

TITLE: An integrated system for identifying the hidden assassins in traditional medicines containing aristolochic acids

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SUPPLEMENTARY INFORMATION

Supplementary Table S1. A detailed list of 256 traditional Chinese patent medicines containing Aristolochiaceae materials in Chinese market today.

Supplementary Table S2. Species information for Aristolochiaceae and non-Aristolochiaceae plants used in this study.

Supplementary Table S3. List of universal primers and reaction conditions for ITS2 and *psbA-trnH*.

Supplementary Table S4. List of the 11 groups based on ITS2 sequence similarity from Aristolochiaceae.

Supplementary Table S5. Primers and Hydrolysis Probes used in Aristolochiaceae plants detection.

Supplementary Table S6. Detection of AA I and II for all species using UHPLC-HR-MS analysis.

Supplementary Table S7. Summary of commercial samples identified by DNA Barcoding, Real-Time PCR and UHPLC-HR-MS.

Supplementary Fig. S1. The NJ tree constructed from the *psbA-trnH* region from Aristolochiaceae and non-Aristolochiaceae substitutes. The bootstrap scores (1000 replicates) are shown ($\geq 50\%$) for each branch.

Supplementary Fig. S2. MS profiles of AA I for all species in UHPLC-HR-MS analysis. AA I was detected at m/z 340.0469.

Supplementary Fig. S3. MS profiles of AA II for all species in UHPLC-HR-MS analysis. AA II was detected at m/z 310.0366.

Table S1. A detailed list of 256 traditional Chinese patent medicines containing Aristolochiaceae materials in Chinese market today.

No.	AAs-containing plants	Traditional Chinese patent medicines name	Drug Standard database
1	Aristolochiae Fructus	Siwei Zhixiemutang Powder	MOH
2	Aristolochiae Fructus	Zhisou Huatan Capsules	MOH
3	Aristolochiae Fructus	Ershiwuwei Songshi Pills	Ch.P, 2000 edition
4	Aristolochiae Fructus	Zhisou Huatan Pills	Ch.P, 2000 edition
5	Aristolochiae Fructus	Xin Bitaoxian Tablets	MOH (volume 2)
6	Aristolochiae Fructus	Jingzhi Kesou Tanchuan Pills ^a	MOH (volume 20)
7	Aristolochiae Fructus	Zhisou Qingguo Tablets	MOH (volume 20)
8	Aristolochiae Fructus	Weifu Granules	MOH (volume 18)
9	Aristolochiae Fructus	Chuanxiling Capsules	MOH (volume 15)
10	Aristolochiae Fructus	Feian Tablets	MOH (volume 15)
11	Aristolochiae Fructus	Fufang Shedan Chuanbei Powder	MOH (volume 11)
12	Aristolochiae Fructus	Ershiwei Shugan Capsules	CFDA
13	Aristolochiae Fructus	Ershiwuwei Lironghao Capsules	CFDA
14	Aristolochiae Fructus	Shisanwei Shugan Capsules	CFDA
15	Aristolochiae Fructus	Shisiwei Shugan Capsules	CFDA
16	Aristolochiae Fructus	Sishierwei Shugan Capsules	CFDA
17	Aristolochiae Herba	Hewei Jiangni Capsules	CFDA
18	Aristolochiae Herba	Xiangteng Capsules	CFDA
19	Asari Radix et Rhizoma	Shenqi Capsules	MOH
20	Asari Radix et Rhizoma	Shenqi Granules	MOH
21	Asari Radix et Rhizoma	Jiuwei Qianghuo Oral Liquid	MOH
22	Asari Radix et Rhizoma	Xiaoqinglong Capsules	MOH
23	Asari Radix et Rhizoma	Fufang Nanxing Zhitong Plaster	MOH
24	Asari Radix et Rhizoma	Fufang Weiling Plaster	MOH
25	Asari Radix et Rhizoma	Yitongshu Oral Liquid	MOH
26	Asari Radix et Rhizoma	Jinguan Tablets	CFDA
27	Asari Radix et Rhizoma	Qingshi Granule	CFDA
28	Asari Radix et Rhizoma	Zhennaoning Capsules	MOH
29	Asari Radix et Rhizoma	Biyuanshu Capsules	CFDA
30	Asari Radix et Rhizoma	Danguixiang Granules	CFDA
31	Asari Radix et Rhizoma	Tongtian Oral Liquid	CFDA
32	Asari Radix et Rhizoma	Xiaoshangtong Liniment	CFDA
33	Asari Radix et Rhizoma	Yangxue Qingnao Granules	CFDA
34	Asari Radix et Rhizoma	Xiaoqinglong Granule	MOH
35	Asari Radix et Rhizoma	Tongbi Kanggan Mixture	CFDA
36	Asari Radix et Rhizoma	Shenqi Tablets	MOH
37	Asari Radix et Rhizoma	Biyan Tablets	Ch.P, 2000 edition

38	Asari Radix et Rhizoma	Chuanxiong Chatiao Powder	Ch.P, 2000 edition
39	Asari Radix et Rhizoma	Chuanxiong Chatiao Pills	Ch.P, 2000 edition
40	Asari Radix et Rhizoma	Ertong Qingfei Pills	Ch.P, 2000 edition
41	Asari Radix et Rhizoma	Jiuwei Qianghuo Granules	Ch.P, 2000 edition
42	Asari Radix et Rhizoma	Jiuwei Qianghuo Pills	Ch.P, 2000 edition
43	Asari Radix et Rhizoma	Shuzheng Tablets	Ch.P, 2000 edition
44	Asari Radix et Rhizoma	Tongguan Powder	Ch.P, 2000 edition
45	Asari Radix et Rhizoma	Xiaoqinglong Mixture	Ch.P, 2000 edition
46	Asari Radix et Rhizoma	Xiaoqinglong Granules	Ch.P, 2000 edition
47	Asari Radix et Rhizoma	Zaizao Pills	Ch.P, 2000 edition
48	Asari Radix et Rhizoma	Lusiluo Pills	Ch.P, 2000 edition
49	Asari Radix et Rhizoma	Dongfang Huoxue Plaster	MOH (volume 16)
50	Asari Radix et Rhizoma	Hanshibi Granules	MOH (volume 16)
51	Asari Radix et Rhizoma	Hanshibi Tablets	MOH (volume 16)
52	Asari Radix et Rhizoma	Kelisha Capsules	MOH (volume 16)
53	Asari Radix et Rhizoma	Duhuo Jisheng Mixture	MOH (volume 8)
54	Asari Radix et Rhizoma	Huisheng Zaizao Pills	MOH (volume 8)
55	Asari Radix et Rhizoma	Biyangling Tablets	MOH (volume 2)
56	Asari Radix et Rhizoma	Chitongning	MOH (volume 2)
57	Asari Radix et Rhizoma	Duhuo Jisheng Pills	MOH (volume 2)
58	Asari Radix et Rhizoma	Fengshang Zhitong Plaster	MOH (volume 2)
59	Asari Radix et Rhizoma	Huoxue Zhitong Plaster	MOH (volume 2)
60	Asari Radix et Rhizoma	Jisheng Zhuifeng Vinum	MOH (volume 2)
61	Asari Radix et Rhizoma	Tianma Zhuifeng Plaster	MOH (volume 2)
62	Asari Radix et Rhizoma	Wanying Baozhen Plaster	MOH (volume 2)
63	Asari Radix et Rhizoma	Xuanyao Yuhong Ointment	MOH (volume 2)
64	Asari Radix et Rhizoma	Yatong Water	MOH (volume 2)
65	Asari Radix et Rhizoma	Zhitong Water	MOH (volume 2)
66	Asari Radix et Rhizoma	Chuanxiong Chatiao Oral Liquid	MOH (volume 20)
67	Asari Radix et Rhizoma	Fengshi Antai Tablets	MOH (volume 20)
68	Asari Radix et Rhizoma	Foshan Renshen Zaizao Tablets	MOH (volume 20)
69	Asari Radix et Rhizoma	Keyangmin Spirit	MOH (volume 20)
70	Asari Radix et Rhizoma	Liuqing Toutong Tablets	MOH (volume 20)
71	Asari Radix et Rhizoma	Wudidan Capsules	MOH (volume 20)
72	Asari Radix et Rhizoma	Xiaoer Zhixiaoling Tablets	MOH (volume 20)
73	Asari Radix et Rhizoma	Xiaoqinglong Oral Liquid	MOH (volume 20)
74	Asari Radix et Rhizoma	Xiaoqinglong Syrup	MOH (volume 20)
75	Asari Radix et Rhizoma	Quanzhou Baicaoqu	MOH (volume 9)
76	Asari Radix et Rhizoma	Yanxianfengdian Pills	MOH (volume 9)
77	Asari Radix et Rhizoma	Fahan Jiere Pills	MOH (volume 6)

78	Asari Radix et Rhizoma	Fengtong Pills	MOH (volume 6)
79	Asari Radix et Rhizoma	Juhua Chatiao Powder	MOH (volume 6)
80	Asari Radix et Rhizoma	Mingmu Yanggan Pills	MOH (volume 6)
81	Asari Radix et Rhizoma	Ruyi Oil	MOH (volume 6)
82	Asari Radix et Rhizoma	Shaoshang Spray	MOH (volume 6)
83	Asari Radix et Rhizoma	Shulere Sticking Plaster	MOH (volume 6)
84	Asari Radix et Rhizoma	Tougu Zhenfeng Pills	MOH (volume 6)
85	Asari Radix et Rhizoma	Wanling Tablets	MOH (volume 6)
86	Asari Radix et Rhizoma	Weibing Pills	MOH (volume 6)
87	Asari Radix et Rhizoma	Lucixian Pills	MOH (volume 6)
88	Asari Radix et Rhizoma	Baoan Wanning Pills	MOH (volume 7)
89	Asari Radix et Rhizoma	Chuanxiong Chatiao Teabag	MOH (volume 7)
90	Asari Radix et Rhizoma	Guanjie Zhentong Plaster	MOH (volume 7)
91	Asari Radix et Rhizoma	Jiedu Wanling Pills	MOH (volume 7)
92	Asari Radix et Rhizoma	Kechuan Ointment	MOH (volume 7)
93	Asari Radix et Rhizoma	Pinggan Shuluo Pills	MOH (volume 7)
94	Asari Radix et Rhizoma	Shufeng Zaizao Pills	MOH (volume 7)
95	Asari Radix et Rhizoma	Xinqin Granule	MOH (volume 7)
96	Asari Radix et Rhizoma	Yaojiu Pills	MOH (volume 7)
97	Asari Radix et Rhizoma	Zhenggu Plaster	MOH (volume 7)
98	Asari Radix et Rhizoma	Anyang Hugu Vinum	MOH (volume 3)
99	Asari Radix et Rhizoma	Babao Zhenjing Pills	MOH (volume 3)
100	Asari Radix et Rhizoma	Baihuashe Plaster	MOH (volume 3)
101	Asari Radix et Rhizoma	Dieda Fengshi Vinum	MOH (volume 3)
102	Asari Radix et Rhizoma	Fufang Banxia Tablets	MOH (volume 3)
103	Asari Radix et Rhizoma	Hanchuan Pills	MOH (volume 3)
104	Asari Radix et Rhizoma	Hanshibi Pills	MOH (volume 3)
105	Asari Radix et Rhizoma	Kangshuan Zaizao Pills	MOH (volume 3)
106	Asari Radix et Rhizoma	Biyuanshu Oral Liquid	MOH (volume 18)
107	Asari Radix et Rhizoma	Dieda Wanhua Oil	MOH (volume 18)
108	Asari Radix et Rhizoma	Duji Dujiao Plaster	MOH (volume 18)
109	Asari Radix et Rhizoma	Huanjingjian Oral Liquid	MOH (volume 18)
110	Asari Radix et Rhizoma	Tezhi Dogskin Plaster	MOH (volume 18)
111	Asari Radix et Rhizoma	Tianhe Zhuifeng Plaster	MOH (volume 18)
112	Asari Radix et Rhizoma	Yunxiangjing	MOH (volume 18)
113	Asari Radix et Rhizoma	Zhuifeng Tougu Pills	MOH (volume 18)
114	Asari Radix et Rhizoma	Biyanning Capsules	MOH (volume 10)
115	Asari Radix et Rhizoma	Shensanqi Shangyao	MOH (volume 10)
116	Asari Radix et Rhizoma	Chanling Pills	MOH (volume 10)
117	Asari Radix et Rhizoma	Chenxiang Powder	MOH (volume 10)

118	Asari Radix et Rhizoma	Chitong Xiaoyanling Granule	MOH (volume 10)
119	Asari Radix et Rhizoma	Guanjie Jietong Plaster	MOH (volume 10)
120	Asari Radix et Rhizoma	Houzhao Niu Huang Powder	MOH (volume 10)
121	Asari Radix et Rhizoma	Jinguning Liniment	MOH (volume 10)
122	Asari Radix et Rhizoma	Xiaoer Feibining Tablets	MOH (volume 10)
123	Asari Radix et Rhizoma	Xiaoer Kechuan Granule	MOH (volume 10)
124	Asari Radix et Rhizoma	Kuanxiong Aerosol	MOH (volume 12)
125	Asari Radix et Rhizoma	Qingyu Biwen Dan	MOH (volume 12)
126	Asari Radix et Rhizoma	Tuizhang Ophthalmic Ointment	MOH (volume 12)
127	Asari Radix et Rhizoma	Xiaozhong Zhitong Tincture	MOH (volume 12)
128	Asari Radix et Rhizoma	Yulong Oil	MOH (volume 12)
129	Asari Radix et Rhizoma	Zhuifeng Zhuanggu Plaster	MOH (volume 12)
130	Asari Radix et Rhizoma	Chuanxiong Chatiao Pills (concentrated pills)	MOH (volume 19)
131	Asari Radix et Rhizoma	Houyan Pills	MOH (volume 19)
132	Asari Radix et Rhizoma	Shangyou Liniment	MOH (volume 19)
133	Asari Radix et Rhizoma	Wudi Vinum	MOH (volume 19)
134	Asari Radix et Rhizoma	Wudi Zhitong Liniment	MOH (volume 19)
135	Asari Radix et Rhizoma	Zhanjiang Sheyao	MOH (volume 19)
136	Asari Radix et Rhizoma	Zhike Huatan Pills	MOH (volume 19)
137	Asari Radix et Rhizoma	Foshan Renshen Zaizao Pills	MOH (volume 17)
138	Asari Radix et Rhizoma	Shangshi Baozhen Plaster	MOH (volume 17)
139	Asari Radix et Rhizoma	Tiaogu Tablets	MOH (volume 17)
140	Asari Radix et Rhizoma	Tongren Dahuoluo Pills	MOH (volume 17)
141	Asari Radix et Rhizoma	Waiyong Wudi Plaster	MOH (volume 17)
142	Asari Radix et Rhizoma	Wuyan Moxa Stick Moxibustion	MOH (volume 17)
143	Asari Radix et Rhizoma	Yitongshu Injection	MOH (volume 17)
144	Asari Radix et Rhizoma	Zhengtian Pills	MOH (volume 17)
145	Asari Radix et Rhizoma	Zhuangyuanhong Vinum	MOH (volume 17)
146	Asari Radix et Rhizoma	Baicao Oil	MOH (volume 13)
147	Asari Radix et Rhizoma	Ganteling Capsules	MOH (volume 13)
148	Asari Radix et Rhizoma	Wenzhong Zhixie Pills	MOH (volume 13)
149	Asari Radix et Rhizoma	Xinwuyou Tablets	MOH (volume 13)
150	Asari Radix et Rhizoma	Zhenjing Powder	MOH (volume 13)
151	Asari Radix et Rhizoma	Zhongfeng Zaizao Pills	MOH (volume 13)
152	Asari Radix et Rhizoma	Guzengsheng Zhentong Plaster	MOH (volume 14)
153	Asari Radix et Rhizoma	Mahuang Zhisou Pills	MOH (volume 14)
154	Asari Radix et Rhizoma	Tongluo Huoxue Pills	MOH (volume 14)
155	Asari Radix et Rhizoma	Qishe Zhuifeng Vinum	MOH (volume 14)
156	Asari Radix et Rhizoma	Shensanqi Shangyao Powder	MOH (volume 15)

157	Asari Radix et Rhizoma	Shenshe Huoluo Pills	MOH (volume 15)
158	Asari Radix et Rhizoma	Kelisha Pettets	MOH (volume 15)
159	Asari Radix et Rhizoma	Ketong Tincture	MOH (volume 15)
160	Asari Radix et Rhizoma	Renshen Zaizao Pills (concentrated pills)	MOH (volume 15)
161	Asari Radix et Rhizoma	Sanyu Shenqu	MOH (volume 15)
162	Asari Radix et Rhizoma	Shangke Zhuanggu Plaster	MOH (volume 15)
163	Asari Radix et Rhizoma	Shangtongshu	MOH (volume 15)
164	Asari Radix et Rhizoma	Toufeng Plaster	MOH (volume 15)
165	Asari Radix et Rhizoma	Xinfang Biyan Capsules	MOH (volume 15)
166	Asari Radix et Rhizoma	Shaqi Pills	MOH (volume 15)
167	Asari Radix et Rhizoma	Baxian Oil	MOH (volume 11)
168	Asari Radix et Rhizoma	Bogu Water	MOH (volume 11)
169	Asari Radix et Rhizoma	Jieshu Tablets	MOH (volume 11)
170	Asari Radix et Rhizoma	Jiulong Huafeng Pills	MOH (volume 11)
171	Asari Radix et Rhizoma	Qufeng Suhe Pills	MOH (volume 11)
172	Asari Radix et Rhizoma	Tanchuan Banxia Granules	MOH (volume 11)
173	Asari Radix et Rhizoma	Zhuifeng Tougu Tablets	MOH (volume 11)
174	Asari Radix et Rhizoma	Shenrong Mugua Vinum	MOH (volume 4)
175	Asari Radix et Rhizoma	Shensanqi Shangyao Pills	MOH (volume 4)
176	Asari Radix et Rhizoma	Huitian Zaizao Pills	MOH (volume 4)
177	Asari Radix et Rhizoma	Jingfeng Pills	MOH (volume 4)
178	Asari Radix et Rhizoma	Libi Tablets	MOH (volume 4)
179	Asari Radix et Rhizoma	Shangtongning Tablets	MOH (volume 4)
180	Asari Radix et Rhizoma	Tongqiao Powder	MOH (volume 4)
181	Asari Radix et Rhizoma	Weiyanning Granule	MOH (volume 4)
182	Asari Radix et Rhizoma	Xiaochuan Plaster	MOH (volume 4)
183	Asari Radix et Rhizoma	Xingnao Zaizao Capsules	MOH (volume 4)
184	Asari Radix et Rhizoma	Xingnao Zaizao Pills	MOH (volume 4)
185	Asari Radix et Rhizoma	Biwen Tablets	MOH (volume 5)
186	Asari Radix et Rhizoma	Chuanxiong Chatiao Granule	MOH (volume 5)
187	Asari Radix et Rhizoma	Chuanxiong Chatiao Tablets	MOH (volume 5)
188	Asari Radix et Rhizoma	Ditong Biyan Water	MOH (volume 5)
189	Asari Radix et Rhizoma	Fugui Fengshi Plaster	MOH (volume 5)
190	Asari Radix et Rhizoma	Jiebiao Zhuifeng Pills	MOH (volume 5)
191	Asari Radix et Rhizoma	Jiuwei Qianghuo Granules	MOH (volume 5)
192	Asari Radix et Rhizoma	Jiuwei Qianghuo Tablets	MOH (volume 5)
193	Asari Radix et Rhizoma	Eryi Pills	MOH (volume 1)
194	Asari Radix et Rhizoma	Fengshi Vinum	MOH (volume 1)
195	Asari Radix et Rhizoma	Huoluo Pills	MOH (volume 1)

196	Asari Radix et Rhizoma	Sheyao Pills	MOH (volume 1)
197	Asari Radix et Rhizoma	Xiaoer Baoan Pills	MOH (volume 1)
198	Asari Radix et Rhizoma	Baozhen Adhesive Plaster	CFDA
199	Asari Radix et Rhizoma	Bitong Sticking Plaster	CFDA
200	Asari Radix et Rhizoma	Shenbei Kechuan Pills	CFDA
201	Asari Radix et Rhizoma	Cangxin Aerosol	CFDA
202	Asari Radix et Rhizoma	Chenxiang Anshen Capsules	CFDA
203	Asari Radix et Rhizoma	Chuanhua Zhitong Odynolysis Plastics	CFDA
204	Asari Radix et Rhizoma	Chuanyu Fenghan Sticking Plaster	CFDA
205	Asari Radix et Rhizoma	Dahuoluo Pills	CFDA
206	Asari Radix et Rhizoma	Dange Jingshu Capsules	CFDA
207	Asari Radix et Rhizoma	Danzhen Toutong Capsules	CFDA
208	Asari Radix et Rhizoma	Dingkun Dan	CFDA
209	Asari Radix et Rhizoma	Fengshi Zhuifeng Plaster	CFDA
210	Asari Radix et Rhizoma	Fufang Ganmao Capsules	CFDA
211	Asari Radix et Rhizoma	Fufang Ganmao Tablets	CFDA
212	Asari Radix et Rhizoma	Fufang Zhuifeng Plaster	CFDA
213	Asari Radix et Rhizoma	Fufang Zhizi Aerosol	CFDA
214	Asari Radix et Rhizoma	Ganteling Tablets	CFDA
215	Asari Radix et Rhizoma	Guwei Huoluo Tincture	CFDA
216	Asari Radix et Rhizoma	Gushen Buqi Powder	CFDA
217	Asari Radix et Rhizoma	Guanjie Zhentong Cataplast	CFDA
218	Asari Radix et Rhizoma	Jiedu Liyan Pills	CFDA
219	Asari Radix et Rhizoma	Jingu Dieda Pills	CFDA
220	Asari Radix et Rhizoma	Jiuji Xingjun Capsules	CFDA
221	Asari Radix et Rhizoma	Jiuji Xingjun Powder	CFDA
222	Asari Radix et Rhizoma	Qianshan Huoxue Plaster	CFDA
223	Asari Radix et Rhizoma	Renshen Zaizao Pills	CFDA
224	Asari Radix et Rhizoma	Sanbian Wenyang Capsules	CFDA
225	Asari Radix et Rhizoma	Sanfeng Huoluo Pills	CFDA
226	Asari Radix et Rhizoma	Shangjin Zhenggu Tincture	CFDA
227	Asari Radix et Rhizoma	Shaolin Dieda Zhitong Plaster	CFDA
228	Asari Radix et Rhizoma	Shierwei Chiyinkang Powder	CFDA
229	Asari Radix et Rhizoma	Shidaoping Powder	CFDA
230	Asari Radix et Rhizoma	Shuangxin Bidouyan Granules	CFDA
231	Asari Radix et Rhizoma	Tianma Zhuanggu Pills	CFDA
232	Asari Radix et Rhizoma	Tongdi Capsules	CFDA
233	Asari Radix et Rhizoma	Wantong Jingu Tablets	CFDA
234	Asari Radix et Rhizoma	Weikean Capsules	CFDA

235	Asari Radix et Rhizoma	Wumei Pills	CFDA
236	Asari Radix et Rhizoma	Xiaoke Pingchuan Oral Liquid	CFDA
237	Asari Radix et Rhizoma	Xinli Zhenggu Spray	CFDA
238	Asari Radix et Rhizoma	Yaoyong Moxa Stick Moxibustion	CFDA
239	Asari Radix et Rhizoma	Zushima Fengshi Plaster	CFDA
240	Asari Radix et Rhizoma	Qufenggutong Cataplasm	CFDA
241	Asari Radix et Rhizoma	Chanma Zhengtong Tincture	CFDA
242	Asari Radix et Rhizoma	Chanwu Cataplasm	CFDA
243	Aristolochiae Mollissimae Herba	Yishen Juanbi Pills	MOH (volume 1)
244	Aristolochiae Mollissimae Herba	Shangshi Zhentong Plaster	MOH (volume 2)
245	Aristolochiae Mollissimae Herba	Shaolin Zhenggu Jing	MOH (volume 6)
246	Aristolochiae Mollissimae Herba	Shaolin Zhenggujing Tincture	MOH (volume 6)
247	Aristolochiae Mollissimae Herba	Duzhong Zhuanggu Pills ^b	MOH (volume 18)
248	Aristolochiae Mollissimae Herba	Fufang Quanshen Tablets	MOH (volume 10)
249	Aristolochiae Mollissimae Herba	Duzhong Zhuanggu Capsules ^b	MOH (volume 12)
250	Aristolochiae Mollissimae Herba	Fengshining Vinum ^b	MOH (volume 19)
251	Aristolochiae Mollissimae Herba	Qufeng Chushi Vinum	MOH (volume 13)
252	Aristolochiae Mollissimae Herba	Shenlong Vinum	MOH (volume 15)
253	Aristolochiae Mollissimae Herba	Sanshe Vinum	MOH (volume 1)
254	Aristolochiae Mollissimae Herba	Fufang Fengshi Vinum	CFDA
255	Aristolochiae Tuberosae Radix	Jinzhu Zhixie Tablets	MOH
256	Aristolochiae Tuberosae Radix	Zhushalian Capsules	MOH (volume 14)

^a Traditional Chinese patent medicine contains both *Aristolochiae Fructus* and *Asari Radix et Rhizoma*.

^b Traditional Chinese patent medicine contains both *Aristolochiae Mollissimae Herba* and *Asari Radix et Rhizoma*.

Chinese Pharmacopoeia (Ch.P)

Drug Standard of Ministry of Health People's Republic of China (MOH)

Drug Standard of China Food and Drug Administration (CFDA)

Table S2. Species information for Aristolochiaceous and non-Aristolochiaceous plants used in this study.

species name (pinyin)	vernacular	Latin name	sample number	voucher No.	GenBank No. ITS2	GenBank No. <i>psbA-trnH</i>	sample from
1.Fangji group							
guang fang ji	Fangji/ Teng fangji	<i>Aristolochia fangchi</i> [*]	2	YC0663MT01-02	KM092120-21	KM213881-82	Guangxi, Guangzhou
yi ye ma dou ling	Hanzhong fangji	<i>Aristolochia kaempferi</i> f. <i>heterophylla</i> [*]	4	YC0678MT01-04	KM092140-43	KM213954-56	Guangxi, Hubei
er ye ma dou ling	Heimian fangji	<i>Aristolochia tagala</i> [*]	6	YC0672MT01-06	KM092167-72	KM213875-80	Yunnan, Hainan
fen fang ji	Fangji	<i>Stephania tetrandra</i> [#]	3	YC0200MT04-06	KM092353	KM233992-94	Beijing, Hebei
mu fang ji	Mu fangji	<i>Cocculus orbiculatus</i> [#]	3	YC0486MT01-03	KM092305-07	KM233987-89	Jiangxi
zhang ye mu fang ji	Fangji	<i>Cocculus laurifolius</i> [#]	4	YC0697MT01-04	KM092301-04	KM233990	Yunnan
bian fu ge	Fangji ge	<i>Menispermum dauricum</i> [#]	6	YC0146MT38-43	KM092314-19	KM233938-42	Jilin
cang bai cheng gou feng	Tu fangji	<i>Diploclisia glaucescens</i>	1	YC0700MT01	KM092312	KM233935	Guangzhou
2.Mutong group							
guan mu tong	Guan mutong	<i>Aristolochia manshuriensis</i> [*]	5	YC0469MT01-05	KM092153-57	KM213940-43	Jilin; Korea
mu tong	Mutong	<i>Akebia quinata</i> [#]	11	YC0408MT01-11	KM092246-56	KM233999-4003	Jiangxi, Guangzhou, Chongqing
san ye mu tong		<i>Akebia trifoliata</i> [#]	7	YC0409MT01-07	KM092257-62,67	KM234004-08	Jiangxi, Chongqing, Shanghai
bai mu tong		<i>Akebia trifoliata</i> var. <i>australis</i> [#]	4	YC0410MT01-03, 05	KM092263-66	KM233997-98	Guangzhou, Wuhan
xiao mu tong		Chuan mutong	<i>Clematis armandii</i> [#]	4	YC0431MT01-03, 06	KM092275-78	KM233932-33
xiu qiu teng		<i>Clematis montana</i> [#]	5	YC0608MT01-05	KM092290-94	KM233927-31	Sichuan
cu chi tie xian lian	Da mutong	<i>Clematis argenticulida</i>	4	YC0466MT04-07	KM092271-74	KM233955,73-75	Jiangxi, Sichuan
dun e tie xian lian	Xi mutong	<i>Clematis peterae</i>	1	YC0696MT01	KM092295	KM233926	Yunnan
da ye tie xian lian	Mutong hua	<i>Clematis heracleifolia</i>	2	YC0682MT01-02	KM092283-84	KM233924-25	Beijing, shanxi
zhu guo tie xian lian	Hua mutong	<i>Clematis uncinata</i> [#]	1	YC0803MT01	KM092308	/	Guizhou
qing feng teng	Tu mutong	<i>Sinomenium acutum</i> [#]	5	YC0182MT04, 07-08,12,14	KM092336-40	KM233947-48	Beijing, Henan, Hangzhou
wei ling xian	Hei mutong	<i>Clematis chinensis</i> [#]	4	YC0630MT01-03,08	KM092279-82	KM233984-86	Jilin, Chongqing
mian tuan tie xian lian		<i>Clematis hexapetala</i> [#]	5	YC0485MT01-02, 04-05,07	KM092285-89	KM233979-83	Jilin, Anhui
dong bei tie xian lian		<i>Clematis manshurica</i>	5	YC0470MT01-03, 06-07	KM092296-300	KM233976-78	Jilin, Anhui
tong tuo mu	Tongcao	<i>Tetrapanax papyrifer</i>	4	YC0243MT02-05	KM092354-57	KM233969-72	Chongqing
xi ma shan jing jie hua		<i>Stachyurus himalaicus</i>	2	YC0640MT01-02	KM092351-52	KM233951	Yunnan

zhong guo jing jie hua	Xiao tongcao	<i>Stachyurus chinensis</i>	4	YC0455MT03-06	KM092347-50	KM233949-50	Jiangxi
qing jia ye		<i>Helwingia japonica</i>	3	YC0444MT01, PS1755MT01-02	KM092313, GQ434854-55	KM233991, GQ435474-75	Chongqing, Sichuan
3.Qingmuxiang group							
bei ma dou ling	Qing muxiang	<i>Aristolochia contorta</i> [*]	4	YC0111MT11-14	KM092107-10	KM213915-18	Jilin
ma dou ling	Qing muxiang	<i>Aristolochia debilis</i> [*]	3	YC0407MT07-09	KJ739355-57	KM213924-26	Jiangxi
bao xing ma dou ling	Qing muxiang	<i>Aristolochia moupinensis</i>	1	YC0675MT01	KM092164	KM213868	Yunnan
yun mu xiang	Qing muxiang	<i>Aucklandia lappa</i> [#]	3	YC0139MT09, 11,14	KJ721533,35, 38	KM233918-20	Anhui, Hebei, Henan
chuan mu xiang	Muxiang	<i>Vladimiria souliei</i> [#]	3	YC0537MT01, 06-07	KJ721563-65	KM233952-54	Sichuan
tu mu xiang	Qing muxiang	<i>Inula helenium</i>	3	YC0339MT02, 08,12	KJ721571,77, 81	KM233936-37	Henan, Anhui, Tibet
qian li xiang	Qing muxiang	<i>Murraya paniculata</i>	6	YC0054MT02-07	KM092320-25	KM233943-46	Guangxi, Guizhou, Vietnam
yun nan qing feng teng	Qing muxiang	<i>Sabia yunnanensis</i>	1	YC0698MT01	KM092335	KM233963	Yunnan
4.Baimaoteng group							
xun gu feng	Baimaoteng	<i>Aristolochia mollissima</i> [*]	6	YC0514MT01-06	KM092158-63	KM213933-38	Guangzhou, Henan
bai ying		<i>Solanum lyratum</i>	6	YC0668MT01-06	KM092341-46	KM233964-68	Hebei, Guangxi
5.Zhushalian group							
zhu sha lian	Zhushalian	<i>Aristolochia tuberosa</i> [*]	4	YC0681MT01-04	KM092173-76	KM213957-59	Chongqing, Sichuan
hong yao zi		<i>Pteroxygonum giraldii</i>	0		EU580725 ^a , DQ406627 ^a		
6.Shancigu group							
shan ci gu	Shancigu	<i>Asarum sagittarioides</i>	2	YC0691MT01-02	KM092220-21	/	Guangxi
du suan lan	Shancigu	<i>Pleione bulbocodioides</i>	4	YC0555MT01-04	KM092326-29	KM233956-58	Kunming, Guangzhou
yun nan du suan lan	Shancigu	<i>Pleione yunnanensis</i>	5	YC0556MT01-02, 04-06	KM092330-34	KM233959-62	Yunnan
du juan lan	Shancigu	<i>Cremastra appendiculata</i>	3	YC0210MT07-09	KM092309-11	KM233934	Chongqing, Henan, Kunming
qing niu dan	Shancigu	<i>Tinospora sagittata</i>	6	YC0633MT01-02, 05-08	KM092358-63	KM233995-96	Shanghai, Guangzhou, Chongqing
7.Madouling group							
bei ma dou ling	Madouling	<i>Aristolochia contorta</i> [*]	9	YC0111MT05-10, 15-17	KM092111-16	KM213903-10	Liaoning, Shandong, Guizhou, Yunnan
ma dou ling	Madouling	<i>Aristolochia debilis</i> [*]	4	YC0407MT03-06	KJ739352-54	KM213919-22	Henan, Jiangxi
qiao mai ye da bai he	Guang douling	<i>Cardiocrinum cathayanum</i>	3	YC0487MT01-03	KM092268-70	KM233921-23	Jiangxi
ma tong ling	Tu madouling	<i>Hemsleya graciliflora</i>	0		JF976558-61 ^a	JN044838-41 ^a	
8.others							
bei ma dou ling	Tianxianteng	<i>Aristolochia contorta</i> [*]	4	YC0111MT01-04	KM092103-06	KM213911-14	Jilin

ma dou ling	Tianxianteng	<i>Aristolochia debilis</i> *	2	YC0407MT01-02	KJ739350-51	KM213923,27	Henan, Chongqing
guang xi ma dou ling		<i>Aristolochia kwangsiensis</i> *	8	YC0660MT01-08	KM092145-52	KM213883-90	Guangxi, Guangzhou, Chongqing
tong cheng hu		<i>Aristolochia fordiana</i>	2	YC0662MT01-02	KM092123-24	KM213949-50	Guangxi
bian se ma dou ling		<i>Aristolochia versicolor</i>	3	YC0661MT01-03	KM092177-79	KM213869-71	Guangxi
nan yue ma dou ling		<i>Aristolochia howii</i>	3	YC0664MT01-03	KM092137-39	KM213944-46	Guangzhou
mu ben ma dou ling		<i>Aristolochia arborea</i>	1	YC0665MT01	KM092101	KM213939	Guangzhou
da ye ma dou ling		<i>Aristolochia kaempferi</i> *	1	YC0666MT01	KM092144	KM213874	Guangzhou
mei li ma dou ling		<i>Aristolochia elegans</i> *	3	YC0667MT01-03	KM092117-19	KM213930-32	Guangzhou, Yunnan
da hua ma dou ling		<i>Aristolochia grandiflora</i>	2	YC0670MT01-02	KM092129-30	KM213872-73	Guangzhou, Yunnan
ju hua ma dou ling		<i>Aristolochia gigantea</i>	1	YC0671MT01	KM092128	KM213902	Yunnan
ruo jing ma dou ling		<i>Aristolochia fimbriata</i>	1	YC0673MT01	KM092122	KM213948	Yunnan
yan dou ma dou ling		<i>Aristolochia gibertii</i>	2	YC0669MT01-02	KM092126-27	KM213952-53	Guangzhou
xi zang ma dou ling		<i>Aristolochia griffithii</i>	1	YC0674MT01	KM092131	KM213951	Tibet
hai nan ma dou ling		<i>Aristolochia hainanensis</i>	5	YC0676MT01-05	KM092132-36	KM213891-95	Hainan
huang mao ma dou ling		<i>Aristolochia fulvicoma</i>	1	YC0679MT01	KM092125	KM213901	Hainan
ou zhou ma dou ling		<i>Aristolochia clematitis</i> *	1	YC0680MT01	KM092102	KM213947	Kew Botanical Garden
hai nan xian guo dou ling		<i>Thottea hainanensis</i>	5	YC0677MT01-05	KM092242-45	KM213896-900	Hainan
bei xi xin	xixin	<i>Asarum heterotropoides</i> var. <i>mandshuricum</i> #	6	YC0365MT01-06	KM092198-203	/	Jilin, Liaoning
han cheng xi xin		<i>Asarum sieboldii</i> var. <i>seoulense</i>	6	YC0478MT01-06	KM092229-34	/	Jilin
hua xi xin		<i>Asarum sieboldii</i> #	7	YC0607MT01-07	KM092222-28	/	Shanxi, Anhui
xiao ye ma ti xiang		<i>Asarum ichangense</i>	5	YC0504MT01-05	KM092208-12	/	Jiangxi, Guangzhou, Anhui
du heng		<i>Asarum forbesii</i> #	6	YC0471MT01-06	KM092187-92	/	Jiangxi, Anhui
di hua xi xin		<i>Asarum geophilum</i>	5	YC0625MT01-05	KM092193-97	/	Guangxi, Guangzhou
qing cheng xi xin		<i>Asarum splendens</i> *	4	YC0623MT01-04	KM092237-40	/	Guangzhou, Shanxi
wei hua xi xin		<i>Asarum caudigerum</i>	2	YC0624MT01-02	KM092183-84	/	Guangzhou
jin er huan		<i>Asarum insigne</i>	1	YC0690MT01	KM092213	/	Guangxi
chang jing jin er huan		<i>Asarum longerhizomatosum</i>	3	YC0685MT01-03	KM092214-16	/	Guangzhou, Guangxi
da ye ma ti xiang		<i>Asarum maximum</i>	1	YC0686MT01	KM092217	/	Hubei
dan ye xi xin		<i>Asarum himalaicum</i> *	4	YC0688MT01-04	KM092204-07	/	Chongqing, Sichuan, Gansu
shuang ye xi xin		<i>Asarum caulescens</i>	1	YC0687MT01	KM092185	/	Chongqing
duan wei xi xin		<i>Asarum caudigerellum</i>	1	YC0694MT01	KM092182	/	Sichuan
jiu gong shan xi xin		<i>Asarum campaniflorum</i>	2	YC0695MT01-02	KM092180-81	/	Hubei
chang mao xi xin		<i>Asarum pulchellum</i>	2	YC0693MT01-02	KM092218-19	/	Chongqing, Guizhou
zhou hua xi xin		<i>Asarum crispulatum</i>	1	YC0692MT01	KM092186	/	Sichuan
ma ti xiang		<i>Saruma henryi</i>	1	YC0684MT01	KM092241	/	Shanxi

		<i>Aristolochia sp.</i>	2	YC0800MT01-02	KM092165-66	KM213928-29	Guangxi
		<i>Asarum sp.</i>	2	YC0801MT01-02	KM092235-36	/	Guangxi
deng long xi xin		<i>Asarum inflatum</i>	0		FJ428622,28 ^a		
ba shan xi xin		<i>Asarum bashanense</i>	0		FJ428619-20 ^a		
hua ye xi xin		<i>Asarum cardiophyllum</i>	0		FJ428651 ^a		
tong qian xi xin		<i>Asarum debile</i>	0		FJ428644 ^a		
qi yang xi xin		<i>Asarum magnificum</i>	0		FJ428640 ^a		
wu ling xi xin		<i>Asarum wulingense</i>	0		FJ428636 ^a		
zi bei xi xin		<i>Asarum porphyronotum</i>	0		FJ428627 ^a		
chuan dian xi xin		<i>Asarum delavayi</i>	0		FJ428626 ^a		
chuan bei xi xin		<i>Asarum chinense</i>	0		FJ428623 ^a		
nan chuan xi xin		<i>Asarum nanchuanense</i>	0		FJ428618 ^a		
yun nan xi xin		<i>Asarum yunnanense</i>	0		FJ428656 ^a		
xiang gang xi xin		<i>Asarum hongkongense</i>	0		FJ428635 ^a		
cheng kou xi xin		<i>Asarum chengkouense</i>	0		FJ428616 ^a		

* FDA: Botanicals known or suspected to contain Aristolochic acid

FDA: Botanicals which may be adulterated with Aristolochic acid

^a download from GenBank

/ failed to obtain

Table S3. List of universal primers and reaction conditions for ITS2 and *psbA-trnH*.

Marker	Name of primers	Primer sequences 5'-3'	PCR reaction conditions
ITS2	ITS2F	ATGCGATACTTGGTGTGAAT	94°C 5 min
	ITS3R	GACGCTTCTCCAGACTACAAT	94°C 30 s, 56°C 30 s, 72°C 45 s, 40 cycles 72°C 10 min
<i>psbA-trnH</i>	fwd PA	GTTATGCATGAACGTAATGCTC	95°C 4 min
	rev TH	CGCGCATGGTGGATTACACAATCC	94°C 30 s, 55°C 1 min, 72°C 1 min, 35 cycles 72°C 10 min

Table S4. List of the 11 groups for realtime PCR in combination with Taqman probe based on ITS2 sequence similarity from Aristolochiaceae.

Family	Genus	Group	Latin name	Haplotype	voucher No.
Aristolochiaceae	<i>Aristolochia</i>	M1	<i>Aristolochia moupinensis</i>	A	YC0675MT01
		M1	<i>Aristolochia versicolor</i>	A	YC0661MT01
		M1		B	YC0661MT02-03
		M1	<i>Aristolochia kaempferi</i>	A	YC0666MT01
		M1	<i>Aristolochia manshuriensis</i>	A	YC0469MT01-05
		M1	<i>Aristolochia fangchi</i>	A	YC0663MT01-02
		M1	<i>Aristolochia kwangsiensis</i>	A	YC0660MT01-05,07-08
		M1		B	YC0660MT06
		M1	<i>Aristolochia howii</i>	A	YC0664MT01-03
		M1	<i>Aristolochia fulvicoma</i>	A	YC0679MT01
		M1	<i>Aristolochia mollissima</i>	A	YC0514MT01-06
		M1	<i>Aristolochia arborea</i>	A	YC0665MT01
		M1	<i>Aristolochia griffithii</i>	A	YC0674MT01
		M1	<i>Aristolochia kaempferi</i> f. <i>heterophylla</i>	A	YC0678MT01-02,04
		M1		B	YC0678MT03
		M1	<i>Aristolochia hainanensis</i>	A	YC0676MT01-03,05
		M1		B	YC0676MT04
		M1	<i>Aristolochia sp.</i>	A	YC0800MT01
		M1		B	YC0800MT02
		M2	<i>Aristolochia grandiflora</i>	A	YC0670MT01-02
		M2	<i>Aristolochia elegans</i>	A	YC0667MT01-03
		M2	<i>Aristolochia fimbriata</i>	A	YC0673MT01
		M2	<i>Aristolochia gibertii</i>	A	YC0669MT01-02
		M2	<i>Aristolochia gigantea</i>	A	YC0671MT01
		M3	<i>Aristolochia contorta</i>	A	YC0111MT01,04-05,08,11,14
		M3		B	YC0111MT02,09-10,12-13
		M3		C	YC0111MT06
		M3		D	YC0111MT03
		M3		E	YC0111MT07
		M4	<i>Aristolochia clematitis</i>	A	YC0680MT01
		M4	<i>Aristolochia tuberosa</i>	A	YC0681MT01-04
		M5	<i>Aristolochia fordiana</i>	A	YC0662MT02
		M5		B	YC0662MT01
		M6	<i>Aristolochia debilis</i>	A	YC0407MT01
		M6		B	YC0407MT02

		M6		C	YC0407MT04-08
		M6		D	YC0407MT09
		M7	<i>Aristolochia tagala</i>	A	YC0672MT02
		M7		B	YC0672MT01
		M7		C	YC0672MT03
		M7		D	YC0672MT04-06
	Asarum	X1	<i>Asarum caudigerum</i>	A	YC0624MT01-02
		X1	<i>Asarum sieboldii</i>	A	YC0607MT01-06
		X1		B	YC0607MT07
		X1	<i>Asarum sieboldii</i> var. <i>seoulense</i>	A	YC0478MT01,03
		X1		B	YC0478MT02,04
		X1		C	YC0478MT05-06
		X1	<i>Asarum geophilum</i>	A	YC0625MT03,05
		X1		B	YC0625MT04
		X1		C	YC0625MT01-02
		X1	<i>Asarum heterotropoides</i> var. <i>mandshuricum</i>	A	YC0365MT02-03
		X1		B	YC0365MT06
		X1		C	YC0365MT04
		X1		D	YC0365MT01,05
		X1	<i>Asarum ichangense</i>	A	YC0504MT01-05
		X2	<i>Asarum crispulatum</i>	A	YC0692MT01
		X2	<i>Asarum longerhizomatosum</i>	A	YC0685MT02
		X2		B	YC0685MT01
		X2		C	YC0685MT03
		X2	<i>Asarum sagittarioides</i>	A	YC0691MT01-02
		X2	<i>Asarum splendens</i>	A	YC0623MT01-04
		X2	<i>Asarum campaniflorum</i>	A	YC0695MT01-02
		X2	<i>Asarum sp.</i>	A	YC0801MT01-02
		X2	<i>Asarum insigne</i>	A	YC0690MT01
		X2	<i>Asarum forbesii</i>	A	YC0471MT01-03
		X2		B	YC0471MT04
		X2		C	YC0471MT05
		X2		D	YC0471MT06
		X2	<i>Asarum maximum</i>	A	YC0686MT01
		X3&MT	<i>Asarum caudigerellum</i>	A	YC0694MT01
		X3&MT	<i>Asarum pulchellum</i>	A	YC0693MT01-02
		X3&MT	<i>Asarum himalaicum</i>	A	YC0688MT01-04

		X3&MT	<i>Asarum caulescens</i>	A	YC0687MT01
	<i>Saruma</i>	X3&MT	<i>Saruma henryi</i>	A	YC0684MT01
	<i>Thottea</i>	Hn	<i>Thottea hainanensis</i>	A	YC0677MT01-02,04-05

Table S5. Primers and hydrolysis probes used in AAs-containing plant detection

oligonucleotides	sequence (5'-3')	amplicon (bp)
Hn-L	CCAAACGACGGCCCTAATG	84
Hn-R	CACGGCCGAAAAGACTTACC	
Hn-P	FAM-CACGGCGAGTGGTGGCAGCGT-TAMARA	
M1-L	GTTGGCTGAAASSCTWGGC	136
M1-R	AGGCRRACGGTTAGSGTC	
M1-P	FAM-CACGACAAGTGGTGGCTCGGCC-TAMARA	
M2-L	GGCGAGGTTGGCTGAAAA	205
M2-R	GCTTAAACTCAGCGGGTGT	
M2-P	FAM-CTGCGTGGCTCGAAGTCGTGTCC-TAMARA	
M3-L	AAAATCCAGGCCCTCGG	196
M3-R	CTTAAACTCAGCGGGTGGTC	
M3-P	FAM-CTCCRAGCTCCCCGGCCTCT-TAMARA	
M4-L	CTCGAAGTCGTGCCYGYGA	204
M4-R	GCTTTTCCYRGTTCGCTCSC	
M4-P	FAM-CTTGGGAGGCKGCGAGGAMC-TAMARA	
M5-L	TTGCACCCGAGGCCACTA	216
M5-R	GAARCGACGGAGGGCRAAG	
M5-P	FAM-ACAGTTGGTGGCTCGAAGCTCCCC-TAMARA	
M6-L	AAAATCCAGGCCCTCGG	76
M6-R	ACTTCGAGCCTGGCAAGAG	
M6-P	FAM-TCGCGGCGCGACAACCTGGTG-TAMARA	
M7-L	CCCCMRGGTGAAGGCAAG	123
M7-R	TCCTCGCAGCCTTCCCAG	
M7-P	FAM-ACGGCGCGACTACTGGTGGC-TAMARA	
X1-L	TATAGGRCGCGGAKATTGGC	93
X1-R	ACCACCACTAGACGTATCRC	
X1-P	FAM-TCCGTTCAAATCMTTGYGCGGTTTGC-TAMARA	
X2-L	CCRCATCCATCTCGGATAYAGGA	150
X2-R	TCGACACGYCCTYCTGTCAA	
X2-P	FAM-ATTGGCTAYCCGTTTCAATCCTTGCG-TAMARA	
X3&MT-L	CTGCTTGGGCGTCATGCTA	134
X3&MT-R	GTATCGYAGTCCRCAAAGG	
X3&MT-P	FAM-TCGCTCCCACATCCATCTCAATAGAAGTG-TAMARA	

Table S6. Detection of AA I and II for all species using UHPLC-HR-MS analysis.

Latin name	name	voucher No.	AA I	AA II
<i>Aristolochia contorta</i>	a1-1*	YC0111MT07-08,15	+	+
<i>Aristolochia contorta</i>	a1-2*	YC0111MT01-03	+	-
<i>Aristolochia contorta</i>	a1-3*	YC0111MT11-13	+	+
<i>Aristolochia fangchi</i>	a2	YC0663MT01-02	+	+
<i>Aristolochia manshuriensis</i>	a3	YC0469MT01-03	+	+
<i>Aristolochia mollissima</i>	a4	YC0514MT02,04-05	+	-
<i>Aristolochia kaempferi</i> f. <i>heterophylla</i>	a5	YC0678MT01-02	+	-
<i>Aristolochia howii</i>	a6	YC0664MT01-03	+	+
<i>Aristolochia kaempferi</i>	a7	YC0666MT01	+	+
<i>Aristolochia moupinensis</i>	a8	YC0675MT01	+	+
<i>Aristolochia tuberosa</i>	a9	YC0681MT01-02	+	+
<i>Aristolochia hainanensis</i>	a10	YC0676MT01,05	+	-
<i>Aristolochia versicolor</i>	a11	YC0661MT01,03	+	-
<i>Aristolochia fordiana</i>	a12	YC0662MT01-02	+	+
<i>Aristolochia griffithii</i>	a13	YC0674MT01	+	+
<i>Aristolochia fulvicoma</i>	a14	YC0679MT01	+	-
<i>Aristolochia</i> sp.	a15	YC0800MT01-02	+	-
<i>Aristolochia debilis</i>	a33-1*	YC0407MT04-06	+	+
<i>Aristolochia debilis</i>	a33-2*	YC0407MT07-09	+	-
<i>Aristolochia debilis</i>	a33-3*	YC0407MT01-02	+	+
<i>Aristolochia arborea</i>	a34	YC0665MT01	+	-
<i>Aristolochia fimbriata</i>	a35	YC0673MT01	+	-
<i>Aristolochia gibertii</i>	a36	YC0669MT01-02	+	+
<i>Aristolochia gigantea</i>	a37	YC0671MT01	+	-
<i>Aristolochia grandiflora</i>	a38	YC0670MT01	+	-
<i>Aristolochia tagala</i>	a39	YC0672MT03-04	+	-
<i>Asarum heterotropoides</i> var. <i>mandshuricum</i>	a16	YC0365MT02,06	+	-
<i>Asarum sieboldii</i> var. <i>seoulense</i>	a17	YC0478MT01,03,04	+	-
<i>Asarum sieboldii</i>	a18	YC0607MT01,03,05-07	+	-
<i>Asarum sagittarioides</i>	a19	YC0691MT01-02	+	-
<i>Asarum ichangense</i>	a20	YC0504MT01, 04-05	+	-
<i>Asarum longerhizomatosum</i>	a21	YC0685MT01	+	-
<i>Asarum maximum</i>	a22	YC0686MT01	+	-
<i>Asarum himalaicum</i>	a23	YC0688MT01-03	+	-
<i>Asarum splendens</i>	a24	YC0623MT02-04	+	+
<i>Asarum forbesii</i>	a25	YC0471MT01,05	+	-
<i>Asarum geophilum</i>	a26	YC0625MT02-03	+	-
<i>Asarum insigne</i>	a27	YC0690MT01	+	-

<i>Asarum crispulatum</i>	a28	YC0692MT01	+	-
<i>Asarum caudigerellum</i>	a29	YC0694MT01	+	-
<i>Asarum sp.</i>	a30	YC0801MT01-02	+	+
<i>Saruma henryi</i>	a31	YC0684MT01	+	-
<i>Thottea hainanensis</i>	a32	YC0677MT01-03	+	+
<i>Aristolochia kwangsiensis</i>	a40	YC0660MT01-02,04-05,08	-	-
<i>Aristolochia elegans</i>	a41	YC0667MT01-03	-	-
<i>Asarum caudigerum</i>	a42	YC0624MT01-02	-	-
<i>Asarum caulescens</i>	a43	YC0687MT01	-	-
<i>Asarum campaniflorum</i>	a44	YC0695MT01-02	-	-
<i>Asarum pulchellum</i>	a45	YC0693MT01	-	-
<i>Stephania tetrandra</i>	f1	YC0200MT05-06	-	-
<i>Cocculus orbiculatus</i>	f2	YC0486MT01-03	-	-
<i>Cocculus laurifolius</i>	f3	YC0697MT01-03	-	-
<i>Menispermum dauricum</i>	f4	YC0146MT38-39,43	-	-
<i>Akebia quinata</i>	f5	YC0408MT01-03	-	-
<i>Akebia trifoliata</i>	f6	YC0409MT02-03,07	-	-
<i>Clematis armandii</i>	f7	YC0431MT02-03	-	-
<i>Clematis argenteilucida</i>	f8	YC0466MT04-06	-	-
<i>Clematis peterae</i>	f9	YC0696MT01	-	-
<i>Sabia yunnanensis</i>	f10	YC0698MT01	-	-
<i>Cardiocrinum cathayanum</i>	f11	YC0487MT01-03	-	-
<i>Diploclisia glaucescens</i>	f12	YC0700MT01	-	-
<i>Akebia trifoliata var. australis</i>	f13	YC0410MT03,05	-	-
<i>Clematis montana</i>	f14	YC0608MT01,04	-	-
<i>Sinomenium acutum</i>	f15	YC0182MT07-08	-	-
<i>Clematis chinensis</i>	f16	YC0630MT03,09	-	-
<i>Clematis hexapetala</i>	f17	YC0485MT04-05	-	-
<i>Clematis manshurica</i>	f18	YC0470MT03	-	-
<i>Tetrapanax papyrifer</i>	f19	YC0243MT02,04	-	-
<i>Stachyurus chinensis</i>	f20	YC0455MT03-04	-	-
<i>Helwingia japonica</i>	f21	YC0444MT01	-	-
<i>Aucklandia lappa</i>	f22	YC0139MT09,11	-	-
<i>Vladimiria souliei</i>	f23	YC0537MT01,06-07	-	-
<i>Inula helenium</i>	f24	YC0339MT02,08	-	-
<i>Murraya paniculata</i>	f25	YC0054MT06-07	-	-
<i>Solanum lyratum</i>	f26	YC0668MT01-02	-	-
<i>Pleione bulbocodioides</i>	f27	YC0555MT01,03-04	-	-
<i>Pleione yunnanensis</i>	f28	YC0556MT12	-	-
<i>Cremastra appendiculata</i>	f29	YC0210MT07-08	-	-

<i>Tinospora sagittata</i>	f30	YC0633MT06-07	-	-
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* a1-1: the fruits of *Ar. contorta*; a1-2: the herbs of *Ar. contorta*;

a1-3: the roots and rhizomes of *Ar. contorta*

a33-1: the fruits of *Ar. debilis*; a33-2: the herbs of *Ar. debilis*;

a33-3: the roots and rhizomes of *Ar. debilis*

+ contain AA

- AA free

Table S7 Summary of commercial samples identified by DNA Barcoding, Real-Time PCR and UHPLC-HR-MS.

Sample number	Vernacular	Species in Chinese Pharmacopoeia	Sample from	Species identified by DNA barcoding		Rapid detection by Real-Time PCR	Detection by UHPLC-HR-MS		Mislabelled
				ITS2 identification (Similarity)	<i>psbA-trnH</i> identification (Similarity)		AA I	AA II	
MDL01	Fangji	<i>Stephania tetrandra</i>	Guangzhou, China	<i>Stephania tetrandra</i> (100%)	NS	NPS	—	—	NO
MDL02	Fangji	<i>Stephania tetrandra</i>	Hebei, China	<i>Stephania tetrandra</i> (100%)	NS	NPS	—	—	NO
MDL03	Fangji	<i>Stephania tetrandra</i>	Hebei [#] , China	<i>Aristolochia fangchi</i> (100%)	NS	PS	+	—	YES
MDL04	Fangji	<i>Stephania tetrandra</i>	Anhui [#] , China	<i>Stephania tetrandra</i> (100%)	<i>Stephania tetrandra</i> (100%)	NPS	—	—	NO
MDL05	Zhushalian	<i>Aristolochia tuberosa</i>	Anhui, China	<i>Aristolochia tuberosa</i> (100%)	<i>Aristolochia tuberosa</i> (100%)	PS	+	+	NO
MDL06	Zhushalian	<i>Aristolochia tuberosa</i>	Hebei, China	NS	<i>Dioscorea sp.</i> (100%)	NPS	—	—	YES
MDL07	Zhushalian	<i>Aristolochia tuberosa</i>	Hebei [#] , China	<i>Aristolochia tuberosa</i> (100%)	NS	PS	+	+	NO
MDL08	Xungufeng	<i>Aristolochia mollissima</i>	Hebei, China	<i>Aristolochia mollissima</i> (100%)	<i>Aristolochia mollissima</i> (100%)	PS	+	+	NO
MDL09	Xungufeng	<i>Aristolochia mollissima</i>	Anhui, China	<i>Aristolochia mollissima</i> (100%)	<i>Aristolochia mollissima</i> (100%)	PS	+	+	NO
MDL10	Baiying	<i>Solanum lyratum</i>	Hebei, China	<i>Solanum lyratum</i> (100%)	<i>Solanum lyratum</i> (100%)	NPS	—	—	NO
MDL11	Baiying	<i>Solanum lyratum</i>	Anhui, China	<i>Solanum lyratum</i> (96%)	<i>Solanum lyratum</i> (100%)	NPS	—	—	NO
MDL12	Mutong	<i>Akebia quinata</i> , <i>Akebia trifoliata</i> and <i>Akebia trifoliata</i> var. <i>australis</i>	Hebei, China	<i>Clematis sp.</i> (99%)	<i>Clematis sp.</i> (100%)	NPS	—	—	YES
MDL13	Mutong	<i>Akebia quinata</i> , <i>Akebia trifoliata</i> and <i>Akebia trifoliata</i> var. <i>australis</i>	Anhui, China	<i>Clematis sp.</i> (98%)	<i>Clematis sp.</i> (97%)	NPS	—	—	YES
MDL14	Chuanmutong	<i>Clematis armandii</i> and <i>Clematis montana</i>	Beijing, China	<i>Clematis sp.</i> (99%)	<i>Clematis sp.</i> (100%)	NPS	—	—	NO
MDL15	Chuanmutong	<i>Clematis armandii</i> and <i>Clematis montana</i>	Beijing, China	<i>Clematis sp.</i> (100%)	<i>Clematis sp.</i> (100%)	NPS	—	—	NO
MDL16	Chuanmutong	<i>Clematis armandii</i> and <i>Clematis montana</i>	Guangzhou, China	<i>Clematis sp.</i> (99%)	NS	NPS	—	—	NO
MDL17	Xixin	<i>Asarum heterotropoides</i> var. <i>mandshuricum</i> , <i>Asarum sieboldii</i> var.	Guangzhou, China	<i>Asarum sp.</i> (100%)	NS	PS	+	+	NO

		<i>seoulense</i> and <i>Asarum sieboldii</i>							
MDL18	Xixin	<i>Asarum heterotropoides</i> var. <i>mandshuricum</i> , <i>Asarum sieboldii</i> var. <i>seoulense</i> and <i>Asarum sieboldii</i>	Beijing, China	<i>Asarum sp.</i> (100%)	NS	PS	+	–	NO
MDL19	Xixin	<i>Asarum heterotropoides</i> var. <i>mandshuricum</i> , <i>Asarum sieboldii</i> var. <i>seoulense</i> and <i>Asarum sieboldii</i>	Beijing, China	<i>Asarum sp.</i> (100%)	NS	PS	–	–	NO
MDL20	Xixin	<i>Asarum heterotropoides</i> var. <i>mandshuricum</i> , <i>Asarum sieboldii</i> var. <i>seoulense</i> and <i>Asarum sieboldii</i>	Hebei, China	<i>Asarum sp.</i> (97%)	NS	PS	ND		NO

No Sequence (NS), Not Detected (ND)

No Positive Signal (NPS): from non-Aristolochiaceous samples

Positive Signal (PS): from Aristolochiaceous samples

sample from online stores

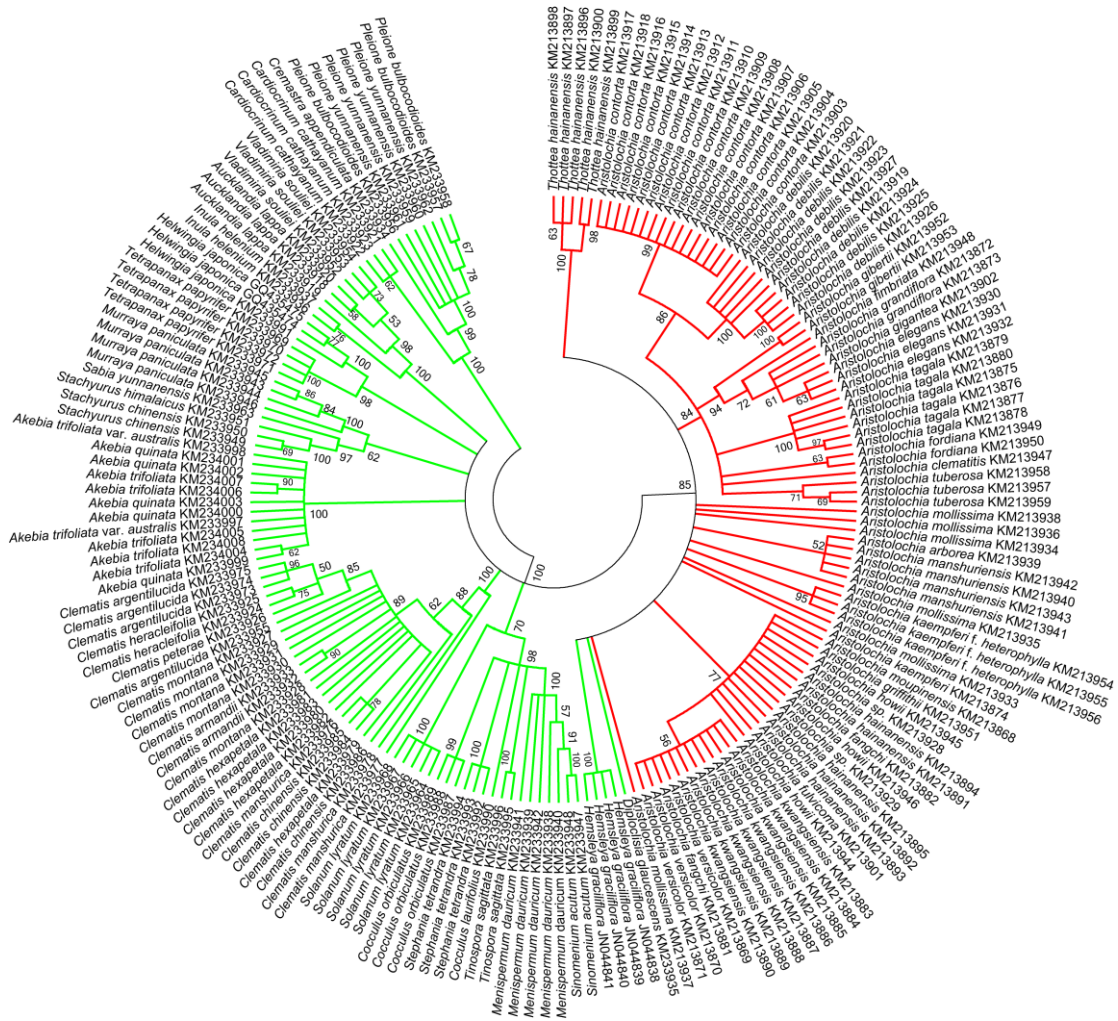
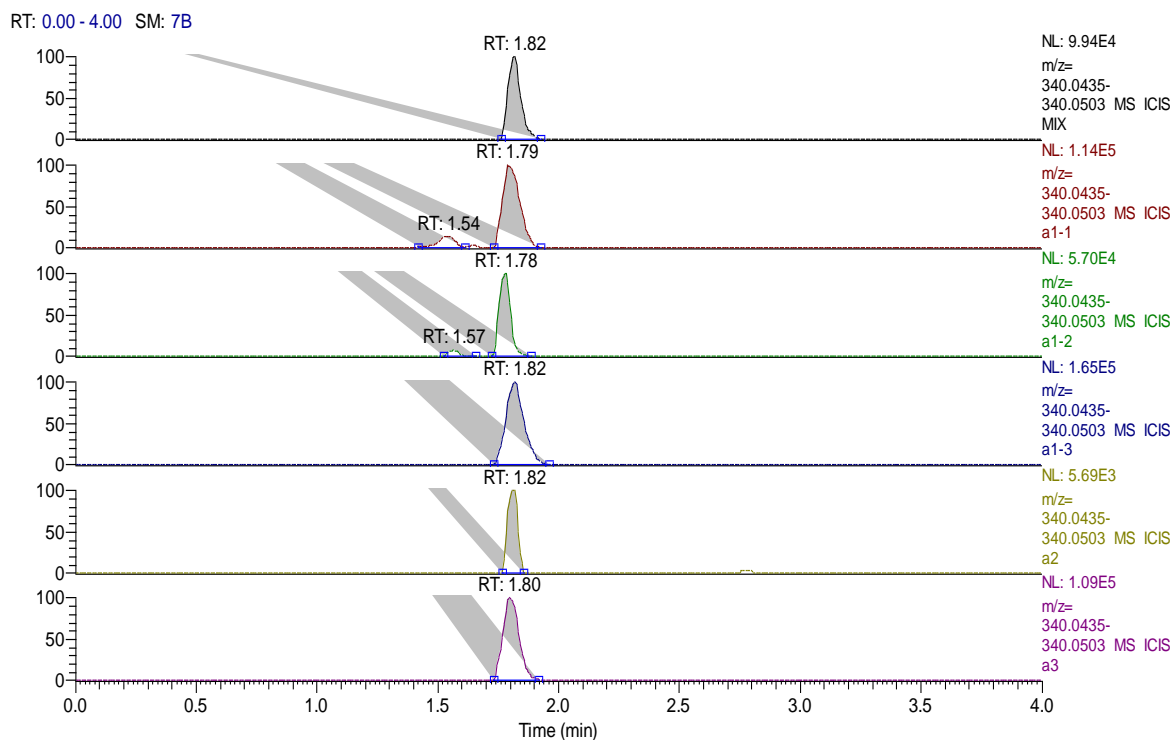
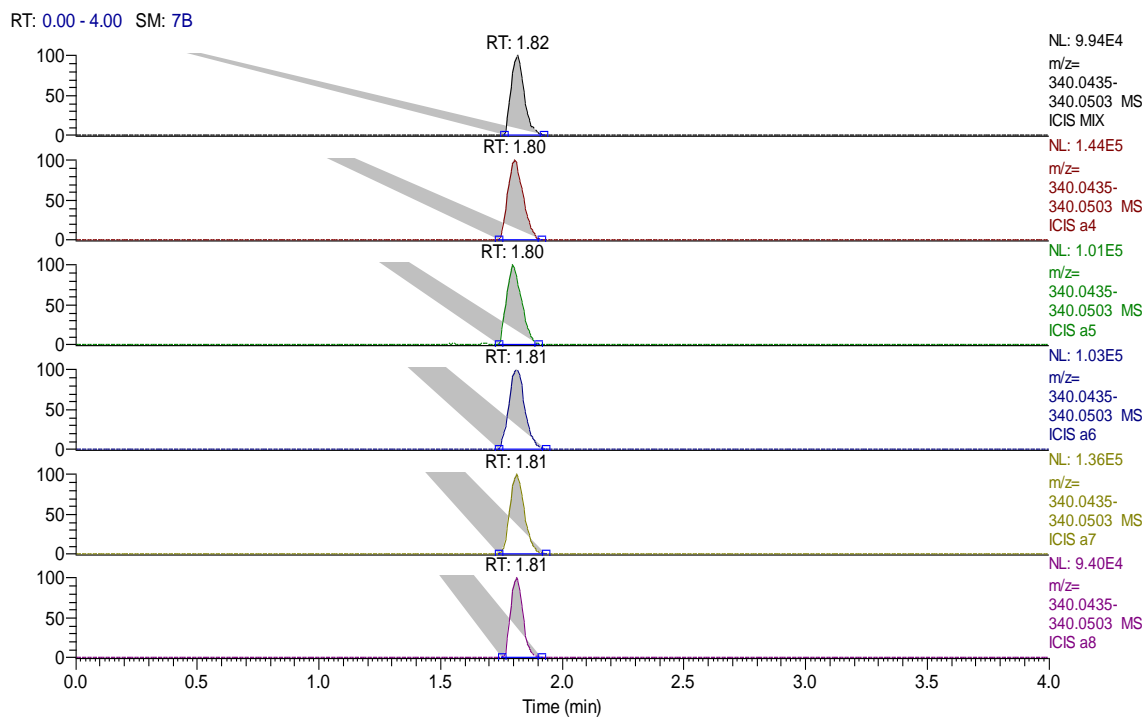


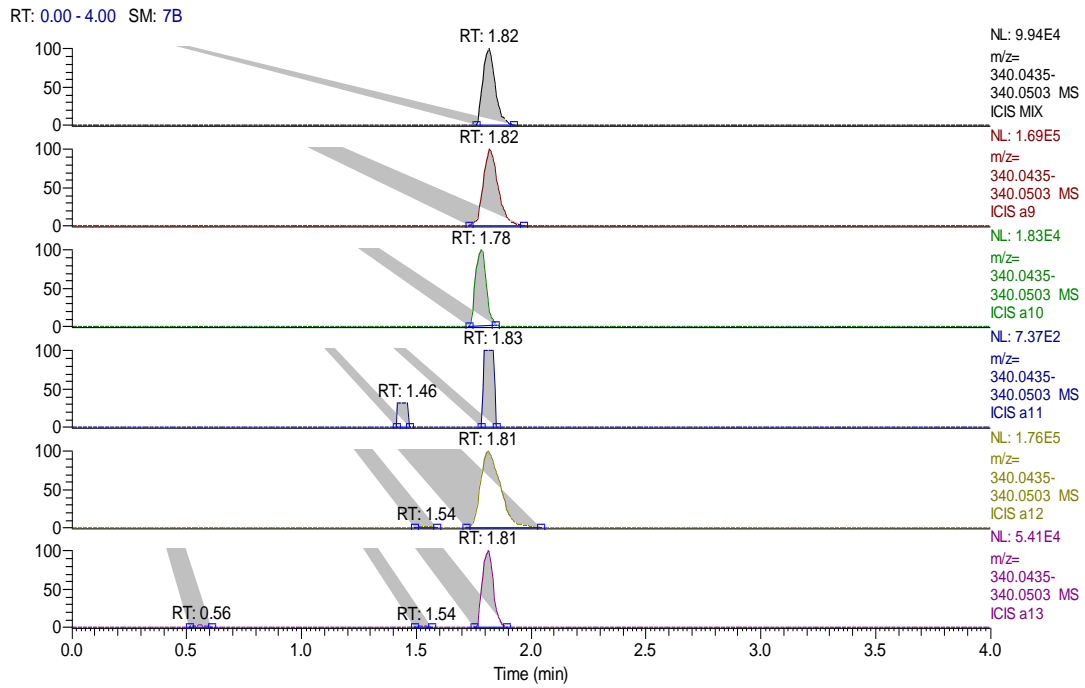
Fig. S1. The NJ tree constructed from the *psbA-trnH* region from Aristolochiaceae and non-Aristolochiaceae substitutes. The bootstrap scores (1000 replicates) are shown ($\geq 50\%$) for each branch.



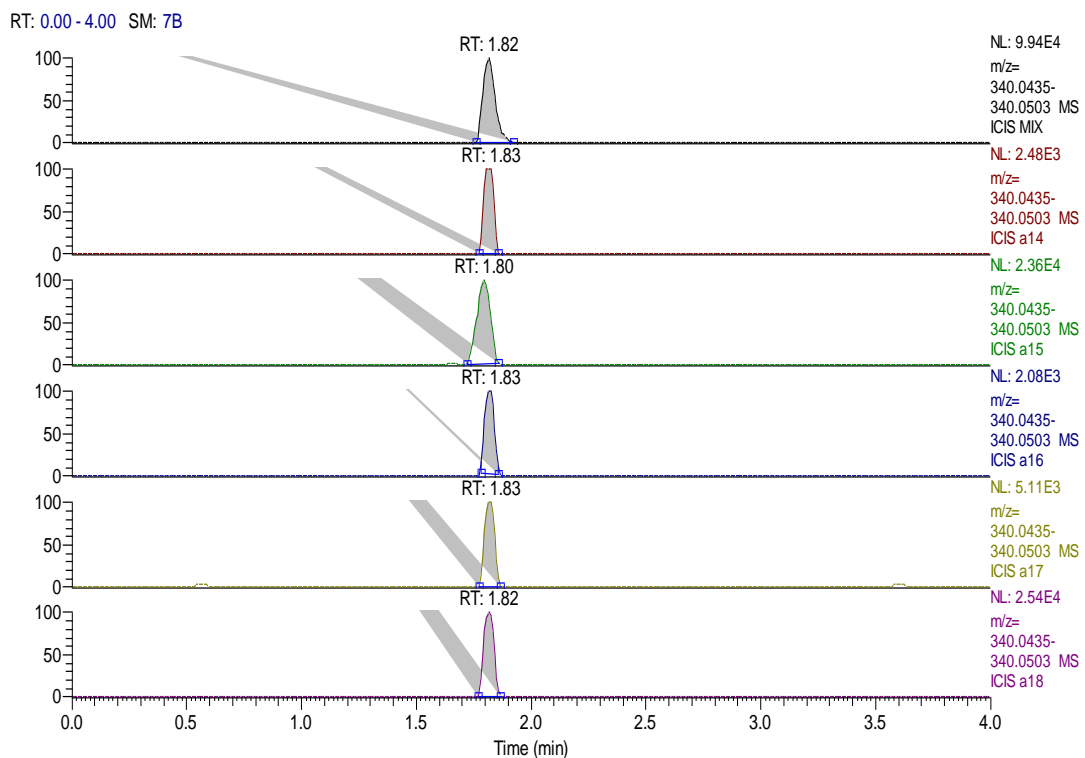
MIX: standard AA I ; a1-1: the fruits of *Ar. contorta*; a1-2: the herbs of *Ar. contorta*;
a1-3: the roots and rhizomes of *Ar. contorta*; a2: *Ar. fangchi*; a3: *Ar. manshuriensis*



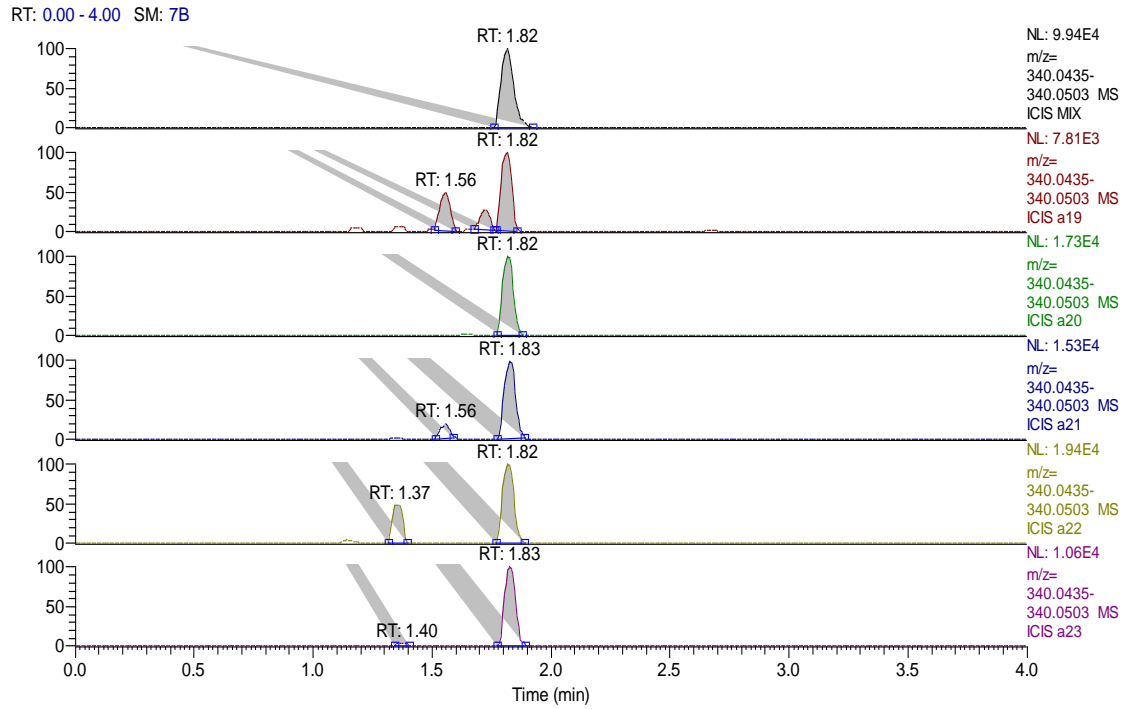
MIX: standard AA I ; a4: *Ar. mollissima*; a5: *Ar. kaempferi* f. *heterophylla*;
a6: *Ar. howii*; a7: *Ar. kaempferi*; a8: *Ar. moupinensis*



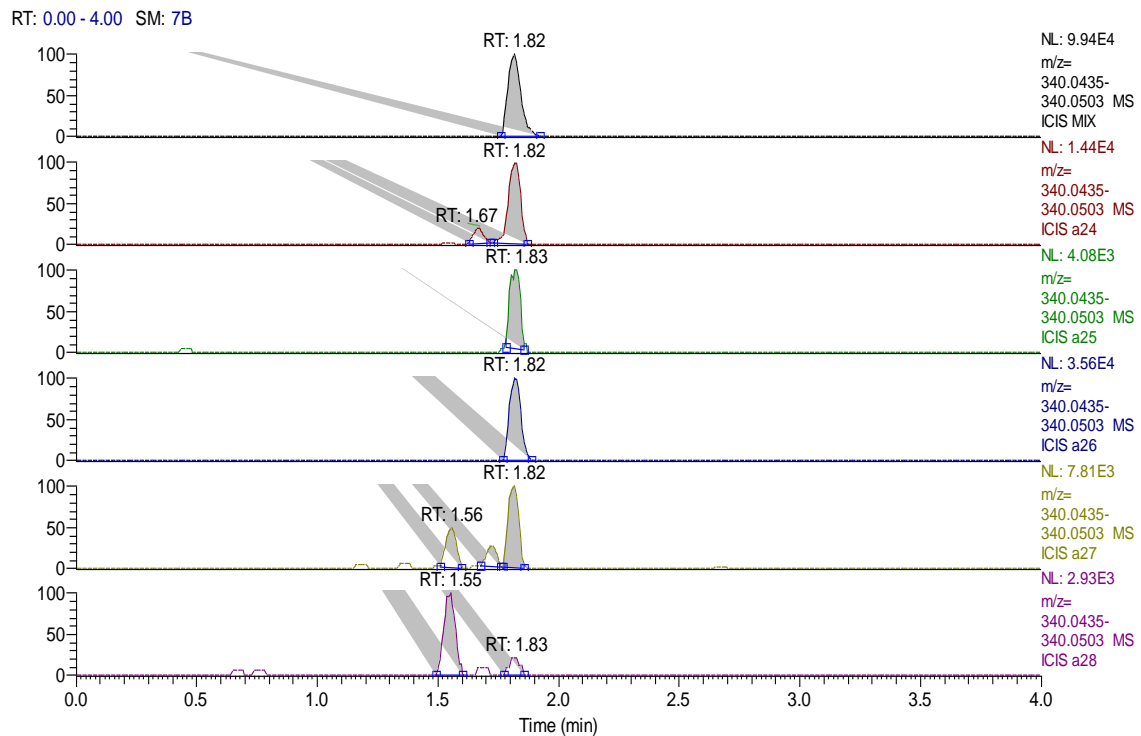
MIX: standard AA I ; a9: *Ar. tuberosa*; a10: *Ar. hainanensis*;
a11: *Ar. versicolor*; a12: *Ar. fordiana*; a13: *Ar. griffithii*



MIX: standard AA I ; a14: *Ar. fulvicoma*; a15: *Ar. sp.*;
a16: *As. heterotropoides* var. *mandshuricum*;
a17: *As. sieboldii* var. *seoulense*; a18: *As. sieboldii*

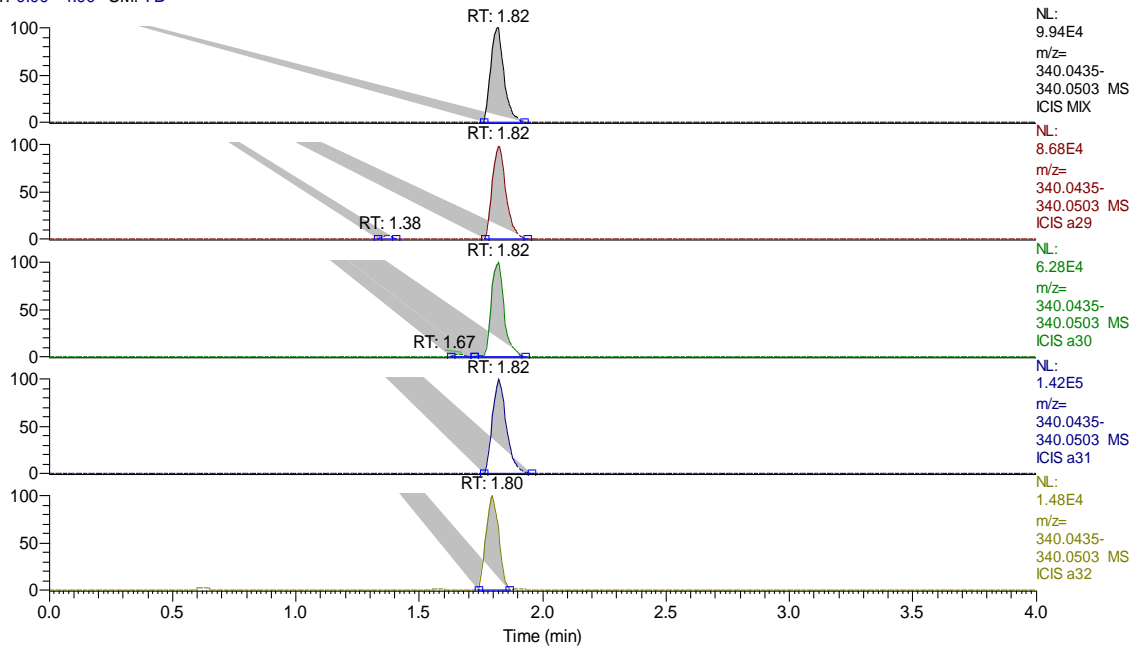


MIX: standard AA I ; a19: *As. sagittarioides*; a20: *As. ichangense*;
a21: *As. longrhizomatosum*; a22: *As. maximum*; a23: *As. himalaicum*



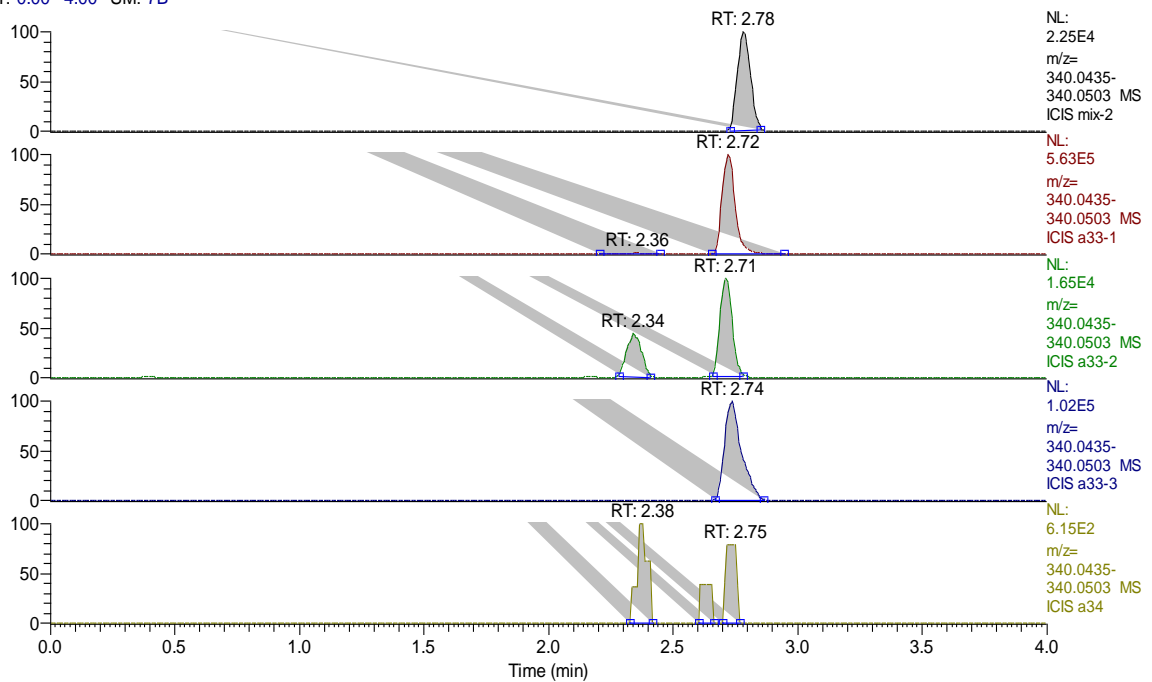
MIX: standard AA I ; a24: *As. splendens*; a25: *As. forbesii*;
a26: *As. geophilum*; a27: *As. insigne*; a28: *As. crispulatum*

RT: 0.00 - 4.00 SM: 7B



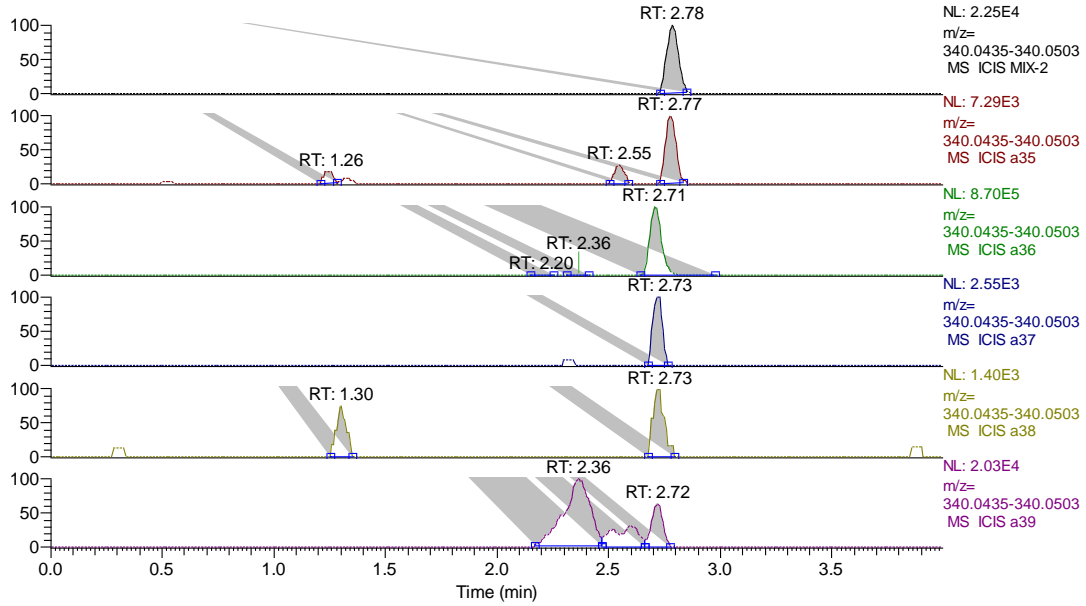
MIX: standard AA; a29: *As. caudigerellum*; a30: *As. sp.*; a31: *Saruma henryi*;
a32: *Thottea hainanensis*

RT: 0.00 - 4.00 SM: 7B



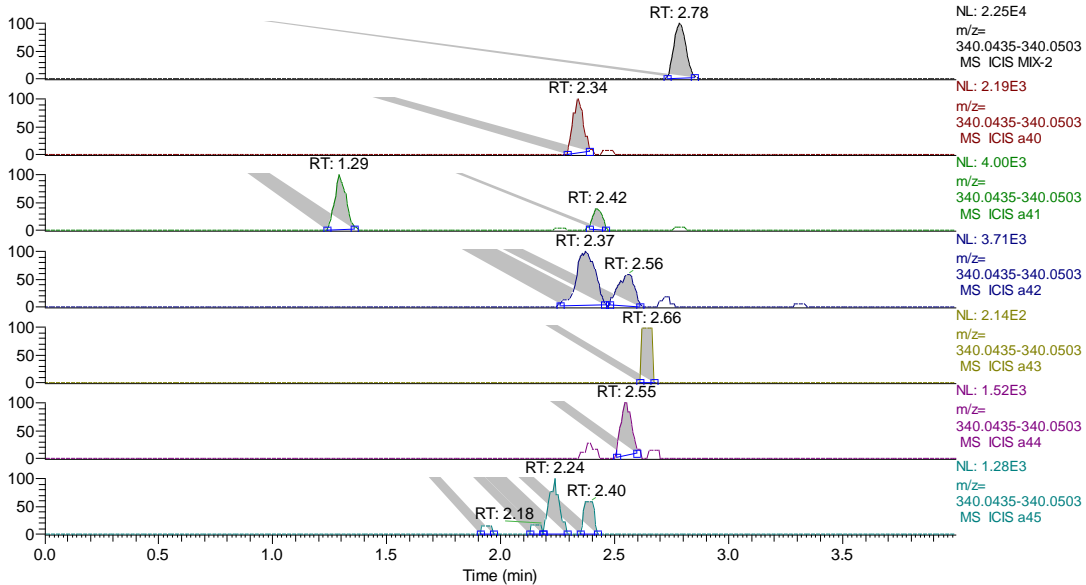
mix-2: standard AA; a33-1: the fruits of *Ar. debilis*; a33-2: the herbs of *Ar. debilis*;
a33-3: the roots and rhizomes of *Ar. debilis*; a34: *Ar. arborea*

RT: 0.00 - 4.00 SM: 7B

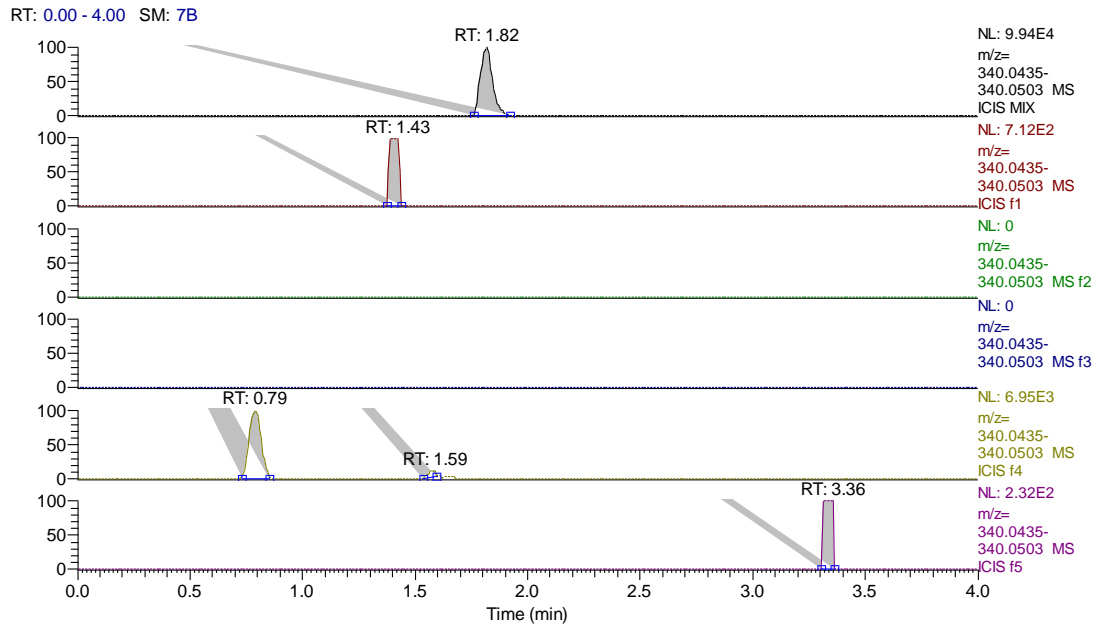


mix-2: standard AA I ; a35: *Ar. fimbriata*; a36: *Ar. gibertii*; a37: *Ar. gigantea*;
a38: *Ar. grandiflora*; a39: *Ar. tagala*

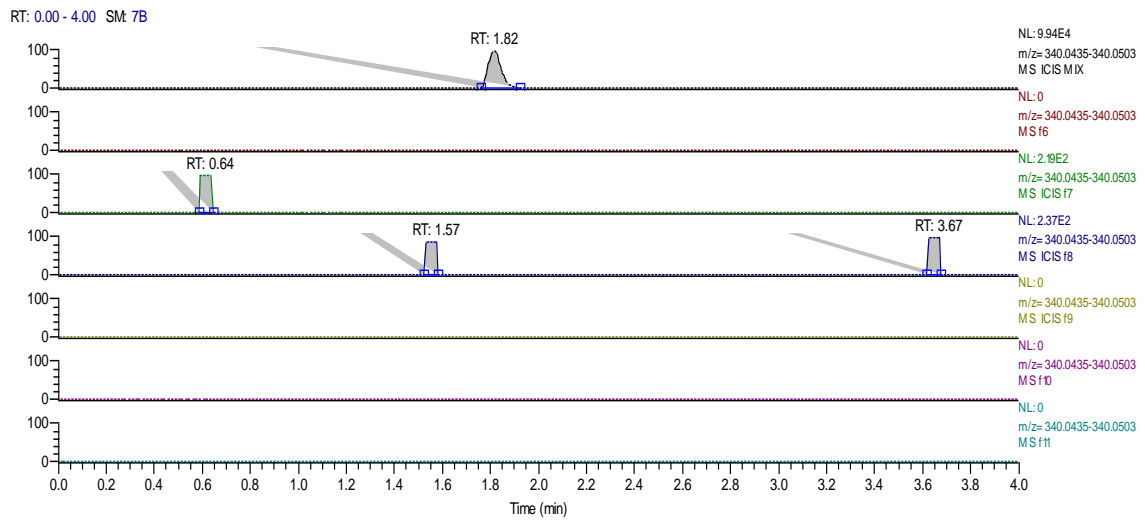
RT: 0.00 - 4.00 SM: 7B



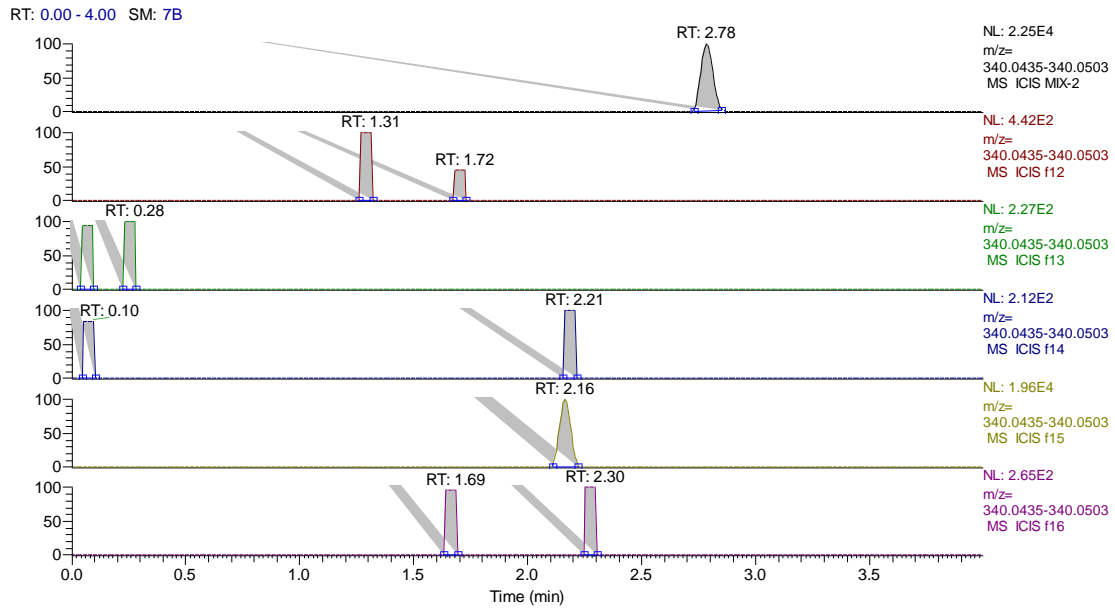
mix-2: standard AA I ; a40: *Ar. kwangsiensis*; a41: *Ar. elegans*; a42: *As. caudigerum*;
a43: *As. caulescens*; a44: *As. campaniflorum*; a45: *As. pulchellum*;



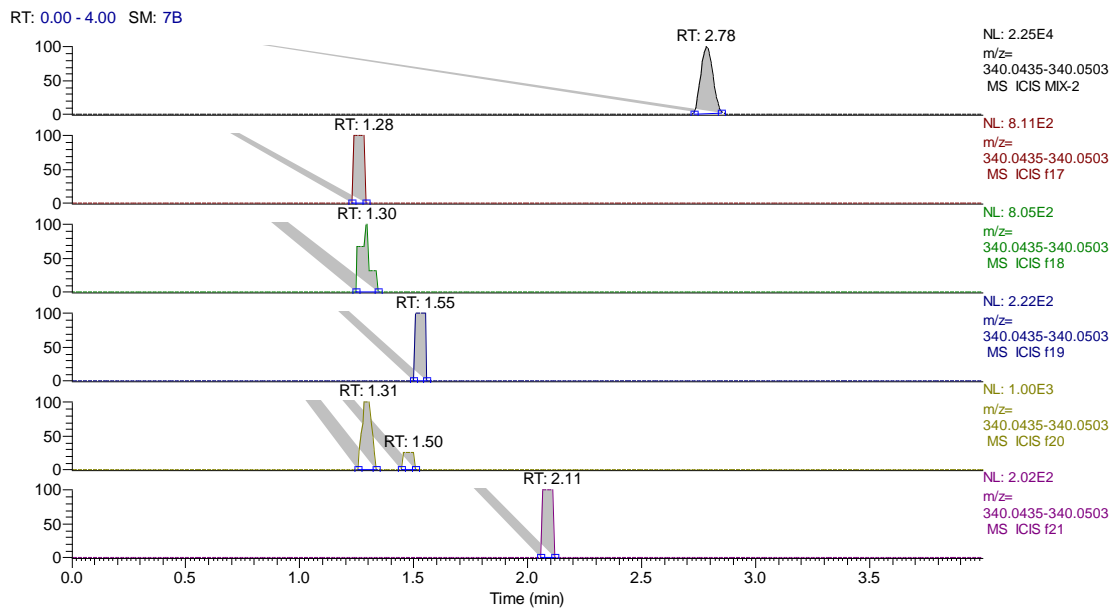
MIX: standard AA I ; f1: *Stephania tetrandra*; f2: *Cocculus orbiculatus*;
 f3: *Cocculus laurifolius*; f4: *Menispermum dauricum*; f5: *Akebia quinata* ;



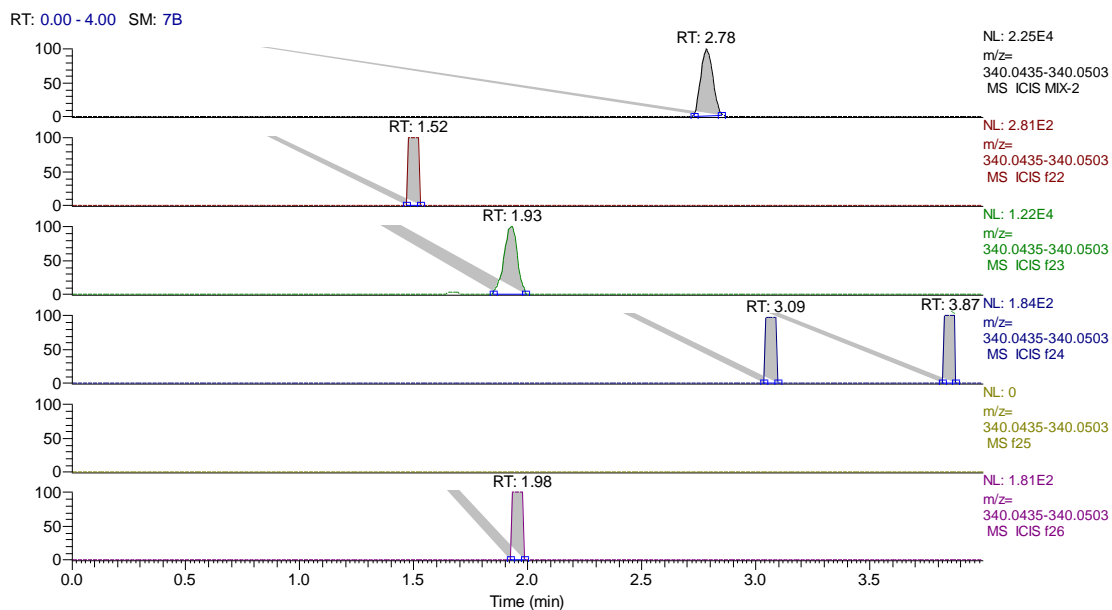
MIX: standard AA I ; f6: *Akebia trifoliata*; f7: *Clematis armandii*;
 f8: *Clematis argenteilucida*; f9: *Clematis peterae*; f10: *Sabia yunnanensis*;
 f11: *Cardiocrinum cathayanum*



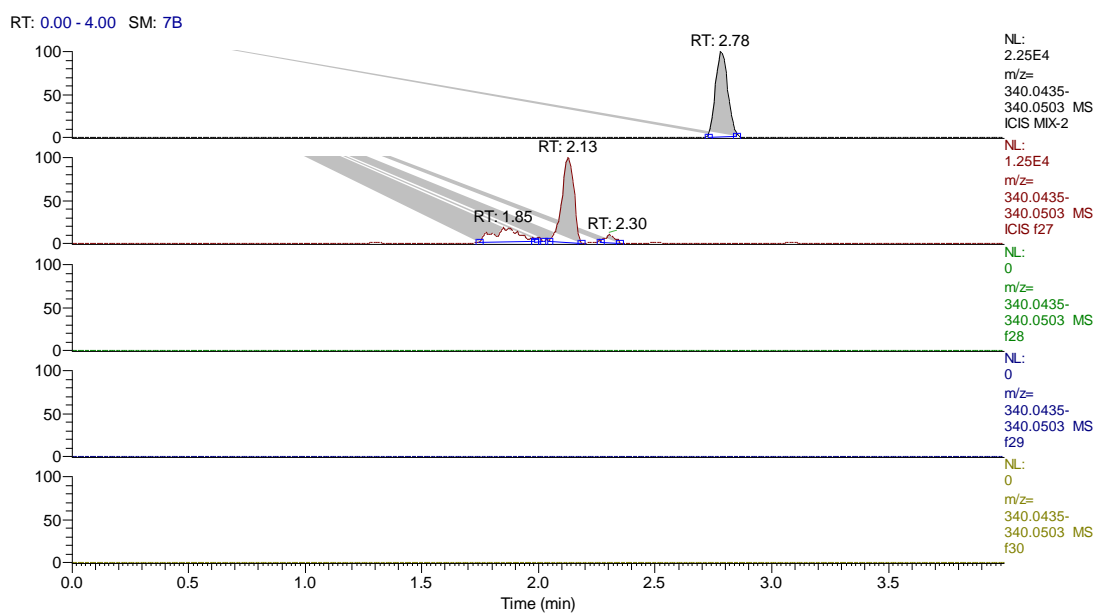
mix-2: standard AA I ; f12: *Diploclisia glaucescens*; f13: *Akebia trifoliata* var. *australis*;
 f14: *Clematis montana*; f15: *Sinomenium acutum*; f16: *Clematis chinensis*;



mix-2: standard AA I ; f17: *Clematis hexapetala*; f18: *Clematis manshurica*;
 f19: *Tetrapanax papyrifer*; f20: *Stachyurus chinensis*; f21: *Helwingia japonica*;

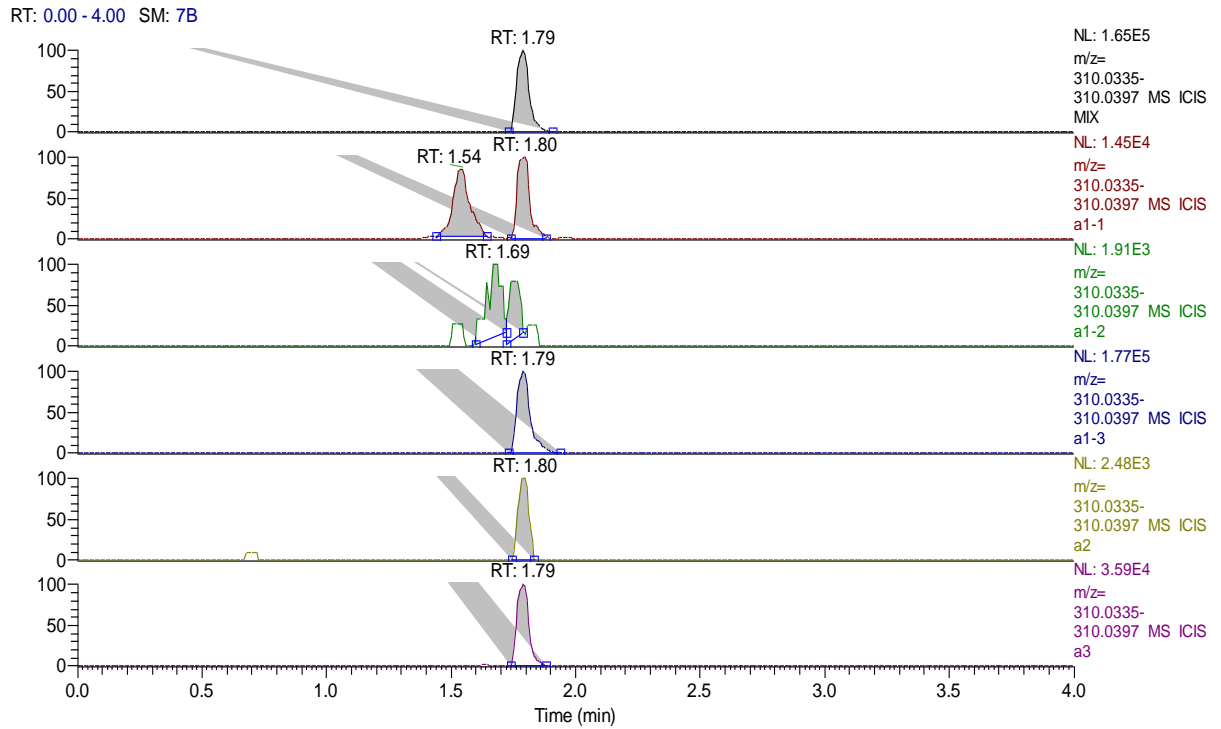


mix-2: standard AA I ; f22: *Aucklandia lappa*; f23: *Vladimiria souliei*;
 f24: *Inula helenium*; f25: *Murraya paniculata*; f26: *Solanum lyratum*;

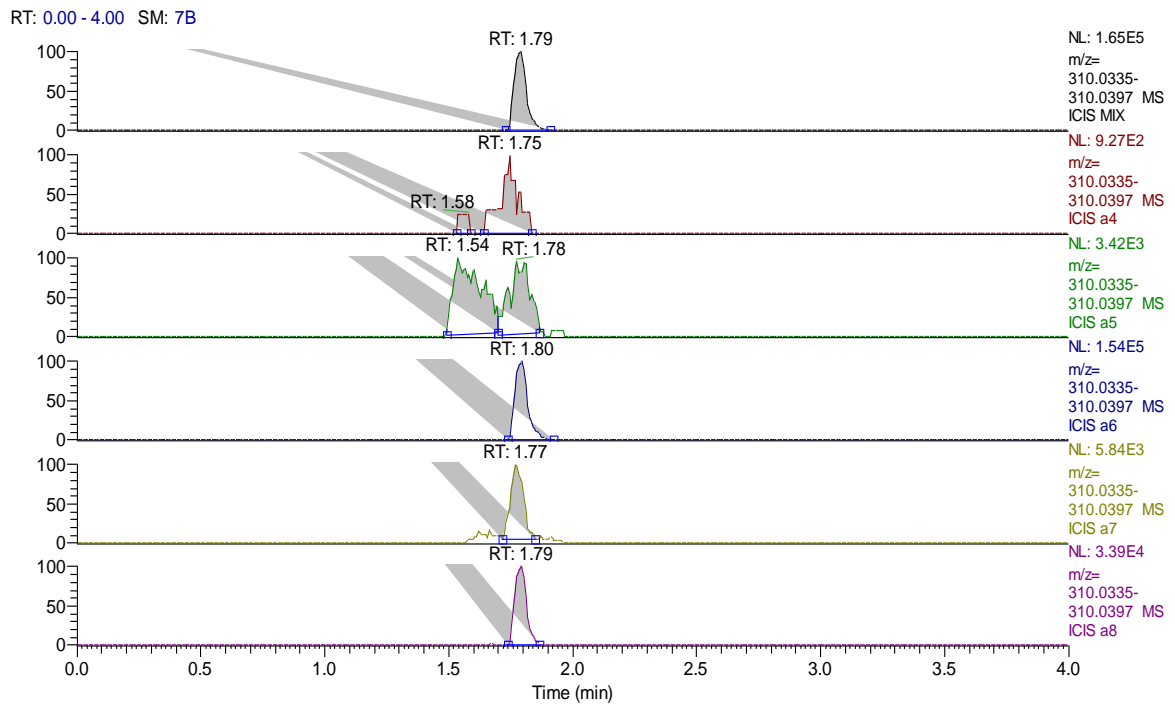


mix-2: standard AA I ; f27: *Pleione bulbocodioides*; f28: *Pleione yunnanensis*;
 f29: *Cremastra appendiculata*; f30: *Tinospora sagittata*;

Fig. S2. MS profiles of AA I for all species in UHPLC-HR-MS analysis. AA I was detected at *m/z* 340 0469.

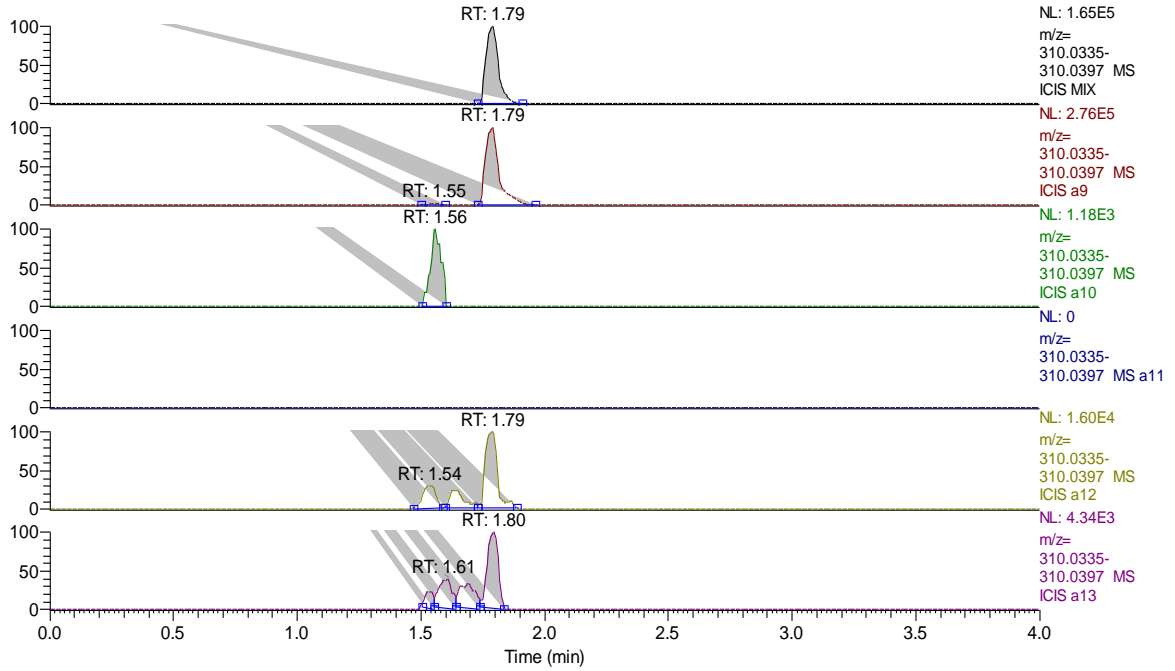


MIX: standard AA II; a1-1: the fruits of *Ar. contorta*; a1-2: the herbs of *Ar. contorta*;
a1-3: the roots and rhizomes of *Ar. contorta*; a2: *Ar. fangchi*; a3: *Ar. manshuriensis*



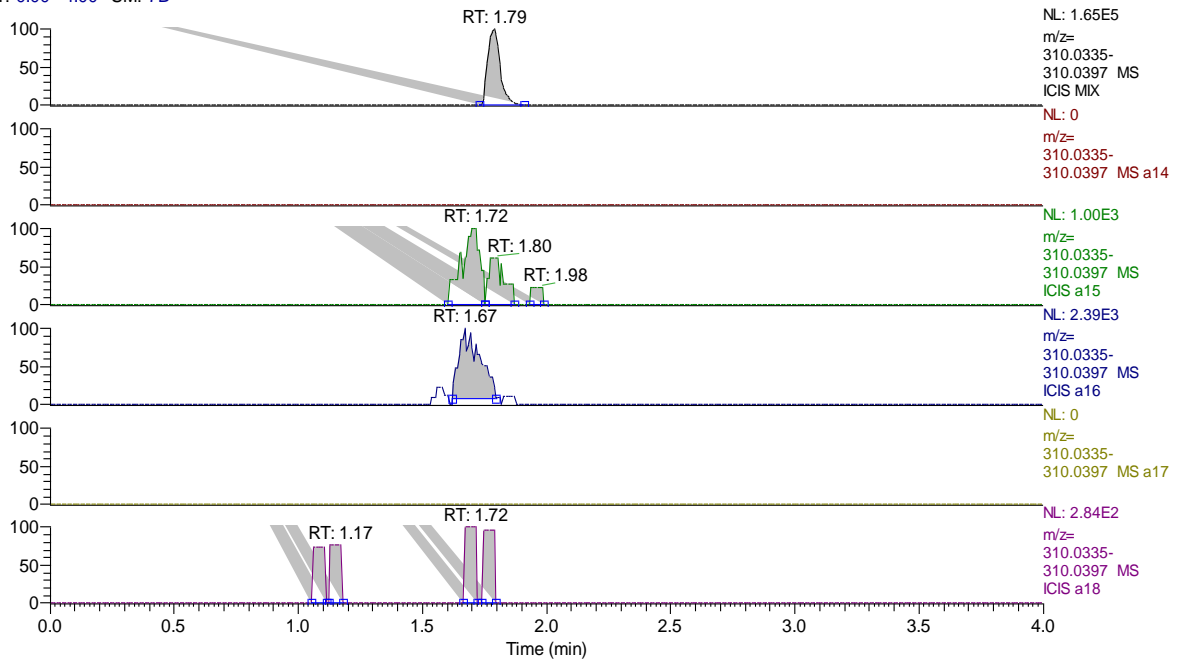
MIX: standard AA II; a4: *Ar. mollissima*; a5: *Ar. kaempferi* f. *heterophylla*;
a6: *Ar. howii*; a7: *Ar. kaempferi*; a8: *Ar. moupinensis*

RT: 0.00 - 4.00 SM: 7B



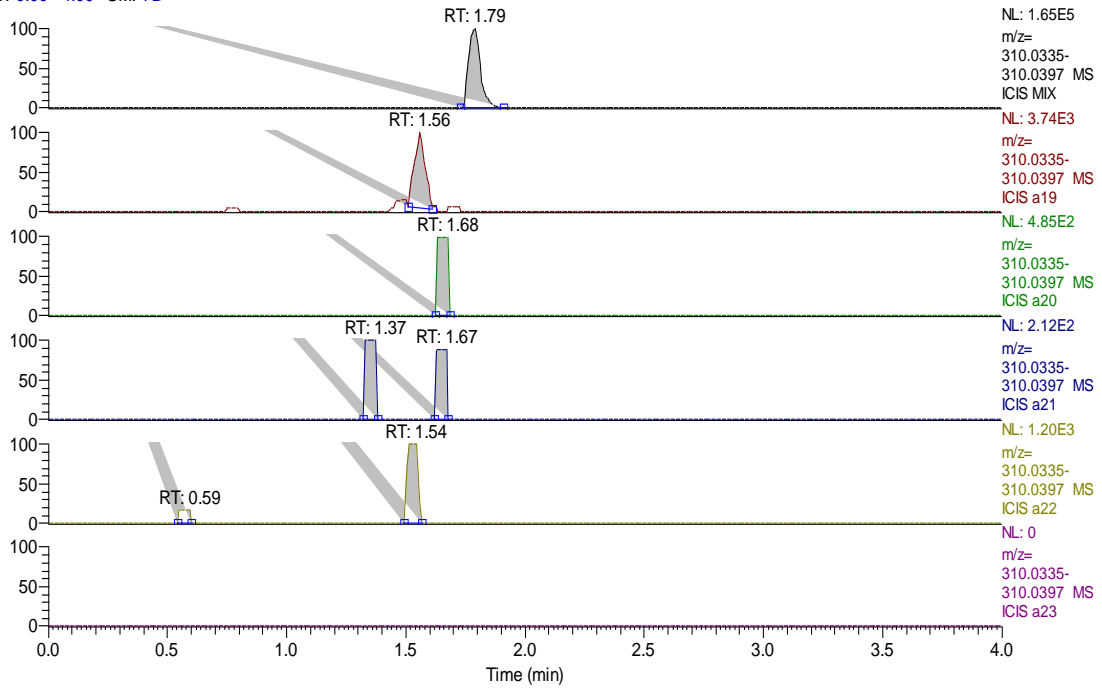
MIX: standard AA II ; a9: *Ar. tuberosa*; a10: *Ar. hainanensis*;
a11: *Ar. versicolor*; a12: *Ar. fordiana*; a13: *Ar. griffithii*

RT: 0.00 - 4.00 SM: 7B



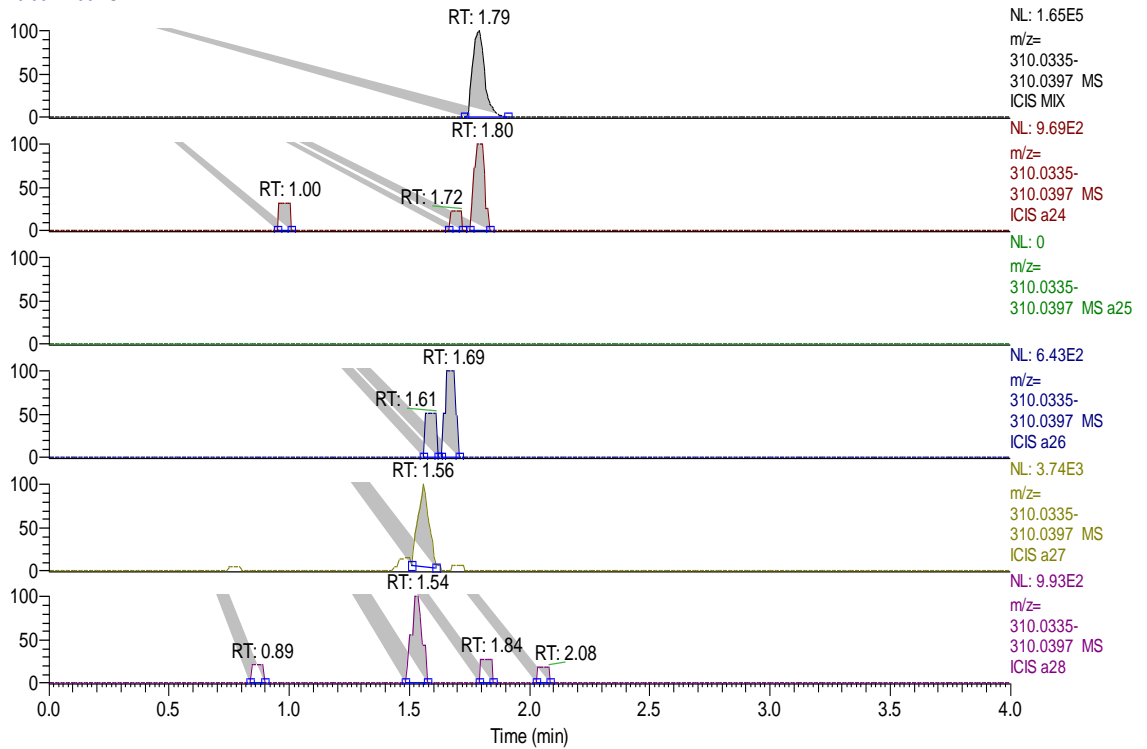
MIX: standard AA II ; a14: *Ar. fulvicoma*; a15: *Ar. sp.*;
a16: *As. heterotropoides* var. *mandshuricum*;
a17: *As. sieboldii* var. *seoulense*; a18: *As. sieboldii*

RT: 0.00 - 4.00 SM: 7B



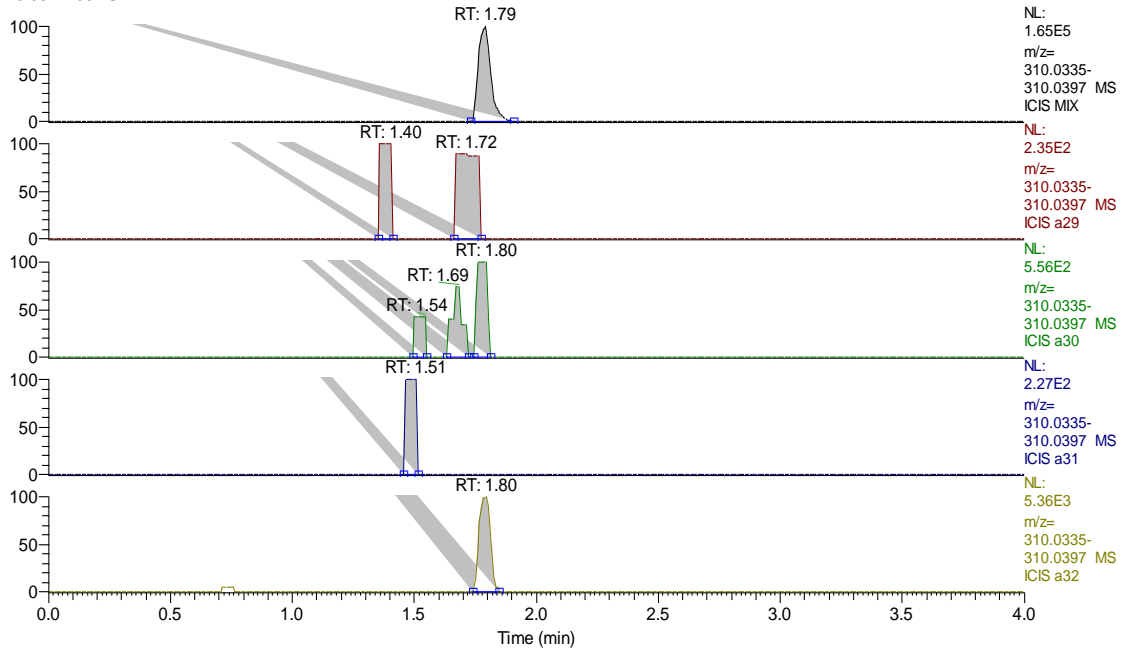
MIX: standard AA II ; a19: *As. sagittarioides*; a20: *As. ichangense*;
a21: *As. longerrhizomatosum*; a22: *As. maximum*; a23: *As. himalaicum*

RT: 0.00 - 4.00 SM: 7B



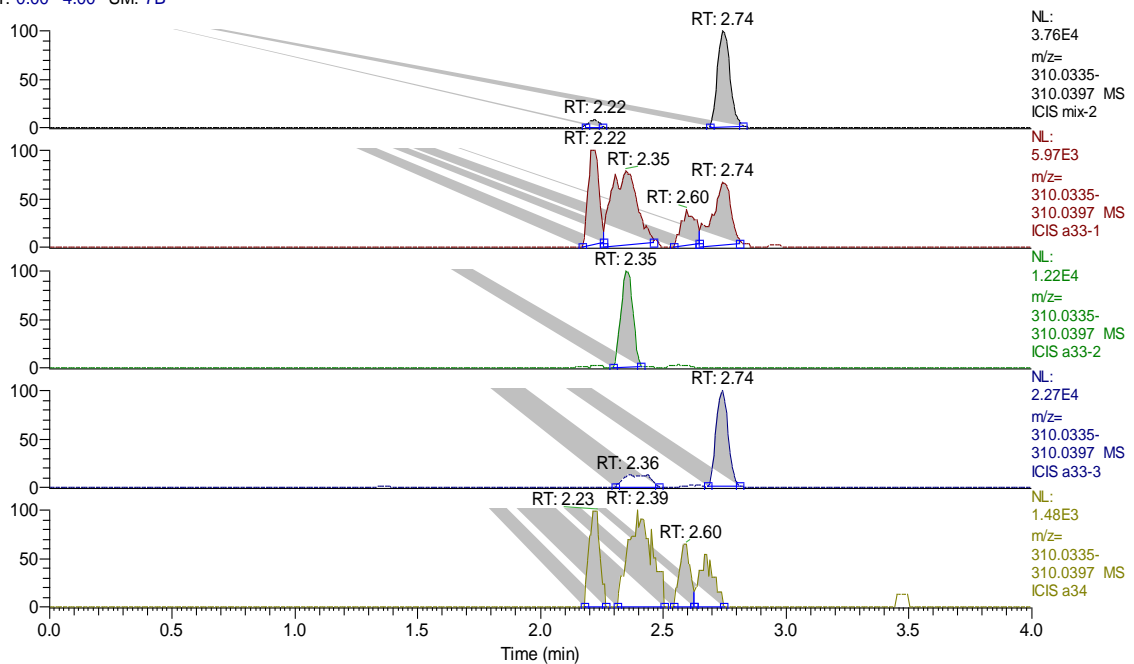
MIX: standard AA II ; a24: *As. splendens*; a25: *As. forbesii*;
a26: *As. geophilum*; a27: *As. insigne*; a28: *As. crispulatum*;

RT: 0.00 - 4.00 SM: 7B



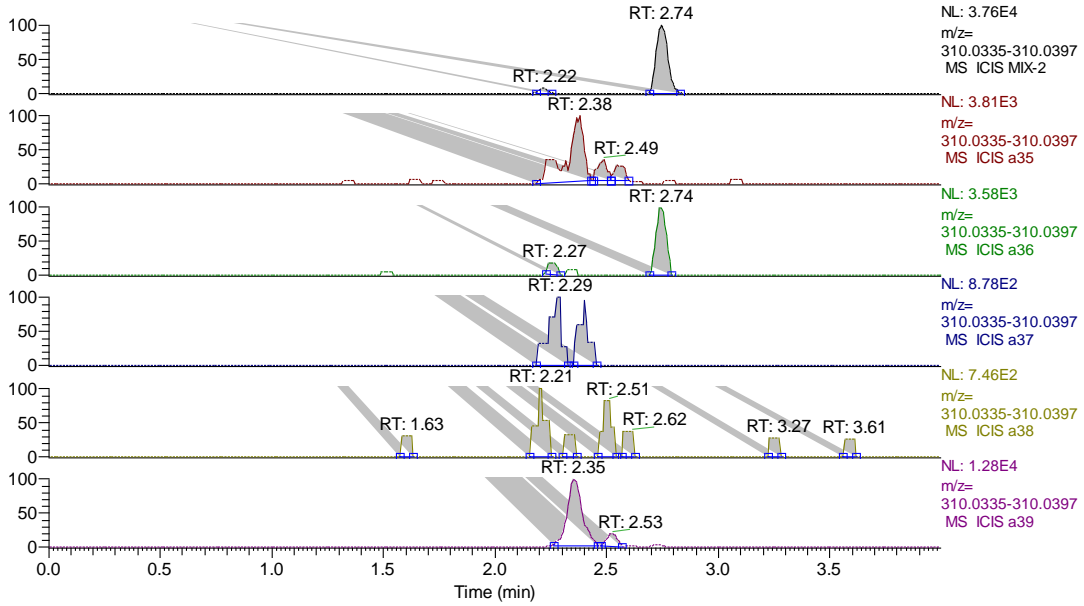
MIX: standard AA II ; a29: *As. caudigerellum*; a30: *As. sp.*; a31: *Saruma henryi*;
a32: *Thottea hainanensis*

RT: 0.00 - 4.00 SM: 7B



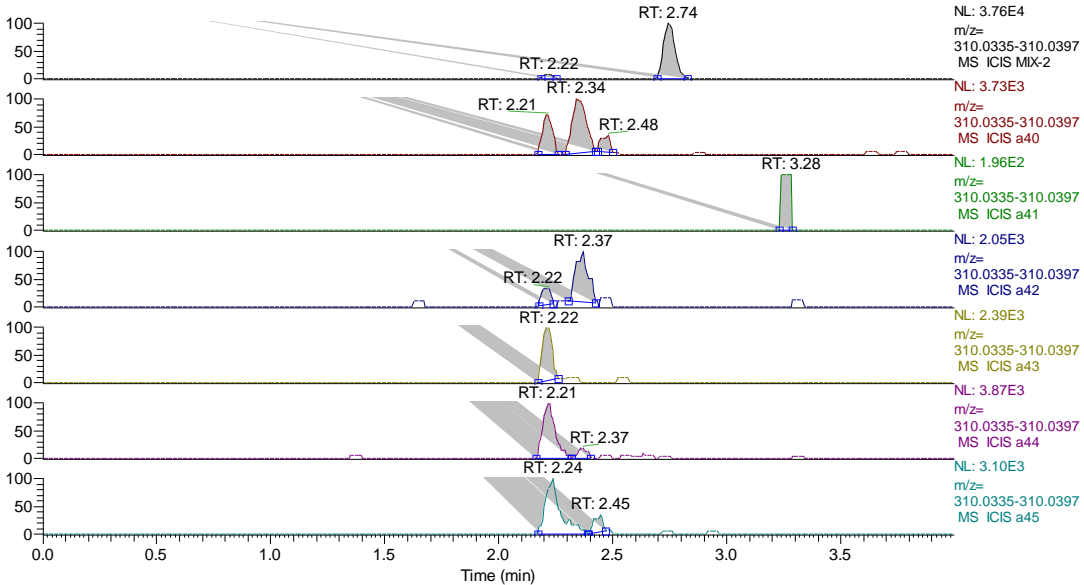
mix-2: standard AA II ; a33-1: the fruits of *Ar. debilis*; a33-2: the herbs of *Ar. debilis*;
a33-3: the roots and rhizomes of *Ar. debilis*; a34: *Ar. arborea*

RT: 0.00 - 4.00 SM: 7B

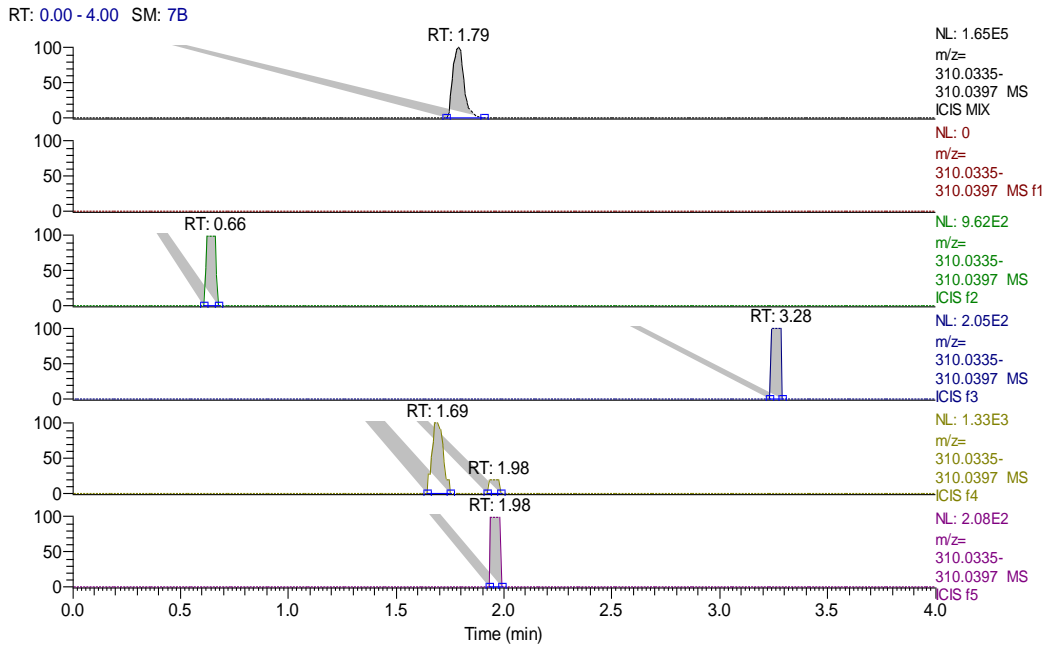


mix-2: standard AA II ; a35: *Ar. fimbriata*; a36: *Ar. gibertii*; a37: *Ar. gigantea*;
a38: *Ar. grandiflora*; a39: *Ar. tagala*

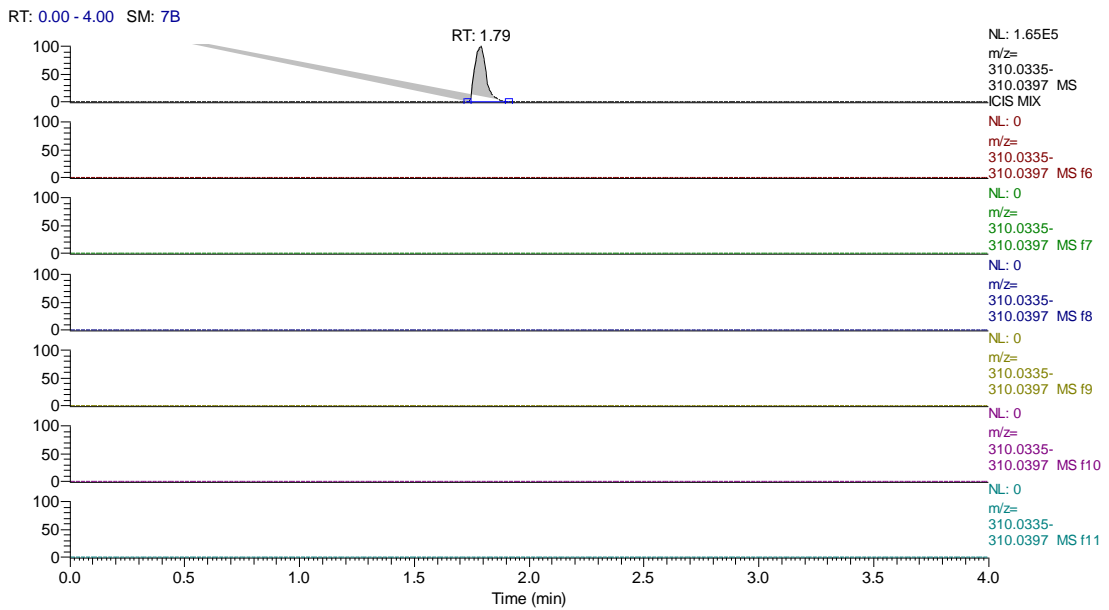
RT: 0.00 - 4.00 SM: 7B



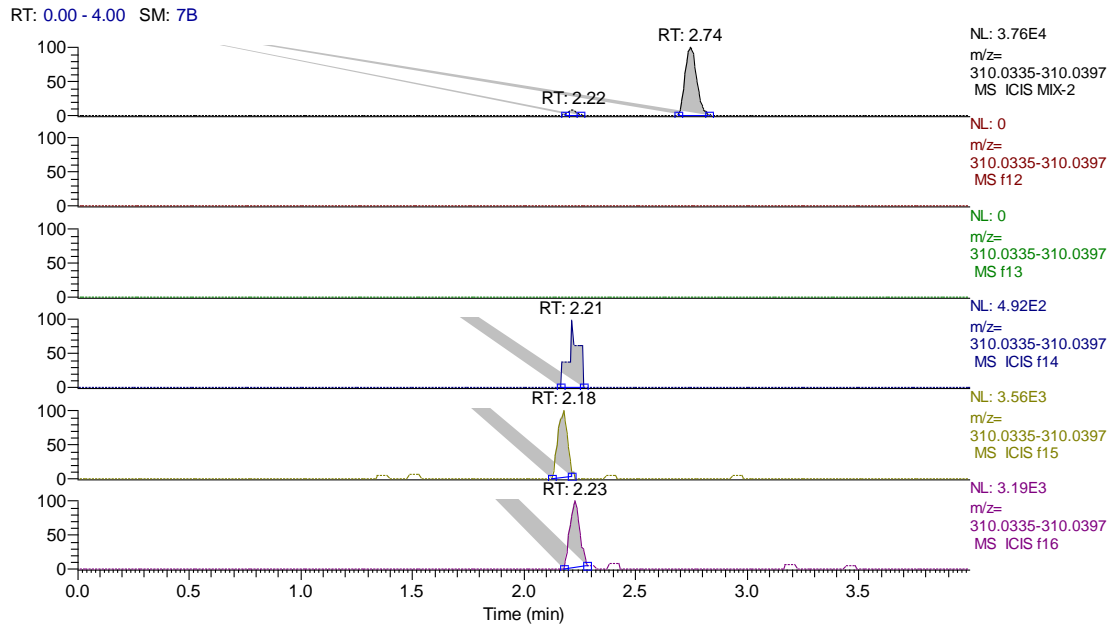
mix-2: standard AA II ; a40: *Ar. kwangsiensis*; a41: *Ar. elegans*; a42: *As. caudigerum*;
a43: *As. caulescens*; a44: *As. campaniflorum*; a45: *As. pulchellum*;



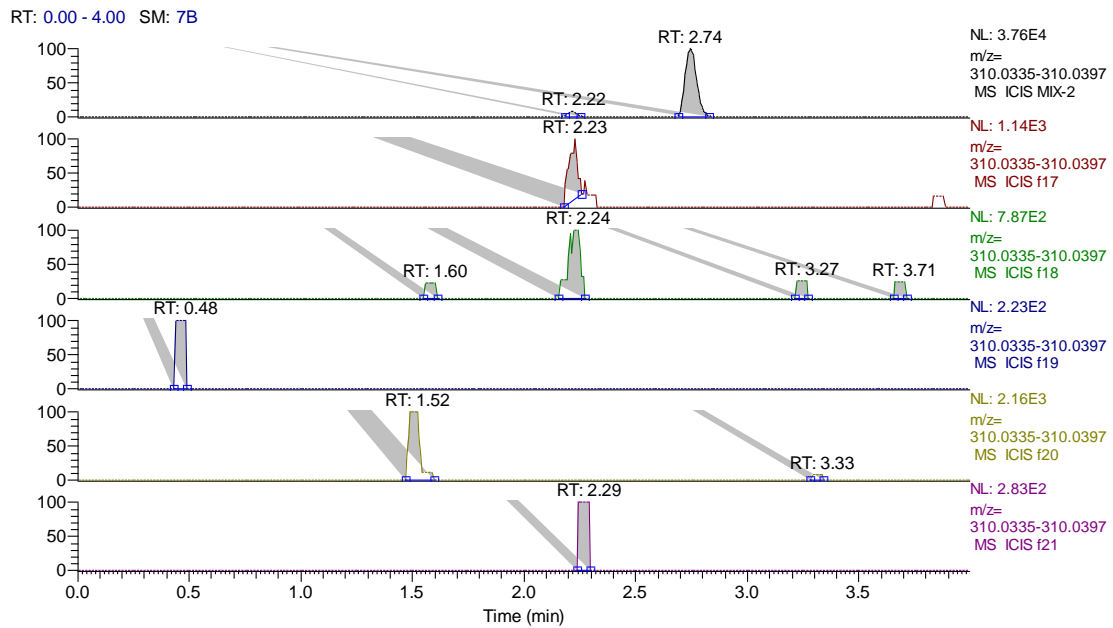
MIX: standard AA II ; f1: *Stephania tetrandra*; f2: *Cocculus orbiculatus*;
 f3: *Cocculus laurifolius*; f4: *Menispermum dauricum*; f5: *Akebia quinata* ;



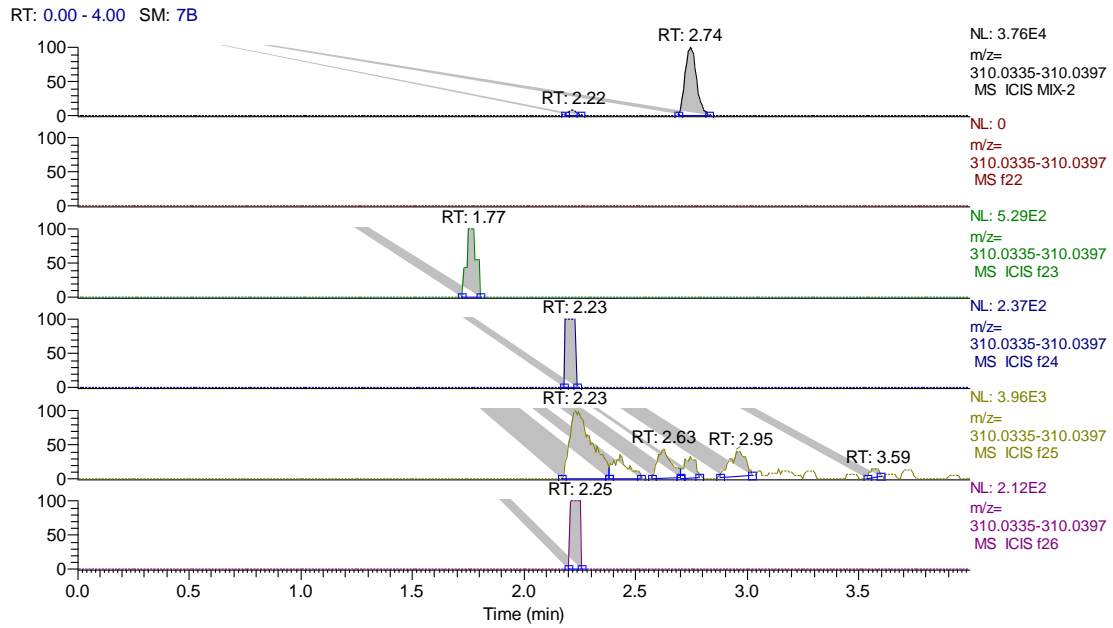
MIX: standard AA II ; f6: *Akebia trifoliata*; f7: *Clematis armandii*;
 f8: *Clematis argentea*; f9: *Clematis petrae*; f10: *Sabia yunnanensis*;
 f11: *Cardiocrinum cathayanum*;



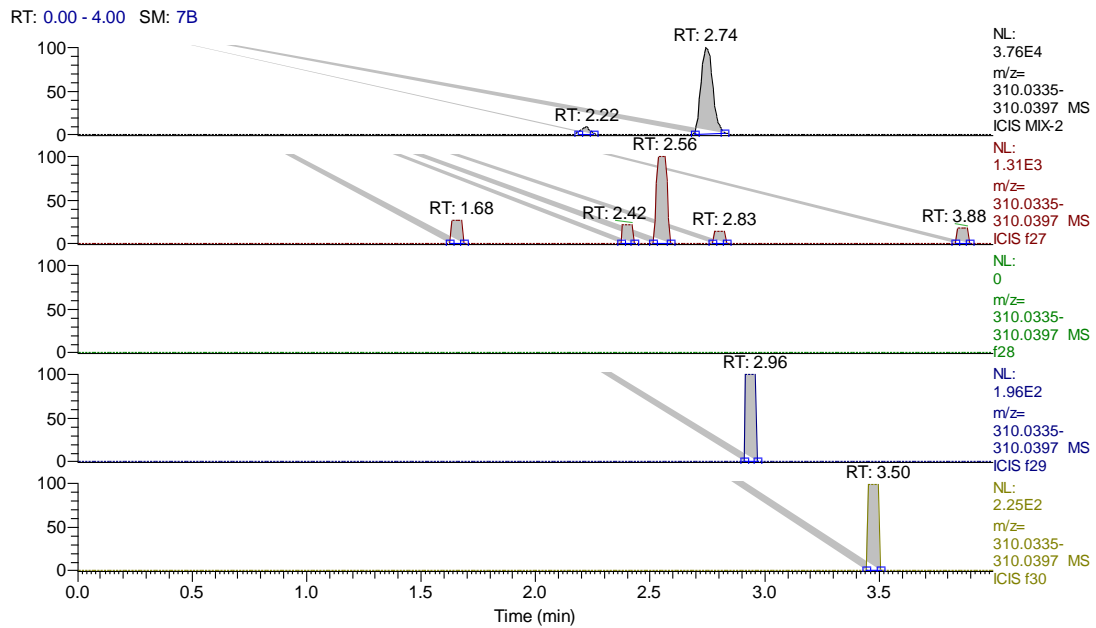
mix-2: standard AA II ; f12: *Diploclisia glaucescens*; f13: *Akebia trifoliata* var. *australis*;
 f14: *Clematis montana*; f15: *Sinomenium acutum*; f16: *Clematis chinensis*;



mix-2: standard AA II ; f17: *Clematis hexapetala*; f18: *Clematis manshurica*;
 f19: *Tetrapanax papyrifer*; f20: *Stachyurus chinensis*; f21: *Helwingia japonica*;



mix-2: standard AA II ; f22: *Aucklandia lappa*; f23: *Vladimiria souliei*;
 f24: *Inula helenium*; f25: *Murraya paniculata*; f26: *Solanum lyratum*;



mix-2: standard AA II ; f27: *Pleione bulbocodioides*; f28: *Pleione yunnanensis*;
 f29: *Cremastra appendiculata*; f30: *Tinospora sagittata*;

Fig. S3. MS profiles of AA II for all species in UHPLC-HR-MS analysis. AA II was detected at m/z 310 0366.