Supplementary Information

Table S1 Result of repeatability (monosaccharide components in polysaccharides).

Monosaccharide	Content (%)	RSD (%)
Glu	0.288	1.12
Gal	0.029	2.76
Ara	0.029	0.58
Total	0.345	1.00

Table S2 Result of intermediate precision (monosaccharide components in polysaccharides).

Monosaccharide	Different days			Different analysts		
		Content (%)	RSD (%)		Content (%)	RSD (%)
Glu	1st day	0.286	0.88	1st analyst	0.271	0.25
	2nd day	0.275	0.94	2nd analyst	0.274	0.44
	3rd day	0.272	0.84	3rd analyst	0.272	0.37
	Average	0.278	2.38	Average	0.272	0.53
Gal	1st day	0.030	0.63	1st analyst	0.029	2.42
	2nd day	0.029	0.94	2nd analyst	0.030	1.59
	3rd day	0.028	1.31	3rd analyst	0.029	2.03
	Average	0.029	0.17	Average	0.029	2.44
Ara	1st day	0.014	0.29	1st analyst	0.014	0.65
	2nd day	0.014	0.19	2nd analyst	0.014	1.22
	3rd day	0.014	2.22	3rd analyst	0.015	1.90
	Average	0.014	1.32	Average	0.014	3.14
Total	1st day	0.330	0.73	1st analyst	0.314	0.04
	2nd day	0.318	0.76	2nd analyst	0.318	0.58
	3rd day	0.314	0.83	3rd analyst	0.316	0.41
	Average	0.321	2.26	Average	0.316	0.64

Table S3 Linearity and range (monosaccharide components in polysaccharides).

Monosaccharide	Regression equation	R^2	Linearity range (mg/mL)	LOD (mg/mL)	LOQ (mg/mL)
Glu	$y = 4.163x + 0.0079$	0.9999	0.09375 −1.875	0.008	0.023
Gal	$y = 8.8178x – 0.0047$	1.0000	0.03125−0.625	0.004	0.015
Ara	$y = 13.527x – 0.0026$	1.0000	0.028125−0.5625	0.004	0.014

Table S4 Recovery test of monosaccharides and total content (monosaccharide components in polysaccharides).

Monosaccharide		Recovery (%)	RSD (%)
Glu	Low	98.90	2.19
	medium	100.03	1.68
	High	100.72	2.00
	Average	99.88	1.88
Gal	Low	99.31	0.38
	medium	100.17	2.72
	High	101.15	2.71
	Average	100.21	2.10
Ara	Low	100.18	0.46
	medium	99.51	1.55
	High	98.79	1.41
	Average	99.49	1.23
Total	Low	99.00	1.93
	medium	100.02	1.75
	High	100.67	1.93
	Average	99.89	1.78

Table S5 Stability of sample solution (monosaccharide components in polysaccharides).

Time (h)	Glu (%)	Gal (%)	Ara (%)
0	0.283	0.029	0.028
2	0.276	0.029	0.028
4	0.275	0.029	0.028
6	0.273	0.029	0.028
8	0.275	0.029	0.027
10	0.275	0.029	0.027
12	0.272	0.028	0.027
24	0.276	0.027	0.028
Average	0.276	0.029	0.028
RSD for 24 h (%)	1.24	3.09	2.05
RSD for 8 h (%)	1.39	0.91	2.14

Table S6 Content of Glu, Gal, Ara and total saccharides in 35 batches Alismatis Rhizoma.

	Glu (%)	RSD (%)	Gal (%)	RSD (%)	Ara (%)	RSD (%)	Total (%)	RSD (%)
JY1	0.258	0.22	0.058	0.62	0.046	0.18	0.368	0.27
JY2	0.156	0.63	0.055	0.31	0.035	0.60	0.252	0.50
JY3	0.350	1.29	0.073	2.20	0.045	2.78	0.476	0.48
JY4	0.345	1.01	0.076	2.69	0.053	3.16	0.483	0.42
JY5	0.167	1.91	0.069	2.52	0.032	1.51	0.277	2.02
JY6	0.354	1.63	0.084	2.87	0.057	2.61	0.504	1.64
JS1	0.117	2.38	0.040	1.18	0.031	1.09	0.192	1.35

JS2	0.160	3.09	0.085	2.30	0.038	3.09	0.293	2.70
JS3	0.166	1.26	0.062	1.70	0.049	1.67	0.284	0.63
JS4	0.275	0.94	0.026	0.73	0.014	0.19	0.318	0.76
JS5	0.234	2.54	0.058	3.33	0.041	2.31	0.339	2.12
JS6	0.160	2.39	0.044	1.01	0.036	2.43	0.244	2.03
JS7	0.534	1.41	0.079	2.92	0.048	1.51	0.670	0.87
JS8	0.216	0.63	0.046	1.08	0.049	2.75	0.316	0.99
JS9	0.348	2.59	0.093	3.21	0.055	1.94	0.506	1.88
JS10	0.163		0.062		0.032		0.257	
JS11	0.347		0.091		0.058		0.496	
CY1	0.230	2.44	0.060	1.59	0.057	2.83	0.354	2.07
CY2	0.543	3.21	0.075	2.30	0.044	2.18	0.671	2.48
CY3	0.172	2.45	0.092	2.82	0.087	3.35	0.362	0.52
CY4	0.193	0.33	0.049	0.60	0.034	0.32	0.282	0.21
CY5	0.252	0.20	0.047	0.32	0.030	1.46	0.335	0.08
CY6	0.283	2.45	0.089	1.17	0.089	1.45	0.472	1.90
CY7	0.167		0.069		0.032		0.269	
CS1	0.176	2.28	0.063	2.22	0.043	1.23	0.290	1.96
CS2	0.136	1.23	0.074	2.51	0.047	2.08	0.266	1.67
CS3	0.121	3.00	0.099	2.72	0.044	2.49	0.274	0.27
CS4	0.433	1.60	0.052	1.35	0.037	1.48	0.528	1.57
CS5	0.130	2.57	0.065	0.31	0.036	1.06	0.238	1.22
CS6	0.266	0.16	0.046	0.53	0.028	1.11	0.346	0.14
CS7	0.092	1.22	0.043	2.26	0.026	1.03	0.167	1.10
CS8	0.119	1.06	0.039	2.66	0.022	3.04	0.184	1.28
CS9	0.219	0.84	0.054	2.96	0.044	2.91	0.323	0.53
CS10	0.187	2.52	0.084	2.31	0.059	3.06	0.339	1.16
CS11	0.354	1.63	0.084	2.87	0.057	2.61	0.504	1.64

Table S7 Result of repeatability about the content of 11 triterpenes in sample.

Compd.	Content ($\times10^{-3}$, %)	RSD (%)	Compd.	Content ($\times10^{-3}$, %)	RSD (%)
4	0.90	2.36	15	70.23	3.20
6	5.29	2.63	18	75.90	1.00
7	22.43	2.37	22	25.65	3.03
10	91.97	2.93	26	4.06	2.70
12	1.63	2.71	31	16.17	1.78
14	23.67	2.53	Total	337.91	0.82

Table S8 Result of intermediate precision about the content of 11 triterpenes in sample.

Compd.	Different day			Different analysist		
		Content ($\times10^{-3}$, %)	RSD (%)		Content ($\times10^{-3}$, %)	RSD (%)
4	1st day	0.88	2.60	1st analyst	8.90	1.59
	2nd day	0.87	3.09	2nd analyst	8.73	1.36

	3rd day	0.89	2.25	3rd analyst	8.96	0.30
	Average	0.89	2.61	Average	8.86	1.56
6	1st day	5.26	3.05	1st analyst	5.36	2.38
	2nd day	5.43	1.61	2nd analyst	5.30	2.36
	3rd day	5.32	2.08	3rd analyst	5.37	3.91
	Average	5.34	2.42	Average	5.34	2.64
7	1st day	22.13	2.09	1st analyst	20.70	3.95
	2nd day	22.70	1.59	2nd analyst	22.00	2.98
	3rd day	22.60	2.46	3rd analyst	21.80	0.79
	Average	22.48	2.14	Average	21.50	3.75
10	1st day	90.00	2.42	1st analyst	88.60	0.39
	2nd day	90.20	3.13	2nd analyst	88.90	2.73
	3rd day	91.77	1.81	3rd analyst	90.53	1.72
	Average	90.66	2.36	Average	8934	1.91
12	1st day	1.65	1.60	1st analyst	1.58	1.32
	2nd day	1.58	0.96	2nd analyst	1.67	1.04
	3rd day	1.64	3.37	3rd analyst	1.64	1.61
	Average	1.62	2.70	Average	1.63	2.79
14	1st day	23.33	1.31	1st analyst	23.43	3.20
	2nd day	23.60	1.53	2nd analyst	23.73	1.29
	3rd day	23.70	1.93	3rd analyst	24.00	1.10
	Average	23.54	1.56	Average	23.66	2.07
15	1st day	71.00	0.12	1st analyst	72.17	1.26
	2nd day	70.90	1.66	2nd analyst	72.17	0.92
	3rd day	71.27	0.65	3rd analyst	70.87	3.26
	Average	71.06	0.94	Average	71.73	1.20
18	1st day	75.50	1.38	1st analyst	75.60	2.55
	2nd day	74.07	2.22	2nd analyst	75.00	1.41
	3rd day	75.77	0.81	3rd analyst	75.83	3.19
	Average	75.11	1.72	Average	75.48	2.22
22	1st day	25.23	3.84	1st analyst	26.07	3.12
	2nd day	26.37	1.53	2nd analyst	26.2.0	1.01
	3rd day	26.33	1.71	3rd analyst	25.97	1.24
	Average	25.98	3.08	Average	26.08	1.80
26	1st day	4.10	2.20	1st analyst	4.02	1.66
	2nd day	3.90	3.25	2nd analyst	4.18	1.10
	3rd day	4.17	1.55	3rd analyst	4.01	1.95
	Average	4.04	3.45	Average	4.07	2.47
31	1st day	15.87	2.03	1st analyst	15.97	1.91

	2nd day	16.23	0.94	2nd analyst	15.90	2.52
	3rd day	16.03	0.5	3rd analyst	15.97	1.91
	Average	16.04	1.56	Average	15.94	1.86
Total	1st day	334.96	0.14	1st analyst	334.17	0.29
	2nd day	335.87	1.47	2nd analyst	335.92	0.78
	3rd day	339.45	0.52	3rd analyst	336.88	1.11
	Average	336.76	0.99	Average	335.66	0.78

Table S9 Recovery test of 11 triterpenes with three levels.

Compd.		Recovery (%)	RSD (%)			Recovery (%)	RSD (%)
4	Low	98.83	1.08	14	Low	100.08	1.46
	Medium	98.19	1.43		Medium	101.27	1.99
	High	97.90	1.05		High	103.78	2.37
	Average	98.31	1.12		Average	101.71	2.35
7	Low	100.58	1.10	15	Low	100.08	2.85
	Medium	101.02	0.95		Medium	98.61	0.43
	High	99.87	1.30		High	99.21	1.72
	Average	100.49	1.10		Average	99.30	1.81
26	Low	100.18	0.46	18	Low	100.99	1.98
	Medium	99.51	1.55		Medium	99.96	0.76
	High	98.79	1.41		High	100.45	1.87
	Average	99.49	1.23		Average	100.46	1.48
6	Low	99.49	2.07	10	Low	101.65	1.25
	Medium	100.70	3.04		Medium	102.22	0.93
	High	99.78	2.60		High	99.39	1.19
	Average	99.99	2.32		Average	101.08	1.61
31	Low	100.57	0.79	22	Low	100.40	0.55
	Medium	101.03	0.31		Medium	101.48	1.08
	High	101.30	0.88		High	101.77	0.89
	Average	100.97	0.69		Average	100.54	0.97
12	Low	101.01	0.15	Total	Low	100.81	0.71
	Medium	101.62	0.51		Medium	100.49	0.27
	High	100.63	1.80		High	100.24	0.37
	Average	101.09	1.28		Average	100.51	0.49

Table S10 Stability of 11 triterpenes in sample solution.

	Content ($\times10^{-3}$, %)										
Time (h)	**4**	**7**	**26**	**6**	**31**	**12**	**14**	**15**	**18**	**10**	**22**
0	0.91	2.27	4.12	5.04	15.90	1.65	23.90	71.10	75.40	87.10	26.70
2	0.90	2.23	4.13	5.54	16.30	1.74	23.80	71.30	75.10	94.30	25.70

4	0.89	2.19	4.25	5.42	15.80	1.70	23.60	71.30	74.90	91.60	26.40
6	0.89	2.20	4.33	5.28	16.50	1.69	23.90	72.40	71.00	86.90	26.20
8	0.89	2.25	4.36	5.55	15.60	1.73	23.60	71.30	75.20	88.00	25.70
12	0.90	2.22	4.08	5.32	16.50	1.78	23.90	71.40	76.90	88.70	27.00
24	0.86	2.33	4.17	5.32	15.70	1.81	24.00	72.50	77.40	94.30	25.00
Average	0.89	2.24	4.21	5.35	16.04	1.73	23.81	71.61	75.13	90.13	26.10
RSD for 24h	1.84	2.13	2.59	3.27	2.38	3.16	0.66	0.81	2.74	3.60	2.62

Table S11 Linearity and range for the determination of 11 triterpenes.

Compd.	Regression equation	*R*	Linearity range (ng/mL)	LOD (ng/mL)	LOQ (ng/mL)
4	*Y*=9.63e+003*x*+3.8	0.9993	0.4–32	0.11	0.38
7	*Y*=4.32e+003*x*–1.56e+003	0.9998	16–640	0.09	0.30
26	*Y*=1.78e+004*x*–582	0.9999	2–160	0.03	0.10
6	*Y*=127*x*–130	0.9996	10–300	3.34	10.00
31	*Y*=8.17e+003*x*+1.9e+003	0.9997	10–400	0.06	0.20
12	*Y*=1.16e+004*x*–805	0.9998	1.2–48	0.18	0.60
14	*Y*=229*x*+2.86e+003	0.9953	20–800	6.06	20.00
15	*Y*=82.5*x*–5.26	0.9971	30–2400	9.09	30.00
18	*Y*=84*x*+520	0.9999	60–2400	4.55	15.00
10	*Y*=3.74e+003*x*–6.07e+003	0.9997	60–2400	0.05	0.15
22	*Y*=48.1*x*–8.89	0.9967	21–420	4.55	15.00

Table S12 Content of 11 triterpenes in 35 batches Alismatis Rhizoma ($\times 10^{-3}$, %).

4	RSD (%)	**7**	RSD (%)	**26**	RSD (%)	**6**	RSD (%)	**31**	RSD (%)	**12**	RSD (%)	**14**	RSD (%)	**15**	RSD (%)	**18**	RSD (%)	**10**	RSD (%)	**22**	RSD (%)	Total
1.20	2.09	29.20	1.78	7.10	1.23	7.76	2.31	29.83	2.38	1.43	2.52	17.87	2.76	14.90	2.42	40.10	0.90	78.43	0.82	23.70	2.11	251.53
0.04	1.97	–	–	–	–	–	–	–	–	–	–	–	–	18.23	3.65	116.00	3.11	–	–	–	–	134.2
0.52	1.43	24.93	1.98	6.52	0.83	4.87	3.60	22.43	1.12	1.43	0.81	15.10	1.75	–	–	21.10	1.42	70.77	2.19	8.86	1.81	179.11
1.17	0.85	28.60	2.07	7.39	0.35	7.84	0.73	31.83	1.79	1.52	1.32	17.73	2.60	5.51	2.47	33.20	2.68	76.33	1.90	18.73	0.82	229.86
0.48	2.75	6.50	3.02	0.92	0.85	2.41	2.40	2.17	1.87	0.52	1.72	14.47	2.62	141.33	1.08	119.00	0.84	39.57	1.30	16.13	3.12	343.50
0.63	1.76	10.20	1.61	1.64	0.98	3.37	1.69	3.49	2.51	0.46	2.82	10.37	2.01	83.47	1.63	95.90	2.01	39.63	2.34	17.57	3.14	266.73
0.05	3.06	–	–	–	–	–	–	–	–	–	–	–	–	17.30	2.52	116.67	3.25	–	–	–	–	134.0
0.56	1.30	14.77	0.97	5.06	1.41	3.39	2.24	14.70	1.80	0.78	1.40	9.40	2.81	8.97	2.23	25.63	3.52	48.30	2.18	10.67	3.79	142.23
0.95	0.52	14.47	0.73	3.17	1.44	4.82	0.60	7.97	2.17	0.77	1.23	12.10	0.83	50.40	1.39	68.93	1.97	53.73	3.54	24.07	2.05	241.37
0.60	1.26	16.73	1.69	3.81	1.24	2.62	3.91	8.20	1.46	1.16	2.18	21.70	3.32	48.50	2.70	49.43	2.93	82.10	1.24	13.07	0.88	247.92
0.52	1.27	11.60	1.45	3.92	1.72	2.86	2.83	7.77	3.05	0.87	1.16	17.60	3.16	84.60	2.57	63.93	2.67	59.77	3.04	13.33	0.43	266.77
0.45	2.72	3.46	0.83	0.48	0.87	1.90	2.29	1.47	2.18	0.20	2.44	6.07	3.51	170.00	0.59	96.87	2.19	24.20	0.41	13.90	1.44	319.01
0.90	2.66	20.53	2.15	7.95	0.74	6.66	1.43	23.10	1.50	1.09	1.40	16.30	1.06	30.10	2.51	42.03	0.14	68.13	2.12	22.03	2.14	238.83
0.49	2.08	33.63	1.50	6.35	0.34	4.65	1.24	12.87	0.90	2.49	0.40	34.90	1.99	20.30	1.78	65.07	2.77	141.00	1.88	14.40	1.84	336.15
1.01	1.78	26.73	2.10	7.93	1.73	7.39	2.39	26.20	1.01	1.70	2.70	17.67	1.73	7.88	3.05	37.97	3.00	82.90	0.84	17.00	2.35	234.37
0.47	3.64	8.94	1.01	2.07	0.30	2.22	3.52	4.11	2.49	0.77	0.99	19.10	1.89	106.67	0.54	94.37	2.59	59.90	3.41	12.27	2.86	310.88
0.59	1.84	21.63	1.92	5.77	0.27	4.35	2.87	15.13	1.01	1.52	2.65	15.90	2.27	13.20	2.00	42.73	0.68	59.93	1.62	12.67	2.28	193.43
0.47	2.72	20.13	1.60	7.54	1.60	4.21	1.66	17.63	0.28	1.30	0.77	14.57	3.24	8.79	0.01	21.93	1.47	59.10	0.45	6.93	3.33	162.61
0.71	1.52	11.93	2.40	1.68	1.94	3.52	2.22	4.20	1.20	0.79	0.26	14.90	0.01	106.00	2.83	100.40	2.42	58.03	2.33	18.47	3.08	320.63
0.90	2.03	22.43	1.35	4.06	1.26	5.29	2.07	16.17	0.76	1.63	1.60	23.67	2.68	70.23	1.76	75.90	1.64	91.97	2.12	25.65	1.36	337.90
0.78	2.39	9.23	0.48	1.21	1.72	3.36	0.91	3.64	1.14	0.48	1.67	11.70	1.71	92.30	0.99	95.10	0.48	43.17	1.17	22.40	3.65	283.37
0.49	2.79	29.40	0.56	9.21	0.34	3.07	2.47	15.43	2.70	1.91	1.32	44.87	1.05	24.27	1.32	40.70	0.43	132.67	1.74	11.63	1.99	313.65
0.49	1.82	19.87	1.45	7.86	1.05	3.19	0.94	20.13	0.76	1.46	1.97	33.13	1.14	17.83	2.59	58.33	1.73	111.00	2.38	5.69	2.04	279.00
0.58	2.81	10.47	2.51	1.74	0.55	3.38	2.71	3.51	1.03	0.51	2.14	11.80	1.47	86.83	1.27	98.23	2.44	45.37	1.43	16.10	1.64	278.52
0.30	1.34	17.50	0.76	6.06	0.01	2.03	1.58	8.98	1.22	1.09	0.92	19.47	2.08	11.57	2.78	25.07	1.66	97.53	3.52	6.32	1.82	195.92
0.83	0.46	7.99	2.79	1.10	1.63	3.78	2.79	2.72	1.33	0.33	0.18	6.73	2.50	134.33	1.55	85.73	0.70	36.03	1.70	24.37	2.02	303.94
0.79	2.71	6.79	2.24	0.92	1.85	3.37	2.52	2.21	3.26	0.36	2.93	7.15	1.96	93.40	1.23	102.00	2.59	30.23	2.67	23.60	1.69	270.82
0.74	2.30	20.33	0.42	4.93	1.24	4.56	1.97	15.00	2.31	1.17	1.97	15.37	3.58	50.90	2.13	42.47	3.54	64.40	1.34	17.83	1.97	237.70
0.31	1.99	19.67	1.20	12.77	0.29	3.53	3.03	17.53	3.29	1.39	0.83	22.60	2.03	4.06	1.97	8.83	2.53	91.90	1.28	4.28	2.34	186.85

0.32	0.64	26.10	2.10	11.97	1.67	2.73	3.62	17.57	1.31	1.70	1.48	27.33	2.38	6.19	1.19	19.30	1.04	92.93	1.33	7.98	2.82	214.11
0.44	1.33	3.00	1.99	0.36	0.77	1.70	2.90	1.05	1.65	0.15	1.98	5.44	2.48	163.67	3.14	105.67	1.09	21.47	1.88	14.43	1.60	317.38
0.57	2.46	15.47	0.67	3.47	1.35	2.92	3.16	6.86	1.68	0.90	0.63	17.23	1.21	45.13	4.02	48.47	1.75	71.07	2.89	14.03	1.48	226.12
0.55	1.01	21.10	1.23	6.12	0.95	3.73	3.64	14.23	1.07	1.80	1.29	18.03	2.85	6.33	3.01	36.03	3.47	65.40	3.22	11.87	3.80	185.19
0.58	0.97	25.13	0.44	13.03	2.40	5.19	1.50	31.37	3.01	1.65	2.42	18.97	1.61	4.54	1.14	12.97	0.45	71.93	1.66	8.38	0.50	193.74
0.38	3.10	3.36	1.77	0.40	0.91	1.61	3.19	1.10	1.57	0.25	2.83	6.95	0.55	163.33	1.77	132.00	3.47	20.87	2.26	14.33	1.76	344.58

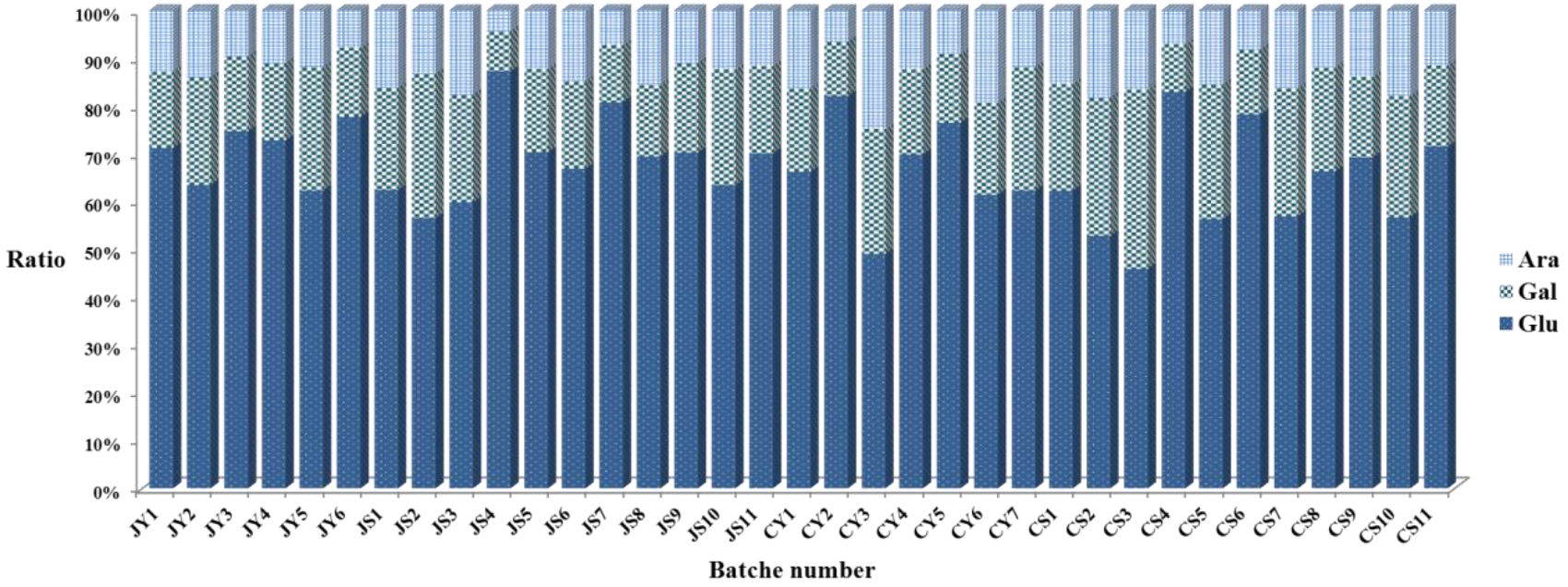


Figure S1 Ratio of each monosaccharide in total content of saccharides in 35 batches.

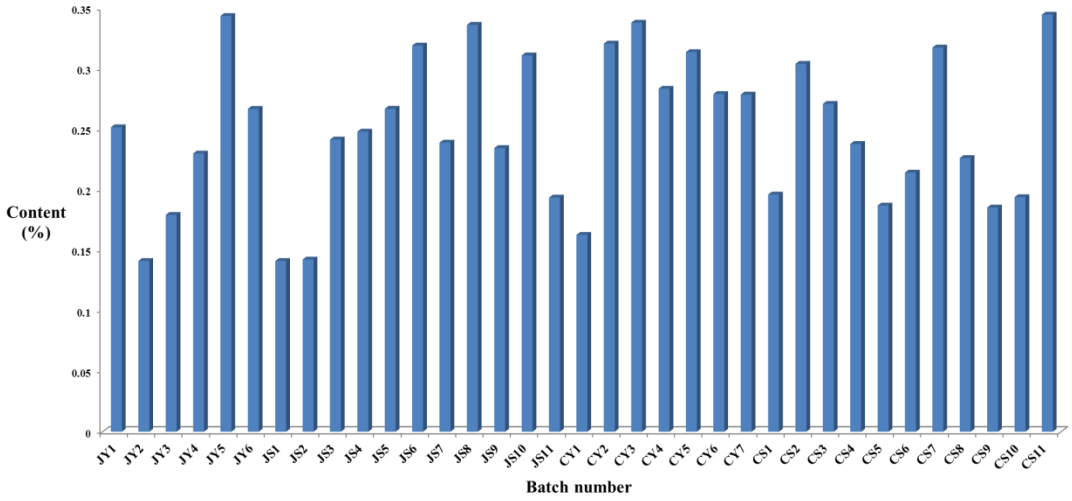


Figure S2 Total content of main triterpenes in 35 batches of Alismatis Rhizoma.

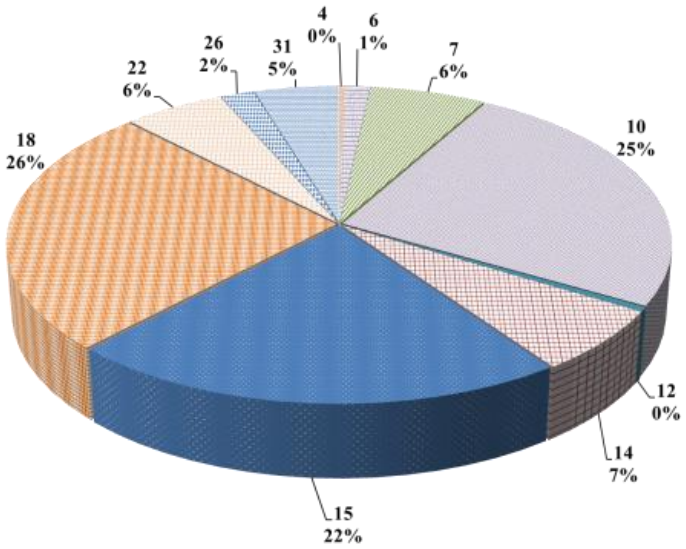


Figure S3 Average ratio of each triterpenes in total content of triterpenes in Alismatis Rhizoma.

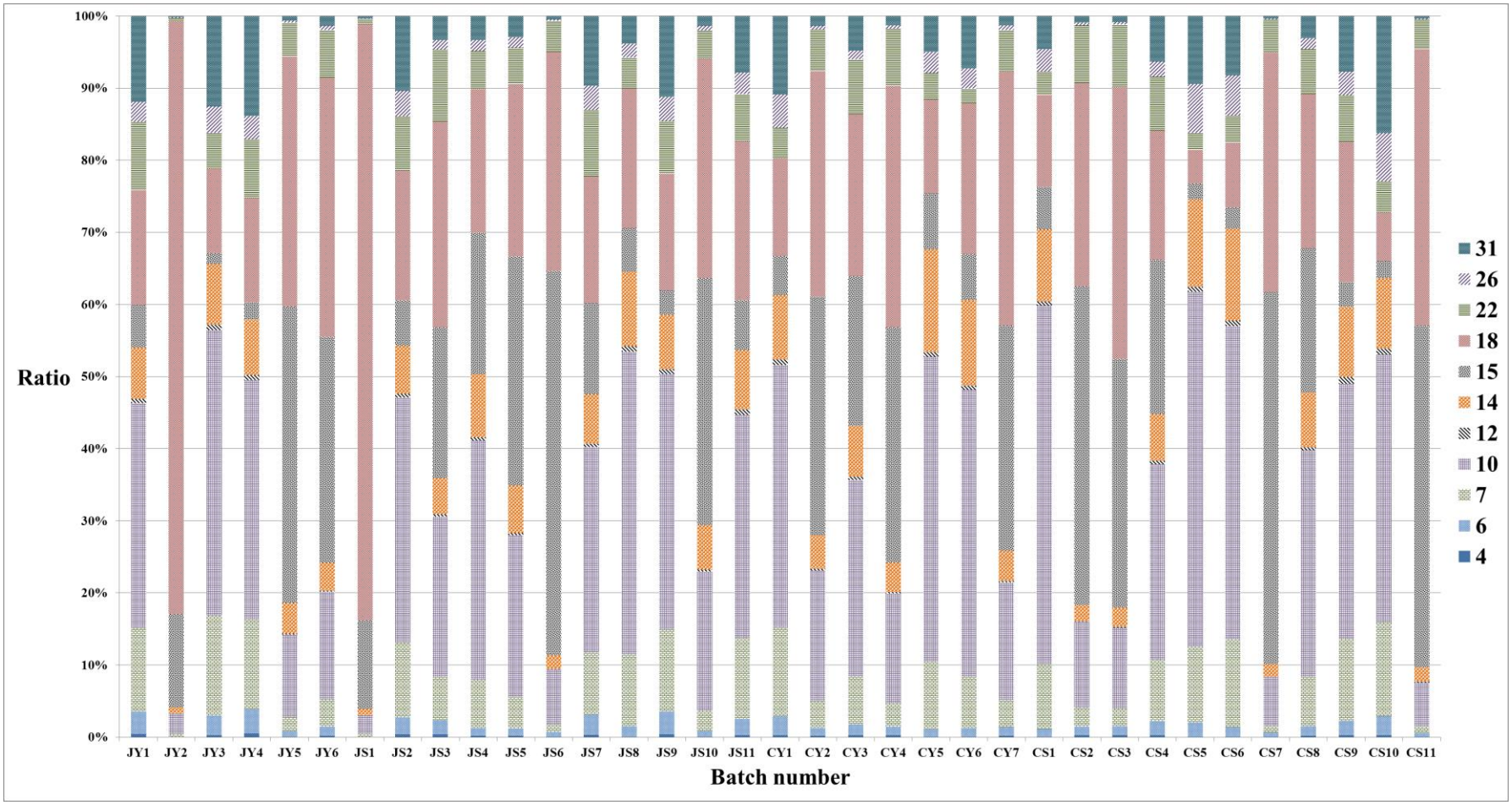
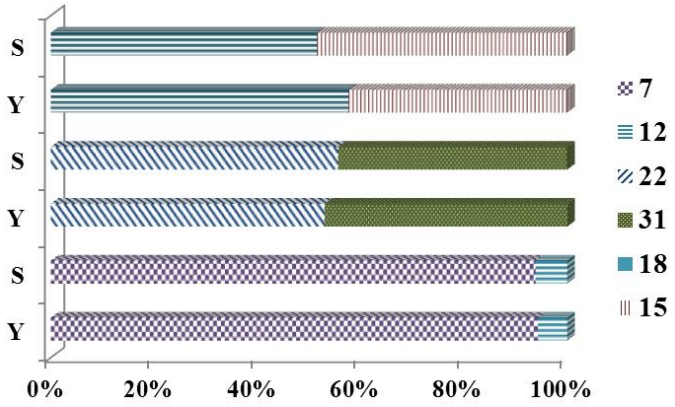


Figure S4 Ratio of each triterpenes in total content of triterpenes in 35 batches of Alismatis Rhizoma.



. **Figure S5** Relative ratios about **12/7**, **31/22** and **15/18** between JY+CY samples and JS+CS samples

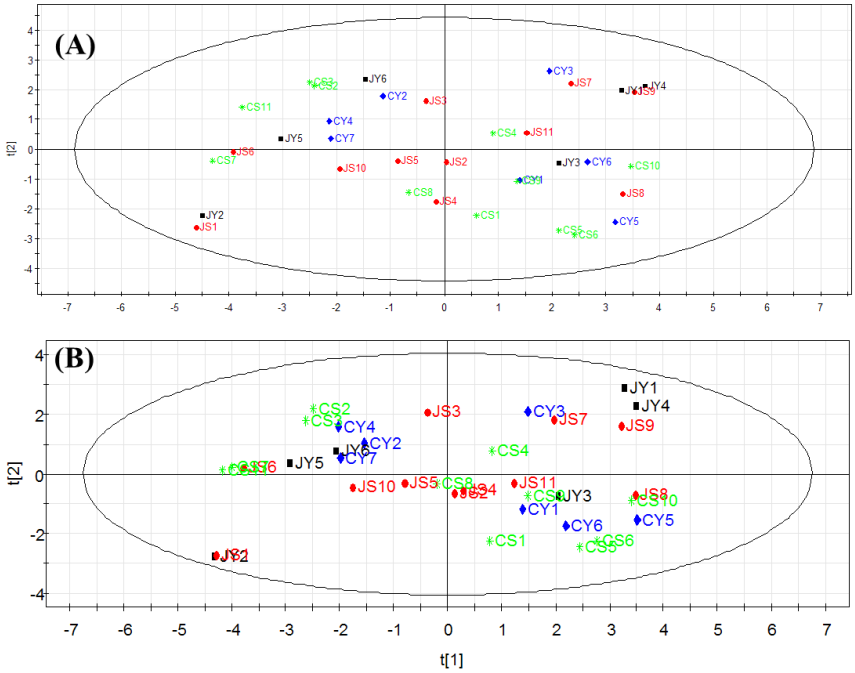


Figure S6 Scatter plot of PCA of 35 batches of Alismatis Rhizoma on the first two principle components. (A) with content of triterpenes and polysaccharides; (B) with the content of triterpenes.