

Supplementary Materials

Table S1. Reference substance, mobile phase and wavelength used for HPLC detection of substance content

Material No.	Extract granule	APIs	Mobile phase (v/v)	Detection wavelength (nm)
1	<i>Paeoniae Radix Alba</i>	Paeoniflorin	Acetonitrile-0.1%Phosphoric Acid solution (14:86)	230
2	<i>Processed Fructus xanthii</i>	Chlorogenic Acid	Acetonitrile- 0.1% Phosphoric Acid solution (10:90)	327
3	<i>Processed toasted almond</i>	Amygdalin	Methanol-Water (14:86)	210
4	<i>Lonicerae Japonicae Flos</i>	Chlorogenic acid	Acetonitrile- 0.4 % Phosphoric Acid solution (7:93)	327
5	<i>Processed semen plataginis</i>	Geniposide	Methanol-Water- Acetic Acid solution (10:90:1.5)	254
6	<i>Alismatis Rhizoma</i>	23-Acetyl-Alismol	Acetonitrile-Water (73:27)	208
7	<i>Lonicerae Japonicae Flos</i>	Chlorogenic acid	Acetonitrile- 0.4 % Phosphoric Acid solution (7:93)	327
8	<i>Ecliptae Herba</i>	Wedelolactone	Acetonitrile-Phosphoric Acid Triethylamine (PH=2.4) (30:70)	351
9	<i>Cibotii Rhizoma</i>	Protocatechuic Acid	Acetonitrile-Acetic Acid solution (5:95)	260
10	<i>Glycyrrhizae radix et rhizome Praeparata cum melle</i>	Liquiritin	See table S1.1a	237
11	<i>Alismatis Rhizoma</i>	23-Acetyl-Alismol	Acetonitrile-Water (73:27)	208
12	<i>Belamcandae Rhizoma</i>	Irigenin	Methanol -0.2% Phosphonic acid (53:47)	266
13	<i>Radix Paeoniae Rubra</i>	Paeoniflorin	Acetonitrile-1% Phosphonic acid (14:86)	230
14	<i>Scrophulariae Radix</i>	Harpagoside	See table S1.1b	210
15	<i>Chuanxiong Rhizoma</i>	Ferulic Acid	Methanol-0.1% Acetic Acid solution (30:70)	321
16	<i>Taraxaci Herba</i>	Caffeic Acid	Methanol-PBS(PH=3.8~4.0) (20:80)	323
17	<i>Processed Radix Polygalae</i>	3,6-Disinapoylsucrose	See table S1.1c	230
18	<i>Rhei Radix Et Rhizoma</i>	Aloe-Emodine	Ethanol-0.1% Phosphonic acid (85:15)	254
19	<i>Angelica sinensis</i>	Ferulic Acid	Acetonitrile-0.085 % Phosphoric Acid (17:83)	316
20	<i>Dipsaci Radix</i>	Asperosaponin	Acetonitrile-0.1% Acetic Acid solution (5:95)	327
21	<i>Mume Fructus</i>	Citric Acid	Acetonitrile-5% Ammonium Dihydrogen Phosphate (3:97)	254
22	<i>Cirsii Herba</i>	Linarin	Methanol-0.5% Acetic Acid solution (55:45)	326

Table S1.a Gradient elution of mobile phase for HPLC detecting the *Glycyrrhizae Radix Et Rhizoma*.

Time (min)	Mobile phase-Acetonitrile (%)	Mobile phase-0.05% Phosphoric Acid (%)
0~8	19	81
8~35	19→50	81→50
35~36	50→100	50→0
36~40	100→19	0→81

Note: Symbol “~” means one time point to another. Symbol “→” represents the change of mobile phase

Table S1. b Gradient elution of mobile phase for HPLC detecting the *Scrophulariae Radix*.

Time (min)	Mobile phase-acetonitrile (%)	Mobile phase-0.03% phosphoric Acid (%)
0~10	3→10	97→90
10~20	10→33	90→67
20~25	33→50	67→50
25~30	50→80	50→20
30~35	80	20
35~37	80→3	20→97

Table S1. c Gradient elution of mobile phase for HPLC detecting the *Processed Radix Polygala*.

Time (min)	Mobile phase-Acetonitrile (%)	Mobile Phase-0.05% Phosphoric Acid (%)
0~50	12	88
50~90	18	82

Table S2. The difference matrix of physical properties for various materials (No.7 to No.22 is consistent with the Table 1).

Material No	Da	H	HR	IC	Ie	a	IH	pf	Iθ	Dc	Span	t	D10	D50	D90	aspect ratio	radius ratio	round-ness	irregularity
7	0.007	18.49	2.083	16.18	0.355	15.00	0.334	0.230	0.000194	0.158	1.36	0.00	2.87	0.31	13.83	0.093	0.397	0.046	0.005
8	0.020	33.02	0.077	18.22	0.387	15.70	0.367	0.196	0.000140	0.189	1.41	0.00	3.18	0.74	11.85	0.013	0.280	0.037	0.065
9	0.095	17.61	1.802	8.60	0.014	4.78	0.197	0.554	0.001075	0.222	1.41	0.00	0.35	12.44	45.44	0.157	0.575	0.169	0.086
10	0.003	15.02	1.665	16.95	0.377	14.69	0.347	0.330	0.000712	0.159	2.95	0.53	2.99	1.71	38.31	0.031	0.152	0.011	0.014
11	0.112	24.58	1.447	4.90	0.435	3.70	0.138	0.266	0.000216	0.135	1.33	0.00	2.92	1.29	15.51	0.423	1.043	0.233	0.122
12	0.106	19.14	0.093	6.29	0.278	9.59	0.149	0.515	0.001079	0.089	1.69	0.00	1.30	10.64	46.28	0.243	0.655	0.114	0.079
13	0.193	10.82	4.342	3.04	0.305	9.02	0.075	0.512	0.001269	0.263	3.02	0.00	2.96	13.32	86.28	0.359	0.715	0.191	0.183
14	0.204	14.18	4.053	2.28	0.303	6.51	0.057	0.625	0.001718	0.292	1.80	0.00	2.13	27.36	91.98	0.225	0.566	0.170	0.050
15	0.075	9.63	1.990	2.85	0.068	0.94	0.078	0.702	0.001867	0.162	1.59	0.00	1.05	36.82	110.95	0.521	1.486	0.341	0.149
16	0.075	31.22	1.092	1.98	0.119	2.96	0.050	0.206	0.000181	0.139	1.55	0.00	2.99	0.24	14.75	0.155	0.518	0.062	0.070
17	0.006	16.36	5.150	3.32	0.087	4.71	0.091	0.424	0.001010	0.031	2.98	0.00	3.37	4.10	44.11	0.278	1.032	0.067	0.132
18	0.174	16.04	0.355	6.03	0.767	4.83	0.174	0.273	0.000521	0.233	2.99	0.00	3.49	2.09	24.02	0.119	0.462	0.082	0.007
19	0.082	17.60	0.062	6.82	0.262	6.87	0.160	0.530	0.001191	0.048	1.67	0.00	1.04	11.68	48.41	0.112	0.503	0.072	0.015
20	0.294	21.46	0.718	9.71	2.295	3.93	0.300	0.017	0.000000	0.429	0.76	0.00	4.43	5.61	4.29	0.166	1.019	0.210	0.020
21	0.170	11.56	0.408	18.76	0.540	19.33	0.375	0.621	0.001415	0.043	1.41	0.00	1.19	16.18	54.90	0.052	0.052	0.009	0.113
22	0.080	33.53	0.105	0.62	0.142	3.25	0.016	0.079	0.000000	0.121	1.74	23.17	4.79	4.26	4.40	0.281	0.844	0.167	0.061

Figure S1. SEM images of natural product powders No.12 to No.22 (The number is consistent with Table 1).

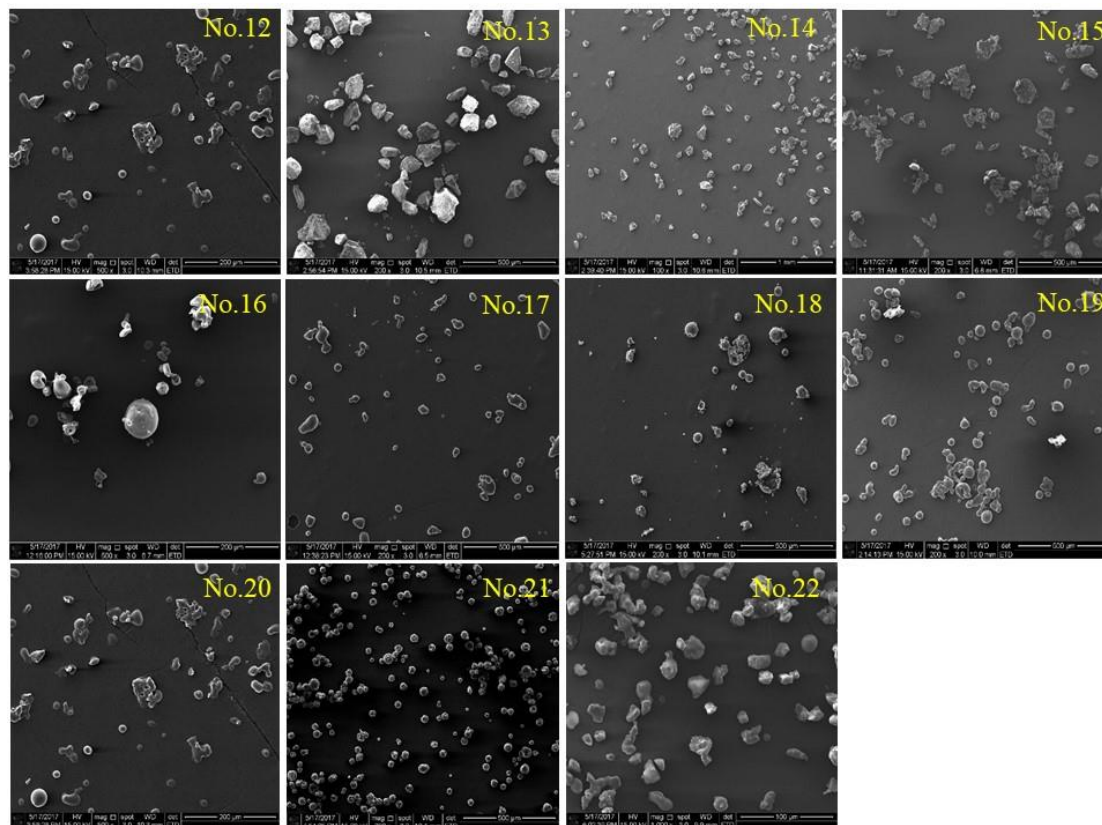


Figure S2. On-line monitoring results of the blending process for different natural plant granules (materials No. 7 to No. 22).

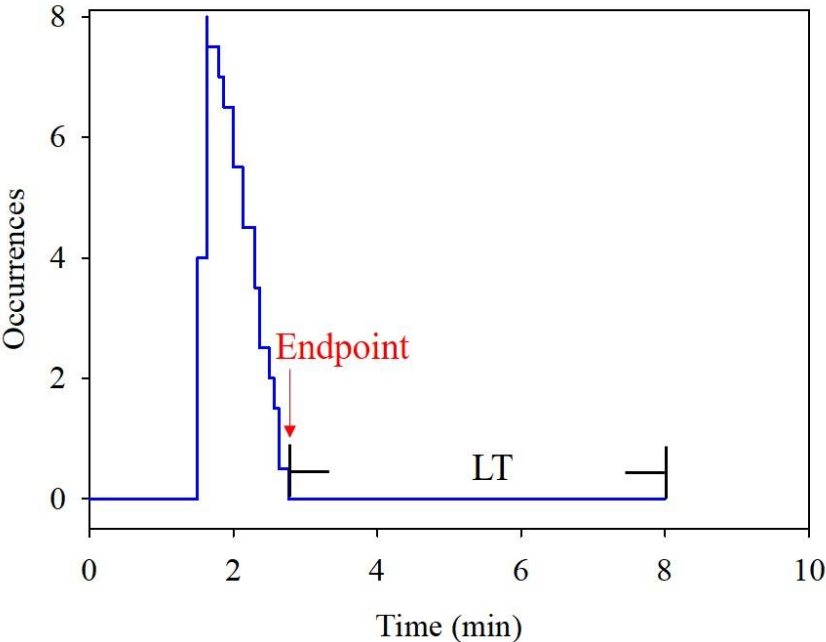


Figure S2. (a) *Lonicerae Japonicae Flos*.

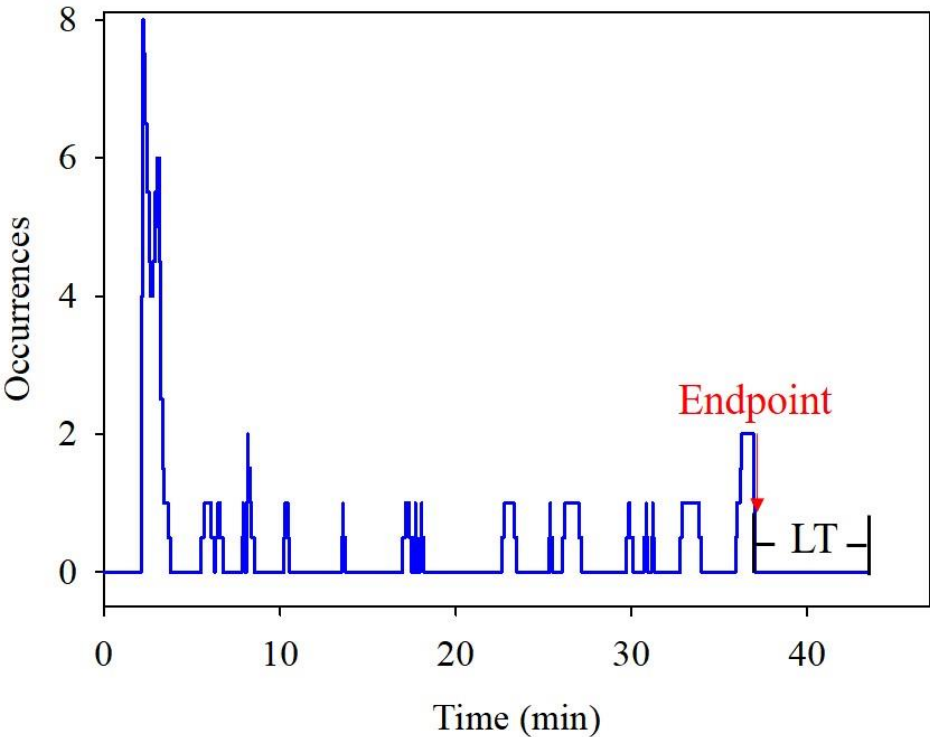


Figure S2. (b) *Ecliptae Herba*.

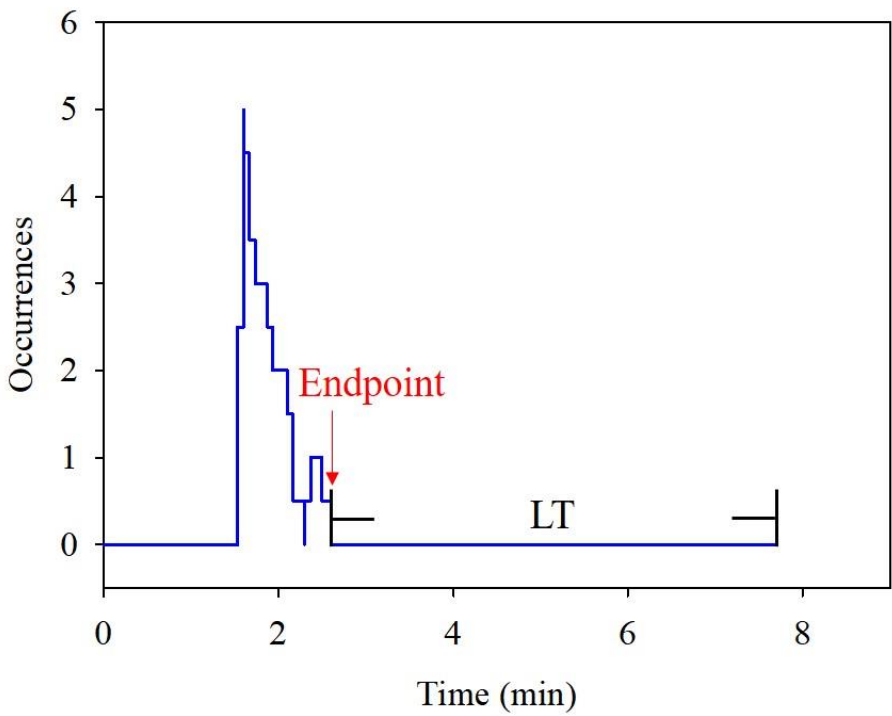


Figure S2. (c) Ciboții Rhizoma.

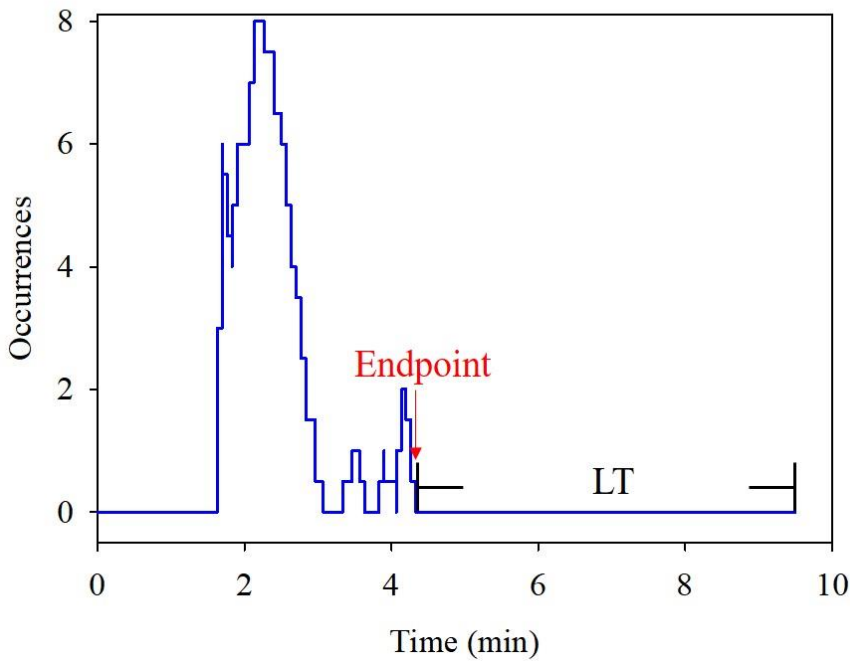


Figure S2. (d) Glycyrrhizae radix et rhizome Praeparata cum melle.

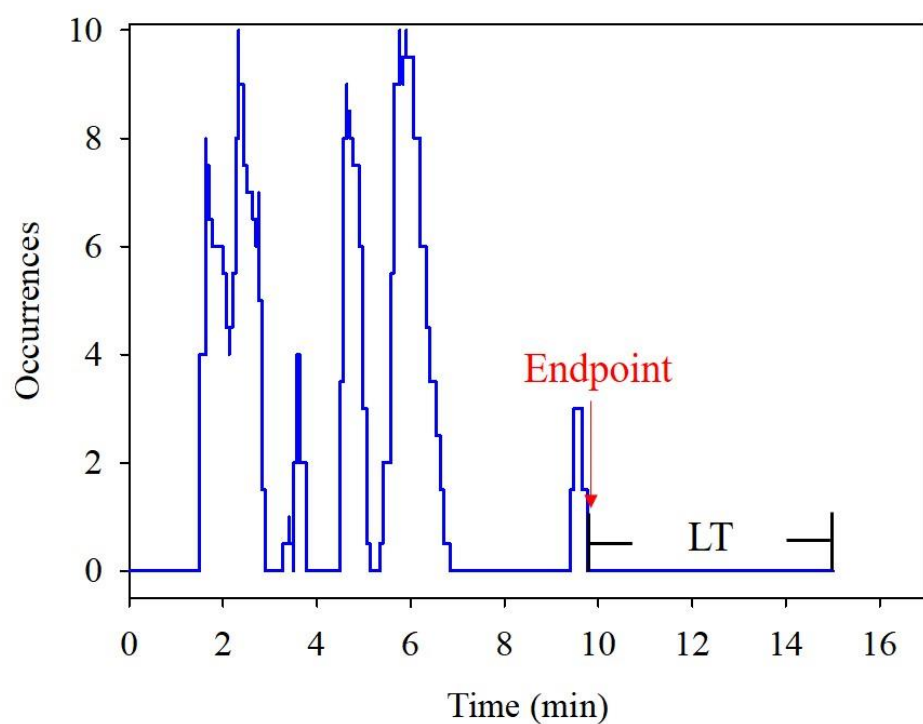


Figure S2. (e) *Alismatis Rhizoma*.

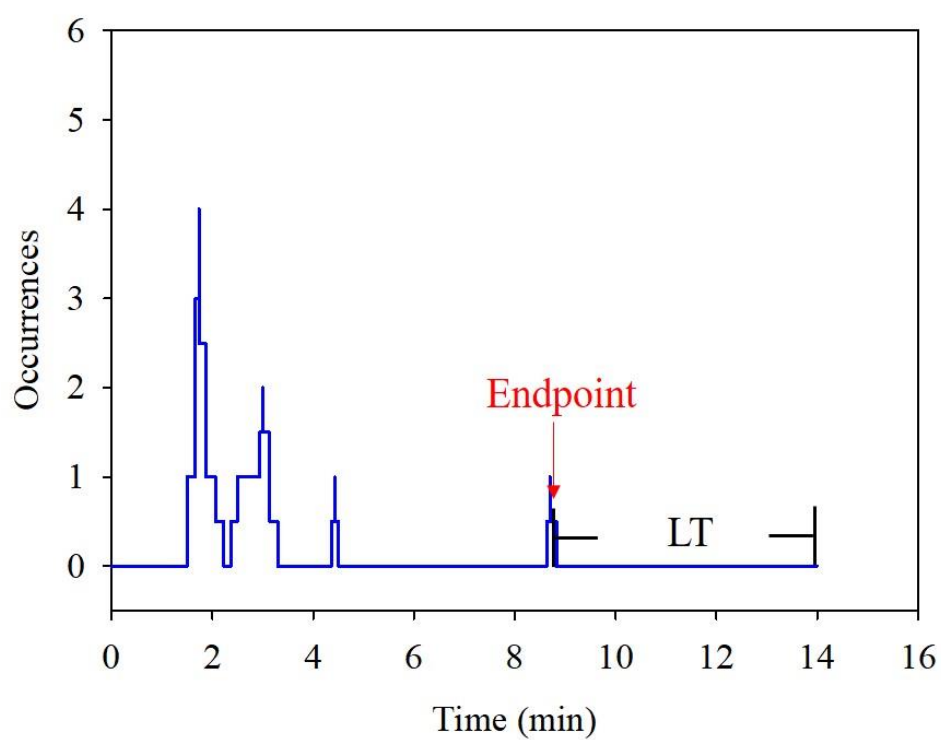


Figure S2. (f) *Belamcandae Rhizoma*.

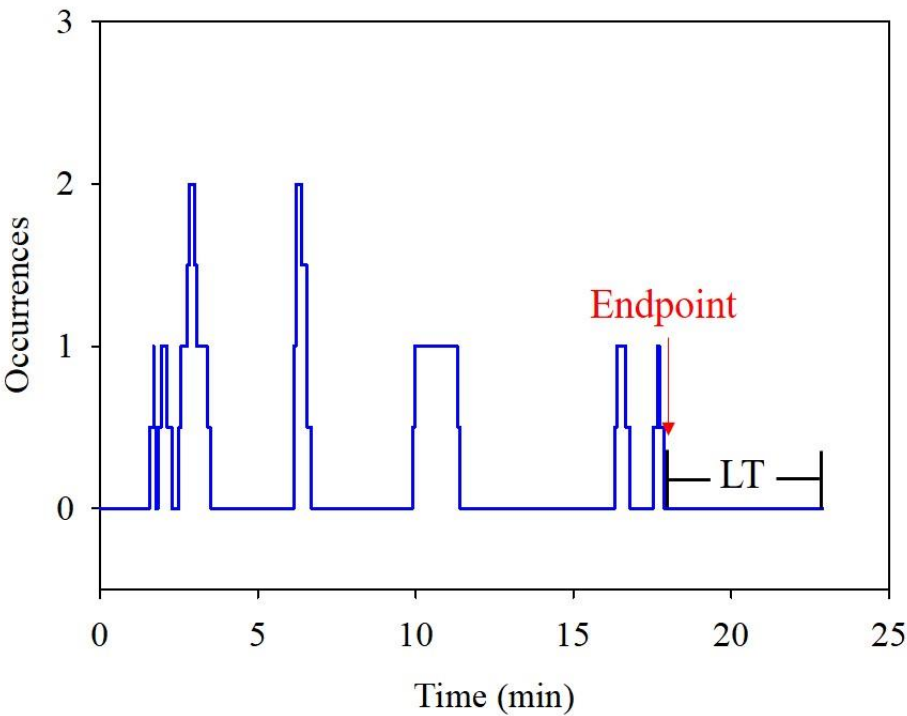


Figure S2. (g) *Radix Paeoniae Rubra*.

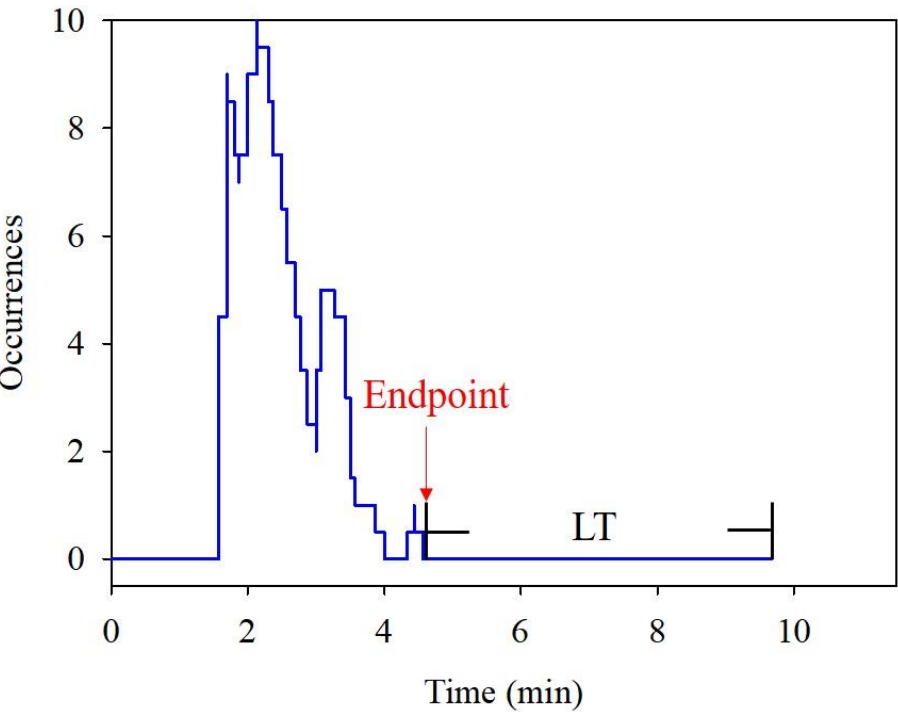


Figure S2. (h) *Scrophulariae Radix*.

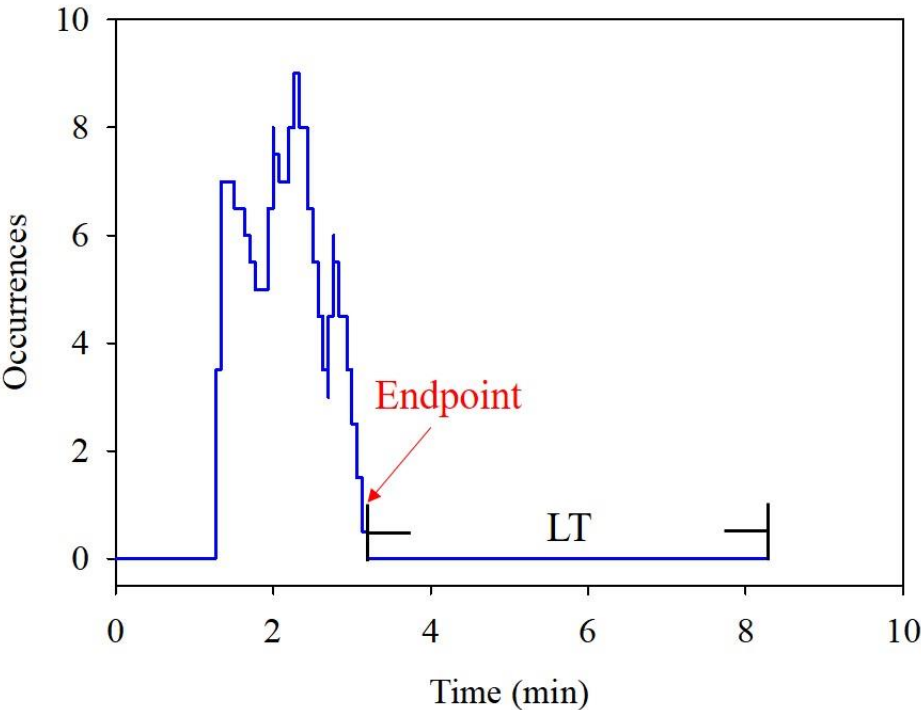


Figure S2. (i) Chuanxiong Rhizoma.

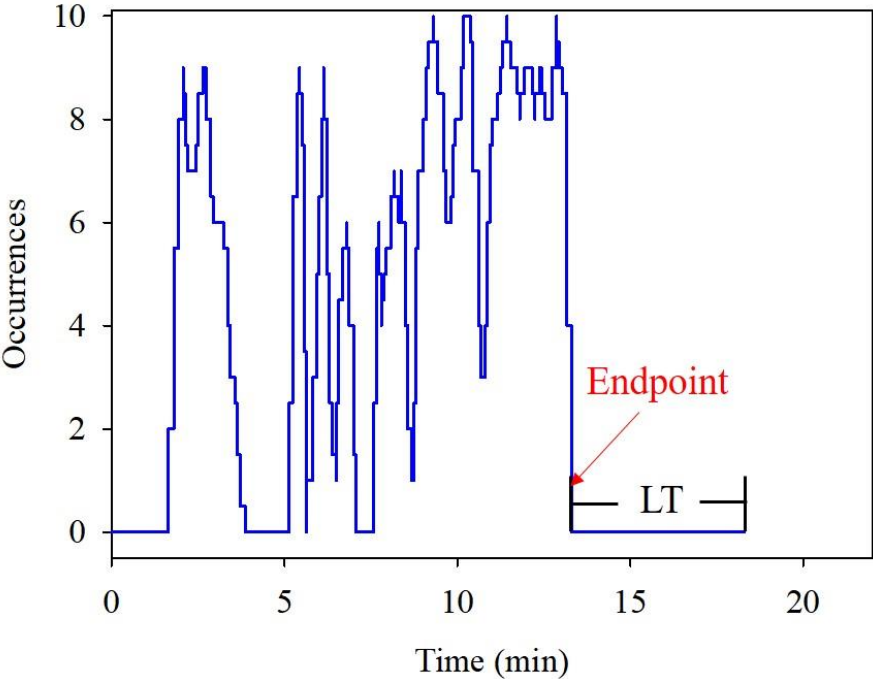


Figure S2. (j) Taraxaci Herba.

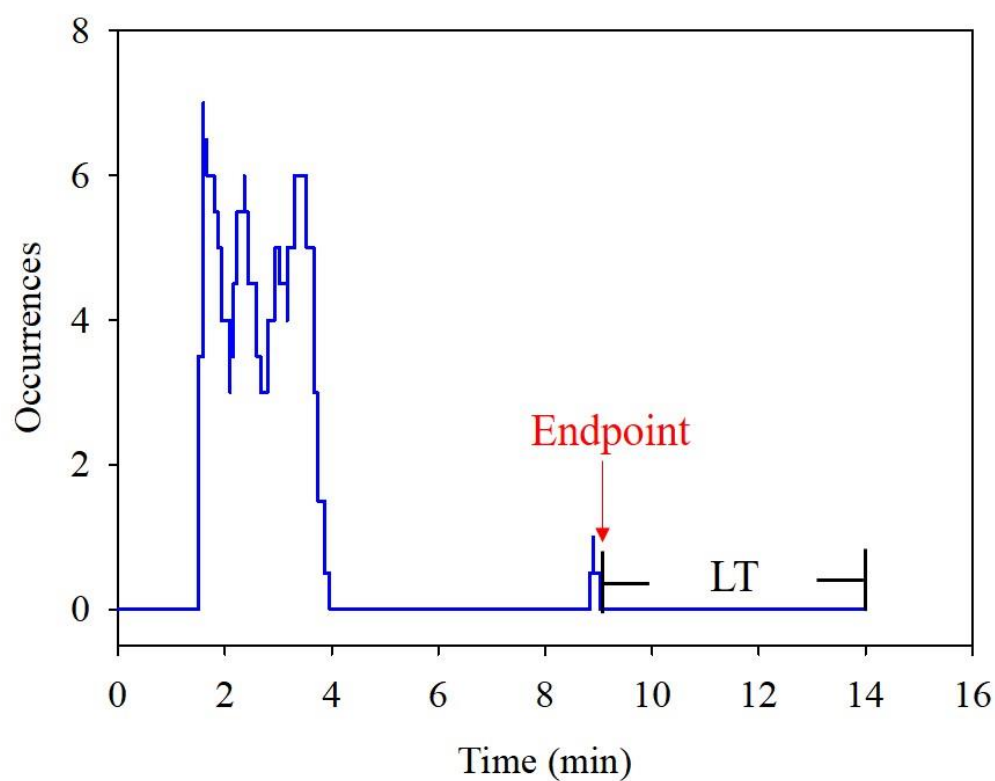


Figure S2. (k) Processed Radix Polygalae.

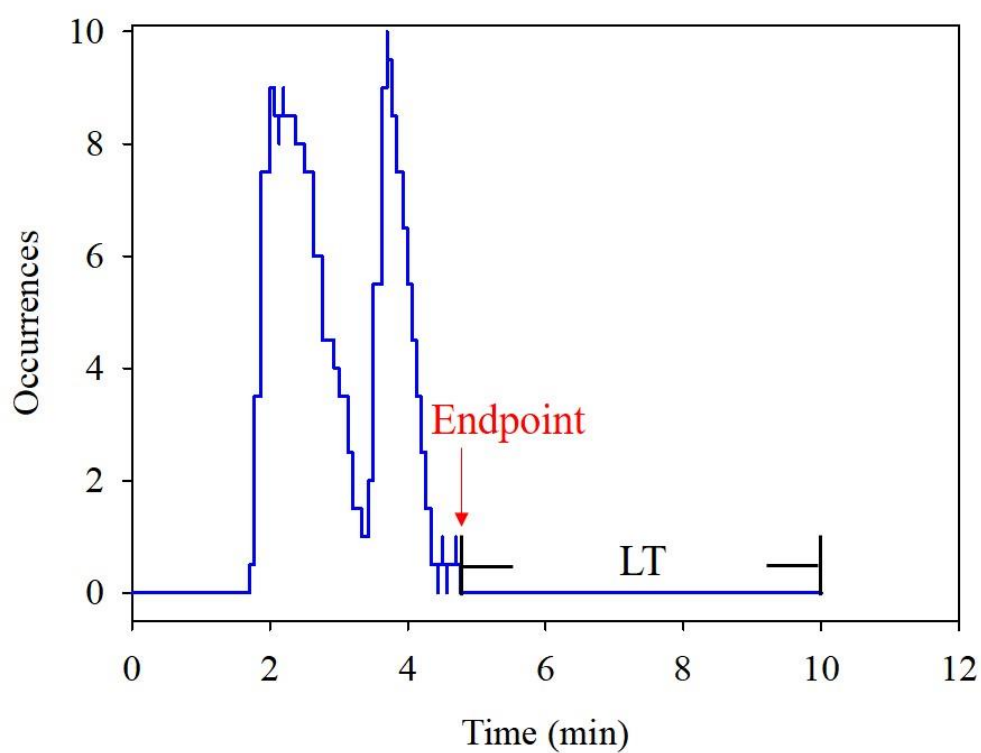


Figure S2. (l) Rhei Radix Et Rhizoma.

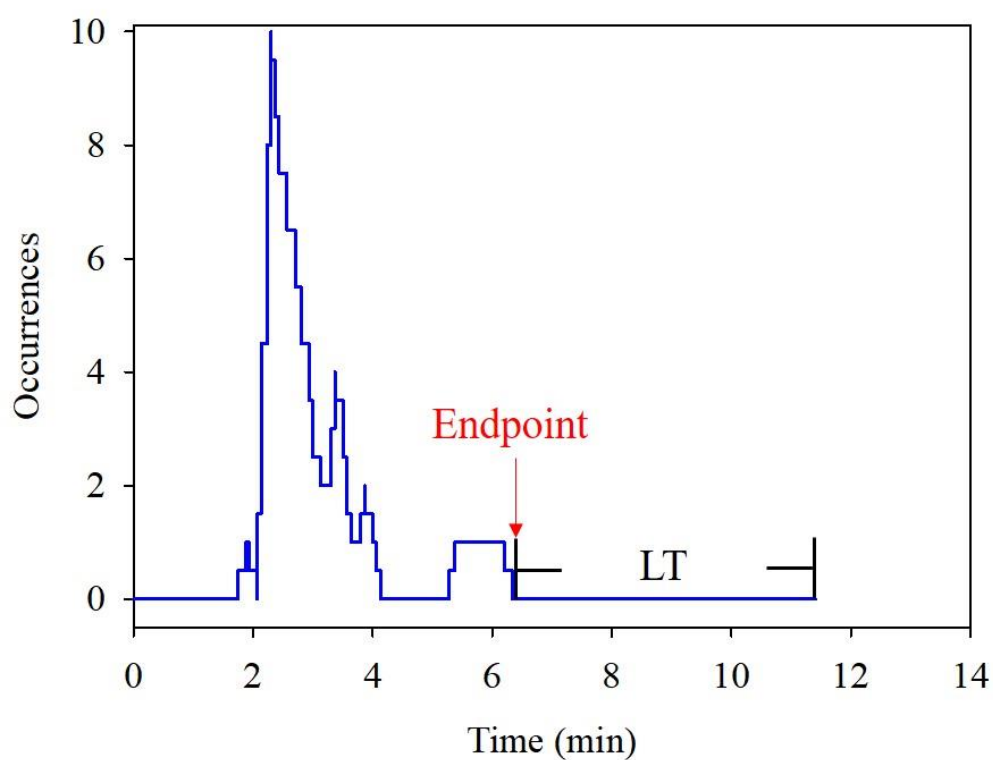


Figure S2. (m) *Angelica sinensis*.

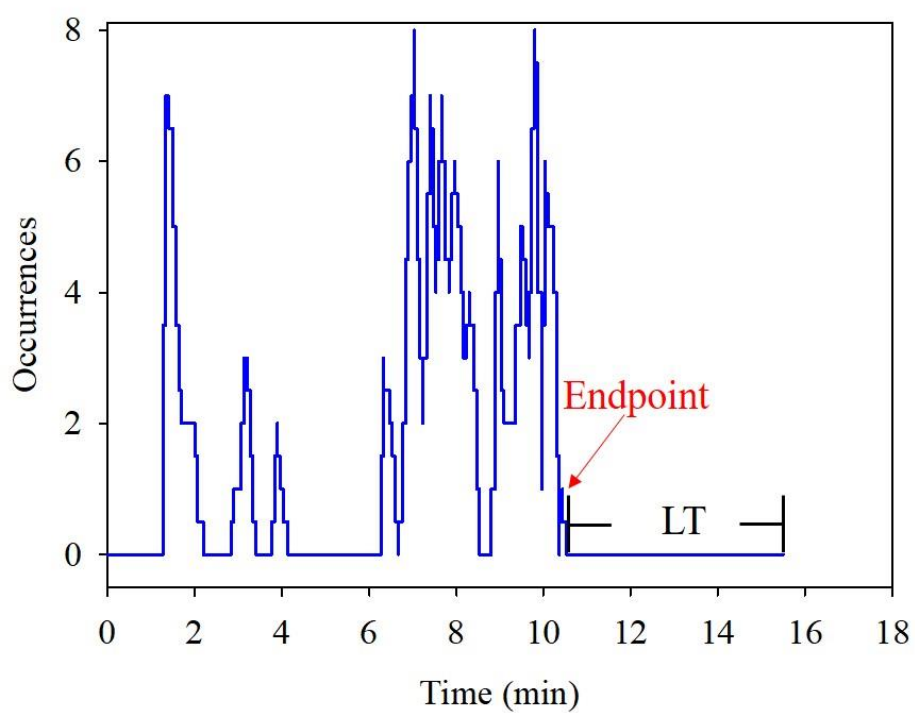


Figure S2. (n) *Dipsaci Radix*.

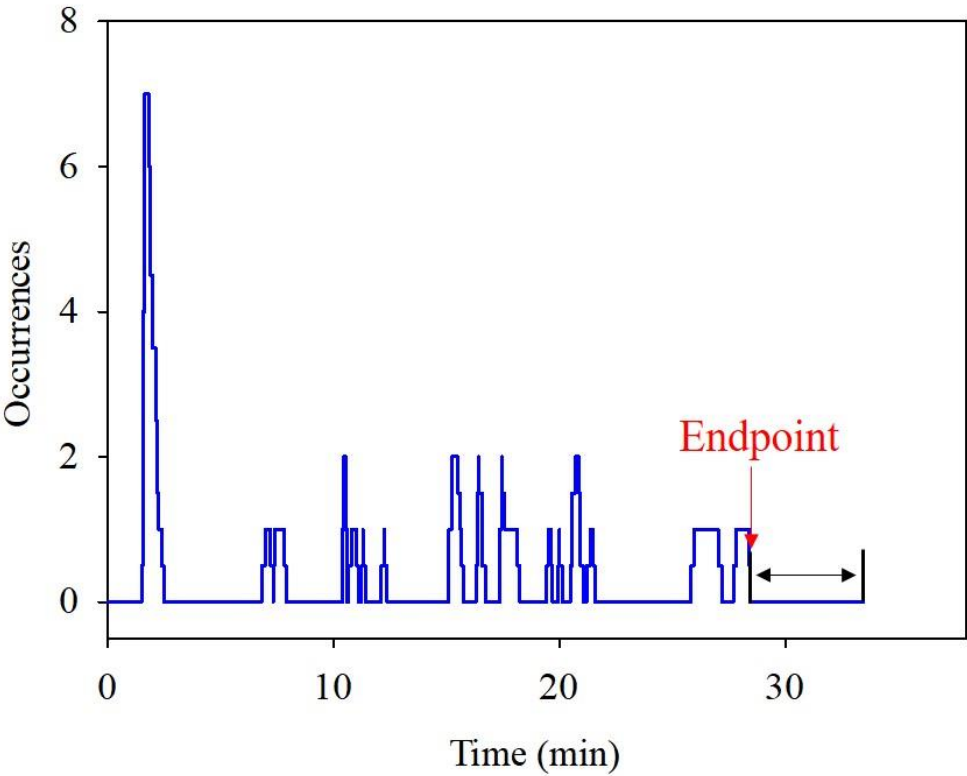


Figure S2. (o) *Mume Fructus*.

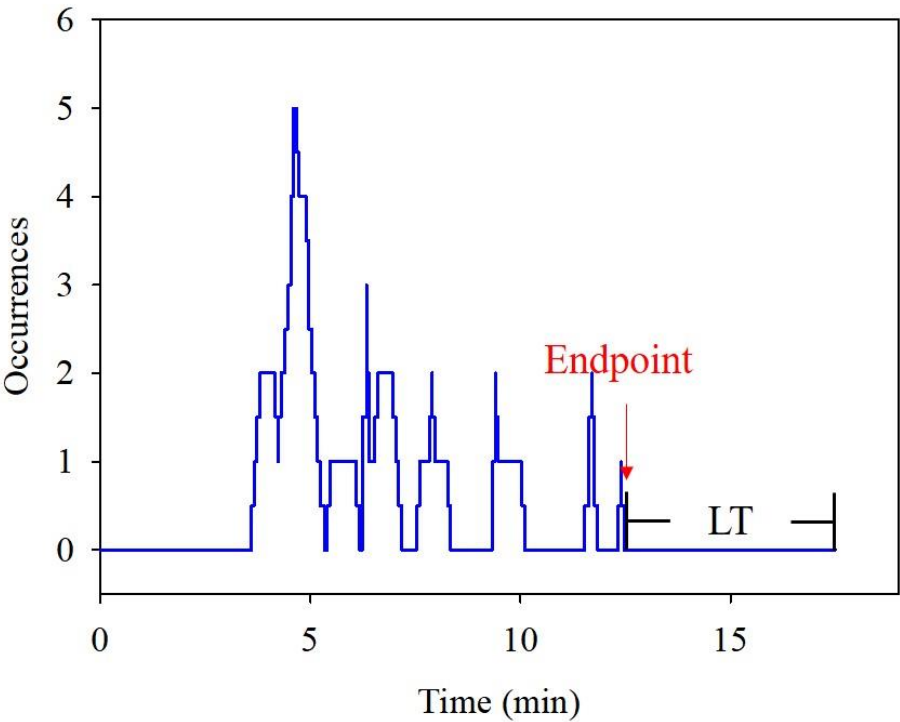


Figure S2. (p) *Cirsii Herba*.



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