

**Table S1.** HPLC-Q-ToF conditions for ASE analysis

Instrument		Conditions	
Column	CAPCELL PAK C18 UG120 S5 (4.6 mm x 250 mm x 5.0 $\mu$ m, OSAKA SODA, Japan)		
Column temp.	28°C		
	Time (min)	A 1% acetic acid in water (%)	B Acetonitrile (%)
Mobile phase (Gradient)	0	90	10
	28	60	40
	39	40	60
	40	90	10
	45	90	10
Detector	Diode Array Detector (DAD 3000) (272 nm)		
Flow rate	0.7 mL/min		
Run time	55 min		
Injection volume	20 $\mu$ L		

**Table S2.** Q-TOF condition (Agilent 6550 Q-TOF with agilent 1260 HPLC)

Instrument	Conditions
Drying gas (N <sub>2</sub> ) flow rate	17 L/min
Drying gas (N <sub>2</sub> ) temperature	225 °C
Nebulizer pressure	45 psi
Sheath gas temperature	350 °C
Sheath gas flow	11 L/min
Capillary voltage	3,500 V
Nozzle voltage	2,000 V
Fragmentor	150 V
skimmer	65 V
OCT 1 RF V <sub>pp</sub>	750 V
Collision Energy	25 V
Ion polarity	Negative

**Table S3.** LC-PDA conditions for ASE analysis

Instrument		Conditions	
<b>Column</b>	Capcell Pak C18 UG12, (4.6 mm x 250 mm, 5.0 $\mu$ m)		
<b>Column temp.</b>	25°C		
<b>Mobile phase (Gradient)</b>	Time (min)	A 0.05% formic acid in water (%)	B Methanol (%)

0	95	5
10	95	5
15	85	15
20	70	30
30	60	40
50	55	45
52	40	60
60	20	80
65	95	5

**Detector** Waters 996 Photodiode Array Detector (280 nm)

**Flow rate** 0.8 mL/min

**Run time** 65 min

**Injection volume** 50  $\mu$ L

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