

Table S1 Effects of extraction method, solvent, solvent to sample ratios, and extraction time on the extraction efficiency of investigated

Conditions		Uracil	Phenylalanine	Peak Area	
				Neochlorogenic acid	Hyperoside/Isoquercetin
extraction method	ultrasonic extraction	5.19E+03	2.16E+05	5.79E+07	4.77E+07
	refluxing extraction	2.24E+03	1.94E+05	3.21E+07	3.99 E+07
solvent	water	5.18E+03	2.17E+05	5.8E+07	4.77E+07
	25% methanol	3.0E+03	1.5E+04	5.81E+07	4.77E+07
	25% ethanol	3.6E+03	1.46E+04	5.8E+07	4.56E+07
	50% methanol	1.0E+02	1.01E+03	5.82E+07	4.68E+07
	75% methanol	-	2.6E+02	5.86E+07	4.79E+07
	methanol	-	-	5.75E+07	4.58E+07
	50% ethanol	1.3E+02	1.89E+03	5.81E+07	4.57E+07
	75% ethanol	-	3.9E+03	5.82E+07	4.71E+07
	95% ethanol	-	-	5.6E+07	3.33E+07
solvent to sample ratios (v/w)	12.5:1	2.55E+03	9.4E+04	9.2E+06	2.98E+07
	25:1	2.9E+03	1.96E+05	2.7E+07	3.12E+07
	50:1	4.33E+03	2.05E+05	3.59E+07	4.52 E+07
	100:1	5.18E+03	2.15E+05	5.77E+07	4.75E+07
	200:1	5.2E+03	2.13E+05	5.76E+07	4.73E+07
extraction time	15 min	5.5E+02	8.45E+04	4.81E+06	7.32E+06
	30 min,	7.8E+02	1.19E+05	8.99E+06	9.56E+06
	45 min	5.22E+03	2.14E+05	5.78E+07	4.76E+07
	60 min	5.22E+03	2.12E+05	5.72E+07	4.74E+07

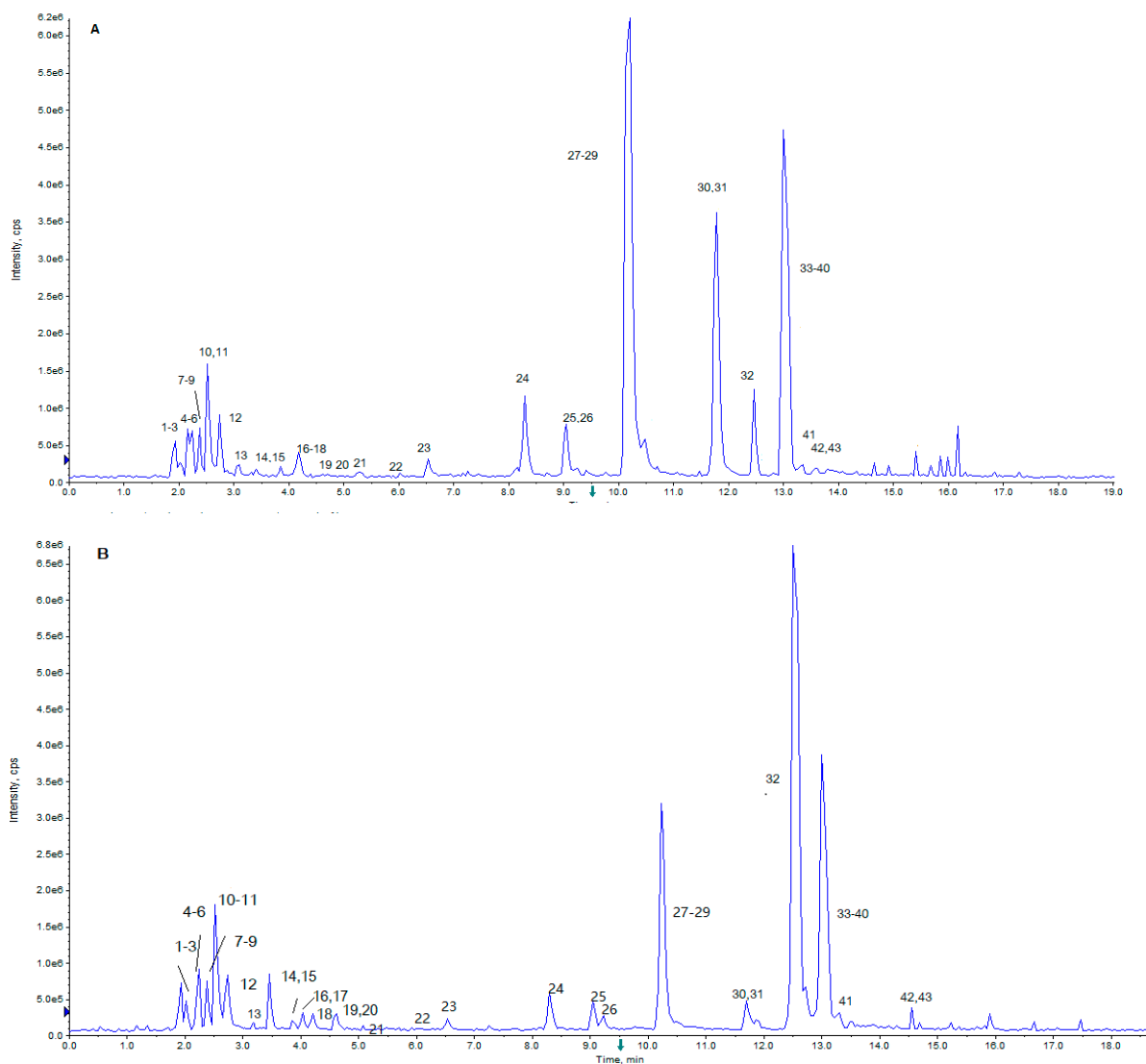
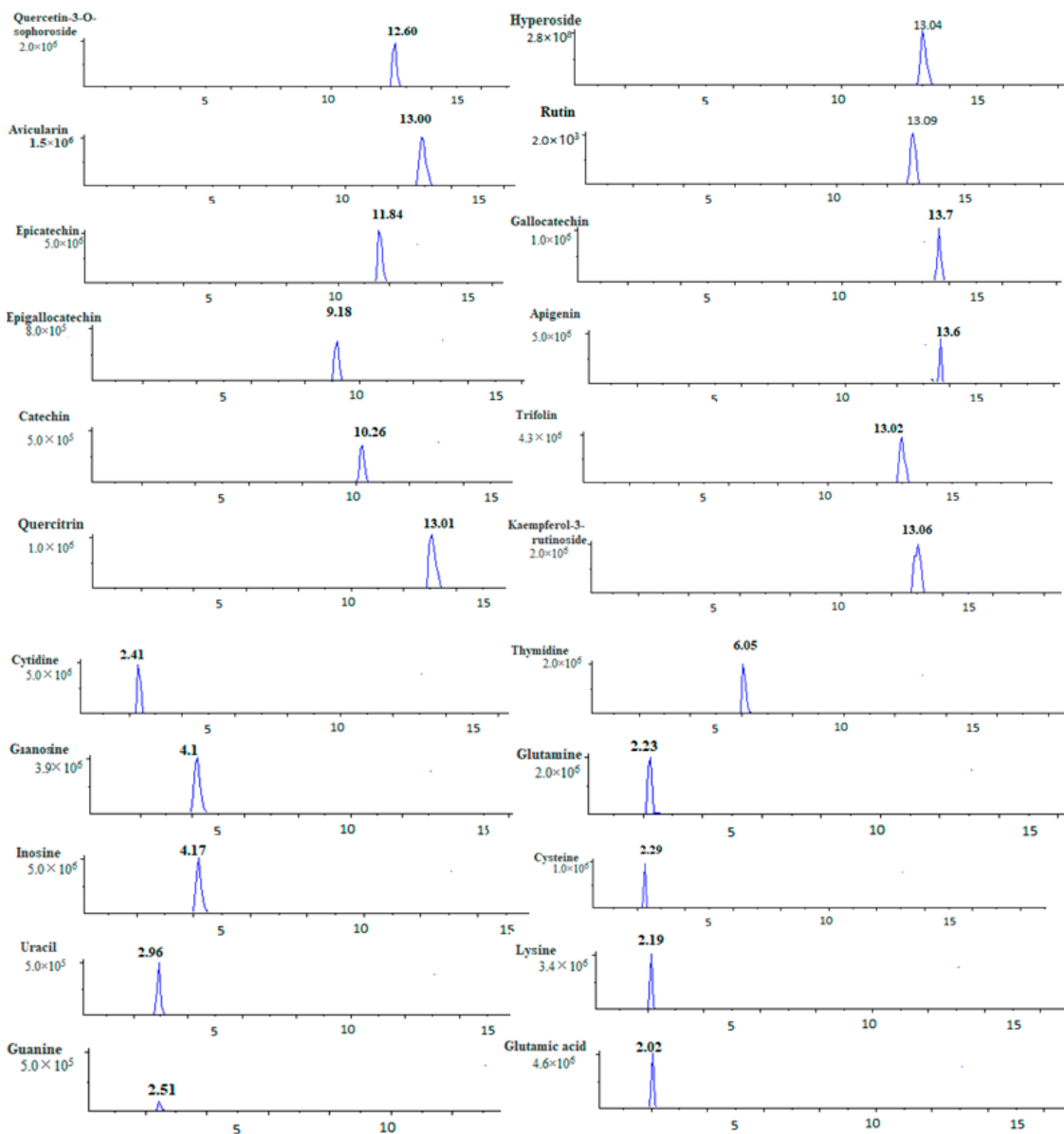


Figure S1 Total ion chromatogram (TIC) of AVF(A) and PHF(B)



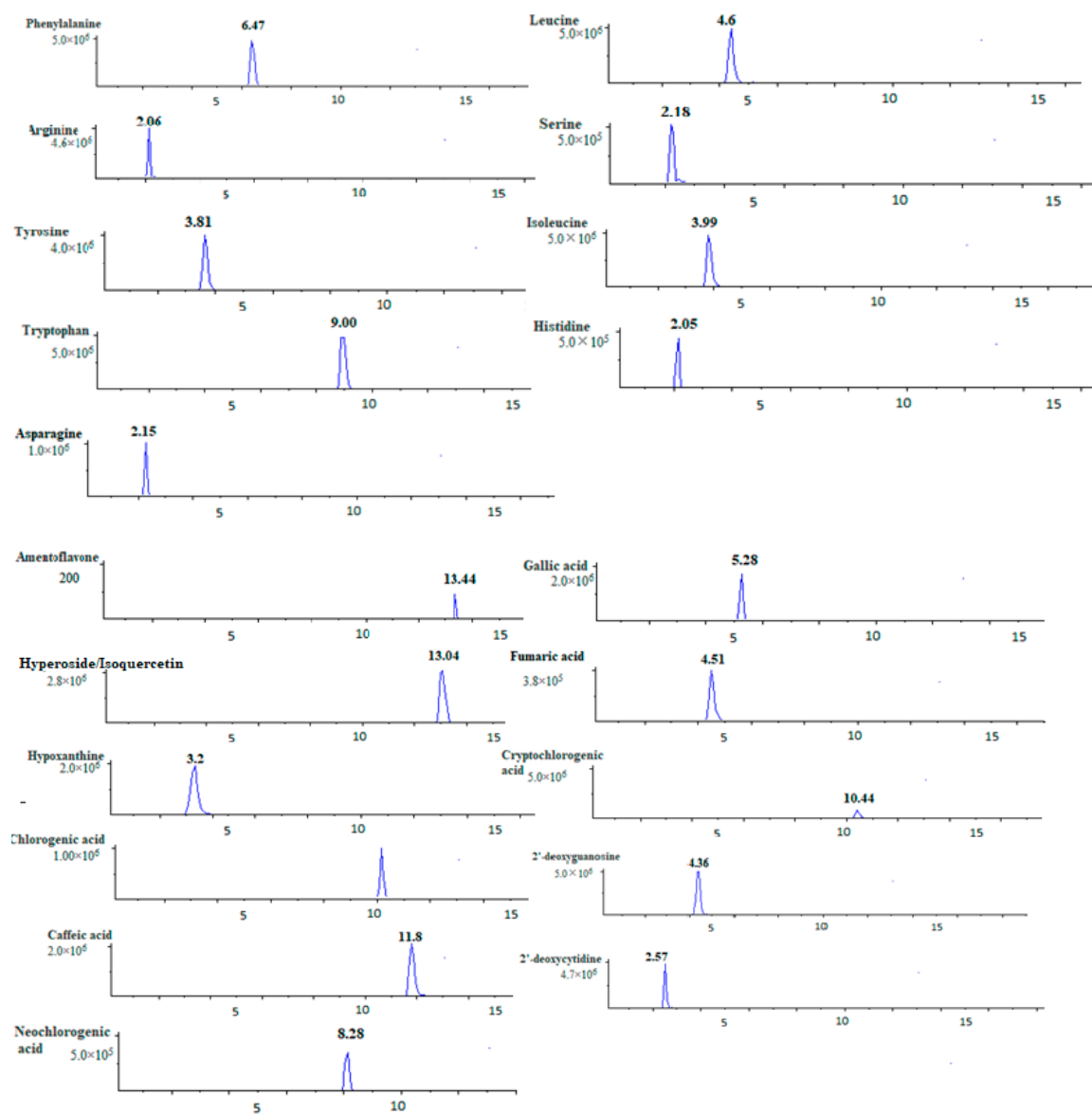


Figure S2 Representative extract ion chromatograms of multiple reaction monitoring (MRM) chromatograms of the 43 investigated compounds.

Table S2 Contents of 43 constituents in samples of AVF and PHF

Sample	Contents($\mu\text{g/g}$, n=3)									
No.	1 ^b	2	3	4	5	6	7	8	9	10
S1 ^a	133.99	28.53	54.51	952.72	49.98	72.35	458.53	29.91	40.86	24.15
S2	118.86	8.38	95.19	568.36	105.54	78.91	383.71	54.75	34.03	28.06
S3	79.61	61.09	54.08	550.77	50.57	118.17	297.42	18.78	18.18	30.74
S4	102.83	24.68	77.25	430.38	78.75	89.79	452.95	20.47	33.96	11.04
S5	72.16	28.41	78.72	812.48	80.24	130.7	323.48	89.32	52.99	27.3
S6	141.82	22.74	99.27	947.12	80.53	67.87	409.24	14.38	46.19	32.62
S7	91.29	39.68	53.94	446.06	57.05	53.94	393.67	38.9	8.61	16.08
S8	109.02	22.5	70.86	446.98	70.37	72.35	385.53	60.46	19.13	2.54
S9	109.24	29.8	56.5	585.58	99.68	62.87	409.63	41.92	53.36	14.2
S10	78.08	28.26	33.55	366.71	34.46	111.32	299.72	51.88	48.36	11.59
S11	74.19	20.88	39.79	345.02	42.53	44	351.12	7.47	45.73	11.43
S12	105.97	27.44	57.48	529.63	80.47	74.44	392.34	43.39	59.98	24.39
S13	84.88	26.39	54.01	704.73	77.78	38.17	321.19	43.66	46.17	17.49
S14	87.66	27.7	52.97	476.78	66.55	99.28	295.83	4.4	35.1	11.38
S15	85.57	17.37	73.2	639.18	78.87	142.27	375.77	31.75	46.44	35.31
S16	90.39	24.84	50.5	671.58	64.63	52.01	427.19	34.44	16.06	7.07
S17	120.16	17.53	44.49	754.72	69.51	196.13	496.52	29.05	21.6	23.44
S18	98.56	34.2	47.9	1000.39	87.23	73.43	350.88	14.24	40.21	14.93
S19	114.2	30.09	67.39	422.33	84.88	65.33	421.3	45.17	46.04	11.88
S20	104.66	27.37	44.12	830.39	55.52	70.76	255.99	25.16	19.41	6.44
S21	114.87	86.39	79.63	497.1	94.6	144.79	356.66	36.2	32.05	13.42
S22	103.55	30.44	76.58	500.87	103.06	67.42	316.9	42.14	33.33	10.79

S23	40.72	26.11	22.76	31.61	33.41	60.02	297.12	5.9	17.76	15.36
S24	48.6	19.74	19.36	39.69	26.18	42.91	309.48	16.95	17.27	9.98
S25	51.68	18.6	29.49	52.33	29.72	66.63	274.46	34.21	28.67	17.35
S26	41.13	28.21	34.45	11.63	20.62	64.9	250.6	27.91	12.08	4.11
S27	42.03	24.16	25	42.87	22.48	59.75	267.3	35.27	21.49	7.23
S28	39.2	15.13	23.92	26.22	32.71	60.81	281.58	9.91	15.74	8.94
S29	19.69	21.02	11.12	15.26	17.5	56.12	164.8	28.37	3.79	6.48
S30	48.12	16.8	47.07	44.09	36.49	51.39	266.6	1.82	29.29	5.8
S31	47.68	26	29.01	39.67	32.76	46.8	330.7	44.61	27.61	8.37
S32	42.33	19.53	23.76	45.22	19.46	52.3	241.21	4.47	19.71	5.44
S33	35.61	8.25	24.96	43.81	16.18	52.16	305.51	1.5	18.2	7.08
S34	46.45	21.3	28.41	59.93	25.9	67.42	366.01	8.13	23.33	15.3
S35	19.52	20	29.79	42.67	15.51	57.43	245.99	18.29	5.08	7.11
S36	27.99	8.33	42.23	84.27	26.93	62.48	251.84	4.99	10.99	6.49
S37	43.18	13.37	32.01	131.06	41.72	43.39	373.33	31.75	28.72	25.01
S38	20.19	12.21	21.94	48.31	34.16	57.89	126	9.54	4.07	4.97
S39	48.46	19.27	25.17	40.96	32.72	63.56	369.91	17.73	19.76	11.57
S40	51.5	21.85	48.54	119.39	40.33	82.54	286.55	30.58	32.91	26.63
S41	37.65	10.97	13.7	38.36	22.79	60.64	245.1	14.81	20.27	40.83

	11	12	13	14	15	16	17	18	19	20	21
S1	1.42	7.59	3.35	120.75	92.9	0.92	10.14	3.89	59.91	66.23	13.33
S2	1.89	8.38	4.46	119.35	78.6	1	60.17	4.35	13.22	138.59	17.68
S3	1.57	5.41	7.91	69.1	56.96	1.13	34.45	4.11	135.79	74.1	16.62
S4	2.25	6.82	3.19	115.37	119.19	1.12	63.7	4.15	16.46	105.34	11.92

S5	1.83	4.57	1.6	103.96	126.42	1.18	70.15	4.1	14.7	114.55	18.65
S6	1.93	3.24	2.5	122.57	93.79	1.16	64.83	4.58	48.62	130.67	15.88
S7	1.33	6.07	5.39	114.63	115.7	0.8	38.07	5.05	32.2	105.81	13.15
S8	1.54	9.91	6.24	107.04	131.09	0.89	56.49	4.52	41.62	108.03	15.38
S9	2.15	15.96	3.45	121.97	91	1.26	42.09	6.6	16.95	104.7	20.06
S10	1.32	9.02	6.9	86.14	58.12	0.78	22.67	3.44	37.36	66.49	10.76
S11	1.26	8.38	4.57	84.86	133.16	0.81	24.85	3.84	30.16	67.58	10.04
S12	2.05	14.99	3.12	109.46	63.73	1.29	62.98	5.55	16.44	103.7	19.14
S13	1.61	6.26	4.04	129.78	98.52	0.69	62.76	3.52	24.53	54.84	19.06
S14	1.25	9.03	3.63	14.65	87.81	0.76	21.16	3.86	14.72	92.42	8.18
S15	1.91	7.99	1.76	106.7	90.59	1.17	63.4	4.26	56.08	134.54	16.95
S16	1.47	12.62	6.82	109.57	86.48	0.79	57.06	4.01	73.52	91.4	28.16
S17	1.53	8.99	3.31	87.39	112.38	0.98	53.13	5.02	46.47	152.43	11.64
S18	1.54	4.27	0.65	70.96	102.99	0.85	44.99	3.67	17.62	119.75	11.86
S19	1.85	6.33	3.24	113.68	57.18	1.18	70.99	4.14	12.92	109.05	11.36
S20	1.31	4.4	8.16	81.56	117.77	0.92	39.95	5.55	36.05	123.33	15.14
S21	1.4	3.73	2.3	114.38	61.51	0.83	43.24	3.48	14.75	143.34	10.46
S22	1.4	4.59	1.51	103.55	106.06	0.77	47.39	2.99	11.98	102.1	10.75
S23	1.37	5	6.8	29.66	23.27	0.73	33.91	1.39	18.91	31.31	10.75
S24	1.45	4.56	1.3	29.02	45.96	0.76	34.17	1.52	16.9	33.79	12.71
S25	1.77	6.61	0.3	7.16	31.56	1.02	54.65	1.61	31.08	45.5	11.34
S26	1.24	4.01	0.72	23.71	40.81	0.69	28.41	1.65	14.48	23.06	11.73
S27	1.38	4.32	1.07	28.72	39.13	0.77	30.61	1.36	21.91	26.68	12.37
S28	1.31	4.48	0.44	24.73	22.94	0.74	27.8	1.2	21.46	29.54	9.97
S29	1.22	4.49	3.04	10	36.25	0.7	12.3	1.07	10.41	9.95	7.6
S30	1.77	5.61	0.8	17.06	45.96	0.94	46.85	1.44	22.05	23.44	9.76

S31	1.5	4.52	3.86	32.71	29.06	0.78	39.26	1.4	14.2	31.87	11.7
S32	1.41	4.39	6.02	10.57	27.41	0.74	23.96	1.11	19.12	26.84	8.42
S33	1.39	5.48	4.64	16.29	8.56	0.76	35.61	1.33	16.71	42.16	11.55
S34	1.49	4.8	1.7	31.52	25.4	0.83	47.04	1.51	25.52	40.56	11.72
S35	1.29	4.17	5.4	24.87	32.28	0.72	29.95	1.14	17.11	3.75	9.76
S36	1.29	6.73	3.54	18.55	14.48	0.7	22.33	1.21	9.44	23.93	9.69
S37	1.47	3.26	0.94	36.55	19.83	0.85	48.04	1.89	19.37	35.98	12.69
S38	1.2	3.89	0.67	9.68	43.33	0.68	10.51	1.09	17.03	11.34	7.54
S39	1.46	5.51	6.57	36.35	20.58	0.77	50.15	1.33	11.17	36.69	11.42
S40	1.52	6.07	6.44	31.77	9.75	0.83	50.41	1.64	19.52	48.23	10.07
S41	1.41	4.17	7.23	27.85	41.47	0.77	41.79	1.6	10.06	25.12	9.85

	22	23	24	25	26	27	28	29	30	31	32
S1	2.78	81.52	8549.69	249.13	595.78	851.32	23.12	1069.48	61.27	397.94	4626.73
S2	3.22	86.31	7457.1	284.57	586.23	1034.82	18.89	1293.66	166.24	353.13	3938.61
S3	3.18	41.76	6336.87	130.18	649.95	1020.1	15.98	721.34	255.29	285.2	4738.79
S4	3.08	57.18	8792.14	169.54	688.23	892.86	27.59	791.32	98.58	444.09	3616.06
S5	3.45	59.04	6820.08	154.42	374.33	961.51	9.61	750.67	173.33	169.29	4491.89
S6	3.34	87.12	7506.75	226.9	424.96	963.67	9.79	683.53	132.77	182.34	4252.83
S7	3.03	41.18	8423.24	162.86	741.08	931.54	27.5	659.45	57.34	462.79	5444
S8	3.1	50.05	8251.07	160.56	635.72	932.28	24.53	1279.11	76.75	406.74	4947.47
S9	3.9	66.96	6343.14	205.4	545.3	956.5	38.38	985.87	194.66	405.65	4337.98
S10	2.6	40.7	7597.55	125.43	602.83	843.58	22.35	1405.54	66.76	368.06	4715.22
S11	2.77	35.26	7407.86	129.57	563.82	913.96	23.16	1238.5	63.01	363.55	5177.25
S12	3.6	76.97	6903.9	131.95	597.24	994.94	29.66	1395.66	195.44	435.95	4740.48

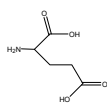
S13	2.62	57.11	8160.77	186.26	518.76	828.58	23.94	989.64	80.4	511.25	5517.7
S14	2.61	23.77	7763.02	150.75	580.41	970.05	16.89	990.23	84.32	276.64	5207.68
S15	3.45	61.34	7697.59	156.7	530.18	1050.86	10.09	653.84	297.32	186.26	5080.42
S16	3.63	53.02	7116.41	149.97	416.5	942.57	8.99	581.59	231.6	169.53	3554.85
S17	2.77	83.42	6914.26	210.03	627.42	996.36	19.18	1217.37	200.46	306.66	5993.25
S18	2.9	72.94	8159.54	183.82	883.4	908.07	21.17	995.79	125.1	328.01	4963.84
S19	3.11	55.04	9150.89	161.52	717.78	912.21	29.46	983.79	104.39	469.96	4016.45
S20	2.87	72.23	6842.24	221.6	611.93	1073.26	15.45	1449.27	165.36	292.58	4347.17
S21	2.77	51.16	8810.81	184.36	695.94	907.34	26.24	974.33	60.1	453.02	4299.62
S22	2.74	53.94	8828.1	155.56	692.02	948.44	26.92	867.2	54.33	437.68	3586.51
S23	2.58	24.86	2200.05	64.03	102.07	179.14	13.01	247.2	19.11	217.25	12697.6
S24	2.7	23.28	2326.58	75.63	116.38	202.82	12.23	270.9	19.29	212.76	11267.62
S25	2.82	86.52	2511.77	48.21	105.81	184.17	18.73	192.25	27.99	302.97	10651.39
S26	2.44	23.86	2648.76	51.42	111.45	196.35	25.13	205.7	20.33	344.62	11338.02
S27	2.78	18.19	2344.34	56.6	154.35	228.09	21.03	247.57	22.66	276.73	12545.09
S28	2.55	16.92	1917.42	58.77	122.73	206.6	15.37	272.51	13.87	224.86	12745.06
S29	2.52	10.2	1715.48	14.18	96.94	205.85	6.11	221.23	21.91	101.53	12416
S30	2.63	13.48	2281.78	28.57	101.27	180.88	7.78	285.59	30.32	127.96	11454.88
S31	2.56	22.78	2149.89	75.4	147.2	187.19	19.07	185.4	30.18	270.9	12411.31
S32	2.69	19.21	2195.68	40.19	139.12	201.12	16.74	295.84	25.59	201.04	12465.27
S33	2.59	22.94	2316.2	83.03	126.61	217.73	17.97	353.2	19.45	254.6	12335.36
S34	2.77	23.22	2165.03	95.78	162.06	222.89	18.68	383.11	28.91	269.51	12009.6
S35	2.64	13.9	1640.11	34.17	121.93	189.52	11.59	294.15	19.44	90.91	11054.4
S36	2.49	20.44	1304.08	76.52	71.22	191.4	10.24	149.73	41.52	166.44	12288
S37	2.67	35.82	2489.04	156.12	134.72	190.76	21.63	214.3	17.94	397.7	12467.2
S38	2.82	11.48	1683.34	50.11	78.94	176.17	4.38	344.86	24.32	83.19	12189.12

S39	2.53	22.89	2381.99	91.36	136.54	226.81	21.05	185.89	26.13	262.99	12262.96
S40	3.07	29.69	2398.26	146.39	150.18	203.49	25.06	160.48	23.07	393.31	12725.44
S41	2.68	20.11	1833.6	70.25	123.09	202.55	17.79	295.25	20.3	230.11	10784

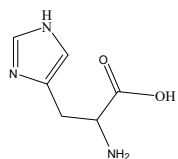
	33	34	35	36	37/38	39	40	41	42	43
S1	34.2	20.35	260.53	354.39	4343.24	326.06	101.76	298.02	528.71	249.84
S2	35.51	23.69	374.4	395.98	5118.49	198.86	96.65	305.54	521.29	308.67
S3	35.41	23.01	288.89	361.64	3717.2	168.13	70.7	326.43	504.7	338.61
S4	37	24.04	259.76	358.91	4462.39	117.28	53.32	285.71	466.13	339.75
S5	39.57	21.25	258.78	399.46	3905.44	144.1	58.26	307.69	532.9	151.53
S6	49.84	23.65	385.12	393.7	4708.7	140.78	67.73	308.38	534.85	177.34
S7	39.87	24.94	296.1	443.38	4672.31	93.06	66.4	298.09	504.9	378.98
S8	39.49	23.5	307.71	432.32	4200.07	119.94	94.96	298.33	468.58	311.33
S9	35.6	20.14	327.6	439.1	4916.24	105.62	70.08	306.08	476.52	316.12
S10	37.44	22.92	263.13	358.34	4817.14	106.87	58.58	269.94	482.13	326.14
S11	41.87	22.71	308.96	433.96	4735.51	101.68	62	292.46	471.22	285.78
S12	32.18	18.53	301.99	409.97	4661.5	110.57	67.64	318.38	511.81	272.09
S13	40.74	21.01	288.08	364.86	4493.28	178.22	83.2	325.95	494.32	210.62
S14	32.09	18.74	272.18	325.3	4140.97	63.54	62.96	310.42	451.26	326.29
S15	63.5	21.46	311.2	353.26	4630.93	157.42	69	336.27	504.25	225.98
S16	38.94	21.46	355.84	358.77	4290.21	141.82	60	301.62	518.2	159.57
S17	36.38	24.86	337.24	346.86	4380.54	334.19	58.76	318.83	516.22	292.22
S18	34.93	23.37	259.65	357.49	4381.05	102.71	43.9	290.58	477.82	384.78
S19	40.04	25.02	316.8	438.52	4842.8	119.94	47.52	291.9	537.28	348.83
S20	33.96	20.77	284.28	422.59	4378.35	141.3	69.1	292.24	475	309.35

S21	38.38	23.62	292.82	376.55	4178.64	123.5	75.16	290.34	461.46	329.34
S22	39.3	23.08	267.36	445.09	4333.95	124.22	46.96	303.5	442.92	360.62
S23	38.67	17.91	129.71	34.38	1736.15	60.89	29.74	7.17	11.61	220.09
S24	41.62	19.08	130.95	42.37	2729.48	39.12	23.61	8.11	12.63	211.51
S25	37.99	18.66	144.15	74.75	1965.26	39.97	45.88	7.37	12.55	146.84
S26	38.19	17.81	125.06	55.91	2094.1	221.64	30.35	7.85	12	225.64
S27	41.93	19.65	127.7	46.98	1935.15	58.35	45.56	9.12	12.67	306.95
S28	39.86	18.31	195.58	40.15	2232.98	32.78	37.75	8.26	12.45	239.17
S29	35.31	17.43	116.48	18.98	2114.87	47.62	37.62	8.23	12.17	89.12
S30	44.14	19.31	138.7	48.92	1914.97	57.14	42.86	7.54	13.1	138.44
S31	43.11	19.12	174.54	47.28	2267.92	47.7	40.84	7.49	12.75	271.25
S32	37.34	17.96	121.34	29.06	2170.87	3.47	41.98	8.05	12.69	201.81
S33	42.85	19.76	179.73	47.48	1914.61	57.06	39.7	8.71	13.25	268.43
S34	43.99	20.12	136.6	47.64	1953.21	68.28	26.03	8.92	14.64	298.23
S35	37.7	18.25	114.6	20.11	2638.29	75.3	41.18	7.58	12.4	81.11
S36	37.44	17.63	225.18	34.95	2301.11	2.71	31.54	7.66	11.61	150.3
S37	44.02	20.36	237.33	68.05	1875.51	80.27	33.6	7.63	15.47	229.39
S38	34.05	16.62	157.9	26.94	2031.66	2.82	26.41	7.05	11.94	330.38
S39	40.07	18.44	136.99	45.66	1932.74	55.34	21.4	9.07	13.25	280.37
S40	45.89	19.26	128.65	57.97	2617.93	2.84	20.07	8.14	13.19	260.24
S41	41.84	18.45	216.86	40.06	2657.21	46.42	21.4	8.1	11.9	187.66

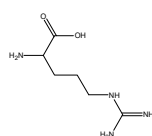
^a The 41 samples were the same as in Table 3; ^b The 43 analytes was the same as in Table 1.



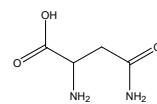
1. Glutamic acid



2. Histidine



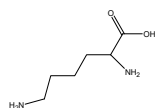
3. Arginine



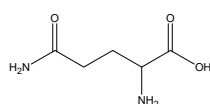
4. Asparagine



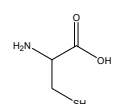
5. Serine



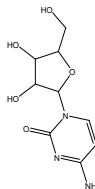
6. Lysine



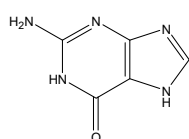
7. Glutamine



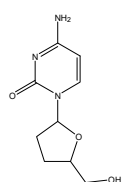
8. Cysteine



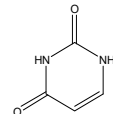
9. Cytidine



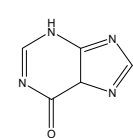
10. Guanine



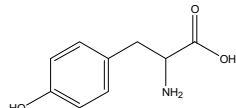
11. 2'-deoxycytidine



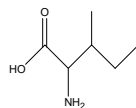
12. Uracil



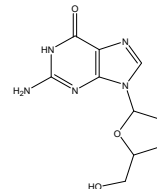
13. Hypoxanthine



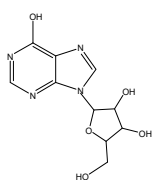
14. Tyrosine



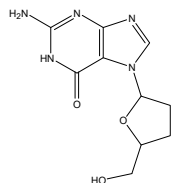
15. Isoleucine



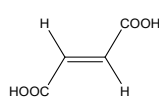
16. Guanosine



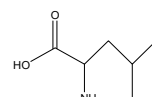
17. Inosine



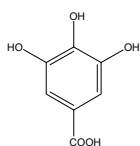
18. 2'-deoxyguanosine



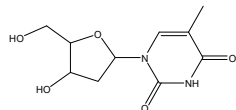
19. Fumaric acid



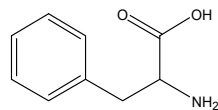
20. Leucine



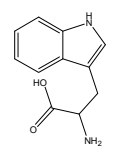
21. Gallic acid



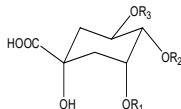
22. Thymidine



23. Phenylalanine



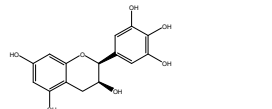
25. Tryptophan



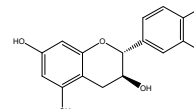
24. Neochlorogenic acid: $R_1=R_2=H, R_3=\text{caffeoyl}$



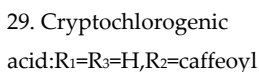
27. Chlorogenic acid: $R_1=\text{caffeoyl}, R_2=R_3=H$



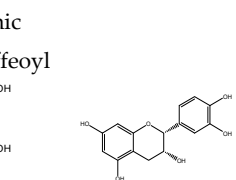
26. Epigallocatechol



28. Catechin

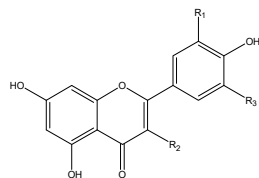


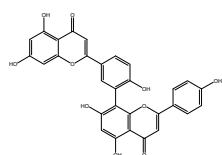
29. Cryptochlorogenic acid: $R_1=R_3=H, R_2=\text{caffeoyl}$



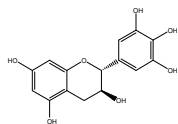
31. Epicatechin

30. Caffeic acid





41. Amentoflavone



43. Gallocatechin

32. Quercetin-3-O-sophorose: $R_1=OH$,
 $R_2=O\text{-sophorose}$, $R_3=H$

33. Quercetin: $R_1=H$, $R_2=O\text{-arabinose}$, $R_3=OH$

34. Avicularin: $R_1=OH$, $R_2=O\text{-arabinose}$, $R_3=H$

35. Astragalin: $R_1=H$, $R_2=O\text{-glucose}$, $R_3=H$

36. Trifolin: $R_1=H$, $R_2=O\text{-galactose}$, $R_3=H$

37. Hyperoside: $R_1=OH$, $R_2=O\text{-galactose}$, $R_3=H$

38. Isoquercetin: $R_1=OH$, $R_2=O\text{-glucose}$, $R_3=H$

39. Kaempferol-3-rutinoside: $R_1=H$,

$R_2=O\text{-galactose}$, $R_3=H$

40. Rutin: $R_1=OH$, $R_2=O\text{-rutinose}$, $R_3=H$

42. Apigenin: $R_1=H$, $R_2=H$, $R_3=H$

Figure S3 Chemical structures of 43 compounds analyzed in this study