

Supplementary material

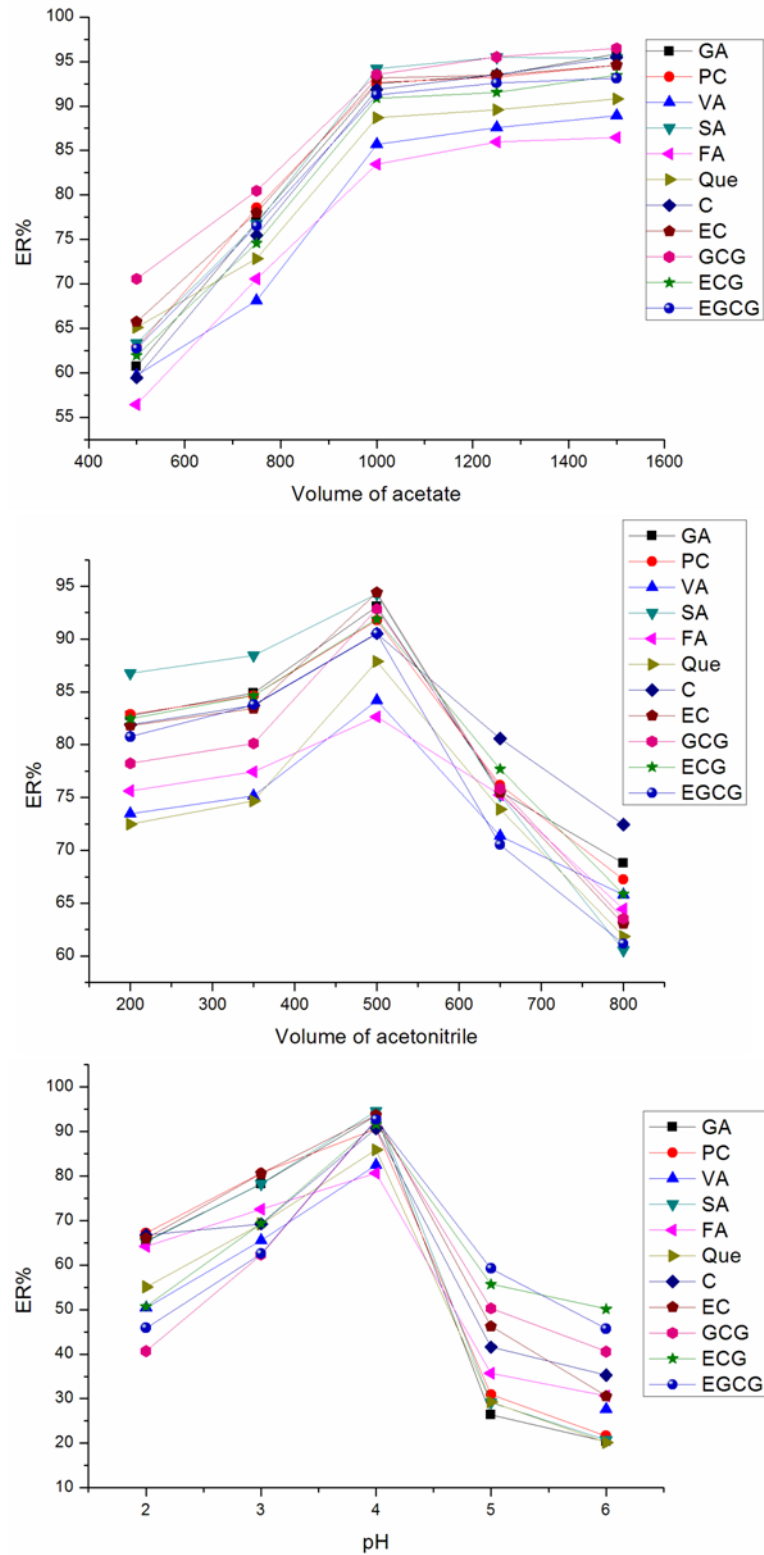


Figure S1 The extraction rate (%) of 11 polyphenols assessed by single factor experimental analysis (the fixed values of parameters from top to bottom were: ACN 500 μ L, pH 4; EtOAc 1000 μ L, pH 4; and ACN 500 μ L, EtOAc 1000 μ L, respectively).

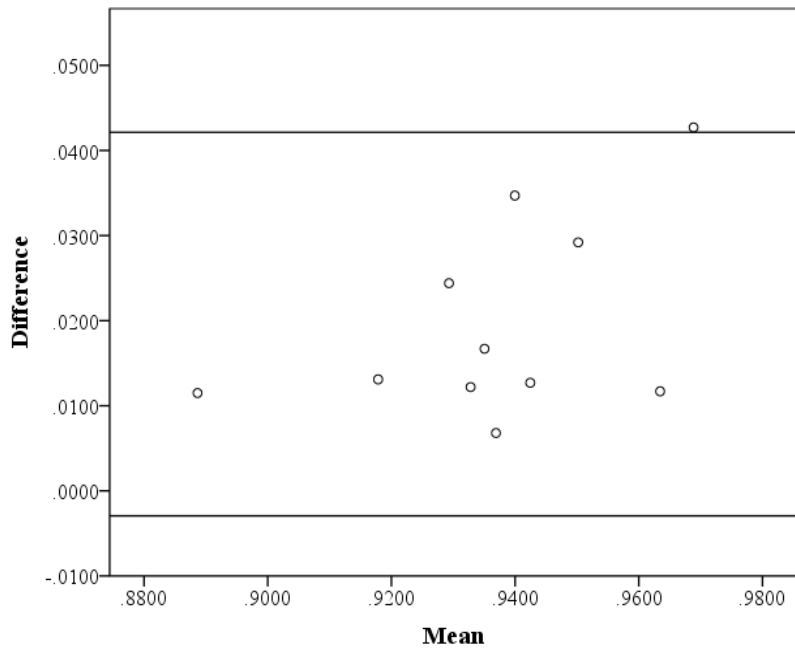


Figure S2 Bland-Altman plot of predicted values and experimental values.

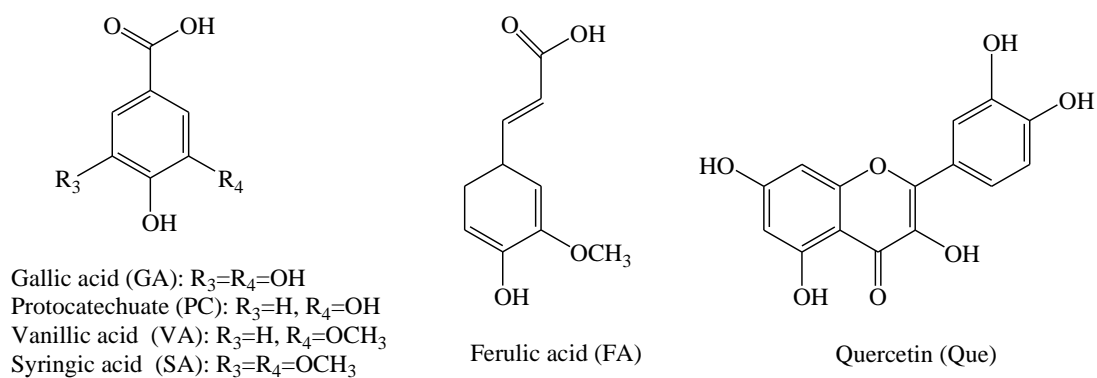
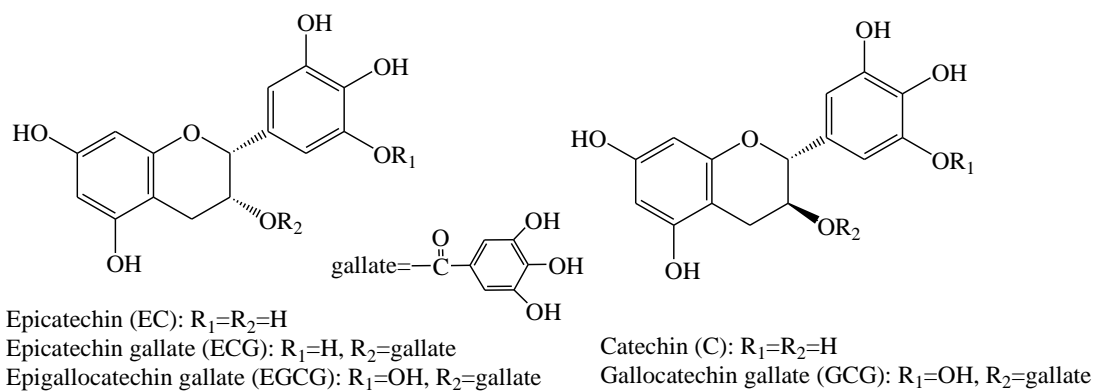


Figure S3 The chemical structures of eleven polyphenols.

Table S1 MS/MS parameters for the analysis of 11 polyphenols in LC-QqQ/MS analysis.

Compound	Precursor ion	Product ion	CE	S-Lens
	(<i>m/z</i>)	(<i>m/z</i>)	(V)	
GA	169	81 [#]	20	67
		125 [*]	18	67
PC	153	91 [#]	28	71
		109 [*]	17	71
VA	167	108 [#]	20	65
		152 [*]	16	65
SA	197	121 [#]	19	82
		182 [*]	16	82
FA	193	134 [*]	17	68
		178 [#]	15	68
Que	301	107 [#]	30	93
		151 [*]	23	93
C	289	203 [#]	22	113
		245 [*]	17	113
EC	289	123 [#]	33	104
		245 [*]	17	104
GCG	457	125 [#]	43	129
		169 [*]	19	129
ECG	441	169 [#]	24	123
		289 [*]	20	123
EGCG	457	125 [#]	43	138
		169 [*]	20	138

note: ^{*}quantitative ion, [#]qualitative ion

Table S2 Independent variables and their levels in Box-Behnken design.

Independent variables	Symbol	Level		
		-1	0	1
Amount of EtOAc (μL)	A	500	1000	1500
Amount of ACN (μL)	B	350	500	650
Solution pH	C	2	4	6

Table S3 Comparison of analytical methods reported for determination of bovine serum albumin

	liquid-liquid extraction, HPLC-MS analysis [Ref S1]			solid-phase extraction, HPLC-MS analysis [Ref S2]			extracted by ethanol for 12 h, HPLC-DAD analysis [Ref S3]			vortex-assisted dispersive liquid-liquid microextraction, HPLC-MS analysis [This work]		
	Recovery	LOD	LOQ	Recovery	LOD	LOQ	Recovery	LOD	LOQ	Recovery	LOD	LOQ
GA	-*	0.25 pmol	-	-	3 ng/ml	10 ng/ml	-	-	-	93.56%	0.01 ng	0.03 ng
PC	-	-	-	-	-	-	-	-	-	91.71%	0.02 ng	0.06 ng
VA	-	-	-	-	100 ng/ml	400 ng/ml	-	-	-	93.61%	0.3 ng	0.9 ng
SA	-	0.5 pmol	-	-	25 ng/ml	60 ng/ml	-	-	-	94.75%	0.1 ng	0.3 ng
FA	-	0.5 pmol	-	-	60 ng/ml	200 ng/ml	-	-	-	92.66%	0.1 ng	0.3 ng
Que	-	-	-	-	-	-	-	-	-	88.29%	0.01 ng	0.03 ng
C	-	-	-	-	-	-	-	2.73 µg/mL	9.11 µg/mL	91.13%	0.1 ng	0.3 ng
EC	-	-	-	-	-	-	91%	1.77 µg/mL	5.91 µg/mL	95.76%	0.1 ng	0.3 ng
GCG	-	-	-	-	-	-	-	-	-	93.35%	0.1 ng	0.3 ng
ECG	-	-	-	-	-	-	-	-	-	92.67%	0.1 ng	0.3 ng
EGCG	-	-	-	-	-	-	-	-	-	92.71%	0.1 ng	0.3 ng

*unreported

[Ref S1] Ayaz, F.A., et al., Separation, characterization, and quantitation of phenolic acids in a little-known blueberry (*Vaccinium arctostaphylos* L.) fruit by HPLC-MS. *Journal of Agricultural and Food Chemistry*, 2005. 53(21): 8116-8122.

[Ref S2] Su, X., et al., Phenolic acid profiling, antioxidant, and anti-inflammatory activities, and miRNA regulation in the polyphenols of 16 blueberry samples from China. *Molecules*, 2017. 22(2).

[Ref S3] Harris, C.S., et al., A single HPLC-PAD-APCI/MS method for the quantitative comparison of phenolic compounds found in leaf, stem, root and fruit extracts of *Vaccinium angustifolium*. *Phytochemical Analysis*, 2007. 18(2): 161-169.