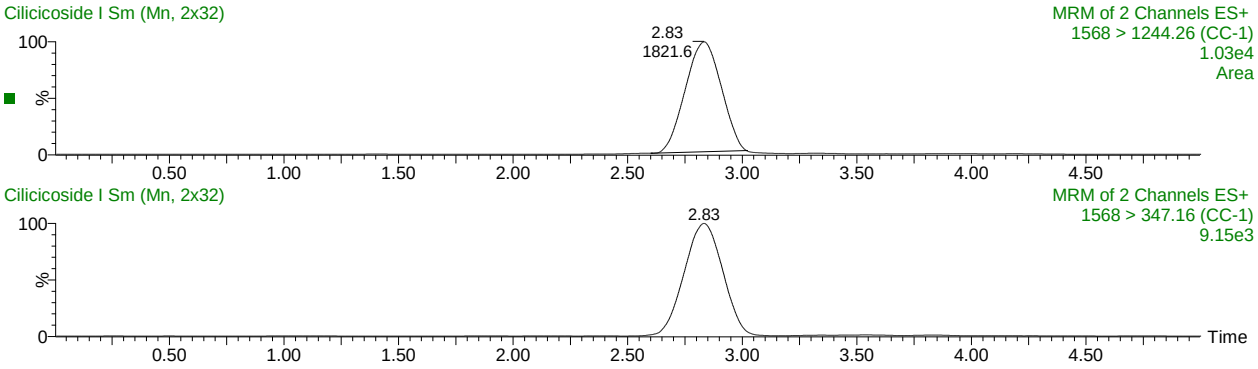
S 60: Chromatograms of Akebia Saponin D compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



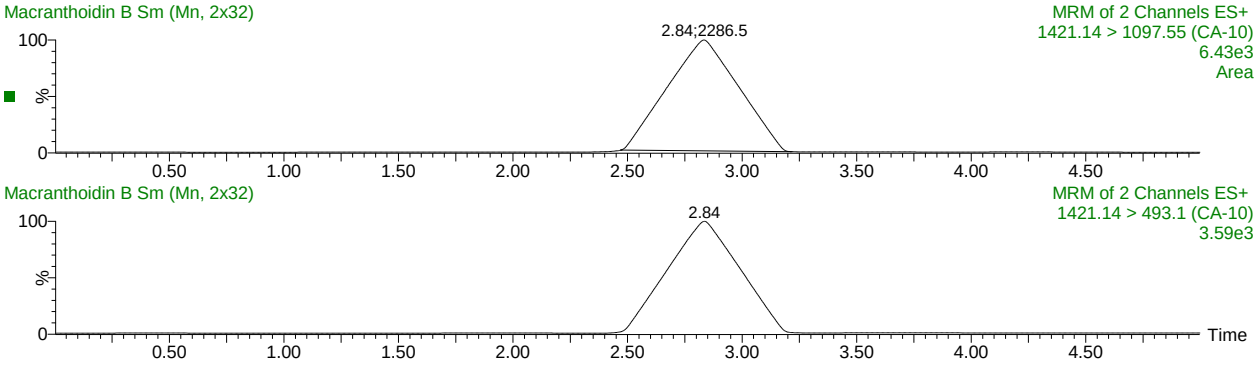
S 61: Chromatograms of Gazipashoside B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



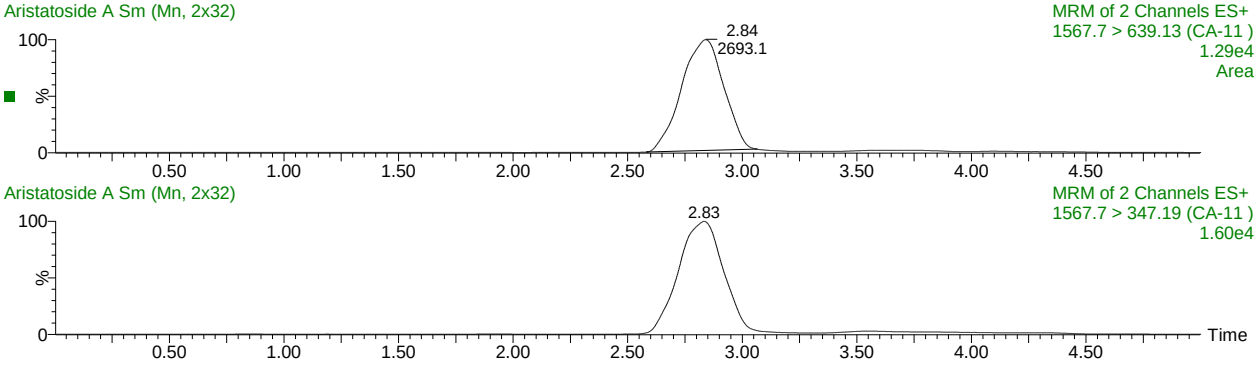
S 62: Chromatograms of Aristatoside B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



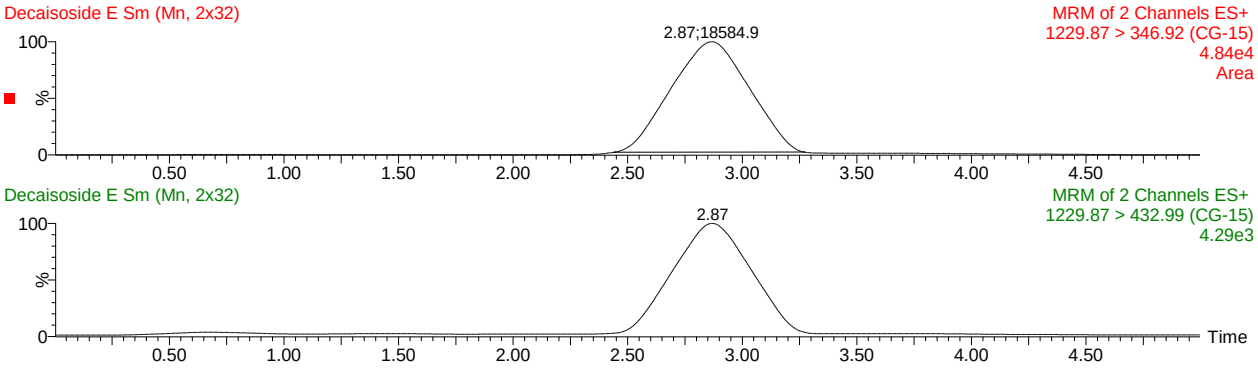
S 63: Chromatograms of Cilicicoside I compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



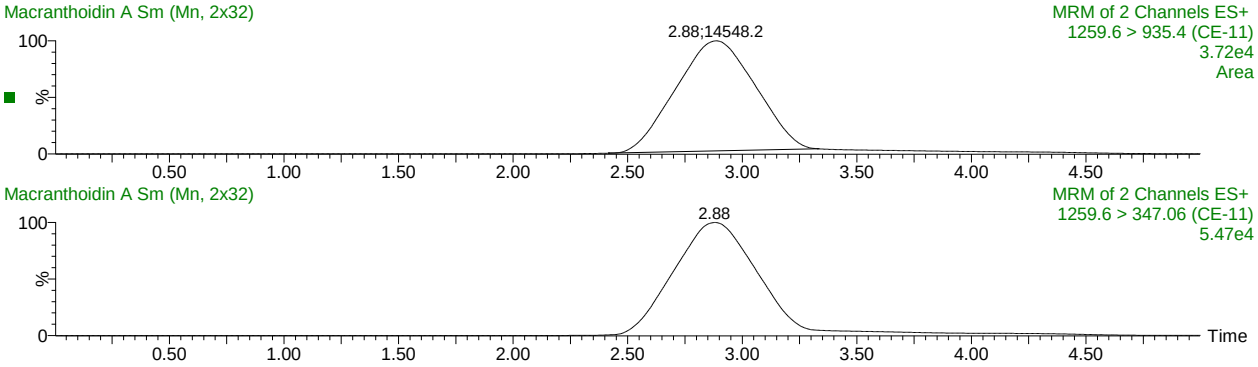
S 64: Chromatograms of Macranthoidin B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



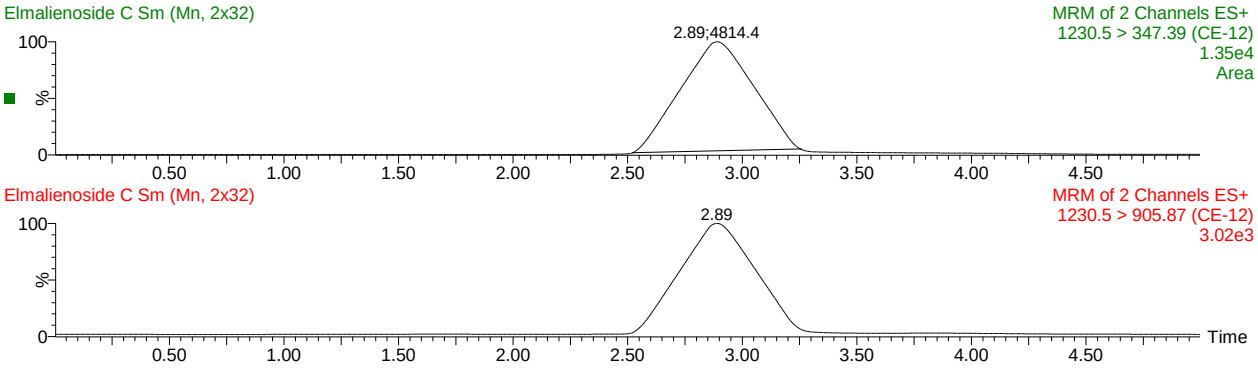
S 65: Chromatograms of Aristatoside A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



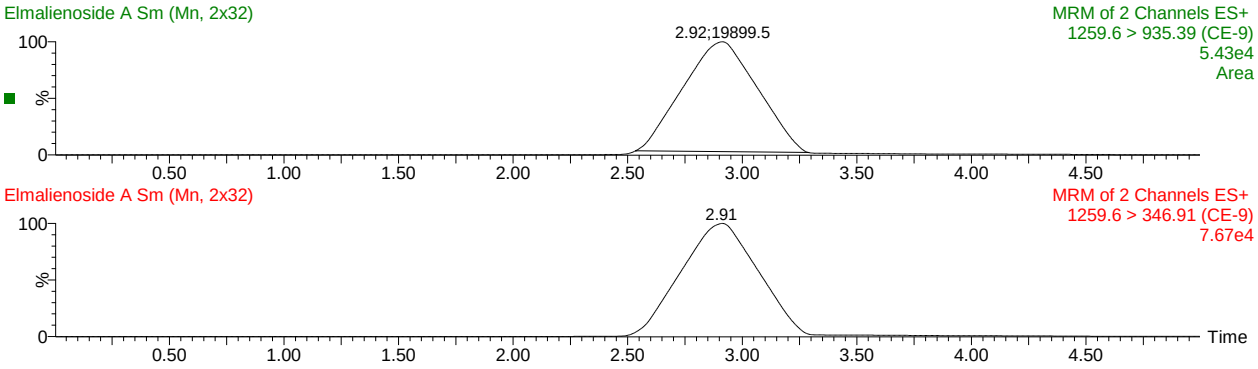
S 66: Chromatograms of Decaisoside E compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



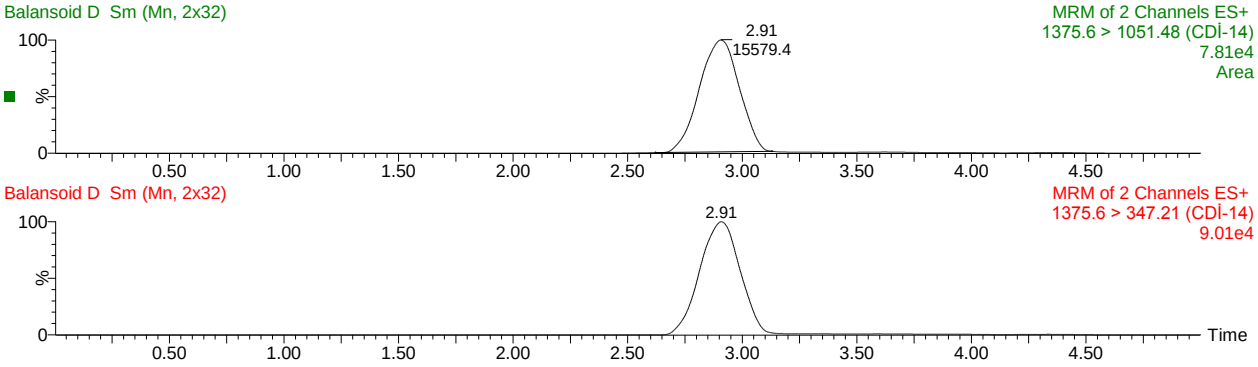
S 67: Chromatograms of Macranthoidin A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



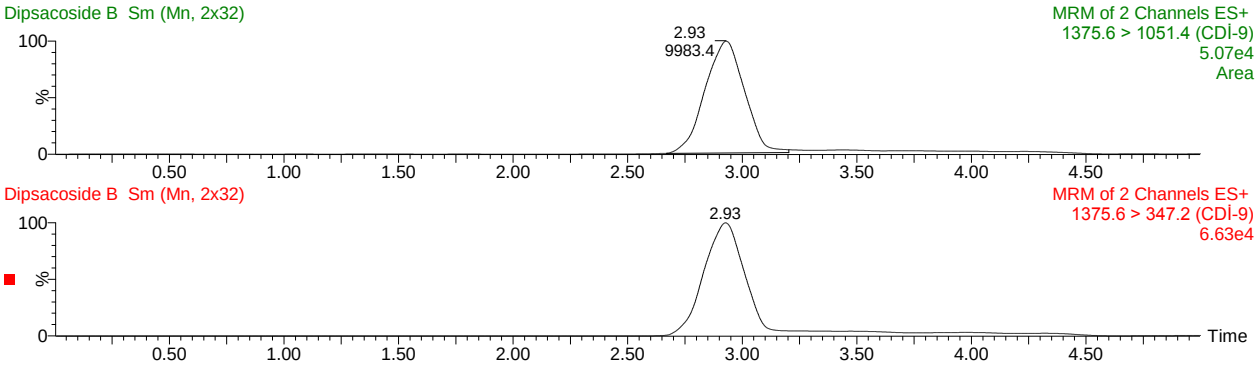
S 68: Chromatograms of Elmalienoside C compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



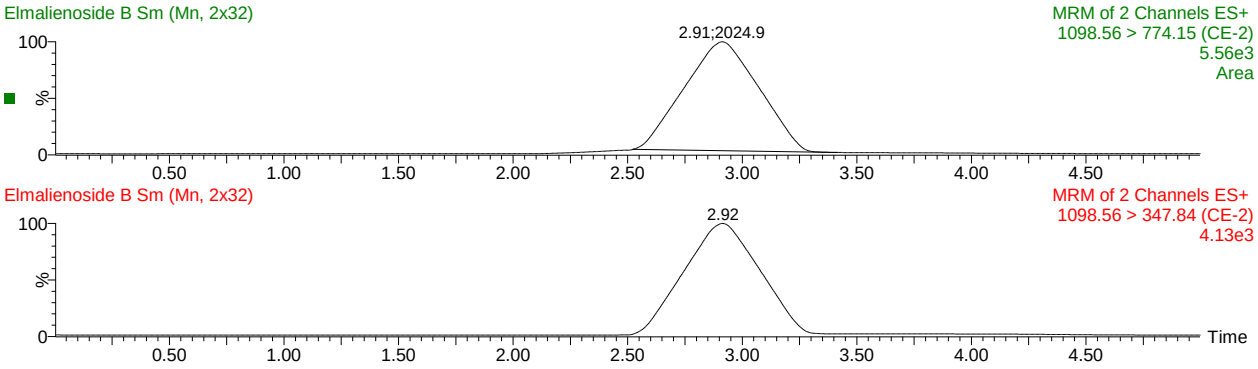
S 69: Chromatograms of Elmalienoside A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



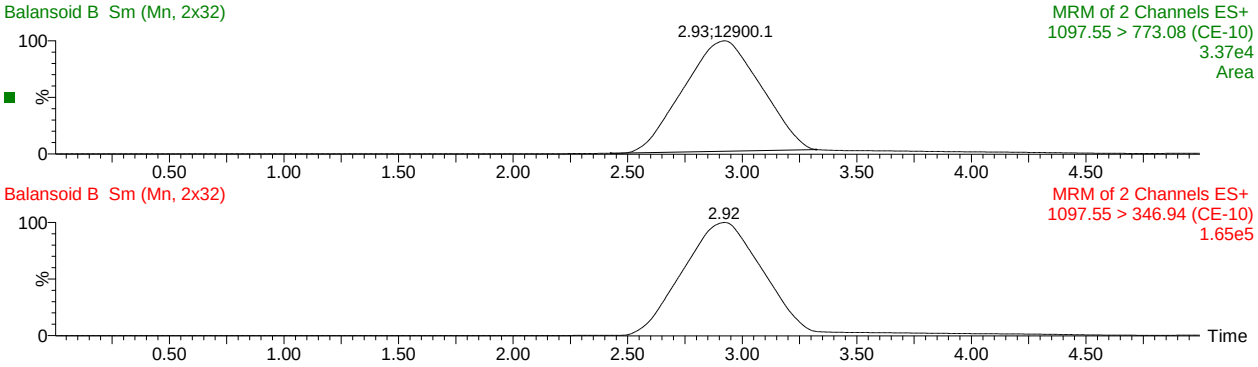
S 70: Chromatograms of Balansoid D compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



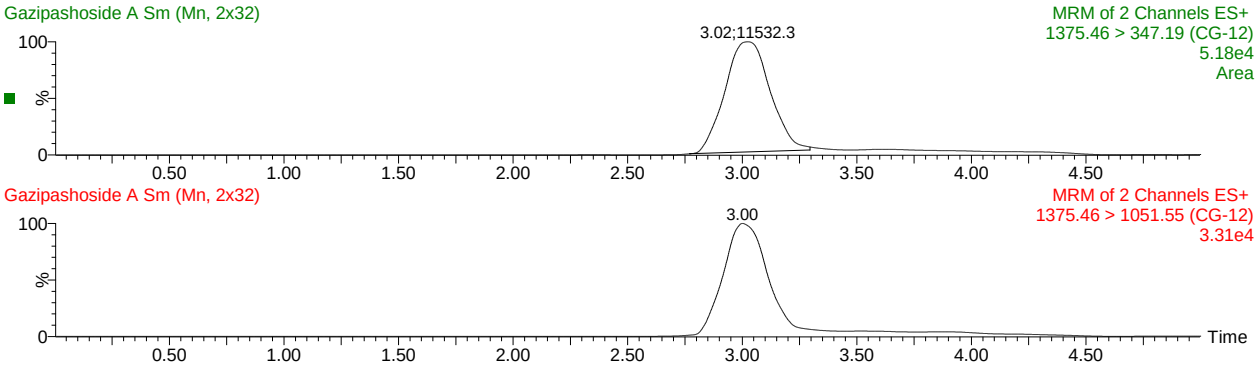
S 71: Chromatograms of Dipsacoside B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



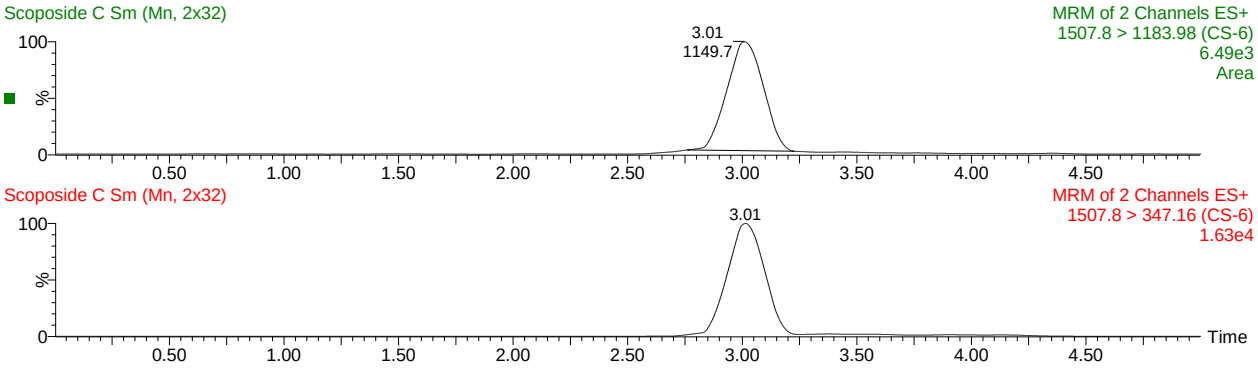
S 72: Chromatograms of Elmalienoside B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



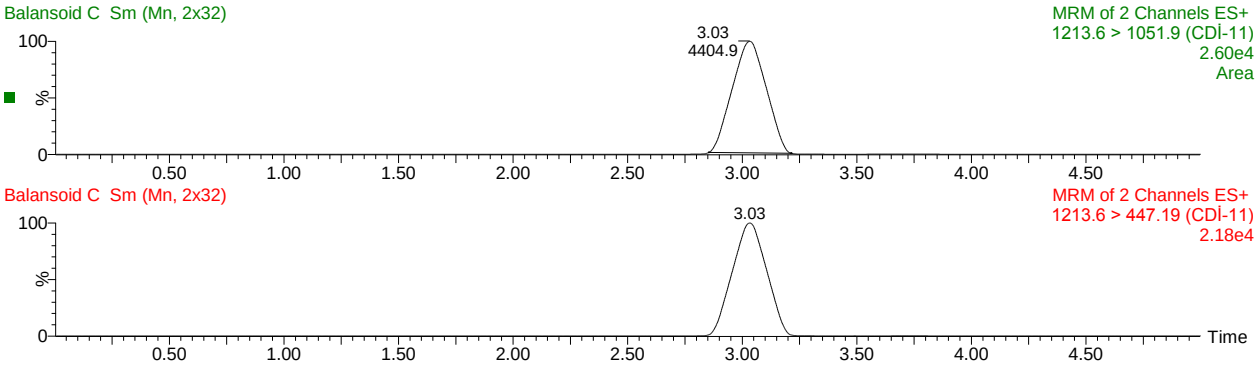
S 73: Chromatograms of Balansoid B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



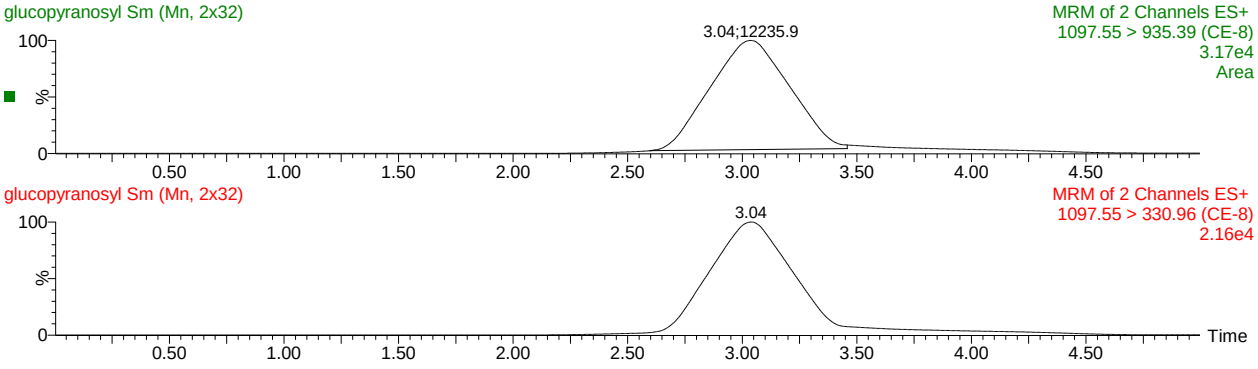
S 74: Chromatograms of Gazipashoside A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



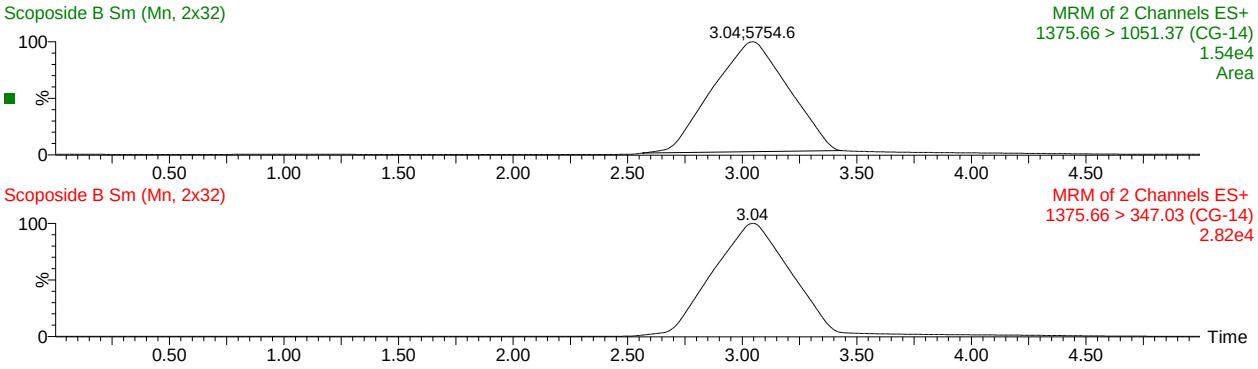
S 75: Chromatograms of Scoposide C compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



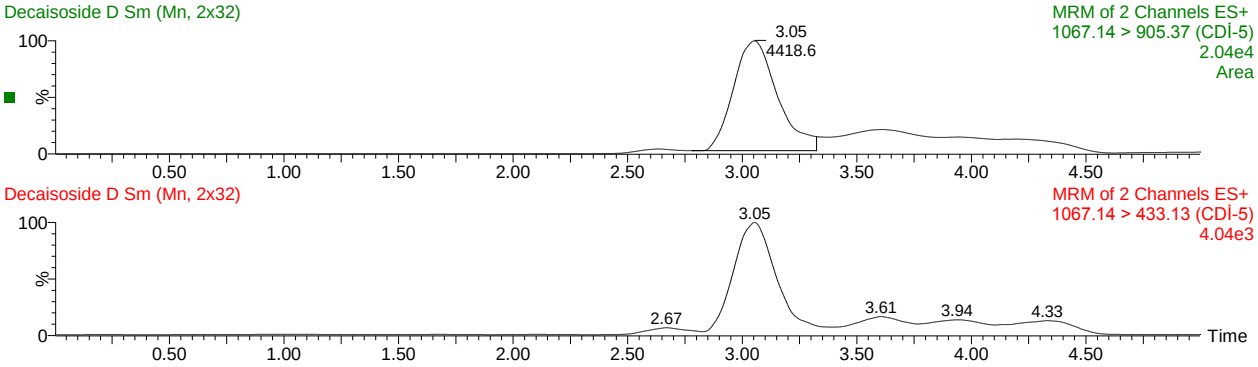
S 76: Chromatograms of Balansoid C compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



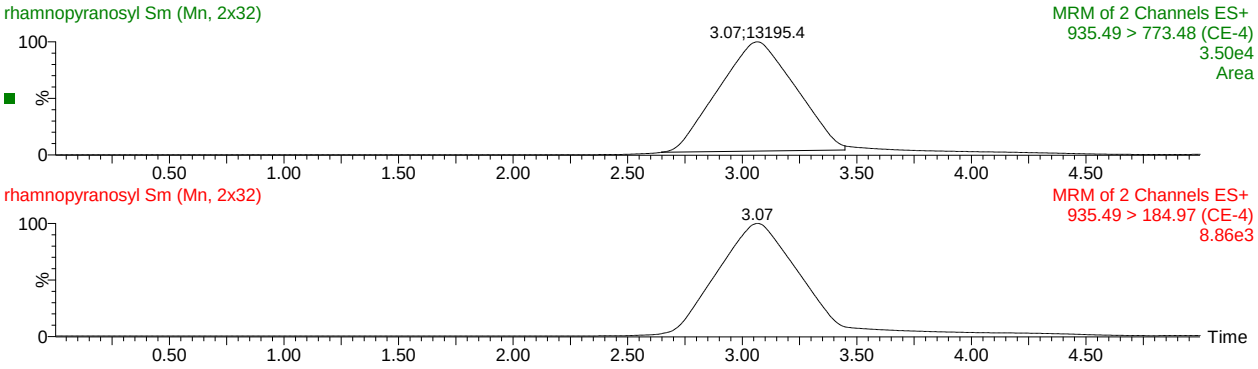
S 77: Chromatograms of - 3-O-β-D-glucopyranosyl-(1→3)-α-L-rhamnopyranosyl-(1→2)-α-L arabinopyranosyl hederagenin 28-O-β-D- glucopyranosyl ester compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



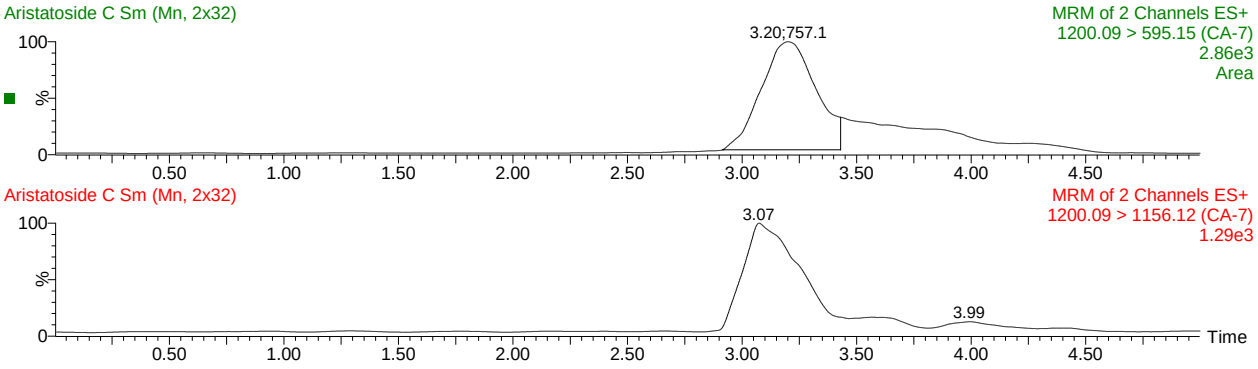
S 78: Chromatograms of Scoposide B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



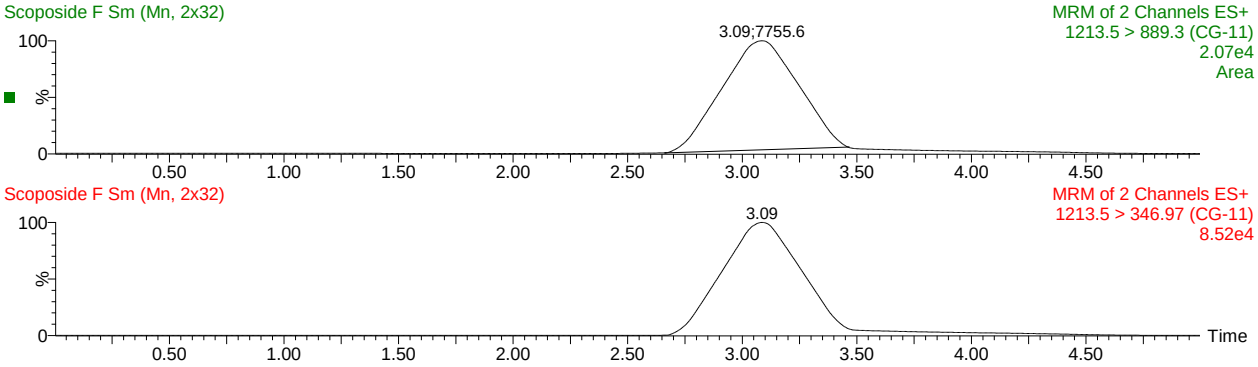
S 79: Chromatograms of Decaisoside D compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



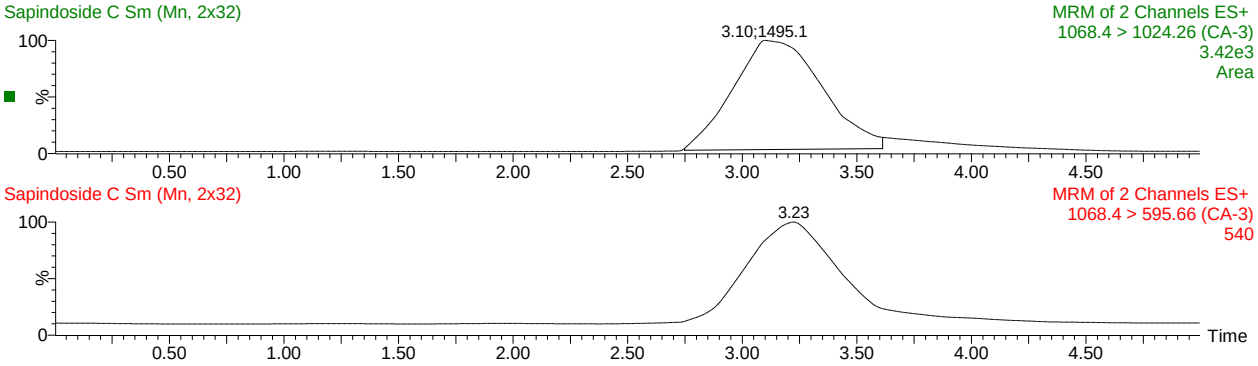
S 80: Chromatograms of 3-O-α-L-rhamnopyranosyl-(1→2)-α-L-arabinopyranosyl hederagenin 28-O-β-D-glucopyranosyl ester compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



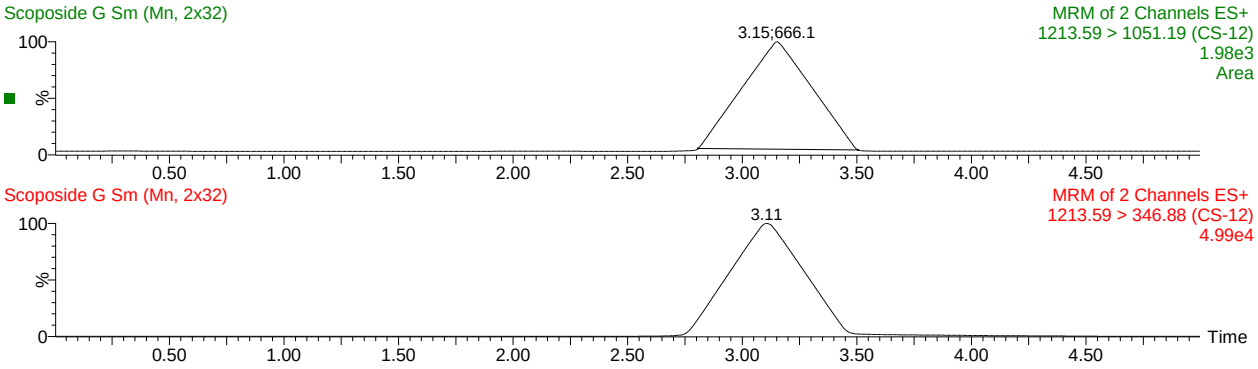
S 81: Chromatograms of Aristatoside C compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



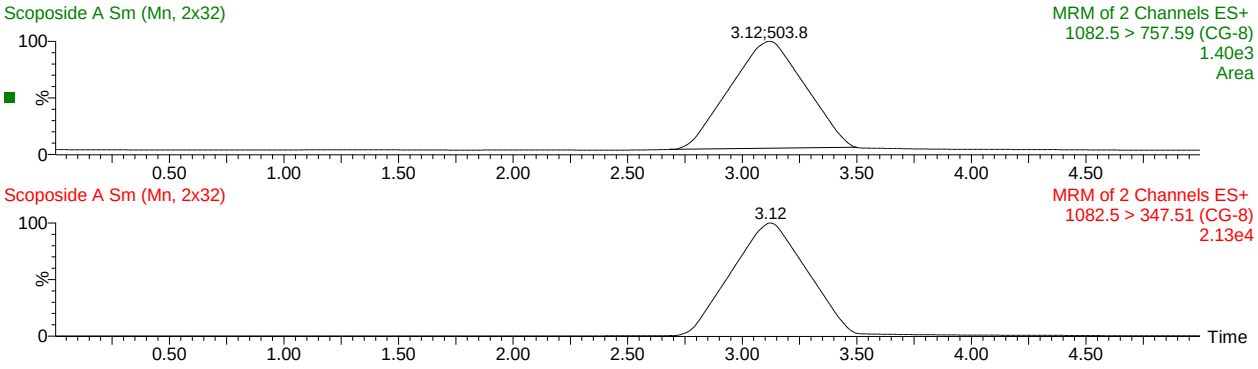
S 82: Chromatograms of Scoposide F compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



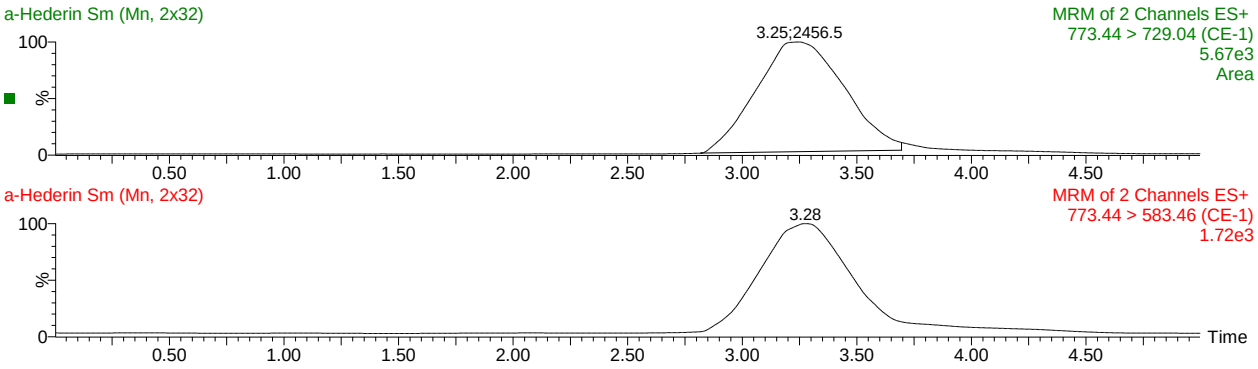
S 83: Chromatograms of Sapindoside C compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



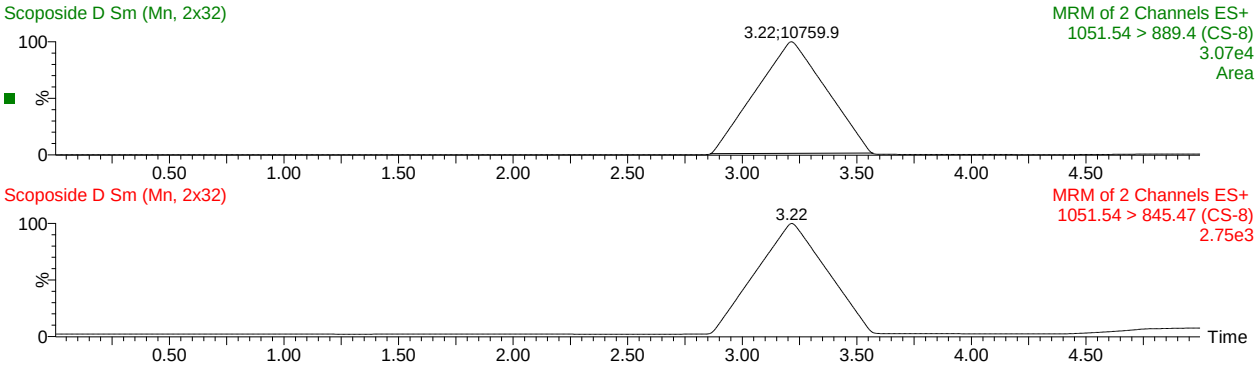
S 84: Chromatograms of Scoposide G compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



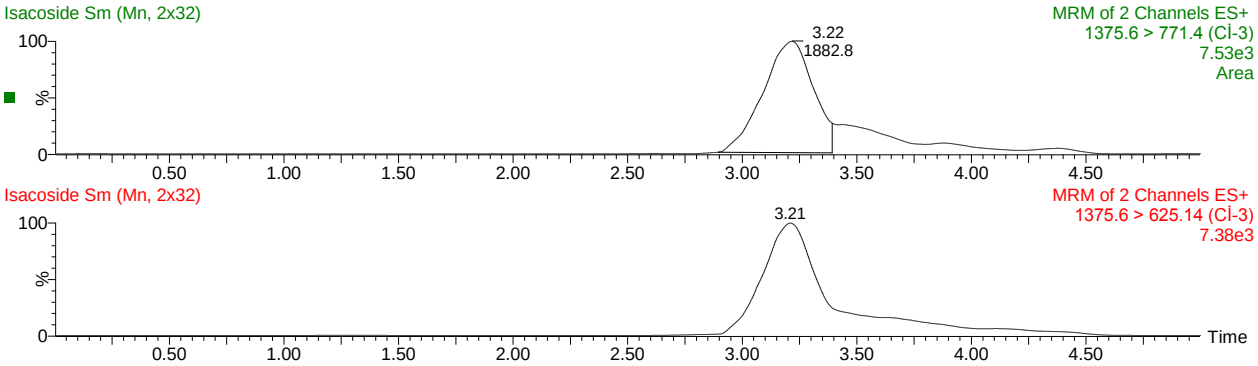
S 85: Chromatograms of Scoposide A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



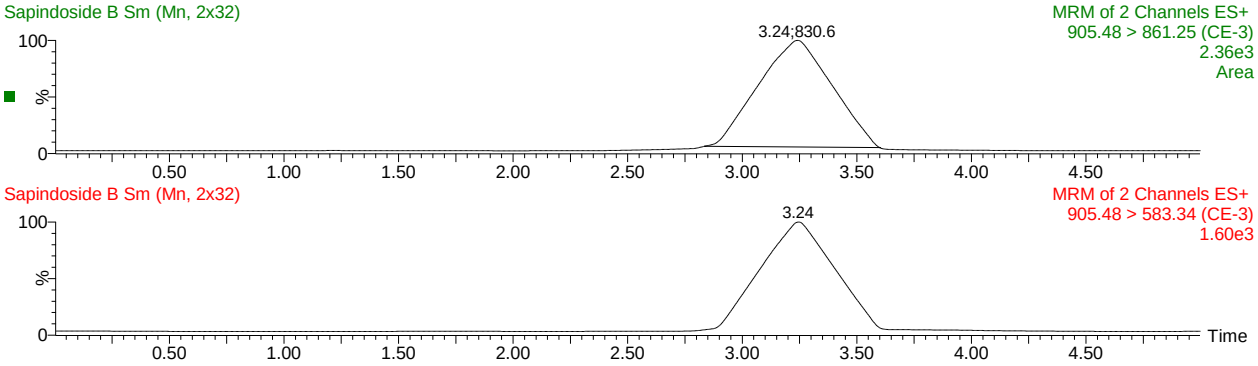
S 86: Chromatograms of α-Hederin compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



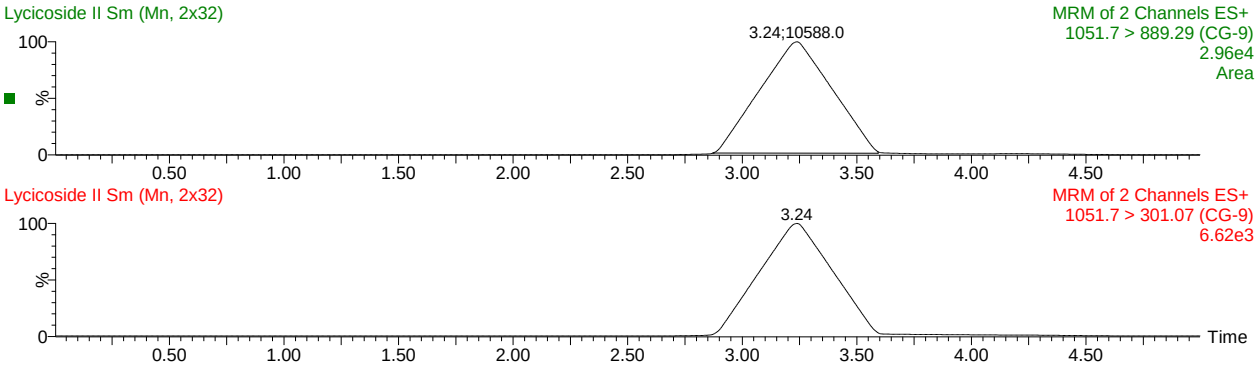
S 87: Chromatograms of Scoposide D compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



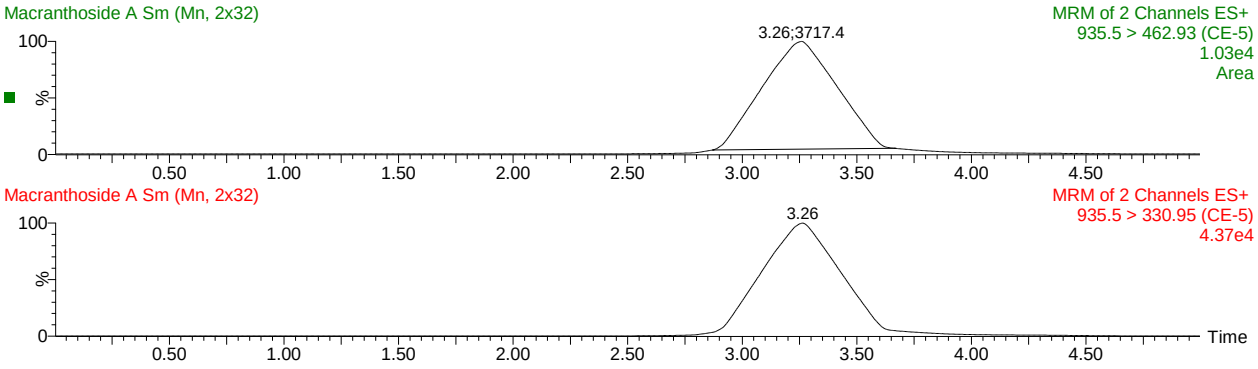
S 88: Chromatograms of Isacoside compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



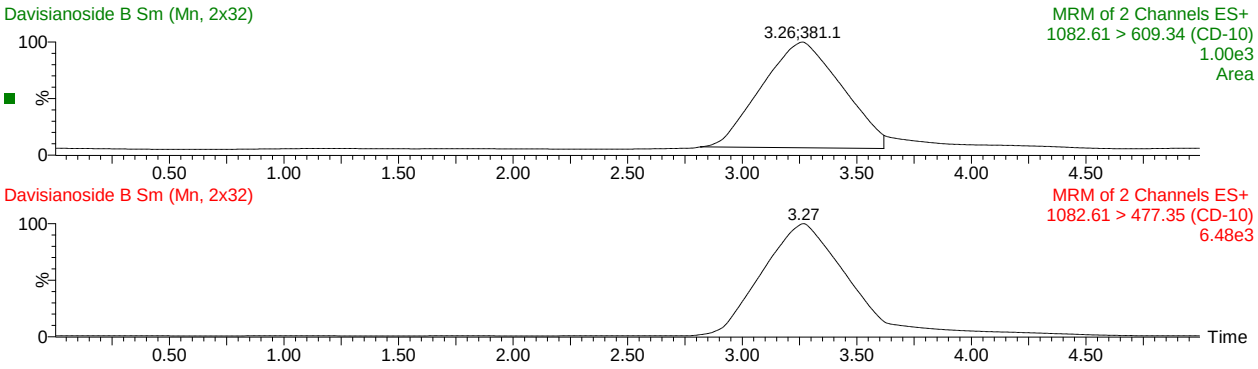
S 89: Chromatograms of Sapindoside B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



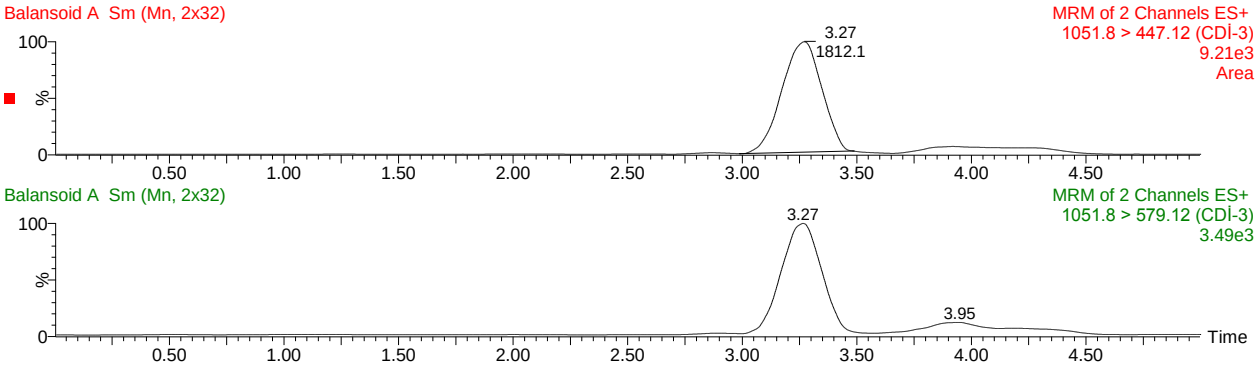
S 90: Chromatograms of Lycicoside II compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



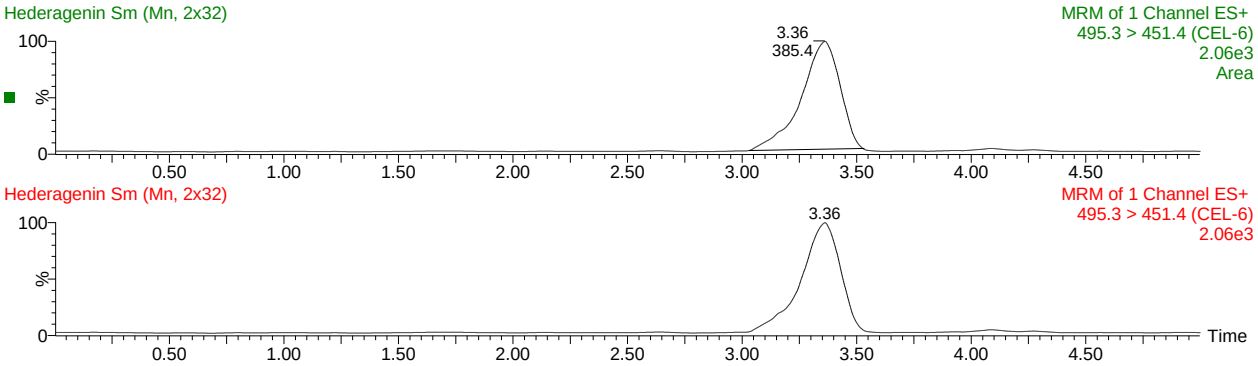
S 91: Chromatograms of Macranthoside A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



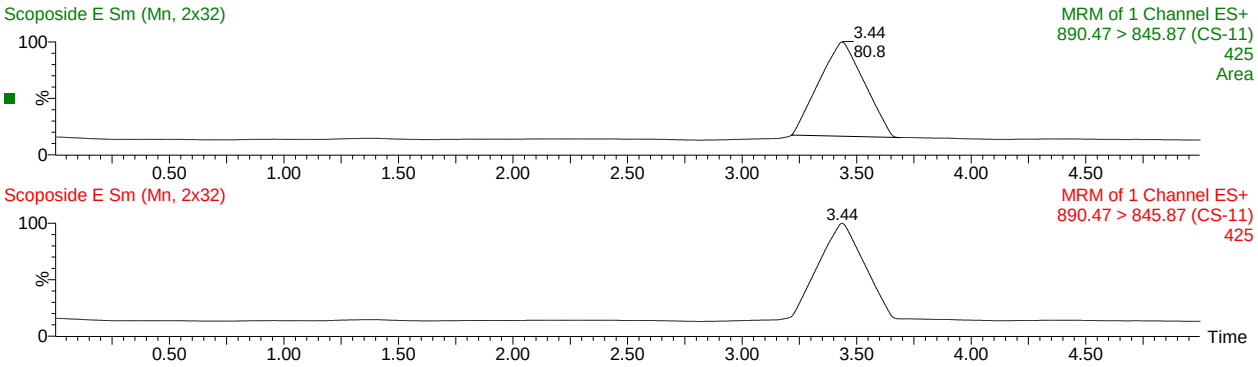
S 92: Chromatograms of Davisianoside B compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



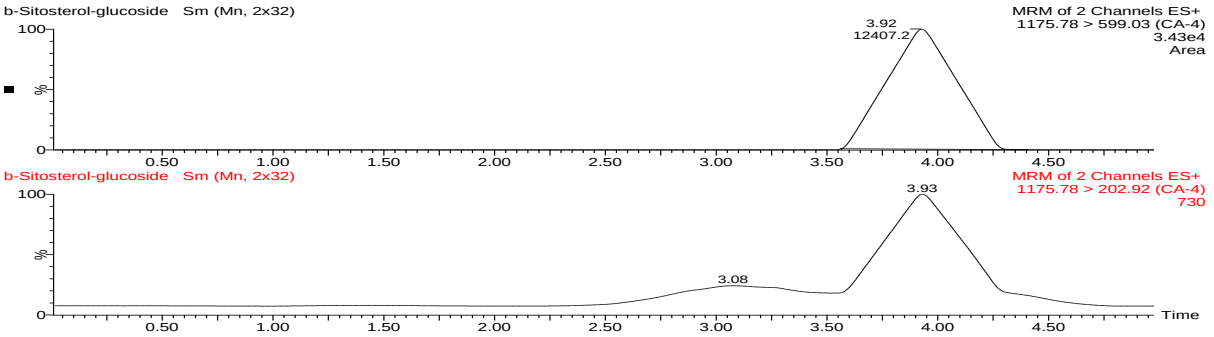
S 93: Chromatograms of Balansoid A compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



S 94: Chromatograms of Hederagenin compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



S 95: Chromatograms of Scoposide E compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).



S 96: Chromatograms of β-Sitosterol glucoside compound obtained by UPLC–ESI-MS-MS in the positive ion mode for standard solution (0.100 mg/L).