Supporting Information for

Review

The phytochemical, biological, and medicinal attributes of phytoecdysteroids: an updated review

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Table S1 Naturally-occurring new phytoecdysteroids with their sources reported since 1999.

Compd.	Ecdysteroid	Plant	Plant family	Plant partused	Fraction used	Ref.
5	2,22-Dideoxy-20-hydroxyecdysone 25-*O*-*β*-D-glucopyranoside	*Froelichia floridana*	Amaranthaceae	Whole plants	95% Ethanol extract	41
6	2,22-Dideoxyecdysone 25-*O*-*β*-D-glucopyranosyl-(1→2)-*β*-D-glucopyranoside	*Froelichia floridana*	Amaranthaceae	Whole plants	95% Ethanol extract	41
7	2,22-Deoxyecdysone 25-*O*-*β*-D-glucopyranoside	*Froelichia floridana*	Amaranthaceae	Whole plants	95% Ethanol extract	41
8	(5*α*)-2,22-Dideoxyecdysone 25-*O*-*β*-D-glucopyranosyl-(1→2)-*β*-D-glucopyranoside	*Froelichia floridana*	Amaranthaceae	Whole plants	95% Ethanol extract	41
9	2,22-Dideoxy-5*β*-hydroxyecdysone 25-*O*-*β*-D-glucopyranosyl-(1→2)-*β*-D-glucopyranoside	*Froelichia floridana*	Amaranthaceae	Whole plants	95% Ethanol extract	41
10	20,26-Dihydroxy 28-methyl ecdysone	*Chenopodium quinoa*	Amaranthaceae	Seeds	80% Aqueous methanol extract	43
11	20,26-Dihydroxy 24(28)-dehydro ecdysone	*Chenopodium quinoa*	Amaranthaceae	Seeds	80% Aqueous methanol extract	43
12	20-Hydroxyecdysone 22-glycolate	*Chenopodium quinoa*	Amaranthaceae	Seeds	80% Aqueous methanol extract	43
13	Kancollosterone	*Chenopodium quinoa*	Amaranthaceae	Seeds	Methanol extract, *n*-BuOH fraction	42
14	3*β*,14*α*-Dihydroxy-5*β*-pregn-7-ene-2,6,20-trione	*Chenopodium album*	Amaranthaceae	Leaves	Acetone precipitate of the H_2O:MeOH (9:1) extract	44

15	24,25-Dehydroinokosterone	*Chenopodium album* Willd	Amaranthaceae	Seeds	95% Ethanol extract	45
16	25,27-Dehydroinokosterone	*Chenopodium album* Willd	Amaranthaceae	Seeds	95% Ethanol extract	45
17	5*β*-Hydroxy-24(28)-dehydromakisterone A	*Chenopodium album* Willd	Amaranthaceae	Seeds	95% Ethanol extract	45
18	Niuxixinsterone A	*Achyranthes bidentata*	Amaranthaceae	Roots	95% Ethanol extract	46
19	Niuxixinsterone B	*Achyranthes bidentata*	Amaranthaceae	Roots	95% Ethanol extract	46
20	Niuxixinsterone C	*Achyranthes bidentata*	Amaranthaceae	Roots	95% Ethanol extract	46
21	Niuxixinsterone D	*Achyranthes bidentata*	Amaranthaceae	Roots	95% Ethanol extract	47
22	(25*S*)-20,22-*O*-(*R*-Ethylidene) inokosterone	*Achyranthes bidentata*	Amaranthaceae	Roots	95% Ethanol extract	48
23	20,22-*O*-(*R*-3-Methoxycarbonyl) propylidene-20-hydroxyecdysone	*Achyranthes bidentata*	Amaranthaceae	Roots	95% Ethanol extract	48
24	Achyranthesterone A	*Achyranthes bidentata*	Amaranthaceae	Roots	75% Ethanol extract, ethyl acetate fraction	49
25	(20*R*,22*R*)-2*β*,3*β*,20,22,26-pentahydroxy-cholestan-7,12-dien-6-one	*Achyranthes bidentata*	Amaranthaceae	Roots	Methanol extract	50
26	Aervecdysteroid A (20,25-epoxy-2*β*,3*β*,14*α*,22*β*-tetrahydroxy-5b-ecdysteroid)	*Aerva javanica*	Amaranthaceae	Flowers	Methanol extract, ethyl acetate fraction	51
27	Aervecdysteroid B (24,28-dehydro-20,25-epoxy-2*β*,3*β*,14*α*,22*β*-tetrahydroxy-5*β*-ecdysteroid)	*Aerva javanica*	Amaranthaceae	Flowers	Methanol extract, ethyl acetate fraction	51

28	Aervecdysteroid C (1*β*,3*β*,14*α*,20*β*,22*β*,25-hexahydroxy-5*β*-ecdysteroid)	*Aerva javanica*	Amaranthaceae	Flowers	Methanol extract, ethyl acetate fraction	51
29	Aervecdysteroid D (24,28-dehydro-1*β*,3*β*,14*α*,20*β*,22*β*,25-hexahydroxy-5*β*-ecdysteroid)	*Aerva javanica*	Amaranthaceae	Flowers	Methanol extract, ethyl acetate fraction	51
30	2,3-Isopropylidene cyasterone	*Cyathula officinalis* Kuan	Amaranthaceae	Roots	95% Ethanol extract, *n*-BuOH fraction	52
31	24-Hydroxycyasterone	*Cyathula officinalis* Kuan	Amaranthaceae	Roots	95% Ethanol extract, *n*-BuOH fraction	52
32	2,3-Isopropylidene isocyasterone	*Cyathula officinalis* Kuan	Amaranthaceae	Roots	95% Ethanol extract, *n*-BuOH fraction	52
33	Pfaffiaglycosides C	*Pfaffia glomerata*	Amaranthaceae	Roots	Methanol extract	53
34	Pfaffiaglycosides D	*Pfaffia glomerata*	Amaranthaceae	Roots	Methanol extract	53
35	Pfaffiaglycosides E	*Pfaffia glomerata*	Amaranthaceae	Roots	Methanol extract	53
36	(20*R*)-22-Deoxy-20,21-dihydroxyecdysone	*Rhagodia baccata* (Labill.) Moq.	Amaranthaceae	Seeds	Methanol extract	54
37	Septanoecdysone	*Atriplex portulacoides* L.	Amaranthaceae	Roots	MeOH:H_2O (1:1) extract, *n*-BuOHfractionation	55
38	Inokosterone 20,22-acetonide	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1)extact, *n*-BuOH fractionation	56

39	Integristerone A-20,22-acetonide	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1) extact, *n*-BuOH fractionation	56
40	15-Hydroxyponasterone A	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1) extact, *n*-BuOH fractionation	56
41	14-*epi*-Ponasterone A 22-*O*-*β*-D-glucopyranoside	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1) extact, *n*-BuOH fractionation	56
42	Carthamoleusterone	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1) extact, *n*-BuOH fractionation	56
43	22-Deoxy-28-hydroxymakisterone C	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1) extact, *n*-BuOH fractionation	56
44	26-Hydroxymakisterone C	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1) extact, *n*-BuOH fractionation	56
45	1*β*-Hydroxymakisterone C	*Leuzea carthamoides*	Asteraceae	Roots	MeOH:H_2O (1:1) extact, *n*-BuOH fractionation	56
46	Lesterone	*Leuzea carthamoides*	Asteraceae	Seeds	*n*-BuOH fraction of methanolic extract	57
47	Leuzeasterone	*Leuzea carthamoides* (Willd.) DC	Asteraceae	Roots	Liquid–liquid extractions	58
48	(24*Z*)-29-Hydroxy-24(28)-dehydromakisterone C	*Leuzea carthamoides* (Willd.) DC	Asteraceae	Roots	Liquid–liquid extractions	58
49	Coronatasterone (2-deoxy-3-*epi*-4*β* 20-dihydroxyecdysone)	*Serratula coronate*	Asteraceae	Aerial parts	Ethyl acetate extract	59
50	20-Hydroxyecdysone-2-*O*-*β*-D-galactopyranoside	*Serratula chinensis*	Asteraceae	Roots	95% Ethanol extract, *n*-BuOH fraction	60

51	3-*O*-Acetyl-20-hydroxyecdysone-2-*O*-*β*-D-galactopyranoside	*Serratula chinensis*	Asteraceae	Roots	95% Ethanol extract, *n*-BuOH fraction	60
52	3-*O*-Acetyl-20-hydroxyecdysone-2-*O*-*β*-D-glucopyranoside	*Serratula chinensis*	Asteraceae	Roots	95% Ethanol extract, *n*-BuOH fraction	60
53	24-*O*-Acetyl-*epi*-abutasterone	*Serratula chinensis*	Asteraceae	Roots	95% Ethanol extract, *n*-BuOH fraction	60
54	20-Hydroxyecdysone-20,22-butylidene acetal	*Serratula chinensis*	Asteraceae	Roots		61
55	Rhapontisterone R1	*Rhaponticum uniflorum*	Asteraceae	Roots	70% Ethanol extract	62
56	Turkesterone-2-*O*-cinnamate	*Rhaponticum uniflorum*	Asteraceae	Leaves	Acetone fraction	63
57	Makisterone C-20,22-acetonide	*Rhaponticum uniflorum*	Asteraceae	Flowers	70% EtOH extract, acetone fraction	64
58	Ajugasterone C-2,3,20,22-diacetonide	*Rhaponticum uniflorum*	Asteraceae	Roots		65
59	5-Deoxykaladasterone-20,22-monoacetonide	*Rhaponticum uniflorum*	Asteraceae	Roots		65
60	Uniflorsterone	*Rhaponticum uniflorum*	Asteraceae	Roots		66

61	Rapisterone D 20-acetate	*Leuzea carthamoides*	Asteraceae	Seeds	Methanol extract	57
62	22-*epi*-Ajugasterone C	*Serratula cichoracea*	Asteraceae	Flowers	EtOAc fraction of 70% aqueous ethanol extract	68
63	Ajugasterone 11-acetate	*Serratula coronata* L.	Asteraceae	Whole parts	Ethyl acetate fraction	69
64	3-*epi*-20-Hydroxyecdysone	*Serratula coronata* L.	Asteraceae	Aerial parts	Ethyl acetate fraction	70
65	Ecdysone 22-acetate	*Serratula coronata* L.	Asteraceae	Aerial parts, fresh leaves, juice	Ethyl acetate fraction	71
66	(25*S*)-Inokosterone26-acetate	*Serratula coronata* L.	Asteraceae	Aerial parts, fresh leaves, juice	Ethyl acetate fraction	71
67	20,22-*O*-(*R*-ethylidene)-20-hydroxyecdysone	*Serratula coronata* L.	Asteraceae	Aerial parts, fresh leaves, juice	Ethyl acetate fraction	71
68	20,22-*O*-(*R*-ethylidene)-Ajugasterone C	*Serratula coronata* L.	Asteraceae	Aerial parts, fresh leaves, juice	Ethyl acetate fraction	71
69	25,26-Didehydroponasterone A	*Klaseopsis chinensis*	Asteraceae	Roots	95% Ethanol extract	72
70	Stachysterone C	*Klaseopsis chinensis*	Asteraceae	Roots	95% Ethanol extract	72
71	11α-Hydroxypoststerone	*Serratula wolffii*	Asteraceae	Aerial parts	Methanol extract	73
72	Herkesterone (5β,25-dihydroxydacryhainansterone)	*Serratula wolffii*	Asteraceae	Aerial parts	Methanol extract	73

73	25-Hydroxydacryhainansterone	*Serratula wolffii*	Asteraceae	Aerial parts	Methanol extract	74
74	14-*epi*-20-Hydroxyecdysone	*Serratula wolffii*	Asteraceae	Aerial parts	Methanol extract	74
75	2*β*,3*β*,20*R*,22*R*,25-Pentahydroxy-5*β*-cholest-6,8(14)-dien	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	75
76	24-Methylene-shidasterone	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	75
77	14*α*,15*α*-Epoxy-14,15-dihydrostachysterone B	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	75
78	20,22-Didehydro taxisterone	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	76
79	1-Hydroxy-20,22-didehydrotaxisterone	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	76
80	Serfurosterone A	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	77
81	Serfurosterone B	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	77
82	14,15*α*-Epoxy-(20*R*,22*R*)-2*β*,3*β*,20,22,25-pentahydroxy-5*β*-cholesta-7-en-6-one	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	78
83	(20*R*,22*R*)-2*β*,3*α*,20,22,25-Pentahydroxy-5*β*-cholesta-7-en-6-one	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	78
84	22-Methylene-2*β*,3*β*,11*α*, 14*α*,25-pentahydroxy-5*β*-cholesta-7-en-6-one	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	78
85	2*β*,3*β*,14*α*,25-Tetrahydroxy-5*β*-cholesta-7,20(22)-dien-6-one	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	78

86	1*β*,2*β*,3*β*,14*α*,25-Pentahydroxy-5*β*-cholesta-7,20(22)-dien-6-one	*Serratula wolffii*	Asteraceae	Roots	Methanol extract	78
87	(24*R*)-24-(2-Hydroxyethyl)-20-hydroxy ecdysone	*Serratula strangulate*	Asteraceae	Whole plant	Alcohol extract	79
88	Brainesteroside A	*Brainea insignis*	Blechnaceae	Rhizomes	95% Ethanolic extract of EtOAc-and *n*-BuOH-soluble fractions	80
89	Brainesteroside B	*Brainea insignis*	Blechnaceae	Rhizomes	95% Ethanolic extract of EtOAc-and *n*-BuOH-soluble fractions	80
90	Brainesteroside C	*Brainea insignis*	Blechnaceae	Rhizomes	95% Ethanolic extract of EtOAc-and *n*-BuOH-soluble fractions	80
91	Brainesteroside D	*Brainea insignis*	Blechnaceae	Rhizomes	95% Ethanolic extract of EtOAc-and *n*-BuOH-soluble fractions	80
92	Brainesteroside E	*Brainea insignis*	Blechnaceae	Rhizomes	95% Ethanolic extract of EtOAc-and *n*-BuOH-soluble fractions	80
93	Integristerone A 25-acetate	*Silene brahuica*	Caryophyllaceae	Roots	Methanol extract	81
94	Japonicone (22,25-epoxy-24-methylene-2,3,14,20-tetrahydroxycholest-7-en-6-one)	*Sagina japonica*	Caryophyllaceae	Whole plants	95% Ethanol extract	82
95	2-Dehydroxyecdysterone-3-*O*-benzoate	*Silene wallichiana*	Caryophyllaceae	Roots	Ethanol extract	83
96	2 Deoxyecdysterone-25-acetate	*Silene wallichiana*	Caryophyllaceae	Roots	Ethanol extract	84

97	5α-2-Deoxy-20-hydroxyecdysone 20,22-acetonide	*Silene viridiflora*	Caryophyllaceae	Whole plants	Methanol extract	85
98	Makisterone C 2,3;20,22-diacetonide	*Silene viridiflora*	Caryophyllaceae	Whole plants	Methanol extract	85
99	(11α)-11-Hydroxyshidasterone	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol and purified by precipitation with acetone	86
100	(2β,3β,5β,14β,22*R*)-2,3,20,22,25-Pentahydroxycholest-7-en-6-one	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol and purified by precipitation with acetone	86
101	(2β,3α,5β,14α,22*R*)-2,3,20,22,25-pentahydroxycholest-7-en-6-one	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol and purified by precipitation with acetone	86
102	22-Dehydro-20-deoxy ajugasterone C	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol and purified by precipitation with acetone	87
103	1-Hydroxy-22-deoxy-20,21-didehydro ecdysone	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol and purified by precipitation with acetone	87
104	22-Deoxy-20,21-didehydro ecdysone	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol and purified by precipitation with acetone	87
105	Ponasterone A-22-apioside	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol extract	88
106	3-*epi*-Shidasterone	*Serratula wolffii*	Caryophyllaceae	Roots	Methanol extract	88
107	26-Hydroxyintegristerone A	*Silene frivaldszkyana*	Caryophyllaceae	Aerial parts	70% Aqueous ethanol extract	89
108	2-Deoxy-20-hydroxyecdysone 25-glucoside	*Silene gigantea*	Caryophyllaceae	Aerial parts	70% Aqueous ethanol extract	89

109	2-Deoxy-5,20,26-trihydroxy ecdysone	*Silene viridiflora*	Caryophyllaceae	Aerial parts	Methanol and purified by precipitation with acetone	92
110	5,20,26-Trihydroxyecdysone 20,22-acetonide	*Silene viridiflora*	Caryophyllaceae	Aerial parts	Methanol and purified by precipitation with acetone	92
111	2-Deoxy-5,20,26-trihydroxyecdysone 20,22-acetonide	*Silene viridiflora*	Caryophyllaceae	Aerial parts	Methanol and purified by precipitation with acetone	92
112	20,26-Dihydroxyecdysone 20,22-acetonide	*Silene viridiflora*	Caryophyllaceae	Aerial parts	Methanol and purified by precipitation with acetone	92
113	20-Hydroxyecdysone 20,22-monoacetonide-25-acetate	*Silene viridiflora*	Caryophyllaceae	Aerial parts	*n*-BuOH extract	90
114	2,22-Diacetate-20,26-dihydroxyecdyson e	*Silene viridiflora*	Caryophyllaceae	Aerial parts	Methanol extract, ethyl acetate fraction	91
115	3,22-Diacetate-20,26-dihydroxyecdyson e	*Silene viridiflora*	Caryophyllaceae	Aerial parts	Methanol extract, ethyl acetate fraction	91
116	Sileneoside H/22-*O*-α-D-galactosylintegristerone A 25-acetate	*Silene brahuica*	Caryophyllaceae	Roots	Methanol extract	93
117	9α,20-Dihydroxyecdysone	*Silene italic* ssp. nemoralis	Caryophyllaceae	Aerial parts	Methanol extract	94
118	9β,20-Dihydroxyecdysone	*Silene italic* ssp. nemoralis	Caryophyllaceae	Aerial parts	Methanol extract	95

119	3-*O*-*β*-D-Glucopyranosyl-3*β*,25-dihydroxy-5*β*-cholest-7-en-6-one-25-*O*-*β*-D-glucopyranoside	*Silene montbretiana*	Caryophyllaceae	Whole plant	Methanol extract, *n*-BuOH fraction	96
120	2,3-Diacetate-22-benzoate-20-hydroxyecdysone	*Silene guntensis* B. Fedtsch	Caryophyllaceae	Aerial parts	Methanol extract, *n*-BuOH fraction	97
121	2-Deoxyecdysone 22*β*-D-glucoside	*Silene pseudotites*	Caryophyllaceae	Aerial parts	Methanol extract	98
122	2-Deoxy-20,26-dihydroxyecdysone	*Silene pseudotites*	Caryophyllaceae	Aerial parts	Methanol extract	98
123	2-Deoxypolypodine B 3*β*-D-glucoside	*Silene pseudotites*	Caryophyllaceae	Aerial parts	Methanol extract	98
124	2-Deoxy-21-hydroxyecdysone	*Silene otites*	Caryophyllaceae	Aerial parts	Methanol extract	99
125	5*α*-2-Deoxy-21-hydroxyecdysone	*Silene otites*	Caryophyllaceae	Aerial parts	Methanol extract	99
126	3*α*,14*α*,22*R*,25-Tetrahydroxy-5*β*(H)-cholest-7-en-6-one	*Acanthophyllum gypsophiloides*	Caryophyllaceae	Arerial parts	70% Aqueous ethanol extract	100
127	2,22-Dideoxy-20-hydroxyecdysone 3*β*-*O*-*β*-D-glucopyranoside	*Cucubalus baccifer*	Caryophyllaceae	Whole herbs	95% ethanol extract	101
128	2-Deoxy-20-hydroxyecdysone-22-*O*-*β*-D-glucopyranoside	*Silene italica ssp. nemoralis*	Caryophyllaceae	Whole herbs	Methanol extract	102
129	22-Dehydroecdysone	*Nomuraea rileyi* (Fungus)	Clavicipitaceae			103
130	11*α*-Hydroxyrubrosterone	*Cyanotis arachnoidea*	Commelinaceae	Whole plants	70% Ethanol extract	104

131	Dacryhainansterone	*Cyanotis arachnoidea*	Commelinaceae	Roots	Methanol extract	105
132	Calonysterone	*Cyanotis arachnoidea*	Commelinaceae	Roots	Methanol extract	105
133	Cyanosterone A	*Cyanotis arachnoidea*	Commelinaceae	Whole plant	Hot 70% EtOH; fractionation petroleum ether, EtOAc and*n*-BuOH	106
134	Cyanosterone B	*Cyanotis arachnoidea*	Commelinaceae			107
135	22-oxo-Ajugasterone C	*Cyanotis arachnoidea*	Commelinaceae			108
136	22-oxo-20-Hydroxyecdysone	*Cyanotis arachnoidea*	Commelinaceae			108
137	Ajugasterone C 2-acetate	*Cyanotis arachnoidea*	Commelinaceae	Whole plant	Methanol extract	109
138	Shidasterone 3-acetate	*Cyanotis arachnoidea*	Commelinaceae	Whole plant	Methanol extract	109
139	3*β*,4*α*,14*α*,20*R*,22*R*,25-Hexahydroxy-5*α*-cholest-7-en-6-one	*Cyanotis arachnoidea* C. B. Clarke	Commelinaceae			110
140	5*β*-Hydroxypoststerone	*Cyanotis longifolia*	Commelinaceae	Roots	Absolute ethanol extract	111
141	14,15-Dehydro-poststerone 2-acetate	*Cyanotis longifolia*	Commelinaceae	Roots	Absolute ethanol extract	111
142	Poststerone 2-acetate	*Cyanotis longifolia*	Commelinaceae	Roots	Absolute ethanol extract	111
143	24-*epi*-Atrotosterone A	*Cyanotis longifolia*	Commelinaceae	Roots	Absolute ethanol extract	111
144	Ajugasterone C 3-acetate	*Cyanotis longifolia*	Commelinaceae	Roots	Absolute ethanol extract	111
145	Callecdysterol A [2*β*,3*β*,11*α*,14*α*,17*β*-pentahydroxy-5*α*-a	*Callisia fragrans*	Commelinaceae,	Stems	MeOH extract, H_2O fraction	112

	ndrost-7(8)-en-6-one]					
146	Callecdysterol B [2*β*,3*β*,5*β*,11*α*,14*α*,17*β*-hexahydroxy-5*α*-androst-7(8)-en-6-one]	*Callisia f ragrans*	Commelinaceae,	Stems	MeOH extract, H_2O fraction	112
147	Callecdysterol C [2*β*,3*β*,14*α*,17*β*-tetrahydroxy-5*α*-androst-7(8),9(11)-dien-6-one]	*Callisia fragrans*	Commelinaceae,	Stems	MeOH extract, H_2O fraction	112
148	(20R)-5*β*-11*α*,20-Trihydroxyecdysone	*Dioscorea dumetorum*	Dioscoreaceae	Rhizomes	MeOH:H_2O (7:3) extract	113
149	(22*R*,24*R*,25*S*,26*S*)-2*β*,3*β*,14*α*,20*R*-Tetrahydroxy-26*α*-methoxy-6-oxo-stigmast-7-ene-22,26-lactone	*Diplopterygium rufopilosum*	Gleicheniaceae	Fronds	95% Ethanol extract	114
150	(22*R*,24*R*,25*S*)-2*β*,3*β*,14*α*,20*R*,26*S*-Pentahydroxy-6-oxo-stigmast-7-ene-22,26-lactone	*Diplopterygium rufopilosum*	Gleicheniaceae	Fronds	95% Ethanol extract	114
151	(22*R*,25*S*)-2*β*,3*β*,14*α*,20*R*,24*S*-Pentahydroxy-6,26-dioxo-stigmast-7-ene-22,26-lactone	*Diplopterygium rufopilosum*	Gleicheniaceae	Fronds	95% Ethanol extract	114
152	28-*epi*-Cyasterone	*Eriophyton wallchii*	Lamiaceae	Whole herb	95% Ethanol extract	115
153	Ajugalide-E	*Ajuga taiwanensis*	Lamiaceae	Whole plants	Methanolic extract	116
154	Breviflorasterone	*Ajuga macrosperma* var. *breviflora*	Lamiaceae	Roots	Methanol extract	117
155	Ajugacetalsterone C	*Ajuga macrosperma* var. *breviflora*	Lamiaceae	Roots	Methanol extract	117

156	Ajugacetalsterone D	*Ajuga macrosperma* var. *breviflora*	Lamiaceae	Roots	Methanol extract	117
157	Decumbesterone A	*Ajuga decumbens*	Lamiaceae	Whole plants	Methanol extract	118
158	Ajugacetalsterone E	*Ajuga decumbens*	Lamiaceae	Whole plants	85% Ethanol extract	119
159	22-Dehydrocyasterone-2-glucoside	*Ajuga nipponensis*	Lamiaceae	Aerial parts	Methanol extract	120
160	Ajugacetalsterone A	*Ajuga nipponensis* *Ajuga forrestii* Diels	Lamiaceae Labiatae	Aerial parts Whole plants	Methanol extract Aqueous extract	119,120,170
161	Ajugacetalsterone B	*Ajuga nipponensis*	Lamiaceae	Aerial parts	Methanol extract	120
162	25-Hydroxy-atrotosterone A	*Ajuga turkestanica*	Lamiaceae	Roots	Methanol extract, *n*-BuOH fraction	121
163	11-Hydroxy-cyasterone	*Ajuga turkestanica*	Lamiaceae	Roots	Methanol extract, *n*-BuOH fraction	121
164	11-Hydroxy-sidisterone	*Ajuga turkestanica*	Lamiaceae	Roots	Methanol extract, *n*-BuOH fraction	121
165	Turkesterone 22-acetate	*Ajuga turkestanica*	Lamiaceae	Roots	Methanol extract, *n*-BuOH fraction	121
166	22-oxo-Turkesterone	*Ajuga turkestanica*	Lamiaceae	Roots	Methanol extract, *n*-BuOH fraction	121
167	11-Hydroxy-Δ24-capitasterone	*Ajuga turkestanica*	Lamiaceae	Roots	Methanol extract, *n*-BuOH fraction	121

168	Turkesterone 20,22-acetonide	*Ajuga turkestanica*	Lamiaceae	Roots	Methanol extract, *n*-BuOH fraction	121
169	Reptanslactone A	*Ajuga reptans* var. *reptans*	Lamiaceae	Herb	Methanol extract	122
170	Reptanslactone B	*Ajuga reptans* var. *reptans*	Lamiaceae	Herb	Methanol extract	122
171	Sendreisterone	*Ajuga reptans* var. *reptans*	Lamiaceae	Herb	Methanol extract	122
172	21-Hydroxyshidasterone	*Vitex doniana*	Lamiaceae	Stem bark	Methanol extract	123
173	11*β*-Hydroxy-20-deoxyshidasterone	*Vitex doniana*	Lamiaceae	Stem bark	Methanol extract	123
174	2,3-Acetonide-24-hydroxyecdysone	*Vitex doniana*	Lamiaceae	Stem bark	Methanol extract	123
175	24-*epi*-Pinnatasterone	*Vitex scabra*	Lamiaceae	Stem bark	Methanol extract, *n*-BuOH fractions	124
176	Scabrasterone	*Vitex scabra*	Lamiaceae	Stem bark	Methanol extract, *n*-BuOH fractions	124
177	26-Hydroxypinnatasterone	*Vitex cymosa*	Lamiaceae	Stem barks	Ethanol extract, CH2Cl2 fraction	125
178	(24*R*)-11*α*,20,24-Trihydroxyecdysone	*Vitex canescens*	Lamiaceae	Root barks	Ethanol extract, *n*-BuOH fraction	126
179	11*α*,20,26-Trihydroxyecdysone	*Vitex canescens*	Lamiaceae	Root barks	Ethanol extract, *n*-BuOH fraction	126
180	24-Methylshidasterone	*Vitex canescens*	Lamiaceae	Stem barks	*n*-Hexane extract, methanol extract	127

181	Stachysterone A-20,22-acetonide	*Asparagus filicinus* Buch.-Ham.	Liliaceae	Roots	95% Ethanol extract, chloroform fraction	128
182	Limnantheoside C (20-Hydroxyecdysone 3-*O*-*β*-D-glucopyranosyl-[l→3]-*β*-D-xyl opyranoside)	*Limnanthes alba* Hartw.	Limnanthaceae	Seeds	Methanol extract	129
183	Lygodiumsteroside A	*Lygodium japonicum* (Thunb.) Sw.	Lygodiaceae	Roots	70% Ethanol extract, methanol fraction	130
184	25-Acetoxy-20-hydroxyecdysone-3-*O*-*β*-D-glucopyranoside	*Sida rhombifolia*	Malvaceae	Whole plants	Methanol extract	131
185	Pterosterone-3-*O*-*β*-D-glucopyranoside	*Sida rhombifolia*	Malvaceae	Whole plants	Methanol extract	131
186	Ecdysone-3-*O*-*β*-D-glucopyranoside	*Sida rhombifolia*	Malvaceae	Whole plants	Methanol extract	131
187	20-Hydroxy-24-hydroxymethyl ecdysone	*Sida spinosa*	Malvaceae	Aerial parts	Methanol extract	132
188	Glutinosterone	*Sida glutinosa*	Malvaceae	Aerial parts	Methanol extract	133
189	Sphenocentroside A	*Sphenocentrum jollyanum*	Menispermaceae	Roots	70% Methanol extract, ethyl acetate fraction	134
190	Sphenocentroside B	*Sphenocentrum jollyanum*	Menispermaceae	Roots	70% Methanol extract, ethyl acetate fraction	134
191	Cycleasterone A	*Cyclea barbata* Miers	Menispermaceae	Stems	95% Ethanol extract, CH_2Cl_2 fraction	135
192	3-Deoxy-1*β*,20-dihydroxyecdysone	*Diploclisia glaucescens*	Menispermaceae	Leaves	Methanol extract	137

193	2-Deoxy-5*β*,20-dihydroxyecdysone	*Diploclisia glaucescens*	Menispermaceae	Fruits	Ethyl acetate extract	138
194	Diploclidine	*Diploclisia glaucescens*	Menispermaceae	Leaves	Methanol extract	136
195	Fibraurecdyside A	*Fibraurea tinctoria* Lour.	Menispermaceae	Whole plant	Methanol extract, *n*-BuOH fraction	139
196	5-Hydroxyecdysone	*Polypodium vulgare*	Polypodiaceae	Rhizomes	Methanol extract	140
197	20-Deoxyshidasterone	*Polypodium vulgare*	Polypodiaceae	Rhizomes	Methanol extract	140
198	Polypodine B 2-*β*-D-glucoside	*Polypodium vulgare*	Polypodiaceae	Rhizomes	Methanol extract	140
199	20-Deoxymakisterone A	*Microsorum scolopendria*	Polypodiaceae	Fronds	Ethanol extract	141
200	25-Epimer of AmarasteroneA	*Microsorum scolopendria*	Polypodiaceae	Fronds	Ethanol extract	141
201	25-Deoxyecdysone 22-*β*-D-glucoside	*Microsorum scolopendria*	Polypodiaceae	Fronds	Ethanol extract	141
202	*E*-2-Deoxy-20-hydroxyecdysone 3-[4-(1-*β*-D-glucopyranosyl)]-caffeate	*Microsorum membranifolium*	Polypodiaceae	Milled fronds	Ethanol extract	142
203	2-Deoxyecdysone 3-[4-(1-*β*-D glucopyranosyl)]-ferulate	*Microsorum membranifolium*	Polypodiaceae	Fronds	Ethanol extract	143
204	2-Deoxyecdysone 25-*α*-L-rhamnopyranoside	*Microsorum membranifolium*	Polypodiaceae	Fronds	Ethanol extract	143
205	Ponasteroside B	*Lepidogrammitis drymoglossoides*	Polypodiaceae	Whole plants	75% Ethanol extract, *n*-BuOH fraction.	144

206	(20*S*,20*R*,24*R*)-16,22-Epoxy-3*β*,14*α*,23*β*,25-tetrahydroxyergost-7-en-6-one	*Polyporus umbellatus*	Polyporaceae	Sclerotia	95% Ethanol extract, CH_2Cl_2 fraction	145
207	(23*R*,24*R*,25*R*)-23,26-Epoxy-3*β*,14*α*,20*α*,22*α*-tetrahydroxyergost-7-en-6-one	*Polyporus umbellatus*	Polyporaceae	Sclerotia	95% Ethanol extract, CH_2Cl_2 fraction	145
208	Polyporoid A	*Polyporus umbellatus*	Polyporaceae	Sclerotium	Methanol extract, ethyl acetate fraction	146
209	Polyporoid B	*Polyporus umbellatus*	Polyporaceae	Sclerotium	Methanol extract, ethyl acetate fraction	146
210	Polyporoid C	*Polyporus umbellatus*	Polyporaceae	Sclerotium	Methanol extract, ethyl acetate fraction	146
211	Alfredensterol	*Laurencia alfredensis* (red Algae)	Rhodomelaceae	Fresh alga	Methanol extract	147
212	3-Deacetoxy alfredensterol	*Laurencia alfredensis* (red Algae)	Rhodomelaceae	Fresh alga	Methanol extract	147
213	14*α*-Hydroxy alfredensterol	*Laurencia alfredensis* (red Algae)	Rhodomelaceae	Fresh alga	Methanol extract	147
214	7,8*β*-Dihydroponasterone A	*Taxus cuspidate*	Taxaceae	Needles	Methanol extract	148
215	Ponasterone A 20,22-*p*-hydroxybenzylidene acetal	*Taxus canadensis* Marsh	Taxaceae	Needles	Methanol extract	149
216	Ponasterone A 20,22-acetonide	*Taxus canadensis* Marsh	Taxaceae	Needles	Methanol extract	149

n-BuOH, normal butanol; EtOAC, ethyl acetate; CH_2Cl_2, dichloromethane.