

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 µl and 100 µl of the stock solutions were diluted in 10 ml volumetric flasks, 500 µl and 1000 µl were diluted in 5 ml volumetric flasks, and 1000 µl 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 µl. 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×mL ⁻¹)	LOD (µg×L ⁻¹)	LOQ (µg×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