

## Electronic Supplementary Information

### An Overview of Chemical Constituents from *Alpinia* species in the Last Six Decades

Xiao-Ni Ma,<sup>a,b</sup> Chun-Lan Xie,<sup>a,b</sup> Zi Miao,<sup>a,b</sup> Quan Yang,<sup>b</sup> and Xian-Wen Yang<sup>\*a</sup>

Table S1. A comparison of *Alpinia* species names from the references and the accepted name in The Plan List

<i>Alpinia</i> species	The accepted name
<i>Alpinia blepharocalyx</i> K. Schum.	<i>Alpinia roxburghii</i> Sweet
<i>Alpinia bracteata</i> Roxb.	<i>Alpinia roxburghii</i> Sweet
<i>Alpinia densespicata</i> Hayata ( <i>Alpinia densespicata</i> Hayata)	<i>Alpinia shimadae</i> Hayata
<i>Alpinia pahangensis</i> Ridley.	<i>Alpinia pahangensis</i> Ridl.
<i>Alpinia flabellata</i> Ridley	<i>Alpinia flabellata</i> Ridl.
<i>Alpinia formosana</i>	<i>Alpinia formosana</i> K.Schum.
<i>Alpinia katsumadai</i> Hayata ( <i>Alpinia katsumadae</i> Hayata)	<i>Alpinia hainanensis</i> K.Schum
<i>Alpinia pinnanensis</i> T. L. Wu et Senjen	<i>Alpinia pinnanensis</i> T.L.Wu & S.J.Chen
<i>Alpinia rafflesiana</i> Wall. ex. Bak.	<i>Alpinia rafflesiana</i> Wall. ex Baker
<i>Alpinia speciosa</i> K. Schum.	<i>Alpinia zerumbet</i> (Pers.) B.L.Burt & R.M.Sm.
<i>Alpinia sichuanensis</i> Z.Y.Zhu	<i>A. jianganfeng</i> T.L.Wu
<i>Alpinia zerumbet</i> (Pers.) Burt & Smith	<i>Alpinia zerumbet</i> (Pers.) B.L.Burt & R.M.Sm.

<sup>a</sup> Key Laboratory of Marine Biogenetic Resources; South China Sea Bio-Resource Exploitation and Utilization Collaborative Innovation Center; Third Institute of Oceanography, State Oceanic Administration, 184 Daxue Road, Xiamen 361005, PR China.

<sup>b</sup> Department of Traditional Chinese Medicine, Guangdong Pharmaceutical University, Guangzhou 510006, China.

Table S2. Chemical Constituents obtained from the genus of *Alpinia* over the last six decades since 1955.

No.	Compound class and name	Source	Part	Ref
Monoterpenoids				
1	Rubraine	<i>A. katsumadai</i>	Seeds	1
2	* Isorubraine	<i>A. katsumadai</i>	Seeds	1
3	* Sumadain C	<i>A. katsumadai</i>	Seeds	1
4	* Katsumadain	<i>A. katsumadai</i>	Seeds	2
5	* ( <i>E</i> )-1-(1-Terpinen-4-yl)-3-methoxystilbene	<i>A. katsumadai</i>	Aerial parts	3
6	2 $\alpha$ -Cinnamoyl cineole	<i>A. densibracteata</i>	Aerial parts	4
7	2 $\beta$ -Cinnamoyl cineole	<i>A. densibracteata</i>	Aerial parts	4
8	* 2 $\alpha$ -( <i>p</i> -Hydroxycinnamoyl) cineole	<i>A. tonkinensis</i>	Rhizomes	5
9	* (1 <i>S</i> ,4 <i>R</i> ,6 <i>R</i> )-1,4-Epidioxy- <i>p</i> -menth-2-ene	<i>A. densibracteata</i>	Aerial parts	4
10	(1 <i>R</i> ,4 <i>S</i> ,6 <i>R</i> )-1,4-Epidioxy- <i>p</i> -menth-2-ene	<i>A. densibracteata</i>	Aerial parts	4
11	(3 <i>R</i> ,4 <i>R</i> ,6 <i>S</i> )-3,6-Dihydroxy-1-menthene	<i>A. sichuanensis</i>	Whole plant	6
12	1-Terpinen-4-ol	<i>A. katsumadai</i>	Aerial parts	3
13	* (1 <i>R</i> ,2 <i>R</i> )- <i>p</i> -Menth-3-ene-1,2-diol	<i>A. oxyphylla</i>	Fruits	7
14	3,4-Dihydroxy- <i>p</i> -menth-1-ene	<i>A. densibracteata</i>	Aerial parts	4
15	(1 <i>R</i> ,2 <i>R</i> ,4 <i>S</i> )- <i>trans</i> -2-Hydroxy-1,8-cineole $\beta$ -D-glucopyranoside	<i>A. galanga</i>	Rhizomes	8
16	(1 <i>S</i> ,2 <i>S</i> ,4 <i>R</i> )- <i>trans</i> -2-Hydroxy-1,8-cineole $\beta$ -D-glucopyranoside	<i>A. galanga</i>	Rhizomes	8
17	(1 <i>R</i> ,3 <i>S</i> ,4 <i>S</i> )- <i>trans</i> -3-Hydroxy-1,8-cineole $\beta$ -D-glucopyranoside	<i>A. galanga</i> <i>A. officinarum</i>	Rhizomes Rhizomes	8 9
Sesquiterpenoids				
18	<i>trans,trans</i> -Farnesol	<i>A. katsumadai</i>	Seeds	10,11
19	Nerolidol	<i>A. japonica</i>	Rhizomes	12
20	* Oxyphyllols C	<i>A. oxyphylla</i>	Fruits	13
21	(11 <i>S</i> )-Nootkatone-11,12-diol	<i>A. oxyphylla</i>	Fruits	14-16
22	(11 <i>R</i> )-Nootkatone-11,12-diol	<i>A. oxyphylla</i>	Fruits	15
23	* 9-Hydroxy epinootkatol	<i>A. oxyphylla</i>	Fruits	17
24	Eremophila-1(10),11(12)-dien-2,9-dione	<i>A. oxyphylla</i>	Fruits	14,18
25	11-Hydroxyvalenc-1(10)-en-2-one	<i>A. oxyphylla</i>	Fruits	15,19,20
26	* Oxyphyllol B	<i>A. oxyphylla</i>	Fruits	13,15,19
27	13-Hydroxynootkatone	<i>A. oxyphylla</i>	Fruits	15,19,20
28	Nootkatol	<i>A. oxyphylla</i>	Fruits	15,21
29	Epinootkatol	<i>A. oxyphylla</i>	Fruits	15,22
30	Nootkatone	<i>A. oxyphylla</i>	Fruits	14,15,18,19,22,23
31	9 $\beta$ -Hydroxynootkatone	<i>A. oxyphylla</i>	Fruits	15,18
32	* (11 <i>S</i> )-12-Chloronootkaton-11-ol	<i>A. oxyphylla</i>	Fruits	18,23
33	* (11 <i>R</i> )-12-Chloronootkaton-11-ol	<i>A. oxyphylla</i>	Fruits	18,23
34	(4 <i>R</i> *,5 <i>S</i> *,7 <i>R</i> *)-7-Acetyl-4,5-dimethyl-4,5,6,7,8,9-hexahydronaphthalen-2(3 <i>H</i> )-one	<i>A. oxyphylla</i>	Fruits	15,18,20
35	* 12-Nornootkaton-6-en-11-one	<i>A. oxyphylla</i>	Fruits	18
36	* Eremophilen-10 $\beta$ -ol	<i>A. intermedia</i>	Rhizomes	24

No.	Compound class and name	Source	part	Ref.
37	Eremophilin-11-ol	<i>A. japonica</i>	Rhizomes	25
38	Nootkatene	<i>A. oxyphylla</i>	Fruits	18
39	Valencene	<i>A. oxyphylla</i>	Fruits	26
40	Dehydro-nootkatone	<i>A. oxyphylla</i>	Seeds	27
41	* Oxyphyllone A	<i>A. oxyphylla</i>	Fruits	18,28
42	* Oxyphyllone B	<i>A. oxyphylla</i>	Fruits	28
43	* Oxyphyllol D	<i>A. oxyphylla</i>	Fruits	29
44	* Oxyphyllol E	<i>A. oxyphylla</i>	Fruits	18,29
45	(4 $\alpha$ S*,7S*,8R*)-8-Hydroxy-1,4 $\alpha$ -dimethyl-7-(prop-1-en-2-yl)-4,4 $\alpha$ ,5,6,7,8-hexahydronaphthalen-2(3H)-one	<i>A. oxyphylla</i>	Fruits	19
46	* (10R)-13-Noreudesma-4,6-dien-3,11-dione	<i>A. oxyphylla</i>	Fruits	14
47	* (5S,8R,10R)-2-Oxoeadesma-3,7(11)-dien-12,8-olide	<i>A. oxyphylla</i>	Fruits	14
48	11 $\beta$ -Hydroxyl-3-oxo-4(5),6(7)-diene-eudesman-12-ol	<i>A. oxyphylla</i>	Fruits	16
49	11 $\alpha$ -Hydroxyl-3-oxo-4(5),6(7)-diene-eudesman-12-ol	<i>A. oxyphylla</i>	Fruits	16
50	7 $\alpha$ (H), 10 $\beta$ -Eudesm-4-en-3-one-11,12-diol	<i>A. oxyphylla</i>	Fruits	30
51	Teucrone	<i>A. oxyphylla</i>	Fruits	19,30
52	(4 $\alpha$ S,7S,8R)-8-Hydroxy-1,4 $\alpha$ -dimethyl-7-(prop-1-en-2-yl)-4,4 $\alpha$ ,5,6,7,8-hexahydronaphthalen-2(3H)-one	<i>A. oxyphylla</i>	Fruits	30
53	(4 $\alpha$ S,7S)-7-Hydroxy-1,4 $\alpha$ -dimethyl-7-(prop-1-en-2-yl)-4,4 $\alpha$ ,5,6,7,8-hexahydronaphthalen-2(3H)-one	<i>A. oxyphylla</i>	Fruits	19,20,30
54	Ligucyperonol	<i>A. oxyphylla</i>	Fruits	30
55	( $\pm$ )1 $\beta$ , 4 $\beta$ -Dihydroxyeudesman-11-ene	<i>A. oxyphylla</i>	Fruits	30
56	Isocyperol	<i>A. oxyphylla</i>	Fruits	13
57	* Oxyphyllanene G	<i>A. oxyphylla</i>	Fruits	30
58	7- <i>epi</i> -Teucrone	<i>A. oxyphylla</i>	Fruits	14,18,19,23,30
59	* Oxyphyllanene D	<i>A. oxyphylla</i> ..	Fruits	30
60	* Oxyphyllanene E	<i>A. oxyphylla</i> ..	Fruits	30
61	* Oxyphyllanene F	<i>A. oxyphylla</i> ..	Fruits	14,30
62	* Oxyphyllol A	<i>A. oxyphylla</i>	Fruits	13
63	Selin-11-en-4 $\alpha$ -ol	<i>A. oxyphylla</i>	Fruits	13
64	Intermedeol	<i>A. intermedia</i>	Rhizomes	24
65	$\beta$ -Selinene	<i>A. intermedia</i>	Rhizomes	24
66	10- <i>epi</i> - $\gamma$ -Eudesmol	<i>A. japonica</i>	Rhizomes	25
67	* 10- <i>epi</i> -5 $\beta$ -Hydroperoxy- $\beta$ -eudesmol	<i>A. japonica</i>	Rhizomes	31
68	* 10- <i>epi</i> -5 $\alpha$ -Hydroperoxy- $\beta$ -eudesmol	<i>A. japonica</i>	Rhizomes	31
69	* 4,10- <i>epi</i> -5 $\beta$ -Hydroxydihydroeudesmol	<i>A. japonica</i>	Rhizomes	31
70	3 $\alpha$ ,4 $\alpha$ -Oxidoagarofuran	<i>A. japonica</i>	Rhizomes,seeds	25,32
71	3 $\beta$ ,4 $\beta$ -Oxidoagarofuran	<i>A. japonica</i>	Rhizomes	25
72	$\beta$ -Eudesmol	<i>A. japonica</i>	Rhizomes,seeds	12,25,32
73	4-Hydroxy-dihydroagarofuran	<i>A. japonica</i>	Rhizomes,seeds	12,25,32
74	$\alpha$ -Agarofuran	<i>A. japonica</i>	Rhizomes,seeds	25,32
75	* Dihydroagarofuran	<i>A. japonica</i>	Rhizomes	25
76	* Oxyphyllanene A	<i>A. oxyphylla</i> ..	Fruits	30

No.	Compound class and name	Source	part	Ref.
77	* Oxyphyllanene B	<i>A. oxyphylla</i> .	Fruits	18,30
78	(4 <i>S</i> *,5 <i>E</i> ,10 <i>R</i> *)-7-Oxo-tri-nor-eudesm-5-en-4 <i>β</i> -ol	<i>A. oxyphylla</i>	Fruits	19,20
79	Teuhetenone A	<i>A. oxyphylla</i> .	Fruits	19,20,30
80	* Oxyphyllenone A	<i>A. oxyphylla</i> .	Fruits	13,14,30,33
81	* Oxyphyllenone B	<i>A. oxyphylla</i> .	Fruits	13,14,33
82	Oxyphyllanene C	<i>A. oxyphylla</i> .	Fruits	30
83	* (5 <i>R</i> ,7 <i>S</i> ,10 <i>S</i> )-5-Hydroxy-13-noreudesma-3-en-2,11-dione	<i>A. oxyphylla</i>	Fruits	14
84	* 4-Methoxy-oxyphyllenone A	<i>A. oxyphylla</i>	Fruits	19
85	* Oxyphenol A	<i>A. oxyphylla</i>	Fruits	16
86	Mustakone	<i>A. oxyphylla</i>	Fruits	18
87	* Oxyphyllendiol A	<i>A. oxyphylla</i>	Fruits	13,14,18,23,33
88	* Oxyphyllendiol B	<i>A. oxyphylla</i>	Fruits	7,13,14,18,19,23,33
89	* Oxyphyllone G	<i>A. oxyphylla</i>	Fruits	14,29
90	(4 <i>S</i> )-10-Nor-calamenen-10-one	<i>A. oxyphylla</i>	Fruits	14
91	* Oxyphyllone C	<i>A. oxyphylla</i>	Fruits	7
92	* Oxyphyllone D	<i>A. oxyphylla</i>	Fruits	7,18
93	* Oxyphyllone E	<i>A. oxyphylla</i>	Fruits	18,20,34
94	* Oxyphyllenotriol A	<i>A. oxyphylla</i>	Fruits	29
95	* 2 <i>β</i> -Hydroxy- <i>δ</i> -cadinol	<i>A. oxyphylla</i>	Fruits	18
96	* (-)-(1 <i>R</i> ,4 <i>S</i> )-8-Hydroxy-13-calamenenoic acid	<i>A. oxymitra</i>	Rhizomes	35
97	* Alpiniaterpene A	<i>A. officinarum</i>	Rhizomes	36
98	4(15)-Cadinene-6,10-diol	<i>A. tonkinensis</i>	Rhizomes	5
99	* 2-Methyl-6-isopropyl-7-hydroxymethyl naphthalene	<i>A. oxyphylla</i>	Fruits	20
100	* <i>epi</i> -Oxyphyllenone	<i>A. oxyphylla</i>	Fruits	20
101	* Alpinenone	<i>A. japonica</i>	Rhizomes	18,23,37
		<i>A. intermedia</i>	Rhizomes	24
102	Hanamyol	<i>A. japonica</i>	Rhizomes	38
103	* Hanalpinol peroxide	<i>A. intermedia</i>	Rhizomes	24
104	* Isohanalpinol	<i>A. intermedia</i>	Rhizomes	24
105	* Aokumanol	<i>A. intermedia</i>	Rhizomes	24
106	* Hanalpinol	<i>A. intermedia</i>	Rhizomes	24
		<i>A. japonica</i>	Rhizomes	39
107	* Hanalpinone	<i>A. intermedia</i>	Rhizomes	24
		<i>A. japonica</i>	Rhizomes	37
108	* Isohanalpinone	<i>A. intermedia</i>	Rhizomes	24
		<i>A. japonica</i>	Rhizomes	37
109	Europelargone B	<i>A. formossana</i>	Rhizomes	40
		<i>A. intermedia</i>		24
		<i>A. japonica</i>	Rhizomes	38,39
110	Europelargone A	<i>A. intermedia</i>		24
		<i>A. japonica</i>	Rhizomes	38,39
111	* Epialpinolide	<i>A. intermedia</i>		24
112	* Alpinolide peroxide	<i>A. japonica</i>	Rhizomes	37

No.	Compound class and name	Source	part	Ref.
113	* 6-Hydroxy-alpinolide	<i>A. japonica</i>	Rhizomes	37
114	Alpinolide	<i>A. japonica</i>	Rhizomes	38
115	* (+)-Mandassidion	<i>A. oxyphylla</i>	Fruits	7
116	* Mandassion A	<i>A. oxyphylla</i>	Fruits	16
117	* Mandassion B	<i>A. oxyphylla</i>	Fruits	16
118	Caryophyllene oxide	<i>A. galanal</i>	Seeds	41
		<i>A. conchigera</i>	Rhizomes	42
119	Caryophyllenol-I	<i>A. galanal</i>	Seeds	41
120	Caryophyllenol-II	<i>A. galanal</i>	Seeds	41
121	(1 <i>S</i> ,4 <i>R</i> ,6 <i>R</i> )-1,4-Epidioxy-bisabola-2,10-diene	<i>A. densibracteata</i>	Aerial parts	4
122	(1 <i>R</i> ,4 <i>S</i> ,6 <i>R</i> )-1,4-Epidioxy-bisabola-2,10-diene	<i>A. densibracteata</i>	Aerial parts	4
123	3-Hydroxy,11-hydroperoxy-bisabola-1,9-diene	<i>A. densibracteata</i>	Aerial parts	4
124	3-Hydroxy-10-hydroperoxy-bisabola-1,10-diene	<i>A. densibracteata</i>	Aerial parts	4
125	4-Hydroxy-11-hydroperoxy-bisabola-1,3(15),9-triene	<i>A. densibracteata</i>	Aerial parts	4
126	3,4-Dihydroxy-bisabola-1,10-diene	<i>A. densibracteata</i>	Aerial parts	4
127	* 3,4-Seco-biasbol-10-ene-3-one-1,4-olide	<i>A. japonica</i>	Rhizomes	43
128	* (1 <i>S</i> ,6 <i>S</i> )-1 $\alpha$ ,10-dihydroxy-biasbol-2,11-dienes-4-one	<i>A. japonica</i>	Rhizomes	43
129	* (1 <i>S</i> ,6 <i>S</i> )-1 $\alpha$ -Hydroxy-biasbol-2,10-diene-14-al	<i>A. japonica</i>	Rhizomes	43
130	8-Hydroxy-biasbol-2,10-dienes-4-one	<i>A. japonica</i>	Rhizomes	43
131	16-Hydroxy-biasbol-2,10-dienes-4-one	<i>A. japonica</i>	Rhizomes	43
132	1 $\alpha$ -Hydroxy-biasbol-2,10-dienes-4-one	<i>A. japonica</i>	Rhizomes	43
133	4 $\theta$ -Hydroxy-biasbol-2,10-dienes-1-one	<i>A. japonica</i>	Rhizomes	43
134	4 $\alpha$ -hydroxybisabol-1-one	<i>A. japonica</i>	Rhizomes	44
135	ar-Curcumen-15-ol	<i>A. japonica</i>	Rhizomes	43
136	Xanthorrhizol	<i>A. japonica</i>	Rhizomes	43
137	* (1 <i>R</i> ,4 <i>R</i> ,6 <i>S</i> ,7 <i>S</i> ,9 <i>S</i> )-4 $\alpha$ -hydroxy-1,9-peroxybisabola-2,10-diene	<i>A. japonica</i>	Rhizomes	44
138	3(12),7(13),9( <i>E</i> )-Humulatriene-2,6-diol	<i>A. oxyphylla</i>	Fruits	45
139	Humulene epoxide II	<i>A. formossana</i>	Rhizomes	40
		<i>A. japonica</i>	Rhizomes	12
140	(9 <i>E</i> )-Humulene-2,3,6,7-diepoxyde	<i>A. oxyphylla</i>	Fruits	18,45
141	$\gamma$ -Bicyclohomofarnesal	<i>A. calcarata</i>	Rhizomes	46
142	Shyobunone	<i>A. calcarata</i>	Rhizomes	46
143	Pubescone	<i>A. oxyphylla</i>	Fruits	18
144	(-)-Oplopanone	<i>A. oxyphylla</i>	Fruits	45
145	* Oxyphyllone F tetra-norsesquiterpene	<i>A. oxyphylla</i>	Fruits	34
146	* (Z)-4-(2,6-Dimethylhepta-1,5-dien-1-yl)-1-methyl-cyclobut-1-ene norsesquiterpene	<i>A. japonica</i>	Rhizomes	43
147	Caryolane-1,9 $\beta$ -diol	<i>A. galanga</i>	Seeds	47
148	Alpiniol	<i>A. japonica</i>	Rhizomes	48
149	2-Methyl-6-isopropyl-7-hydroxymethyl naphthalene	<i>A. oxyphylla</i>	Fruits	20

No.	Compound class and name	Source	part	Ref.
<b>Diterpenoids</b>				
150	*	(E)-Labda-8(17),12-diene-15,16-dial		
		<i>A. nigra</i>	Seeds	49,50
		<i>A. pahangensis</i>	Rhizome	51
		<i>A. oxyphylla</i>	Fruits	13
		<i>A. galanga</i>	Seeds,Rhizomes	52,53
		<i>A. speciosa</i>	Seeds	54
		<i>A. katsumadai</i>	Aerial part	3
		<i>A. malaccensis</i>	Rhizomes	55
		<i>A. chinensis</i>	Flowers	56
		<i>A. zerumbet</i>	Rhizomes,leaves	57-59
151		(E)-8 $\beta$ ,17-Epoxyabd-12-ene-15,16-dial		
		<i>A. nigra</i>	Seeds	49,50
		<i>A. galanga</i>	Roots,Seeds	52,60
		<i>A. katsumadai</i>	Aerial parts	3
152	*	(E)-Labda-8(17),12-diene-15-ol-16-al		
		<i>A. formosana</i>	Rhizomes	40
		<i>A. calcarata</i>	Rhizomes	46
		<i>A. pahangensis</i>	Rhizomes	51
153		(E)-Labda-8(17),13-dien-15-al		
		<i>A. pahangensis</i>	Rhizomes	51
154	*	(E)-14 $\xi$ ,15-Epoxyabd-8(17),12-dien-16-al		
		<i>A. chinensis</i>	Flowers	56
155	*	(E,E)-15-Hydroxyabd-8(17),11,13-trien-16-al		
		<i>A. chinensis</i>	Flowers	56
156	*	(E)-14 $\xi$ ,15-Dihydroxyabd-8(17),12-dien-16-al		
		<i>A. chinensis</i>	Flowers	56
157	*	(E)-12 $\xi$ ,15-Dihydroxyabd-8(17)-13-dien-16-al		
		<i>A. chinensis</i>	Flowers	56
158	*	(E)-12 $\xi$ ,15-Dihydroxyabd-8(17)-13-dien-16-al		
		<i>A. chinensis</i>	Flowers	56
159	*	(E)-14,15,16-Trinorabd-8(17),11-dien-13-al		
		<i>A. pahangensis</i>	Rhizomes	51
160	*	(E)-14,15,16-Trinorabd-8(17),11-dien-13-one		
		<i>A. pahangensis</i>	Rhizomes	51
		<i>A. speciosa</i>	Seeds	54
		<i>A. zerumbet</i>	Seeds	61
		<i>A. formosana</i>	Rhizomes	40
		<i>A. calcarata</i>	Rhizomes	46
161		(E)-14,15,16-Trinorabd-8(17),11-dien-13-oic acid		
		<i>A. pahangensis</i>	Rhizomes	51
162	*	(E)-15-nor-16-Oxo-8(17),12-labdadiene		
		<i>A. tonkinensis</i>	Rhizomes	5
163	*	Zerumin B		
		<i>A. zerumbet</i>	Seeds	61
		<i>A. pahangensis</i>	Rhizomes	49
164	*	(E)-15,16-Epoxyabd-8(17),11,13-trien-16-ol		
		<i>A. chinensis</i>	Flowers	56
165	*	(E)-15-Hydroxyabd-8(17),11,13-trien-16,15-olide		
		<i>A. chinensis</i>	Flowers	56
166	*	Calcaratarin A		
		<i>A. calcarata</i>	Rhizomes	46
		<i>A. pahangensis</i>	Rhizomes	51
167	*	Calcaratarin B		
		<i>A. calcarata</i>	Rhizomes	46
168	*	Calcaratarin C		
		<i>A. calcarata</i>	Rhizomes	46
169	*	Calcaratarin D		
		<i>A. calcarata</i>	Rhizomes	46
170		Labda-8(17),11,13-trien-15(16)-olide		
		<i>A. calcarata</i>	Rhizomes	46
171		Coronar in A		
		<i>A. malaccensis</i>	Rhizomes	55

No.	Compound class and name	Source	part	Ref.
172	Coronararin E	<i>A. malaccensis</i>	Rhizomes	55
		<i>A. zerumbet</i>	Seeds	61
		<i>A. chinensis</i>	Flowers	56
173	Hedyforrestin B	<i>A. malaccensis</i>	Rhizomes	55
174 *	Zerumin A	<i>A. zerumbet</i>	Seeds	61
		<i>A. calcarata</i>	Rhizomes	46
		<i>A. pahangensis</i>	Rhizomes	51
175 *	Pahangensin B	<i>A. pahangensis</i>	Rhizomes	62
176	Sceptrumlabdalactone B	<i>A. pahangensis</i>	Rhizomes	51
177 *	Galanolactone	<i>A. galanga</i>	Seeds	52
		<i>A. katsumadai</i>	Aerial part	3
178	Isocoronarin D	<i>A. galangal</i>	Seeds	47
		<i>A. calcarata</i>	Rhizomes	46
179 *	Galaganin	<i>A. galanga</i>	Seeds	63
180	Labda-8(17),13(14)-dien-15,16-olide	<i>A. pahangensis</i>	Rhizomes	51
181	Ottensinin	<i>A. pahangensis</i>	Rhizomes	51
182 *	Methyl (11E)-14,15,16-trinorlabda-8(17),11-dien-13-oate	<i>A. japonica</i>	Rhizomes	44
		<i>A. japonica</i>	Rhizomes	44
183	(12E)-17-Norlabd-12-en-8-one-16,15-olide	<i>A. japonica</i>	Rhizomes	44
184	(12Z,14R)-Labda-8(17),12-diene-14,15,16-triol	<i>A. japonica</i>	Rhizomes	44
185 *	(12R)-15-Ethoxy-12-hydroxylabda-8(17),13(14)-dien-15,16-olide	<i>A. japonica</i>	Rhizomes	44
186	Coronararin D methyl ether	<i>A. japonica</i>	Rhizomes	44
187	Curcuminol D	<i>A. japonica</i>	Rhizomes	44
188 *	(E)-Labda-12,14-dien-15(16)-olide-17-oic acid	<i>A. oxyphylla</i>	Fruits	20
189 *	Alpindenoside A	<i>A. densespicata</i>	Rhizomes	64
190 *	Alpindenoside B	<i>A. densespicata</i>	Rhizomes	64
191 *	Alpindenoside C	<i>A. densespicata</i>	Rhizomes	64
192 *	Alpindenoside D	<i>A. densespicata</i>	Rhizomes	64
193 *	<i>rel</i> -Labd-12-en-15(16)-olid-7-one-8 <i>R</i> -spiro-1'-[2 <i>S</i> -(2,4,5-trimethoxyphenyl)-3-cyclohexene]	<i>A. flabellata</i>	Leaves	65
194 *	Noralpindenoside A	<i>A. densespicata</i>	Rhizomes	64
195 *	Noralpindenoside B	<i>A. densespicata</i>	Rhizomes	64
196 *	15-Hydroxy-11ξ,14ξ-peroxylabda-8(17),12-dien-16-al	<i>A. chinensis</i>	Flowers	56
197 *	15-Hydroxy-11ξ,14ξ-peroxylabda-8(17),12-dien-16-al	<i>A. chinensis</i>	Flowers	56
198 *	Coronararin C	<i>A. chinensis</i>	Flowers	56
199 *	Galanal A	<i>A. galanga</i>	Seeds	52,53
200 *	Galanal B	<i>A. galanga</i>	Seeds	52,53
201 *	A mixed metabolite	<i>A. katsumadai</i>	Aerial parts	3
202 *	Pahangensin A	<i>A. pahangensis</i>	Rhizomes	62
203 *	Pahangensin C	<i>A. pahangensis</i>	Rhizomes	51
204 *	Calcaratarin D	<i>A. calcarata</i>	Rhizomes	66
205 *	Calcaratarin E	<i>A. calcarata</i>	Rhizomes	66

No.	Compound class and name	Source	part	Ref.
206	Rhodomollein I	<i>A. katsumadai</i>	Seeds	67
<b>Triterpenoids</b>				
207	2,3,22,23-Tetrahydroxyl-2,6,10,15,19,23-hexamethyl-6,10,14,18-tetracosatetraene	<i>A. katsumadai</i>	Seeds	68
<b>Diarylheptanoids</b>				
208	7- (4-Hydroxy-3-methoxyphenyl)-1-phenylheptane-3,5-diol	<i>A. officinarum</i>	Rhizomes	69,70
209	7- (4-Hydroxy-3-methoxyphenyl)-1-(3,4-dihydroxyphenyl)-heptane-3,5-diol	<i>A. officinarum</i>	Rhizomes	69
210	5-Hydroxy-1,7-bis(4-hydroxy-3-methoxyphenyl)-heptan-3-one	<i>A. officinarum</i>	Rhizomes	69,71
211	Oxyphyllacinol	<i>A. oxyphylla</i>	Fruits	19
212	Yakuchinone A	<i>A. oxyphylla</i>	Fruits	17,19,72-77
213	Yakuchinone B	<i>A. oxyphylla</i>		74
214	* 1-(3',5'-Dihydroxy-4'-methoxyphenyl)-7-phenyl-3-heptanone	<i>A. oxyphylla</i>	Fruits	73
215	* 1-(2',4'-Dihydroxy-3'-methoxyphenyl)-7-(4''-methoxyphenyl)-3-heptanone	<i>A. oxyphylla</i>	Fruits	73
216	Neonootkatol	<i>A. oxyphylla</i>	Fruits	78
217	* (3 <i>S</i> ,5 <i>S</i> )-3-Hydroxy-1-(4-hydroxyphenyl)-5-methoxy-7-phenyl-6( <i>E</i> )-heptene	<i>A. blepharocalyx</i>	Seeds	79,80
218	* (3 <i>S</i> ,5 <i>R</i> )-3-Hydroxy-1-(4-hydroxyphenyl)-5-methoxy-7-phenyl-6( <i>E</i> )-heptene	<i>A. blepharocalyx</i>	Seeds	79,80
219	* (3 <i>S</i> ,5 <i>S</i> )-3-Hydroxy-1-(4-hydroxyphenyl)-5-ethoxy-7-phenyl-6( <i>E</i> )-heptene	<i>A. blepharocalyx</i>	Seeds	79,80
220	* (3 <i>S</i> ,5 <i>R</i> )-3-Hydroxy-1-(4-hydroxyphenyl)-5-ethoxy-7-phenyl-6( <i>E</i> )-heptene	<i>A. blepharocalyx</i>	Seeds	79,80
221	1,7-Bis(4-hydroxyphenyl)-3-hydroxy-1,3,6-heptatrien-5-one	<i>A. blepharocalyx</i>	Seeds	81
222	* 1,7-Bis(4-hydroxyphenyl)-hepta-4 <i>E</i> ,6 <i>E</i> -dien-3-one	<i>A. blepharocalyx</i>	Seeds	79,80
223	* 1,7-Bis(4-hydroxyphenyl)-3-hydroxy-1,3-heptadien-5-one	<i>A. blepharocalyx</i>	Seeds	79-81
224	* (3 <i>S</i> )-Methoxy-1,7-bis(4-hydroxyphenyl)-6( <i>E</i> )-hepten-5-one	<i>A. blepharocalyx</i>	Seeds	79,80
225	(3 <i>S</i> ,5 <i>S</i> )-3,5-Dihydroxy-1,7-bis(4-hydroxyphenyl)heptane	<i>A. blepharocalyx</i>	Seeds	79,80
226	* (3 <i>S</i> ,5 <i>S</i> )- <i>trans</i> -3,5-Dihydroxy-1,7-diphenyl-1-heptene	<i>A. katsumadai</i> , <i>A. pinnanensis</i>	Seeds and aerial parts Rhizomes	3,10,11,82 83
227	( <i>E</i> , <i>E</i> )-5-Hydroxy-1,7-diphenyl-4,6-heptadien-3-one	<i>A. katsumadai</i>	Seeds	10
228	( <i>S</i> )-1,7-Diphenyl-6( <i>E</i> )-hepten-3-ol	<i>A. katsumadai</i>	Seeds	10
229	Alnustone	<i>A. katsumadai</i>	Seeds	2,10,11,82,84-86
230	(4 <i>Z</i> ,6 <i>E</i> )-5-Hydroxy-1,7-diphenyl-4,6-heptadien-3-one	<i>A. katsumadai</i>	Seeds	11,84



No.	Compound class and name	Source	part	Ref.
231	(3 <i>S</i> ,5 <i>R</i> )-3,5-Dihydroxy-1,7-diphenyl-heptane	<i>A. katsumadai</i>	Seeds	11
232	(5 <i>R</i> ,6 <i>E</i> )-1,7-Diphenyl-5-hydroxyhept-6-en-3-one	<i>A. katsumadai</i>	Seeds	2
233	5-Hydroxy-1-(4'-hydroxyphenyl)-7-phenyl-hepta-6-en-3-one	<i>A. katsumadai</i>	Aerial parts	3
234	* (-)-( <i>R</i> )-4''-Hydroxyashabushiketol	<i>A. katsumadai</i>	Seeds	87
235	* (3 <i>S</i> ,5 <i>S</i> )-Alpinikatin	<i>A. katsumadai</i>	Seeds	87
236	* 3-(Acetyloxy)alpinikatin	<i>A. katsumadai</i>	Seeds	88
237	* 5-(Acetyloxy)alpinikatin	<i>A. katsumadai</i>	Seeds	88
238	<i>trans</i> -1,7-Diphenyl-5-hydroxy-1-heptene	<i>A. katsumadai</i>	Seeds	11
239	1,7-bis(4-Hydroxyphenyl)-1,4,6-heptatrien-3-one	<i>A. galangal</i>	Rhizomes	89
240	bisdemethoxycurcumin	<i>A. galangal</i>	Rhizomes	89
241	1,7-Diphenyl-5-hydroxy-6-hepten-3-one	<i>A. nutans</i>		90
		<i>A. rafflesiana</i>	Fruits	91
		<i>A. officinarum</i>	Rhizomes	92
229a	1,7-Diphenyl-5-hydroxy-6-hepten-3-one	<i>A. mutica</i>	Rhizomes	93
229b	(5 <i>R</i> )- <i>trans</i> -1,7-Diphenyl-5-hydroxy-6-hepten-3-one	<i>A. katsumadai</i>	Seeds	11
242	* 5-Ethoxyl-7-(4-hydroxy-3-methoxy-phenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	94
243	* 5-Hydroxy-7-(4-hydroxy-3-methoxyphenyl)-1-(4-hydroxyphenyl)-3-heptanone	<i>A. officinarum</i>	Rhizomes	70
244	5-Hydroxy-1-(4-hydroxy-3-methoxyphenyl)-7-(4-hydroxyphenyl)-3-heptanone	<i>A. officinarum</i>	Rhizomes	70
245	(5 <i>S</i> )-5-Hydroxy-7-(3,4-dihydroxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	95
246	(5 <i>R</i> )-5-Hydroxy-7-(3-methoxy-4,5-dihydroxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	95
247	(5 <i>R</i> )-5-Hydroxy-1-(3,4-dihydroxyphenyl)-7-(4-hydroxy-3-methoxyphenyl)-3-heptanone	<i>A. officinarum</i>	Rhizomes	95
248	* Alpinoid B	<i>A. officinarum</i>	Rhizomes	96
249	* Alpinoid C	<i>A. officinarum</i>	Rhizomes	96
250	(5 <i>S</i> )-7-(4-Hydroxyphenyl)-5-methoxy-1-phenylheptan-3-one	<i>A. officinarum</i>	Rhizomes	96
251	5 <i>S</i> -Ethoxyl-7-(4-hydroxy-3-methoxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	97,98
252	* 5( <i>S</i> )-Acetoxy-7-(4-dihydroxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	99
253	(5 <i>R</i> )-5-Hydroxy-1-(4-hydroxy-3-methoxyphenyl)-7-(4,5-dihydroxy-3-methoxyphenyl)-3-heptanone	<i>A. officinarum</i>	Rhizomes	99
254	* 7-(4-Hydroxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	97,98
255	1-(4-Hydroxyphenyl)-7-(4-hydroxy-3-methoxyphenyl)-4( <i>E</i> )-en-3-heptanone	<i>A. officinarum</i>	Rhizomes	99
256	( <i>E</i> )-7-(4-Hydroxy-3-methoxyphenyl)-1-phenylhept-4-en-3-one	<i>A. officinarum</i>	Rhizomes	94

No.	Compound class and name	Source	part	Ref.
257	7-(3,4-Dihydroxyphenyl)-1-(4-hydroxy-3-methoxyphenyl)-4-en-3-heptanone	<i>A. officinarum</i>	Rhizomes	95
258	(4 <i>E</i> ,6 <i>E</i> )-5-Hydroxy-1-(4-hydroxy-3-methoxyphenyl)-7-phenylhepta-4,6-dien-3-one	<i>A. officinarum</i>	Rhizomes	92,97,98
259	* 7-(4'',5''-Dihydroxy-3''-methoxyphenyl)-1-phenyl-4-heptene-3-one	<i>A. officinarum</i>	Rhizomes	92
260	5-Methoxy-7-(4''-hydroxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	92
261	* 1,7-Diphenyl-5-heptene-3-one	<i>A. officinarum</i>	Rhizomes	92
262	1,7-Diphenyl-3,5-heptadione	<i>A. officinarum</i>	Rhizomes	92,100
263	AO-5	<i>A. officinarum</i>	Rhizomes	69,92,96,100-106
264	Dihydroyashabushiketol	<i>A. officinarum</i>	Rhizomes	92,94,101,102
264a	(5 <i>R</i> )-5-Hydroxy-1,7-diphenylheptan-3-one	<i>A. officinarum</i>	Rhizomes	96,106
265	5-Hydroxy-7-(4''-hydroxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	70,92,102,107
266	AO-1	<i>A. officinarum</i> <i>A. galanga</i>	Rhizomes Rhizomes	69,92,94,101,102,104,105, 108,109 110
266a	(5 <i>R</i> )-5-Hydroxy-7-(4-hydroxy-3-methoxyphenyl)-1-phenylheptan-3-one	<i>A. officinarum</i>	Rhizomes	96-98,106
267	AO-2	<i>A. officinarum</i>	Rhizomes	92,94,104,105,107
267a	(5 <i>R</i> )-5-Methoxy-7-(4''-hydroxy-3''-methoxyphenyl)-1-phenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	96,106
268	* 7-(4''-Hydroxy-3''-methoxyphenyl)-1-phenyl-3,5-heptadione	<i>A. officinarum</i>		107
269	AO-4	<i>A. officinarum</i> <i>A. galanga</i>	Rhizomes Rhizomes	92,96,101,104-106 110
270	* 6-Hydroxy-1,7-diphenyl-4-en-3-heptanone	<i>A. officinarum</i>		103
271	AO-3	<i>A. officinarum</i>	Rhizomes	96,100,104-106
272	(5 <i>S</i> )-5-Methoxy-1,7-diphenyl-3-heptanone	<i>A. officinarum</i>	Rhizomes	103,106
273	(3 <i>R</i> ,5 <i>R</i> )-1-(4-Hydroxyphenyl)-7-phenyl-3,5-heptanediol	<i>A. officinarum</i>	Rhizomes	70,111
274	* (3 <i>S</i> ,7 <i>R</i> )-5,6-Dehydro-1,7-bis(4-hydroxyphenyl)-4''-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	79,112,113
275	* (3 <i>S</i> ,5 <i>S</i> ,6 <i>S</i> ,7 <i>R</i> )-5,6-Dihydroxy-1,7-bis(4-hydroxyphenyl)-4''-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	79,113
276	* (3 <i>S</i> ,5 <i>R</i> ,6 <i>S</i> ,7 <i>R</i> )-5,6-Dihydroxy-1,7-bis(4-hydroxyphenyl)-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	79,113
277	* (3 <i>S</i> ,5 <i>S</i> ,6 <i>R</i> ,7 <i>R</i> )-5,6-Dihydroxy-1,7-bis(4-hydroxyphenyl)-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	79,113
278	* (+)-De- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	114
279	* (-)-De- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	114
280	* (3 <i>S</i> ,5 <i>S</i> ,6 <i>S</i> ,7 <i>S</i> )-5,6-Dihydroxy-1,7-bis(4-hydroxyphenyl)-4''-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	114

No.	Compound class and name	Source	part	Ref.
281	* (3 <i>S</i> ,5 <i>R</i> ,6 <i>S</i> ,7 <i>S</i> )-5,6-Dihydroxy-1,7-bis(4-hydroxyphenyl)-4"-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	114
282	* (3 <i>S</i> ,5 <i>S</i> ,6 <i>R</i> ,7 <i>S</i> )-5,6-Dihydroxy-1,7-bis(4-hydroxyphenyl)-4"-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	114
283	* (3 <i>S</i> ,7 <i>S</i> )-5,6-Dehydro-4"-de- <i>O</i> -methylcentrolobine	<i>A. blepharocalyx</i>	Seeds	79,113
284	3,6-Furan-7-(4"-hydroxy-3"-methoxyphenyl)-1-phenyl heptane	<i>A. officinarum</i>	Rhizomes	99
285	* Calyxin N	<i>A. katsumadai</i> .	Seeds	115
286	* Calyxin O	<i>A. katsumadai</i> .	Seeds	115
287	* <i>ent</i> -Calyxin O	<i>A. katsumadai</i> .	Seeds	115
288	* <i>ent</i> -Calyxin N	<i>A. katsumadai</i> .	Seeds	115
289	* Calyxin P	<i>A. katsumadai</i> .	Seeds	115
290	* 9"-Epicalyxin P	<i>A. katsumadai</i> .	Seeds	115
291	* Calyxin S	<i>A. katsumadai</i> .	Seeds	115
292	* 5-Epicalyxin S	<i>A. katsumadai</i> .	Seeds	115
293	* Calyxin E	<i>A. blepharocalyx</i>	Seeds	79,116,117
294	* Calyxin G	<i>A. blepharocalyx</i>	Seeds	79,114,116,117
295	* Epicalyxin G	<i>A. blepharocalyx</i>	Seeds	114,116
296	* Calyxin M	<i>A. blepharocalyx</i>	Seeds	79,114,117
297	* Epicalyxin M	<i>A. blepharocalyx</i>	Seeds	79,114,117
298	* Calyxin J	<i>A. blepharocalyx</i>	Seeds	79,114,117
299	* Epicalyxin J	<i>A. blepharocalyx</i>	Seeds	79,114,117
300	* Calyxin K	<i>A. blepharocalyx</i>	Seeds	79,114,117
301	* Epicalyxin K	<i>A. blepharocalyx</i>	Seeds	114
302	* Calyxin C	<i>A. blepharocalyx</i>	Seeds	79,114,118
303	* Epicalyxin C	<i>A. blepharocalyx</i>	Seeds	79,114,118
304	* Calyxin D	<i>A. blepharocalyx</i>	Seeds	79,114,118
305	* Epicalyxin D	<i>A. blepharocalyx</i>	Seeds	79,114,118
306	* Calyxin Q	<i>A. katsumadai</i> .	Seeds	115
307	* Calyxin R	<i>A. katsumadai</i> .	Seeds	115
308	Katsumain C	<i>A. katsumadai</i>	Seeds	87
309	* 7- <i>epi</i> -Katsumain C	<i>A. katsumadai</i>	Seeds	87
310	* <i>ent</i> -Alpinnanin B	<i>A. katsumadai</i>	Seeds	87
311	<i>ent</i> -Alpinnanin A	<i>A. katsumadai</i>	Seeds	87
312	* <i>ent</i> -Calyxin H	<i>A. katsumadai</i>	Seeds	87
313	* Katsumain D	<i>A. katsumadai</i>	Seeds	88
314	* Katsumain E	<i>A. katsumadai</i>	Seeds	88
315	* Katsumain F	<i>A. katsumadai</i>	Seeds	88
316	* Katsumain G	<i>A. katsumadai</i>	Seeds	88
317	* Katsumain A	<i>A. katsumadai</i>	Seeds	2
318	* Katsumain B	<i>A. katsumadai</i>	Seeds	2
319	* Calyxin B	<i>A. blepharocalyx</i> <i>A. pinnanensis</i>	Seeds Rhizomes	79,114,118,119 83

No.	Compound class and name	Source	part	Ref.
320	* Epicalyxin B	<i>A. blepharocalyx</i>	Seeds	79,118,119
		<i>A. pinnanensis</i>	Rhizomes	83
321	* Alpinnanin B	<i>A. katsumadai</i>	Seeds	87
		<i>A. pinnanensis</i>	Rhizomes	83
322	* Epicalyxin H	<i>A. katsumadai</i>	Seeds	87
		<i>A. blepharocalyx</i>	Seeds	79,120
		<i>A. blepharocalyx</i>	Seeds	83
323	* CalyxinH	<i>A. katsumadai</i>	Seeds	87
		<i>A. blepharocalyx</i>	Seeds	79,120
		<i>A. blepharocalyx</i>	Seeds	83
324	* Calyxin I	<i>A. blepharocalyx</i>	Seeds	79,121
325	* Calyxin L	<i>A. blepharocalyx</i>	Seeds	79,117
326	* Epicalyxin I	<i>A. blepharocalyx</i>	Seeds	79,117
327	* Epicalyxin F	<i>A. blepharocalyx</i>	Seeds	79,117,121
328	Calyxins F	<i>A. blepharocalyx</i>	Seeds	79,116,117
329	* 6-Hydroxycalyxin F	<i>A. blepharocalyx</i>	Seeds	79,116
330	Calyxin A	<i>A. blepharocalyx</i>	Seeds	79,116,117,119
331	* Deoxycalyxin A	<i>A. blepharocalyx</i>	Seeds	79,117
		<i>A. pinnanensis</i>	Rhizomes	83
332	* Alpinnanin A	<i>A. pinnanensis</i>	Rhizomes	83
333	* Alpinnanin C	<i>A. pinnanensis</i>	Rhizomes	83
334	* Officinin A	<i>A. officinarum</i>	Rhizomes	122
335	* Alpinin A	<i>A. officinarum</i>	Rhizomes	123
336	* Alpinin B	<i>A. officinarum</i>	Rhizomes	100
337	* Alpinoid A	<i>A. officinarum</i>	Rhizomes	96
338	* Alpinin C	<i>A. officinarum</i>	Rhizomes	98
339	* Alpinin D	<i>A. officinarum</i>	Rhizomes	98
340	* Blepharocalyxin A	<i>A. blepharocalyx</i>	Seeds	79,120,124
341	* Blepharocalyxin B	<i>A. blepharocalyx</i>	Seeds	79,120,124
342	* Blepharocalyxin C	<i>A. blepharocalyx</i>	Seeds	79,113,125
343	* Blepharocalyxin D	<i>A. blepharocalyx</i>	Seeds	79,113,125
344	* Blepharocalyxin E	<i>A. blepharocalyx</i>	Seeds	79,113,125
345	* Neocalyxin A	<i>A. blepharocalyx</i>	Seeds	79,117
346	* Neocalyxin B	<i>A. blepharocalyx</i>	Seeds	79,117
347	* Officinaruminane B	<i>A. officinarum</i>	Rhizomes	99
348	* Katsumadain A	<i>A. katsumadai</i>	Seeds	10,126
349	* Katsumadain B	<i>A. katsumadai</i>	Seeds	126
350	* 4-Phenethyl-1,7-diphenyl-1-heptene-3,5-dione	<i>A. officinarum</i>	Rhizomes	92
<b>Phenylpropanoids</b>				
351	* <i>cis</i> -1-(2,4,5-Trimethoxy- <i>E</i> -styryl)-2-(2,4,5-trimethoxy- <i>Z</i> -styryl)cyclobutane	<i>A. flabellata</i>	Leaves	127,128
352	* <i>trans</i> -1-(2,4,5-Trimethoxy- <i>E</i> -styryl)-2-(2,4,5-trimethoxy- <i>Z</i> -styryl)cyclobutane	<i>A. flabellata</i>	Leaves	127,128

No.	Compound class and name	Source	part	Ref.
353	* 1,2-Bis(2,4,5-trimethoxy-Z-styryl)-cyclobutane	<i>A. flabellata</i>	Leaves	128
354	* (4E)-1,5-Bis(4-hydroxyphenyl)-1-methoxy-2-(methoxymethyl)-4-pentene	<i>A. officinarum</i>	Rhizomes	129
355	* (4E)-1,5-Bis(4-hydroxyphenyl)-1-ethoxy-2-(methoxymethyl)-4-pentene	<i>A. officinarum</i>	Rhizomes	129
356	* (4E)-1,5-Bis(4-hydroxyphenyl)-1-[(2E)-3-(4-acetoxyphe-nyl)-2-propenoxy]-2-(methoxymethyl)-4-pentene	<i>A. officinarum</i>	Rhizomes	129
357	* (4E)-1,5-Bis(4-hydroxyphenyl)-2-(methoxymethyl)-4-penten-1-ol	<i>A. officinarum</i>	Rhizomes	129
358	* (4E)-1,5-Bis(4-hydroxyphenyl)-2-(hydroxymethyl)-4-penten-1-ol	<i>A. officinarum</i>	Rhizomes	129
359	* Katsumadin	<i>A. katsumadai</i>	Seeds	84
360	Galanganol B	<i>A. galanga</i>	Rhizome	130
<b>Lignans</b>				
361	* Conchigeranal A	<i>A. conchigera</i>	Whole plant	131
362	* Conchigeranal B	<i>A. conchigera</i>	Whole plant	131
363	* Conchigeranal C	<i>A. conchigera</i>	Whole plant	131
364	* Conchigeranal D	<i>A. conchigera</i>	Whole plant	131
365	* Conchigeranal E	<i>A. conchigera</i>	Whole plant	131
366	* Galanganal	<i>A. conchigera</i>	Whole plant	131
		<i>A. galangal</i>	Rhizomes	132
367	* Galanganol A	<i>A. conchigera</i>	Whole plant	131
		<i>A. galangal</i>	Rhizomes	132
368	* Galanganol B	<i>A. conchigera</i>	Whole plant	131
		<i>A. galangal</i>	Rhizomes	132
369	Galanganol C	<i>A. galangal</i>	Rhizomes	132
370	* Conchignan A	<i>A. conchigera</i>	Whole plants	133
371	* Conchignan B	<i>A. conchigera</i>	Whole plants	133
372	* Conchignan C	<i>A. conchigera</i>	Whole plants	133
373	* 7-Methoxycoumarin	<i>A. calcarata</i>	Rhizomes	46
374	Citrusin B	<i>A. speciosa</i>	Leaves	134
375	2,3-Dihydro-2-(4-β-D-glucopyranosyl-3-methoxyphenyl)-3-hydroxymethyl-7-hydroxy-5-benzofranpropanol	<i>A. speciosa</i>	Leaves	134
<b>Flavonoids</b>				
376	Tectochrysin	<i>A. oxyphylla</i>	Rhizomes	135
		<i>A. oxyphylla</i>	Fruit	13,19,73
377	Chrysin	<i>A. oxyphylla</i>	Fruit	13,19,73
		<i>A. oxyphylla</i>	Rhizomes	135
378	Apigenin	<i>A. bracteata</i>	Rhizomes	136
		<i>A. officinarum</i>	Rhizomes	103,137
379	5-Hydroxy-7,8-dimethoxyflavone	<i>A. galanga</i>	Seeds	63
380	5-Hydroxy-2',7,8-trimethoxyflavone	<i>A. galanga</i>	Seeds	63
381	5-Hydroxy-7,8,2',5'-tetramethoxyflavone	<i>A. galanga</i>	Seeds	63

No.	Compound class and name	Source	part	Ref.
382	5-Hydroxy-3',4',7-trimethoxy flavanone	<i>A. tonkinensis</i>	Rhizomes	138
383	Kaempferol-3,4'-dimethylether	<i>A. sichuanensis</i>	Whole plant	6
384	Galangin	<i>A. bracteata</i>	Rhizomes	136
		<i>A. galangal</i>	Rhizomes	130
		<i>A. officinarum</i>	Rhizomes	137,139-141
		<i>A. sichuanensis</i>	Whole plant	6
		<i>A. galangal</i>	Seed	142
		<i>A. katsumadai</i>	Seed	143
385	Kaempferide	<i>A. officinarum</i>	Rhizomes	139,140
		<i>A. sichuanensis</i>	Whole plant	6
		<i>A. oxyphylla</i>	Rhizoms, fruits	73,135
		<i>A. tonkinensis</i>	Rhizoms	138
386	Kaempferol	<i>A. sichuanensis</i>	Whole plant	6
		<i>A. officinarum</i>	Rhizomes	139
387	3-Methoxykaempferol	<i>A. speciosa</i>	Rhizomes	144
		<i>A. galangal</i>	Seeds	142
		<i>A. katsumadai</i>	Seeds	143
		<i>A. tonkinensis</i>	Rhizomes	145
388	3,5-Dihydroxy-7,4'-dimethoxyflavone	<i>A. flabellata</i>	Leaves	127,128
		<i>A. oxyphylla</i>	Fruits	73,135
		<i>A. tonkinensis</i>	Rhizomes	138
389	Izalpinin	<i>A. oxyphylla</i>	Fruits	142
		<i>A. oxyphylla</i>	Fruits	73
		<i>A. oxyphylla</i>	Rhizomes	145
390	3-Methylethergalangin	<i>A. officinarum</i>	Rhizomes	139,146
		<i>A. galanga</i>	Seeds	142
391	Kumatakenin	<i>A. tonkinensis</i>	Rhizomes	138
		<i>A. galangal</i>	Seeds	142
		<i>A. katsumadai</i>	Seeds	143
392	Rhamnocitrin	<i>A. tonkinensis</i>	Rhizome	145
		<i>A. oxyphylla</i>	Seeds	27
393	Quercetin	<i>A. officinarum</i>	Rhizomes	139
		<i>A. tonkinensis</i>	Rhizomes	145
394	Ombuine	<i>A. tonkinensis</i>	Rhizomes	138
395	4',5,7-Trimethoxyflavonol	<i>A. tonkinensis</i>	Rhizomes	138
396	5-Hydroxy-3,7,4'-trimethoxyflavone	<i>A. flabellata</i>	Leaves	147

No.	Compound class and name	Source	part	Ref.
397	Pinocembrin	<i>A. malaccensis</i>	Rhizomes	55
		<i>A. bracteata</i>	Rhizomes	136
		<i>A. katsumadai</i>	Seeds	84,85
		<i>A. sichuanensis</i>	Whole plant	6
		<i>A. mutica</i>	Rhizome	148,149
		<i>A. galangal</i>	Seeds	142
		<i>A. oxyphylla</i>	Rhizome	135
		<i>A. officinarum</i>	Rhizomes	139
		<i>A. rafflesiana</i>	Rhizomes, fruits	91,93
		<i>A. gagnepainii</i>	Rhizomes	150
		<i>A. nutans</i>	Rhizomes	90
	<i>A. speciosa</i>	Leaves	144	
398	Alpinetin	<i>A. malaccensis</i>	Rhizomes	55
		<i>A. bracteata</i>	Rhizomes	136
		<i>A. speciosa</i>	Rhizomes	151
		<i>A. katsumadai</i>	Rhizomes	84,85
		<i>A. pinnanensis</i>	Seeds	83
		<i>A. mutica</i>	Rhizomes	152
399	7,4'-Dihydroxy-5-methoxy flavanone	<i>A. katsumadai</i>	Seeds	84
		<i>A. blepharocalyx</i>	Seeds	80,81
		<i>A. gagnepainii</i>	Rhizomes	150
	<i>A. pinnanensis</i>	Rhizomes	83	
400	Pinostrobin	<i>A. mutica</i>	Rhizome	148
		<i>A. rafflesiana</i>	Fruits	91
401	Pinobanksin	<i>A. galanga</i>	Seeds	142
		<i>A. katsumadai</i>	Seeds	143
		<i>A. officinarum</i>	Aerial part	153
402 *	(2 <i>R</i> ,3 <i>S</i> )-Pinobaksin-3-cinnamate	<i>A. galangal</i>	Seeds	142,154
		<i>A. katsumadai</i>	Seeds	143
403	3- <i>O</i> -Acetylpinobanksin	<i>A. galangal</i>	Seeds	142
		<i>A. katsumadai</i>	Seeds	143
404 *	<i>rel</i> -5-Hydroxy-7,4'-dimethoxy-2'' <i>S</i> -(2,4,5-trimethoxy- <i>E</i> -styryl)-tetrahydrofuro[4'' <i>R</i> ,5'' <i>R</i> :2,3]flavanonol	<i>A. flabellata</i>	Leaves	147
405 *	<i>rel</i> -5-Hydroxy-7,4'-dimethoxy-3'' <i>S</i> -(2,4,5-trimethoxy- <i>Es</i> tyryl)tetrahydrofuro[4'' <i>R</i> ,5'' <i>R</i> :2,3]flavanonol	<i>A. flabellata</i>	Leaves	147
406	Dihydrokaempferol	<i>A. oxyphylla</i>	Rhizomes	135
407	Alpinone	<i>A. galanga</i>	Seeds	142
		<i>A. japonica</i>	Seeds	155
408	Uvangoletin	<i>A. katsumadai</i>	Seeds	67
409	Dihydroflavokawin B	<i>A. speciosa</i>	Rhizomes	151
		<i>A. formosana</i>	Rhizomes	40

No.	Compound class and name	Source	part	Ref.
410	Flavokawin B	<i>A. speciosa</i>	Rhizomes	151
		<i>A. mutica</i>	Rhizomes	93,148
		<i>A. rafflesiana</i>	Rhizomes	93
		<i>A. nutans</i>	Rhizomes	90
		<i>A. pricei</i>	Rhizomes	156
411	Cardamomin	<i>A. bracteata</i>	Rhizomes	136
		<i>A. speciosa</i>	Rhizomes	144,151
		<i>A. gagnepaini</i>	Rhizomes	150
		<i>A. blepharocalyx</i>	Seeds	81
		<i>A. katsumadai</i>	Seeds	2,84,85
		<i>A. rafflesiana</i>	Fruits	91,157
		<i>A. pricei</i>	Rhizome	156
		<i>A. mutica</i>	Fruits	149
		<i>A. katsumadai</i>	Seeds	158
		<i>A. pinnanensis</i>	Rhizomes	83
412	* 2',3',4',6'-Tetrahydroxychalcone	<i>A. rafflesiana</i>	Fruits	91
		<i>A. pricei</i>	Rhizomes	156
413	2',4',6'-Trimethoxychalcone	<i>A. pricei</i>	Rhizomes	156
414	Pinostrobin chalcone	<i>A. pricei</i>	Rhizomes	156
		<i>A. speciosa</i>	Rhizomes	144
415	Helichrysetin	<i>A. blepharocalyx</i>	Seeds	80,81,121
		<i>A. katsumadai</i>	Seeds	67
416	2,6-Dimethoxy-4,4-dihydroxychalcone	<i>A. blepharocalyx</i>	Seeds	80
417	4,4-Dihydroxychalcone	<i>A. blepharocalyx</i>	Seeds	80
418	Pinocembrin chalcone	<i>A. katsumadai</i>		85
419	4',6'-Dimethylchalconaringenin	<i>A. pinnanensis</i>	Rhizomes	83
420	* Galanganone A	<i>A. galanga</i>	Rhizomes	159
421	* Galanganone B	<i>A. galanga</i>	Rhizomes	159
422	* Galanganone C	<i>A. galanga</i>	Rhizomes	159
423	(+) -Catechin	<i>A. zerumbet</i>	Leaves	160
		<i>A. katsumadai</i>	Seeds	161
424	Epicatechin	<i>A. oxymitra</i>	Rhizomes	35
		<i>A. zerumbet</i>	Leaves	160
425	Galloepicatechin	<i>A. oxymitra</i>	Rhizomes	35
426	(+) -Epicatechin	<i>A. speciosa</i>	Rhizome	162
427	Kaempferide-3-O-β-D-glucoside	<i>A. officinarum</i>	Rhizomes	140
				141
428	Kaempferol 3-O-glucoside	<i>A. speciosa</i> ,		163
		<i>A. nigra</i>	Seeds	164
		<i>A. sichuanensis</i>	Whole plant	6



No.	Compound class and name	Source	part	Ref.
429	Kaempferol 3-O-glucuronide	<i>A. speciosa</i> ,		163
		<i>A. zerumbet</i>	Leaves	160
		<i>A. jianganfeng</i>	Rhizome	165
		<i>A. nigra</i>	Seeds	164
430	Quercetin 3-O-glucoside	<i>A. speciosa</i> ,		163
431	Quercetin 3-O-glucuronide	<i>A. speciosa</i> ,		163
432	Quercetin 3-O- $\beta$ -D-rhamnosyl-(1,6)-galactoside	<i>A. speciosa</i> ,		163
433	Quercetin 3-O-robinobioside	<i>A. katsumadai</i>	Seeds	161
434 *	Galangoflavonoside	<i>A. galanga</i>	Rhizomes	166
435	Kaempferol-3-O- $\alpha$ -L-rhamnosyl-(1 $\rightarrow$ 2)-O-L-rhamnoside	<i>A. densespicata</i>	Rhizomes	64
436	Quercetin-3-O- $\alpha$ -L-rhamnosyl-(1 $\rightarrow$ 2)-O- $\alpha$ -L-rhamnoside	<i>A. densespicata</i>	Rhizomes	64
437	Morin-7-O- $\beta$ -D-glucopyranoside	<i>A. densespicata</i>	Rhizomes	64
438	Quercetin 3-O-(2, 6-di-O-rhamnopyranosyl galactopyranoside)	<i>A. katsumadai</i>	Seeds	161
439	Isorhamnetin 3-O-(2, 6-di-O-rhamnopyranosyl galactopyranoside)	<i>A. katsumadai</i>	Seeds	161
440	Pinocembrin-3,7-di- $\beta$ -D-glucoside	<i>A. katsumadai</i>	Seeds	161
441	Isorhamnetin-3-O- $\beta$ -D-galactosyl-(6 $\rightarrow$ 1)- $\alpha$ -L-rhamnoside	<i>A. tonkinensis</i>	Rhizomes	5
442	Rutin	<i>A. zerumbet</i>	Leaves	160
443	Kaempferol-3-O-rutinoside	<i>A. zerumbet</i>	Leaves	160
444	Hesperidin	<i>A. sichuanensis</i>	Whole plant	6
445	triflavonoid	<i>A. platyichilus</i>	Rhizomes	167
446	( $\pm$ )-1-[5-(2-methoxy-4,4'-dihydroxy-4-hydroxyphenyl)]-1-(4-hydroxyphenyl)-3-(2-methoxy-4-hydroxyphenyl) propane	<i>A. platyichilus</i>	Rhizomes	167
<b>Phenolics</b>				
447 *	[Di-( <i>p</i> -hydroxy- <i>cis</i> -styryl)] methane	<i>A. galanga</i>	Rhizomes	168
448 *	Alpininone	<i>A. gagnepainii</i>	Rhizomes	150
449 *	(1 <i>E</i> ,4 <i>Z</i> )-5-Hydroxy-1-phenylhexa-1,4-dien-3-one	<i>A. katsumadai</i>	Seeds	67
450	2-Propenal,3-[4-(acetyloxy)-3-methoxyphenyl]	<i>A. galangal</i>	Seeds	47
451	Dibutyl phthalate	<i>A. sichuanensi</i>	Whole plant	6
		<i>A. oxyphylla</i>	Seeds	169
452	( <i>E</i> )- <i>p</i> -Coumaryl alcohol	<i>A. officinarum</i>	Rhizomes	129
453	(E)- <i>p</i> -Coumaryl alcohol $\gamma$ -O-methyl ether	<i>A. officinarum</i>	Rhizomes	129
		<i>A. galanga</i>	Rhizomes	170
454	<i>trans-p</i> -Hydroxycinnamaldehyde	<i>A. galanga</i>	Rhizomes	132,171,172
		<i>A. conchigera</i>	Rhizomes	42,136
455	<i>trans-p</i> -Hydroxycinnamyl acetate	<i>A. galanga</i>	Rhizomes	132,171
		<i>A. conchigera</i>	Rhizomes	42
456	<i>trans-p</i> -Coumaryl alcohol	<i>A. galanga</i>	Rhizomes	130,132,171,173

No.	Compound class and name	Source	part	Ref.
457	<i>trans-p</i> -Coumaryl diacetate	<i>A. galanga</i>	Rhizomes	130,132,171-174
		<i>A. conchigera</i>	Rhizomes	42
458	<i>trans-p</i> -Acetoxycinnamyl alcohol	<i>A. galanga</i>	Rhizomes	130
459	<i>trans-p</i> -Hydroxycinnamaldehyde acetate	<i>A. galanga</i>	Rhizomes	173
460	<i>p</i> -Coumaric acid	<i>A. galanga</i>	Rhizomes	130
		<i>A. sichuanensis</i>	Whole plant	6
		<i>A. speciosa</i>		163
		<i>A. blepharocalyx</i>	Seeds	80
		<i>A. oxyphylla</i>	Rhizomes	135
461	Methyl <i>trans</i> -cinnamate	<i>A. formosana</i>	Rhizomes	40
		<i>A. speciosa</i>	Rhizomes	151
		<i>A. tonkinensis</i>	Rhizomes	5
462	Methyl <i>p</i> -hydroxycinnamate	<i>A. blepharocalyx</i>	Seeds	80
463	Methyl <i>p</i> -hydroxycinnamyl ketone	<i>A. blepharocalyx</i>	Seeds	80
464	1'S-1'-Acetoxychavicol acetate	<i>A. galanga</i>	Rhizomes	130,132,170,171,173-176
		<i>A. conchigera</i>	Rhizomes	47,130,177-181
465	1'-Acetoxyeugenol acetate	<i>A. galanga</i>	Rhizomes,seeds	41,130,171,173,175,182,183
466	Methyleugenol	<i>A. galanga</i>	Rhizomes	130,132,171
467	Hydroxychavicol acetate	<i>A. galanga</i> .	Rhizomes	181
		<i>A. conchigera</i>	Rhizomes	42
468	<i>trans</i> -Coniferyl diacetate	<i>A. galanga</i>	Rhizomes	174
469 *	4,4'[(2 <i>E</i> ,2' <i>E</i> )-Bis(prop-2-ene)-1,1'-oxy]-diphenyl-7,7'-diacetata	<i>A. galanga</i>	Rhizomes	172
470 *	( <i>S</i> )-1'-Ethoxy chavicol acetate	<i>A. galanga</i>	Rhizomes	172
471 *	( <i>E</i> )-4-Acetoxy cinnamyl ethyl ether	<i>A. galanga</i>	Rhizomes	172
472	( <i>E</i> )- <i>p</i> -Coumaryl alcohol ethyl ether	<i>A. galanga</i>	Rhizomes	184
473	<i>trans</i> -3,4-Dimethoxycinnamyl alcohol	<i>A. galanga</i>	Rhizomes	130,175
474	( <i>E</i> )- <i>p</i> -Acetoxycinnamyl alcohol	<i>A. galanga</i>	Rhizomes	184
475	<i>trans</i> -4-Methoxycinnamyl alcohol	<i>A. galanga</i>	Rhizomes	175
476	Chavicol acetate	<i>A. conchigera</i>	Rhizomes	42
477	1'S-1'-Acetoxyeugenol acetate	<i>A. conchigera</i>	Rhizomes	42
		<i>A. galanga</i>	Rhizomes	47,174,176
478	( <i>E</i> )-2,4,5-Trimethoxycinnamaldehyde	<i>A. flabellata</i>	Leaves	127,128
479	2,4,5-Trimethoxybenzaldehyde	<i>A. flabellata</i>	Leaves	127,128
480 *	4-Hydroxy-2-(2,4,5-trimethoxyphenyl)-2- <i>E</i> -butenal	<i>A. flabellata</i>	Leaves	127
481	Ferulic acid	<i>A. speciosa</i>		163
482	2,4,5-Trimethoxybenzoic acid	<i>A. flabellata</i>	Leaves	147
483	2,4,5-Trimethoxycinnamic acid	<i>A. flabellata</i>	Leaves	147
484	3,5-Dihydroxy-4-methoxybenzoic acid	<i>A. oxyphyllae</i>	Seeds	185
485	3-Methoxybenzoic acid	<i>A. sichuanensis</i>	Whole plant	6

No.	Compound class and name	Source	part	Ref.
486	Isovanillic acid	<i>A. sichuanensis</i>	Whole plant	6
487	2,5-Dihydroxybenzoic acid	<i>A. galanga</i>	Rhizomes	186
488	Vanillic acid	<i>A. oxyphyllae</i>	Seeds	185
489	Protocatechuic acid	<i>A. oxyphylla</i>	Fruits	17,187-192 193-195
		<i>A. katsumadai</i>		86
490	4-Hydroxybenzaldehyde	<i>A. sichuanensis</i>	Whole plant	6
		<i>A. blepharocalyx</i>	Seeds	80,81
		<i>A. bracteata</i>	Rhizomes	136
		<i>A. galanga</i>	Rhizomes	132
		<i>A. galanga</i>	Seeds	174
491	Isovanillin	<i>A. oxyphylla</i>	Fruits	45
492	Benzaldehyde	<i>A. sichuanensis</i>	Whole plant	6
493	Vanillin	<i>A. conchigera.</i>	Whole plant	133
494	Methyl-3-hydroxy-4-methoxybenzoate	<i>A. conchigera</i>		196
495	Phloroglucinol	<i>A. blepharocalyx</i>	Seeds	80
		<i>A. conchigera.</i>	Whole plant	133
496	6-(2-Hydroxy-phenyl)-4-methoxy-2-pyrone	<i>A. officinarum</i>		103
497 *	Ethyl 4-O-feruloyl- $\beta$ -glucopyranoside	<i>A. speciosa</i>	Rhizome	162
498 *	4-Hydroxy-3-methoxyphenyl 4-O-feruloyl- $\beta$ -glucopyranoside	<i>A. speciosa</i>	Rhizome	162
499	Benzyl $\beta$ -D-glucopyranoside	<i>A. officinarum</i>	Rhizome	9
500	1-O- $\beta$ -D-Glucopyranosyl-4-allylbenzene	<i>A. officinarum</i>	Rhizome	9
		<i>A. galanga</i>	Rhizomes	171
501 *	1-Hydroxy-2-O- $\beta$ -D-glucopyranosyl-4-allylbenzene	<i>A. officinarum</i>	Rhizome	9
502 *	1-O- $\beta$ -D-Glucopyranosyl-2-hydroxy-4-allylbenzene	<i>A. officinarum</i>	Rhizome	9
503 *	1-O-(6-O- $\alpha$ -L-Rhamnopyranosyl- $\beta$ -D-glucopyranosyl)- 2-hydroxy-4-allylbenzene	<i>A. officinarum</i>	Rhizome	9
504 *	1-O-(6-O- $\alpha$ -L-Rhamnopyranosyl- $\beta$ -D-glucopyranosyl)- 4-allylbenzene	<i>A. officinarum</i>	Rhizome	9
505 *	1,2-Di-O- $\beta$ -D-glucopyranosyl-4-allylbenzene	<i>A. officinarum</i>	Rhizome	9
506 *	Alpinoside A	<i>A. officinarum</i>	Rhizome	197
507 *	4-Hydroxy-2-methoxyphenol- $\beta$ -D-{3''-O-[4'- hydroxy-3'-methoxy(benzoate)]}-glucopyranoside	<i>A. bracteata</i>	Rhizomes	136
508	Coniferin	<i>A. speciosa</i>	Leaves	134
509	Syringin	<i>A. speciosa</i>	Leaves	134
509a	AS-II	<i>A. speciosa</i>	Leaves	198
510	Dihydro-5,6-dehydrokawain	<i>A. speciosa</i>	Leaves	151,198
		<i>A. zerumbet</i>	Leaves, rhizomes	58,59,160,199
		<i>A. formosana</i>	Rhizomes	40

No.	Compound class and name	Source	part	Ref.
511	5,6-Dehydrokawain	<i>A. rafflesiana</i>	Fruits	91
		<i>A. zerumbet</i>	Leaves, rhizomes	58,59,160,199
		<i>A. mutica</i>	Leaves, fruits	152
		<i>A. speciosa</i>	Rhizomes	144
		<i>A. gagnepainii</i>	Rhizomes	150
		<i>A. nutans</i>	Rhizomes, roots	90
		<i>A. blepharocalyx</i>	Seeds	80,81
		<i>A. globosa</i>	Rhizomes	200
	<i>A. malaccensis</i>	Rhizomes	55	
512	4-Hydroxy-5,6-dehydrokawain	<i>A. blepharocalyx</i>	Seeds	80,81
<b>Steroids</b>				
513	$\beta$ -Sitosterol	<i>A. sichuanensi</i>	Whole plant	6
		<i>A. oxyphylla</i>	Fruits	17
		<i>A. pinnanensis</i>	Rhizomes	83
		<i>A. tonkinensis</i>	Rhizomes	145
		<i>A. katsumada</i>	Seeds	201
		<i>A. jiangang feng</i>	Rhizomes	165
		<i>A. conchigera</i>	Rhizomes	42
514	Stigmasterol	<i>A. gagnepainii</i>	Rhizomes	150
		<i>A. pinnanensis</i>	Rhizomes	83
		<i>A. oxyphylla</i>	Seeds	202
		<i>A. conchigera</i>	Rhizomes	42
515	$\beta$ -Sitosterol palmitate	<i>A. oxyphylla</i>	Fruits	17
516	3-Hydroxy-stigmast-5-en-7-one	<i>A. jiangangfeng</i>	Rhizomes	165
517	Daucosterol	<i>A. oxyphylla</i>	Fruits	17
		<i>A. sichuanensi</i>	Whole plant	6
		<i>A. blepharocalyx</i>	Seeds	80
		<i>A. pinnanensis</i>	Rhizomes	83
518	$\beta$ -Sitosterol 3-O- $\beta$ -D-6-palmitoylglucoside	<i>A. officinarum</i>	Rhizomes	70
519	$\beta$ -Sitosterol diglucosyl caprate	<i>A. galanga</i>	Rhizomes	203
<b>Alkaloids</b>				
520	Officinaruminane A	<i>A. officinarum</i>	Rhizomes	99
521	Officinine B	<i>A. officinarum</i>	Rhizomes	204
522	Aurantiamide acetate	<i>A. katsumadai</i>	Seeds	67
523	Adenosine	<i>A. katsumadai</i>	Seeds	161
524	Uracil	<i>A. katsumadai</i>	Seeds	161
525	Hypoxanthine	<i>A. katsumadai</i>	Seeds	161
526	Adenine	<i>A. katsumadai</i>	Seeds	161
527	Nicotinic acid	<i>A. katsumadai</i>	Seeds	161
<b>Stilbenes</b>				
528	(E)-3-Methoxy-5-hydroxystilbene	<i>A. katsumadai</i>	Aerial parts	3
529	(E)-3,5-Dihydroxystilbene	<i>A. katsumadai</i>	Aerial parts	3
530	(E)-3,5-Dimethoxystilbene	<i>A. katsumadai</i>	Aerial parts	3

No.	Compound class and name	Source	part	Ref.
531	(E)-3,5-Dihydroxy-4'-methoxystilbene	<i>A. katsumadai</i>	Aerial parts	3
532	(Z)-3-Methoxy-5-hydroxystilbene	<i>A. katsumadai</i>	Aerial parts	3
533	(Z)-3,5-Dihydroxystilbene	<i>A. katsumadai</i>	Aerial parts	3,84
Others				
534	1-O-Monoheptadecanoin	<i>A. galanga</i>	Rhizomes	205
535	Palmitic acid	<i>A. oxyphylla</i>	Seeds	202
536	Succinic acid	<i>A. galanga</i>	Rhizomes	205
		<i>A. oxyphylla</i>	Seeds	27
537	Docosanoic acid	<i>A. jianganfeng</i>	Rhizomes	165
538	(S)-2-Pentanol-2-O-β-D-glucopyranoside	<i>A. oxyphylla</i>	Fruits	17
539	3-Methyl-but-2-en-1-yl-β-D-glucopyranoside	<i>A. officinarum</i>	Rhizomes	9
540	n-Butyl-β-D-fructopyranoside	<i>A. officinarum</i>	Rhizomes	197
541	n-Pentadecane	<i>A. galanga</i>	Seeds	41
542	n-7-Heptadecene	<i>A. galanga</i>	Seeds	41
543	1-O-Nonyl-xylitol	<i>A. oxyphylla</i>		169
544	5-Hydroxymethyl furfural	<i>A. oxyphylla</i>	Seeds	169,206

\* New compounds.

## Reference

1. S. Z. Hua, J. G. Luo, X. B. Wang, J. S. Wang and L. Y. Kong, *Bioorg. Med. Chem. Lett.*, 2009, **19**, 2728.
2. Y. Y. Li, G. X. Chou and Z. T. Wang, *Helv. Chim. Acta*, 2010, **93**, 382.
3. K. S. Ngo and G. D. Brown, *Phytochemistry*, 1998, **47**, 1117.
4. S. Lai-King and G. D. Brown, *Phytochemistry*, 1997, **45**, 537.
5. J. Zhang and L. Y. Kong, *J. Asian Nat. Prod. Res.*, 2004, **6**, 199.
6. D. Liu, W. Qu and J. Y. Liang, *Biochem. Syst. Ecol.*, 2013, **46**, 127.
7. J. J. Xu, N. H. Tan, Y. S. Chen, X. L. Pan, G. Z. Zeng, H. J. Han, C. J. Ji and M. J. Zhu, *Helv. Chim. Acta*, 2009, **92**, 1621.
8. Y. Someya, A. Kobayashi and K. Kubota, *Biosci. Biotechnol. Biochem.*, 2001, **65**, 950.
9. T. N. Ly, R. Yamauchi, M. Shimoyamada and K. Kato, *J. Agric. Food Chem.*, 2002, **50**, 4919.
10. U. Grienke, M. Schmidtke, J. Kirchmair, K. Pfarr, P. Wutzler, R. Dürrwald, G. Wolber, K. R. Liedl, H. Stuppner and J. M. Rollinger, *J. Med. Chem.*, 2010, **53**, 778.
11. M. Kuroyanagi, T. Noro, S. Fukushima, R. Aiyama, A. Ikuta, H. Itokawa and M. Morita, *Chem. Pharm. Bull.*, 1983, **31**, 1544.
12. M. Morita, H. Nakanishi, H. Morita, S. Mihashi and H. Itokawa, *Chem. Pharm. Bull.*, 1996, **44**, 1603.
13. T. Morikawa, H. Matsuda, I. Toguchida, K. Ueda and M. Yoshikawa, *J. Nat. Prod.*, 2002, **65**, 1468.
14. B. Jiang, W. J. Wang, M. P. Li, X. J. Huang, F. Huang, H. Gao, P. H. Sun, M. F. He, Z. J. Jiang, X. Q. Zhang and W. C. Ye, *Bioorg. Med. Chem. Lett.*, 2013, **23**, 3879.
15. J. J. Xu, J. Su, Y. Li and N. H. Tan, *Chem. Nat. Compd.*, 2013, **49**, 457.
16. J. Luo, X. Lv, X. Wang and L. Kong, *Phytochem. Lett.*, 2012, **5**, 134.

17. Z. J. Qing, Y. Wang, L. Y. Hui, L. W. Yong, L. H. Long, D. J. Ao and P. L. Xia, *Arch. Pharmacol Res.*, 2012, **35**, 2143.
18. P. Chen, P. P. Wang, Z. Z. Jiao and L. Xiang, *Helv. Chim. Acta*, 2014, **97**, 388.
19. D. H. Park, J. W. Lee, Q. Jin, W. K. Jeon, M. K. Lee and B. Y. Hwang, *Bull. Korean Chem. Soc.*, 2014, **35**, 1565.
20. L. Hou, G. Ding, B. L. Guo, W. H. Huang, X. J. Zhang, Z. Y. Sun and X. F. Shi, *Molecules*, 2015, **20**, 1551.
21. N. Shoji, A. Umeyama, Y. Asakawa, T. Takemoto, K. Nomoto and Y. Ohizumi, *Journal of Pharmaceutical Sciences*, 1984, **73**, 843.
22. M. Miyazawa, Y. Nakamura and Y. Ishikawa, *J. Agric. Food Chem.*, 2000, **48**, 3639.
23. P. Chen, L. Qu, L. Tian, P. P. Wang and L. Xiang, *Helv. Chim. Acta*, 2013, **96**, 1163.
24. H. Itokawa, H. Morita, T. Kobayashi, K. Watanabe and Y. Iitaka, *Chem. Pharm. Bull.*, 1987, **35**, 2860.
25. H. Itokawa, H. Morita, K. Watanabe, S. Mihashi and Y. Iitaka, *Chem. Pharm. Bull.*, 1985, **33**, 1148.
26. X. Luo, J. Yu, L. Xu, K. Li, P. Tan and J. Feng, *Yaoxue Xuebao*, 2000, **35**, 204.
27. L. Hou, X. X. Lu, B. B. Xie, W. H. Huang, J. G. Yu and B. L. Guo, *Tianran Chanwu Yanjiu Yu Kaifa*, 2013, **25**, 878.
28. J. J. Xu, N. H. Tan, J. Xiong, A. H. Adebayo, H. J. Han, G. Z. Zeng, C. J. Ji, Y. M. Zhang and M. J. Zhu, *Chin. Chem. Lett.*, 2009, **20**, 945.
29. X. Q. Lv, J. G. Luo, X. B. Wang, J. S. Wang, J. Luo and L. Y. Kong, *Chem. Pharm. Bull.*, 2011, **59**, 402.
30. J. Xu, C. Ji, Y. Zhang, J. Su, Y. Li and N. Tan, *Bioorg. Med. Chem. Lett.*, 2012, **22**, 1660.
31. H. Itokawa, H. Morita and K. Watanabe, *Chem. Pharm. Bull.*, 1987, **35**, 1460.
32. H. Itokawa, K. Watanabe, S. Mihashi and Y. Iitaka, *Chem. Pharm. Bull.*, 1980, **28**, 681.
33. O. Muraoka, M. Fujimoto, G. Tanabe, M. Kubo, T. Minematsu, H. Matsuda, T. Morikawa, I. Toguchida and M. Yoshikawa, *Bioorg. Med. Chem. Lett.*, 2001, **11**, 2217.
34. J. J. Xu, N. H. Tan, G. Z. Zeng, H. J. Han and Y. F. Peng, *Chin. J. Nat. Med.*, 2010, **8**, 6.
35. K. Jitsaeng, W. De-Eknamkul and B. Schneider, *Rec. Nat. Prod.*, 2009, **3**, 110.
36. S. M. Xu, X. J. Huang, Y. Wang and W. C. Ye, *Chin. J. Nat. Med.*, 2012, **10**, 374.
37. H. Itokawa, H. Morita, K. Osawa, K. Watanabe and Y. Iitaka, *Chem. Pharm. Bull.*, 1987, **35**, 2849.
38. H. Itokawa, H. Morita, K. Watanabe, A. Takase and Y. Iitaka, *Chem. Lett.*, 1984, **13**, 1687.
39. H. Itokawa, K. Watanabe, H. Morita, S. Mihashi and Y. Iitaka, *Chem. Pharm. Bull.*, 1985, **33**, 2023.
40. H. Itokawa, S. Yoshimoto and H. Morita, *Phytochemistry*, 1988, **27**, 435.
41. S. Mitsui, S. Kobayashi, H. Nagahori and A. Ogiso, *Chem. Pharm. Bull.*, 1976, **24**, 2377.
42. A. N. Aziz, H. Ibrahim, D. Rosmy Syamsir, M. Mohtar, J. Vejayan and K. Awang, *J. Ethnopharmacol.*, 2013, **145**, 798.
43. Q. M. Li, J. G. Luo, X. B. Wang, M. H. Yang and L. Y. Kong, *Fitoterapia*, 2013, **86**, 29.
44. Q. M. Li, J. G. Luo, M. H. Yang and L. Y. Kong, *Chem. Biodivers.*, 2015, **12**, 388.
45. J. Xu, N. Tan, G. Zeng, H. Han, H. Huang, C. Ji, M. Zhu and Y. Zhang, *Zhongguo Zhongyao Zazhi*, 2009, **34**, 990.
46. L. Y. Kong, M. J. Qin and M. Niwa, *J. Nat. Prod.*, 2000, **63**, 939.

47. Q. H. Zeng, C. L. Lu, X. W. Zhang and J. G. Jiang, *Food Funct.*, 2015, **6**, 431.
48. H. Itokawa, H. Morita, K. Watanabe and Y. Iitaka, *Chem. Lett.*, 1984, **13**, 451.
49. S. Ghosh, K. Indukuri, S. Bondalapati, A. K. Saikia and L. Rangan, *Eur. J. Med. Chem.*, 2013, **66**, 101.
50. S. Ghosh and L. Rangan, *Appl Biochem Biotechnol*, 2014, DOI: 10.1007/s12010-014-1366-4.
51. Y. Sivasothy, H. Ibrahim, A. S. Paliany, S. A. Alias, N. R. Md Nor and K. Awang, *Planta Med.*, 2013, **79**, 1775.
52. H. Morita and H. Itokawa, *Planta Med.*, 1988, **54**, 117.
53. H. Morita and H. Itokawa, *Chem. Lett.*, 1986, **15**, 1205.
54. H. Itokawa, M. Morita and S. Mihashi, *Chem. Pharm. Bull.*, 1980, **28**, 3452.
55. N. Nuntawong and A. Suksamrarn, *Biochem. Syst. Ecol.*, 2008, **36**, 661.
56. L. K. Sy and G. D. Brown, *J. Nat. Prod.*, 1997, **60**, 904.
57. J. Chompoo, A. Upadhyay, W. Kishimoto, T. Makise and S. Tawata, *Food Chem.*, 2011, **129**, 709.
58. J. Chompoo, A. Upadhyay, M. Fukuta and S. Tawata, *BMC Complement. Altern. Med.*, 2012, **12**, 106.
59. A. Upadhyay, J. Chompoo, W. Kishimoto, T. Makise and S. Tawata, *J. Agric. Food Chem.*, 2011, **59**, 2857.
60. H. Haraguchi, Y. Kuwata, K. Inada, K. Shingu, K. Miyahara, M. Nagao and A. Yagi, *Planta Med.*, 1996, **62**, 308.
61. H. X. Xu, H. Dong and K. Y. Sim, *Phytochemistry*, 1996, **42**, 149.
62. Y. Sivasothy, H. Ibrahim, A. S. Paliany, S. A. Alias and K. Awang, *Bioorg. Med. Chem. Lett.*, 2013, **23**, 6280.
63. V. S. Chauhan, M. Swapna and A. Singh, *Int. J. Appl. Biol. Pharm. Technol.*, 2014, **5**, 186.
64. Y. J. Kuo, P. C. Hsiao, L. J. Zhang, M. D. Wu, Y. H. Liang, H. O. Ho and Y. H. Kuo, *J. Nat. Prod.*, 2009, **72**, 1097.
65. S. Tesaki, H. Kikuzaki, S. Yonemori and N. Nakatani, *J. Nat. Prod.*, 2001, **64**, 515.
66. L. Y. Kong, M. J. Qin and M. Niwa, *Planta Med.*, 2002, **68**, 813.
67. X. B. Wang, C. S. Yang, S. Z. Hua and L. Y. Kong, *Zhongguo Tianran Yaowu*, 2010, **8**, 419.
68. S. Y. Choi, M. H. Lee, J. H. Choi and Y. K. Kim, *Biol. Pharm. Bull.*, 2012, **35**, 2092.
69. H. J. Lee, J. S. Kim and J. H. Ryu, *Planta Med.*, 2006, **72**, 68.
70. D. Shin, K. Kinoshita, K. Koyama and K. Takahashi, *J. Nat. Prod.*, 2002, **65**, 1315.
71. H. Itokawa, H. Morita, I. Midorikawa, R. Aiyama and M. Morita, *Chem. Pharm. Bull.*, 1985, **33**, 4889.
72. H. Itokawa, R. Aiyama and A. Ikuta, *Phytochemistry*, 1981, **20**, 769.
73. Q. Y. Bian, S. Y. Wang, L. J. Xu, C. O. Chan, D. K. W. Mok and S. B. Chen, *J. Asian Nat. Prod. Res.*, 2013, **15**, 1094.
74. K. S. Chun, Y. Sohn, H. S. Kim, O. H. Kim, K. K. Park, J. M. Lee, J. Lee, J. Y. Lee, A. Moon, S. S. Lee and Y. J. Surh, *Mutat. Res.*, 1999, **428**, 49.
75. N. Shoji, A. Umeyama, T. Takemoto and Y. Ohizumi, *Planta Med.*, 1984, **50**, 186.
76. Y. M. Chang, C. T. Tsai, C. C. R. Wang, Y. S. Chen, Y. M. Lin, C. H. Kuo, B. S. Tzang, R. J. Chen, F. J. Tsai and C. Y. Huang, *Biosci. Biotechnol. Biochem.*, 2013, **77**, 229.
77. R. J. Lin, C. M. Yen, T. H. Chou, F. Y. Chiang, G. H. Wang, Y. P. Tseng, L. Wang, T. W. Huang, H. C. Wang, L. P. Chan, H. Y. Ding and C. H. Liang, *BMC Complement. Altern. M.*, 2013, **13**,

78. Q. Zhang, S. Luo, H. Wang and D. Fan, *Zhongcaoyao*, 1997, **28**, 131.
79. S. Kadota, Y. Tezuka, J. K. Prasain, M. S. Ali and A. H. Banskota, *Curr. Top. Med. Chem.*, 2003, **3**, 203.
80. M. S. Ali, Y. Tezuka, S. Awale, A. H. Banskota and S. Kadota, *J. Nat. Prod.*, 2001, **64**, 289.
81. H. Dong, S. X. Chen, H. X. Xu, S. Kadota and T. Namba, *J. Nat. Prod.*, 1998, **61**, 142.
82. B. Groeblacher, O. Kunert and F. Bucar, *Bioorg. Med. Chem.*, 2012, **20**, 2701.
83. P. M. Giang, P. T. Son, K. Matsunami and H. Otsuka, *Chem. Pharm. Bull.*, 2005, **53**, 1335.
84. W. Z. Huang, C. F. Zhang, M. Zhang and Z. T. Wang, *J. Chin. Chem. Soc.*, 2007, **54**, 1553.
85. X. Xiao, X. Si, X. Tong and G. Li, *Sep. Purif. Technol.*, 2011, **81**, 265.
86. Y. Li, L. Yang, C. Wang, G. Chou and Z. Wang, *Shanghai Zhongyiyao Daxue Xuebao*, 2010, **24**, 72.
87. J. W. Nam, G. Y. Kang, A. R. Han, D. Lee, Y. S. Lee and E. K. Seo, *J. Nat. Prod.*, 2011, **74**, 2109.
88. J. W. Nam and E. K. Seo, *Helv. Chim. Acta*, 2013, **96**, 1670.
89. C. Y. Lo, P. L. Liu, L. C. Lin, Y. T. Chen, Y. C. Hseu, Z. H. Wen and H. M. Wang, *Sci. World J.*, 2013, 1.
90. M. Habsah, N. H. Lajis, A. M. Ali, M. A. Sukari, Y. Y. Hin, H. Kikuzaki and N. Nakatani, *Pharm. Biol.*, 2003, **41**, 7.
91. H. Mohamad, F. Abas, D. Permana, N. H. Lajis, A. M. Ali, M. A. Sukari, T. Y. Y. Hin, H. Kikuzaki and N. Nakatani, *Z. Naturforsch.C*, 2004, **59**, 811.
92. B. B. Zhang, Y. Dai, Z. X. Liao and L. S. Ding, *Fitoterapia*, 2010, **81**, 948.
93. H. M. Sirat, A. A. Rahman, H. Itokawa and H. Morita, *Planta Med.*, 1996, **62**, 188.
94. L. Zhao, W. Qu, J. Q. Fu and J. Y. Liang, *Chin. J. Nat. Med.*, 2010, **8**, 241.
95. N. An, Z. M. Zou, Z. Tian, X. Z. Luo, S. L. Yang and L. Z. Xu, *Fitoterapia*, 2007, **79**, 27.
96. Y. Sun, H. Matsubara, S. Kitanaka and K. Yasukawa, *Helv. Chim. Acta*, 2008, **91**, 118.
97. Y. Sun, K. Tabata, H. Matsubara, S. Kitanaka, T. Suzuki and K. Yasukawa, *Planta Med.*, 2008, **74**, 427.
98. D. Liu, Y. W. Liu, F. Q. Guan and J. Y. Liang, *Fitoterapia*, 2014, **96**, 76.
99. N. An, H. W. Zhang, L. Z. Xu, S. L. Yang and Z. M. Zou, *Food Chem.*, 2010, **119**, 513.
100. D. Liu, W. Qu, L. Zhao, F. Q. Guan and J. Y. Liang, *Chin. J. Nat. Med.*, 2014, **12**, 139.
101. H. Itokawa, M. Morita and S. Mihashi, *CHEMICAL & PHARMACEUTICAL BULLETIN*, 1981, **29**, 2383.
102. Y. U. Kim, H. K. Son, H. K. Song, M. J. Ahn, S. S. Lee and S. K. Lee, *Planta Med.*, 2003, **69**, 72.
103. G. J. Fan, Y. H. Kang, Y. N. Han and B. H. Han, *Bioorg. Med. Chem. Lett.*, 2007, **17**, 6720.
104. Z. Liu, M. M. Rafi, N. Zhu, K. Ryu, S. Sang, C. T. Ho and R. T. Rosen, *Separation and bioactivity of diarylheptanoids from lesser galangal (Alpinia officinarum)*, Washington, 2003.
105. Z. Liu, S. Sang, T. G. Hartman, C.-T. Ho and R. T. Rosen, *Phytochemical Analysis*, 2005, **16**, 252.
106. K. Yasukawa, Y. Sun, S. Kitanaka, N. Tomizawa, M. Miura and S. Motohashi, *J. Nat. Prod.*, 2008, **62**, 374.
107. F. Kiuchi, M. Shibuya and U. Sankawa, *Chem. Pharm. Bull.*, 1982, **30**, 2279.
108. J. E. Shin, M. J. Han, M. C. Song, N. I. Baek and D. H. Kim, *Biol. Pharm. Bull.*, 2004, **27**,



- 138.
109. H. B. Lee, H. K. Lee, J. R. Kim and Y. J. Ahn, *J. Korean Soc. Appl. Biol. Chem.*, 2009, **52**, 367.
110. X. Zhu, Y. Dou, X. Huang and L. Kong, *Zhongguo Xiandai Zhongyao*, 2008, **10**, 13.
111. S. I. Uehara, I. Yasuda, K. Akiyama, H. Morita, K. Takeya and H. Itokawa, *Chem. Pharm. Bull.*, 1987, **35**, 3298.
112. J. K. Prasain, Y. Tezuka, J. X. Li, K. Tanaka, P. Basnet, H. Dong, T. Namba and S. Kadota, *Planta Med.*, 1999, **65**, 196.
113. M. S. Ali, Y. Tezuka, A. H. Banskota and S. Kadota, *J. Nat. Prod.*, 2001, **64**, 491.
114. M. S. Ali, A. H. Banskota, Y. Tezuka, I. Saiki and S. Kadota, *Biol. Pharm. Bull.*, 2001, **24**, 525.
115. X. B. Wang, C. S. Yang, C. Zhang, J. Luo, M. H. Yang, J. G. Luo, W. Y. Yu and L. Y. Kong, *Tetrahedron*, 2014, **70**, 8714.
116. J. Kumar Prasain, Y. Tezuka, J. X. Li, K. Tanaka, P. Basnet, H. Dong, T. Namba and S. Kadota, *J. Chem. Res. (S)*, 1998, 22.
117. Y. Tezuka, M. B. Gewali, M. S. Ali, A. H. Banskota and S. Kadota, *J. Nat. Prod.*, 2001, **64**, 208.
118. J. Kumar Prasain, Y. Tezuka, J. Xin Li, K. Tanaka, P. Basnet, H. Dong, T. Namba and S. Kadota, *Tetrahedron*, 1997, **53**, 7833.
119. S. Kadota, D. Hui, P. Basnet, J. K. Prasain, G.-J. Xu and T. Namba, *CHEMICAL & PHARMACEUTICAL BULLETIN*, 1994, **42**, 2647.
120. J. K. Prasain, J. X. Li, Y. Tezuka, K. Tanaka, P. Basnet, H. Dong, T. Namba and S. Kadota, *J. Nat. Prod.*, 1998, **61**, 212.
121. M. B. Gewali, Y. Tezuka, A. H. Banskota, M. S. Ali, I. Saiki, H. Dong and S. Kadota, *Org. Lett.*, 1999, **1**, 1733.
122. L. Zhao, J. Y. Liang, J. Y. Zhang and Y. Chen, *Chin. Chem. Lett.*, 2010, **21**, 194.
123. D. Liu, W. Qu, L. Zhao and J. Y. Liang, *Chin. Chem. Lett.*, 2012, **23**, 189.
124. S. Kadota, J. K. Prasain, J. X. Li, P. Basnet, H. Dong, T. Tani and T. Namba, *Tetrahedron Lett.*, 1996, **37**, 7283.
125. Y. Tezuka, M. S. Ali, A. H. Banskota and S. Kadota, *Tetrahedron Lett.*, 2000, **31**, 5903.
126. Y. Yang, K. Kinoshita, K. Koyama, K. Takahashi, T. Tai, Y. Nunoura and K. Watanabe, *J. Nat. Prod.*, 1999, **62**, 1672.
127. S. Tesaki, H. Kikuzaki, S. Tanabe, M. Watanabe and N. Nakatani, *ITE Lett. Batteries, New Technol. Med.*, 2001, **2**, 106.
128. H. Kikuzaki, S. Tesaki, S. Yonemori and N. Nakatani, *Phytochemistry*, 2001, **56**, 109.
129. T. N. Ly, M. Shimoyamada, K. Kato and R. Yamauchi, *J. Agric. Food Chem.*, 2003, **51**, 4924.
130. A. Kaur, R. Singh, C. S. Dey, S. S. Sharma, K. K. Bhutani and I. P. Singh, *Indian J. Exp. Biol.*, 2010, **48**, 314.
131. J. J. Xu, G. Z. Zeng, S. C. Yang, Y. Shen and N. H. Tan, *Fitoterapia*, 2013, **91**, 82.
132. T. Morikawa, S. Ando, H. Matsuda, S. Kataoka, O. Muraoka and M. Yoshikawa, *Chem. Pharm. Bull.*, 2005, **53**, 625.
133. J. J. Xu, H. M. Zhao, Y. Shen, J. H. Chen, Y. Li, N. H. Tan and S. C. Yang, *J. Asian Nat. Prod. Res.*, 2013, **15**, 833.
134. T. Obata, A. Sawabe, M. Morita, N. Yamashita and Y. Matsubara, *J. Jpn. Oil Chem. Soc.*, 1995,

- 44**, 1012.
135. N. Wei, Y. Wang, H. H. Li, J. Q. Zhang and Y. H. Li, *Chem. Nat. Compd.*, 2013, **49**, 934.
136. L. Liu, J. Luo and L. Kong, *Chem. Nat. Compd.*, 2012, **48**, 785.
137. J. Zhao, W. Lu, H. Duan and L. Jiang, *Shanxi Yike Daxue Xuebao*, 2007, **38**, 604.
138. J. Zhang, Q. H. Guo and L. Y. Kong, *Zhongguo Zhong Yao Za Zhi*, 2003, **28**, 41.
139. N. An, S. Yang, Z. Zou and L. Xu, *Zhongcaoyao*, 2006, **37**, 663.
140. G. Eumkeb, S. Siriwong, S. Phitaktim, N. Rojtinnakorn and S. Sakdarat, *J. Appl. Microbiol.*, 2012, **112**, 55.
141. G. Eumkeb, S. Sakdarat and S. Siriwong, *Phytomedicine*, 2010, **18**, 40.
142. M. Q. Bian, H. Q. Wang, J. Kang, R. Y. Chen, Y. F. Yang and H. Z. Wu, *Yao Xue Xue Bao*, 2014, **49**, 359.
143. B. R. Xin, S. J. Ren and J. Li, *Zhongguo Zhong Yao Za Zhi*, 2014, **39**, 2674.
144. T. Ohtsuki, H. Kikuchi, T. Koyano, T. Kowithayakorn, T. Sakai and M. Ishibashi, *Bioorg. Med. Chem.*, 2009, **17**, 6748.
145. J. Zhang, X. He, J. Gao and L. Kong, *Zhongguo Yaoxue Zazhi (Beijing, China)*, 2003, **38**, 502.
146. J. E. Shin, M. J. Han and D. H. Kim, *Biol. Pharm. Bull.*, 2003, **26**, 854.
147. H. Kikuzaki and S. Tesaki, *J. Nat. Prod.*, 2002, **65**, 389.
148. N. A. Mustahil, M. A. Sukari, A. B. Abdul, N. A. Ali and G. E. C. Lian, *Pak. J. Pharm. Sci.*, 2013, **26**, 391.
149. I. Jantan, S. M. Raweh, H. M. Sirat, S. Jamil, Y. H. Mohd Yasin, J. Jalil and J. A. Jamal, *Phytomedicine*, 2008, **15**, 306.
150. H. T. Le, M. G. Phan and T. S. Phan, *J. Chem.*, 2007, **45**, 126.
151. H. Itokawa, M. Morita and S. Mihashi, *Phytochemistry*, 1981, **20**, 2503.
152. I. Jantan, M. Pizar, H. M. Sirat, N. Basar, S. Jamil, R. M. Ali and J. Jalil, *Phytother. Res.*, 2004, **18**, 1005.
153. H. Zhang, L.-x. Xu, P. Wu and X.-y. Wei, *Redai Yaredai Zhiwu Xuebao*, 2014, **22**, 89.
154. B. R. Xin, J. F. Liu, J. Kang and W. P. Chan, *Mol. Cell. Toxicol.*, 2014, **10**, 165.
155. J. Gripenberg and K. Silander, *Chem. Ind-london.*, 1955, 443.
156. C. T. Lin, K. J. Senthil Kumar, Y. H. Tseng, Z. J. Wang, M. Y. Pan, J. H. Xiao, S. C. Chien and S. Y. Wang, *J. Agric. Food Chem.*, 2009, **57**, 6060.
157. S. Ahmad, D. A. Israf, N. H. Lajis, K. Shaari, H. Mohamed, A. A. Wahab, K. T. Ariffin, W. Y. Hoo, N. A. Aziz, A. A. Kadir, M. R. Sulaiman and M. N. Somchit, *Eur. J. Pharmacol.*, 2006, **538**, 188.
158. Z. Wei, J. Yang, Y. F. Xia, W. Z. Huang, Z. T. Wang and Y. Dai, *J. Biochem. Mol. Toxicol.*, 2012, **26**, 282.
159. W. Q. Yang, Y. Gao, M. Li, D. R. Miao and F. Wang, *J. Asian Nat. Prod. Res.*, 2015, **17**, 783.
160. M. A. Mpalantinos, R. S. De Moura, J. P. Parente and R. M. Kuster, *Phytother. Res.*, 1998, **12**, 442.
161. Y. Y. Li, G. X. Chou and Z. T. Wang, *Zhongguo Tianran Yaowu*, 2009, **7**, 417.
162. T. Masuda, S. Mizuguchi, T. Tanaka, K. Iritani, Y. Takeda and S. Yonemori, *J. Agric. Food Chem.*, 2000, **48**, 1479.
163. N. Nakatani, *Oriental Foods and Herbs*, 2002, **859**, 166.
164. C. Qiao, Z. Wang, H. Dong, L. Xu and X. Hao, *Zhongcaoyao*, 2000, **31**, 404.
165. C. Qiao, X. Hao, Z. Wang and L. Xu, *Zhongguo Zhongyao Zazhi*, 2002, **27**, 130.

166. S. B. Jaju, N. H. Indurwade, D. M. Sakarkar, N. K. Fuloria, M. D. Ali, S. Das and S. P. Basu, *Trop. J. Pharm. Res.*, 2009, **8**, 545.
167. C. P. Shen, J. G. Luo, M. H. Yang and L. Y. Kong, *Fitoterapia*, 2015, **106**, 153.
168. B. R. Barik, A. B. Kundu and A. K. Dey, *Phytochemistry*, 1987, **26**, 2126.
169. S. H. Shi, C. N. Zhang, A. J. Liu, H. Li, K. S. Bi and Y. Jia, *Zhongguo Shiyang Fangjixue Zazhi*, 2013, **19**, 97.
170. J. W. Nam, S. J. Kim, A. R. Han, S. K. Lee and E. K. Seo, *J. Appl. Pharmacol.*, 2005, **13**, 263.
171. H. Matsuda, T. Morikawa, H. Managi and M. Yoshikawa, *Bioorg. Med. Chem. Lett.*, 2003, **13**, 3197.
172. L. Zhao, L. Y. Chen and J. Y. Liang, *Chin. J. Nat. Med.*, 2012, **10**, 370.
173. S. K. Roy, S. Pahwa, H. Nandanwar and S. M. Jachak, *Fitoterapia*, 2012, **83**, 1248.
174. T. Noro, T. Sekiya, M. Katoh, Y. Oda, T. Miyase, M. Kuroyanagi, A. Ueno and S. Fukushima, *Chem. Pharm. Bull.*, 1988, **36**, 244.
175. H. Itokawa, H. Morita, T. Sumitomo, N. Totsuka and K. Takeya, *Planta Med.*, 1987, **53**, 32.
176. H. Matsuda, Y. Pongpiriyadacha, T. Morikawa, M. Ochi and M. Yoshikawa, *Eur. J. Pharmacol.*, 2003, **471**, 59.
177. Y. Ye and B. Li, *J. Gen. Virol.*, 2006, **87**, 2047.
178. C. Latha, V. D. Shriram, S. S. Jahagirdar, P. K. Dhakephalkar and S. R. Rojatkar, *J. Ethnopharmacol.*, 2009, **123**, 522.
179. N. Watanabe, T. Kataoka, T. Tajika, M. Uramoto, J. Magae and K. Nagai, *Biosci., Biotechnol., Biochem.*, 1995, **59**, 1566.
180. P. Niyomkam, S. Kaewbumrung, S. Kaewpparat and P. Panichayupakaranant, *Pharm. Biol.*, 2010, **48**, 375.
181. H. J. Min, J. W. Nam, E. S. Yu, J. H. Hong, E. K. Seo and E. S. Hwang, *Int. Immunopharmacol.*, 2009, **9**, 448.
182. N. Hasima, L. I. L. Aun, M. N. Azmi, A. N. Aziz, E. Thirthagiri, H. Ibrahim and K. Awang, *Phytomedicine*, 2010, **17**, 935.
183. J. C. Hanish Singh, V. Alagarsamy, P. V. Diwan, S. Sathesh Kumar, J. C. Nisha and Y. Narsimha Reddy, *J. Ethnopharmacol.*, 2011, **138**, 85.
184. N. Sukhirun, W. Pluempanupat, V. Bullangpoti and O. Koul, *J. Econ. Entomol.*, 2011, **104**, 1534.
185. H. c. Wang, J. X. Li, H. Li, L. W. Yang, M. H. Gao and H. A. Chen, *Yaoxue Yanjiu*, 2013, **32**, 559.
186. W. Wang, S. Qi, H. Zhong and Q. Yao, *Shipin Yu Yaopin*, 2012, **14**, 88.
187. L. J. An, S. Guan, G. F. Shi, Y. M. Bao, Y. L. Duan and B. Jiang, *Food Chem. Toxicol.*, 2006, **44**, 436.
188. S. Guan, Y. M. Bao, B. Jiang and L. J. An, *Eur. J. Pharmacol.*, 2006, **538**, 73.
189. S. Guan, B. Jiang, Y. M. Bao and L. J. An, *Food Chem. Toxicol.*, 2006, **44**, 1659.
190. G. F. Shi, L. J. An, B. Jiang, S. Guan and Y. M. Bao, *Neurosci. Lett.*, 2006, **403**, 206.
191. Y. M. Liu, B. Jiang, Y. M. Bao and L. J. An, *Toxicol. in Vitro*, 2008, **22**, 430.
192. S. Guan, D. Ge, T.-Q. Liu, X.-H. Ma and Z.-F. Cui, *Toxicol. in Vitro*, 2009, **23**, 201.
193. H. Wang, T. Q. Liu, Y. X. Zhu, S. Guan, X. H. Ma and Z. F. Cui, *Molecular and Cellular Biochemistry*, 2009, **330**, 47.
194. S. Guan, X.-L. Zhang, D. Ge, T.-Q. Liu, X.-H. Ma and Z.-F. Cui, *Eur. J. Pharmacol.*, 2011,

670, 471.

195. X. Zhang, G. F. Shi, X. z. Liu, L. j. An and S. Guan, *Cell Biochem. Funct.*, 2011, **29**, 342.
196. H. M. Zhao, J. J. Xu and S. C. Yang, *Yunnan Nongye Daxue Xuebao*, 2014, **29**, 468.
197. N. An, J. Lin, S. Yang, Z. Zou and L. Xu, *Yaoxue Xuebao*, 2006, **41**, 233.
198. T. Fujita, H. Nishimura, K. Kaburagi and J. Mizutani, *Phytochemistry*, 1994, **36**, 23.
199. P. T. B. Tu and S. Tawata, *Molecules*, 2014, **19**, 16656.
200. M. G. Phan and T. S. Phan, *J. Chem.*, 2004, **42**, 376.
201. X. Wang, X. Yang and J. Li, *Zhongyaocai*, 2008, **31**, 853.
202. L. Di, Z. Wang, Z. Wang, N. Li and K. Wang, *Zhiwu Ziyuan Yu Huanjing Xuebao*, 2011, **20**, 94.
203. S. B. Jaju, N. H. Indurwade, D. M. Sakarkar, N. K. Fuloria, M. D. Ali and S. P. Basu, *Pharmacogn. Res.*, 2010, **2**, 264.
204. L. Zhao, J. Liang and W. Qu, *Chem. Nat. Compd.*, 2012, **48**, 836–838.
205. S. Qi, F. Ji and Q. Yao, *Shipin Yu Yaopin*, 2010, **12**, 39.
206. A. Liu, X. Zhao, H. Li, Z. Liu, B. Liu, X. Mao, L. Guo, K. Bi and Y. Jia, *Int. Immunopharmacol.*, 2014, **23**, 719.