

1. Validation of the HPLC-DAD method

The standards were dissolved in MeOH and made up to 25 ml in a volumetric flask, following ChromaDex's Tech Tip 0003: Reference Standard Recovery and Dilution [36]. These solutions were used as standard stock solutions. To prepare the working solutions, standard stock solutions were diluted with methanol in volumetric flasks of different sizes. Specifically, 10 μ l and 100 μ l of the stock solutions were diluted in 10 ml volumetric flasks, 500 μ l and 1000 μ l were diluted in 5 ml volumetric flasks, and 1000 μ l was diluted in 2 ml volumetric flasks. The undiluted stock and working solutions were injected in six replicates (n=6) using SIL-20AC HT on column, with a volume of 1 μ l. Calibration curves were plotted using the external standard method, correlating concentration with peak area. The parameters for the curves were calculated using Microsoft Excel 14. The LOD (S/N of 3:1) and LOQ (S/N of 10:1) were determined using the signal-to-noise ratio approach. An individual compound peak table and UV library (190-450nm) were prepared.

Table S1. Validation parameters of the HPLC-DAD analysis (n = 6)

No.	Compound	Rt (min)	Integration λ (nm)	Precision intraday (CV, %)	Precision interday (CV, %)	Calibration equation	R ² (n=6)	Linear range (mg \times mL ⁻¹)	LOD (μ g \times L ⁻¹)	LOQ (μ g \times L ⁻¹)	Recovery (%)
1	(-)-Epicatechin	2.17	203	0.68	1.51	$y = 7345.1x - 5643.8$	0.9995	0.47 – 23.40	10.02	34.00	95.6
2	Quercetin 3-O-rutinoside (Rutoside)	3.53	254	0.37	0.86	$y = 1434.0x - 5093.0$	0.9999	0.91 – 90.67	7.46	24.88	97.2
3	Quercetin 3-O-galactoside (Hyperoside)	3.64	254	1.25	2.14	$y = 3435.5x - 6882.2$	0.9999	0.38 – 38.40	4.12	12.24	92.1
4	Quercetin 3-O-glucoside (Isoquercetin)	3.82	254	0.44	0.91	$y = 1969.7x - 7089.8$	0.9995	0.37 – 36.88	44.92	149.61	97.2
9	Quercetin 3-O-rhamnoside (Quercitrin)	4.80	254	1.08	1.43	$y = 2437.0x + 344.4$	0.9999	0.35 – 347.31	14.75	49.17	96.8
10	Phlorizin	5.34	284	0.51	1.21	$y = 1584.5x + 1598.5$	0.9999	1.00 – 995.68	3.03	9.32	103.2
11	Naringenin	6.09	284	1.21	1.89	$y = 1304.8x + 1983.8$	0.9998	1.98 – 396.8	3.28	9.79	102.9
12	Phloretin	6.58	284	0.43	9.54	$y = 3654.1x - 454.4$	0.9999	0.98 – 98.00	12.13	39.32	104.4