Supplementary Material

Table S1. Comparative analysis of peak areas for phloridzin and trilobatin at various detection wavelengths (n = 3).

Detection Wavelength (nm)	Peak Area		RSD (%)
	Phloridzin	Trilobatin	
289nm	132± 0.356	131± 0.296	0.6
290nm	126± 0.0200	125± 0.107	0.3
291nm	126± 0.0160	119± 0.223	3.2

RSD: relative standard deviation.

Table S2. Comparative analysis of peak areas for phloridzin and trilobatin at various detection bandwidths (n = 3).

Detection Bandwidth (nm)	Peak Area		RSD (%)
	Phloridzin	Trilobatin	
1	129± 1.45	124± 2.19	2.7
2	128± 1.71	125± 0.398	1.9
4	121± 0.0965	121± 0.604	0.5
8	127± 0.659	122± 0.286	2.1

RSD: relative standard deviation.

Table S3. Recovery results of the developed method.

Compound	Number	Original Amount (μg)	Spiked Amount (μg)	Found Amount (μg)	Recovery (%)	Average Recovery (%)	RSD (%)
Phloridzin	1	0.256	0.491	0.723	95.1	97.9	4.1
	2	0.280	0.491	0.745	94.6		
	3	0.273	0.491	0.751	97.3		
	4	0.266	0.491	0.730	94.4		
	5	0.249	0.491	0.756	103		
	6	0.242	0.491	0.746	103		
Trilobatin	1	1.13	0.995	2.10	97.4	95.3	3.5
	2	1.23	0.995	2.15	91.8		
	3	1.20	0.995	2.19	98.8		
	4	1.17	0.995	2.07	90.5		
	5	1.10	0.995	2.06	96.8		
	6	1.06	0.995	2.02	96.3		

RSD: relative standard deviation.

Fig. S1. From plant to a cup of tea: The journey of sweet tea.

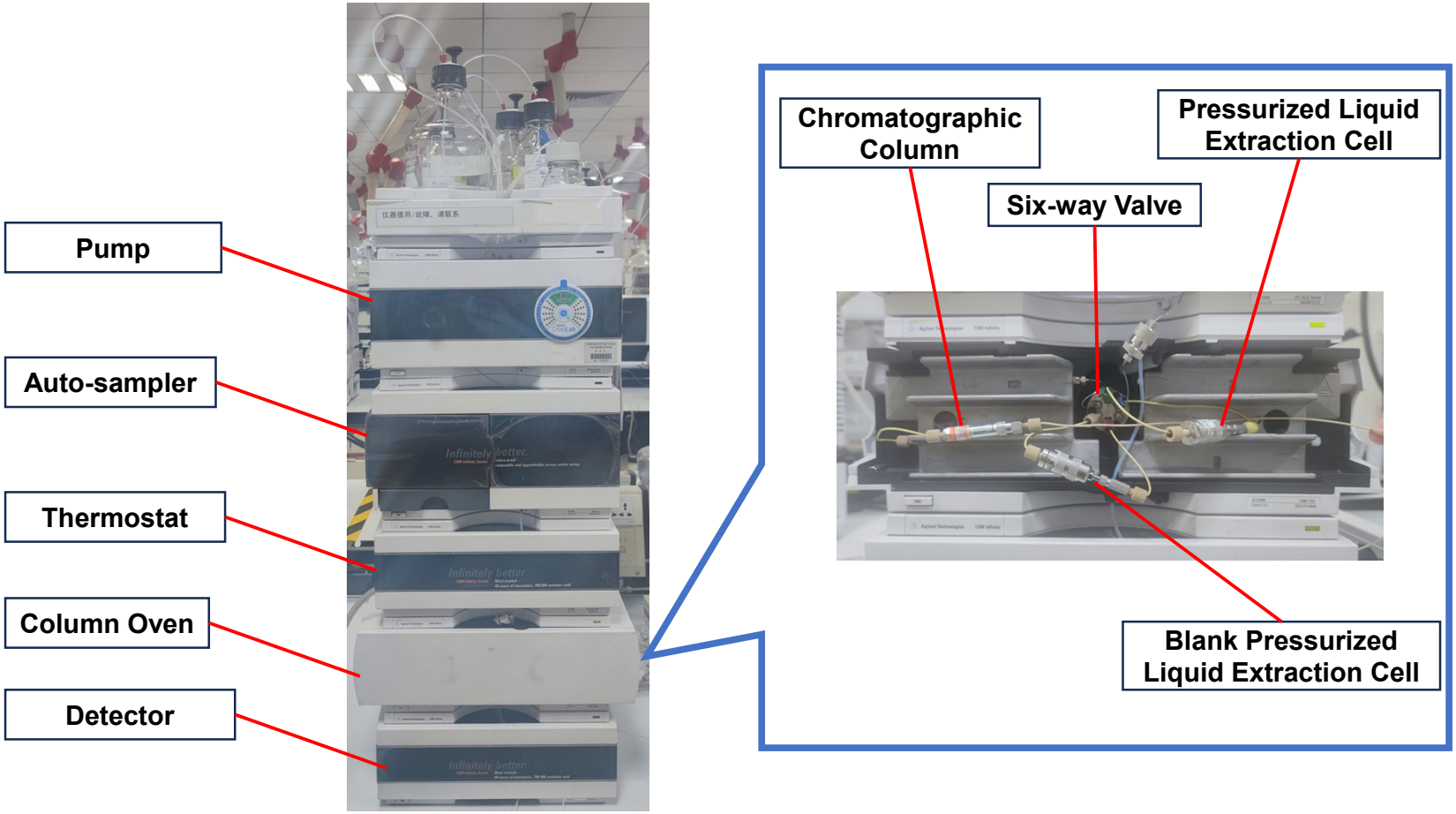

Fig. S2. Online pressurized liquid extraction coupled to high-performance liquid chromatography system.

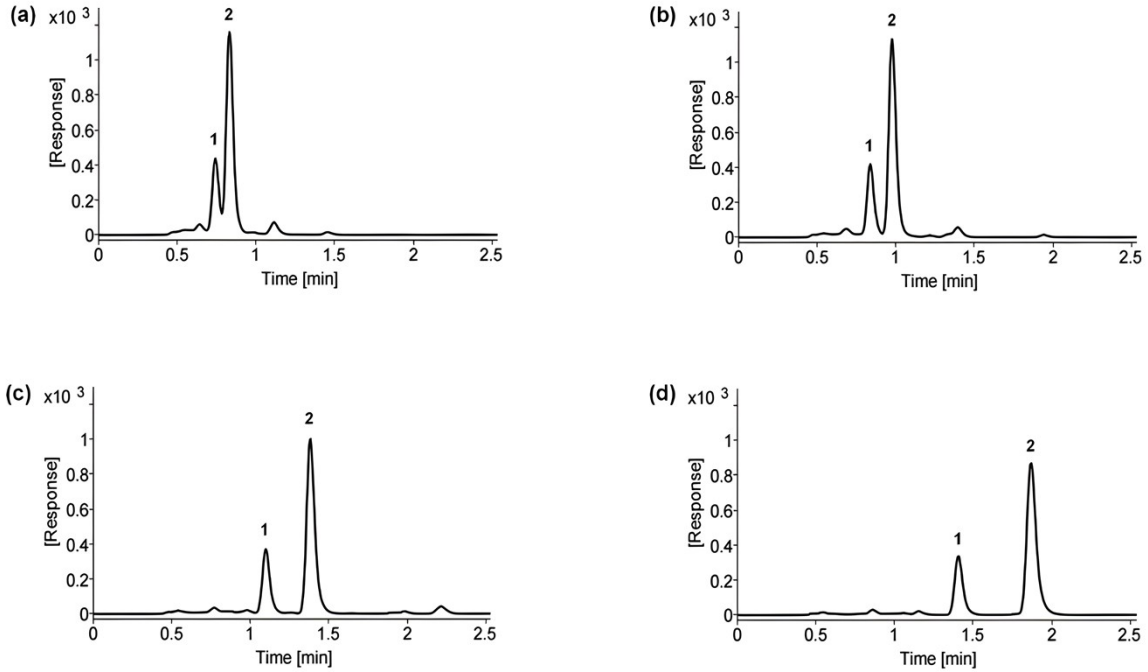

Fig. S3. Chromatograms of sample solution across various mobile phases: (a) 70:30; (b) 72:28; (c) 75:25; (d) 76.5:23.5. Compounds labeled: (1) Phloridzin; (2) Trilobatin. Liquid Chromatography separation conditions: Mobile phase, 0.1% aqueous formic acid (A) and acetonitrile (B) at the ratio of 76.5:23.5; column temperature, 25 °C; flow rate, 1.5 mL/min. Ultraviolet detection conditions: Detection wavelength, 290 nm.

Results and discussion: To determine the optimal mobile phase ratio, various ratios were examined, including 70:30, 72:28, 75:25, and 76.5:23.5. The results demonstrated enhanced separation and improved peak characteristics of the target compounds when employing a mobile phase ratio of 76.5:23.5. Therefore, this specific ratio was determined to be the most favorable for the mobile phase composition.

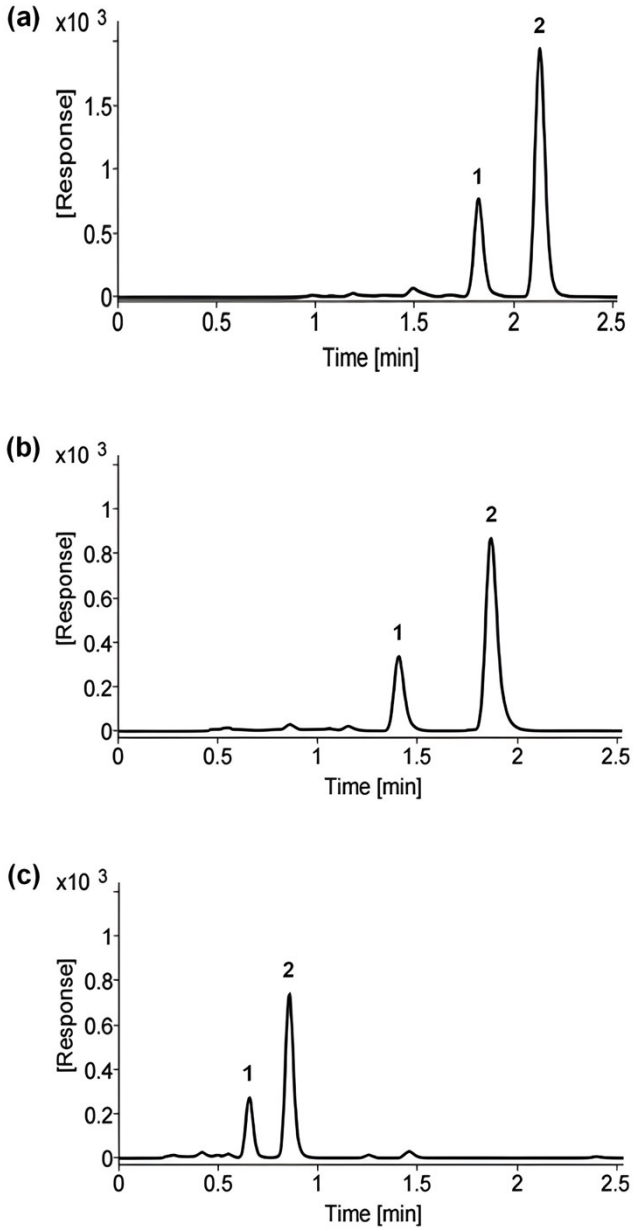

Fig. S4. Chromatograms of sample solutions at varying mobile phase flow rates: (a) 1 mL/min; (b) 1.5 mL/min; (c) 2.0 mL/min. Compounds labeled: (1) Phloridzin; (2) Trilobatin. Liquid Chromatography separation conditions: Mobile phase, 0.1% aqueous formic acid (A) and acetonitrile (B) at the ratio of 76.5:23.5; column temperature, 25 °C; flow rate, 1.5 mL/min. Ultraviolet detection conditions: Detection wavelength, 290 nm.

Results and discussion: To determine the optimal flow rate, various flow rates were examined, including 1.0 mL/min, 1.5 mL/min, and 2.0 mL/min. The results demonstrated that a flow rate of 1.5 mL/min gave a satisfied separations and peak times. Therefore, 1.5 mL/min was chosen as the flow rate.

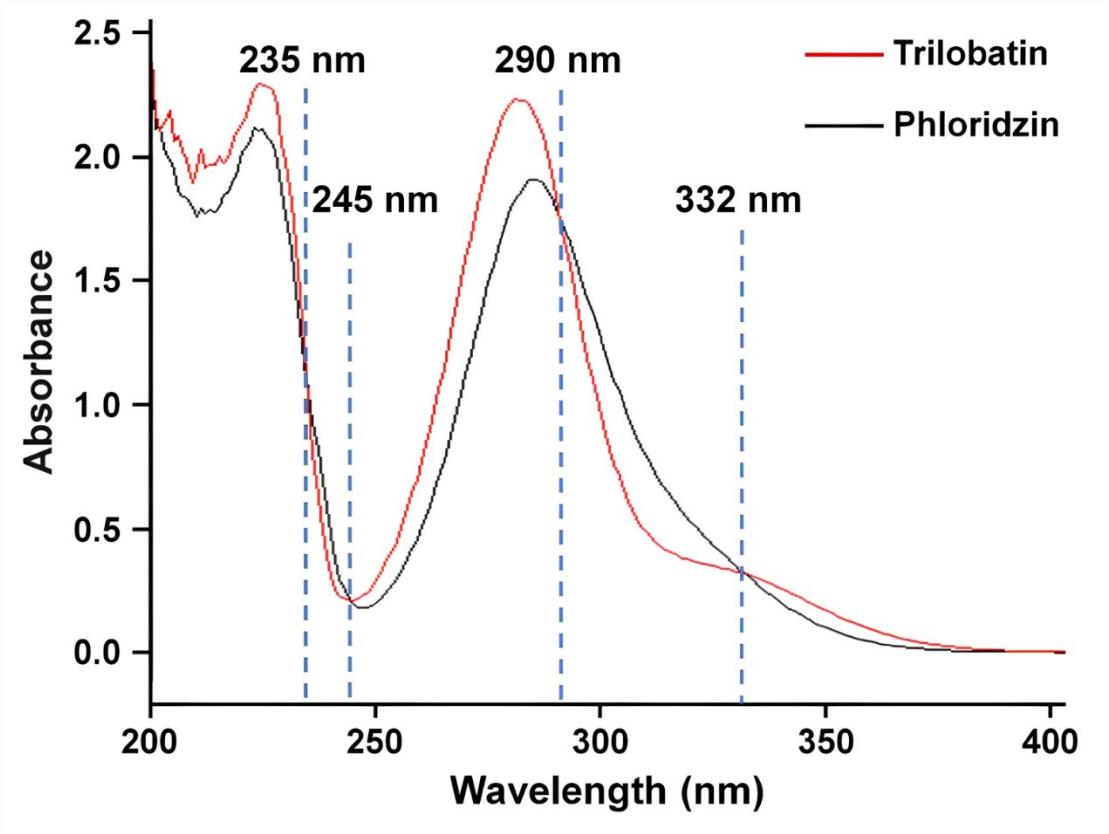

Fig. S5. Ultraviolet spectrograms of phloridzin and trilobatin scanned from 200 nm to 400 nm.

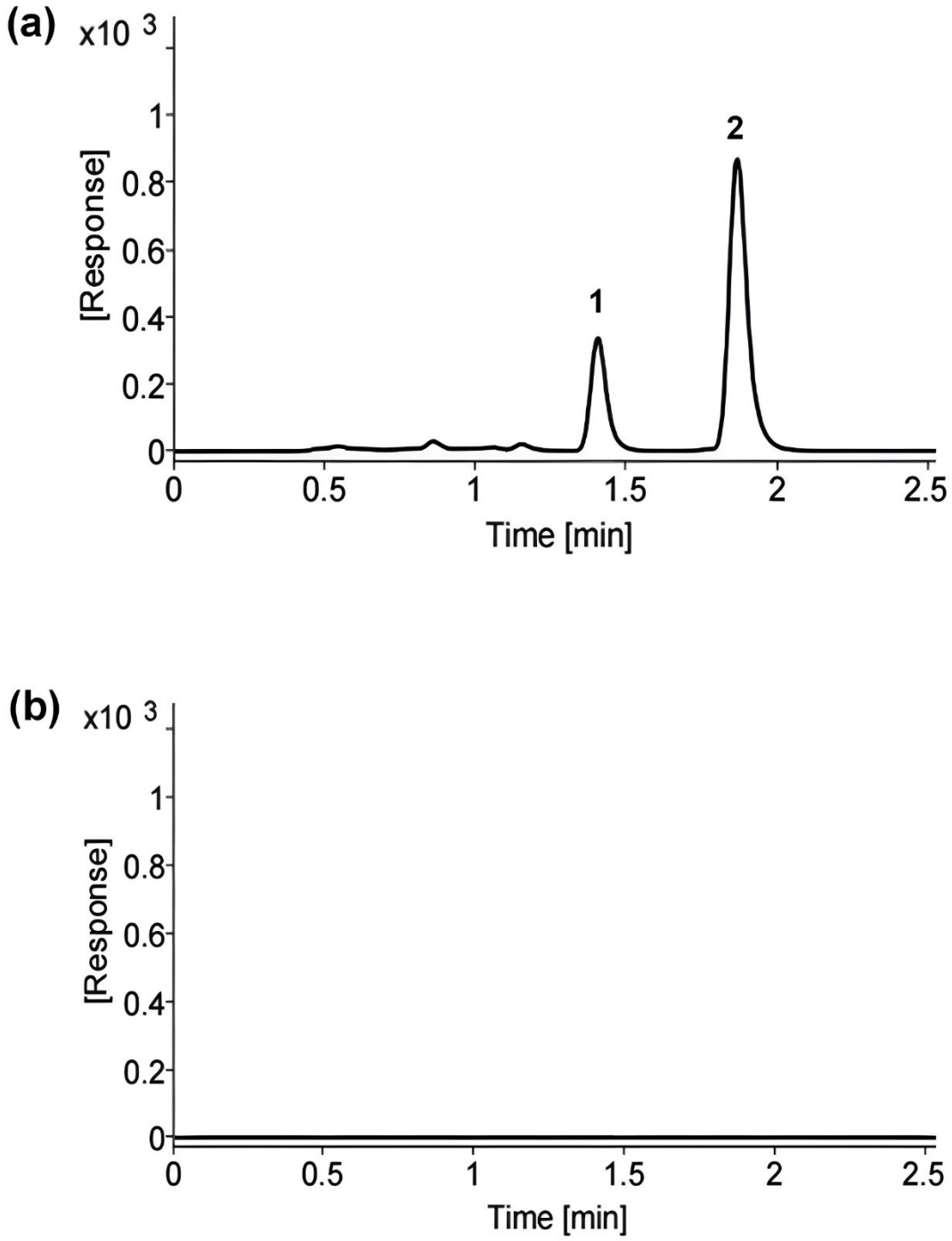

Fig. S6. Chromatograms of the sample after two consecutive extractions using the developed method: (a) First extraction; (b) Second extraction. Compounds labeled: (1) Phloridzin; (2) Trilobatin. Liquid Chromatography separation conditions: Mobile phase, 0.1% aqueous formic acid (A) and acetonitrile (B) at the ratio of 76.5:23.5; column temperature, 25 °C; flow rate, 1.5 mL/min. Ultraviolet detection conditions: Detection wavelength, 290 nm.