

Supporting information

Comprehensive Metabolic Profiling and Quantitative Analysis of Key Constituents in Compound Licorice Tablets Using UHPLC-Q-Exactive MS

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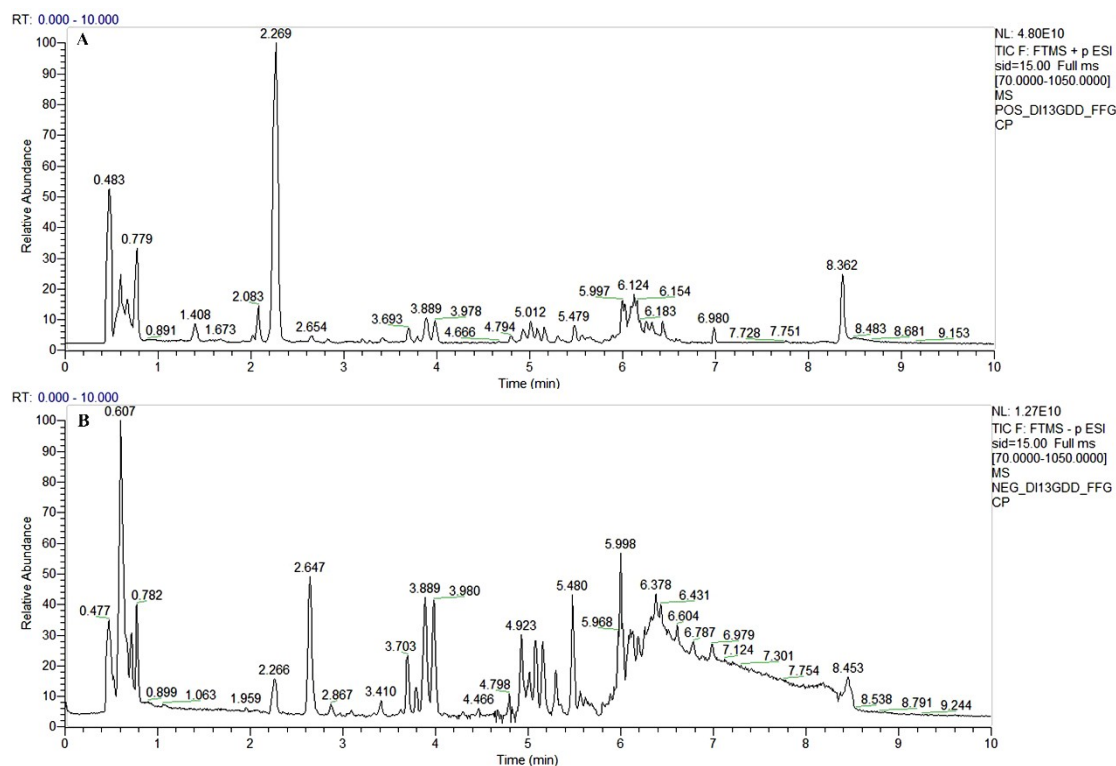


Fig. S1 Total ion chromatogram (TIC) of CLQTs (A, positive ion mode; B, negative ion mode).

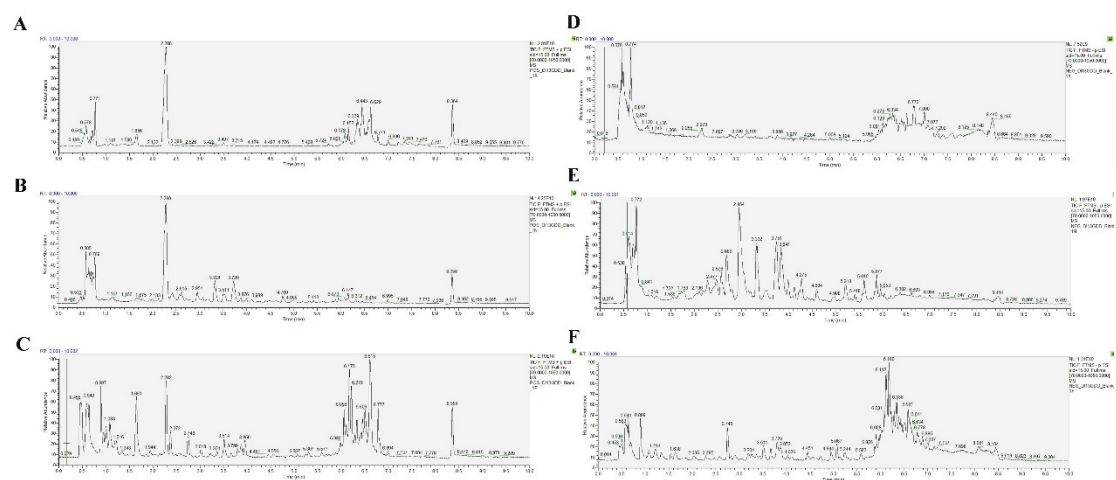


Fig. S2 Total ion chromatogram (TIC) of CLQTs in blank bio-samples (plasma, urine and feces) in the positive (A, B and C) and negative (D, E and F) ion mode.

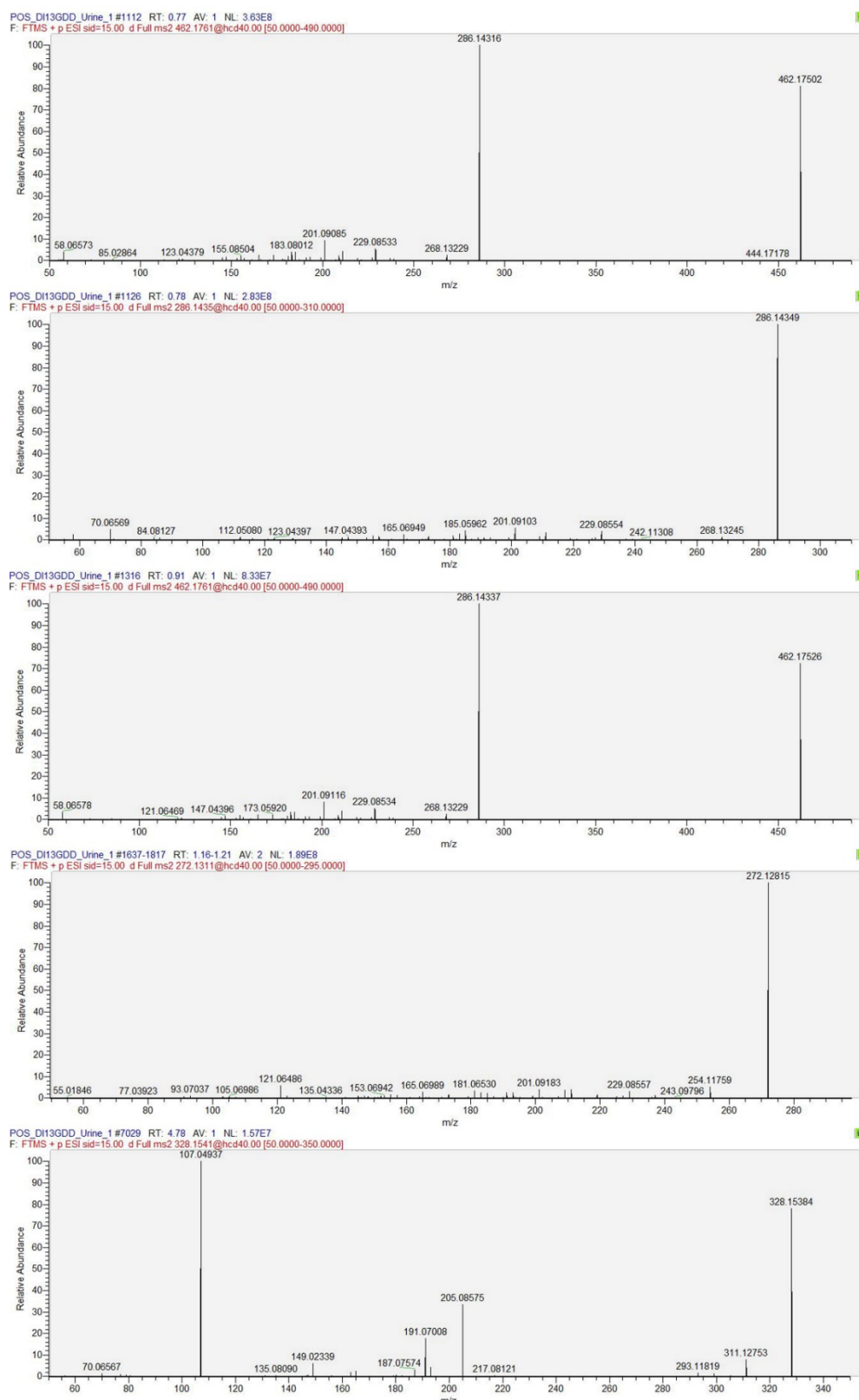


Fig. S3 MS/MS spectra of representative metabolites of alkaloids from CLQTs: Compounds 2, 3, 4, 5 and 19.

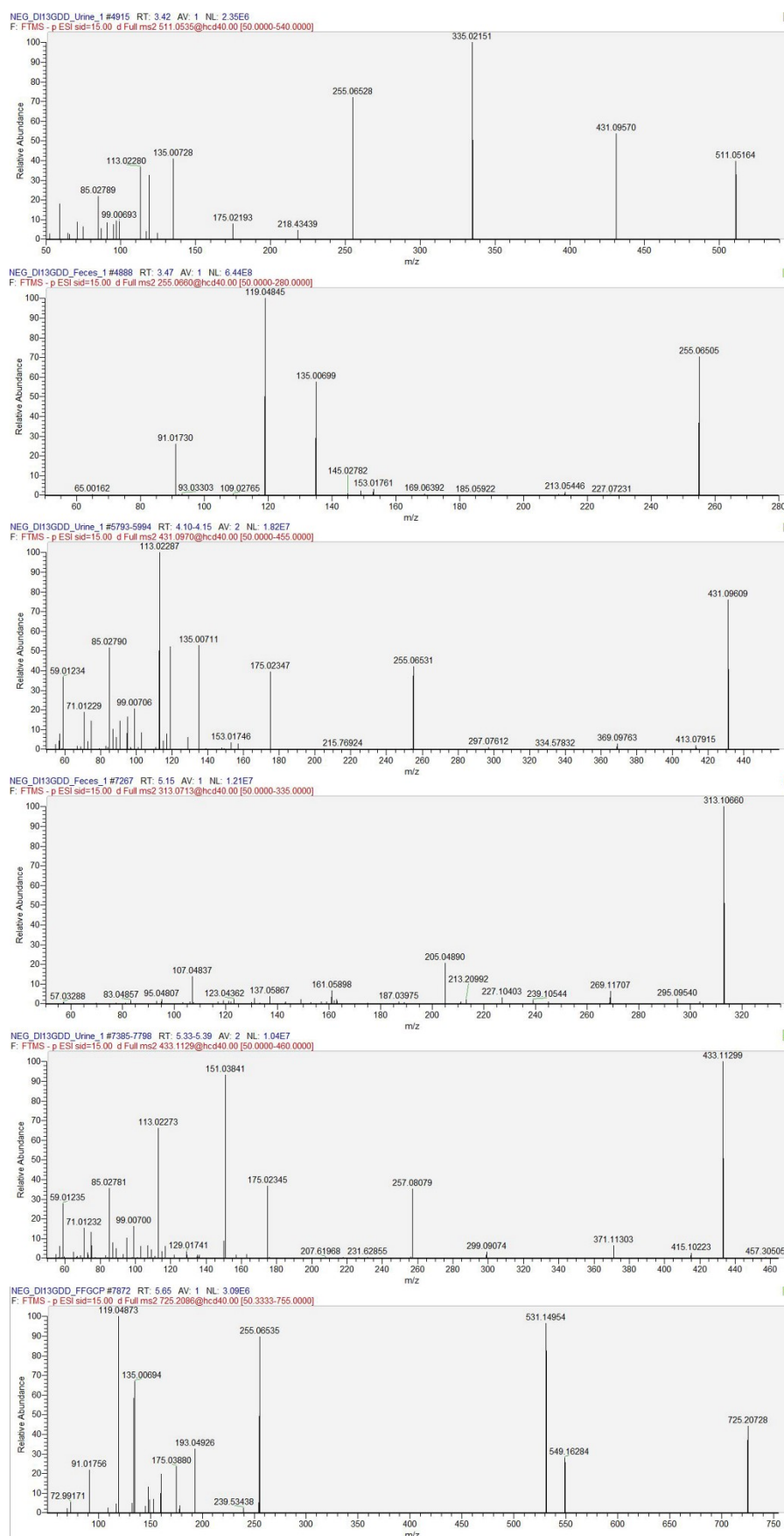


Fig. S4 MS/MS spectra of representative metabolites of flavonoids from CLQTs: Compounds 28, 30, 43, 60, 70 and 80.

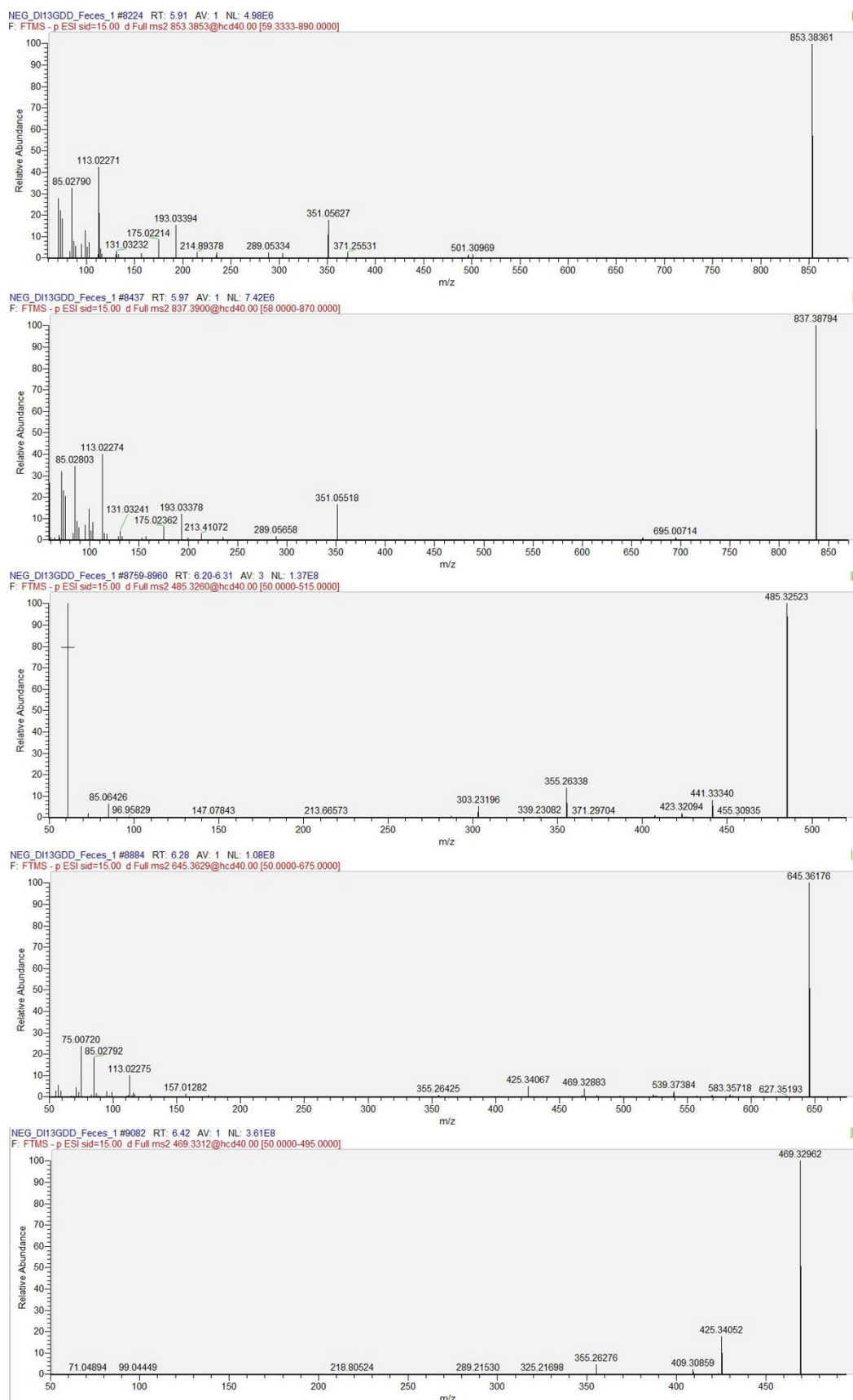


Fig. S5 MS/MS spectra of representative metabolites of triterpenoid saponins from CLQTs:

Compounds 90, 91, 116, 117 and 118.

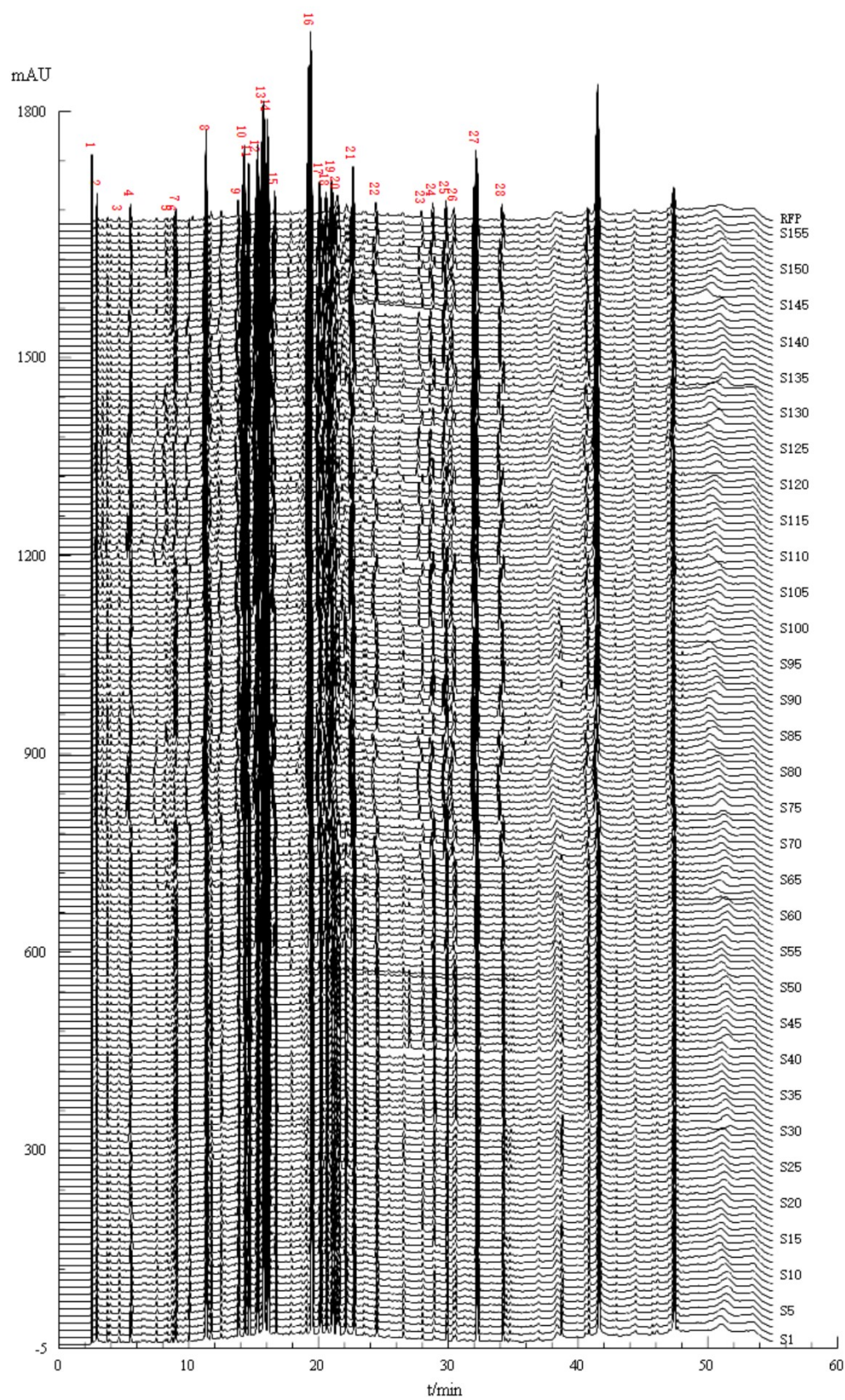


Fig. S6 The chromatograms of 156 batches of CLQTs from 9 manufacturers and their reference fingerprint (RFP) at 220 nm.

Table S1 Predominant metabolites and their relative contribution (%)

Parent class	Representative high-abundance metabolites (matrix, retention time)	Biotransformation	Rationale for selection*
Alkaloids (poppy)	Morphine-3-glucuronide (urine, 0.76 min) Morphine-6-glucuronide (urine, 0.91 min) Morphine-N-oxide (urine, 1.45 min)	Glucuronidation, N-oxidation	Together they accounted for > 60 % of total ion current among alkaloid-derived peaks.
Flavonoids (licorice)	Liquiritigenin-7-O-glucuronide (urine, 4.10 min) Liquiritin-O-glucuronide (urine, 5.33 min) Liquiritin-O-sulfate (urine, 5.21 min)	Phase-II conjugation (GlcA/SO ₃)	Peak areas $\geq$ 4-fold higher than other flavonoid metabolites in EICs.
Triterpenoid saponins	18 β -Glycyrrhetic acid (plasma, 6.42 min) 18 β -Glycyrrhetic acid-OH (faeces, 6.85 min)	Microbial hydrolysis→de-glycosylation+hydroxylation	Dominant signals in faeces; established bioactive species.
Coumarins	Demethyl-glycycomarin (urine, 5.57 min)	O-demethylation	Most intense coumarin-derived ion.

*Based on extracted-ion chromatogram (EIC) peak area and detection frequency across three rats.

Table S2 The contents of five Q-markers from CLQTs of 9 manufacturers.

No.	Sodium benzoate (mg/g)	morphine (mg/g)			codeine (mg/g)			liquiritin (mg/g)			glycyrrhizic acid (mg/g)		
	SCM	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%
S1	14.36	3.07	3.00	2.38	1.14	1.14	0.00	5.29	5.29	0.00	63.93	63.14	1.24
S2	14.07	3.07	3.07	0.00	1.14	1.14	0.00	5.29	5.29	0.00	64.07	63.29	1.24
S3	14.21	3.00	3.00	0.00	1.14	1.14	0.00	5.36	5.36	0.00	65.07	64.29	1.22
S4	14.43	3.07	3.00	2.38	1.14	1.14	0.00	5.36	5.36	0.00	65.07	64.29	1.22
S5	14.50	3.00	3.00	0.00	1.14	1.14	0.00	5.29	5.29	0.00	64.93	64.07	1.34
S6	14.64	3.07	3.07	0.00	1.21	1.14	6.25	5.29	5.29	0.00	65.93	65.07	1.32
S7	14.43	3.07	3.07	0.00	1.14	1.14	0.00	5.21	5.21	0.00	64.21	63.43	1.24
S8	14.50	3.14	3.07	2.33	1.14	1.14	0.00	4.86	4.86	0.00	65.79	64.93	1.32
S9	14.36	3.00	3.00	0.00	1.14	1.14	0.00	4.43	4.43	0.00	63.14	62.29	1.38
S10	14.43	3.00	3.00	0.00	1.14	1.14	0.00	4.07	4.00	1.79	63.21	62.43	1.26
S11	14.36	3.00	3.00	0.00	1.21	1.14	6.25	4.00	4.00	0.00	64.29	63.43	1.35
S12	14.36	3.07	3.00	2.38	1.21	1.21	0.00	4.00	3.93	1.82	63.57	62.71	1.37
S13	14.50	3.00	3.00	0.00	1.21	1.21	0.00	3.93	3.93	0.00	63.86	63.00	1.36
S14	13.93	2.93	2.93	0.00	1.14	1.14	0.00	4.64	4.64	0.00	62.79	62.00	1.27
S15	14.00	3.00	3.00	0.00	1.14	1.14	0.00	4.57	4.57	0.00	62.79	62.00	1.27
S16	14.14	3.21	3.21	0.00	1.21	1.21	0.00	4.43	4.43	0.00	64.36	63.57	1.24
S17	14.21	3.07	3.07	0.00	1.21	1.21	0.00	4.43	4.43	0.00	65.29	64.50	1.22
S18	14.07	3.14	3.14	0.00	1.21	1.21	0.00	4.36	4.36	0.00	64.07	63.29	1.24
S19	14.07	3.14	3.14	0.00	1.21	1.21	0.00	4.43	4.43	0.00	65.57	64.79	1.21
S20	14.36	3.07	3.07	0.00	1.21	1.21	0.00	4.43	4.43	0.00	65.57	64.79	1.21
S21	14.21	3.14	3.14	0.00	1.21	1.21	0.00	4.50	4.43	1.61	65.93	65.07	1.32

No.	Sodium benzoate (mg/g)	morphine (mg/g)			codeine (mg/g)			liquiritin (mg/g)			glycyrrhizic acid (mg/g)		
	SCM	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%
S22	14.14	3.29	3.29	0.00	1.21	1.21	0.00	4.43	4.43	0.00	64.71	63.93	1.23
S23	14.07	3.00	3.00	0.00	1.21	1.21	0.00	4.50	4.50	0.00	64.93	64.07	1.34
S24	14.21	3.00	3.00	0.00	1.21	1.21	0.00	4.50	4.43	1.61	65.14	64.29	1.33
S25	14.50	3.00	3.00	0.00	1.14	1.14	0.00	4.71	4.64	1.54	64.71	63.93	1.23
S26	14.21	3.00	3.00	0.00	1.14	1.14	0.00	4.57	4.57	0.00	63.93	63.14	1.24
S27	14.64	3.14	3.07	2.33	1.21	1.14	6.25	4.64	4.64	0.00	65.07	64.21	1.33
S28	14.36	3.00	3.00	0.00	1.14	1.14	0.00	4.57	4.57	0.00	64.07	63.29	1.24
S29	14.57	3.00	3.00	0.00	1.14	1.14	0.00	4.57	4.57	0.00	64.64	63.79	1.34
S30	14.36	3.07	3.07	0.00	1.14	1.14	0.00	4.57	4.57	0.00	64.64	63.86	1.23
S31	14.64	3.21	3.21	0.00	1.29	1.29	0.00	4.64	4.64	0.00	68.43	67.57	1.27
S32	14.64	3.14	3.14	0.00	1.21	1.21	0.00	4.43	4.43	0.00	69.50	68.64	1.25
S33	14.50	3.14	3.14	0.00	1.21	1.21	0.00	4.50	4.43	1.61	69.64	68.79	1.25
S34	14.43	3.14	3.14	0.00	1.21	1.21	0.00	4.93	4.93	0.00	62.79	61.93	1.38
S35	14.93	3.14	3.14	0.00	1.21	1.21	0.00	5.00	5.00	0.00	63.00	62.14	1.38
S36	14.50	3.21	3.21	0.00	1.21	1.21	0.00	4.86	4.86	0.00	62.29	61.43	1.40
S37	14.43	3.21	3.21	0.00	1.21	1.21	0.00	4.86	4.86	0.00	62.36	61.50	1.39
S38	14.36	3.36	3.36	0.00	1.21	1.21	0.00	4.93	4.93	0.00	62.64	61.79	1.39
S39	15.79	3.14	3.14	0.00	1.21	1.21	0.00	4.86	4.86	0.00	62.79	61.93	1.38
S40	15.07	3.21	3.21	0.00	1.21	1.21	0.00	4.86	4.86	0.00	62.86	62.07	1.27
S41	14.79	3.07	3.07	0.00	1.29	1.21	5.88	6.50	6.50	0.00	64.21	63.36	1.35
S42	14.79	3.21	3.21	0.00	1.29	1.29	0.00	6.64	6.64	0.00	66.00	65.14	1.32
S43	14.64	3.07	3.07	0.00	1.29	1.29	0.00	6.64	6.64	0.00	65.29	64.43	1.33
S44	14.64	3.14	3.07	2.33	1.29	1.29	0.00	6.57	6.57	0.00	64.21	63.43	1.24

No.	Sodium benzoate (mg/g)	morphine (mg/g)			codeine (mg/g)			liquiritin (mg/g)			glycyrrhizic acid (mg/g)		
	SCM	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%
S45	14.57	3.14	3.14	0.00	1.29	1.29	0.00	6.50	6.50	0.00	63.86	63.00	1.36
S46	14.36	3.36	3.29	2.17	1.29	1.29	0.00	6.50	6.50	0.00	63.93	63.07	1.36
S47	14.36	3.07	3.07	0.00	1.29	1.29	0.00	6.64	6.64	0.00	63.57	62.79	1.25
S48	14.64	3.14	3.14	0.00	1.29	1.29	0.00	6.71	6.71	0.00	63.07	62.29	1.26
S49	14.57	3.07	3.07	0.00	1.29	1.29	0.00	6.86	6.86	0.00	64.14	63.29	1.35
S50	14.43	3.14	3.07	2.33	1.29	1.29	0.00	6.71	6.71	0.00	63.21	62.36	1.37
S51	14.21	3.00	3.00	0.00	1.29	1.29	0.00	6.79	6.79	0.00	63.29	62.50	1.26
S52	14.29	3.14	3.14	0.00	1.21	1.21	0.00	4.93	4.93	0.00	61.86	61.00	1.41
S53	14.57	3.14	3.14	0.00	1.21	1.21	0.00	4.93	4.93	0.00	62.36	61.57	1.28
S54	14.64	3.14	3.14	0.00	1.29	1.21	5.88	5.00	5.00	0.00	63.21	62.43	1.26
S55	14.43	3.07	3.07	0.00	1.29	1.29	0.00	4.79	4.79	0.00	62.14	61.29	1.40
S56	14.36	3.14	3.14	0.00	1.21	1.21	0.00	4.86	4.86	0.00	62.79	61.93	1.38
S57	14.50	3.07	3.07	0.00	1.29	1.29	0.00	4.57	4.50	1.59	69.07	68.21	1.26
S58	14.29	3.21	3.21	0.00	1.29	1.29	0.00	4.79	4.71	1.52	62.36	61.50	1.39
S59	14.36	3.14	3.07	2.33	1.29	1.29	0.00	4.71	4.71	0.00	62.14	61.36	1.28
S60	15.14	3.29	3.29	0.00	1.36	1.29	5.56	4.64	4.64	0.00	70.50	69.57	1.33
S61	14.36	3.21	3.14	2.27	1.29	1.29	0.00	4.50	4.50	0.00	70.21	69.36	1.24
S62	14.50	3.14	3.14	0.00	1.29	1.29	0.00	4.50	4.50	0.00	68.64	67.79	1.26
S63	14.79	3.21	3.21	0.00	1.29	1.29	0.00	4.43	4.43	0.00	69.50	68.64	1.25
S64	14.29	3.07	3.00	2.38	1.29	1.29	0.00	4.71	4.71	0.00	71.00	70.14	1.22
S65	14.29	3.21	3.21	0.00	1.29	1.29	0.00	4.36	4.29	1.67	67.79	66.93	1.28
S66	14.43	3.14	3.14	0.00	1.29	1.29	0.00	4.71	4.71	0.00	69.57	68.71	1.25
S67	14.71	3.21	3.21	0.00	1.36	1.36	0.00	4.57	4.57	0.00	60.64	59.86	1.31

No.	Sodium benzoate (mg/g)	morphine (mg/g)			codeine (mg/g)			liquiritin (mg/g)			glycyrrhizic acid (mg/g)		
	SCM	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%
S68	14.21	3.07	3.07	0.00	1.29	1.29	0.00	4.50	4.50	0.00	68.71	67.86	1.26
S69	14.29	3.14	3.14	0.00	1.29	1.29	0.00	4.36	4.36	0.00	67.57	66.71	1.28
S70	14.86	3.29	3.21	2.22	1.43	1.36	5.26	4.64	4.64	0.00	62.07	61.29	1.28
S71	14.14	3.07	3.07	0.00	1.29	1.29	0.00	3.93	3.93	0.00	65.79	64.93	1.32
S72	14.07	3.07	3.07	0.00	1.29	1.29	0.00	4.00	4.00	0.00	65.86	65.07	1.21
S73	14.00	3.14	3.14	0.00	1.29	1.29	0.00	4.64	4.64	0.00	63.07	62.29	1.26
S74	13.43	3.07	3.07	0.00	1.29	1.29	0.00	4.29	4.29	0.00	63.93	63.21	1.13
S75	13.79	3.21	3.21	0.00	1.36	1.29	5.56	4.29	4.29	0.00	66.00	65.21	1.20
S76	14.36	3.21	3.21	0.00	1.36	1.36	0.00	4.36	4.36	0.00	68.00	67.14	1.28
S77	13.79	3.00	3.00	0.00	1.29	1.29	0.00	4.29	4.29	0.00	64.71	63.86	1.34
S78	13.64	3.14	3.07	2.33	1.29	1.29	0.00	4.29	4.29	0.00	65.29	64.50	1.22
S79	13.79	3.21	3.21	0.00	1.36	1.36	0.00	4.21	4.21	0.00	67.14	66.36	1.18
S80	12.86	3.21	3.21	0.00	1.36	1.36	0.00	4.29	4.21	1.69	66.50	65.79	1.09
S81	12.86	3.43	3.43	0.00	1.36	1.36	0.00	4.29	4.29	0.00	65.29	64.57	1.11
S82	13.79	3.36	3.36	0.00	1.43	1.36	5.26	4.21	4.21	0.00	65.43	64.64	1.22
S83	13.71	3.07	3.07	0.00	1.29	1.29	0.00	4.07	4.07	0.00	64.43	63.64	1.23
S84	15.00	3.14	3.14	0.00	1.29	1.29	0.00	3.86	3.86	0.00	63.71	62.86	1.36
S85	14.00	3.14	3.14	0.00	1.29	1.21	5.88	4.36	4.29	1.67	66.93	66.14	1.19
S86	13.71	3.07	3.07	0.00	1.29	1.29	0.00	4.57	4.57	0.00	69.50	68.64	1.25
S87	13.79	3.14	3.14	0.00	1.29	1.29	0.00	4.57	4.57	0.00	71.00	70.14	1.22
S88	14.14	3.14	3.14	0.00	1.29	1.29	0.00	4.64	4.57	1.56	69.14	68.29	1.26
S89	16.00	3.21	3.21	0.00	1.29	1.29	0.00	5.00	5.00	0.00	74.79	73.86	1.26
S90	14.21	3.07	3.07	0.00	1.29	1.29	0.00	4.64	4.64	0.00	71.43	70.57	1.21

No.	Sodium benzoate (mg/g)	morphine (mg/g)			codeine (mg/g)			liquiritin (mg/g)			glycyrrhizic acid (mg/g)		
	SCM	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%
S91	14.07	3.07	3.07	0.00	1.21	1.21	0.00	4.57	4.57	0.00	78.93	78.07	1.10
S92	14.43	3.14	3.14	0.00	1.29	1.29	0.00	4.86	4.86	0.00	73.64	72.79	1.18
S93	14.43	3.07	3.07	0.00	1.29	1.29	0.00	4.43	4.43	0.00	71.79	70.93	1.21
S94	14.43	3.14	3.14	0.00	1.29	1.29	0.00	4.50	4.43	1.61	74.14	73.29	1.17
S95	13.29	2.93	2.93	0.00	1.14	1.14	0.00	5.57	5.57	0.00	70.57	69.79	1.13
S96	14.36	3.07	3.07	0.00	1.29	1.29	0.00	4.71	4.71	0.00	74.86	74.00	1.16
S97	13.93	3.14	3.14	0.00	1.29	1.29	0.00	5.43	5.43	0.00	67.21	66.43	1.18
S98	13.00	3.14	3.14	0.00	1.36	1.36	0.00	5.43	5.43	0.00	67.43	66.64	1.18
S99	13.36	3.14	3.14	0.00	1.29	1.29	0.00	5.14	5.14	0.00	65.07	64.36	1.11
S100	13.43	3.14	3.14	0.00	1.43	1.43	0.00	4.79	4.79	0.00	65.07	64.36	1.11
S101	14.57	3.21	3.21	0.00	1.43	1.43	0.00	5.00	5.00	0.00	66.43	65.57	1.31
S102	12.93	3.29	3.29	0.00	1.29	1.29	0.00	4.79	4.79	0.00	67.00	66.29	1.08
S103	13.79	3.00	3.00	0.00	1.29	1.29	0.00	4.71	4.71	0.00	66.79	66.00	1.19
S104	13.07	3.14	3.14	0.00	1.14	1.14	0.00	4.50	4.50	0.00	68.50	67.79	1.05
S105	13.50	3.14	3.14	0.00	1.36	1.36	0.00	4.64	4.64	0.00	71.50	70.71	1.11
S106	14.00	3.07	3.07	0.00	1.36	1.36	0.00	4.79	4.79	0.00	72.43	71.64	1.10
S107	13.43	3.00	3.00	0.00	1.36	1.36	0.00	4.57	4.57	0.00	70.50	69.71	1.13
S108	13.71	3.00	3.00	0.00	1.29	1.29	0.00	4.57	4.57	0.00	69.36	68.57	1.15
S109	14.71	3.36	3.36	0.00	1.36	1.36	0.00	4.29	4.21	1.69	66.86	66.00	1.30
S110	14.36	3.21	3.21	0.00	1.36	1.36	0.00	4.36	4.36	0.00	66.57	65.79	1.19
S111	14.43	3.29	3.29	0.00	1.29	1.29	0.00	4.29	4.29	0.00	66.64	65.79	1.30
S112	14.57	3.21	3.21	0.00	1.29	1.29	0.00	4.36	4.29	1.67	66.57	65.71	1.30
S113	15.29	3.21	3.14	2.27	1.36	1.29	5.56	4.29	4.21	1.69	67.79	66.86	1.39

No.	Sodium benzoate (mg/g)	morphine (mg/g)			codeine (mg/g)			liquiritin (mg/g)			glycyrrhizic acid (mg/g)		
	SCM	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%
S114	15.00	3.29	3.29	0.00	1.29	1.29	0.00	4.29	4.29	0.00	69.14	68.21	1.36
S115	14.86	3.14	3.14	0.00	1.29	1.29	0.00	4.21	4.21	0.00	67.79	66.93	1.28
S116	14.36	3.14	3.14	0.00	1.36	1.36	0.00	4.29	4.29	0.00	66.86	66.07	1.19
S117	14.86	3.21	3.21	0.00	1.36	1.43	-5.00	4.29	4.29	0.00	68.50	67.64	1.27
S118	14.57	3.14	3.14	0.00	1.36	1.36	0.00	4.14	4.14	0.00	67.07	66.21	1.29
S119	14.79	3.21	3.21	0.00	1.36	1.36	0.00	4.21	4.21	0.00	68.07	67.21	1.28
S120	14.79	3.07	3.07	0.00	1.36	1.36	0.00	4.21	4.21	0.00	67.00	66.14	1.30
S121	14.43	3.00	3.00	0.00	1.29	1.29	0.00	4.14	4.14	0.00	70.50	69.64	1.23
S122	14.64	3.00	3.00	0.00	1.29	1.29	0.00	4.21	4.14	1.72	71.00	70.14	1.22
S123	14.79	3.07	3.07	0.00	1.36	1.29	5.56	4.21	4.21	0.00	71.50	70.57	1.32
S124	14.50	3.14	3.14	0.00	1.36	1.29	5.56	4.21	4.21	0.00	71.14	70.29	1.22
S125	14.57	3.00	2.93	2.44	1.29	1.29	0.00	4.29	4.29	0.00	71.71	70.86	1.21
S126	14.93	3.14	3.14	0.00	1.36	1.29	5.56	4.36	4.36	0.00	73.29	72.36	1.28
S127	14.50	3.00	3.00	0.00	1.36	1.29	5.56	4.07	4.07	0.00	70.71	69.86	1.23
S128	14.71	3.21	3.21	0.00	1.36	1.36	0.00	4.14	4.14	0.00	72.50	71.57	1.30
S129	14.71	3.14	3.14	0.00	1.36	1.29	5.56	4.07	4.00	1.79	70.50	69.64	1.23
S130	14.43	3.00	3.00	0.00	1.36	1.43	-5.00	4.07	4.07	0.00	70.93	70.07	1.22
S131	14.57	3.00	3.00	0.00	1.29	1.29	0.00	4.07	4.07	0.00	70.71	69.86	1.23
S132	14.64	3.07	3.07	0.00	1.29	1.29	0.00	3.86	3.86	0.00	68.29	67.43	1.27
S133	13.93	3.07	3.07	0.00	1.43	1.43	0.00	5.14	5.14	0.00	68.29	67.50	1.16
S134	13.00	3.07	3.07	0.00	1.21	1.21	0.00	5.14	5.14	0.00	69.50	68.71	1.14
S135	14.36	3.00	3.00	0.00	1.29	1.36	-5.26	4.79	4.79	0.00	72.36	71.50	1.20
S136	13.79	3.07	3.07	0.00	1.29	1.36	-5.26	4.86	4.86	0.00	72.50	71.71	1.10

No.	Sodium benzoate (mg/g)	morphine (mg/g)			codeine (mg/g)			liquiritin (mg/g)			glycyrrhizic acid (mg/g)		
	SCM	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%	QAMS	SCM	RE%
S137	13.79	3.00	3.00	0.00	1.29	1.36	-5.26	4.79	4.79	0.00	69.79	68.93	1.24
S138	14.36	3.00	2.93	2.44	1.29	1.36	-5.26	4.86	4.86	0.00	71.21	70.36	1.22
S139	14.00	2.93	2.93	0.00	1.36	1.29	5.56	4.57	4.57	0.00	70.86	70.00	1.22
S140	13.43	3.36	3.36	0.00	1.36	1.36	0.00	4.57	4.57	0.00	71.07	70.29	1.12
S141	14.07	3.21	3.21	0.00	1.43	1.36	5.26	4.14	4.14	0.00	71.71	70.93	1.11
S142	13.93	3.21	3.21	0.00	1.36	1.43	-5.00	4.36	4.36	0.00	71.07	70.21	1.22
S143	14.79	3.57	3.57	0.00	1.43	1.43	0.00	4.21	4.21	0.00	63.79	63.00	1.25
S144	14.71	3.43	3.36	2.13	1.36	1.36	0.00	4.29	4.29	0.00	65.79	65.00	1.21
S145	13.86	3.07	3.00	2.38	1.43	1.36	5.26	4.43	4.43	0.00	66.00	65.21	1.20
S146	13.64	3.00	3.00	0.00	1.29	1.29	0.00	4.43	4.43	0.00	66.57	65.79	1.19
S147	14.14	3.07	3.07	0.00	1.36	1.43	-5.00	4.57	4.57	0.00	68.36	67.50	1.27
S148	14.29	3.14	3.14	0.00	1.29	1.36	-5.26	5.07	5.07	0.00	68.36	67.50	1.27
S149	14.57	3.07	3.07	0.00	1.29	1.36	-5.26	5.07	5.07	0.00	71.36	70.50	1.22
S150	13.79	3.07	3.07	0.00	1.29	1.36	-5.26	5.21	5.21	0.00	65.50	64.71	1.21
S151	14.29	3.07	3.07	0.00	1.36	1.43	-5.00	3.93	3.86	1.85	66.43	65.57	1.31
S152	13.79	3.00	3.00	0.00	1.36	1.36	0.00	4.50	4.50	0.00	71.79	70.93	1.21
S153	13.71	3.14	3.14	0.00	1.29	1.36	-5.26	4.43	4.43	0.00	68.14	67.36	1.17
S154	14.00	3.14	3.14	0.00	1.43	1.36	5.26	4.14	4.07	1.75	67.43	66.64	1.18
S155	14.00	3.00	3.00	0.00	1.36	1.36	0.00	4.29	4.29	0.00	69.79	69.00	1.14
S156	14.00	3.07	3.07	0.00	1.36	1.36	0.00	4.29	4.29	0.00	69.57	68.79	1.14