

Table S1. The regression equations, linear range, LODs and LOQs the tested compounds

Metabolites	Range (ng/mL)	Calibration curves	Correlation coefficient (<i>r</i>)	Limit of detection (ng/mL)	Limit of quantitation (ng/mL)
Protocatechuate	0.1-1000	Y= 292.4x + 10111	0.9997	0.045	0.1
Hyperoside	0.1-1000	Y=6290.3x + 2E+06	0.9990	0.045	0.1
Isoraxidin	0.1-1000	Y=250.87x - 44.444	1.0000	0.045	0.1
Oleanolic acid	1-10000	Y=27.767x + 56290	0.9998	0.450	1.0
Eleutheroside B	1-10000	Y= 3241.1x - 9252.4	1.0000	0.450	1.0
Eleutheroside E	1-10000	Y = 502.3x + 30434	0.9997	0.450	1.0
Kaempferol	0.1-1000	Y=3031.7x - 8055.6	0.9999	0.045	0.1

Y indicates the peak area;X indicates the concentration.

Table S2. The intra-day and inter-day precision, accuracy and repeatability analysis of Protocatechuate, Hyperoside, Isofraxidin, Oleanolic acid, Eleutheroside B, Eleutheroside E and Kaempferol at low, medium, and high concentration levels (n=6).

Metabolites	Nominal concentrations (ng/mL)	Intra-day		Inter-day		Repeatability (relative standard deviation %)
		Precision (relative standard deviation %)	Accuracy (relative error %)	Precision (relative standard deviation %)	Accuracy (relative error %)	
Protocatechuate	8	0.82%	-0.45%	0.95%	1.69%	1.46%
	80	1.20%	-1.02%	1.20%	-1.02%	1.15%
	800	0.42%	-0.23%	0.46%	-0.36%	0.58%
Hyperoside	8	0.24%	0.15%	0.47%	-0.08%	0.61%
	80	0.37%	0.24%	0.65%	0.86%	0.32%
	800	1.33%	-0.16%	1.32%	0.73%	0.82%
Isofraxidin	8	0.51%	-1.03%	0.91%	0.37%	1.12%
	80	1.71%	0.95%	1.35%	0.56%	0.78%
	800	0.59%	-0.24%	1.38%	-0.56%	0.98%
Oleanolic acid	80	0.81%	0.33%	1.11%	0.42%	1.42%
	800	0.33%	0.14%	0.21%	-0.08%	0.75%
	8000	1.07%	-0.44%	1.30%	-0.53%	1.92%
Eleutheroside B	80	0.67%	-0.27%	0.50%	0.20%	1.00%
	800	0.14%	0.06%	0.86%	-0.35%	0.77%
	8000	0.60%	0.25%	0.90%	0.37%	0.45%
Eleutheroside E	80	0.74%	-0.40%	0.75%	0.31%	0.37%
	800	0.58%	0.30%	0.98%	0.40%	0.79%
	8000	0.96%	-0.48%	0.58%	0.24%	0.51%
Kaempferol	8	0.61%	0.25%	0.86%	0.35%	0.86%
	80	1.08%	-0.44%	0.54%	-0.22%	0.29%
	800	0.23%	0.00%	0.65%	-0.26%	1.13%

Table S3 The content of seven major bioactive compounds in different parts of ASH and ASS

	(µg/g)	ASH			ASS		
		Root	Stem	Leaf	Root	Stem	Leaf
1	Eleutheroside E	5.1908	3.6508	0.0683	6.0908	1.5408	0.0294
2	Oleanolic acid	8.2408	4.5741	3.0875	2.3741	2.5741	2.5075
3	Kaempferol	0.0069	0.0039	0.0102	0.0102	0.0098	0.0115
4	Isofraxidin	1.2402	2.1402	0.0251	0.0091	0.0196	0.0070
5	Protocatechuate	0.1189	0.3802	2.2516	0.3362	1.8716	3.9516
6	Eleutheroside B	16.4062	7.9395	0.0922	0.1622	0.0677	0.0875
7	Hyperoside	0.0007	0.0050	0.3700	0.0004	0.0040	0.0030

Table S4 The data of 19 phenolic compounds heat map

id	WR	WR	WR	WS	WS	WS	WL	WL	WL	AR	AR	AR	AS	AS	AS	AL	AL	AL
<i>p</i> -Hydroxycinnamic acid		0.489	0.593	0.718	0.473	0.282		0.000	0.000	0.082	0.098	0.080	0.098	0.078	0.095	0.012	0.005	0.003
	1	2	851	083	857	686	0	186	593	479	312	404	003	175	753	603	838	095
Genistein	0.275	0.193	0.152	0.049	0.090	0.119	0.343	0.420	0.229		0.624	0.844	0.532	0.214	0.321	0.652	0.695	0.677
	723	823	284	467	409	275	194	196	634	1	536	395	614	69	994	038	852	862
Apigenin	0.297	0.210	0.157	0.089	0.127	0.155	0.359	0.429	0.254		0.660	0.825	0.505	0.273	0.370	0.672	0.718	0.693
	702	683	941	644	6	193	416	223	936	1	25	846	048	414	79	725	611	515
Syringic acid	0.614		0.583	0.154		0.351	0.002	0.000		0.219	0.273	0.249	0.048	0.044	0.039	0.014	0.011	0.005
	481	1	805	852	0.261	15	382	859	0	295	204	622	206	162	36	386	507	683
Petunidin	0.016	0.014	0.014	0.176	0.224	0.182	0.013	0.022	0.018	0.003		0.054	0.885	0.868	0.908	0.098	0.115	0.126
	037	06	375	779	053	621	654	89	278	504	0	358	108	362	461	07	813	859
Naringenin	0.048	0.203	0.065	0.516	0.743	0.586	0.596	0.470	0.499	0.680	0.774	0.779	0.428	0.218	0.193	0.982	0.895	0.632
	571	501	786	026	233	333	476	991	855	056	532	227	795	165	532	959	67	991
Quercetin-3- <i>O</i> -rhamnoside	0.001	0.007		0.049	0.065	0.053		0.946	0.886	0.009	0.003	0.008	0.085	0.102	0.056	0.071	0.044	0.040
	795	933	0	375	994	567	1	599	501	561	876	913	117	43	629	619	187	658
Chlorogenic acid		0.803	0.781	0.659	0.849	0.817	0.008	0.007	0.007	0.537	0.494	0.510	0.027	0.028	0.026		0.000	0.000
	1	851	116	277	058	315	441	413	182	655	117	119	55	241	529	0	433	628
Salicylic acid	0.033	0.046	0.077		0.000	0.005	0.129	0.130	0.073	0.063	0.085	0.069	0.716	0.606	0.537		0.798	0.765
	783	575	342	0	573	254	069	317	295	376	581	496	635	847	65	1	515	153
Ferulic acid		0.898	0.910	0.456	0.499	0.580	0.001		0.006	0.949	0.810	0.756	0.097	0.130	0.134	0.039	0.015	0.023
	1	987	039	444	98	536	813	0	787	041	463	041	818	091	55	686	201	666
Myricitrin	0.001	0.008	0.009	0.071	0.163	0.061		0.971	0.804	0.004	0.004	0.004	0.031	0.022	0.022	0.003	0.001	
	775	033	517	97	201	593	1	385	506	552	706	826	275	57	378	193	26	0
Luteolin	0.478	0.460	0.527	0.233	0.253	0.217	0.024	0.023	0.014	0.585	0.594	0.478	0.041	0.027	0.024	0.000	0.003	0

	992	349	288	455	562	404	669	374	447	976	537	485	678	936	838	253	774	
Catechin	0.826	0.515	0.588	0.636		0.842	0.010	0.005	0.017	0.833	0.364	0.388	0.007	0.005	0.009	0.001		0.002
	129	64	077	618	1	729	092	313	155	191	406	431	19	078	9	579	0	859
Cinnamic acid	0.236	0.241	0.155	0.144	0.267	0.182	0.050	0.008	0.002		0.824	0.691	0.337	0.349	0.356	0.082	0.007	0.047
	783	952	344	229	003	172	491	624	041	1	412	37	879	625	092	099	904	669
<i>p</i> -Coumaric acid		0.830	0.718	0.786	0.753	0.793	0.002		0.024	0.034	0.013	0.028	0.174	0.109	0.068	0.027	0.009	0.004
	1	964	588	693	815	545	221	0	138	392	523	28	336	818	765	27	485	835
Quercetin		0.852	0.802	0.508	0.480	0.405	0.251	0.168	0.322	0.564	0.751	0.800	0.013	0.127	0.188	0.198	0.089	
	1	725	991	87	412	166	836	391	097	5	38	472	291	82	435	349	93	0
Gallic acid	0.263	0.302	0.259	0.271	0.333	0.145	0.155	0.266	0.254	0.363	0.263	0.449	0.066		0.076	0.086	0.207	0.108
	775	809	855	939	616	612	474	608	762	438	463	07	072	0	532	381	814	289
Caffeic acid		0.699	0.812	0.321	0.272	0.311	0.002	0.002	0.002	0.485	0.385	0.500	0.006	0.013	0.016	0.001		0.001
	1	002	356	191	864	362	187	064	55	48	117	781	706	082	619	104	0	125
Vanillic acid	0.921		0.863	0.043	0.127	0.154	0.016	0.046		0.188	0.285	0.350	0.125	0.039	0.120	0.063	0.111	0.043
	417	1	879	52	98	78	602	921	0	177	733	033	259	179	79	781	537	299