Journal of Natural Products
Vol. 53, No. 5, pp. 1055-1147, Sep-Oct 1990

IRIDOIDS. AN UPDATED REVIEW. PART I.

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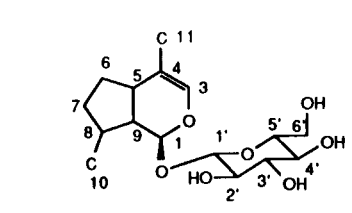
ABSTRACT.—Iridoid structures published for the first time during 1980–1989 are listed with available physical and spectral data: mp, $[\alpha]D$, uv, ^1H nmr, ^{13}C nmr. Also included are revisions of iridoid structures originally published prior to 1980. The compounds are indexed alphabetically and by molecular weight, and a plant source index is also included.

This review is mainly a compilation of new iridoids reported in the literature since the El-Naggar and Beal review of 1980 (1) through December 1989 (Table 1). The large number of new structures necessitated division into two parts for publication. Seco-iridoids, valeriana iridoids, plumeria-type iridoids, and other miscellaneous iridoid-like structures will be published separately. This work does not include the separately recognized classes of bis-iridoid-alkaloids or pyridine monoterpene alkaloids. A few semisynthetic iridoids were included.

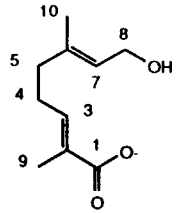
The main anticipated use of this review is for the rapid identification of isolated iridoids by ^1H- and ^{13}C-nmr spectroscopy. It is intended to be a comprehensive list of iridoid glycoside and aglycone structures for the time period indicated but does not include references to all isolations of a particular compound from all plant sources. Because of this, it can be viewed only as a starting point for biosystematic purposes. Spectral data from first reports of a compound were not always included if later reports gave more detailed assignments, although the original references are given. When multiple papers reported nmr spectral data for a single compound, the higher resolution data obtained in D_2O or CD_3OD were usually used. Compounds reported in the earlier review (1) have been included only when the structures (including stereochemistry) were revised or when significantly better spectral data (^1H and ^{13}C nmr) were reported. Papers detailing ^{13}C-nmr data of several previously reported compounds have been published (2–6); these compounds were generally not included here.

No judgments were made concerning the interpretation of data in assigning structures nor in the consideration of any compounds as artifacts as opposed to legitimate natural products. Suspected errors in assignments were not corrected unless there was some ambiguity in the numbering of a particular compound. The names given to a compound by the authors of a paper were not corrected (although alternate names from other sources were reported along with the names from the referenced papers).

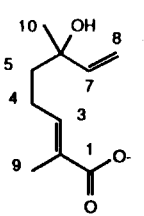
Structures are arranged in a fashion similar to that of the El-Naggar and Beal review (1). Group 1 contains iridoids with an eight-carbon skeleton; Group 2 contains iridoids with a nine-carbon skeleton and is further divided into subsets depending on whether the ninth carbon is attached to C-4 (Group 2a) or C-8 (Group 2b); Group 3 contains iridoids with ten-carbon skeletons; Group 4 consists of iridoid aglycones; and Group 5 contains bis-iridoids and bis-iridoid aglycones. The oxidation state of C-10 and C-11 (Figure 1) guides the arrangement of compounds in all groups except Group 5, which is ordered by increasing molecular weight. In Group 3, for example, a compound with a C-11 Me and a C-10 Me precedes one with a C-11 Me and a C-10 CH_2OH, which precedes a compound with a C-11 CH_2OH and a C-10 Me. The available data were listed in the following order: name; molecular formula; molecular weight; melting point (°C); optical rotation (solvent); uv (λ max, nm); ^1H-nmr (spectrometer frequency, solvent) chemical shifts (in ppm, starting with H-1 and listed in order) with assignments, multiplicities, and coupling constants in Hz; ^{13}C-nmr (solvent) chemical shifts (in ppm,



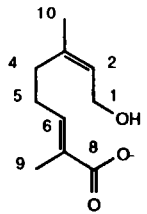
iridoid-β-D-glucoside skeleton



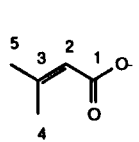
foliamenthoyl



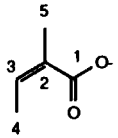
menthiafoloyl



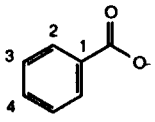
nerol-8-oyl



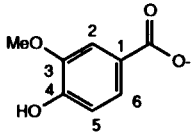
senecioyl



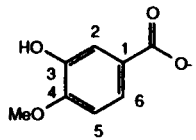
angeloyl



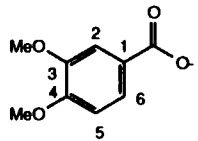
benzoyl



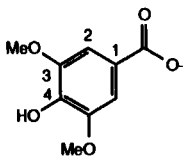
vanilloyl



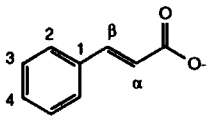
isovanilloyl



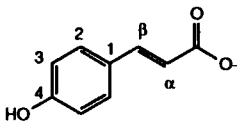
veratroyl



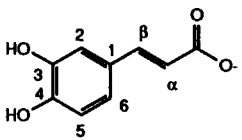
syringyl



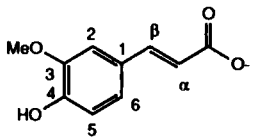
cinnamoyl



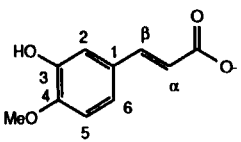
coumaroyl



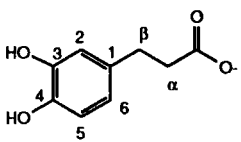
caffeoyl



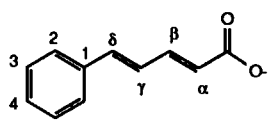
feruloyl



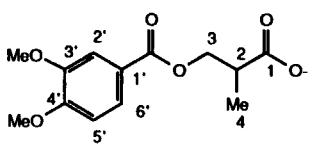
isoferuloyl



dihydrocaffeoyl



5-phenyl-2,4-pentadienoyl



2-methyl-3-veratroyloxypropanoyl

FIGURE 1. Numbering of some common substituents.

starting with C-1 and listed in order) with assignments; plant source (family); reference(s). Assignments with the same superscript may be interchanged. Space considerations required the omission of ir and ms data, but that does not necessarily mean that these data were not reported in the referenced paper. Data for derivatives were not usually listed unless the derivative, rather than the free iridoid, was isolated.

Numbering of the iridoid skeleton and of the most common functionalities is given in Figure 1. The sugar on the C-1 carbon of the aglycone portion is given the single prime (′) designation, while additional substituents are designated as double prime (″), triple prime (‴), etc. according to their substitution position on the main iridoid skeleton, except in cases of substituents on other substituents. For example, the sugar portion of a *p*-*O*-glucosylcinnamate group would be designated as triple prime if the cinnamate bore the double prime designation. For bis-iridoids, the separate parts are designated as a and b, then numbered as above. Cinnamoyl, coumaroyl, etc. groups are in the trans configuration unless otherwise indicated.

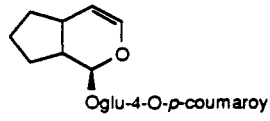
Three indices are included: compounds listed alphabetically (Table 2), compounds listed by molecular formula (Table 3), and plant sources listed alphabetically (Table 4).

Exhaustive (and exhausting) manual and computer-aided literature searches were employed, but this review should not be used as the only source when determining the novelty of a compound or isolation source.

TABLE 1. New Iridoids

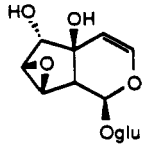
Group 1 (8-carbon skeleton)

1. UNDULATIN (4′-*O*-*p*-Coumaroyl-7,8-dihydro-8-dehydroxymethyl-bartsioside)



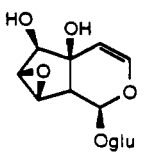
$C_{23}H_{28}O_9$ 466.48 mp 227–228° [α] −177.7° (MeOH) uv 315, 230 (MeOH) (100 MHz CD_3OD) 5.71 (H-1, d, 0.5), 6.38 (H-3, dd, 6.5, 1), 5.16 (H-4, dd, 6.5), 2.95 (H-5, bm), 2.52–2.3 (H-6), 2.3–2.1 (H-7), 1.6–1.8 (H-8), 3.2 (H-9, bm), 4.96 (H-1′, d, 7.5), 6.36/7.7 (Hα, Hβ, d's, 16), 7.5 (H-2″, d, 9), 6.85 (H-3″, d, 9). *Tecomella undulata* (Bignoniaceae) (7)

2. 6-*epi*-STILBERICOSIDE



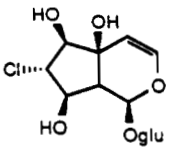
$C_{14}H_{20}O_{10}$ 348.31 [α] −67° (EtOH) (500 MHz D_2O) 5.25 (H-1, d, 9.6), 6.59 (H-3, d, 6.2), 4.96 (H-4, d, 6.2), 4.08 (H-6, s), 3.69 (H-7, d, 1.7), 3.88 (H-8, d, 1.7), 2.48 (H-9, d, 9.6), 4.85 (H-1′, d, 8.1); (D_2O) 97.1 (C-1), 144.9 (C-3), 104.3 (C-4), 79.8 (C-5), 77.1 (C-6), 58.8 (C-7)[a], 59.3 (C-8)[a], 49.9 (C-9), 100.1 (C-1′), 73.6 (C-2′), 76.7 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′). *Thunbergia alata* (Acanthaceae) (8)

3. STILBERICOSIDE



$C_{14}H_{20}O_{10}$ 348.31 mp 144–146° (hexaacetate) [α] −61.5° (H_2O) (500 MHz D_2O) 5.33 (H-1, d, 8.2), 6.48 (H-3, d, 6.2), 5.04 (H-4, d, 6.2), 4.23 (H-6, d, 1.7), 3.75 (H-7, m), 3.79 (H-8, d, 2.5), 2.58 (H-9, d, 8.2), 4.83 (H-1′, d, 8.0); (D_2O) 96.5 (C-1), 143.1 (C-3), 107.4 (C-4), 73.4 (C-5), 77.9 (C-6), 59.4 (C-7)[a], 56.3 (C-8)[a], 49.7 (C-9), 99.9 (C-1′), 73.5 (C-2′), 76.6 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′). *Stilbe* (Verbenaceae), *Thunbergia* (Acanthaceae) (8,9)

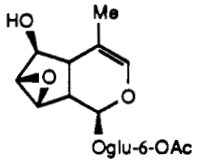
4. THUNBERGIOSIDE



$C_{14}H_{21}ClO_{10}$ 384.77 (500 MHz D_2O) 5.54 (H-1, d, 3.5), 6.40 (H-3, d, 6.5), 5.19 (H-4, dd, 6.5, 0.5), 3.82 (H-6, d, 8.5), 3.97 (H-7, t, 8.5), 3.84 (H-8, t, 9), 2.35 (H-9, ddd, 9, 3.5, 0.5), 4.78 (H-1′, d, 8.0); (D_2O) 94.4 (C-1), 141.4 (C-3), 109.0 (C-4), 68.3 (C-5), 81.5 (C-6), 67.4 (C-7), 74.0 (C-8), 53.8 (C-9), 99.3 (C-1′), 73.3 (C-2′), 76.2 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.5 (C-6′). *Thunbergia fragrans* (Acanthaceae) (8)

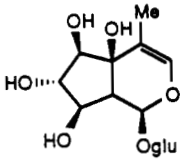
Group 2a (9-carbon skeleton; ninth carbon on C-4)

5. 6′-*O*-ACETYLDEUTZIOSIDE



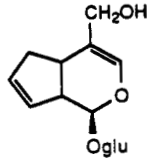
$C_{17}H_{24}O_{10}$ 388.37 mp 223–225° (dec) [α] −82° (MeOH) (90 MHz D_2O) 4.78 (H-1, d, 10), 6.17 (H-3, m), 2.06 (H-5), 4.12 (H-6, dd, 7.5, 1.5), 3.62 (H-7, m), 3.68 (H-8, d, 3), 2.55 (H-9, dd, 10, 8), 1.63 (H-11, s), 4.33 (H-6′, m), 2.09 (OAc); (D_2O/Me_2CO-d_6) 96.8 (C-1), 135.8 (C-3), 113.3 (C-4), 41.0 (C-5), 78.5 (C-6), 59.3 (C-7), 56.2 (C-8), 42.5 (C-9), 16.1 (C-11), 100.1 (C-1′), 73.5 (C-2′), 76.4 (C-3′), 70.2 (C-4′), 74.5 (C-5′), 63.8 (C-6′). *Mentzelia albescens* (Loasaceae) (10)

6. SCABROSIDOL (5β,7α-Dihydroxydeutziol)



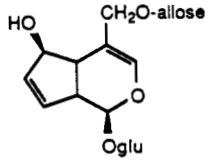
$C_{15}H_{24}O_{11}$ 380.35 [α] −109° (MeOH) uv 218 (MeOH) (90 MHz D_2O) 5.56 (H-1, d, 1.5), 6.15 (H-3, d, 1.5), 4.0–3.4 (H-6, H-7, H-8), 2.28 (H-9, dd, 11.5, 1.5), 1.58 (H-11, d, 1.5); (D_2O) 93.1 (C-1), 135.7 (C-3), 116.0 (C-4), 68.0 (C-5), 81.3 (C-6), 78.3 (C-7), 72.2 (C-8), 53.2 (C-9), 11.6 (C-11), 98.9 (C-1′), 73.3 (C-2′), 77.0 (C-3′), 70.5 (C-4′), 76.2 (C-5′), 61.5 (C-6′). *Deutzia scabra* (Saxifragaceae) (11)

7. LYCHNITOSIDE



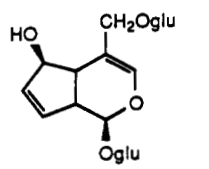
$C_{15}H_{22}O_8$ 330.33 *Verbascum lychnitis* (Scrophulariaceae) (12,13)

8. ALLOSYLDECALOSIDE



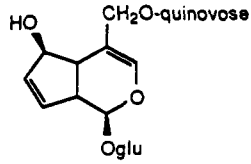
$C_{21}H_{32}O_{14}$ 508.48 mp 239° (dec) [α] −163° (H_2O) (90 MHz D_2O) 5.06 (H-1, d, 6), 6.48 (H-3, m), 2.78 (H-5, m, 7.5, 4), 4.7 (H-6), 6.03 (H-7, H-8, m), 3.12 (H-9, dd, 8, 6), 4.32 (H-11, m), 4.7 (H-1″), 4.15 (H-3″, bs); (D_2O) 98.5 (C-1), 141.6 (C-3), 113.5 (C-4), 44.7 (C-5), 81.0 (C-6), 136.1 (C-7), 134.2 (C-8), 47.7 (C-9), 70.1 (C-11), 99.7 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′), 99.4 (C-1″), 71.2 (C-2″), 72.0 (C-3″), 67.7 (C-4″), 74.4 (C-5″), 62.1 (C-6″). *Mentzelia albescens* (Loasaceae) (10)

9. GLUCOSYLDECALOSIDE



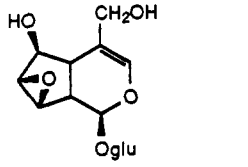
$C_{21}H_{32}O_{14}$ 508.48 nonaacetate mp 177–179° [α] −126° ($CHCl_3$) (90 MHz D_2O) 5.06 (H-1, d, 6), 6.48 (H-3, m), 2.76 (H-5, m), 6.01 (H-7, H-8, m), 3.15 (H-9), 4.32 (H-11, m), 4.49 (H-1″, d, 7.5); (D_2O) 98.5 (C-1), 141.6 (C-3), 113.3 (C-4), 44.6 (C-5), 80.9 (C-6), 136.1 (C-7), 134.2 (C-8), 47.7 (C-9), 70.3 (C-11), 99.4 (C-1′), 73.4 (C-2′), 76.6 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.4 (C-6′), 101.8 (C-1″), 74.0 (C-2″), 76.4 (C-3″), 70.3 (C-4″), 76.4 (C-5″), 61.4 (C-6″). *Mentzelia lindleyi* (Loasaceae) (10)

10. QUINOVOSYLDECALOSIDE



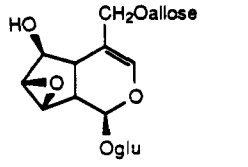
$C_{21}H_{32}O_{13}$ 492.48 octaacetate mp 156–157° [α] −129° ($CHCl_3$) (90 MHz D_2O) 5.05 (H-1, d, 6), 6.49 (H-3, m), 2.80 (H-5, m), 4.7 (H-6), 6.03 (H-7, H-8, m), 3.13 (H-9, m), 4.32 (H-11, m), 4.51 (H-1″, d, 7.5); (D_2O) 98.7 (C-1), 141.7 (C-3), 113.6 (C-4), 44.9 (C-5), 81.2 (C-6), 136.2 (C-7), 134.2 (C-8), 47.8 (C-9), 70.5 (C-11), 99.6 (C-1′), 73.6 (C-2′), 76.6 (C-3′), 70.5 (C-4′), 77.2 (C-5′), 61.5 (C-6′), 101.9 (C-1″), 74.2 (C-2″), 76.7 (C-3″), 75.8 (C-4″), 72.6 (C-5″), 17.6 (C-6″). *Mentzelia lindleyi* (Loasaceae) (10)

11. EPOXYDECALOSIDE (11-Hydroxydeutzioside)



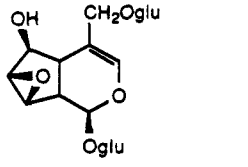
$C_{15}H_{22}O_{10}$ 362.33 mp 187–188° (dec) [α] −86° (MeOH) (90 MHz D_2O) 4.89 (H-1, d, 10), 6.42 (H-3, m), 2.28 (H-5, t, 7.5), 4.11 (H-6, bd, 7.5), 3.63 (H-7, m), 3.73 (H-8), 2.54 (H-9, dd, 9, 7.5), 4.05 (H-11, m); (D_2O) 96.9 (C-1), 139.9 (C-3), 115.8 (C-4), 37.9 (C-5), 78.6 (C-6), 59.1 (C-7), 56.2 (C-8), 42.1 (C-9), 62.0 (C-11), 99.9 (C-1′), 73.5 (C-2′), 76.6 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.4 (C-6′). *Mentzelia lindheimerii* (Loasaceae) (10)

12. ALLOSYLEPOXYDECALOSIDE



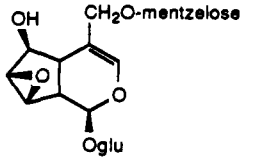
$C_{21}H_{32}O_{15}$ 524.48 mp 274–275° (dec) [α] −98° (H_2O) (90 MHz D_2O) 4.97 (H-1, d, 9.5), 6.55 (H-3, m), 2.32 (H-5, t, 7.5), 4.2 (H-6), 3.69 (H-7, m), 3.78 (H-8, d, 3), 2.59 (H-9, dd, 9.5, 7.5), 4.29 (H-11, m), 4.7 (H-1″), 4.17 (H-3″, bs); (D_2O) 97.0 (C-1), 142.2 (C-3), 111.8 (C-4), 38.3 (C-5), 78.0 (C-6), 59.3 (C-7), 56.1 (C-8), 42.2 (C-9), 69.6 (C-11), 100.1 (C-1′), 73.5 (C-2′), 76.6 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.4 (C-6′), 99.2 (C-1″), 71.2 (C-2″), 72.0 (C-3″), 67.7 (C-4″), 74.5 (C-5″), 62.1 (C-6″). *Mentzelia albescens* (Loasaceae) (10)

13. GLUCOSYLEPOXYDECALOSIDE



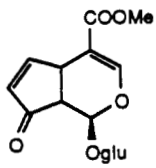
$C_{21}H_{32}O_{15}$ 524.48 mp 216–217° (dec) [α] −87° (H_2O) (90 MHz D_2O) 4.96 (H-1, d, 9.5), 6.54 (H-3, m), 2.35 (H-5, t, 7.5), 4.22 (H-6, dd, 8, 4.5), 3.68 (H-7, m), 3.79 (H-8), 2.52 (H-9, dd, 9.5, 7.5), 4.30 (H-11, m), 4.50 (H-1″, d, 7.5); (D_2O) 97.0 (C-1), 142.2 (C-3), 111.9 (C-4), 38.2 (C-5), 78.1 (C-6), 59.4 (C-7), 56.2 (C-8), 42.2 (C-9), 69.7 (C-11), 100.0 (C-1′), 73.5 (C-2′), 76.7 (C-3′), 70.5 (C-4′), 77.1 (C-5′), 61.6 (C-6′), 101.5 (C-1″), 74.0 (C-2″), 76.7 (C-3″), 70.5 (C-4″), 76.7 (C-5″), 61.6 (C-6″). *Mentzelia lindheimerii* (Loasaceae) (10)

14. MENTZELOSYLEPOXYDECALOSIDE



$C_{20}H_{30}O_{13}$ 478.45 mp 236–237° (dec) [α] −108° (H_2O) (270 MHz D_2O) 4.94 (H-1, d, 9.5), 6.51 (H-3, m), 2.29 (H-5, t, 7.5), 4.15 (H-6, bd, 7.5), 3.66 (H-7, m), 3.77 (H-8, d, 3), 2.60 (H-9 dd, 9.5, 7.5), 4.23 (H-11, 11.5), 4.61 (H-1″, d, 1.5), 3.81 (H-2″, bt, 2), 3.89 (H-3″, m, 8–12, 2.5), 1.77 (H-4″, m), 3.94 (H-5″ eq, m, 12), 3.48 (H-5″ ax, m); (D_2O) 96.9 (C-1), 141.7 (C-3), 112.2 (C-4), 38.6 (C-5), 78.1 (C-6), 59.3 (C-7), 56.1 (C-8), 42.2 (C-9), 69.8 (C-11), 100.0 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.4 (C-6′), 99.8 (C-1″), 69.4 (C-2″), 68.5 (C-3″), 29.2 (C-4″), 60.2 (C-5″). *Mentzelia involucrata* (Loasaceae) (10)

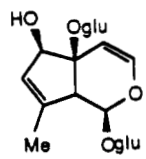
15. RANDIOSIDE



$C_{16}H_{20}O_{10}$ 372.33 [α] −29.4° (MeOH) uv 217 (MeOH) (60 MHz D_2O) 5.68 (H-1, d, 3.0), 7.45 (H-3, d, 1.4), 8.08 (H-6, dd, 6.0, 3.0), 6.28 (H-7, dd, 6.0, 2.0), 3.80 (COOMe). *Randia canthioides* (Rubiaceae) (14)

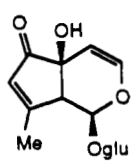
Group 2b (9-carbon skeleton; ninth carbon on C-8)

16. 10-DEOXYMELITTOSIDE



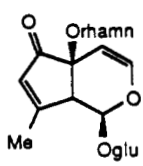
$C_{21}H_{32}O_{14}$ 508.48 [α] −60.5° (MeOH) (400 MHz CD_3OD) 5.80 (H-1, d, 2.5), 6.39 (H-3, d, 6.5), 5.15 (H-4, dd, 6.5, 1.0), 4.28 (H-6, bd, 2.5), 5.61 (H-7, dt, 2.5, 1.2), 3.25 (H-9, m, 2.5, 1.2, 1.0), 1.89 (H-10, bs), 4.75 (H-1′, d, 8), 4.65 (H-1″, d, 8), 3.96, 3.85 (H-6′, H-6″, dd, 12.0, 2.1), 3.81, 3.70 (H-6′, H-6″, dd, 12.0, 4.2); (CD_3OD) 93.2 (C-1), 142.8 (C-3), 105.0 (C-4), 79.1 (C-5), 78.6 (C-6), 128.7 (C-7), 144.5 (C-8), 53.5 (C-9), 15.8 (C-10), 99.8 (C-1′), 75.2 (C-2′), 78.5 (C-3′)[a], 71.7 (C-4′), 78.2 (C-5′)[a], 62.8 (C-6′), 97.7 (C-1″), 74.9 (C-2″), 78.3 (C-3″)[a], 70.6 (C-4″), 77.0 (C-5″)[a], 62.1 (C-6″). *Lamiastrum galeobdolon* subsp. *flavidum* (Labiatae) (15)

17. TEUHIRCOSIDE



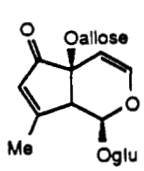
$C_{15}H_{20}O_9$ 344.32 mp 213° [α] −400.7° (MeOH) uv 226, 202 (H_2O) (250 MHz D_2O) 6.07 (H-1, d, 2.5), 6.38 (H-3, d, 6.5), 5.01 (H-4, dd, 6.5, 1.3), 6.05 (H-7, m), 3.39 (H-9, m), 2.29 (H-10, dd, 1.3, 1.0), 4.75 (H-1′, d, 8.0); (D_2O) 94.1 (C-1), 144.4 (C-3), 106.1 (C-4), 79.2 (C-5), 210.8 (C-6), 130.2 (C-7), 179.2 (C-8), 58.9 (C-9), 20.2 (C-10), 100.7 (C-1′), 74.5 (C-2′), 78.1 (C-3′), 72.5 (C-4′), 75.2 (C-5′), 63.5 (C-6′). *Teucrium hircanicum* (Labiatae) (16)

18. TEUCARDOSIDE



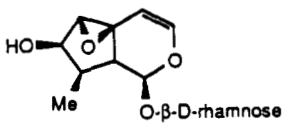
$C_{21}H_{30}O_{13}$ 490.46 [α] −183.5° (MeOH) uv 231, 206 (H_2O) (250 MHz D_2O) 5.98 (H-1, d, 1.8), 6.45 (H-3, d, 6.5), 5.02 (H-4, dd, 6.5, 1.3), 6.11 (H-7, m, 2.0, 1.3), 3.80 (H-9, m), 2.31 (H-10, dd, 1.3, <1), 4.75 (H-1′, d, 8), 5.31 (H-1″, d, 2), 1.20 (H-6″, d, 6.5); (D_2O) 92.8 (C-1), 144.1 (C-3), 102.6 (C-4), 77.0 (C-5), 206.4 (C-6), 128.6 (C-7), 178.2 (C-8), 53.3 (C-9), 18.3 (C-10), 99.4 (C-1′), 73.5 (C-2′), 76.4 (C-3′), 70.3 (C-4′), 77.0 (C-5′), 61.5 (C-6′), 96.9 (C-1″), 71.6 (C-2″), 70.9 (C-3″), 72.7 (C-4″), 70.3 (C-5″), 17.3 (C-6″). *Teucrium arduini* (Labiatae) (16,17)

19. ALLOBETONICOSIDE



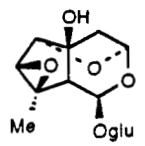
$C_{21}H_{30}O_{14}$ 506.46 [α] −53.3° (MeOH) uv 230, 211 (MeOH) (400 MHz D_2O) 5.95 (H-1, d, 1.2), 6.45 (H-3, d, 6.4), 5.04 (H-4, dd, 6.4, 1.1), 6.13 (H-7, t, 1.5), 3.97 (H-9, m), 2.30 (H-10, s), 4.77 (H-1′, d, 8.0), 3.39 (H-2′, dd, 9.0, 8.0), 3.42 (H-3′, t), 3.48 (H-4′, t), 3.50 (H-5′, m), 3.94 (H-6′, dd, 12.3, 2.1), 3.72 (H-6′, dd, 12.3, 5.9), 5.29 (H-1″, d, 8.3), 3.47 (H-2″, dd, 8.3, 2.9), 4.20 (H-3″, t, 2.9), 3.60 (H-4″, dd, 10.1, 2.9), 3.72 (H-5″, m), 3.85 (H-6″, dd, 12.3, 2.1), 3.64 (H-6″, dd, 12.3, 5.4); (D_2O) 92.3 (C-1), 144.2 (C-3), 102.8 (C-4), 77.5 (C-5), 204.9 (C-6), 127.9 (C-7), 178.5 (C-8), 55.0 (C-9), 17.7 (C-10), 98.9 (C-1′), 73.7 (C-2′), 75.7 (C-3′), 69.6 (C-4′), 76.3 (C-5′), 60.8 (C-6′), 96.7 (C-1″), 71.3 (C-2″), 70.7 (C-3″), 66.8 (C-4″), 72.4 (C-5″), 61.2 (C-6″). *Betonica officinalis* (Lamiaceae) (18)

20. 5,6-β-EPOXY-7β-HYDROXY-8β-METHYL-1-β-D-RHAMNOSIDAL IRIDOID



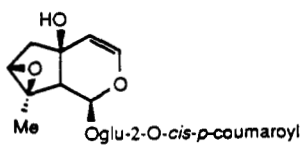
$C_{15}H_{22}O_8$ 330.33 mp 265–266° uv 209 (EtOH) (tetraacetate ? MHz $CDCl_3$) 5.35 (H-1, d, 9), 7.6 (H-3,. d, 9), 5.2 (H-4, d, 9), 3.35 (H-6, bs), 4.6 (H-7, t, 1), 2.25 (H-9, m), 0.95 (H-10, bs), 4.75 (H-1′, d, 8), 3.7 (H-5′, m), 1.24 (H-6′, s), 2.04, 2.0, 1.96, 1.94 (OAc); (tetraacetate $CDCl_3$) 80.1 (C-1), 140.4 (C-3), 122.2 (C-4), 56.9 (C-5), 56.1 (C-6), 73.0 (C-7), 36.8 (C-8), 50.3 (C-9), 18.8 (C-10), 99.7 (C-1′), 68.7 (C-2′), 71.8 (C-3′), 62.2 (C-4′), 71.6 (C-5′), 19.4 (C-6′), 21.1, 20.7, 19.8, 19.4 (O=C*Me*), 170.6, 170.3, 169.4, 169.3 (O=*C*Me). *Barleria prionitis* (Acanthaceae) (19)

21. PROCUMBOSIDE



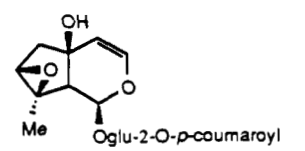
$C_{15}H_{22}O_{10}$ 362.33 [α] −112° (MeOH) (200 MHz D_2O) 5.43 (H-1, s), 5.48 (H-3, d, 3.5), 2.09 (H-4α, dd, 12, 3.5), 2.96 (H-4β, d, 12), 4.20 (H-6, s), 3.76 (H-7, s), 2.76 (H-9, s), 1.55 (H-10, s), 4.75 (H-1′, d, 8); (CD_3OD) 93.4 (C-1)[a], 101.8 (C-3)[a], 37.4 (C-4), 81.8 (C-5), 85.3 (C-6), 64.9 (C-7), 66.1 (C-8), 58.9 (C-9), 15.4 (C-10), 98.5 (C-1′)[a], 74.6 (C-2′), 78.3 (C-3′), 71.6 (C-4′), 78.1 (C-5′), 62.6 (C-6′). *Harpagophytum procumbens* (Pedaliaceae) (20)

22. DECUMBESIDE B



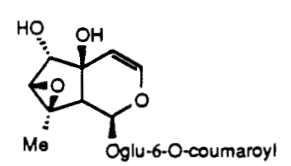
$C_{24}H_{28}O_{11}$ 492.48 [α] −13° (MeOH) uv 312, 225 (MeOH) (200 MHz CD_3OD) 5.42 (H-1, d, 6), 6.25 (H-3, d, 6.5), 1.99 (H-6, bs), 3.26 (H-7, bs), 2.24 (H-9, d, 6), 1.47 (H-10, s), 3.94 (H-6′, d, 11.5), 6.89/5.81 (Hα, Hβ, d's, 13), 7.65 (H-2″, d, 8.5), 6.75 (H-3″, d, 8.5); (CD_3OD) 95.3 (C-1), 141.4 (C-3), 110.1 (C-4), 76.7 (C-5), 43.7 (C-6), 64.0 (C-7), 67.0 (C-8), 54.5 (C-9), 17.3 (C-10), 97.9 (C-1′), 75.6 (C-2′)[a], 74.8 (C-3′)[a], 71.8 (C-4′), 78.4 (C-5′), 62.7 (C-6′), 167.0 (C=O), 115.8 (Cα), 145.5 (Cβ), 127.7 (C-1″), 133.8 (C-2″), 115.8 (C-3″), 160.0 (C-4″). *Ajuga decumbens* (Labiatae) (21)

23. DECUMBESIDE A



$C_{24}H_{28}O_{11}$ 492.48 [α] −60° (MeOH) uv 315, 228 (MeOH) (200 MHz CD_3OD) 5.50 (H-1, d, 5), 6.21 (H-3, d, 6.5), 1.97 (H-6, bs), 3.21 (H-7, bs), 2.27 (H-9, d, 5), 1.43 (H-10, s), 3.94 (H-6′, d, 11.5), 6.36/7.65 (Hα, Hβ, d's, 16), 7.48 (H-2″), 6.81 (H-3″), 3.70 (m, 2H's); (CD_3OD) 94.9 (C-1), 141.2 (C-3), 110.6 (C-4), 76.9 (C-5), 43.7 (C-6), 64.1 (C-7), 67.1 (C-8), 54.6 (C-9), 17.1 (C-10), 97.9 (C-1′), 75.7 (C-2′)[a], 75.1 (C-3′)[a], 71.7 (C-4′), 78.5 (C-5′), 62.8 (C-6′), 169.2 (C=O), 115.3 (Cα), 147.3 (Cβ), 127.1 (C-1″), 131.2 (C-2″), 116.9 (C-3″), 161.3 (C-4″). *Ajuga decumbens* (Labiatae) (21)

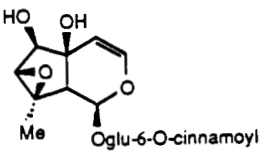
24. 6′-*O*-*p*-COUMAROYLPROCUMBIDE



$C_{24}H_{28}O_{12}$ 508.48 [α] −58.2° (MeOH) uv 313, 228 (MeOH) (200 MHz D_2O) 5.30 (H-1, d, 8), 6.53 (H-3, d, 6.5), 4.93 (H-4, d, 6.5), 3.93 (H-6, s), 3.38 (H-7, s), 2.43 (H-9, d, 8), 1.43 (H-10, s), 4.46 (H-6′, dd, 12, 4.5), 4.60 (H-6′, d, 12), 6.44/7.72 (Hα, Hβ, d's, 16), 6.95 (H-2″, d, 8.5), 7.95 (H-3″, d, 8.5); (CD_3OD) 96.1 (C-1), 144.1 (C-3), 104.2 (C-4), 80.1 (C-5), 77.6 (C-6), 65.8 (C-7), 66.9 (C-8), 52.9 (C-9), 17.6 (C-10), 100.0 (C-1′), 74.7 (C-2′), 78.1 (C-3′), 71.5 (C-4′), 75.6 (C-5′), 64.2 (C-6′), 169.0 (C=O),

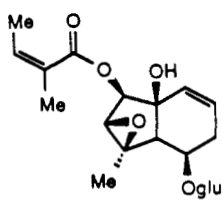
146.8 (Cα), 114.9 (Cβ), 127.0 (C-1′), 131.2 (C-2″), 116.8 (C-3″), 161.2 (C-4′). *Harpagophytum procumbens* (Pedaliaceae) (20)

25. 6′-*O*-CINNAMOYLANTIRRINOSIDE



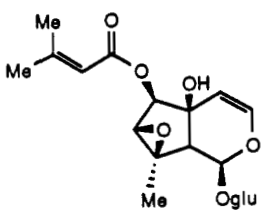
$C_{25}H_{28}O_{11}$ 504.49 [α] −67.3° (MeOH) (400 MHz $CDCl_3/CD_3OD$) 5.22 (H-1, d, 5), 6.26 (H-3, d, 6.2), 4.72 (H-4, bd, 6.2), 3.70 (H-6, d, 2.5), 3.30 (H-7, bd, 2.5), 2.32 (H-9, bd, 5), 1.30 (H-10, s), 4.53 (H-1′, d, 8), 3.34 (H-2′, H-4′, m), 3.20 (H-3′, m), 3.44 (H-5′, m), 4.41 (H-6′, dd, 12.5, 2.5), 4.34 (H-6′, dd, 12.5, 4.5), 6.35/7.58 (Hα, Hβ, d's, 16), 7.41 (H-2″, H-4″, m), 7.27 (H-3″, m); ($CDCl_3$) 92.6 (C-1), 142.5 (C-3), 105.8 (C-4), 73.7 (C-5), 74.2 (C-6), 65.0 (C-7), 64.4 (C-8), 51.0 (C-9), 16.5 (C-10), 98.2 (C-1′), 72.7 (C-2′), 75.9 (C-3′), 69.7 (C-4′), 75.5 (C-5′), 63.1 (C-6′), 167.2 (C=O), 117.3 (Cα), 145.5 (Cβ), 134.0 (C-1″), 128.8 (C-2″), 128.0 (C-3″), 117.3 (C-4″). *Anarrhinum orientale* (Scrophulariaceae) (22)

26. 6-*O*-ANGELOYLANTIRRINOSIDE (mixed with 6-*O*-Senecioylantirrinoside)



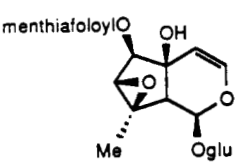
$C_{20}H_{28}O_{11}$ 444.44 uv 225.5 (MeOH) (90 MHz CD_3OD) 5.46 (H-1, d, 6), 6.40 (H-3, d, 6), 4.90 (H-4, dd, 6, 2), 4.96 (H-6, d, 3), 3.50 (H-7, t, 3), 2.46 (H-9, d, 6), 1.49 (H-10, s), 6.16 (H-3″), 1.93 (H-4″), 2.00 (H-5″); (CD_3OD) 94.9 (C-1), 143.0 (C-3), 107.4 (C-4), 74.5 (C-5), 79.4 (C-6), 64.3 (C-7, C-8), 53.3 (C-9), 17.3 (C-10), 99.6 (C-1′), 74.5 (C-2′), 78.1 (C-3′), 71.6 (C-4′), 77.5 (C-5′), 62.8 (C-6′), 167.2 (C-1″), 128.7 (C-2″), 139.3 (C-3″), 20.6 (C-4″), 27.4 (C-5″). *Linaria clementei* (Scrophulariaceae) (23)

27. 6-*O*-SENECIOYLANTIRRINOSIDE (mixed with 6-*O*-Angeloylantirrinoside)



$C_{20}H_{28}O_{11}$ 444.44 uv 225.5 (MeOH) (90 MHz CD_3OD) 5.46 (H-1, d, 6), 6.40 (H-3, d, 6), 4.90 (H-4, dd, 6, 2), 5.05 (H-6, d, 3), 3.50 (H-7, t, 3), 2.46 (H-9, d, 6), 1.50 (H-10, s), 5.83 (H-2″), 2.16 (H-4″), 1.93 (H-5″); (CD_3OD) 94.9 (C-1), 143.0 (C-3), 107.4 (C-4), 74.5 (C-5), 78.6 (C-6), 64.3 (C-7, C-8), 53.3 (C-9), 17.3 (C-10), 99.6 (C-1′), 74.5 (C-2′), 78.1 (C-3′), 71.6 (C-4′), 77.5 (C-5′), 62.8 (C-6′), 169.3 (C-1″), 116.3 (C-2″), 159.2 (C-3″), 20.6 (C-4″), 27.4 (C-5″). *Linaria clementei* (Scrophulariaceae) (23)

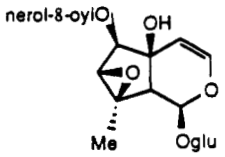
28. KICKXIOSIDE



$C_{25}H_{36}O_{12}$ 528.55 [α] −63.2° (MeOH) uv 230 (MeOH) (400 MHz $CD_3OD/CDCl_3$ 3/7) 5.38 (H-1, d, 6.3), 6.36 (H-3, d, 6.3), 4.90 (H-4, d, 6.3), 4.96 (H-6, d, 1.8), 3.53 (H-7, bd, 1.8), 2.50 (H-9, d, 6.3), 1.50 (H-10, s), 4.68 (H-1′, d, 8), 3.26 (H-2′, dd, 9.1, 8), 3.35 (H-3′, t, 9.1), 3.41 (H-4′, t, 9.1), 3.32 (H-5′, m), 3.89 (H-6′, dd, 12.1, 2.4), 3.70 (H-6′, dd, 12.1, 5), 6.90 (H-3″, dt, 7.2, 1.3), 2.23 (H-4″, m), 1.62 (H-5″, m), 5.86 (H-7″, dd, 17.2, 10.5), 5.19 (H-8″, dd, 17.2, 1.1), 5.05 (H-8″, dd, 10.5, 1.1), 1.83 (H-9″, bs), 1.26 (H-10″, s); ($CD_3OD/CDCl_3$ 3/7) 94.5 (C-1), 142.8 (C-3), 106.8 (C-4), 71.2 (C-5), 79.0 (C-6), 64.4 (C-7), 64.5 (C-8), 51.3 (C-9), 17.7 (C-10), 99.4 (C-1′), 75.3 (C-2′), 77.5 (C-3′)[a], 72.4 (C-4′), 77.2 (C-5′)[a], 62.5 (C-6′), 169.0 (C-1″), 145.5 (C-2″), 127.2 (C-3″), 24.5 (C-

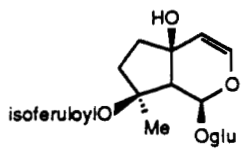
4″), 41.3 (C-5″), 71.2 (C-6″), 144.7 (C-7″), 112.8 (C-8″), 13.2 (C-9″), 28.0 (C-10″). *Kickxia spuria* (Scrophulariaceae) (24)

29. 6-*O*-NEROL-8-OYLANTIRRINOSIDE



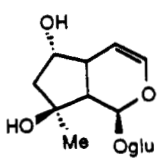
$C_{25}H_{36}O_{12}$ 528.55 [α] −88.8° (MeOH) uv 224 (?) (400 MHz $CDCl_3/CD_3OD$) 5.42 (H-1, d, 5.8), 6.37 (H-3, d, 6.2), 4.90 (H-4, bd, 6.2), 4.83 (H-6, d, 2.2), 3.50 (H-7, d, 2.2), 2.55 (H-9, bd, 5.8), 1.44 (H-10, s), 4.62 (H-1′, d, 8), 3.32 (H-2′, H-5′, m), 3.48 (H-3′, H-4′, m), 3.84 (H-6′, dd, 12.5, 2.5), 3.78 (H-6′, dd, 12.5, 4), 4.06 (H-1″, bd, 7), 5.41 (H-2″, bt, 7), 2.20 (H-4″, bt, 7), 2.32 (H-5″, bdt, 7, 7), 6.84 (H-6″, tq, 7, 1.5), 1.83 (H-9″, dt, 1.5, 1), 1.71 (H-10″, dt, 1, 1); ($CDCl_3$) 93.1 (C-1), 142.2 (C-3), 105.5 (C-4), 73.4 (C-5), 77.6 (C-6), 63.1 (C-7), 63.4 (C-8), 51.3 (C-9), 16.5 (C-10), 98.2 (C-1′), 72.8 (C-2′), 76.2 (C-3′), 69.8 (C-4′), 75.9 (C-5′), 63.1 (C-6′), 58.2 (C-1″), 125.3 (C-2″), 137.1 (C-3″), 30.0 (C-4″), 26.5 (C-5″), 142.9 (C-6″), 127.1 (C-7″), 167.6 (C-8″), 12.0 (C-9″), 22.7 (C-10″). *Anarrhinum orientale* (Scrophulariaceae) (22)

30. 6-DESOXY-8-*O*-ISOFERULOYLHARPAGIDE



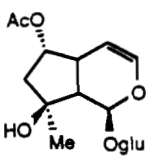
$C_{25}H_{32}O_{12}$ 524.52 mp 139–141° uv 320, 289, 234, 216 (MeOH) (60 MHz CD_3OD) 5.44 (H-1, bs), 6.20 (H-3, m), 5.82 (H-4, d, 13), 2.62–2.30 (H-6, m), 2.22–1.99 (H-7, m), 2.87 (H-9, bs), 1.38 (H-10, s), 6.38/7.60 (Hα, Hβ, d's, 16), 3.83 (OMe), 7.82 (OH, s); (CD_3OD) 93.2 (C-1), 140.8 (C-3), 104.2 (C-4), 74.1 (C-5), 47.8 (C-6), 38.7 (C-7), 84.8 (C-8), 50.2 (C-9), 25.6 (C-10), 98.9 (C-1′), 74.2 (C-2′), 78.8 (C-3′), 71.2 (C-4′), 77.2 (C-5′), 62.2 (C-6′), 168.4 (C=O), 123.6 (Cα), 146.1 (Cβ), 129.4 (C-1″), 112.8 (C-2″), 149.5 (C-3″), 150.8 (C-4″), 111.5 (C-5″), 112.8 (C-6″), 56.1 (OMe). *Veronicastrum sibiricum* (Scrophulariaceae) (25)

31. MYOPOROSIDE (revision of stereochemistry at C-6)



$C_{15}H_{24}O_9$ 348.35 [α] −175° (MeOH) uv 204 (MeOH) (250 MHz D_2O) 5.5 (H-1, d, 2.4), 6.34 (H-3, dd, 6.5, 2.0), 4.96 (H-4, bdd, 6.5, 2.2), 2.90 (H-5, m), 4.46 (H-6, dt, 10.3, 6.5), 1.76 (H-7α, dd, 13.4, 10.4), 1.94 (H-7β, bd, 13.4, 6.5), 2.30 (H-9, bd, 8.0), 1.33 (H-10, s), 4.73 (H-1′, d); (D_2O) 93.6 (C-1), 141.0 (C-3), 101.7 (C-4), 36.1 (C-5), 72.0 (C-6), 47.3 (C-7), 77.7 (C-8), 50.8 (C-9), 25.9 (C-10), 98.8 (C-1′), 73.5 (C-2′), 76.4 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.5 (C-6′). *Myoporum* (Myoporaceae), *Physostegia virginiana* (Lamiaceae) (26–28)

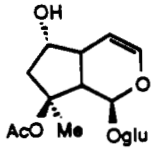
32. 6-*O*-ACETYLMIOPOROSIDE



$C_{17}H_{26}O_{10}$ 390.39 [α] −165.3 (MeOH) uv 232, 207 (MeOH) (400 MHz D_2O) 5.55 (H-1, d, 2.9), 6.40 (H-3, dd, 6.4, 2.0), 4.95 (H-4, dd, 6.4, 2.9), 3.21 (H-5, dddd, 8.5, 6.8, 2.9, 2.0), 5.33 (H-6, q), 2.16 (H-7, dd, 13.8, 6.8), 1.99 (H-7, dd, 13.8, 8.6), 2.40 (H-9, dd, 8.5, 2.9), 1.45 (H-10, s), 2.14 (OAc), 4.82 (H-1′, d, 8.0), 3.33 (H-2′, dd, 9.1, 8.0), 3.43 (H-3′, t, 9.1), 3.53 (H-4′, dd, 9.1), 3.50 (H-5′, m), 3.96 (H-6′, dd, 12.3, 2.0), 3.76 (H-6′, dd, 12.3, 5.9); (D_2O) 95.5 (C-1), 142.9 (C-3), 103.3 (C-4), 36.6 (C-5), 77.4 (C-6), 47.2 (C-7), 79.5 (C-8), 52.4 (C-9), 27.4 (C-10), 100.6 (C-1′), 75.3 (C-2′), 78.3 (C-3′), 72.3 (C-

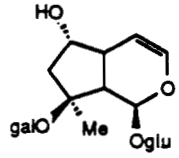
4′), 78.8 (C-5′), 63.3 (C-6′), 176.7 (O=*C*Me), 23.1 (O=C*Me*). *Betonica officinalis* (Lamiaceae) (18)

33. 8-*O*-ACETYLMIOPOROSIDE



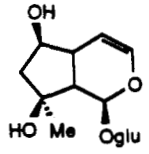
$C_{17}H_{26}O_{10}$ 390.39 [α] −151.8° (MeOH) uv 188 (H_2O) (250 MHz D_2O) 5.83 (H-1, d, 1.5), 6.32 (H-3, dd, 6.5, 2), 5.00 (H-4, dd, 6.5, 1.5), 2.89 (H-5, m, 7, 6, 2, 1.5), 4.47 (H-6, m, 11.2, 6, 5.8), 2.30 (H-7α, dd, 13.5, 5.8), 1.84 (H-7β, dd, 13.5, 11.2), 2.69 (H-9, dd, 7, 1.5), 1.53 (H-10, s), 2.03 (OAc), 4.76 (H-1′, d, 7.5); (CD_3OD) 94.1 (C-1), 142.0 (C-3), 101.3 (C-4), 37.1 (C-5), 71.9 (C-6), 47.4 (C-7), 88.0 (C-8), 49.3 (C-9), 22.4 (C-10), 100.0 (C-1′), 74.8 (C-2′), 78.0 (C-3′), 71.6 (C-4′), 78.0 (C-5′), 62.9 (C-6′), 173.3 (O=*C*Me), 22.2 (O=C*Me*). *Clerodendrum thomsonae* (Verbenaceae) (29,30)

34. REHMANNIOSIDE C



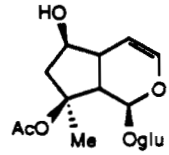
$C_{21}H_{34}O_{14}$ 510.49 [α] −11.3° (MeOH) (90 MHz D_2O) 5.71 (H-1, bs), 6.38 (H-3, q, 6, 1), 1.56 (H-10, s); (D_2O) 94.1 (C-1), 139.6 (C-3), 105.8 (C-4), 39.7 (C-5), 77.0 (C-6)[a], 45.8 (C-7), 86.2 (C-8), 49.1 (C-9), 24.1 (C-10), 98.7 C(-1′), 73.6 (C-2′), 76.9 (C-3′)[a], 70.5 (C-4′), 76.5 (C-5′), 61.6 (C-6′), 94.6 (C-1″), 69.3 (C-2″), 70.5 (C-3″), 70.2 (C-4″), 71.8 (C-5″), 62.1 (C-6″). *Rehmannia glutinosa* (Scrophulariaceae) (31)

35. AJUGOL (revision of stereochemistry at C-6)



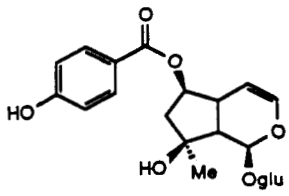
$C_{15}H_{24}O_9$ 348.35 [α] −172.1° (MeOH) (500 MHz CD_3OD) 5.46 (H-1, d, 2.3), 6.16 (H-3, ddd, 6.3, 2.1, 0.5), 4.85 (H-4, ddd, 6.3, 3.2, 0.7), 2.72 (H-5, m), 3.92 (H-6, dt, 5.2, 2.9), 2.04 (H-7, dd, 13.4, 5.7), 1.79 (dd, 13.4, 4.7), 2.54 (H-9, dd, 9.6, 2.3), 1.31 (H-10, s), 4.54 (H-1′, d, 7.9), 3.20 (H-2′, dd, 9.2, 8.0), 3.37 (H-3′, dd, 9.2, 8.0), 3.27 (H-4′, dd, 9.7, 8.3), 3.30 (H-5′, m), 3.89 (H-6′, dd, 11.9, 2.0), 3.66 (H-6′, dd, 11.9, 5.7); (CD_3OD) 93.8 (C-1), 140.4 (C-3), 105.9 (C-4), 41.3 (C-5), 78.2 (C-6), 50.0 (C-7), 79.5 (C-8), 51.8 (C-9), 25.2 (C-10), 99.4 (C-1′), 74.8 (C-2′), 77.8 (C-3′), 71.7 (C-4′), 78.0 (C-5′), 62.9 (C-6′). *Ajuga reptans* (Labiatae) (32–34)

36. AJUGOSIDE (Leonuride) (revision of stereochemistry at C-6)



$C_{17}H_{26}O_{10}$ 390.39 (D_2O) 94.5 (C-1), 140.5 (C-3), 104.3 (C-4), 40.6 (C-5), 76.4 (C-6), 47.7 (C-7), 90.1 (C-8), 48.4 (C-9), 22.5 (C-10)[a], 99.1 (C-1′), 73.6 (C-2′), 76.6 (C-3′), 70.5 (C-4′), 77.1 (C-5′), 61.6 (C-6′), 174.8 (O=*C*Me), 22.4 (O=C*Me*)[a]. *Ajuga reptans* (Labiatae) (32,34)

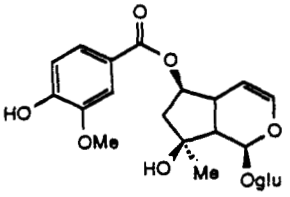
37. 6-*O*-*p*-HYDROXYBENZOYL-AJUGOL



$C_{22}H_{28}O_{11}$ 468.46 [α] −138.8° (MeOH) (200 MHz CD_3OD) 5.51 (H-1, d, 2.4), 6.23 (H-3, dd, 6.2, 2.3), 5.02 (H-4, m), 2.98 (H-5, dd, 9.2, 2.2), 5.02 (H-6, m), 2.28 (H-7, dd, 14.2, 6.4), 2.05 (H-7, dd, 14.2, 4.0), 2.61 (H-9, dd, 9.2, 2.4), 1.40 (H-10, s), 4.67 (H-1′, d, 7.8), 4.0–3.2 (H-2′–H-6′, m), 7.90 (H-2″, d, 9), 6.82 (H-3″, d, 9); (CD_3OD) 93.5 (C-1), 141.1 (C-3), 104.6 (C-4), 39.4 (C-5), 80.5 (C-6), 47.9 (C-7), 79.1 (C-8), 51.7 (C-9), 26.1 (C-10), 99.4 (C-1′), 74.8 (C-2′), 78.0 (C-3′), 71.7 (C-4′), 78.2 (C-5′), 62.9 (C-6′),

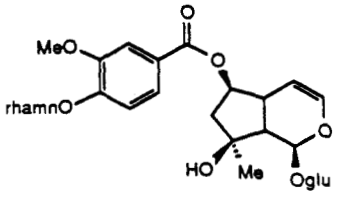
168.0 (C=O), 122.5 (C-1″), 132.8 (C-2″), 116.1 (C-3″), 163.5 (C-4″). *Rehmannia glutinosa* var. *purpurea* (Scrophulariaceae) (33)

38. *6-O*-VANILLOYLAJUGOL



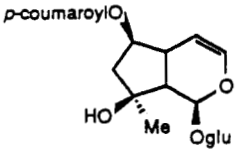
$C_{23}H_{30}O_{12}$ 498.48 [α] −135.2° (MeOH) (200 MHz CD_3OD) 5.52 (H-1, d, 2.4), 6.23 (H-3, dd, 6.2, 2.3), 5.02 (H-4, m), 2.99 (H-5, dd, 9.3, 2.2), 5.02 (H-6, m), 2.28 (H-7, dd, 14.2, 6.4), 2.06 (H-7, dd, 14.2, 3.9), 2.62 (H-9, dd, 9.2, 2.4), 1.41 (H-10, s), 4.68 (H-1′, d, 7.8), 4.0–3.2 (H-2′, H-6′, m), 7.57 (H-2″, d, 2), 6.84 (H-5″, d, 8.8), 7.58 (H-6″, dd, 8.8, 2), 3.89 (OMe); (CD_3OD) 93.5 (C-1), 141.1 (C-3), 104.6 (C-4), 39.4 (C-5), 80.7 (C-6), 47.9 (C-7), 79.2 (C-8), 51.7 (C-9), 26.2 (C-10), 99.5 (C-1′), 74.8 (C-2′), 78.0 (C-3′), 71.7 (C-4′), 78.2 (C-5′), 62.9 (C-6′), 168.0 (C=O), 122.9 (C-1″), 113.8 (C-2″), 152.9 (C-3″), 148.7 (C-4″), 115.9 (C-5″), 125.2 (C-6″), 56.5 (OMe). *Rehmannia glutinosa* var. *purpurea* (Scrophulariaceae) (33)

39. *6-O*-(4″-*O*-α-L-RHAMNOPYRANOSYLVANILLOYL)AJUGOL



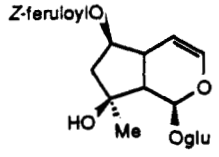
$C_{29}H_{40}O_{16}$ 644.63 [α] −156.0° (MeOH) (200 MHz CD_3OD) 5.53 (H-1, d, 2.4), 6.24 (H-3, dd, 6.3, 2.2), 5.01 (H-4, H-6, m), 3.01 (H-5, dd, 9.2, 2.2), 2.29 (H-7, dd, 14.2, 6.1), 2.07 (H-7, dd, 14.2, 3.7), 2.63 (H-9, dd, 9.2, 2.4), 1.41 (H-10, s), 4.69 (H-1′, d, 7.6), 4.1–3.2 (H-2′–H-6′, H-2‴–H-5‴, m), 7.61 (H-2″, d, 2), 7.19 (H-5″, d, 8.6), 7.63 (H-6″, dd, 8.6, 2), 5.51 (H-1‴, d, 1.7), 1.22 (H-6‴, d, 6.1), 3.88 (OMe); (CD_3OD) 93.5 (C-1), 141.1 (C-3), 104.5 (C-4), 39.4 (C-5), 80.9 (C-6), 47.8 (C-7), 79.1 (C-8), 51.7 (C-9), 26.2 (C-10), 99.4 (C-1′), 74.7 (C-2′), 77.9 (C-3′), 71.7 (C-4′)[a], 78.1 (C-5′), 62.9 (C-6′), 167.5 (O=C), 125.9 (C-1″), 117.5 (C-2″), 151.1 (C-3″), 151.2 (C-4″), 114.4 (C-5″), 124.4 (C-6″), 56.6 (OMe), 100.5 (C-1‴), 71.8 (C-2‴)[a], 72.2 (C-3‴)[a], 73.7 (C-4‴), 71.0 (C-5‴), 18.0 (C-6‴). *Rehmannia glutinosa* var. *purpurea* (Scrophulariaceae) (33)

40. *6-O-p*-COUMAROYLAJUGOL



$C_{24}H_{30}O_{11}$ 494.49 [α] −144.9° (MeOH) (200 MHz CD_3OD) 5.50 (H-1, d, 2.4), 6.22 (H-3, dd, 6.4, 2.2), 4.95 (H-4, m), 2.93 (H-5, dd, 9.3, 2.4), 4.95 (H-6, m), 2.24 (H-7, dd, 14.2, 6.4), 1.99 (H-7, dd, 14.2, 3.9), 2.58 (H-9, dd, 9.3, 2.4), 1.39 (H-10, s), 4.67 (H-1′, d, 7.8), 4.0–3.2 (H-2′–H-6′, m), 6.34/7.63 (Hα, Hβ, d's, 15.9), 7.45 (H-2″, d, 8.7), 6.81 (H-3‴, d, 8.7); (CD_3OD) 93.5 (C-1), 141.0 (C-3), 104.6 (C-4), 39.3 (C-5), 80.3 (C-6), 47.9 (C-7), 79.1 (C-8), 51.6 (C-9), 26.0 (C-10), 99.4 (C-1′), 74.8 (C-2′), 78.0 (C-3′), 71.7 (C-4′), 78.1 (C-5′), 62.9 (C-6′), 169.0 (C=O), 115.4 (Cα), 146.6 (Cβ), 127.2 (C-1″), 131.1 (C-2″), 116.8 (C-3″), 161.2 (C-4″). *Rehmannia glutinosa* var. *purpurea* (Scrophulariaceae) (33)

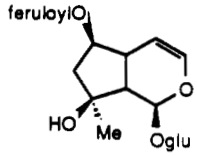
41. *6-O-cis*-FERULOYLAJUGOL



$C_{25}H_{32}O_{12}$ 524.52 [α] −84.5° (MeOH) (200 MHz CD_3OD) 5.48 (H-1, d, 2.4), 6.20 (H-3, dd, 6.4, 2.2), 4.98 (H-4, dd, 6.4, 2.4), 2.87 (H-5, dd, 9.3, 2.4), 5.0–4.9 (H-6, m), 2.23 (H-7, dd, 13.9, 6.6), 1.94 (H-7, dd, 13.9, 4.6), 2.52 (H-9, dd, 9.3, 2.4), 1.37 (H-10, s), 4.66 (H-1′, d, 7.8), 4.0–3.2 (H-2′–H-6′, m), 5.81/6.85 (Hα, Hβ, d's, 13.1), 7.76 (H-2″, d, 2), 6.77 (H-5″, d, 8.3), 7.13 (H-6″, dd, 8.3, 2), 3.87 (OMe); (CD_3OD) 93.4 (C-1), 140.9 (C-3), 104.7 (C-4), 39.1

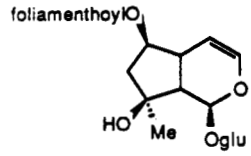
(C-5), 80.1 (C-6), 47.9 (C-7), 79.0 (C-8), 51.5 (C-9), 25.8 (C-10), 99.4 (C-1′), 74.8 (C-2′), 78.0 (C-3′), 71.7 (C-4′), 78.2 (C-5′), 62.9 (C-6′), 168.0 (C=O), 115.7 (Cα), 145.4 (Cβ), 128.2 (C-1″), 115.1 (C-2″), 148.3 (C-3″), 149.4 (C-4″), 117.0 (C-5″), 126.5 (C-6″), 56.5 (OMe). *Rehmannia glutinosa* var. *purpurea* (Scrophulariaceae) (33)

42. 6-*O*-*trans*-FERULOYLAJUGOL



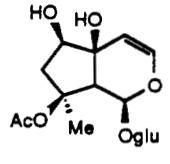
$C_{25}H_{32}O_{12}$ 524.52 [α] −147.0° (MeOH) (200 MHz CD_3OD) 5.52 (H-1, d, 2.2), 6.22 (H-3, dd, 6.3, 2.2), 4.95 (H-4, m), 2.94 (H-5, dd, 9.3, 2.2), 4.95 (H-6, m), 2.24 (H-7, dd, 14.2, 6.3), 2.01 (H-7, dd, 14.2, 3.9), 2.60 (H-9, dd, 9.3, 2.2), 1.39 (H-10, s), 4.70 (H-1′, d, 7.6), 4.0–3.2 (H-2′–H-6′, m), 6.36/7.61 (Hα, Hβ, d's, 16), 7.15 (H-2″, d, 1.7), 6.82 (H-5″, d, 8.1), 7.05 (H-6″, dd, 8.1, 1.7), 3.88 (OMe); (CD_3OD) 93.4 (C-1), 140.9 (C-3), 104.5 (C-4), 39.2 (C-5), 80.2 (C-6), 47.7 (C-7), 79.0 (C-8), 51.5 (C-9), 26.0 (C-10), 99.3 (C-1′), 74.6 (C-2′), 77.8 (C-3′), 71.6 (C-4′), 78.0 (C-5′), 62.8 (C-6′), 168.8 (C=O), 115.6 (Cα), 146.7 (Cβ), 127.6 (C-1″), 111.7 (C-2″), 150.4 (C-3″), 149.2 (C-4″), 116.4 (C-5″), 124.0 (C-6″), 56.4 (OMe). *Rehmannia glutinosa* var. *purpurea* (Scrophulariaceae) (33)

43. NEMOROSOSIDE (6-*O*-Foliamenthoylajugol)



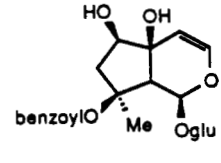
$C_{25}H_{38}O_{11}$ 514.57 mp 72–75° (400 MHz $CDCl_3$) 5.42 (H-1, bs), 6.15 (H-3, dd, 6, 2), 4.87 (H-4, H-6, m), 2.82 (H-5, bd, 9), 1.90–2.30 (H-7, H-4″, H-5″), 2.55 (H-9, bd, 9), 1.32 (H-10, s), 4.77 (H-1′, d, 8), 3.38 (H-3′, dd, 9.3, 8.7), 3.92 (H-6′, dd, 12.2, 6.6), 3.63 (H-6′, dd, 12.2, 2.2), 6.83 (H-3″, qt, 7.4, 1.4), 5.40 (H-7″, qt, 7.5, 1.4), 4.08 (H-8″, d, 7.5), 1.85 (H-9″, d, 1.4), 1.69 (H-10″, d, 1.4); (D_2O) 93.7 (C-1), 140.3 (C-3), 104.4 (C-4), 38.1 (C-5), 80.3 (C-6), 46.7 (C-7), 79.1 (C-8), 50.6 (C-9), 25.6 (C-10), 98.9 (C-1′), 73.6 (C-2′), 77.0 (C-3′), 70.5 (C-4′), 76.4 (C-5′), 61.6 (C-6′), 170.9 (C-1″), 128.3 (C-2″), 145.0 (C-3″), 27.2 (C-4″), 38.1 (C-5″), 140.7 (C-6″), 123.5 (C-7″), 58.7 (C-8″), 12.4 (C-9″), 16.0 (C-10″). *Penstemon nemorosus* (Scrophulariaceae) (35)

44. 8-*O*-ACETYLHARPAGIDE



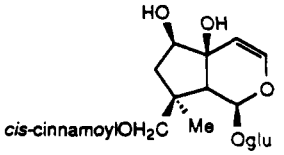
$C_{17}H_{26}O_{11}$ 406.39 [α] −117° (MeOH) (200 MHz CD_3OD) 6.07 (H-1, d, 1), 6.38 (H-3, d, 6.5), 4.91 (H-4, dd, 6.5, 1), 3.71 (H-6, d, 4.5), 1.95 (H-7α, dd, 15, 4.5), 2.17 (H-7β, d, 15), 2.85 (H-9, bs), 1.45 (H-10, s), 2.01 (OAc), 4.59 (H-1′, d, 8), 3.89 (H-6′, dd, 12, 1.5); (CD_3OD) 94.5 (C-1), 143.7 (C-3), 106.8 (C-4), 73.2 (C-5), 78.0 (C-6), 46.0 (C-7), 88.5 (C-8), 55.5 (C-9), 22.5 (C-10), 173.2 (O=*C*Me), 22.2 (O=C*Me*), 99.8 (C-1′), 74.5 (C-2′), 77.6 (C-3′), 71.6 (C-4′), 77.6 (C-5′), 62.8 (C-6′). *Ajuga decumbens* (Labiatae) (21,36)

45. CAPRARIOSIDE (8-*O*-Benzoylharpagide)



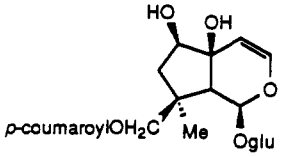
$C_{21}H_{28}O_{11}$ 456.45 (D_2O) 96.5 (C-1), 145.2 (C-3), 107.6 (C-4), 74.9 (C-5), 78.9 (C-6)[a], 47.1 (C-7), 91.2 (C-8), 56.0 (C-9), 24.0 (C-10), 101.4 (C-1′), 75.1 (C-2′), 78.1 (C-3′), 72.3 (C-4′), 78.8 (C-5′)[a], 63.4 (C-6′), 171.0 (C=O), 133.0 (C-1″), 131.9 (C-2″), 131.3 (C-3″), 136.3 (C-4″). *Capraria biflora* (Scrophulariaceae) (37)

46. 8-*O*-*cis*-CINNAMOYLHARPAGIDE



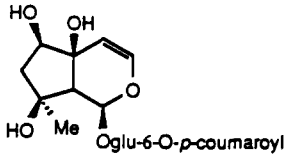
$C_{24}H_{30}O_{11}$ 494.49 no data available. *Rogeria adenophylla* (Pedaliaceae) (38)

47. 8-*O*-*p*-COUMAROYLHARPAGIDE



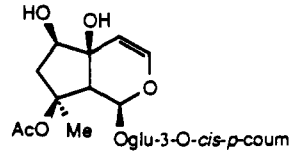
$C_{24}H_{30}O_{12}$ 510.49 [α] −30.5° (MeOH) uv 313, 224 (MeOH) (200 MHz D_2O) 6.18 (H-1, bs), 6.49 (H-3, d, 6.5), 5.04 (H-4, d, 6.5), 3.88 (H-6, d, 4), 2.28 (H-7α, d, 15), 2.08 (H-7β, dd, 15, 4), 2.95 (H-9, s), 1.50 (H-10, s), 6.40/7.65 (Hα, Hβ, d's, 16), 5.98 (H-2″, d, 8.5), 6.94 (H-3″, d, 8.5); (CD_3OD) 94.6 (C-1), 143.9 (C-3), 106.7 (C-4), 73.3 (C-5), 77.5 (C-6)[a], 46.2 (C-7), 88.4 (C-8), 55.5 (C-9), 22.7 (C-10), 99.9 (C-1′), 74.4 (C-2′), 78.0 (C-3′)[a], 71.6 (C-4′), 78.0 (C-5′)[a], 62.8 (C-6′), 169.3 (C=O), 116.3 (Cα), 146.5 (Cβ), 127.0 (C-1″), 131.0 (C-2″), 116.7 (C-3″), 161.1 (C-4″). *Harpagophytum procumbens* (Pedaliaceae) (20)

48. 6′-*O*-*p*-COUMAROYL-HARPAGIDE



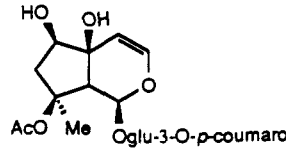
$C_{24}H_{30}O_{12}$ 510.49 *cis*/*trans* mixture, no data available. *Rogeria adenophylla* (Pedaliaceae) (38)

49. DECUMBESIDE D



$C_{26}H_{32}O_{13}$ 552.53 [α] −158° (MeOH) uv 307, 224 (MeOH) (200 MHz CD_3OD) 6.08 (H-1, d, 1), 6.39 (H-3, d, 6.5), 4.91 (H-4, dd, 6.5, 1.5), 3.70–3.76 (H-6, m), 1.94 (H-7α, dd, 15, 4.5), 2.17 (H-7β, d, 15), 2.86 (H-9, bs), 1.46 (H-10, s), 4.70 (H-1′, d, 8), 5.06 (H-3′, dd, 9, 9), 3.90 (H-6′, dd, 12, 2), 5.83/6.86 (Hα, Hβ, d's, 13), 7.64 (H-2″, d, 8.5), 6.74 (H-3″, d, 8.5); (CD_3OD) 94.4 (C-1), 143.7 (C-3), 106.8 (C-4), 73.2 (C-5), 77.9 (C-6)[a], 46.0 (C-7), 88.4 (C-8), 55.4 (C-9), 22.4 (C-10), 173.1 (O=*C*Me), 22.1 (O=C*Me*), 99.7 (C-1′), 72.8 (C-2′), 78.0 (C-3′)[a], 69.7 (C-4′), 77.5 (C-5′), 62.4 (C-6′), 167.9 (O=C), 116.9 (Cα), 144.4 (Cβ), 127.5 (C-1″), 133.4 (C-2″), 115.7 (C-3″), 159.7 (C-4″). *Ajuga decumbens* (Labiatae) (21)

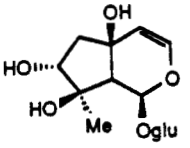
50. DECUMBESIDE C



$C_{26}H_{32}O_{13}$ 552.53 [α] −108° (MeOH) uv 312, 227 (MeOH) (200 MHz CD_3OD) 6.09 (H-1, bs), 6.39 (H-3, d, 6.5), 4.91 (H-4, dd, 6.5, 1.5), 3.72 (H-6, d, 4.5), 1.94 (H-7α, dd, 15, 4.5), 2.18 (H-7β, d, 15), 3.65–3.77 (H-8, m), 2.86 (H-9, bs), 1.46 (H-10, s), 2.02 (OAc), 4.72 (H-1′, d, 8), 3.41 (H-2′, dd, 10, 8), 5.07 (H-3′, dd, 10, 9), 3.54 (H-4′, dd, 10, 9), 3.91 (H-6′, dd, 12, 2), 6.39/7.66 (Hα, Hβ, d's, 16), 7.47 (H-2″, d, 8.5), 6.80 (H-3″, d, 8.5); (CD_3OD) 94.5 (C-1), 143.7 (C-3), 106.8 (C-4), 73.2 (C-5), 77.9 (C-6), 46.0 (C-7), 88.4 (C-8), 55.4 (C-9), 22.5 (C-10), 99.7 (C-1′), 72.9 (C-2′), 78.4 (C-3′), 69.8 (C-4′), 77.5 (C-5′), 62.5 (C-6′), 168.9 (O=C), 115.4 (Cα), 146.5

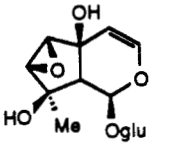
(Cβ), 127.1 (C-1″), 131.0 (C-2″), 116.7 (C-3″), 161.0 (C-4″), 173.1 (O=*C*Me), 22.2 (O=C*Me*). *Ajuga decumbens* (Labiatae) (21)

51. DAUNOSIDE



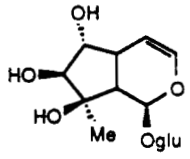
$C_{15}H_{24}O_{10}$ 364.35 [α] −174.2° (MeOH) uv 193.5 (H_2O) (100 MHz D_2O) 6.11 (H-1, bs), 6.74 (H-3, d, 6.6), 5.66 (H-4, d, 6.6), 2.71 (H-6, dd, 14.4, 8.6), 2.19 (H-6, dd, 14.4, 11.0), 4.68 (H-7, dd, 11.0, 8.6), 2.88 (H-9, bs), 1.58 (H-10, s); (CD_3OD) 92.3 (C-1), 139.3 (C-3), 111.5 (C-4), 65.6 (C-5), 46.6 (C-6), 78.2 (C-7)[a], 80.5 (C-8), 58.8 (C-9), 15.9 (C-10), 99.0 (C-1′), 74.6 (C-2′), 78.1 (C-3′)[a], 71.8 (C-4′), 77.6 (C-5′)[a], 62.9 (C-6′). Hydrolysis of galiridoside (4,39)

52. VIRGINIOSIDE



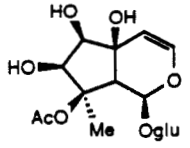
$C_{15}H_{22}O_{10}$ 362.33 [α] −170° (EtOH) (250 MHz D_2O) 5.68 (H-1, bs), 6.39 (H-3, d, 6.6), 5.09 (H-4, dd, 6.5, 1.6), 3.51 (H-6, d, 2.9), 3.41 (H-7, d, 2.9), 2.16 (H-9, m), 1.18 (H-10, s), 4.70 (H-1′, d, 8); (D_2O) 93.3 (C-1), 143.4 (C-3), 102.6 (C-4), 69.3 (C-5), 61.7 (C-6)[a], 62.3 (C-7)[a], 77.3 (C-8), 52.1 (C-9), 20.2 (C-10), 99.5 (C-1′), 73.4 (C-2′), 76.3 (C-3′), 70.6 (C-4′), 77.2 (C-5′), 61.5 (C-6′). *Physostegia virginiana* var. *speciosa* (Lamiaceae) (27)

53. PHYSOSIDE



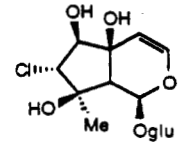
$C_{15}H_{24}O_{10}$ 364.35 mp 222° [α] −232° (H_2O) (250 MHz D_2O) 5.57 (H-1, d, 1.9), 6.29 (H-3, dd, 6.5, 1.9), 5.02 (H-4, bdd, 6.5, 2.1), 2.78 (H-5, m), 4.08 (H-6, dd, 9.5, 7.0), 3.53 (H-7, d, 9.5), 2.36 (H-9, bd, 9), 1.27 (H-10, s), 4.72 (H-1′, d, 8); (D_2O) 93.4 (C-1), 140.3 (C-3), 102.6 (C-4), 30.3 (C-5), 75.5 (C-6)[a], 80.6 (C-7)[a], 74.9 (C-8), 47.6 (C-9), 23.2 (C-10), 98.7 (C-1′), 73.5 (C-2′), 76.4 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.5 (C-6′). *Physostegia virginiana* var. *speciosa* (Lamiaceae) (27)

54. JARANIDOSIDE



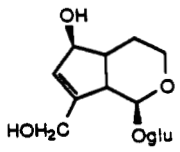
$C_{17}H_{26}O_{12}$ 422.39 mp 128–130° (90 MHz D_2O) 6.42 (H-1, s), 6.95 (H-3, d, 6), 5.55 (H-4, dd, 6, 1.5), 4.6–3.7 (H-6, H-7, m), 3.17 (H-9, s), 1.95 (H-10, s), 2.55 (OAc), 5.2 (H-1′). *Ajuga spectabilis* (Labiatae) (40)

55. LINARIOSIDE (revision of Avicennioside)



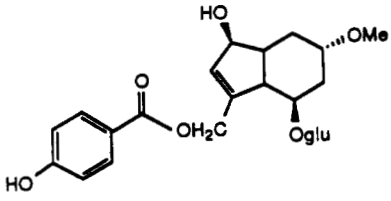
$C_{15}H_{23}ClO_{10}$ 380.35 uv 203 (H_2O) (250 MHz CD_3CN/D_2O) 5.64 (H-1, bs), 6.32 (H-3, d, 6.5), 5.11 (H-4, dd, 6.5, 1.5), 3.63 (H-6, d, 10), 4.03 (H-7, d, 10), 2.41 (H-9, bs), 1.15 (H-10, s), 4.64 (H-1′, d, 8), 3.24 (H-2′, dd, 9, 8), 3.42 (H-3′, dd, 9, 8), 3.22 (H-4′, dd, 9, 8), 3.39 (H-5′, ddd, 9, 5.5, 2), 3.9 (H-6′, dd, 13, 2), 3.65 (H-6′, dd, 13, 5.5); (D_2O) 93.1 (C-1), 141.3 (C-3), 110.2 (C-4), 66.6 (C-5), 81.3 (C-6), 72.9 (C-7), 76.0 (C-8), 58.4 (C-9), 19.3 (C-10), 100.0 (C-1′), 74.5 (C-2′), 77.4 (C-3′), 71.7 (C-4′), 78.2 (C-5′), 62.8 (C-6′). *Avicennia officinalis* (Verbenaceae) (41–43)

56. 3,4-DIHYDROAUCUBIN



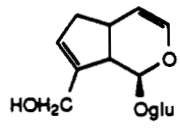
$C_{15}H_{24}O_9$ 348.35 [α] −146.4° (H_2O) (90 MHz D_2O) 5.20 (H-1, d, 4.5), 1.85 (H-4, m), 2.60 (H-5, m), 5.99 (H-7, m), 3.00 (H-9, m), 4.40 (H-10, s); (D_2O) 98.0 (C-1), 61.0 (C-3), 24.5 (C-4), 44.1 (C-5), 79.1 (C-6), 129.1 (C-7), 147.9 (C-8), 47.2 (C-9), 60.4 (C-10), 98.5 (C-1′), 73.8 (C-2′), 77.0 (C-3′), 70.5 (C-4′), 76.7 (C-5′), 61.6 (C-6′). *Plantago asiatica* (Plantaginaceae) (44)

57. NISHINDASIDE



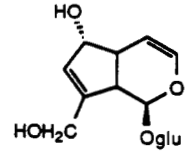
$C_{23}H_{30}O_{12}$ 498.48 [α] −83.5 (MeOH) (100 MHz DMSO-d_6) 4.96 (H-1, d, 6), 5.76 (H-7, bs), 4.84 (H-10, bs), 4.52 (H-1′, d, 8), 7.86 (H-2″, d, 8), 6.86 (H-3″, d, 8), 3.40 (OMe); (CD_3OD) 98.4 (C-1), 100.0 (C-3), 30.2 (C-4), 44.6 (C-5), 80.8 (C-6), 131.4 (C-7), 142.5 (C-8), 49.2 (C-9), 63.0 (C-10), 56.1 (OMe), 100.0 (C-1′), 74.6 (C-2′), 77.9 (C-3′), 71.2 (C-4′), 77.9 (C-5′), 62.6 (C-6′), 167.6 (C=O), 121.8 (C-1″), 132.7 (C-2″), 116.1 (C-3″), 163.3 (C-4″). *Vitex negundo* (Verbenaceae) (45)

58. BARTSIOSIDE



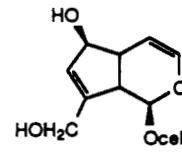
$C_{15}H_{22}O_8$ 330.33 (360 MHz D_2O) 5.33 (H-1, d, 3.5), 6.23 (H-3, d, 6.3), 4.92 (H-4, dt), 2.92 (H-5, bs), 2.62, 2.07 (H-6, bd's, 15), 5.61 (H-7, bs), 2.92 (H-9, bs), 4.23, 4.16 (H-10, d's, 14.2), 4.73 (H-1′), 3.5–3.25 (H-2′–H-5′), 3.87 (H-6′, dd, 12.3, 1.9), 3.68 (H-6′, dd, 12.3, 5.5); (CD_3OD) 96.2 (C-1), 140.4 (C-3), 107.9 (C-4), 35.4 (C-5)[a], 39.7 (C-6)[a], 127.4 (C-7), 144.3 (C-8), 48.4 (C-9), 61.1 (C-10)[b], 99.5 (C-1′), 74.5 (C-2′), 77.8 (C-3′)[c], 71.2 (C-4′), 77.5 (C-5′)[c], 62.4 (C-6′)[b]. *Penstemon carduellii* (Scrophulariaceae) (46, 47, personal communication of M. Roby and F. Stermitz)

59. 6-*epi*-AUCUBIN



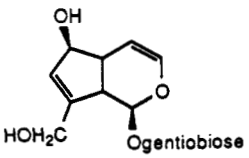
$C_{15}H_{22}O_9$ 346.33 [α] −58.9° (MeOH) uv 204 (H_2O) (100 MHz CD_3OD) 4.95 (H-1, d, 7.0), 6.45 (H-3, dd, 6.0, 1.5), 4.92 (H-4, dd, 6.0, 4.0), 2.4–2.9 (H-5), 4.70 (H-6, m), 5.90 (H-7, bs), 2.4–2.9 (H-9), 4.40, 4.15 (H-10, 15.0), 4.65 (H-1′, d, 7.0); (CD_3OD) 99.1 (C-1), 143.2 (C-3), 102.7 (C-4), 41.9 (C-5), 76.2 (C-6), 129.6 (C-7), 150.6 (C-8), 47.7 (C-9), 61.5 (C-10), 99.9 (C-1′), 74.7 (C-2′), 78.0 (C-3′)[a], 71.4 (C-4′), 77.6 (C-5′)[a], 62.6 (C-6′). *Tecoma chrysantha* (Bignoniaceae) (48)

60. AUCUBIGENIN-1-*O*-β-CELLOBIOSIDE



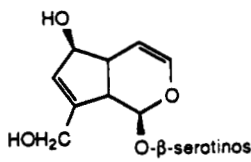
$C_{21}H_{32}O_{14}$ 508.48 [α] −92.0° (MeOH) uv 204 (MeOH) (60 MHz D_2O) 5.14 (H-1, d, 5), 6.21 (H-3, dd, 6, 2), 5.01 (H-4, dd, 6, 4), 2.74 (H-5, m), 4.44 (H-6, m), 5.75 (H-7, m), 3.03 (H-9, m), 4.23 (H-10, bs), 4.70 (H-1′, d, 7), 4.47 (H-1″, d, 7); (D_2O) 96.3 (C-1), 140.4 (C-3), 106.1 (C-4), 43.3 (C-5), 81.4 (C-6), 129.4 (C-7), 147.6 (C-8), 47.2 (C-9), 60.3 (C-10), 99.0 (C-1′), 73.4 (C-2′)[a], 76.3 (C-3′)[b], 79.4 (C-4′), 75.8 (C-5′), 60.8 (C-6′), 103.3 (C-1″), 73.9 (C-2″)[a], 76.8 (C-3″)[b], 70.3 (C-4″)[b], 76.5 (C-5″)[b], 61.4 (C-6″). *Odontites verna* subsp. *serotina* (Scrophulariaceae) (49)

61. 6′-*O*-GLUCOSYLAUCUBIN (Aucubigenin-1-*O*-β-gentiobioside)



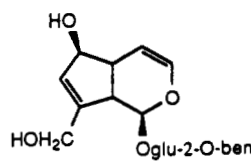
$C_{21}H_{32}O_{14}$ 508.48 mp 180–181° [α] −45° (MeOH) uv 204 (MeOH) (60 MHz D_2O) 5.14 (H-1, d, 5), 6.24 (H-3, dd, 6, 2), 5.04 (H-4, dd, 6, 4), 2.75 (H-5, m), 4.47 (H-6, m), 5.77 (H-7, m), 3.07 (H-9, m), 4.24 (H-10, bs), 4.70 (H-1′, d, 7), 4.44 (H-1″, d, 7); (D_2O) 96.4 (C-1), 140.4 (C-3), 106.0 (C-4), 43.4 (C-5), 81.4 (C-6), 129.5 (C-7), 147.5 (C-8), 47.2 (C-9), 60.3 (C-10), 99.2 (C-1′), 73.5 (C-2′)[a], 77.0 (C-3′)[b], 70.4 (C-4′), 76.2 (C-5′), 69.4 (C-6′), 103.7 (C-1″), 73.9 (C-2″)[a], 76.6 (C-3″)[b], 70.4 (C-4″), 76.4 (C-5″)[b], 61.5 (C-6″). *Odontites verna* subsp. *serotina* (Scrophulariaceae) (49)

62. AUCUBIGENIN-1-*O*-β-SEROTINOSIDE



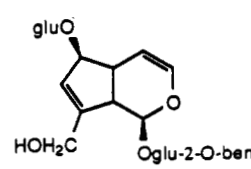
$C_{20}H_{30}O_{13}$ 478.45 [α] −44.7° (MeOH) uv 204 (MeOH) (60 MHz D_2O) 5.12 (H-1, d, 4.5), 6.22 (H-3, dd, 6, 2), 5.02 (H-4, dd, 6, 4), 2.71 (H-5, m), 4.45 (H-6, m), 5.76 (H-7, m), 3.02 (H-9, m), 4.20 (H-10, bs), 4.73 (H-1′, d, 7), 4.83 (H-1″, d, 3); (D_2O) 96.4 (C-1), 140.4 (C-3), 106.2 (C-4), 43.5 (C-5), 81.5 (C-6), 129.8 (C-7), 147.4 (C-8), 47.4 (C-9), 60.5 (C-10), 99.1 (C-1′)[a], 73.7 (C-2′), 76.8 (C-3′), 70.4 (C-4′)[b], 75.7 (C-5′), 67.0 (C-6′), 99.3 (C-1″)[a], 72.4 (C-2″), 74.2 (C-3″), 70.3 (C-4″)[b], 62.3 (C-5″). *Odontites verna* subsp. *serotina* (Scrophulariaceae) (50)

63. 2′-*O*-BENZOYLAUCUBIN



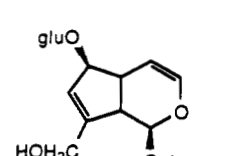
$C_{22}H_{26}O_{10}$ 450.45 [α] −124.8° (MeOH) uv 233 (H_2O) (90 MHz D_2O) 5.42 (H-1, d, 3), 5.62 (H-3, dd, 6, 1.5), 4.32 (H-4), 2.56 (H-5, m), 5.06 (H-6, bs), 5.79 (H-7, bs), 3.18 (H-9, m), 4.25 (H-10, bs), 5.00 (H-1′, d, 2), 4.00 (H-2′), 8.2–8.0 (H-2″), 7.7–7.4 (H-3″, H-4″); (D_2O) 94.7 (C-1), 139.3 (C-3), 105.9 (C-4), 41.5 (C-5), 80.5 (C-6), 128.7 (C-7), 147.7 (C-8), 46.9 (C-9), 59.8 (C-10), 97.3 (C-1′), 74.7 (C-2′), 74.4 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′), 168.0 (C=O), 130.1 (C-1″), 130.4 (C-2″), 129.3 (C-3″), 134.6 (C-4″). *Odontites verna* subsp. *serotina* (Scrophulariaceae) (51)

64. 6-*O*-GLUCOSYL-2′-*O*-BENZOYLAUCUBIN



$C_{28}H_{36}O_{15}$ 612.58 mp 141–143° [α] −165.4° (MeOH) uv 233 (H_2O) (90 MHz D_2O) 5.30 (H-1, d, 3), 5.65 (H-3, dd, 6, 1.5), 2.60 (H-5, m), 4.8–5.0 H-6), 5.85 (H-7, bs), 3.00 (H-9, m), 4.4–4.0 (H-10, H-2′, H-1‴), 4.8–5.0 (H-1′); (D_2O) 94.5 (C-1), 139.4 (C-3), 105.8 (C-4), 39.6 (C-5), 89.3 (C-6), 126.2 (C-7), 149.9 (C-8), 47.1 (C-9), 59.8 (C-10), 97.1 (C-1′), 74.7 (C-2′), 74.4 (C-3′), 70.2 (C-4′)[a], 77.2 (C-5′)[b], 61.4 (C-6′), 168.2 (O=C), 129.9 (C-1″), 130.4 (C-2″), 129.4 (C-3″), 134.7 (C-4″), 102.4 (C-1‴), 73.9 (C-2‴), 76.6 (C-3‴)[b], 70.3 (C-4‴)[a], 76.6 (C-5‴)[b], 61.4 (C-6‴). *Odontites verna* subsp. *serotina* (Scrophulariaceae) (52)

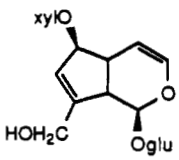
65. 6-*O*-GLUCOPYRANOSYLAUCUBIN



$C_{21}H_{32}O_{14}$ 508.48 [α] −94.4° (MeOH) uv 204 (MeOH) (90 MHz D_2O) 5.23 (H-1, d, 5.0), 6.32 (H-3, dd, 6.0, 1.5), 5.18 (H-4, dd, 6.0, 3.5), 3.2–3.0 (H-5), 4.64 (H-6, m), 5.96 (H-7, bs), 3.2–3.0 (H-5), 4.64 (H-6, m), 5.96 (H-7, bs), 3.2–3.0 (H-9), 4.34 (H-10, bs), 4.78 (H-1′, d, 7), 4.60 (H-1″, d, 7); (D_2O) 96.4 (C-1), 140.6 (C-3), 105.8 (C-4), 41.7 (C-5), 90.4 (C-6),

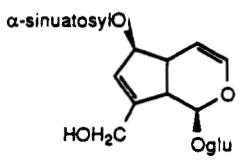
127.0 (C-7), 149.3 (C-8), 47.4 (C-9), 60.3 (C-10), 99.2 (C-1′), 73.6 (C-2′)[a], 76.9 (C-3′)[b], 70.4 (C-4′), 76.4 (C-5′)[b], 61.5 (C-6′), 102.5 (C-1″), 74.0 (C-2″)[a], 76.7 (C-3″)[b], 70.4 (C-4″), 76.7 (C-5″)[b], 61.5 (C-6″). *Odontites verna* subsp. *serotina* (Scrophulariaceae) (53)

66. 6-*O*-β-D-XYLOPYRANOSYL-AUCUBIN



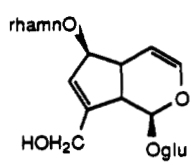
$C_{20}H_{30}O_{13}$ 478.45 mp 192–193° [α] −85° (H_2O) uv 204 (MeOH) (90 MHz D_2O) 5.22 (H-1, d, 5), 6.38 (H-3, dd, 6, 1.5), 5.17 (H-4, dd, 6, 3.7), 3.2–2.9 (H-5), 4.60 (H-6, bs), 5.98 (H-7, bs), 3.2–2.9 (H-9), 4.38 (H-10, bs); (D_2O) 94.7 (C-1), 139.0 (C-3), 103.9 (C-4), 40.0 (C-5), 88.6 (C-6), 125.3 (C-7), 147.7 (C-8), 45.7 (C-9), 59.8 (C-10), 97.5 (C-1′), 73.6 (C-2′), 77.1 (C-3′), 70.5 (C-4′), 76.5 (C-5′), 61.7 (C-6′), 101.6 (C-1″), 74.0 (C-2″), 76.7 (C-3″), 70.1 (C-4″), 64.0 (C-5″). *Verbascum sinuatum* (Scrophulariaceae) (54)

67. SINUATOSIDE (6-*O*-Sinuatosyl-aucubin)



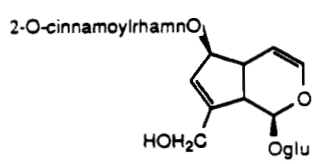
$C_{26}H_{40}O_{18}$ 640.59 [α] −55.7° (H_2O) uv 204 (MeOH) (90 MHz D_2O) 5.36 (H-1, d, 4.5), 6.34 (H-3, dd, 6.3, 1.7), 5.17 (H-4, dd, 3), 4.58 (H-6, bs), 5.97 (H-7, bs), 4.36 (H-10, bs), 4.76 (H-1′, d), 5.20 (H-1″, bs); (D_2O) 96.0 (C-1), 140.5 (C-3), 106.2 (C-4), 40.6 (C-5), 88.0 (C-6), 128.1 (C-7), 148.8 (C-8), 47.1 (C-9), 60.3 (C-10), 99.2 (C-1′), 73.6 (C-2′), 77.0 (C-3′)[a], 70.4 (C-4′), 76.6 (C-5′)[a], 61.6 (C-6′), 98.7 (C-1″), 68.2 (C-2″), 79.9 (C-3″), 69.9 (C-4″), 71.6 (C-5″), 61.9 (C-6″), 105.2 (C-1‴), 74.0 (C-2‴), 76.4 (C-3‴), 69.9 (C-4‴), 65.9 (C-5‴). *Verbascum sinuatum* (Scrophulariaceae) (55)

68. SINUATOL (6-*O*-α-L-Rhamnopyranosylaucubin)



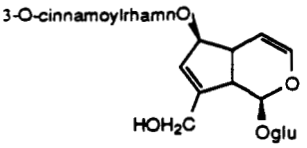
$C_{21}H_{32}O_{13}$ 492.48 [α] −158° (H_2O) uv 204 (MeOH) (90 MHz D_2O) 5.20 (H-1, d, 5.0), 6.38 (H-3, dd, 6.0, 1.6), 5.16 (H-4, dd, 6.0, 3.7), 2.98 (H-5, bs), 4.60 (H-6, bs), 5.98 (H-7, bs), 3.10 (H-9, bd), 4.36 (H-10, bs); (D_2O) 96.7 (C-1), 140.8 (C-3), 105.8 (C-4), 41.6 (C-5), 88.3 (C-6), 126.9 (C-7), 149.2 (C-8), 47.4 (C-9), 60.4 (C-10), 99.3 (C-1′), 73.6 (C-2′), 77.0 (C-3′), 70.4 (C-4′), 76.5 (C-5′), 61.4 (C-6′), 100.4 (C-1″), 71.2 (C-2″), 71.0 (C-3″), 72.9 (C-4″), 69.8 (C-5″), 17.4 (C-6″). *Verbascum sinuatum* (Scrophulariaceae) (56)

69. NIGROSIDE 2 [6-*O*-(2″-*O*-Cinnamoyl-α-L-rhamnopyranosyl)aucubin]



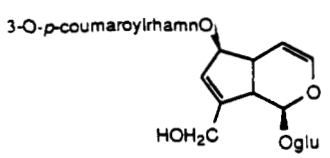
$C_{30}H_{38}O_{14}$ 622.62 [α] −142° (MeOH) uv 281, 217 (MeOH) (200 MHz CD_3OD) 4.90 (H-1), 6.32 (H-3, dd, 6, 1.5), 5.11 (H-4, dd, 6, 3.5), 2.90–2.80 (H-5, H-9, m), 4.46 (H-6, m), 5.87 (H-7, bs), 4.65 (H-1′, d, 7.6), 4.87 (H-1″, d, 1.6), 5.05 (H-2″, dd, 3.4, 1.6), 3.45 (H-4″, t, 9.3), 1.28 (H-6″, d, 6.1), 6.57/7.72 (Hα, Hβ, d's, 16), 7.60, 7.38 (H-2‴–H-4‴); (CD_3OD) 98.0 (C-1), 141.9 (C-3), 105.4 (C-4), 44.4 (C-5), 89.3 (C-6), 127.0 (C-7), 149.7 (C-8), — (C-9), 61.5 (C-10), 99.9 (C-1′), 74.9 (C-2′), 78.3 (C-3′), 71.6 (C-4′), 77.9 (C-5′), 62.7 (C-6′), 98.3 (C-1″), 74.6 (C-2″), 70.6 (C-3″), 74.3 (C-4″), 70.3 (C-5″), 18.1 (C-6″), 167.9 (O=C), 118.6 (Cα), 146.7 (Cβ), 135.6 (C-1‴), 129.9 (C-2‴)[a], 129.2 (C-3‴)[a], 131.5 (C-4‴). *Verbascum nigrum* (Scrophulariaceae) (57)

70. NIGROSIDE 1 [6-*O*-(3″-*O*-Cinnamoyl-α-L-rhamnopyranosyl)aucubin]



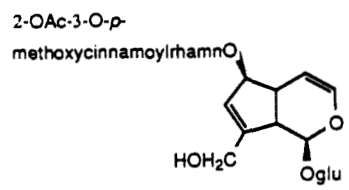
$C_{30}H_{38}O_{14}$ 622.62 [α] −140° (MeOH) uv 280, 217 (MeOH) (200 MHz CD_3OD) 4.93 (H-1, d, 6.6), 6.36 (H-3, dd, 6, 1.5), 5.18 (H-4, dd, 6, 3.5), 2.96–2.84 (H-5, H-9, m), 4.50 (H-6, m), 5.90 (H-7, bs), 4.69 (H-1′, d, 7.6), 4.89 (H-1″), 4.01 (H-2″, dd, 3.4, 1.6), 5.08 (H-3″, dd, 9.3, 3.4), 1.33 (H-6″, d, 6.1), 6.60/7.77 (Hα, Hβ, d's, 16), 7.60, 7.41 (H-2‴–H-4‴); (CD_3OD) 98.0 (C-1), 141.9 (C-3), 105.5 (C-4), 44.3 (C-5), 89.0 (C-6), 127.0 (C-7), 149.5 (C-8), — (C-9), 61.5 (C-10), 99.9 (C-1′), 74.9 (C-2′), 78.3 (C-3′), 71.5 (C-4′), 77.9 (C-5′), 62.7 (C-6′), 101.0 (C-1″), 70.4 (C-2″), 75.7 (C-3″), 71.4 (C-4″), 70.4 (C-5″), 18.1 (C-6″), 168.1 (O=C), 119.0 (Cα), 146.3 (Cβ), 135.7 (C-1‴), 129.9 (C-2‴)[a], 129.1 (C-3‴)[a], 131.4 (C-4‴). *Verbascum nigrum* (Scrophulariaceae) (57)

71. 3″-*O*-*p*-COUMAROYLSINUATOL [6-*O*-(3″-*O*-*p*-Coumaroyl-α-L-rhamnopyranosyl)aucubin]



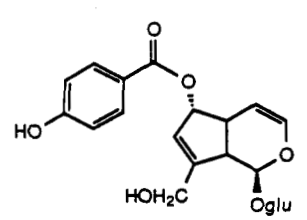
$C_{30}H_{38}O_{15}$ 638.62 [α] −174.2° (MeOH) uv 312, 225, 213, 205 (MeOH) (DMSO-d_6) 95.1 (C-1), 139.9 (C-3), 103.8 (C-4), 42.3 (C-5), 86.4 (C-6), 132.1 (C-7), 148.6 (C-8), 46.6 (C-9), 59.4 (C-10), 97.7 (C-1′), 73.0 (C-2′), 77.0 (C-3′), 69.8 (C-4′), 76.2 (C-5′), 60.9 (C-6′), 99.2 (C-1″), 66.3 (C-2″), 73.4 (C-3″), 67.9 (C-4″), 68.7 (C-5″), 17.7 (C-6″), 166.2 (O=C), 114.4 (Cα), 143.9 (Cβ), 124.6 (C-1‴), 130.0 (C-2‴), 115.4 (C-3‴), 159.6 (C-4‴). *Verbascum laxum* (Scrophulariaceae) (58)

72. 6-*O*-(2″-*O*-ACETYL-3″-*O*-*p*-METHOXY-*trans*-CINNAMOYL)-RHAMNOPYRANOSYLAUCUBIN



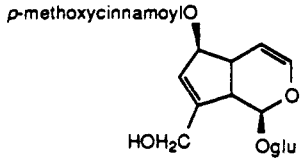
$C_{33}H_{42}O_{16}$ 694.69 $[M]_{546}$ −130° (MeOH) uv 320, 288, 225, 209 (MeOH) (250 MHz CD_3OD) 6.20 (H-3, d, 6), 2.9–2.7 (H-5, m), 5.75 (H-7, bs), 2.9–2.7 (H-9, m), 1.97 (OAc), 1.37 (H-6″, d, 16), 3.65 (OMe), 6.22/7.45 (Hα, Hβ, d's, 15.8), 6.77 (H-2‴, d, 9), 7.35 (H-3‴, d, 9); (CD_3OD) 98.0 (C-1), 142.0 (C-3), 105.4 (C-4), 44.1 (C-5), 89.4 (C-6), 127.1 (C-7), 149.9 (C-8), 48.2 (C-9), 61.4 (C-10), 172.2 (O=*C*Me), 20.9 (O=C*Me*), 100.1 (C-1′), 74.9 (C-2′), 78.2 (C-3′), 71.6 (C-4′), 77.9 (C-5′), 62.7 (C-6′), 98.4 (C-1″), 71.6 (C-2″), 73.3 (C-3″), 71.6 (C-4″), 70.3 (C-5″), 18.1 (C-6″), 167.9 (O=C), 115.5 (Cα), 147.0 (Cβ), 128.2 (C-1‴), 131.1 (C-2‴), 115.5 (C-3‴), 163.3 (C-4‴), 55.9 (ArOMe). *Verbascum laxum* (Scrophulariaceae) (58)

73. 6-*O*-*p*-HYDROXYBENZOYL-6-*epi*-AUCUBIN



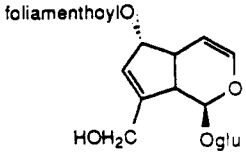
$C_{22}H_{26}O_{11}$ 466.44 [α] −87.6° (MeOH) uv 236 (H_2O) (100 MHz D_2O) 4.98 (H-1, d, 7), 6.30 (H-3, dd, 6, 1.5), 4.93 (H-4, dd, 6, 4), 3.1–2.5 (H-5, m), 5.65 (H-6, bd), 5.95 (H-7, m), 3.1–2.5 (H-9, m), 4.35 (H-10, bs), 4.70 (H-1′, d, 7), 7.66 (H-2″, d, 8), 6.78 (H-3″, d, 8); (D_2O) 98.7 (C-1), 142.7 (C-3), 102.0 (C-4), 40.1 (C-5), 79.7 (C-6), 125.9 (C-7), 152.4 (C-8), 46.9 (C-9), 60.7 (C-10), 99.2 (C-1′), 73.6 (C-2′), 76.4 (C-3′)[a], 70.0 (C-4′), 76.7 (C-5′)[a], 61.1 (C-6′), 167.6 (C=O), 121.7 (C-1″), 132.2 (C-2″), 115.8 (C-3″), 161.3 (C-4″). *Tecoma chrysantha* (Bignoniaceae) (59)

74. 6-*O*-*p*-METHOXYCINNAMOYL-AUCUBIN



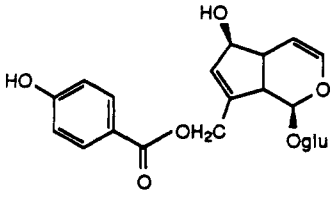
$C_{25}H_{30}O_{11}$ 506.51 uv 310, 224 (MeOH) (pentaacetate 250 MHz $CDCl_3$) 5.50–4.70 (H-1), 6.23 (H-3, d, 6.1), 5.50–4.70 (H-4), 2.37 (H-5, m), 5.50–4.70 (H-6), 5.72 (H-7, d, 8.2), 2.91 (H-9, m), 4.65, 3.97 (H-10, dd's, 11, 1.8), 5.50–4.70 (H-1′–H-4′), 3.70 (H-5′, m), 4.35–4.01 (H-6′, m), 6.26/7.49 (Hα, Hβ, d's, 16), 7.49 (H-2″, d, 8.8), 6.92 (H-3″, d, 8.8), 3.84 (OMe), 2.18–2.01 (OAc). *Buddleja globosa* (Loganiaceae) (60)

75. AMARELOSIDE (6-*O*-Foliamenthoyl-6-*epi*-aucubin)



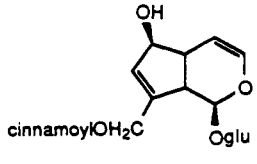
$C_{25}H_{36}O_{11}$ 512.55 [α] −50.7° (MeOH) uv 233 (H_2O) (100 MHz CD_3OD) 4.6–5.0 (H-1), 6.42 (H-3, dd, 6, 1.5), 4.6–5.0 (H-4), 2.4–2.9 (H-5), 5.62 (H-6, m), 5.92 (H-7, bs), 2.4–2.9 (H-9), 4.52, 4.24 (H-10, 15), 4.6–5.0 (H-1′), 6.73 (H-3″, m), 2.0–2.4 (H-4″, H-5″), 5.38 (H-7″, t, 7.5), 4.20, 3.95 (H-8″, 15), 1.80 (H-9″, bs), 1.70 (H-10″, bs); (CD_3OD) 100.8 (C-1), 143.7 (C-3)[a], 102.3 (C-4), 39.7 (C-5), 79.9 (C-6), 126.1 (C-7)[b], 155.0 (C-8), 48.4 (C-9), 62.2 (C-10)[c], 100.0 (C-1′), 75.4 (C-2′), 78.5 (C-3′)[d], 71.7 (C-4′), 78.3 (C-5′)[d], 62.8 (C-6′)[c], 169.6 (C-1″), 129.5 (C-2″)[b], 144.1 (C-3″)[a], 28.6 (C-4″), 42.0 (C-5″), 138.8 (C-6″), 126.3 (C-7″), 59.9 (C-8″), 13.2 (C-9″), 17.2 (C-10″). *Tecoma chrysantha* (Bignoniaceae) (61)

76. AGNUSIDE (10-*O*-*p*-Hydroxybenzoylaucubin)



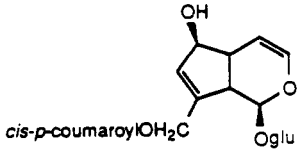
$C_{22}H_{26}O_{11}$ 466.44 mp 148–152° (100 MHz DMSO-d_6) 6.36 (H-3, dd, 7, 2), 5.10 (H-4, dd, 7, 4), 2.90 (H-5, m), 4.38 (H-6, m), 5.80 (H-7, bs), 2.90 (H-9, m), 4.90 (H-10, bs), 4.54 (H-1′, d, 8), 3.7 (H-6′, m), 7.90 (H-2″, d, 8), 6.90 (H-3″, d, 8); (CD_3OD) 97.9 (C-1), 141.7 (C-3), 105.5 (C-4), 46.2 (C-5), 82.8 (C-6), 132.8 (C-7), 142.8 (C-8), 48.7 (C-9), 63.6 (C-11), 100.1 (C-1′), 74.8 (C-2′), 77.8 (C-3′), 71.3 (C-4′), 78.1 (C-5′), 62.6 (C-6′), 167.8 (C=O), 122.0 (C-1″), 132.3 (C-2″), 116.2 (C-3″), 163.6 (C-4″). *Vitex agnus-castus* (Verbenaceae) (45, 62, 63)

77. ISOSCROPHULARIOSIDE (10-*O*-Cinnamoylaucubin, Lytanthosalin)



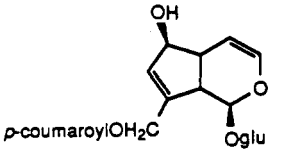
$C_{24}H_{28}O_{10}$ 476.48 mp 98–101° uv 277, 222, 216, 204 (MeOH) (100 MHz CD_3OD) 4.95 (H-1, d, 7.4), 6.32 (H-3, dd, 6, 1.8), 5.10 (H-4, dd, 6, 3.8), 2.62 (H-5, m), 4.44 (H-6, m), 5.80 (H-7, tdd), 2.95 (H-9, ddd, 7.4), 4.94 (H-10), 4.68 (H-1′, d, 7.1), 3.74 (H-6′, m), 6.55/7.71 (Hα, Hβ, d's, 16), 7.62 (H-2″, m), 7.43 (H-3″, H-4″, m); (CD_3OD) 97.9 (C-1), 141.6 (C-3), 105.5 (C-4), 46.0 (C-5), 82.6 (C-6), 132.5 (C-7), 142.3 (C-8), 48.1 (C-9), 63.5 (C-10), 100.0 (C-1′), 74.6 (C-2′), 77.9 (C-3′)[a], 71.4 (C-4′), 77.6 (C-5′)[a], 62.6 (C-6′), 168.4 (C=O), 118.4 (Cα), 146.5 (Cβ), 135.4 (C-1″), 129.9 (C-2″)[b], 129.2 (C-3″)[b], 131.5 (C-4″). *Penstemon eriantherus* (Scrophulariaceae) (64)

78. *cis*-EUROSTOSIDE (10-*O*-*cis*-*p*-Coumaroylaucubin)



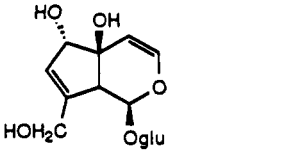
$C_{24}H_{28}O_{11}$ 492.48 [α] −49.6° (EtOH *cis*/*trans* mix) (90 MHz CD_3OD) 5.00 (H-1, d, 7.4), 6.39 (H-3, dd, 6.3, 2.0), 5.11 (H-4, dd, 6.3, 3.8), 2.70 (H-5, m), 4.45 (H-6, m), 5.80 (H-7, bs), 2.96 (H-9, bt, 7.4), 4.70 (H-10, d, 7.1), 4.69 (H-1′, d, 7.1), 5.81/6.90 (Hα, Hβ, d's, 12.6), 7.63 (H-2″, d, 8.9), 6.75 (H-3″, d, 8.9); (CD_3OD) 100.3 (C-1′), 74.9 (C-2′), 78.2 (C-3′), 71.5 (C-4′), 78.0 (C-5′), 62.8 (C-6′). *Vitex rotundifolia* (Verbenaceae) (65)

79. *trans*-EUROSTOSIDE (10-*O*-*trans*-*p*-Coumaroylaucubin)



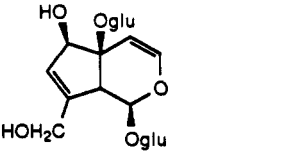
$C_{24}H_{28}O_{11}$ 492.48 [α] −128.1° (MeOH) uv 303, 292 sh, 218 (MeOH) (360 MHz D_2O) 5.46 (H-1, d, 5), 6.49 (H-3, dd, 6, 1.5), 5.28 (H-4, dd, 6, 3.5), 2.92 (H-5, m), 4.70 (H-6, s), 6.10 (H-7, tdd, 1.6, 1), 3.36 (H-9, m), 5.10–4.98 (H-10), 4.92 (H-1′, d, 7.5), 3.90 (H-6′), 6.54/7.82 (Hα, Hβ, d's, 16), 7.69 (H-2″, d, 9), 7.08 (H-3″, d, 9); (CD_3OD) 97.9 (C-1), 141.6 (C-3), 105.5 (C-4), 46.1 (C-5), 82.7 (C-6), 132.3 (C-7), 142.6 (C-8), 48.2 (C-9), 63.3 (C-10), 100.1 (C-1′), 74.7 (C-2′), 77.7 (C-3′), 71.3 (C-4′), 77.9 (C-5′), 62.6 (C-6′), 168.8 (C=O), 114.8 (Cα), 146.9 (Cβ), 127.0 (C-1″), 131.3 (C-2″), 116.8 (C-3″), 161.1 (C-4″). *Euphrasia rostkoviana* (Scrophulariaceae) (66)

80. 6-*epi*-MONOMELITTOSIDE



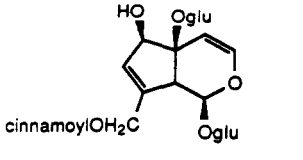
$C_{15}H_{22}O_{10}$ 362.33 [α] −47° (MeOH) (100 MHz D_2O) 5.51 (H-1, d, 4.7), 6.45 (H-3, d, 6.5), 5.12 (H-4, d, 6.5), 4.57 (H-6, m), 5.72 (H-7, bs), 3.00 (H-9, m, 4.7), 4.24 (H-10, bs); (CD_3OD) 95.2 (C-1), 142.8 (C-3), 105.7 (C-4), 78.3 (C-5), 83.9 (C-6), 129.2 (C-7), 145.4 (C-8), 55.1 (C-9), 60.9 (C-10), 99.6 (C-1′), 74.7 (C-2′), 78.3 (C-3′)[a], 71.7 (C-4′), 77.7 (C-5′)[a], 62.8 (C-6′). *Tecoma heptaphylla* (Bignoniaceae) (67)

81. MELITTOSIDE



$C_{21}H_{32}O_{15}$ 524.47 mp 157–159° [α] −41.9° (MeOH) (360 MHz D_2O) 5.44 (H-1, d, 5.4), 6.51 (H-3, d, 6.5), 5.16 (H-4, d, 6.5), 4.58 (H-6, bs), 5.86 (H-7, dd, 2.0, 1.8), 3.35 (H-9, d, 5.4), 4.28, 4.25 (H-10, d's, 15.2); (CD_3OD) 94.2 (C-1), 143.4 (C-3), 105.3 (C-4), 80.1 (C-5), 79.9 (C-6), 128.2 (C-7), 147.3 (C-8), 50.5 (C-9), 60.9 (C-10), 99.7 (C-1′), 74.9 (C-2′), 78.2 (C-3′)[a], 70.8 (C-4′), 77.2 (C-5′)[a], 62.1 (C-6′), 98.1 (C-1″), 75.1 (C-2″), 78.4 (C-3″)[a], 71.7 (C-4″), 78.1 (C-5″)[a], 62.7 (C-6″). *Plantago media* (Plantaginaceae) (68, 69)

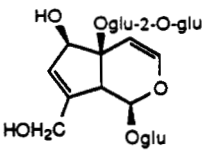
82. 10-*O*-*trans*-CINNAMOYLMELITTOSIDE



$C_{30}H_{38}O_{16}$ 654.62 [α] −8.3° (MeOH) uv 276 (MeOH) (500 MHz CD_3OD) 5.63 (H-1, d, 4.4), 6.42 (H-3, d, 6.4), 5.15 (H-4, d, 6.4), 4.43 (H-6, bs), 5.91 (H-7, bs), 3.43–3.27 (H-9), 4.87 (H-10), 4.69 (H-1′, d, 7.7), 3.43–3.27 (H-2′–H-5′, H-2″–H-5″), 3.89–3.64 (H-6′, H-6″), 4.64 (H-1″, d, 7.7), 6.58/7.74 (Hα, Hβ, d's, 16.1), 7.43 (H-2‴, H-4‴, m), 7.62 (H-3‴, m); (CD_3OD) 94.9 (C-1), 143.8 (C-3), 105.5 (C-4), 80.5 (C-5), 80.4 (C-6), 131.6 (C-7), 142.1 (C-8), 52.6 (C-9), 63.1 (C-10), 100.0, 98.8 (C-1′, C-1″), 75.4, 75.1 (C-2′, C-2″), 78.3, 77.5 (C-3′, C-3″), 71.9, 71.2 (C-4′, C-4″), 78.6, 78.4 (C-5′, C-5″), 63.0, 62.4 (C-6′,

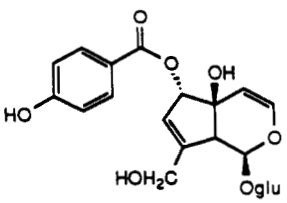
C-6″), 168.2 (O=C), 118.7 (Cα), 147.1 (Cβ), 135.9 (C-1‴), 130.2 (C-2‴), 129.5 (C-3‴), 131.8 (C-4‴). *Castilleja wightii* (Scrophulariaceae) (70)

83. REHMANNIOSIDE D (Sophorosyl-monomelittoside)



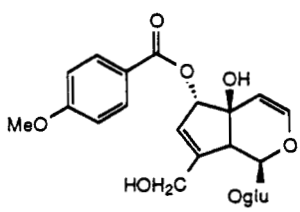
$C_{27}H_{42}O_{20}$ 686.62 [α] −27.1° (H_2O) (90 MHz D_2O) 5.30 (H-1, d, 6), 6.57 (H-3, d, 6), 5.43 (H-4, d, 6), 5.90 (H-7, bs); (D_2O) 96.5 (C-1), 145.4 (C-3), 104.9 (C-4), 82.0 (C-5), 81.0 (C-6)[a], 128.5 (C-7), 144.6 (C-8), 52.1 (C-9), 60.5 (C-10), 99.0 (C-1′), 73.7 (C-2′), 77.1 (C-3′)[b], 70.2 (C-4′)[c], 76.5 (C-5′)[d], 61.3 (C-6′)[e], 97.2 (C-1″), 80.8 (C-2″)[a], 76.8 (C-3″)[d], 70.2 (C-4″)[c], 76.4 (C-5″)[d], 61.7 (C-6″)[e], 103.8 (C-1‴), 74.8 (C-2‴), 77.2 (C-3‴)[b], 70.5 (C-4‴)[c], 76.4 (C-5‴)[d], 61.4 (C-6‴)[e]. *Rehmannia glutinosa* (Scrophulariaceae) (31)

84. 6-*O*-*p*-HYDROXYBENZOYL-6-*epi*-MONOMELITTOSIDE



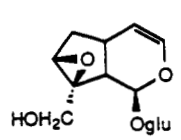
$C_{22}H_{26}O_{12}$ 482.44 [α] −121° (MeOH) uv 259 (?) (100 MHz D_2O) 5.45 (H-1, d, 5), 6.45 (H-3, d, 6.5), 5.10 (H-4, d, 6.5), 5.84 (H-6, bs), 5.70 (H-7, bs), 3.02 (H-9, bd), 4.28 (H-10, bs), 7.76 (H-2″), 6.82 (H-3″); (CD_3OD) 96.6 (C-1), 143.4 (C-3), 105.7 (C-4), 78.1 (C-5), 85.7 (C-6), 125.2 (C-7), 149.9 (C-8), 55.5 (C-9), 61.1 (C-10), 99.8 (C-1′), 74.7 (C-2′), 78.1 (C-3′)[a], 71.4 (C-4′), 77.7 (C-5′)[a], 62.5 (C-6′), 167.6 (C=O), 122.2 (C-1″), 132.8 (C-2″), 116.2 (C-3″), 163.5 (C-4″). *Tecoma heptaphylla* (Bignoniaceae) (71)

85. 6-*O*-*p*-METHOXYBENZOYL-6-*epi*-MONOMELITTOSIDE



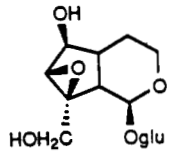
$C_{23}H_{28}O_{12}$ 496.47 mp 116–118° [α] −109° (MeOH) uv 255 (?) (100 MHz D_2O) 5.44 (H-1, d, 5), 6.45 (H-3, d, 6.5), 5.12 (H-4, d, 6.5), 5.82 (H-6, bs), 5.75 (H-7, bs), 3.00 (H-9, bd), 4.20 (H-10, bs), 7.80 (H-2″), 6.84 (H-3″), 3.85 (OMe); (CD_3OD) 96.6 (C-1), 143.4 (C-3), 105.7 (C-4), 78.1 (C-5), 85.7 (C-6), 125.2 (C-7), 150.0 (C-8), 55.5 (C-9), 61.1 (C-10), 99.8 (C-1′), 74.7 (C-2′), 78.1 (C-3′)[a], 71.5 (C-4′), 77.6 (C-5′)[a], 62.6 (C-6′), 167.3 (C=O), 123.4 (C-1″), 132.6 (C-2″), 114.9 (C-3″), 165.2 (C-4″), 56.0 (OMe). *Tecoma heptaphylla* (Bignoniaceae) (71)

86. 6-DEOXYCATALPOL



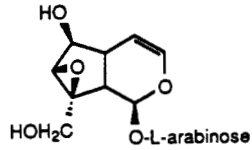
$C_{15}H_{22}O_9$ 346.33 mp 212.5–214° [α] −34° (EtOH) [α] −47° (MeOH) (360 MHz D_2O) 5.08 (H-1, d, 9.1), 6.33 (H-3, dd, 5.8, 1.8), 5.06 (H-4, dd, 5.8, 4.2), 2.47 (H-5, m), 2.33 (H-6, dd, 14.1, 7.9), 1.56 (H-6, dd, 14.1, 9.9), 3.63 (H-7, bs), 2.49 (H-9, dd, 9.1, 7.4), 4.33, 3.76 (H-10, d's, 13.3), 4.87 (H-1′, d, 7.9), 3.52–3.35 (H-2′, H-5′, m), 3.89 (H-6′, bd, 12.2), 3.73 (H-6′, dd, 12.2, 4.0); (CD_3OD) 95.2 (C-1), 141.1 (C-3), 105.9 (C-4), 32.5 (C-5), 36.1 (C-6), 61.0 (C-7), 69.2 (C-8), 44.4 (C-9), 62.1 (C-10)[a], 100.2 (C-1′), 75.1 (C-2′), 78.6 (C-3′)[b], 72.0 (C-4′), 78.0 (C-5′)[b], 63.1 (C-6′)[a]. *Castilleja rhexifolia* aff. *miniata* (Scrophulariaceae), *Utricularia australis* (Lentibulariaceae) (72, 73)

87. DIHYDROCATALPOL



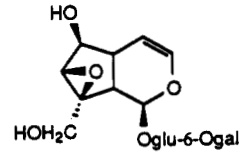
$C_{15}H_{24}O_{10}$ 364.35 mp 223–224° [α] −99.2° (MeOH) (100 MHz CD_3OD) 4.8 (H-1), 4.12 (H-3), 1.9–1.6 (H-4), 2.05 (H-5, m), 3.83 (H-6), 3.42 (H-7, s), 2.27 (H-9, dd, 8.8, 8.0), 4.05, 3.75 (H-10, d's, 13), 4.65 (H-1′, d, 7.2); (CD_3OD) 97.8 (C-1), 62.9 (C-3), 23.9 (C-4), 38.2 (C-5), 73.2 (C-6), 62.0 (C-7), 66.0 (C-8), 43.5 (C-9), 61.2 (C-10), 99.3 (C-1′), 74.8 (C-2′), 78.3 (C-3′)[a], 71.7 (C-4′), 77.7 (C-5′)[a], 62.9 (C-6′). Hydrolysis of globularidin (74)

88. JIOGLUTOSIDE A (Catalpogenin-1-*O*-α-L-arabinofuranoside)



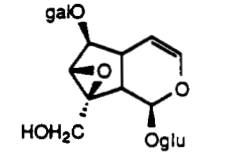
$C_{14}H_{20}O_9$ 332.31 [α] −158.8° (MeOH) (500 MHz CD_3OD) 4.83 (H-1, d, 9.7), 6.34 (H-3, dd, 6.0, 1.9), 5.07 (H-4, dd, 6.0, 4.5), 2.25 (H-5, dddd, 8.2, 7.7, 4.5, 1.9), 3.87 (H-6, dd, 8.2, 1.2), 3.39 (H-7, d, 1.2), 2.53 (H-9, dd, 9.7, 7.7), 4.18, 3.57 (H-10, d's, 13.2), 5.44 (H-1′, d, 1.1), 4.08 (H-2′, dd, 2.3, 1.1), 3.95 (H-3′, dd, 3.8, 2.3), 4.11 (H-4′, dt, 5.5, 3.9), 3.71 (H-5′, dd, 11.6, 4.1), 3.65 (H-5′, dd, 11.6, 5.5); (CD_3OD) 95.8 (C-1), 141.7 (C-3), 104.1 (C-4), 39.0 (C-5), 79.7 (C-6), 62.2 (C-7), 66.1 (C-8), 43.4 (C-9), 63.5 (C-10), 106.4 (C-1′), 82.5 (C-2′), 78.5 (C-3′), 88.7 (C-4′), 62.0 (C-5′). *Rehmannia glutinosa* var. *hueichingensis* (Scrophulariaceae) (75)

89. REHMANNIOSIDE A



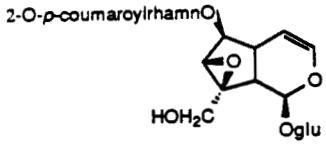
$C_{21}H_{32}O_{15}$ 524.47 [α] −0.1° (MeOH) (90 MHz D_2O) 5.11 (H-1, s), 5.56 (H-3, q, 6, 1), 5.27 (H-4, q, 6, 1); (D_2O) 95.7 (C-1), 141.4 (C-3), 104.0 (C-4), 38.1 (C-5), 78.5 (C-6), 62.8 (C-7), 66.6 (C-8), 42.6 (C-9), 61.0 (C-10), 99.5 (C-1′)[a], 73.5 (C-2′), 76.6 (C-3′), 70.4 (C-4′), 75.6 (C-5′), 66.8 (C-6′), 99.1 (C-1″)[a], 69.2 (C-2″), 70.4 (C-4″), 71.9 (C-5″), 61.9 (C-6″). *Rehmannia glutinosa* (Scrophulariaceae) (31)

90. REHMANNIOSIDE B



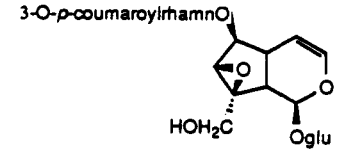
$C_{21}H_{32}O_{15}$ 524.47 [α] −8.8° (MeOH) (90 MHz D_2O) 6.53 (H-3, q, 6, 1); (nonaacetate 90 MHz $CDCl_3$) 5.44 (H-1, bs), 6.27 (H-3, q, 6, 2), 2.41–2.77 (H-5, H-9, m); (D_2O) 95.5 (C-1), 141.4 (C-3), 104.2 (C-4), 36.8 (C-5), 86.5 (C-6), 62.0 (C-7), 66.4 (C-8), 41.8 (C-9), 60.9 (C-10), 99.4 (C-1′), 73.6 (C-2′), 77.1 (C-3′), 70.1 (C-4′), 76.5 (C-5′), 61.5 (C-6′), 100.9 (C-1″), 69.2 (C-2″), 70.4 (C-3″), 70.1 (C-4″), 72.0 (C-5″), 62.4 (C-6″). *Rehmannia glutinosa* (Scrophulariaceae) (31)

91. SACCATOSIDE [6-*O*-(2″-*O*-*p*-Coumaroyl-α-L-rhamnopyranosyl)catalpol]



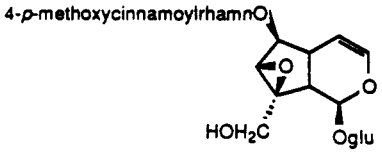
$C_{30}H_{38}O_{16}$ 654.62 [α] −200° (MeOH) uv 312, 222, 206 (EtOH) (DMSO-d_6) 92.6 (C-1), 139.9 (C-3), 104.2 (C-4), 35.4 (C-5), 81.4 (C-6), 57.1 (C-7), 65.3 (C-8), 41.7 (C-9), 58.6 (C-10), 97.7 (C-1′), 73.3 (C-2′), 77.3 (C-3′), 70.0 (C-4′), 76.2 (C-5′), 61.2 (C-6′), 95.4 (C-1″), 72.3 (C-2″), 68.4 (C-3″), 72.0 (C-4″), 68.7 (C-5″), 17.7 (C-6″), 166.1 (O=C), 115.7 (Cα), 145.2 (Cβ), 124.9 (C-1‴), 130.3 (C-2‴), 115.1 (C-3‴), 159.1 (C-4‴). *Verbascum saccatum* (Scrophulariaceae) (76)

92. 6-*O*-(3″-*O*-*p*-COUMAROYL-α-L-RHAMNOPYRANOSYL)CATALPOL



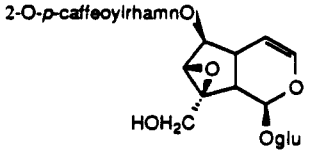
$C_{30}H_{38}O_{16}$ 654.62 mp 266–266.5° [α] −178.5° (pyridine/MeOH) uv 312, 222, 206 (EtOH) (60 MHz DMSO-d_6) 5.29 (H-1, d, 5.5), 6.46 (H-3, dd, 6, 1.5), 5.01 (H-4, dd, 6, 3), 4.67 (H-1′, d, 7.5), 4.85 (H-1″, d, 2), 1.2 (H-6″, d, 6.2), 6.43/7.56 (Hα, Hβ, d's, 16), 7.56 (H-2‴, dd, 9, 1), 6.82 (H-3‴, dd, 9, 1); (DMSO-d_6) 93.2 (C-1), 140.9 (C-3), 102.3 (C-4), 35.6 (C-5), 84.8 (C-6), 57.5 (C-7), 65.3 (C-8), 41.9 (C-9), 58.9 (C-10), 97.9 (C-1′), 73.9 (C-2′), 77.3 (C-3′), 70.2 (C-4′), 76.3 (C-5′), 61.3 (C-6′), 166.3 (O=C), 114 (Cα), 144.4 (Cβ), 125.2 (C-1‴), 130.1 (C-2‴), 115.8 (C-3‴), 159.6 (C-4‴), 98.9 (C-1″), 68.2 (C-2″), 73.3 (C-3″), 69.1 (C-4″), 68.9 (C-5″), 17.7 (C-6″). *Verbascum sinuatum* (Scrophulariaceae) (77)

93. VERBASCOSIDE A



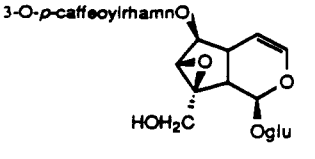
$C_{31}H_{40}O_{16}$ 668.65 [α] −215° (EtOH) uv 312, 222, 206 (MeOH) (60 MHz DMSO/$CDCl_3$) 4.98 (H-1, d, 8.5), 6.36 (H-3, dd, 6, 1.6), 5.01 (H-4, dd, 6, 4.5), 2.30 (H-5, m, 8, 7.5, 4.5, 1.6), 3.9 (H-6, bd), 3.64 (H-7, bs), 2.45 (H-9, dd, 8.5, 8.0), 4.08–3.85 (H-10), 4.97 (H-1′, d, 7.5), 4.1–3.2 (H-2′–H-5′), 4.96 (H-1″, d, 1), 4.1–3.2 (H-2″, H-3″), 5.15–4.97 (H-4″), 4.1–3.8 (H-5″), 1.16 (H-6″, d, 6.2), 6.40/7.68 (Hα, Hβ, d's, 15.5), 7.63 (H-2‴, dd, 9, 2), 7.00 (H-3‴, dd, 9, 2), 3.83 (ArOMe); (DMSO/$CDCl_3$) 93.3 (C-1), 140.8 (C-3), 102.3 (C-4), 35.6 (C-5), 82.1 (C-6), 57.6 (C-7), 65.3 (C-8), 41.9 (C-9), 59.4 (C-10), 98.0 (C-1′), 73.5 (C-2′) 77.2 (C-3′), 70.8 (C-4′), 76.4 (C-5′), 61.4 (C-6′), 98.9 (C-1″), 70.2 (C-2″), 68.4 (C-3″), 73.7 (C-4″), 66.6 (C-5″), 17.4 (C-6″), 196.2 (O=C), 115.5 (Cα), 144.3 (Cβ), 126.7 (C-1‴), 129.8 (C-2‴), 114.3 (C-3‴), 161.2 (C-4‴). *Verbascum georgicum* (Scrophulariaceae) (78)

94. 6-*O*-(2″-*O*-CAFFEOYLRHAMNO-PYRANOSYL)CATALPOL



$C_{30}H_{38}O_{17}$ 670.62 [α] −120° (MeOH) uv 332, 304, 245, 222 (MeOH) (100 MHz CD_3OD) 6.38 (H-3, d, 6), 2.65–2.35 (H-5, H-9, m), 1.31 (H-6″, d, 6), 6.33/7.60 (Hα, Hβ, d's, 16), 7.07 (H-2‴, d, 2), 6.78 (H-5‴, d, 8), 6.97 (H-6‴, dd, 8, 2); (CD_3OD) 95.2 (C-1), 142.3 (C-3), 103.5 (C-4), 37.2 (C-5), 84.4 (C-6), 59.6 (C-7), 66.5 (C-8), 43.3 (C-9), 61.5 (C-10), 99.7 (C-1′), 74.8 (C-2′), 77.6 (C-3′), 71.7 (C-4′), 78.6 (C-5′), 62.9 (C-6′), 97.8 (C-1″), 74.1 (C-2″), 70.5 (C-3″), 74.2 (C-4″), 70.3 (C-5″), 18.1 (C-6″), 168.7 (O=C), 115.3 (Cα), 147.6 (Cβ), 127.7 (C-1‴), 114.9 (C-2‴), 149.6 (C-3‴), 146.7 (C-4‴), 116.5 (C-5‴), 123.2 (C-6‴). *Premna odorata* (Verbenaceae) (79)

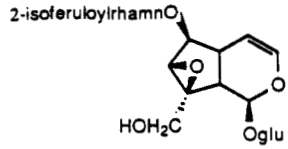
95. 6-*O*-(3″-*O*-CAFFEOYLRHAMNO-PYRANOSYL)CATALPOL



$C_{30}H_{38}O_{17}$ 670.62 [α] −121° (MeOH) uv 330, 303, 245, 220 (MeOH) (100 MHz CD_3OD) 6.38 (H-3, d, 6), 2.65–2.35 (H-5, H-9, m), 1.31 (H-6″, d, 6), 6.36/7.64 (Hα, Hβ, d's, 16), 7.06 (H-2‴, d, 2), 6.78 (H-5‴, d, 8), 6.97 (H-6‴, dd, 8, 2); (CD_3OD) 95.2 (C-1), 142.2 (C-3), 103.6 (C-4), 37.2 (C-5), 83.8 (C-6), 59.3 (C-7), 66.6 (C-8), 43.2 (C-9), 61.5 (C-10), 99.7 (C-1′), 74.8 (C-2′), 77.6 (C-3′), 71.7 (C-4′), 78.5 (C-5′), 62.9 (C-6′), 100.2 (C-1″), 70.3 (C-2″), 75.3 (C-3″), 71.7 (C-4″), 70.3 (C-5″), 18.0 (C-6″), 168.9

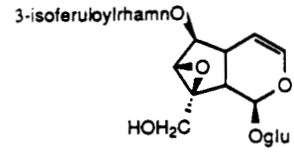
(O=C), 115.3 (Cα), 147.1 (Cβ), 127.5 (C-1‴), 115.2 (C-2‴), 149.5 (C-3‴), 146.7 (C-4‴), 116.5 (C-5‴), 123.0 (C-6‴). *Premna odorata* (Verbenaceae) (79)

96. 6-*O*-(2″-*O*-ISOFERULOYLRHAMNOPYRANOSYL)CATAPOL



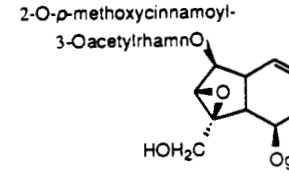
$C_{31}H_{40}O_{17}$ 684.65 [α] −115.5° (MeOH) uv 326, 310, 298, 243, 235, 217 (MeOH) (400 MHz CD_3OD) 5.09 (H-1, d, 2), 6.37 (H-3, dd, 6, 2), 5.07 (H-4, dd, 6, 4), 2.42 (H-5, m), 4.02 (H-6, dd, 8, 1), 2.57 (H-9, dd, 10, 8), 4.15, 3.79 (H-10, d's, 13), 4.77 (H-1′, d, 8), 5.02 (H-1″, d, 2), 5.15 (H-2″, dd, 4, 2), 1.30 (H-6″, d, 6), 6.39/7.62 (Hα, Hβ, d's, 16), 7.10 (H-2‴, d, 2), 6.94 (H-5‴, d, 8), 7.06 (H-6‴, dd, 8, 2), 3.89 (ArOMe); (CD_3OD) 95.3 (C-1), 142.3 (C-3), 103.5 (C-4), 37.3 (C-5), 84.5 (C-6), 59.6 (C-7), 66.6 (C-8), 43.4 (C-9), 61.5 (C-10), 99.8 (C-1′), 74.9 (C-2′), 78.7 (C-3′), 71.8 (C-4′), 77.8 (C-5′), 63.0 (C-6′), 97.9 (C-1″), 74.3 (C-2″), 70.6 (C-3″), 74.3 (C-4″), 70.4 (C-5″), 18.1 (C-6″), 168.5 (O=C), 116.0 (Cα), 147.2 (Cβ), 129.0 (C-1‴), 112.7 (C-2‴), 151.7 (C-3‴), 148.1 (C-4‴), 115.0 (C-5‴), 122.9 (C-6‴), 56.5 (ArOMe). *Premna japonica* (Verbenaceae) (80)

97. 6-*O*-(3″-*O*-ISOFERULOYLRHAMNOPYRANOSYL)CATAPOL



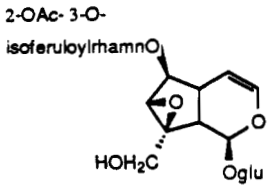
$C_{31}H_{40}O_{17}$ 684.65 [α] −117.9° (MeOH) uv 325, 311, 296, 242, 234, 217 (MeOH) (400 MHz CD_3OD) 5.10 (H-1, d, 10), 6.38 (H-3, dd, 6, 1), 5.12 (H-4, dd, 6, 4), 2.45 (H-5, m), 4.04 (H-6, dd, 8, 1), 2.57 (H-9, dd, 10, 8), 4.15, 3.81 (H-10, d's, 13), 4.78 (H-1′, d, 8), 4.97 (H-1″, d, 2), 4.09 (H-2″, dd, 3, 2), 1.31 (H-6″, d, 6), 6.41/7.66 (Hα, Hβ, d's, 16), 7.10 (H-2‴, d, 2), 6.94 (H-5‴, d, 8), 7.06 (H-6‴, dd, 8, 2), 3.89 (ArOMe); (CD_3OD) 95.2 (C-1), 142.2 (C-3), 103.6 (C-4), 37.2 (C-5), 83.8 (C-6), 59.4 (C-7), 66.6 (C-8), 43.3 (C-9), 61.5 (C-10), 99.7 (C-1′), 74.8 (C-2′), 78.6 (C-3′), 71.7 (C-4′), 77.7 (C-5′), 62.9 (C-6′), 100.2 (C-1″), 70.3 (C-2″), 75.4 (C-3″), 71.4 (C-4″), 70.3 (C-5″), 18.0 (C-6″), 168.7 (O=C), 116.4 (Cα), 146.7 (Cβ), 129.0 (C-1‴), 112.5 (C-2‴), 151.5 (C-3‴), 147.9 (C-4‴), 114.8 (C-5‴), 122.8 (C-6‴), 56.4 (ArOMe). *Premna japonica* (Verbenaceae) (80)

98. PULVERULENTOSIDE I



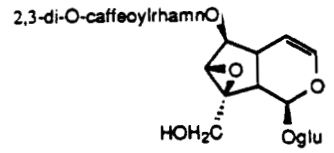
$C_{33}H_{42}O_{17}$ 710.68 [α] −86° (MeOH) uv 312, 300, 225, 208 (MeOH) (200 MHz $CD_3OD/CDCl_3$) 5.02 (H-1, d, 9.4), 6.34 (H-3, dd, 6.2, 1.8), 5.12 (H-4, dd, 6.2, 4.4), 2.67–2.47 (H-5, H-9, m), 4.09, 3.84 (H-10, d's, 13.1), 4.80 (H-1′, d, 8), 5.03 (H-1″, d, 1.8), 5.41 (H-2″, dd, 3.6, 1.8), 5.17 (H-3″, dd, 9.2, 3.6), 1.38 (H-6″, d, 6.5), 7.55 (H-2‴, d, 8.8), 6.97 (H-3‴, d, 8.8), 6.40/7.69 (Hα, Hβ, d's, 15.4), 3.87 (OMe), 2.05 (OAc); ($CD_3OD/CDCl_3$) 95.3 (C-1), 142.4 (C-3), 103.4 (C-4), 37.3 (C-5), 84.5 (C-6), 59.5 (C-7), 66.6 (C-8), 43.4 (C-9), 61.5 (C-10), 99.8 (C-1′), 74.9 (C-2′), 78.6 (C-3′), 71.8 (C-4′), 77.8 (C-5′), 63.0 (C-6′), 97.9 (C-1″), 71.4 (C-2″), 73.3 (C-3″), 71.5 (C-4″), 70.3 (C-5″), 18.0 (C-6″), 168.0 (O=C), 115.4 (Cα), 147.2 (Cβ), 128.3 (C-1‴), 131.2 (C-2‴), 115.5 (C-3‴), 163.4 (C-4‴), 56.0 (OMe), 172.3 (O=*C*Me), 20.9 (O=C*Me*). *Verbascum sinuatum*, *Verbascum pulverulentum* (Scrophulariaceae) (81, 82)

99. PULVERULENTOSIDE II



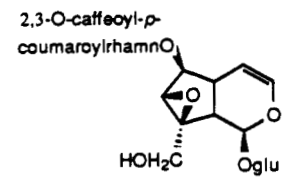
$C_{33}H_{42}O_{18}$ 726.68 [α] −84° (MeOH) uv 315, 300, 222, 208 (MeOH) (200 MHz $CD_3OD/CDCl_3$) 5.00 (H-1, d, 9.4), 6.36 (H-3, dd, 6.2, 1.8), 5.12 (H-4, dd, 6.2, 4.4), 2.68–2.47 (H-5, H-9, m), 4.05, 3.85 (H-10, d, 13), 4.81 (H-1′, d, 8), 5.03 (H-1″, d, 1.8), 5.41 (H-2″, dd, 3.6, 1.8), 5.18 (H-3″, dd, 9.2, 3.6), 1.38 (H-6″, d, 6), 7.12 (H-2‴, d, 1.9), 6.90 (H-5‴, d, 8.2), 7.06 (H-6‴, dd, 8.2, 1.9), 6.35/7.61 (Hα, Hβ, d's, 15.6), 3.92 (OMe), 2.05 (OAc); ($CD_3OD/CDCl_3$) 95.2 (C-1), 142.3 (C-3), 103.4 (C-4), 37.2 (C-5), 84.5 (C-6), 59.5 (C-7), 66.6 (C-8), 43.4 (C-9), 61.5 (C-10), 99.8 (C-1′), 74.9 (C-2′), 78.6 (C-3′), 71.8 (C-4′), 77.8 (C-5′), 63.0 (C-6′), 97.9 (C-1″), 71.4 (C-2″), 73.3 (C-3″), 71.5 (C-4″), 70.3 (C-5″), 18.0 (C-6″), 167.9 (O=C), 115.4 (Cα), 147.6 (Cβ), 128.8 (C-1‴), 114.9 (C-2‴), 148.1 (C-3‴), 151.7 (C-4‴), 112.7 (C-5‴), 123.0 (C-6‴), 56.5 (OMe), 172.3 (O=*C*Me), 20.9 (O=C*Me*). *Verbascum pulverulentum* (Scrophulariaceae) (82)

100. PREMNOSIDE A



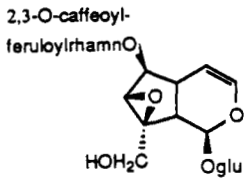
$C_{39}H_{44}O_{20}$ 832.76 [α] +24.8° (MeOH) uv 328, 303, 245, 219 (MeOH) (100 MHz CD_3OD) 6.39 (H-3, d, 6), 2.5 (H-5, H-9, m), 1.37 (H-6″, d, 6), 6.34, 6.23 (Hα, Hα′, d's, 16), 7.59, 7.54 (Hβ, Hβ′, d's, 16), 7.0–6.6 (H-2‴–H-6‴, H-2⁗–H-6⁗); (CD_3OD) 95.2 (C-1), 142.3 (C-3), 103.4 (C-4), 37.2 (C-5), 84.4 (C-6), 59.5 (C-7), 66.5 (C-8), 43.3 (C-9), 99.7 (C-1′), 74.8 (C-2′),78.6 (C-3′), 71.7 (C-4′), 77.6 (C-5′), 62.9 (C-6′), 97.9 (C-1″), 71.4 (C-2″), 73.1 (C-3″), 71.7 (C-4″), 70.3 (C-5″), 18.1 (C-6″), 168.0, 168.5 (O=C), 115.0, 115.3 (Cα, Cα′), 147.4, 148.1 (Cβ, Cβ′), 127.5, 127.6 (C-1‴, C-1⁗), 114.3, 114.8 (C-2‴, C-2⁗), 149.6, 149.8 (C-3‴, C-3⁗), 146.7 (C-4‴, C-4⁗), 116.5, 116.6 (C-5‴, C-5⁗), 123.0 (C-6‴, C-6⁗). *Premna odorata* (Verbenaceae) (83)

101. PREMNOSIDE B



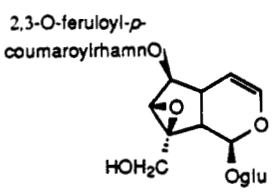
$C_{39}H_{44}O_{19}$ 816.77 [α] +19.4° (MeOH) uv 321, 309, 236, 222 (MeOH) (100 MHz CD_3OD) 5.43 (H-1, bs), 6.40 (H-3, d, 6), 2.5 (H-5, H-9, m), 1.38 (H-6″, d, 5), 6.23, 6.40 (Hα, Hα′, d's, 16), 7.59, 7.69 (Hβ, Hβ′, d's, 16), 7.56 (H-2‴, d, 8), 6.81 (H-3‴, d, 8), 7.00 (H-2⁗, bs), 6.65 (H-5⁗), 6.79 (H-6⁗, d, 8); (CD_3OD) 95.2 (C-1), 142.3 (C-3), 103.4 (C-4), 37.2 (C-5), 84.4 (C-6), 59.5 (C-7), 66.5 (C-8), 43.3 (C-9), 61.5 (C-10), 99.7 (C-1′), 74.8 (C-2′), 78.6 (C-3′), 71.7 (C-4′), 77.6 (C-5′), 62.9 (C-6′), 97.9 (C-1″), 71.4 (C-2″), 73.1 (C-3″), 71.7 (C-4″), 70.3 (C-5″), 18.0 (C-6″), 168.0, 168.4 (O=C), 115.1, 114.8 (Cα, Cα′), 147.4, 147.7 (Cβ, Cβ′), 127.6 (C-1‴), 131.4 (C-2‴), 116.9 (C-3‴), 161.4 (C-4‴), 127.0 (C-1⁗), 114.3 (C-2⁗), 149.5 (C-3⁗), 146.7 (C-4⁗), 116.5 (C-5⁗), 123.2 (C-6⁗). *Premna odorata* (Verbenaceae) (83)

102. PREMNOSIDE C



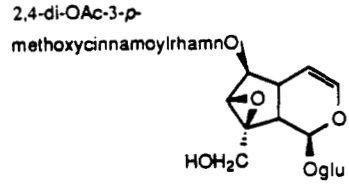
$C_{40}H_{46}O_{20}$ 846.79 [α] +25.9° (MeOH) uv 336, 315, 245, 222 (MeOH) (100 MHz CD_3OD) 5.43 (H-1, bs), 6.40 (H-3, d, 5), 2.5 (H-5, H-9, m), 1.38 (H-6″, d, 5), 6.35, 6.31 (Hα, Hα′, d's, 16), 7.58 (Hβ, Hβ′, d, 16), 7.0–6.9 (H-2‴, H-2⁗, H-6‴, H-6⁗), 6.75 (H-5‴, d, 8), 6.78 (H-5⁗, d, 8), 3.76 (ArOMe); (CD_3OD) 95.2 (C-1), 142.4 (C-3), 103.5 (C-4), 37.2 (C-5), 84.5 (C-6), 59.5 (C-7), 66.6 (C-8), 43.3 (C-9), 61.6 (C-10), 99.8 (C-1′), 74.9 (C-2′), 78.6 (C-3′), 71.8 (C-4′), 77.7 (C-5′), 63.0 (C-6′), 97.9 (C-1″), 71.5 (C-2″), 73.1 (C-3″), 71.8 (C-4″), 70.3 (C-5″), 18.1 (C-6″), 168.1, 168.4 (O=C), 115.2, 115.4 (Cα, Cα′), 148.1, 147.3 (Cβ, Cβ′), 127.6 (C-1‴, C-1⁗), 111.9, 114.3 (C-2‴, C-2⁗), 150.6, 149.9 (C-3‴, C-3⁗), 116.5 (C-5‴, C-5⁗), 124.0, 124.3 (C-6‴, C-6⁗), 56.4 (OMe). *Premna odorata* (Verbenaceae) (83)

103. PREMNOSIDE D



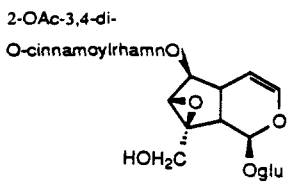
$C_{40}H_{46}O_{19}$ 830.79 [α] +14° (MeOH) uv 336, 310, 235, 220 (MeOH) (100 MHz CD_3OD) 6.40 (H-3, d, 5), 2.6 (H-5, H-9, m), 1.38 (H-6″, d, 7), 6.40, 6.31 (Hα, Hα′, d's, 16), 7.64, 7.58 (Hβ, Hβ′, d's, 16), 6.8 (H-2‴, H-5‴, H-6‴), 7.46 (H-2⁗, d, 8), 7.00 (H-3⁗, d, 8), 3.76 (OMe); (CD_3OD) 95.2 (C-1), 142.3 (C-3), 103.4 (C-4), 37.2 (C-5), 84.4 (C-6), 59.5 (C-7), 66.5 (C-8), 43.3 (C-9), 61.5 (C-10), 99.7 (C-1′), 74.8 (C-2′), 78.5 (C-3′), 71.7 (C-4′), 77.6 (C-5′), 62.9 (C-6′), 97.8 (C-1″), 71.4 (C-2″), 73.0 (C-3″), 71.7 (C-4″), 70.3 (C-5″), 18.1 (C-6″), 168.0, 168.6 (O=C), 115.2, 114.4 (Cα, Cα′), 147.3, 147.7 (Cβ, Cβ′), 127.6 (C-1‴), 111.8 (C-2‴), 150.6 (C-3‴), 149.2 (C-4‴), 116.4 (C-5‴), 124.0 (C-6‴), 127.0 (C-1⁗), 131.4 (C-2⁗), 116.9 (C-3⁗), 161.5 (C-4⁗). *Premna odorata* (Verbenaceae) (83)

104. SCROPOLIOSIDE A



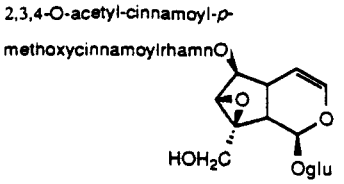
$C_{35}H_{44}O_{18}$ 752.72 [α] −136.6° (MeOH) uv 311, 300 sh, 224, 205 (MeOH) (300 MHz CD_3OD) 5.09 (H-1, d, 9.5), 6.39 (H-3, dd, 6, 1.7), 5.1 (H-4, dd, 6, 4.4), 2.49 (H-5, m), 4.06 (H-6, dd, 8.9, 0.9), 3.67 (H-7, bs), 2.59 (H-9, dd, 9.5, 7.6), 4.15, 3.83 (H-10, d's, 13.1), 4.77 (H-1′, d, 7.8), 3.44–3.23 (H-2′, H-5′), 3.92 (H-6′, dd, 11.8, 1.6), 3.63 (H-6′, dd, 11.8, 6.2), 5.07 (H-1″, d, 1.7), 5.3 (H-2″, dd, 3.4, 1.7), 5.37 (H-3″, dd, 10.1, 3.4), 5.17 (H-4″, bt, 10), 4.07 (H-5″, dq, 10, 6.3), 1.22 (H-6″, d, 6.3), 6.36/7.67 (Hα, Hβ, d's, 15.8), 7.56 (H-2‴, d, 8.8), 6.95 (H-3‴, d, 8.8), 3.82 (ArOMe), 1.93, 2.16 (OAc); (CD_3OD) 95.2 (C-1), 142.5 (C-3), 103.3 (C-4), 37.2 (C-5), 85.0 (C-6), 59.5 (C-7), 66.6 (C-8), 43.4 (C-9), 61.5 (C-10), 99.8 (C-1′), 74.9 (C-2′), 77.3 (C-3′), 71.8 (C-4′), 78.7 (C-5′), 63.0 (C-6′), 97.8 (C-1″), 71.3 (C-2″), 70.7 (C-3″), 72.1 (C-4″), 68.3 (C-5″), 17.9 (C-6″), 171.7 (O=*C*Me), 20.9 (O=C*Me*), 168.0 (O=C), 147.4 (Cα), 115.1 (Cβ), 128.1 (C-1‴), 131.3 (C-2‴), 115.5 (C-3‴), 163.4 (C-4‴), 56.0 (ArOMe). *Scrophularia scopolii* var. *scopolii* (Scrophulariaceae) (84)

105. SCROPOLIOSIDE B



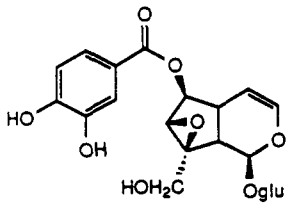
$C_{41}H_{46}O_{17}$ 810.80 [α] −13.9° (MeOH) uv 278, 222, 217, 205 (MeOH) (300 MHz CD_3OD) 5.12 (H-1, d, 9.3), 6.41 (H-3, dd, 6, 1.3), 5.13 (H-4, dd, 6, 4.3), 2.5 (H-5, m), 4.1 (H-6, d, 7.7), 3.7 (H-7, bs), 2.62 (H-9, dd, 9.3, 7.6), 3.83, 4.19 (H-10, d's, 13.2), 4.79 (H-1′, d, 8), 3.45–3.24 (H-2′–H-5′), 3.66 (H-6′, dd, 12.4, 6.2), 3.93 (H-6′, dd, 12.4, 1.7), 5.12 (H-1″, d, 1.7), 5.4 (H-2″, dd, 3.4, 1.7), 5.51 (H-3″, dd, 10, 3.4), 5.3 (H-4″, bt, 10), 4.16 (H-5″, dq, 10, 6), 1.26 (H-6″, d, 6), 6.5/7.7 (Hα, Hβ, d's, 16), 7.52 (H-2‴, H-2⁗, m), 7.34 (H-3‴, H-3⁗, H-4‴, H-4⁗, m), 6.39/7.6 (Hα′, Hβ′, d's, 16); (CD_3OD) 95.1 (C-1), 142.5 (C-3), 103.2 (C-4), 37.1 (C-5), 85.0 (C-6), 59.4 (C-7), 66.5 (C-8), 43.3 (C-9), 61.4 (C-10), 99.7 (C-1′), 74.8 (C-2′), 77.6 (C-3′), 71.7 (C-4′), 78.6 (C-5′), 62.9 (C-6′), 97.7 (C-1″), 71.4 (C-2″), 70.8 (C-3″), 72.4 (C-4″), 68.2 (C-5″), 17.8 (C-6″), 171.6 (O=*C*Me), 20.7 (O=C*Me*), 167.6, 167.3 (O=C), 147.6, 147.4 (Cα, Cα′), 117.8 (Cβ, Cβ′), 135.4 (C-1‴, C-1⁗), 130.0 (C-2‴, C-2⁗), 129.3 (C-3‴, C-3⁗), 131.7 (C-4‴, C-4⁗). *Scrophularia scopolii* var. *scopolii* (Scrophulariaceae) (84)

106. compound not named [6-*O*-(2,3,4-*O*-ACETYLCINNAMOYL-*p*-METHOXYCINNAMOYL)RHAMNOSYLCATALPOL]



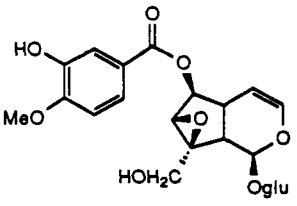
$C_{42}H_{48}O_{18}$ 840.83 (pyridine-d_5) 94.7 (C-1), 141.7 (C-3), 102.6 (C-4), 36.6 (C-5), 84.7 (C-6), 58.6 (C-7), 66.4 (C-8), 43.2 (C-9), 60.1 (C-10), 100.2 (C-1′), 74.9 (C-2′), 79.0 (C-3′), 71.5 (C-4′), 78.3 (C-5′), 62.7 (C-6′), 97.2 (C-1″), 70.9 (C-2″), 70.1 (C-3″), 71.3 (C-4″), 67.5 (C-5″), 17.8 (C-6″), 170.2 (O=*C*Me), 20.6 (O=C*Me*), 166.8 (O=C), 117.9 (Cα), 146.2 (Cβ), 134.5 (C-1‴), 129.1 (C-2‴), 128.7 (C-3‴), 130.8 (C-4‴), 166.2 (O=C′), 114.0 (Cα′), 133.1 (Cβ′), 127.3 (C-1⁗), 130.5 (C-2⁗), 114.8 (C-3⁗), 160.9 (C-4⁗), 55.4 (OMe). *Scrophularia ningpoensis* (Scrophulariaceae) (85)

107. VERPROSIDE



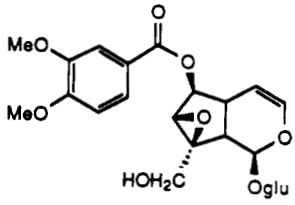
$C_{22}H_{26}O_{13}$ 498.44 [α] −164.8° (MeOH) uv 295, 263, 224, 216 (MeOH) (100 MHz CD_3OD) 5.22–4.74 (H-1), 6.35 (H-3, d, 6), 5.22–4.74 (H-4), 2.70–2.54 (H-5, m), 5.22–4.74 (H-6), 3.74 (H-7, s), 2.70–2.54 (H-9, m), 4.18, 3.84 (H-10, 13, 2), 7.52–7.40 (H-2″, H-6″), 6.86–6.74 (H-5″); (CD_3OD?) 95.1 (C-1), 142.2 (C-3), 102.9 (C-4), 36.5 (C-5), 81.3 (C-6), 60.2 (C-7), 66.7 (C-8), 42.9 (C-9), 61.1 (C-10), 99.5 (C-1′), 74.5 (C-2′), 78.0 (C-3′), 71.3 (C-4′), 77.3 (C-5′), 62.7 (C-6′), 167.9 (C=O), 121.8 (C-1″), 117.6 (C-2″), 145.8 (C-3″), 151.7 (C-4″), 116.0 (C-5″), 124.0 (C-6″). *Veronica officinalis* (Scrophulariaceae) (86, 87)

108. 6-*O*-ISOVANILLOYLCATALPOL



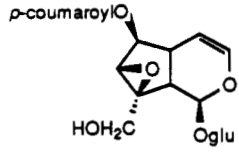
$C_{23}H_{28}O_{13}$ 512.47 mp 162–166° [α] −165.8° (MeOH) uv 297, 262, 223 (MeOH) (360 MHz D_2O) 5.12 (H-1, d, 9.6), 6.35 (H-3, dd, 6.0, 1.5), 5.03 (H-4, dd, 5.8, 4.6), 2.61 (H-5, m), 5.11 (H-6, dd, 8, 1.1), 3.83 (H-7, m), 2.68 (H-9, m), 3.78, 4.26 (H-10, d's, 13.3), 4.85 (H-1′, d, 8), 3.45–3.30 (H-2′–H-5′), 3.71 (H-6′, dd, 12.5, 4.8), 3.83 (H-6′, m), 7.39 (H-2″, d, 2), 6.97 (H-5″, d, 8.7), 7.54 (H-6″, dd, 8.7, 2), 3.86 (OMe). *Besseya plantaginea* (Scrophulariaceae) (88)

109. 6-*O*-VERATROYLCATALPOSIDE



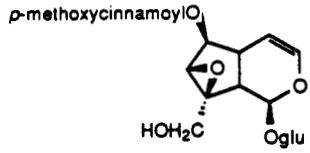
$C_{24}H_{30}O_{13}$ 526.49 mp 216–218° uv 292, 263, 226 (MeOH) (60 MHz CD_3OD) 6.36 (H-3, d, 6), 2.66–2.50 (H-5, H-9, m), 4.16, 3.60 (H-10, d's, 13), 7.62–7.13 (H-2″, H-5″, H-6″), 3.86 (OMe); (pyridine-d_5) 94.8 (C-1), 141.8 (C-3), 102.3 (C-4), 36.5 (C-5), 81.0 (C-6), 59.6 (C-7), 66.9 (C-8), 43.2 (C-9), 60.3 (C-10), 100.0 (C-1′), 74.8 (C-2′), 78.7 (C-3′), 71.4 (C-4′), 77.9 (C-5′), 62.6 (C-6′), 166.7 (C=O), 154.5 (C-1″), — (C-2″), 150.0 (C-3″), 150.8 (C-4″), 124.6 (C-5″), 113.6 (C-6″), 56.0 (OMe). *Veronicastrum sibiricum* (Scrophulariaceae) (25)

110. SPECIOSIDE (6-*O*-*p*-Coumaroyl-catalpol)



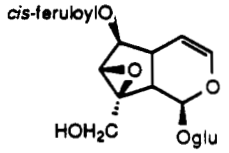
$C_{24}H_{28}O_{12}$ 508.48 mp 252° (dec) [α] −219° (MeOH) uv 319, 229 (MeOH) (60 MHz pyridine-d_5) 5.65–5.45 (H-1, m), 6.50 (H-3, d, 7), 5.30 (H-4, dd, 7), 3.0–2.7 (H-5, m), 5.15 (H-6, dd, 6, 4), 4.8–4.0 (H-7), 3.0–2.7 (H-9, m), 4.8–4.0 (H-10), 5.65–5.45 (H-1′, m), 4.8–4.0 (H-2′–H-6′), 6.55/8.01 (Hα, Hβ, d, 16.5), 7.65 (H-2″), 7.23 (H-3″); (CD_3OD) 93.1 (C-1), 141.1 (C-3), 101.8 (C-4), 35.2 (C-5), 79.3 (C-6), 58.3 (C-7), 65.8 (C-8), 42.0 (C-9), 58.7 (C-10), 97.9 (C-1′), 73.5 (C-2′), 77.4 (C-3′), 70.3 (C-4′), 76.5 (C-5′), 61.5 (C-6′), 166.5 (C=O), 113.6 (Cα), 145.6 (Cβ), 125.0 (C-1″), 130.5 (C-2″), 115.8 (C-3″), 159.9 (C-4″). *Catalpa speciosa, Tabebuia rosea* (Bignoniaceae) (89, 90)

111. 6-*O*-*p*-METHOXYCINNAMOYL-CATALPOSIDE



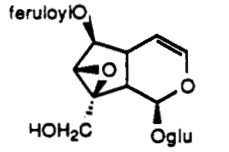
$C_{25}H_{30}O_{12}$ 522.50 uv 309, 225 (MeOH) (penta-acetate 250 MHz $CDCl_3$) 5.45–4.80 (H-1), 6.33 (H-3, d, 6.1), 5.45–4.80 (H-4), 2.50 (H-5, m), 5.45–4.80 (H-6), 3.55 (H-7, bs), 2.65 (H-9, m), 4.65 (H-10, dd, 11, 1.8), 3.92 (H-10, m), 5.45–4.80 (H-1′–H-4′), 3.70 (H-5′, m), 4.40–4.10 (H-6′, m), 6.26/7.66 (Hα, Hβ, d's, 16), 7.49 (H-2″, d, 8.8), 6.91 (H-3″, d, 8.8), 3.84 (OMe), 2.2–1.95 (OAc). *Buddleja globosa* (Loganiaceae) (60)

112. 6-*O*-*cis*-FERULOYLCATALPOL



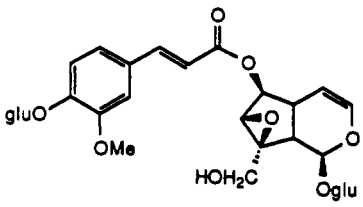
$C_{25}H_{30}O_{13}$ 538.50 (300 MHz CD_3OD) 5.23 (H-1, d, 9.5), 6.42 (H-3, dd, 6.1, 1.2), 5.01 (H-4, dd, 6.1, 3.9), 5.05 (H-6, dd, 7.8, 1.1), 4.23, 3.93 (H-10, d's, 13.2), 5.92/7.00 (Hα, Hβ, d's, 12.9), 7.83 (H-2″, d, 2.1), 6.85 (H-5″, d, 8.2), 7.21 (H-6″, dd, 8.2, 2.1). *Picrorhiza kurrooa* (Scrophulariaceae) (91)

113. 6-*O*-*trans*-FERULOYLCATALPOL



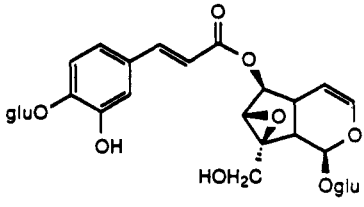
$C_{25}H_{30}O_{13}$ 538.50 uv 327.5, 235.8, 217.5 (MeOH) (300 MHz CD_3OD) 5.24 (H-1, d, 9.2), 6.45 (H-3, dd, 5.9, 1.4), 5.07 (H-4, dd, 6, 4), 2.69 (H-5, m), 5.11 (H-6, dd, 7.8, 1.1), 3.79 (H-7, d, 1.1), 2.69 (H-9, dd, 9.2, 6.4), 4.25, 3.92 (H-10, d's, 13.1), 4.86 (H-1′, d, 7.9), 3.5–3.2 (H-4′), 4.01 (H-6′, dd, 11.9, 2.0), 3.73 (H-6′, dd, 11.9, 6.3), 6.48/7.74 (Hα, Hβ, d's, 15.9), 7.28 (H-2″, d, 1.8), 7.11 (H-5″, dd, 8.2, 1.9), 6.88 (H-6″, d, 8.2), 3.97 (OMe); (CD_3OD) 95.1 (C-1), 142.4 (C-3), 103.0 (C-4), 36.8 (C-5), 81.3 (C-6), 60.3 (C-7), 66.9 (C-8), 43.3 (C-9), 61.3 (C-10), 99.8 (C-1′), 74.9 (C-2′), 78.6 (C-3′)[a], 71.8 (C-4′), 77.8 (C-5′)[a], 62.9 (C-6′), 169.0 (C=O), 114.7 (Cα), 147.6 (Cβ), 127.3 (C-1″), 111.8 (C-2″), 149.6 (C-3″), 151.6 (C-4″), 116.7 (C-5″), 124.4 (C-6″), 56.5 (OMe). *Picrorhiza kurrooa* (Scrophulariaceae) (91)

114. WELLOSIDE



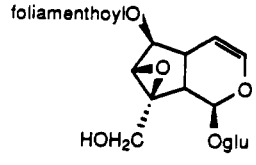
$C_{31}H_{40}O_{18}$ 700.65 no data available. *Veronica bellidioides* (Scrophulariaceae) (92)

115. SPEEDOSIDE



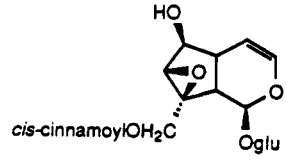
$C_{30}H_{38}O_{18}$ 686.62 no data available. *Veronica bellidioides* (Scrophulariaceae) (92)

116. NEMOROSIDE (6-*O*-Foliamenthoylcatalpol)



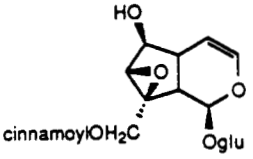
$C_{25}H_{36}O_{12}$ 528.55 mp 68–70° (400 MHz CD_3OD) 5.15 (H-1, d, 9.3), 6.39 (H-3, dd, 6, 1.8), 4.95 (H-4 and HDO), 2.58 (H-5, m, 7.9, 7.8, 1.8), 4.95 (H-6, dd, 7.9, 1.2), 3.66 (H-7, d, 1.2), 2.58 (H-9, m, 9.3, 7.8), 4.15, 3.81 (H-10, d's, 13.2), 4.77 (H-1′, d, 8), 3.38 (H-3′, dd, 9.3, 8.7), 3.92 (H-6′, dd, 12.2, 6.6), 3.63 (H-6′, dd, 12.2, 2.2), 6.83 (H-3″, qt, 7.4, 1.4), 2.36 (H-4″, q, 8.2, 7.4), 2.17 (H-5″, t, 8.2), 5.40 (H-7″, qt, 7.5, 1.4), 4.08 (H-8″, d, 7.5), 1.85 (H-9″, d, 1.4), 1.69 (H-10″, d, 1.4); (CD_3OD) 95.2 (C-1), 142.4 (C-3), 102.9 (C-4), 36.8 (C-5), 81.7 (C-6), 60.2 (C-7), 66.9 (C-8), 43.3 (C-9), 61.3 (C-10), 99.9 (C-1′), 74.9 (C-2′), 78.6 (C-3′), 71.8 (C-4′), 77.8 (C-5′), 63.0 (C-6′), 169.4 (C-1″), 128.6 (C-2″), 144.2 (C-3″), 28.0 (C-4″), 39.0 (C-5″), 138.4 (C-6″), 125.8 (C-7″), 59.4 (C-8″), 12.4 (C-9″), 16.2 (C-10″). *Penstemon nemorosus* (Scrophulariaceae) (35)

117. GLOBULARICISIN (10-*O*-*cis*-Cinnamoylcatalpol)



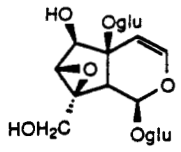
$C_{24}H_{28}O_{11}$ 492.48 [α] −97.2° (MeOH) uv 272, 215 (MeOH) (100 MHz CD_3OD) 5.00 (H-1, d, 9.2), 6.34 (H-3, dd, 6, 1.8), 5.0 (H-4), 2.25 (H-5, m), 3.85 (H-6, s), 3.35 (H-7, s), 2.52 (H-9, dd, 9.2, 8), 4.92, 4.22 (H-10), 4.7 (H-1′), 5.98/7.01 (Hα, Hβ, d's, 13); (CD_3OD) 95.5 (C-1), 141.5 (C-3), 103.5 (C-4), 38.6 (C-5), 79.1 (C-6), 62.4 (C-7), 63.1 (C-8), 43.2 (C-9), 63.7 (C-10), 100.0 (C-1′), 74.5 (C-2′), 77.9 (C-3′)[a], 71.1 (C-4′), 77.4 (C-5′)[a], 62.7 (C-6′), 167.3 (C=O), 119.7 (Cα), 144.8 (Cβ), 135.8 (C-1″), 130.7 (C-2″)[b], 128.9 (C-3″)[b], 129.9 (C-4″). *Globularia alypum* (Globulariaceae), *Pinguicula vulgaris* (Lentibulariaceae) (73, 74)

118. GLOBULARIN



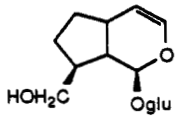
$C_{24}H_{28}O_{11}$ 492.48 uv 280, 227 (MeOH) (400 MHz DMSO-d_6) 4.97 (H-1, d, 9), 6.55 (H-3, dd, 6), 5.39 (H-4, d, 6), 2.14 (H-5, m), 4.5 (H-6, dd, 6), 2.95 (H-9, m), 4.93, 4.09 (H-10, d's, 13), 4.56 (H-1′, d, 8.5), 6.62/7.63 (Hα, Hβ, d's, 16), 7.7–7.41 (H-2″–H-4″, m); (?) 98.4 (C-1), 140.5 (C-3), 103.0 (C-4), 37.3 (C-5), 77.3 (C-6), 61.4 (C-7), 62.8 (C-8), 41.9 (C-9), 61.7 (C-10), 93.6 (C-1′), 73.4 (C-2′), 77.1 (C-3′), 70.1 (C-4′), 76.5 (C-5′), 61.6 (C-6′), 165.9 (C=O), 118 (Cα), 144.6 (Cβ), 134.1 (C-1″), 129.0 (C-2″), 128.4 (C-3″), 130.5 (C-4″). *Globularia arabica* (Globulariaceae) (93–95)

119. CALYCINOSIDE (5-*O*-Glucosyl-macfadienoside)



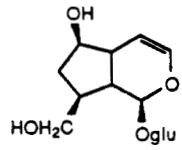
$C_{21}H_{32}O_{16}$ 540.47 [α] −7.5° (MeOH) uv 204 (MeOH) (90 MHz D_2O) 5.40 (H-1, d, 9.0), 6.66 (H-3, d, 6.0), 5.14 (H-4, d, 6.0), 4.41 (H-6, d, 1.5), 3.72 (H-7, d, 1.5), 3.25 (H-9, d, 9.0), 4.23, 3.80 (H-10, d's, 13.0). *Antirrhinum orontium* var. *calycinum* (Scrophulariaceae) (96)

120. CAPENSIOSIDE



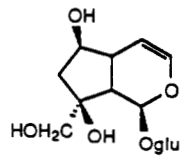
$C_{15}H_{24}O_8$ 332.35 (D_2O) 96.7 (C-1), 139.4 (C-3), 109.0 (C-4), 33.5 (C-5), 31.7 (C-6), 27.4 (C-7), 42.5 (C-8), 44.9 (C-9), 66.1 (C-10), 99.3 (C-1′), 73.6 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.5 (C-6′). *Retzia capensis* (Retziaceae) (2, 97)

121. (8*S*)-7,8-DIHYDROAUCUBIN



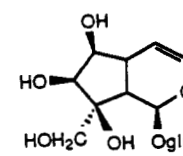
$C_{15}H_{24}O_9$ 348.35 (500 MHz D_2O) 5.37 (H-1, d, 3.1), 6.30 (H-3, dd, 6.2, 2.2), 4.89 (H-4, dd, 6.2, 2.5), 2.63 (H-5, m), 4.07 (H-6, m), 1.38 (H-7, m), 2.20–2.27 (H-7, H-8, H-9, m), 3.67, 3.63 (H-10, dd's, 10.5, 6.0); (D_2O) 96.4 (C-1), 140.6 (C-3), 104.9 (C-4), 41.5 (C-5), 78.0 (C-6), 36.1 (C-7), 41.0 (C-8), 42.8 (C-9), 66.5 (C-10), 99.2 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.4 (C-4′) 77.0 (C-5′), 61.5 (C-6′). *Phaulopsis imbricata* (Acanthaceae) (98)

122. 5,7-BISDEOXYCYNANCHOSIDE



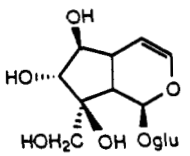
$C_{15}H_{24}O_{10}$ 364.35 [α] −126° (MeOH) uv 204 (MeOH) (90 MHz D_2O) 5.60 (H-1, d, 2.5), 6.24 (H-3, dd, 6.3, 3.0), 4.93 (H-4, dd, 6.3, 3.0), 2.82 (H-5, bd, 10.0), 4.02 (H-6, m), 1.95 (H-7, o, 15.0, 6.0, 3.3), 2.62 (H-9, bd, 10.0), 3.68, 3.56 (H-10, 12.5); (D_2O) 93.3 (C-1), 140.1 (C-3), 105.3 (C-4), 40.8 (C-5), 76.6 (C-6), 44.1 (C-7), 82.1 (C-8), 50.4 (C-9), 67.0 (C-10), 98.9 (C-1′), 73.5 (C-2′), 76.6 (C-3′), 70.5 (C-4′), 77.0 (C-5′), 61.6 (C-6′). *Macfadyena cynanchoides* (Bignoniaceae) (99)

123. PAULOWNIOSIDE



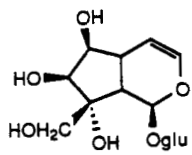
$C_{15}H_{24}O_{11}$ 380.35 [α] −65° (MeOH) uv 204 (MeOH) (90 MHz D_2O) 5.72 (H-1, s), 6.28 (H-3, dd, 6.0, 1.0), 5.00 (H-4, dt, 6.0, 1.5), 2.73 (H-5, bs), 3.69 (H-6, d, 4.5), 3.95 (H-7, d, 4.5), 2.73 (H-9, bs), 3.93, 3.60 (H-10, 13.0); (D_2O) 93.2 (C-1), 140.1 (C-3), 105.2 (C-4), 35.5 (C-5), 74.7 (C-6), 77.0 (C-7), 79.8 (C-8), 48.2 (C-9), 65.6 (C-10), 98.8 (C-1′), 73.5 (C-2′), 76.4 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.6 (C-6′). *Paulownia tomentosa* (Bignoniaceae) (100)

124. 10-DESCINNAMOYLGLOBULARIMIN



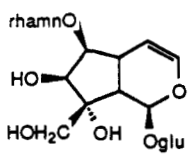
$C_{15}H_{24}O_{11}$ 380.35 [α] −139.9° (MeOH) (CD_3OD) 93.3 (C-1), 140.4 (C-3), 106.5 (C-4), 37.3 (C-5), 83.1 (C-6), 86.4 (C-7), 80.3 (C-8), 48.0 (C-9), 64.3 (C-10), 99.5 (C-1′), 74.6 (C-2′), 77.9 (C-3′)[a], 71.5 (C-4′), 77.7 (C-5′)[a], 62.7 (C-6′). Hydrolysis of globularimin (4, 101)

125. 10-DESCINNAMOYLGLOBULARININ



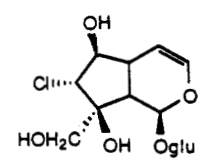
$C_{15}H_{24}O_{11}$ 380.35 (CD_3OD) 95.2 (C-1), 141.6 (C-3), 105.3 (C-4), 37.2 (C-5), 78.3 (C-6), 79.3 (C-7), 81.0 (C-8), 43.7 (C-9), 66.4 (C-10), 99.2 (C-1′), 74.6 (C-2′), 78.0 (C-3′)[a], 70.4 (C-4′), 78.3 (C-5′)[a], 62.4 (C-6′). Hydrolysis of globularinin (4, 101)

126. VERBASCOSIDE B



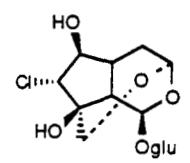
$C_{21}H_{34}O_{15}$ 526.49 [α] −108° (MeOH) (200 MHz CD_3OD) 5.25 (H-1, d, 6), 6.32 (H-3, dd, 6.5, 2), 5.07 (H-4, dd, 6.5, 3), 2.89–2.63 (H-5, m, 10, 2), 4.03 (H-6, dd, 4, 2), 3.95 (H-7, d, 4), 2.32 (H-9, dd, 10, 6), 4.10–3.20 (H-10), 4.70 (H-1′, d, 7.5), 4.03 (H-2′, dd), 4.76 (H-1″, d, 2), 1.22 (H-6″, d, 2.5); (CD_3OD) 96.1 (C-1), 141.9 (C-3), 106.0 (C-4), 37.2 (C-5), 83.1 (C-6), 78.1 (C-7), 82.3 (C-8), 44.1 (C-9), 67.1 (C-10), 100.7 (C-1′), 74.6 (C-2′), 77.8 (C-3′), 71.2 (C-4′), 76.8 (C-5′), 62.3 (C-6′), 100.8 (C-1″), 72.0 (C-2″), 70.1 (C-3″), 73.9 (C-4″), 72.3 (C-5″), 18.0 (C-6″). *Verbascum georgicum* (Scrophulariaceae) (102)

127. ASYSTASIOSIDE E



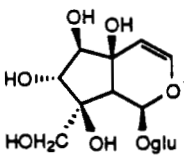
$C_{15}H_{23}ClO_{10}$ 398.79 [α] −140° (MeOH) (500 MHz D_2O) 5.53 (H-1, d, 2.2), 6.28 (H-3, dd, 6.3, 1.7), 5.17 (H-4, dd, 6.1, 3.3), 2.67 (H-5, m), 3.88 (H-6, m), 4.10 (H-7, d, 9.0), 2.61 (H-9, bd, 11), 3.91, 3.70 (H-10, d's, 12.5); (D_2O) 92.6 (C-1), 139.6 (C-3), 106.1 (C-4), 35.4 (C-5), 81.1 (C-6), 71.6 (C-7), 79.3 (C-8), 47.0 (C-9), 62.4 (C-10), 98.9 (C-1′), 73.4 (C-2′), 76.4 (C-3′), 70.4 (C-4′), 76.9 (C-5′), 61.5 (C-6′). *Asystasia bella* (Acanthaceae) (41)

128. GLUTINOSIDE



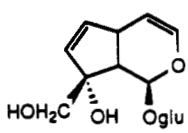
$C_{15}H_{23}ClO_{10}$ 398.79 [α] −79.2° (MeOH) mp 185–186° (pentaacetate) (pentaacetate 500 MHz $CDCl_3$) 5.55 (H-1, d, 1.8), 5.33 (H-3, d, 3.4), 2.16 (H-4α, dd, 14.7, 3.4), lost in acetoxy methyls (H-4β), 2.22 (H-5, ddd, 10.3, 9.8, 3.1), 4.98 (H-6, dd, 7.9, 3.1), 4.28 (H-7, d, 7.9), 2.66 (H-9, bd, 9.8), 4.07 (H-10α, d, 12.2), 3.67 (H-10β, d, 12.2), 2.01, 2.03, 2.03, 2.10, 2.11 (OAc); (pyridine-d_5) 94.6 (C-1), 92.6 (C-3), 33.9 (C-4), 35.5 (C-5), 84.3 (C-6), 75.6 (C-7), 79.3 (C-8), 47.5 (C-9), 61.9 (C-10), 98.6 (C-1′), 74.2 (C-2′), 77.9 (C-3′), 70.9 (C-4′), 77.9 (C-5′), 61.9 (C-6′). *Rehmannia glutinosa* (Scrophulariaceae) (103)

129. CYNANCHOSIDE (7α,10-Dihydroxyharpagide)



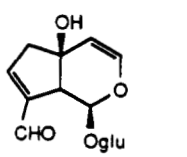
$C_{15}H_{24}O_{12}$ 396.35 [α] −126° (MeOH) uv 204 (MeOH) (90 MHz D_2O) 5.86 (H-1, s), 6.42 (H-3, d, 6.0), 5.26 (H-4, d, 6.0), 3.97 (H-6, d, 9.0), 3.65 (H-7, d, 9.0), 2.45 (H-9, s), 3.81, 3.57 (H-10, 13.0); (D_2O) 91.7 (C-1), 140.5 (C-3), 110.0 (C-4), 64.9 (C-5), 82.5 (C-6), 78.9 (C-7), 76.3 (C-8), 56.2 (C-9), 62.1 (C-10), 98.9 (C-1′), 73.3 (C-2′), 76.3 (C-3′), 70.6 (C-4′), 77.0 (C-5′), 61.6 (C-6′). *Macfadyena cynanchoides* (Bignoniaceae) (104)

130. ERANTHEMOSIDE



$C_{15}H_{22}O_9$ 346.33 [α] −98° (EtOH) (90 MHz D_2O) 5.52 (H-1, d, 1.7), 6.20 (H-3, dd, 6, 2), 5.13 (H-4, dd, 6, 3), 3.3 (H-5, m), 6.11 (H-6, dd, 5.5, 3), 5.69 (H-7, dd, 5.5, 2), 2.59 (H-9, dd, 8.5, 1.7), 3.68 (H-10, s), 4.84 (H-1′, d, 7); (D_2O) 94.3 (C-1), 138.8 (C-3)[a], 106.5 (C-4), 38.0 (C-5), 131.6 (C-6), 138.3 (C-7)[a], 85.9 (C-8), 44.7 (C-9), 67.3 (C-10), 98.8 (C-1′), 73.6 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.5 (C-6′). *Eranthemum pulchellum* (Acanthaceae) (105)

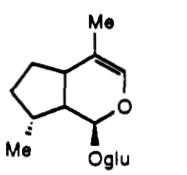
131. HYGROPHILOSIDE



$C_{15}H_{20}O_9$ 344.32 (90 MHz D_2O) 6.12 (H-1, d, 3), 6.48 (H-3, d, 6.5), 5.27 (H-4, d, 6.5), 3.05 (H-6, m), 7.32 (H-7, bd, 2), 3.5 (H-9), 9.70 (H-10, s); (D_2O) 93.4 (C-1), 141.1 (C-3), 109.5 (C-4), 74.5 (C-5), 46.1 (C-6), 157.5 (C-7), 142.9 (C-8), 53.0 (C-9), 193.9 (C-10), 99.2 (C-1′), 73.3 (C-2′), 76.2 (C-3′), 70.5 (C-4′), 77.1 (C-5′), 61.5 (C-6′). *Hygrophila difformis* (Acanthaceae) (106)

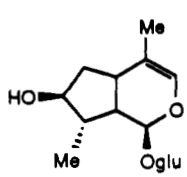
Group 3 (10-carbon skeleton)

132. BOSCHNASIDE (8-*epi*-Iridodial glucoside)



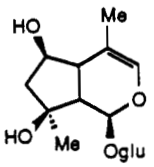
$C_{16}H_{26}O_7$ 330.38 tetraacetate mp 131–132° [α] −140.8° ($CHCl_3$) (tetraacetate 100 MHz $CDCl_3$) 5.88 (H-3, bs), 0.99 (H-10, d, 7.0), 1.49 (H-11, s), 5.10–4.80 (H-4′, m), 4.20 (H-6′, m), 1.98–2.08 (OAc); (tetraacetate $CDCl_3$) 93.4 (C-1), 133.2 (C-3), 113.9 (C-4), 35.7 (C-5)[a], 28.5 (C-6)[b], 33.2 (C-7)[b], 34.3 (C-8)[a], 42.8 (C-9), 15.9 (C-10)[c], 16.3 (C-11)[c], 95.0 (C-1′), 70.7 (C-2′), 71.8 (C-3′), 68.4 (C-4′), 72.6 (C-5′), 61.8 (C-6′), 170.2, 169.7, 169.0, 168.7 (O=*C*Me), 20.5 (O=*C*Me). *Boschniakia rossica* (Orobanchaceae) (107)

133. 7β-HYDROXY-8-*epi*-IRIDODIAL GLUCOSIDE



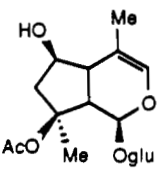
$C_{16}H_{26}O_8$ 346.38 [α] −85.7° (MeOH) (60 MHz D_2O) 5.30 (H-1, s), 5.92 (H-3, bs), 2.60 (H-5, m), 2.1–1.1 (H-6), 4.0–3.6 (H-7), 2.1–1.1 (H-8, H-9), 0.95 (H-10, d, 7.0), 1.50 (H-11, bs), 4.80 (H-1′, d, 7.5); (D_2O) 95.3 (C-1), 133.1 (C-3), 117.3 (C-4), 33.3 (C-5), 37.1 (C-6), 79.4 (C-7), 42.9 (C-8), 41.9 (C-9), 14.1 (C-10), 15.9 (C-11), 98.8 (C-1′), 73.6 (C-2′), 76.6 (C-3′)[a], 70.5 (C-4′), 77.0 (C-5′)[a], 61.6 (C-6′). *Linaria cymbalaria* (Scrophulariaceae) (108)

134. 5-DEOXYLAMIOL



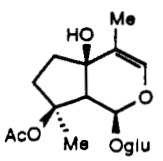
$C_{16}H_{26}O_9$ 362.38 (60 MHz D_2O) 5.45 (H-1, bs), 6.05 (H-3, m), 2.60 (H-5), 2.10 (H-7, dd, 14.0, 7.0), 1.87 (H-7, dd, 14.0, 6.0), 2.60 (H-9), 1.30 (H-10, s), 1.64 (H-11, bs); (D_2O) 93.7 (C-1), 133.5 (C-3), 114.1 (C-4), 43.3 (C-5), 74.8 (C-6), 49.4 (C-7), 78.6 (C-8), 51.0 (C-9), 23.9 (C-10), 15.6 (C-11), 98.7 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.5 (C-4′), 77.0 (C-5′), 61.6 (C-6′). Prepared from shanzhiside methyl ester, *Satureja vulgaris* (Labiatae) (34, 109)

135. 5-DEOXYLAMIOSIDE



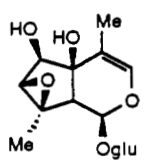
$C_{18}H_{28}O_{10}$ 404.41 [α] −54° (dioxane) uv 205 (MeOH) (60 MHz D_2O) 5.80 (H-1, bs), 6.10 (H-3, m), 2.72 (H-5, bd), 3.91 (H-6, m), 2.18 (H-7, m), 2.96 (H-9, bd), 1.54 (H-10, s), 1.62 (H-11, bs), 2.09 (OAc). *Lamium amplexicaule* (Labiatae) (34)

136. 6-DEOXYLAMIOSIDE



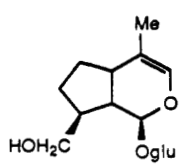
$C_{18}H_{28}O_{10}$ 404.41 (60 MHz D_2O) 5.91 (H-1, d, 1), 6.23 (H-3, q, 1.5), 2.2–1.8 (H-6, H-7, m), 2.72 (H-9, d, 1), 1.49 (H-10, s), 1.64 (H-11, d, 1.5), 2.1 (OAc). *Lamium amplexicaule* (Labiatae) (110)

137. 4-METHYLANTIRRINOSIDE



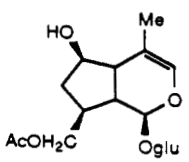
$C_{16}H_{24}O_{10}$ 376.36 [α] −61° (MeOH) (90 MHz D_2O) 5.30 (H-1, d, 7.5), 6.21 (H-3, q, 1.5), 4.27 (H-6, d, 2.0), 3.61 (H-7, d, 2.0), 2.55 (H-9, d, 7.5), 1.52 (H-10, s), 1.61 (H-11, d, 1.5), 4.75 (H-1′, d, 7.5); (D_2O) 95.4 (C-1), 137.7 (C-3), 115.2 (C-4), 74.4 (C-5), 76.0 (C-6)[a], 66.9 (C-7), 64.7 (C-8), 53.9 (C-9), 17.2 (C-10), 11.8 (C-11), 99.0 (C-1′), 73.5 (C-2′), 76.5 (C-3′)[a], 70.4 (C-4′), 77.1 (C-5′)[a], 61.6 (C-6′). *Satureja vulgaris* (Labiatae) (109)

138. DECAPETALOSIDE



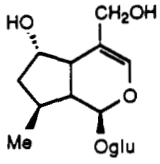
$C_{16}H_{26}O_8$ 346.38 [α] −71° (MeOH) (90 MHz D_2O) 5.14 (H-1, d, 4), 6.09 (H-3, bs), 2.51 (H-5, m), 3.58 (H-10, bd, 6), 1.56 (H-11, bs); (D_2O) 97.3 (C-1), 134.3 (C-3), 115.8 (C-4), 38.8 (C-5), 30.1 (C-6), 27.7 (C-7), 43.2 (C-8), 44.9 (C-9), 66.1 (C-10), 15.9 (C-11), 99.4 (C-1′), 73.6 (C-2′), 76.5 (C-3′), 70.3 (C-4′), 76.9 (C-5′), 61.5 (C-6′). *Viburnum betulifolium* (Caprifoliaceae) (111)

139. 10-*O*-ACETYL-6β-HYDROXY-MONGOLIOSIDE



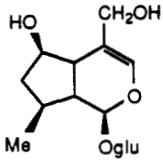
$C_{18}H_{28}O_{10}$ 404.41 (D_2O) 95.8 (C-1), 134.9 (C-3), 112.4 (C-4), 45.5 (C-5), 75.7 (C-6), 35.8 (C-7), 38.0 (C-8), 44.0 (C-9), 69.2 (C-10), 15.4 (C-11), 99.1 (C-1′), 73.5 (C-2′), 76.4 (C-3′), 70.4 (C-4′), 76.9 (C-5′), 61.5 (C-6′). *Viburnum hupehense* (Caprifoliaceae) (112)

140. α-DIHYDROVERBENOL



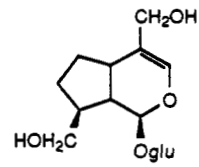
$C_{16}H_{26}O_9$ 362.38 [α] −72.7° (MeOH) uv 205 (MeOH) (90 MHz D_2O) 5.07 (H-1, d, 8.0), 6.63 (H-3, bs), 2.88 (H-5, m), 4.49 (H-6, m), 2.5–1.4 (H-7–H-9), 1.24 (H-10, d, 6.5), 4.12 (H-11, bs), 4.86 (H-1′, d, 7.5); (D_2O) 100.8 (C-1), 142.2 (C-3), 114.4 (C-4), 43.4 (C-5), 74.2 (C-6), 42.1 (C-7), 34.5 (C-8), 47.5 (C-9), 21.3 (C-10), 62.0 (C-11)[a], 99.8 (C-1′), 73.7 (C-2′), 76.7 (C-3′), 70.6 (C-4′), 77.1 (C-5′), 61.7 (C-6′)[a]. Reduction of verbenalin (113)

141. β-DIHYDROVERBENOL



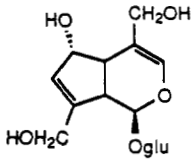
$C_{16}H_{26}O_9$ 362.38 [α] −110.0° (MeOH) uv 205 (MeOH) (90 MHz D_2O) 5.33 (H-1, d, 2.5), 6.36 (H-3, bs), 2.72 (H-5, m), 4.17 (H-6, m), 2.5–1.7 (H-7–H-9), 1.18 (H-10, d, 6.3), 4.21, 3.98 (H-11, 13.0), 4.77 (H-1′, d, 7.5); (D_2O) 96.3 (C-1), 138.9 (C-3), 116.0 (C-4), 42.9 (C-5), 76.5 (C-6), 42.0 (C-7), 33.8 (C-8), 47.4 (C-9), 20.2 (C-10), 61.7 (C-11), 99.3 (C-1′), 73.6 (C-2′), 76.7 (C-3′), 70.5 (C-4′), 77.1 (C-5′), 61.7 (C6′). Reduction of verbenalin (113)

142. 11-HYDROXYDECAPETALOSIDE



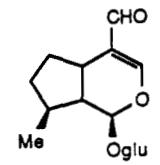
$C_{16}H_{26}O_9$ 362.38 [α] −99° (MeOH) (90 MHz D_2O) 5.22 (H-1, d, 3.5), 6.33 (H-3, bs), 2.72 (H-5, m), 4.08, 3.89 (H-11, 12); (D_2O) 97.4 (C-1), 138.6 (C-3), 117.9 (C-4), 35.0 (C-5), 29.7 (C-6), 27.6 (C-7), 42.7 (C-8), 44.7 (C-9), 66.1 (C-10), 61.5 (C-11), 99.5 (C-1′), 73.6 (C-2′), 76.5 (C-3′), 70.5 (C-4′), 77.0 (C-5′), 61.5 (C-6′). Prepared from adoxoside (111)

143. ASPERULOSIDOL



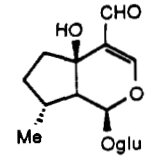
$C_{16}H_{24}O_{10}$ 376.36 mp 183–184° [α] −8° (H_2O) uv 206 (MeOH) (90 MHz D_2O) 4.94 (H-1, d, 9.0), 6.66 (H-3, bs), 3.03 (H-5, bt, 7.7, 6.6), 4.87 (H-6, bd), 6.07 (H-7, bs), 2.70 (H-9, bt, 9.0, 7.7), 4.43 (H-10, 2d's, 15.0), 4.17 (H-11, bs); (D_2O) 99.6 (C-1), 142.6 (C-3), 114.5 (C-4), 42.6 (C-5), 74.6 (C-6), 129.3 (C-7), 150.6 (C-8), 46.5 (C-9), 61.0 (C-10), 61.5 (C-11). Reduction of asperuloside (114)

144. 5-DEOXYSTANSIOSIDE (Stanside, 8-*epi*-Boschnaloside)



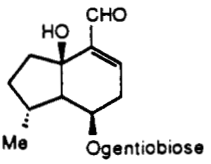
$C_{16}H_{24}O_8$ 344.36 mp 146–147° [α] −117° (MeOH) uv 249 (MeOH) (90 MHz D_2O) 5.54 (H-1, d, 1.5), 7.48 (H-3, s), 3.00 (H-5, m), 2.5–1.2 (H-6, H-7, H-8, H-9), 1.15 (H-10, d, 6.0), 9.18 (H-11, s), 4.88 (H-1′, d, 7.5); (D_2O) 98.8 (C-1), 164.5 (C-3), 125.2 (C-4), 31.3 (C-5), 30.8 (C-6), 33.2 (C-7), 35.4 (C-8), 48.4 (C-9), 19.9 (C-10), 192.6 (C-11), 99.7 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.3 (C-4′), 77.2 (C-5′), 61.5 (C-6′). *Tecoma stans* (Bignoniaceae) (115)

145. PLANTARENALOSIDE (Yuheinoside)



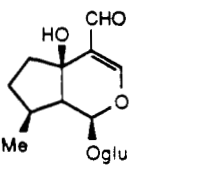
$C_{16}H_{24}O_9$ 360.36 [α] −188.8° (MeOH) uv 241 (MeOH) (90 MHz D_2O) 5.93 (H-1, s), 7.56 (H-3, s), 0.90 (H-10, d, 7.0), 9.23 (H-11, s), 4.83 (H-1′, d, 7.5); (D_2O) 97.3 (C-1), 165.5 (C-3), 125.0 (C-4), 72.9 (C-5), 38.3 (C-6), 32.2 (C-7), 34.2 (C-8), 51.7 (C-9), 15.9 (C-10), 194.6 (C-11), 99.4 (C-1′), 73.2 (C-2′), 76.1 (C-3′)[a], 70.4 (C-4′), 77.2 (C-5′)[a], 61.5 (C-6′). *Tecoma stans* (Bignoniaceae), *Plantago arenaria* (Plantaginaceae) (116, 117)

146. PLANTARENALOSIGENIN-1-*O*-β-GENTIOBIOSIDE



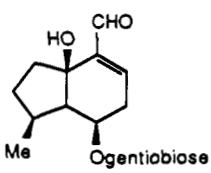
$C_{22}H_{34}O_{14}$ 522.50 [α] −56.0° (MeOH) uv 241 (MeOH) [400 MHz $CDCl_3$-CD_3OD (8:2)] 5.93 (H-1, d, 0.5), 7.58 (H-3, s), 0.94 (H-10, d, 6.2), 9.23 (H-11, s), 4.72 (H-1′, d, 7.5), 4.57 (H-1″, d, 7.5); [$CDCl_3$-CD_3OD (6:4)] 96.3 (C-1), 165.4 (C-3), 124.9 (C-4), 72.9 (C-5), 38.2 (C-6), 32.2 (C-7), 34.2 (C-8), 51.7 (C-9), 15.9 (C-10), 194.8 (C-11), 99.4 (C-1′), 74.9 (C-2′)[a], 77.2 (C-3′)[b], 70.8 (C-4′), 76.2 (C-5′)[b], 69.3 (C-6′), 103.6 (C-1″), 73.1 (C-2″)[a], 76.2 (C-3″)[b], 70.7 (C-4″), 76.9 (C-5″)[b], 61.8 (C-6″). *Campsidium valdivianum* (Bignoniaceae) (118)

147. STANSIOSIDE



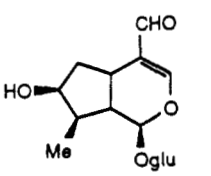
$C_{16}H_{24}O_9$ 360.36 [α] −124.5° (MeOH) uv 241 (MeOH) (400 MHz CD_3OD) 5.70 (H-1, d, 2.8), 7.35 (H-3, s), 2.13, 1.39 (H-6, m's), 2.13, 1.71 (H-7, m's), 1.71 (H-8, m), 1.88 (H-9, dd, 9.0, 2.8), 1.13 (H-10, d, 6.3), 9.25 (H-11, s), 4.61 (H-1′, d, 8.0), 3.18 (H-2′, 9.1, 8.0), 3.90 (H-6′, dd, 12.0, 2.0), 3.66 (H-6′, dd, 11.9, 5.8); (D_2O) 97.6 (C-1), 164.6 (C-3), 124.6 (C-4), 73.5 (C-5), 37.9 (C-6), 31.0 (C-7), 35.1 (C-8), 56.7 (C-9), 19.9 (C-10), 193.7 (C-11), 99.7 (C-1′), 73.2 (C-2′), 76.2 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.4 (C-6′). *Tecoma stans* (Bignoniaceae) (115, 116, 119)

148. STANSIOSIGENIN-1-*O*-β-GENTIOBIOSIDE



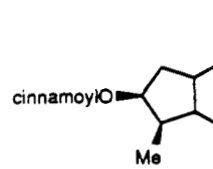
$C_{22}H_{34}O_{14}$ 522.50 [α] − 13.8° (MeOH) uv 241 (MeOH) [400 MHz $CDCl_3$-CD_3OD (8:2)] 5.80 (H-1, d, 2), 7.53 (H-3, s), 1.14 (H-10, d, 5.5), 3.37 (H-9, dd, 7, 2), 9.22 (H-11, s), 4.72 (H-1′, d, 7.5), 4.57 H-1″, d, 7.5); [$CDCl_3$-CD_3OD (6:4)] 97.5 (C-1), 164.6 (C-3), 124.8 (C-4), 73.5 (C-5), 37.9 (C-6), 31.0 (C-7), 35.1 (C-8), 56.6 (C-9), 19.9 (C-10), 194.6 (C-11), 99.7 (C-1′), 74.9 (C-2′)[a], 77.2 (C-3′)[b], 70.8 (C-4′), 76.2 (C-5′)[b], 69.3 (C-6′), 103.6 (C-1″), 73.1 (C-2″)[a], 76.2 (C-3″)[b], 70.7 (C-4″), 76.9 (C-5″)[b], 61.8 (C-6″). *Campsidium valdivianum* (Bignoniaceae) (118)

149. CACHINESIDE I (7β-Hydroxy-stanside)



$C_{16}H_{24}O_9$ 360.36 [α] −136° (MeOH) (200 MHz CD_3OD) 5.46 (H-1, d, 3.0), 7.32 (H-3, d, 1.0), 3.07 (H-5, q-like, 8.0, 6.0, 1.0), 1.65 (H-6α, ddd, 6.0, 6.0), 2.22 (H-6β, ddd, 8.0, 1.8), 4.03 (H-7, t-like, 6.0, 5.0, 1.8), 1.82 (H-8, m, 9.0, 5.0), 2.08 (H-9, m, 9.0), 1.10 (H-10, d), 9.18 (H-11, s), 4.67 (H-1′, d, 7.8); (CD_3OD) 98.2 (C-1), 162.4 (C-3), 126.4 (C-4), 29.5 (C-5), 41.2 (C-6), 74.8 (C-7), 41.4 (C-8), 45.9 (C-9), 13.0 (C-10), 192.9 (C-11), 98.8 (C-1′), 74.2 (C-2′), 77.9 (C-3′)[a], 71.2 (C-4′), 77.6 (C-5′)[a], 62.5 (C-6′). *Campsis chinensis* (Bignoniaceae) (120)

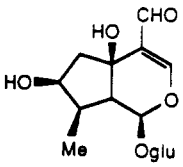
150. CAMPENOSIDE



$C_{25}H_{30}O_{10}$ 490.51 mp 165–167° [α] −59.5° (MeOH) (200 MHz CD_3OD) 5.46 (H-1, d, 3), 7.39 (H-3, d), 3.13 (H-5, m, 8, 4), 1.85 (H-6α, m, 15, 6.5, 6), 2.32 (H-6β, m, 15, 8, <1), 5.24 (H-7, m, 6, 5, 1), 2.14 (H-9, m, 10, 3), 1.11 (H-10, d, 6), 9.19 (H-11, s), 4.63 (H-1′, d, 7), 6.48/7.66 (Hα, Hβ, d's, 16), 7.30–7.60 (H-2″–H-4″, m); (DMSO-d_6) 96.3 (C-1), 160.6 (C-3), 123.2 (C-4), 28.5 (C-5), 37.2 (C-6), 76.3 (C-7), 38.4 (C-8), 45.2 (C-9), 12.6 (C-10), 190.2 (C-11), 98.8 (C-1′), 72.9 (C-2′), 76.9 (C-3′)[a], 70.0 (C-4′),

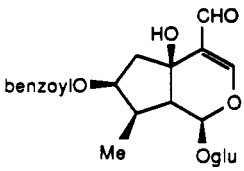
76.5 (C-5′)[a], 61.0 (C-6′), 165.2 (C=O), 118.0 (Cα), 143.8 (Cβ), 133.8 (C-1″), 128.4 (C-2″)[b], 127.7 (C-3″)[b], — (C-4″). *Campsis chinensis* (Bignoniaceae) (120)

151. TECOMOSIDE



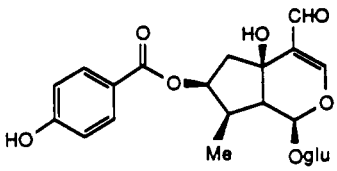
$C_{16}H_{24}O_{10}$ 376.36 mp 124–125° [α] −123.5° (MeOH) [α] −118° (MeOH) uv 241 (EtOH) (200 MHz CD_3OD) 5.77 (H-1, d, 1.7), 7.35 (H-3, s), 2.50 (H-6α, dd, 5.8), 2.18 (H-6β, dd, 2.7), 3.91 (H-7, m, 5.8, 5.8, 2.7), 1.63 (H-8, m, 12.0, 5.8), 2.32 (H-9, dd, 12, 1.7), 1.11 (H-10, d), 9.25 (H-11, s), 4.63 (H-1′, d, 7.8); (CD_3OD) 97.1 (C-1), 162.7 (C-3), 126.8 (C-4), 72.1 (C-5), 48.9 (C-6), 73.4 (C-7), 41.2 (C-8), 54.7 (C-9), 13.1 (C-10), 192.9 (C-11), 100.1 (C-1′), 74.4 (C-2′), 78.4 (C-3′)[a], 71.5 (C-4′), 77.5 (C-5′)[a], 62.7 (C-6′). *Campsis chinensis* (Bignoniaceae) (116, 120, 121)

152. 7-*O*-BENZOYLTECOMOSIDE



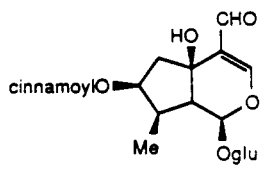
$C_{23}H_{28}O_{11}$ 480.47 no data available. *Tecoma capensis* (Bignoniaceae) (122)

153. 7-*O*-*p*-HYDROXYBENZOYL-TECOMOSIDE



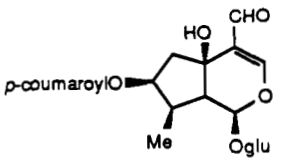
$C_{23}H_{28}O_{12}$ 496.47 [α] −64.7° (MeOH) uv 260 (MeOH) (360 MHz CD_3OD) 5.80 (H-1, d, 1.5), 7.33 (H-3, s), 2.8–2.2 (H-6), 5.00 (H-7, m), 1.95 (H-8, m), 2.8–2.2 (H-9), 1.02 (H-10, d, 6.5), 9.28 (H-11, s), 7.62 (H-2″, d, 8), 6.74 (H-3″, d, 8); (CD_3OD) 96.4 (C-1), 162.7 (C-3), 127.5 (C-4), 71.6 (C-5), — (C-6), 76.7 (C-7), 39.9 (C-8), 55.3 (C-9), 13.0 (C-10), 192.7 (C-11), 100.3 (C-1′), 74.5 (C-2′), 78.6 (C-3′)[a], 71.6 (C-4′), 77.6 (C-5′)[a], 62.8 (C-6′), 168.0 (C=O), 129.0 (C-1″), 133.7 (C-2″), 116.0 (C-3″), 162.7 (C-4″). *Tecoma capensis* (Bignoniaceae) (123)

154. 7-*O*-CINNAMOYLTECOMOSIDE (5-Hydroxycampenoside)



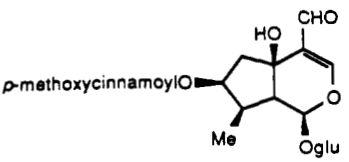
$C_{25}H_{30}O_{11}$ 506.51 mp 191–192° [α] −69.8° (MeOH) uv 278, 217 (MeOH) (200 MHz CD_3OD) 5.84 (H-1, d, <2), 7.40 (H-3, s), 2.67 (H-6α, dd, 6, 16), 2.27 (H-6β, dd, 2, 16), 5.08 (H-7, m, 6, 5.5, 2), 1.88 (H-8, m, 12, 5.5), 2.46 (H-9, dd, 12, <2), 1.13 (H-10, d, 7), 9.25 (H-11, s), 4.63 (H-1′, d, 7.5), 6.50/7.69 (Hα, Hβ, d's, 16), 7.30–7.60 (H-2″–H-4″); (CD_3OD) 96.4 (C-1), 162.6 (C-3), 126.5 (C-4), 71.6 (C-5), — (C-6), 77.0 (C-7), 40.0 (C-8), 55.3 (C-9), 13.0 (C-10), 192.7 (C-11), 100.3 (C-1′), 74.4 (C-2′), 78.5 (C-3′)[a], 71.6 (C-4′), 77.5 (C-5′)[a], 62.7 (C-6′), 168.0 (C=O), 119.0 (Cα), 146.3 (Cβ), 133.3 (C-1″), 130.1 (C-2″), 129.3 (C-3″), 131.5 (C-4″). *Tecoma capensis, Campsis chinensis* (Bignoniaceae) (120, 123)

155. 7-*O*-*p*-COUMAROYLTECOMOSIDE



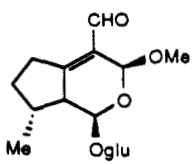
$C_{25}H_{30}O_{12}$ 522.50 [α] −64.9° (MeOH) uv 310, 266 (MeOH) (360 MHz CD_3OD) 5.82 (H-1, d, 1.5), 7.33 (H-3, s), 2.8–2.2 (H-6), 5.08 (H-7, m), 1.95 (H-8, m), 2.8–2.2 (H-9), 1.10 (H-10, d, 6.5), 9.26 (H-11, s), 6.30/7.63 (Hα, Hβ, d, 16), 7.46 (H-2″, d, 8), 6.70 (H-3″, d, 8); (CD_3OD) 96.4 (C-1), 162.6 (C-3), 126.7 (C-4), 71.6 (C-5), — (C-6), 76.7 (C-7), 40.1 (C-8), 55.3 (C-9), 13.0 (C-10), 192.6 (C-11), 100.2 (C-1′), 74.4 (C-2′), 78.5 (C-3′)[a], 71.6 (C-4′), 77.6 (C-5′)[a], 62.7 (C-6′), 168.3 (C=O), 116.7 (Cα), 146.8 (Cβ), 130.8 (C-1″), 131.2 (C-2″), 117.1 (C-3″), 162.6 (C-4″). *Tecoma capensis* (Bignoniaceae) (123)

156. 7-*O*-*p*-METHOXYCINNAMOYL-TECOMOSIDE



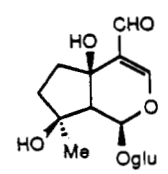
$C_{26}H_{32}O_{12}$ 536.53 [α] −63.8° (MeOH) uv 310, 228 (MeOH) (360 MHz CD_3OD) 5.84 (H-1, d, 1.5), 7.36 (H-3, s), 2.8–2.2 (H-6, H-9), 5.08 (H-7, m), 1.95 (H-8, m), 1.12 (H-10, d, 6.5), 9.30 (H-11, s), 6.40/7.70 (Hα, Hβ, d's, 16), 7.56 (H-2″, d, 8), 6.93 (H-3″, d, 8), 3.83 (ArOMe); (CD_3OD) 96.4 (C-1), 162.6 (C-3), 126.5 (C-4), 71.6 (C-5), — (C-6), 76.8 (C-7), 40.0 (C-8), 55.3 (C-9), 13.0 (C-10), 192.7 (C-11), 100.3 (C-1′), 74.4 (C-2′), 78.5 (C-3′)[a], 71.6 (C-4′), 77.5 (C-5′)[a], 62.7 (C-6′), 168.5 (O=C), 116.3 (Cα), 146.3 (Cβ), 128.3 (C-1″), 131.0 (C-2″), 115.5 (C-3″), 162.6 (C-4″), 55.9 (OMe). *Tecoma capensis* (Bignoniaceae) (123)

157. PINIFOLIN



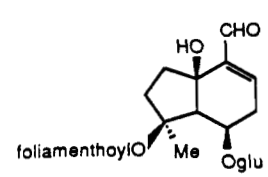
$C_{17}H_{26}O_9$ 374.39 (400 MHz CD_3OD) 5.23 (H-1, d, 8.1), 5.32 (H-3, s), 2.94 (H-6, m), 1.68 (H-7α, dddd, 12, 8, 2.4), 1.94 (H-7β, m), 2.53 (H-8, m), 2.76 (H-9, bt, 7.9), 0.84 (H-10, d, 7.1), 9.76 (H-11, s), 3.50 (OMe), 4.71 (H-1′, d, 7.9), 3.84 (H-6′, dd, 11.9, 2.2), 3.70 (H-6′, dd, 11.9, 5.1); (CD_3OD) 97.5 (C-1), 93.4 (C-3), 131.3 (C-4), 168.0 (C-5), 27.3 (C-6), 32.5 (C-7), 34.4 (C-8), 52.2 (C-9), 14.5 (C-10), 190.3 (C-11), 56.2 (OMe), 110.4 (C-1′), 74.7 (C-2′), 78.4 (C-3′), 71.5 (C-4′), 78.1 (C-5′), 62.7 (C-6′). *Penstemon pinifolius* (Scrophulariaceae) (124)

158. EUPHROSIDE



$C_{16}H_{24}O_{10}$ 376.36 [α] −167.3° (MeOH) uv 237 (EtOH) (250 MHz D_2O) 6.00 (H-1, bs), 7.63 (H-3, s), 2.26–1.59 (H-6, H-7, m), 2.58 (H-9, bs), 1.29 (H-10, bs), 9.34 (H-11, s), 4.90 (H-1′, d, 7.5), 3.35 (H-2′, t, 7.5), 3.66–3.47 (H-3′–H-5′, m), 4.00–3.82 (H-6′, dd, 12, 6.0, dd, 12, 1.5); (CD_3OD) 95.3 (C-1), 163.1 (C-3), 126.3 (C-4), 71.3 (C-5), 37.6 (C-6), 40.3 (C-7), 78.8 (C-8), 61.3 (C-9), 23.7 (C-10), 192.6 (C-11), 99.7 (C-1′), 74.2 (C-2′), 78.3 (C-3′), 71.5 (C-4′), 77.3 (C-5′), 62.7 (C-6′). *Euphrasia salisburgensis* (Scrophulariaceae) (125, 126)

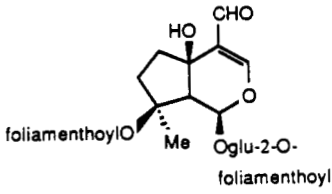
159. 8-*O*-FOLIAMENTHOYLEUPHRO-SIDE



$C_{26}H_{38}O_{12}$ 542.58 [α] −59.2° (MeOH) uv 245, 229 (?) (250 MHz D_2O) 6.32 (H-1, bs), 7.69 (H-3, s), 1.61–2.42 (H-6, m), 2.82 (H-9, bs), 1.48 (H-10, bs), 9.30 (H-11, s), 4.90 (H-1′, d, 7.5), 3.34 (H-2′, t, 7.5), 3.42–3.61 (H-4′, m), 3.79–4.02 (H-6′, m, 12, 6, 1.5), 6.85 (H-3″, bt, 7.5, 1.5), 2.42 (H-4″, m, 8), 2.18 (H-5″, m), 5.48 (H-7″, bt, 7.2, 1.5), 4.12 (H-8″, d, 7.2), 1.84 (H-9″, d, 1.5), 1.72 (H-10″, d, 1.5); (D_2O)

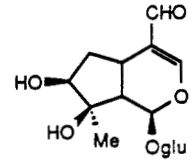
96.0 (C-1), 165.8 (C-3), 122.6 (C-4), 72.0 (C-5), 34.8 (C-6), 38.2 (C-7), 88.2 (C-8), 58.2 (C-9), 21.1 (C-10), 194.0 (C-11), 99.5 (C-1′), 73.0 (C-2′), 77.1 (C-3′), 70.3 (C-4′), 76.0 (C-5′), 61.5 (C-6′), 170.2 (C-1″), 128.9 (C-2″), 144.1 (C-3″), 27.3 (C-4″), 38.2 (C-5″), 139.9 (C-6″), 123.8 (C-7″), 58.6 (C-8″), 12.5 (C-9″), 16.1 (C-10″). *Clerodendrum incisum* (Verbenaceae) (126)

160. 2′,8-DI-*O*-FOLIAMENTHOYL-EUPHOROSIDE



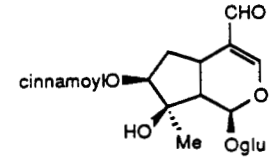
$C_{36}H_{52}O_{14}$ 708.80 [α] −17.5° (MeOH) (250 MHz D_2O) 6.37 (H-1, bs), 7.58 (H-3, s), 1.58–2.43 (H-6, m), 2.82 (H-9, bs), 1.47 (H-10, bs), 9.16 (H-11, s), 5.18 (H-1′, d, 7.5), 4.84 (H-2′, t, 7.5), 3.54–3.63 (H-4′, m), 3.90–4.10 (H-6′, m, 12, 6, 1.5), 6.96 (H-3″, bt, 7.5, 1.5), 2.43 (H-4″, m, 8, 7.5), 2.24 (H-5″, m, 8), 5.56 (H-7″, bt, 7.2, 1.5), 4.19 (H-8″, d, 7.2), 1.85 (H-9″, d, 1.5), 1.77 (H-10″, d, 1.5), 6.87 (H-3‴, bt, 7.5, 1.5), 2.43 (H-4‴, m, 8, 7.5), 2.24 (H-5‴, m, 8), 5.48 (H-7‴, bt, 7.2, 1.5), 4.14 (H-8‴, d, 7.2), 1.82 (H-9‴, d, 1.5), 1.74 (H-10‴, d, 1.5); ($CDCl_3$) 95.4 (C-1), 159.5 (C-3), 122.4 (C-4), 72.0 (C-5), 33.2 (C-6), 37.8 (C-7), 86.5 (C-8), 57.8 (C-9), 21.1 (C-10), 188.8 (C-11), 96.9 (C-1′), 73.6 (C-2′), 75.8 (C-3′), 70.2 (C-4′), 74.2 (C-5′), 61.5 (C-6′), 167.5 (C-1″), 126.8 (C-2″), 141.8 (C-3″), 25.9 (C-4″), 37.3 (C-5″), 136.8 (C-6″), 124.6 (C-7″), 58.7 (C-8″), 11.8 (C-9″), 15.5 (C-10″), 168.2 (C-1‴), 128.0 (C-2‴), 143.5 (C-3‴), 26.0 (C-4‴), 37.4 (C-5‴), 137.0 (C-6‴), 124.7 (C-7‴), 58.7 (C-8‴), 11.8 (C-9‴), 15.6 (C-10‴). *Clerodendrum incisum* (Verbenaceae) (126)

161. CACHINESIDE V



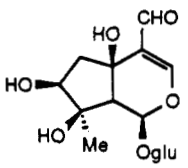
$C_{16}H_{24}O_{10}$ 376.36 pentaacetate mp 197–199° [α] −113° ($CHCl_3$) (pentaacetate 200 MHz $CDCl_3$) 5.60 (H-1, d, 1.5), 7.08 (H-3, s), 3.09 (H-5, ddd, 10.3, 9.8, 5.4), 1.74 (H-6, dt, 15.7, 5.4), 2.41 (H-6, ddd, 15.7, 9.8, 2.7), 4.74 (H-7, dd, 5.4, 2.7), 2.66 (H-9, dd, 10.3, 1.5), 1.24 (H-10, s), 9.26 (H-11, s), 4.88 (H-1′, d, 7.8), 4.97 (H-2′, 9.0, 7.6), 5.23 (H-3′, dd, 9.5, 9.0), 5.09 (H-4′, t, 9.5), 3.74 (H-5′, ddd, 9.5, 4.4, 2.4), 4.16 (H-6′, dd, 14.5, 2.4), 4.31 (H-6′, dd, 14.5, 4.4), 1.90, 2.00, 2.03, 2.11, 2.11 (OAc); (pentaacetate $CDCl_3$) 94.1 (C-1), 158.3 (C-3), 125.6 (C-4), 24.3 (C-5), 34.5 (C-6), 80.5 (C-7), 78.2 (C-8), 47.4 (C-9), 21.5 (C-10), 189.5 (C-11), 95.6 (C-1′), 70.8 (C-2′), 72.4 (C-3′)[a], 68.3 (C-4′), 72.5 (C-5′)[a], 61.8 (C-6′). *Campsis chinensis* (Bignoniaceae) (127)

162. CAMPSISIDE



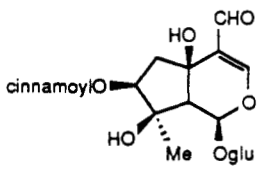
$C_{25}H_{30}O_{11}$ 506.51 [α] −68.5° (MeOH) (200 MHz CD_3OD) 5.73 (H-1, d, 1.5), 7.41 (H-3, s), 3.15 (H-5, m), 1.81 (H-6α, dt, 12, 6), 2.28 (H-6β, ddd, 12, 9, 2.5), 4.90 (H-7, m), 2.70 (H-9, dd, 10, 1.5), 1.29 (H-10, s), 9.18 (H-11, s), 4.67 (H-1′, d, 8), 6.55/7.72 (Hα, Hβ, d, 16), 7.20–7.30 (H-2″–H-4″, m); (CD_3OD) 96.1 (C-1), 162.4 (C-3), 126.3 (C-4), 25.8 (C-5), 36.1 (C-6), 81.1 (C-7), 79.4 (C-8), 48.8 (C-9), 22.1 (C-10), 192.8 (C-11), 100.2 (C-1′), 74.6 (C-2′), 78.0 (C-3′)[a], 71.6 (C-4′), 78.3 (C-5′)[a], 62.8 (C-6′), 167.9 (C=O), 119.1 (Cα), 146.4 (Cβ), 135.8 (C-1″), 129.9 (C-2″)[b], 129.2 (C-3″)[b], 131.4 (C-4″). *Campsis chinensis* (Bignoniaceae) (128)

163. CACHINESIDE IV



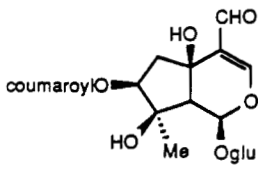
$C_{16}H_{24}O_{11}$ 392.36 pentaacetate mp 118–120° [α] −138° ($CHCl_3$) (pentaacetate 200 MHz $CDCl_3$) 5.77 (H-1, d, 1.2), 7.09 (H-3, s), 2.34 (H-6, dd, 16.6, 5.1), 2.46 (H-6, dd, 16.6, 2.7), 4.69 (H-7, dd, 5.1, 2.7), 2.87 (H-9, d, 1.2), 1.16 (H-10, s), 9.28 (H-11, s), 1.94, 2.01, 2.04, 2.12, 2.14 (OAc), 4.86 (H-1′, d, 7.8), 4.98 (H-2′, dd, 9.3, 7.8), 5.27 (H-3′, t, 9.3), 5.10 (H-4′, t, 9.3), 3.77 (H-5′, ddd, 9.3, 4.4, 2.4), 4.16 (H-6′, dd, 12.5, 2.4), 4.32 (H-6′, dd, 12.5, 4.4); (pentaacetate $CDCl_3$) 94.3 (C-1), 156.3 (C-3), 126.4 (C-4), 67.6 (C-5), 42.9 (C-6), 79.2 (C-7), 77.8 (C-8), 57.1 (C-9), 21.2 (C-10), 189.4 (C-11), 96.0 (C-1′), 71.0 (C-2′), 72.0 (C-3′)[a], 68.2 (C-4′), 72.4 (C-5′)[a], 61.6 (C-6′). *Campsis chinensis* (Bignoniaceae) (127)

164. PONDRANEOSIDE (5-Hydroxy-campsiside)



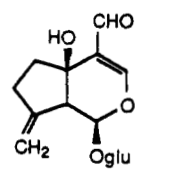
$C_{25}H_{30}O_{12}$ 522.50 [α] −105.2° (MeOH) (200 MHz CD_3OD) 5.95 (H-1, d, 0.8), 7.39 (H-3, s), 2.48 (H-6α, dd, 15.5, 4.4), 2.38 (H-6β, dd, 15.5, 2.4), 4.85 (H-7, m), 2.90 (H-9, d, 0.8), 1.17 (H-10, s), 9.28 (H-11, s), 4.65 (H-1′, d, 8), 6.61/7.77 (Hα, Hβ, d's, 16.1), 7.7–7.4 (H-2″–H-4″); (CD_3OD) 95.2 (C-1), 162.2 (C-3), 127.1 (C-4), 68.3 (C-5), 44.6 (C-6), 80.5 (C-7), 78.7 (C-8), 58.3 (C-9), 21.4 (C-10), 192.2 (C-11), 99.9 (C-1′), 74.5 (C-2′), 77.5 (C-3′)[a], 71.6 (C-4′), 78.4 (C-5′), 62.8 (C-6′), 168.0 (C=O), 119.2 (Cα), 146.4 (Cβ), 135.9 (C-1″), 130.0 (C-2″)[b], 129.2 (C-3″)[b], 131.4 (C-4″). *Campsis chinensis* (Bignoniaceae) (128–130)

165. CACHINESIDE III



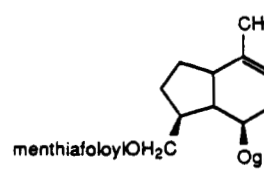
$C_{25}H_{30}O_{13}$ 538.50 [α] −103.2° (MeOH) (200 MHz CD_3OD) 5.95 (H-1, d, 0.7), 7.38 (H-3, s), 2.46 (H-6, dd, 16, 6), 2.35 (H-6, dd, 16, 2), 4.83 (H-7, dd, 6, 2), 2.89 (H-9, d, 0.7), 1.16 (H-10, s), 9.28 (H-11), 4.66 (H-1′, d, 7.7), 6.41/7.70 (Hα, Hβ, d's, 16), 6.81 (H-2″, d, 8.6), 7.48 (H-3″, d, 8.6); ($CDCl_3$) 95.2 (C-1), 162.2 (C-3), 127.0 (C-4), 68.2 (C-5), 44.6 (C-6), 80.2 (C-7), 78.6 (C-8), 58.2 (C-9), 21.5 (C-10), 192.2 (C-11), 99.9 (C-1′), 74.4 (C-2′), 77.4 (C-3′)[a], 71.6 (C-4′), 78.3 (C-5′)[a], 62.7 (C-6′), 168.6 (C=O), 115.5 (Cα), 146.7 (Cβ), 127.3 (C-1″), 131.1 (C-2″), 116.8 (C-3″), 161.1 (C-4″). *Campsis chinensis* (Bignoniaceae) (127)

166. UGANDOSIDE



$C_{16}H_{22}O_9$ 358.34 uv 240 (H_2O) (250 MHz D_2O) 6.00 (H-1, d, 2.0), 7.55 (H-3, s), 2.47 (H-6α, m), 2.00 (H-6β, m, −13.0, 11.0), 2.47 (H-7α, m), 2.19 (H-7β, m, −16.5, 7.5, 3), 3.07 (H-9, s), 5.19 (H-10, s), 9.23 (H-11, s), 4.82 (H-1′, d). *Clerodendrum ugandense* (Verbenaceae) (29)

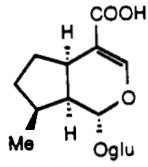
167. LAMOUROUXIDE I



$C_{26}H_{38}O_{11}$ 526.58 (? MHz $CDCl_3$) 7.25 (H-3, s), 2.9 (H-5), 9.25 (H-11, s), 4.6 (H-1′, d, 8), 4.25–3 (H-2′–H-6′), 6.75 (H-3″, dt, 17, 1.3), 5.91 (H-7″, dd, 17, 1.3), 5.20 (H-8″), 1.8 (H-9″, H-10″, s's); (tetraacetate ?) 96.4 (C-1), 160.1 (C-3), 124.0 (C-4), 32.2 (C-5), 29.8 (C-6), 27.3 (C-7), 39.2 (C-8), 43.9 (C-9), 67.0 (C-10), 190.1 (C-11), 96.8 (C-1′), 70.9 (C-2′), 72.4 (C-3′), 68.5 (C-4′), 72.4 (C-5′), 61.8 (C-6′), 168.0 (C-1″), 127.9 (C-2″), 142.8 (C-3″), 23.3 (C-4″), 38.4 (C-5″), 82.8 (C-

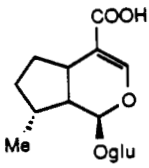
6″), 141.5 (C-7″), 113.6 (C-8″), 12.3 (C-9″), 23.8 (C-10″). *Lamourouxia multifida* (Scrophulariaceae) (131)

168. 1,5,9-*epi*-DEOXYLOGANIC ACID (revision of Nepetolglucosylester)



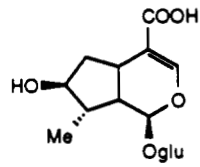
$C_{16}H_{24}O_9$ 360.36 mp 106° (dec) [α] +85.1° (MeOH) uv 235 (EtOH) (100 MHz D_2O) 5.45 (H-1, d, 4), 7.60 (H-3, s), 2.90 (H-9, m), 1.04 (H-10, d, 7), 3.35–3.65 (H-2′–H-5′), 3.95 (H-6′, m); (D_2O) 101.5 (C-1), 153.6 (C-3), 113.4 (C-4), 33.6 (C-5), 32.1 (C-6), 33.4 (C-7), 36.8 (C-8), 43.9 (C-9), 17.1 (C-10), 172.1 (C-11), 103.5 (C-1′), 74.4 (C-2′), 77.0 (C-3′), 70.6 (C-4′), 77.5 (C-5′), 61.9 (C-6′). *Nepeta cataria* (Labiatae) (132, 133)

169. 7-DEOXY-8-*epi*-LOGANIC ACID



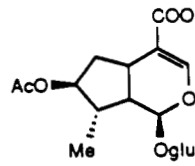
$C_{16}H_{24}O_9$ 360.36 mp 210–213° [α] −117° (MeOH) uv 234 (MeOH) (400 MHz CD_3OD) 5.44 (H-1, d, 5.2), 7.41 (H-3, bs), 2.91 (H-5, bq, 8.3), 2.08 (H-6e, dddd, 12.6, 8.3, 8.3, 8.3), 1.58 (H-6a, dddd, 12.6, 9.0, 8.3, 2.5), 1.80 (H-7e, dddd, 12.4, 8.3, 2.5), 1.39 (H-7a, dddd, 12.4, 9.0, 8.3, 8.3), 2.29 (H-8, ddq, 8.3, 8.0, 7.3), 2.23 (H-9, ddd, 8.3, 8.0, 5.2), 1.10 (H-10, d, 7.3), 4.70 (H-1′, d, 8.0), 3.19 (H-2′, dd, 9.2, 8.0), 3.39 (H-3′, t, 9.2), 3.26 (H-4′, t, 9.2), 3.31 (H-5′, m), 3.91 (H-6′, dd, 12.1, 2.2), 3.64 (H-6′, dd, 12.1, 6.0); (CD_3OD) 95.4 (C-1), 152.0 (C-3), 113.3 (C-4), 32.5 (C-5), 31.5 (C-6)[a], 33.8 (C-7)[a], 36.8 (C-8), 43.6 (C-9), 16.0 (C-10), 172.2 (C-11), 99.0 (C-1′), 74.0 (C-2′), 77.6 (C-3′)[b], 71.0 (C-4′), 77.2 (C-5′)[b], 62.2 (C-6′). *Argylia radiata* (Bignoniaceae) (134)

170. 8-*epi*-LOGANIC ACID



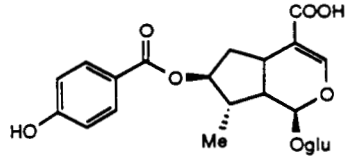
$C_{16}H_{24}O_{10}$ 376.31 mp 138–139° [α] −57.4° (MeOH) uv 233 (MeOH) (360 MHz D_2O) 5.51 (H-1, d, 2.5), 7.22 (H-3, s), 2.98 (H-5, m), 1.95, 1.85 (H-6, m's), 3.81 (H-7, m), 2.14 (H-8, m), 2.67 (H-9, dt, 9.2, 2.3), 0.96 (H-10, d, 7.3), 3.45–3.25 (H-2′–H-5′), 3.88 (H-6′, dd, 12.6, 1.6), 3.68 (H-6′, dd, 12.6, 5.9); (pyridine-d_5) 95.6 (C-1), 150.6 (C-3), 114.2 (C-4), 30.4 (C-5), 42.2 (C-6), 78.1 (C-7), 41.1 (C-8), 44.5 (C-9), 14.2 (C-10), 169.3 (C-11), 100.0 (C-1′) 74.4 (C-2′), 78.3 (C-3′), 71.3 (C-4′), 78.1 (C-5′), 62.5 (C-6′). *Linaria cymbalaria* (Scrophulariaceae) (33, 88, 108)

171. 7-*O*-ACETYL-8-*epi*-LOGANIC ACID (MS-6)



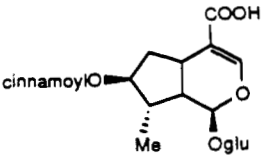
$C_{18}H_{26}O_{11}$ 418.40 [α] −88.3° (?) uv 231 (?) (60 MHz ?) 5.51 (H-1, d, 4), 7.35 (H-3, s), 1.00 (H-10, d, 7), 2.00 (OAc), 4.73 (H-1′, d, 7); (Me_2CO-d_6) 95.2 (C-1), 151.8 (C-3), 113.1 (C-4), 30.6 (C-5), 38.4 (C-6), 81.8 (C-7), 42.3 (C-8), 42.3 (C-9), 14.2 (C-10), 171.5 (C-11), 169.1 (O=*C*Me), 21.2 (O=C*Me*), 99.2 (C-1′), 74.2 (C-2′), 77.3 (C-3′), 71.1 (C-4′), 77.6 (C-5′), 62.6 (C-6′). *Monochasma savatieri* (Scrophulariaceae) (135, 136)

172. 7-*O*-*p*-HYDROXYBENZOYL-8-*epi*-LOGANIC ACID



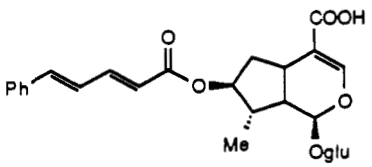
$C_{23}H_{28}O_{12}$ 496.47 no data available. *Veronica anagallis-aquatica* var. *anagalloides* (Scrophulariaceae) (137)

173. 7-*O*-CINNAMOYL-8-*epi*-LOGANIC ACID (isolated as the sodium salt)



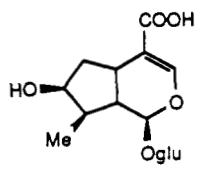
$C_{25}H_{30}O_{11}$ 506.51 $[\alpha]$ −71.9° (H_2O) uv 278, 236, 222, 217, 205 (MeOH) (250 MHz D_2O) 5.52 (H-1, d, 2.3), 7.02 (H-3, d, <1.5), 3.08 (H-5, dddd, 9, 9, 5.3, <1.5), 2.24 (H-6α, ddd, 15, 9, <3), 1.93 (H-6β, ddd, 15, 5.3, 5), 4.91 (H-7, m), 2.47 (H-8, m, 9, 7.5, 3.8), 2.76 (H-9, ddd, 9, 9, 2.3), 1.00 (H-10, d, 7.5), 4.72 (H-1′, d, 8), 3.25 (H-2′, dd, 9, 8), 3.46 (H-3′, t, 9, 9), 3.36 (H-4′, t, 9, 9), 3.44 (H-5′, ddd, 9, 5.3, 1.5), 3.69 (H-6′, dd, 13, 5.3), 3.90 (H-6′, dd, 13, 1.5), 6.54/7.71 (Hα, Hβ, d's, 16), 7.58 (H-2″, m), 7.43 (H-3″, H-4″, m); (DMSO-d_6) 93.3 (C-1), — (C-3, C-4), 31.3 (C-5), 38.0 (C-6), 81.1 (C-7), 41.3 (C-8)[a], 40.9 (C-9)[a], 13.8 (C-10), — (C-11), 98.1 (C-1′), 73.2 (C-2′), 76.8 (C-3′), 70.2 (C-4′), 77.1 (C-5′), 61.3 (C-6′), 165.9 (C=O), 118.3 (Cα), 144.2 (Cβ), 133.9 (C-1″), 128.8 (C-2″), 128.2 (C-3″), 130.3 (C-4″). *Avicennia officinalis* (Verbenaceae) (42)

174. 7-*O*-(5-PHENYL-2,4-PENTADIENOYL)-8-*epi*-LOGANIC ACID



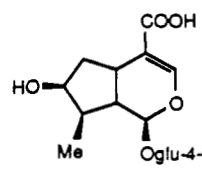
$C_{27}H_{32}O_{11}$ 532.54 methyl ester uv 308, 232, 219, 205 (MeOH) (methyl ester 250 MHz $CDCl_3$/pyridine-d_5) 5.4 (H-1, d, 4), 7.3–6.9 (H-3, m), 3.09 (H-5, ddd, 9, 9, 7), 2.3 (H-6α, ddd, 15, 9, 3), 1.96 (H-6β, ddd, 15, 7, 6), 4.99 (H-7, ddd, 6, 4, 3), 2.4 (H-8, m), 2.65 (H-9, ddd, 9, 7, 4), 1.05 (H-10, d, 7), 4.8 (H-1′, d, 8), 3.8–3.4 (H-2′–H-5′), 4.05 (H-6′, dd, 12, 4), 3.95 (H-6′, dd, 12, 5), 5.99 (Hα, d, 15), 7.3–6.9 (Hβ, Hγ, Hδ, m), 7.3–6.9 (H-2″–H-4″, m), 3.8 (OMe); (methyl ester $CDCl_3/CD_3OD$) 95.2 (C-1), 151.1 (C-3), 112.7 (C-4), 30.5 (C-5), 38.0 (C-6), 81.0 (C-7), 42.0 (C-8)[a], 42.1 (C-9)[a], 13.7 (C-10), 167.8 (C-11), 98.7 (C-1′), 73.4 (C-2′), 76.5 (C-3′), 70.3 (C-4′), 77.6 (C-5′), 62.0 (C-6′), 121.1 (Cα), 145.2 (Cβ), 126.2 (Cγ), 141.0 (Cδ), 136.1 (C-1″), 128.9 (C-2″), 127.4 (C-3″), 129.2 (C-4″). *Avicennia marina* (Verbenaceae) (138)

175. LOGANIC ACID



$C_{16}H_{24}O_{10}$ 376.36 (300 MHz CD_3OD) 5.31 (H-1, d, 4.5), 7.42 (H-3, d, 1.5), 3.14 (H-5, m), 2.97 (H-6, ddd, 14, 8, 1.5), 1.69 (H-6, ddd, 14, 7.5, 5), 4.07 (H-7, m), 1.92 (H-8, m), 2.06 (H-9, m), 1.13 (H-10, d, 7.5), 4.69 (H-1′, d, 8), 3.30 (H-4′, m), 3.90 (H-6′, dd, 12, 1.5), 3.65 (H-6′, dd, 12, 5); (CD_3OD) 97.6 (C-1), 152.0 (C-3), 114.2 (C-4), 32.7 (C-5), 42.6 (C-6), 75.0 (C-7), 42.0 (C-8), 46.4 (C-9), 13.4 (C-10), 171.4 (C-11), 99.9 (C-1′), 74.6 (C-2′), 77.8 (C-3′), 71.4 (C-4′), 78.1 (C-5′), 62.7 (C-6′). (139–141)

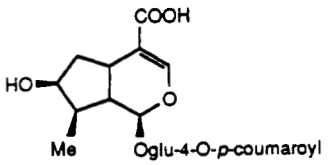
176. 4′-*O*-*cis*-*p*-COUMAROYL-LOGANIC ACID



$C_{25}H_{30}O_{12}$ 522.50 uv 310, 295, 230 (MeOH) (300 MHz CD_3OD) 5.27 (H-1, d, 4.5), 7.37 (H-3, d, 1.5), 3.12 (H-5, m), 2.24, 1.66 (H-6, m's), 4.04 (H-7, m), 1.88 (H-8, m), 2.04 (H-9, m), 1.09 (H-10, d, 7), 4.69 (H-1′, d, 8), 4.80 (H-4′, m), 3.65–3.48 (H-6′, m), 5.80/6.93 (Hα, Hβ, d's, 13), 7.70 (H-2″, d, 8.5), 6.76 (H-3″, d, 8.5); (CD_3OD) 97.7 (C-1), 151.8 (C-3), 114.6 (C-4), 32.2 (C-5), 42.7 (C-6), 75.1 (C-7), 42.1 (C-8), 46.6 (C-9), 13.4 (C-10), 171.1 (C-11), 100.1 (C-1′), 74.9 (C-2′), 75.8 (C-3′), 72.1 (C-4′), 76.4 (C-5′), 62.5 (C-6′), 167.4 (C=O), 116.1 (Cα), 146.1 (Cβ),

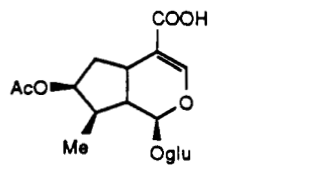
127.6 (C-1″), 133.9 (C-2″), 115.9 (C-3″), 160.2 (C-4″). *Gentiana pedicellata* (Gentianaceae) (140)

177. 4′-*O*-*trans*-*p*-COUMAROYL-LOGANIC ACID



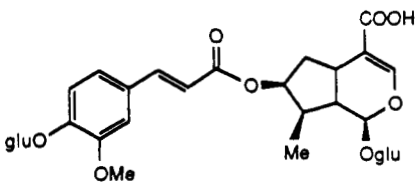
$C_{25}H_{30}O_{12}$ 522.50 uv 310, 295, 230 (MeOH) (300 MHz CD_3OD) 5.28 (H-1, d, 4.5), 7.38 (H-3, d, 1.5), 3.12 (H-5, m), 2.24, 1.66 (H-6, m's), 4.04 (H-7, m), 1.88 (H-8, m), 2.04 (H-9, m), 1.10 (H-10, d, 7), 4.72 (H-1′, d, 8), 4.80 (H-4′, m), 3.65–3.48 (H-6′, m), 6.36/7.68 (Hα, Hβ, d's, 16), 7.48 (H-2″, d, 8.5), 6.82 (H-3″, d, 8.5); (CD_3OD) 97.7 (C-1), 151.8 (C-3), 114.6 (C-4), 32.2 (C-5), 42.7 (C-6), 75.1 (C-7), 42.1 (C-8), 46.6 (C-9), 13.4 (C-10), 171.1 (C-11), 100.1 (C-1′), 74.9 (C-2′), 75.8 (C-3′), 72.5 (C-4′), 76.5 (C-5′), 62.5 (C-6′), 168.6 (C=O), 114.8 (Cα), 147.3 (Cβ), 127.2 (C-1″), 131.3 (C-2″), 116.9 (C-3″), 161.4 (C-4″). *Gentiana pedicellata* (Gentianaceae) (140)

178. 7-*O*-ACETYLLOGANIC ACID



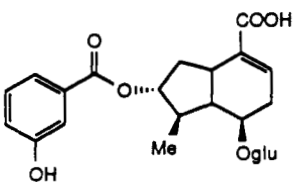
$C_{18}H_{26}O_{11}$ 418.40 [α] −60.2° (MeOH) uv 231 (EtOH) (100 MHz CD_3OD) 5.26 (H-1, d, 4), 7.42 (H-3, d, 1), 1.06 (H-10, d, 5), 2.08 (OAc), 4.68 (H-1′, d, 7); (CD_3OD) 97.6 (C-1), 152.6 (C-3), 113.1 (C-4), 32.6 (C-5), 40.3 (C-6), 78.6 (C-7), 40.8 (C-8), 46.9 (C-9), 13.7 (C-10), 170.7 (C-11), 100.1 (C-1′), 74.6 (C-2′), 77.9 (C-3′), 71.5 (C-4′), 78.2 (C-5′), 62.7 (C-6′), 172.6 (O=*C*Me), 21.0 (O=C*Me*). *Alangium platanifolium* var. *trilobum* (Alangeaceae) (135)

179. PERICLYMENOSIDIC ACID



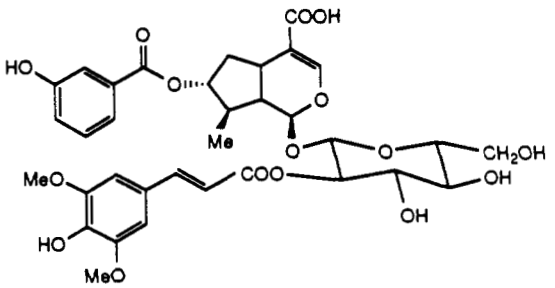
$C_{32}H_{42}O_{18}$ 714.67 [α] −54.7° (MeOH) uv 317, 293, 230, 217 (MeOH) (300 MHz CD_3OD) 5.31–5.27 (H-1, m), 7.43(H-3, s), 3.16 (H-5, m), 1.82 (H-6α, m), 2.14 (H-6β, m), 5.31–5.27 (H-7, m), 2.17 (H-8, m), 2.36 (H-9, dd, 14.5, 7.8), 1.11 (H-10, d, 6.7), 4.69 (H-1′, d, 7.8), 4.97 (H-1‴, d, 7.2), 3.55–3.20 (H-2′–H-5′, H-2‴–H-5‴), 3.93–3.87, 3.76–3.67 (H-6′, H-6‴, m), 6.45/7.63 (Hα, Hβ, d's, 15.9), 7.27 (H-2‴, bs), 7.17 (H-5‴, H-6‴, bs), 3.90 (ArOMe); (CD_3OD) 97.7 (C-1), 152.2 (C-3), 113.6 (C-4), 33.0 (C-5), 40.6 (C-6), 78.7 (C-7), 41.2 (C-8), 47.2 (C-9), 14.0 (C-10), 171.1 (C-11), 100.3 (C-1′), 74.8 (C-2′), 78.1 (C-3′), 71.7 (C-4′), 78.4 (C-5′), 62.9 (C-6′), 168.6 (O=C), 117.6 (Cα), 146.1 (Cβ), 130.6 (C-1″), 112.5 (C-2″), 151.0 (C-3″), 117.4 (C-5″), 123.7 (C-6″), 56.9 (ArOMe), 102.2 (C-1‴), 74.8 (C-2‴), 77.9 (C-3‴), 71.3 (C-4‴), 78.3 (C-5‴), 62.5 (C-6‴). *Lonicera coerulea* (Caprifoliaceae) (142)

180. SWERTIASIDE [7-*epi*-(*m*-Hydroxybenzoyl)loganic acid]



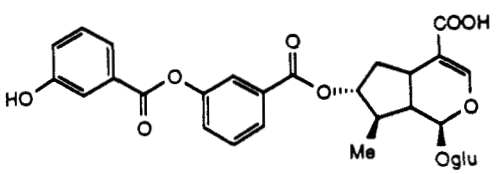
$C_{23}H_{28}O_{12}$ 496.47 [α] −109.1° (MeOH) uv 297, 235, 210 (MeOH) (200 MHz CD_3OD) 5.46 (H-1, d, 4), 7.36 (H-3, bs), 3.04 (H-5, m), 1.98 (H-6, m), 3.9–3.1 (H-7), 2.10 (H-8, m), 2.60 (H-9, m), 1.22 (H-10, d, 7), 4.68 (H-1′, d, 8), 7.36 (H-2″, bs), 6.98 (H-4″, dd, 8, 1), 7.24 (H-5″, t, 8), 7.42 (H-6″, d, 8); (CD_3OD) 96.4 (C-1), 150.6 (C-3), 115.0 (C-4), 32.8 (C-5), 38.5 (C-6), 83.3 (C-7), 42.8 (C-8), 47.4 (C-9), 18.1 (C-10), 170.7 (C-11), 100.3 (C-1′), 74.7 (C-2′), 78.2 (C-3′)[a], 71.5 (C-4′), 77.9 (C-5′)[a], 62.7 (C-6′), 168.0 (C=O), 132.8 (C-1″), 117.0 (C-2″), 158.7 (C-3″), 121.3 (C-4″), 130.6 (C-5″), 121.7 (C-6″). *Swertia japonica* (Gentianaceae) (143)

181. SENBURISIDE I



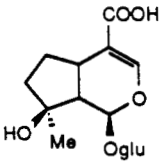
$C_{34}H_{38}O_{16}$ 702.67 [α] −93.9° (MeOH) uv 325, 235, 208 (MeOH) (200 MHz CD_3OD) 5.45 (H-1, d, 4), 7.28 (H-3, bs), 2.88 (H-5, m), 3.96–3.18 (H-7), 1.98 (H-6, H-8, m), 2.46 (H-9, m), 1.20 (H-10, d, 7), 6.28/7.56 (Hα, Hβ, d's, 16), 6.86 (H-2″, s), 3.86 (ArOMe), 7.28 (H-2‴, bs), 6.93 (H-4‴, dd, 8, 2), 7.18 (H-5‴, t, 8), 7.36 (H-6‴, d, 8); (CD_3OD) 95.9 (C-1), 151.0 (C-3), 113.7 (C-4), 32.3 (C-5), 37.8 (C-6), 83.4 (C-7), 42.6 (C-8), — (C-9), 17.9 (C-10), 170.4 (C-11), 98.3 (C-1′), 74.8 (C-2′), 76.0 (C-3′), 71.7 (C-4′), 78.5 (C-5′), 62.7 (C-6′), 167.9 (O=C), 115.9 (Cα), 147.2 (Cβ), 127.0 (C-1″), 107.2 (C-2″), 149.4 (C-3″), 139.6 (C-4″), 56.9 (ArOMe), 168.1 (O=C), 132.8 (C-1‴), 117.0 (C-2‴), 158.7 (C-3‴), 121.2 (C-4‴), 130.5 (C-5‴), 121.7 (C-6‴). *Swertia japonica* (Gentianaceae) (144)

182. SENBURISIDE II [7-*epi*-(Di-*m*-hydroxybenzoyl)loganic acid]



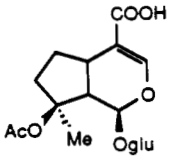
$C_{30}H_{32}O_{14}$ 616.57 [α] −88.6° (MeOH) uv 290, 230, 212 (MeOH) (200 MHz CD_3OD) 5.44 (H-1, d, 4), 7.46 (H-3, bs), 3.06 (H-5, m), 2.14 (H-6, m), 1.96 (H-6, H-8, m), 2.60 (H-9, m), 1.22 (H-10, d, 7), 4.62 (H-1′, d, 8), 3.90–3.12 (H-2′–H-6′), 7.78 (H-2″, bs), 7.32 (H-4″, dd, 8, 2)[a], 7.52 (H-5″, t, 8), 7.90 (H-6″, d, 8), 7.56 (H-2‴, bs), 7.08 (H-4‴, dd, 8, 2)[a], 7.34 (H-5‴, t, 8), 7.64 (H-6‴, d, 8); (CD_3OD) 96.3 (C-1), 150.4 (C-3), 115.3 (C-4), 32.8 (C-5), 38.4 (C-6), 83.8 (C-7), 42.8 (C-8), 47.3 (C-9, in pyridine-d_5), 18.1 (C-10), 170.3 (C-11), 100.3 (C-1′), 74.8 (C-2′), 78.3 (C-3′)[b], 71.6 (C-4′), 78.0 (C-5′)[b], 62.7 (C-6′), 167.0 (O=C), 131.7 (C-1″), 123.8 (C-2″), 152.5 (C-3″), 127.7 (C-4″), 130.8 (C-5″), 128.1 (C-6″), 166.5 (O=C), 133.3 (C-1‴), 117.6 (C-2‴), 159.0 (C-3‴), 122.2 (C-4‴), 130.9 (C-5‴), 122.3 (C-6‴). *Swertia japonica* (Gentianaceae) (145)

183. MUSSAENOSIDIC ACID



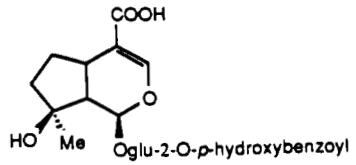
$C_{16}H_{24}O_{10}$ 376.36 [α] −118° (MeOH) (90 MHz D_2O) 5.55 (H-1, d, 3), 7.44 (H-3, s), 2.32 (H-9, dd, 10, 3), 1.32 (H-10, s); (D_2O) 95.2 (C-1), 152.2 (C-3), 113.0 (C-4), 30.4 (C-5), 29.6 (C-6), 40.3 (C-7), 80.4 (C-8), 51.4 (C-9), 23.8 (C-10), 171.6 (C-11), 99.1 (C-1′), 73.4 (C-2′), 76.4 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.5 (C-6′). *Melampyrum cristatum* (Scrophulariaceae) (146)

184. 8-*O*-ACETYLMUSSAENOSIDIC ACID (MS-5)



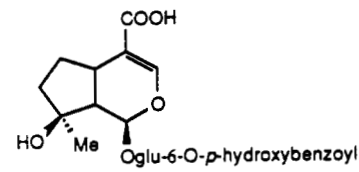
$C_{18}H_{26}O_{11}$ 418.40 [α] −74.2° (MeOH) uv 229 (MeOH) (60 MHz Me_2CO-d_6) 5.72 (H-1, d, 3), 7.44 (H-3, s), 2.67 (H-9, dd, 9, 3), 1.53 (H-10, s), 1.97 (OAc), 4.71 (H-1′, d, 7); (Me_2CO-d_6) 95.1 (C-1), 152.6 (C-3), 111.5 (C-4), 32.5 (C-5), 29.1 (C-6), 39.3 (C-7), 90.1 (C-8), 50.6 (C-9), 22.3 (C-10), 171.9 (C-11), 169.0 (O=C*Me*), 21.3 (O=C*Me*), 100.0 (C-1′), 74.3 (C-2′), 77.6 (C-3′), 71.4 (C-4′), 77.6 (C-5′), 62.9 (C-6′). *Monochasma savatieri* (Scrophulariaceae) (136)

185. NEGUNDOSIDE (2′-*O*-*p*-Hydroxybenzoylmussaenosidic acid)



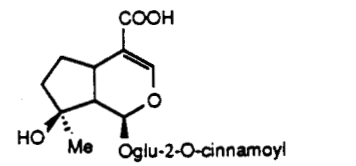
$C_{23}H_{28}O_{12}$ 496.47 mp 160–162° [α] −117.6° (MeOH) uv 258 (MeOH) (? MHz DMSO-d_6) 5.40 (H-1, d, 3.3), 7.07 (H-3, d, 1), 2.20 (H-9, dd, 10, 3.3), 1.20 (H-10, s), 7.76 (H-2″, d, 8.5), 6.87 (H-3″, d, 8.5); (?) 93.5 (C-1), 148.6 (C-3), 112.2 (C-4), 29.7 (C-5), 28.9 (C-6), 41.2 (C-7), 77.7 (C-8), 50.5 (C-9), 24.1 (C-10), 167.1 (C-11)[a], 95.9 (C-1′), 77.3 (C-2′), 74.1 (C-3′)[b], 70.1 (C-4′), 73.1 (C-5′)[b], 60.8 (C-6′), 164.6 (C=O)[a], 120.5 (C-1″), 131.2 (C-2″), 114.9 (C-3″), 161.5 (C-4″). *Vitex negundo* (Verbenaceae) (147)

186. 6′-*O*-*p*-HYDROXYBENZOYL-MUSSAENOSIDIC ACID



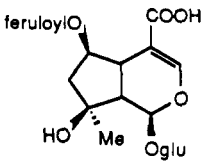
$C_{23}H_{28}O_{12}$ 496.47 [α] −120° (MeOH) uv 258 (MeOH) (90 MHz DMSO-d_6) 5.16 (H-1, d, 3.3), 7.40 (H-3, d, 1.0), 2.13 (H-9, dd, 10, 3.3), 1.20 (H-10, s), 7.90 (H-2″, d, 8.5), 6.93 (H-3″, d, 8.5); (DMSO-d_6) 94.4 (C-1), 150.4 (C-3), 112.0 (C-4), 31.2 (C-5), 29.6 (C-6), 41.4 (C-7), 78.4 (C-8), 50.4 (C-9), 24.0 (C-10), 168.0 (C-11)[a], 98.4 (C-1′), 74.0 (C-2′), 76.8 (C-3′), 70.4 (C-4′), 73.2 (C-5′), 63.2 (C-6′), 165.6 (C=O)[a], 120.8 (C-1″), 131.2 (C-2″), 115.2 (C-3″), 162.4 (C-4″). *Vitex negundo* (Verbenaceae) (148)

187. 2′-*O*-CINNAMOYLMUSSAENOSIDIC ACID



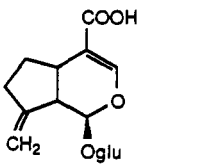
$C_{25}H_{30}O_{11}$ 506.51 uv 282, 223, 218, 204 (H_2O) (methyl ester 250 MHz pyridine-d_5) 6.01 (H-1, d, 3), 6.3 (H-3, s), 3.47 (H-5, ddd, 10, 9, 4), 2.4 (H-6α, m), 1.8–1.5 (H-6β, m), 1.9 (H-7α, ddd, 12, 8, 7), 1.8–1.5 (H-7β, m), 2.84 (H-9, dd, 10, 3), 1.55 (H-10, s), 3.24 (OMe), 5.52 (H-1′, d, 8), 5.76 (H-2′, t, 8), 4.56–4.00 (H-3′–H-6′, m), 6.71/7.91 (Hα, Hβ, d's, 15), 7.45 (H-2″ in $CDCl_3/D_2O$), 7.3 (H-3″ in $CDCl_3/D_2O$); (methyl ester CD_3OD) 94.8 (C-1), 151.2 (C-3), 114.2 (C-4), 31.0 (C-5), 30.1 (C-6), 41.7 (C-7), 79.5 (C-8), 51.3 (C-9), 24.2 (C-10), 168.7 (C-11), 52.6 (OMe), 97.5 (C-1′), 75.9 (C-2′), 74.9 (C-3′), 71.8 (C-4′), 78.6 (C-5′), 62.8 (C-6′), 118.7 (Cα), 146.3 (Cβ), 135.9 (C-1″), 130.0 (C-2″), 129.4 (C-3″), 131.5 (C-4″). *Avicennia marina* (Verbenaceae) (138)

188. TARENNINE (6-*O*-Feruloylshanzhiside)



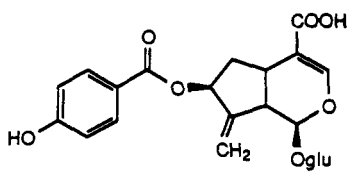
$C_{26}H_{32}O_{14}$ 568.53 mp 158–160° [α] −117° (MeOH) uv 323, 298, 233 (EtOH) (60 MHz CD_3OD) 5.60 (H-1, d, 4), 7.53 (H-3, bs), 5.36 (H-6, m), 2.1–1.9 (H-7, m), 2.60 (H-9, dd, 10, 4), 1.38 (H-10, s), 3.92 (OMe), 7.20 (H-2, d, 2), 6.83 (H-5″, d, 8), 7.00 (H-6″, dd, 8, 2), 6.44/7.68 (Hα, Hβ, d's, 16); (CD_3OD) 95.3 (C-1), 153.9 (C-3), 110.3 (C-4), 39.5 (C-5), 79.9 (C-6), 48.3 (C-7), 79.6 (C-8), 52.0 (C-9), 26.2 (C-10), 170.4 (C-11)[a], 100.2 (C-1′), 75.2 (C-2′)[b], 78.4 (C-3′), 72.1 (C-4′), 75.1 (C-5′)[b], 63.4 (C-6′), 57.0 (OMe), 169.2 (O=C)[a], 116.9 (Cα)[c], 147.0 (Cβ), 128.2 (C-1″), 112.1 (C-2″), 150.7 (C-3″), 149.6 (C-4″), 116.4 (C-5″)[c], 124.4 (C-6″). *Tarenna graveolens* (Rubiaceae) (149)

189. 7-DEOXYGARDOSIDE



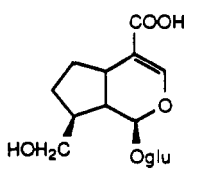
$C_{16}H_{22}O_9$ 358.34 [α] −54.4 (MeOH) uv 234 (MeOH) (400 MHz D_2O) 5.44 (H-1, d, 4.5), 7.36 (H-3, bs), 2.87 (H-5, m, 10.0), 1.96–2.25 (H-6, H-7, m), 2.94 (H-9, dd, 10.0, 4.5), 5.12 (H-10, bd, 4.0), 4.75 (H-1′, d, 8.0), 3.23 (H-2′, dd, 9.2, 8.0), 3.42 (H-3′, t, 9.2, 9.2), 3.31 (H-4′, t, 9.2, 9.2), 3.30 (H-5′, m, 9.2, 4.2, 2.2), 3.84 (H-6′, dd, 12.1, 2.2), 3.65 (H-6′, dd, 12.1, 4.2); (D_2O) 97.0 (C-1), 152.9 (C-3), 113.4 (C-4), 31.2 (C-5), 30.7 (C-6), 36.7 (C-7), 151.0 (C-8), 46.0 (C-9), 109.7 (C-10), 173.3 (C-11), 99.4 (C-1′), 73.6 (C-2′), 76.6 (C-3′)[a], 70.5 (C-4′), 77.3 (C-5′)[a], 61.5 (C-6′). *Argylia radiata* (Bignoniaceae) (150)

190. 7-*O*-*p*-HYDROXYBENZOYL-GARDOSIDE



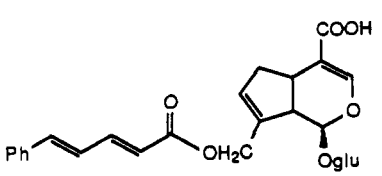
$C_{23}H_{26}O_{12}$ 494.45 no data available. *Veronica anagallis-aquatica* var. *anagalloides* (Scrophulariaceae) (137)

191. ADOXOSIDIC ACID



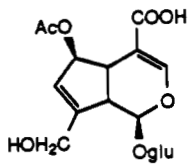
$C_{16}H_{24}O_{10}$ 376.36 (360 MHz D_2O) 5.24 (H-1, d, 5.0), 7.15 (H-3, d, 1.2), 2.85 (H-5, bq), 1.96, 1.44 (H-6, m's), 1.77, 1.32 (H-7, m's), 2.07 (H-8, m), 1.96 (H-9, m), 3.51 (H-10, dd, 10.0, 7.2), 3.57 (H-10, dd, 10.0, 6.5), 4.75 (H-1′, d, 8.0), 3.26 (H-2′, dd, 9.1, 8.0), 3.45–3.30 (H-3′–H-5′), 3.69 (H-6′, dd, 12.4, 5.6), 3.87 (H-6′, dd, 12.4, 2.1). *Castilleja integra* (Scrophulariaceae) (88)

192. 10-*O*-(5-PHENYL-2,4-PENTADIENOYL)GENIPOSIDIC ACID



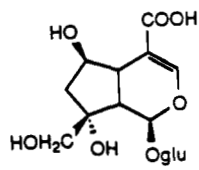
$C_{27}H_{30}O_{11}$ 530.53 methyl ester uv 308, 232, 219, 203 (MeOH) (methyl ester 250 MHz $CDCl_3$) 4.88 (H-1, d, 8), 7.55–6.8 (H-3, Hβ, Hγ, Hδ, m), 3.22 (H-5, ddd, 7, 7, 7), 2.87 (H-6, dd, 17, 7), 2.05 (H-6, dd, 17, 7), 5.73 (H-7, bs), 2.65 (H-9, t), 5.23, 4.64 (H-10, d's, 15), 4.71 (H-1′, d, 7), 3.3–3.9 (H-2′–H-6′), 6.00 (Hα, d, 15), 7.55–6.8 (H-2″–H-4″), 3.66 (OMe). *Avicennia marina* (Verbenaceae) (138)

193. 6-*O*-ACETYLSCANDOSIDE



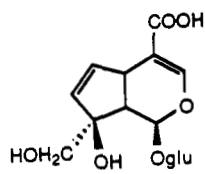
$C_{18}H_{24}O_{12}$ 432.38 (methyl ester ? MHz ?) 5.27 (H-1, d, 4), 7.52 (H-3, bs), 5.69 (H-6, bdd), 5.82 (H-7, bs), 4.82 (H-10, bdd), 3.72 (OMe), 2.12 (OAc). *Galium verum* (Rubiaceae) (151)

194. UNEDIDE



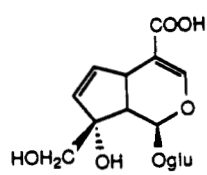
$C_{16}H_{24}O_{12}$ 408.40 [α] −83° (MeOH) uv 232 (?) (90 MHz D_2O) 5.63 (H-1, d, 2.3), 7.54 (H-3, bs, 1.0), 2.90 (H-5, bdd, 9.7, 3.3), 4.37 (H-6, m), 1.93 (H-7, 13.3), 2.66 (H-9, dd, 9.7, 2.3), 3.63 (H-10, s); (D_2O) 95.2 (C-1), 153.9 (C-3), 109.8 (C-4), 40.5 (C-5), 76.3 (C-6), 44.0 (C-7), 81.7 (C-8), 44.6 (C-9), 69.0 (C-10), 171.6 (C-11), 99.2 (C-1′), 73.4 (C-2′), 76.3 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.4 (C-6′). *Arbutus unedo* (Ericaceae) (152)

195. GARDENOSIDIC ACID



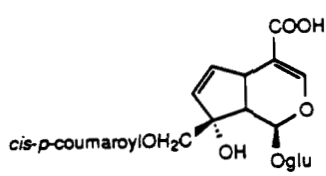
$C_{16}H_{22}O_{11}$ 390.34 methyl ester hexaacetate mp 66–68° [α] −70.7° (MeOH) (methyl ester hexaacetate 200 MHz $CDCl_3$) 6.13 (H-1, d, 2), 6.33 (H-6, dd, 6, 2.5), 5.90 (H-7, dd, 6, 1.5), 2.98 (H-9, dd, 9, 2), 3.73 (COOMe), 1.91–2.12 (OAc). *Galium mollugo* (Rubiaceae) (153, 154)

196. MONOTROPEIN



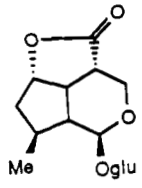
$C_{16}H_{22}O_{11}$ 390.34 mp 161–163° [α] −130.7° (H_2O) uv 235 (EtOH) (100 MHz D_2O) 5.60 (H-1, d, 2.0), 7.40 (H-3, bs, 1.0), 3.6–3.3 (H-5, m), 6.21 (H-6, dd, 5.7, 2.8), 5.86 (H-7, dd, 5.7, 1.7), 2.66 (H-9, dd, 8.0, 2.0), 3.63 (H-10, bs); (D_2O) 95.2 (C-1), 152.4 (C-3), 111.0 (C-4), 37.9 (C-5), 138.0 (C-6), 132.8 (C-7), 85.6 (C-8), 44.8 (C-9), 67.4 (C-10), 171.3 (C-11), 99.1 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′). *Arbutus unedo* (Ericaceae) (152, 155)

197. ANDROMEDOSIDE



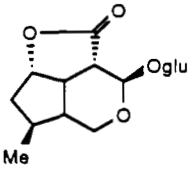
$C_{25}H_{28}O_{13}$ 536.49 mp 126–128° [α] −26.5° (EtOH) uv 312, 300, 232, 210 (MeOH) (pentaacetate 90 MHz $CDCl_3$) 6.21 (H-6, dd, 5.7, 2.4), 2.69 (H-9, dd, 8.7, 3.2), 5.95 (Hα, d, 12.7), 7.61–7.05 (H-3, H-7, H-2″, H-3″), other signals 5.58–5.50 (2H, m), 5.17–4.88 (4H, m), 4.10 (4H, bs), 3.78–3.42 (2H, m), 2.28, 2.05, 2.03, 2.00, 1.96 (OAc); (pentaacetate $CDCl_3$) 94.4 (C-1), 151.3 (C-3), 110.1 (C-4), 37.6 (C-5), 131.8 (C-6), 137.5 (C-7), 83.5 (C-8), 45.0 (C-9), 69.3 (C-10), 171.4–169.2 (C-11, O=*C*Me), 96.6 (C-1′), 70.8 (C-2′), 72.4 (C-3′), 68.3 (C-4′), 72.5 (C-5′), 61.9 (C-6′), 165.7 (C=O), 118.9 (Cα), 143.7 (Cβ), 132.4 (C-1″), 131.3 (C-2″), 121.3 (C-3″), 152.0 (C-4″), 21.1–20.6 (O=C*Me*). *Andromeda polifolia* (Ericaceae) (156)

198. DIHYDROBRASOSIDE



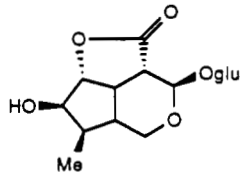
$C_{16}H_{24}O_9$ 360.36 (500 MHz D_2O) 5.25 (H-1, bs), 3.86 (H-3α, bd, 12.5), 4.16 (H-3β, dd, 12.5, 4.4), 2.87 (H-4, dd, 10.4, 4.2), 3.26 (H-5, dt, 10.2, 6.0), 5.11 (H-6, dd, 6, 3.5), 2.14 (H-7α, dd, 14.2, 5.2), 1.40 (H-7β, ddd, 14.2, 12.5, 4.0), 1.73 (H-8, nonet, 6.0), 1.54 (H-9, dd, 12, 10), 1.00 (H-10, d, 6.2), 4.64 (H-1′, d, 8.0); (D_2O) 94.6 (C-1), 55.2 (C-3), 37.5 (C-4), 35.9 (C-5), 86.7 (C-6), 40.9 (C-7), 34.5 (C-8), 45.6 (C-9), 16.8 (C-10), 182.3 (C-11), 98.0 (C-1′), 73.8 (C-2′), 76.6 (C-3′), 70.5 (C-4′), 77.1 (C-5′), 61.5 (C-6′). Catalytic hydrogenation of brasoside (157)

199. SEMPEROSIDE



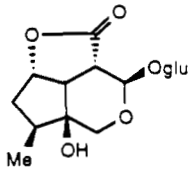
$C_{16}H_{24}O_9$ 360.36 mp 179–181° [α] +52° (MeOH) (400 MHz D_2O) 3.59 (H-1α, bd, 12.7), 4.20 (H-1β, dd, 12.7, 4.1), 5.35 (H-3, s), 3.08 (H-4, d, 10.5), 3.23 (H-5, m), 5.08 (H-6, dd, 5.5, 4.5), 2.10 (H-7α, dd, 14.2, 5.3), 1.36 (H-7β, ddd, 14.0, 13.0, 4.3), 1.74 (H-8, m), 1.44 (H-9, ddd, 12, 10, 4), 0.94 (H-10, d, 6.4), 4.61 (H-1′, d, 8); (D_2O) 57.8 (C-1), 98.1 (C-3), 42.3 (C-4), 36.2 (C-5), 87.2 (C-6), 41.4 (C-7), 33.4 (C-8), 41.4 (C-9), 16.5 (C-10), 179.5 (C-11), 103.1 (C-1′), 74.2 (C-2′), 76.5 (C-3′), 70.3 (C-4′), 77.2 (C-5′), 61.5 (C-6′). *Gelsemium sempervirens* (Loganiaceae) (157)

200. VEBRASIDE



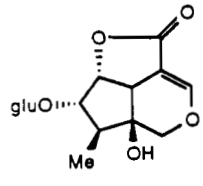
$C_{16}H_{24}O_{10}$ 376.36 mp 131–133° [α] +80.7° (H_2O) uv 187 (H_2O) (250 MHz D_2O) 3.68 (H-1α, bd, 13.2), 4.39 (H-1β, dd, 13.2, 3.5), 5.47 (H-3, bs, <1), 3.22 (H-4, bd, 10.5, <1), 3.50 (H-5, m, 10.5, 7.0), 4.96 (H-6, bd, 7.0, <1), 4.20 (H-7, bd, 3.5, <1), 1.94 (H-8, m, 5.5, 3.5), 1.94 (H-9, m, 3.5), 1.07 (H-10, d, 5.5), 4.74 (H-1′, d, 7.5), 3.37 (H-2′, dd, 8.5, 7.5), 3.57 (H-3′, dd, 8.5, 8.5), 3.45 (H-4′, dd, 8.5, 8.5), 3.52 (H-5′, m), 3.78 (H-6′, dd, 12.0, 5.2), 3.90 (H-6′, dd, 12.0, 2.8); (D_2O) 57.6 (C-1), 98.0 (C-3), 41.8 (C-4), 34.7 (C-5), 88.4 (C-6), 77.4 (C-7), 37.6 (C-8), 37.4 (C-9), 10.9 (C-10), 179.0 (C-11), 103.2 (C-1′), 74.2 (C-2′), 77.2 (C-3′), 70.3 (C-4′), 76.5 (C-5′), 61.5 (C-6′). *Verbena brasiliensis* (Verbenaceae) (158)

201. 9-HYDROXYSEMPEROSIDE



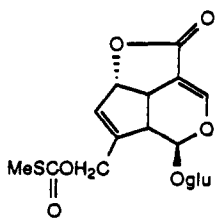
$C_{16}H_{24}O_{10}$ 376.36 mp 132–135° [α] +58° (MeOH) (400 MHz D_2O) 3.98/3.64 (H-1, 12.0), 5.45 (H-3, s), 3.41 (H-4, d, 11.4), 3.00 (H-5, m), 5.21 (H-6, dd, 6, 4.5), 2.13 (H-7α, dd, 14, 6), 1.84 (H-7β, dt, 14, 4.5), 1.97 (H-8, m), 0.98 (H-10, d, 6.5), 4.72 (H-1′, d, 8); (D_2O) 60.7 (C-1), 97.9 (C-3), 44.6 (C-4), 46.9 (C-5), 85.7 (C-6), 38.5 (C-7), 37.0 (C-8), 74.9 (C-9), 10.5 (C-10), 178.5 (C-11), 103.3 (C-1′), 75.0 (C-2′), 75.7 (C-3′), 71.1 (C-4′), 77.4 (C-5′), 61.5 (C-6′). *Gelsemium sempervirens* (Loganiaceae) (157)

202. GELSEMIDE 7-GLUCOSIDE



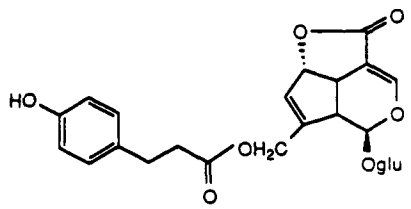
$C_{16}H_{22}O_{10}$ 374.34 [α] −199° (MeOH) (90 MHz D_2O) 4.24, 3.91 (H-1, 12), 7.51 (H-3, d, 2.5), 5.24 (H-6, t, 7.3), 4.36 (H-7, dd, 10, 7), 2.07 (H-8, m), 1.12 (H-10, d, 7), 4.57 (H-1′, d, 7); (D_2O) 67.2 (C-1), 154.1 (C-3), 102.0 (C-4), 47.7 (C-5), 78.5 (C-6), 84.1 (C-7), 41.1 (C-8), 72.1 (C-9), 9.8 (C-10), 174.3 (C-11), 102.0 (C-1′), 74.1 (C-2′), 76.5 (C-3′), 70.5 (C-4′), 76.9 (C-5′), 61.5 (C-6′). *Gelsemium sempervirens* (Loganiaceae) (157)

203. PAEDEROSIDE



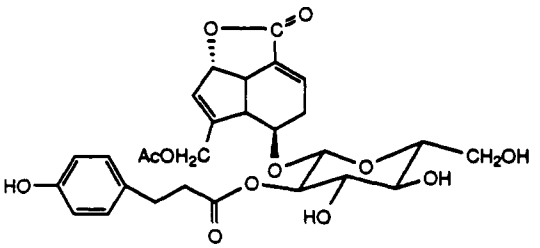
$C_{18}H_{22}O_{11}S$ 446.43 mp 118° [α] −44° (MeOH) uv 233 (MeOH) (200 MHz CD_3OD) 5.94 (H-1, d, 1.8), 7.30 (H-3, d, 2.2), 3.74 (H-5, m), 5.56 (H-6, bd, 7), 5.73 (H-7, m), 3.74 (H-9, m), 4.85 (H-10, m), 2.34 (SMe), 4.68 (H-1′, d, 8.0), 3.19 (H-2′, dd, 8.5, 8.0), 3.92 (H-6′, dd, 12.0, 1.9). The aphid *Acyrthosiphon nipponicus* (159–161)

204. V1



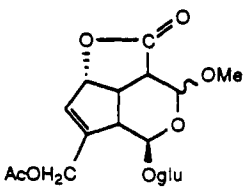
$C_{25}H_{28}O_{12}$ 520.49 mp 118–120° $[M]_{546}$ −920° (MeOH) uv 280, 226 (EtOH) (100 MHz D_2O) 5.86 (H-1, d, 1.5), 7.30 (H-3, d, 2), 5.57 (H-6, dd, 7, 2), 5.53 (H-7, d), 4.66 (H-10, bs), 4.79 (H-1′, d, 7), 3.00–2.60 (Hα, Hβ), 7.10 (H-2″, d, 8), 6.80 (H-3″, d, 8). *Galium verum* (Rubiaceae) (162)

205. V2



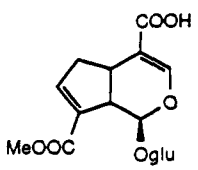
$C_{27}H_{28}O_{13}$ 560.51 mp 145–150° (dec) $[M]_{546}$ −871° (MeOH) uv 279, 226 (EtOH) X-ray (100 MHz CD_3OD) 6.1 (H-1, d, 1.5), 7.37 (H-3, d, 1.5), 5.61 (H-6, m), 5.81 (H-7, bs), 4.78 (H-10, bs), 2.16 (OAc), 4.79 (H-1′, d, 7), 2.97–2.55 (Hα, Hβ), 7.14 (H-2″, d, 2), 6.78 (H-3″, d, 2). *Galium verum* (Rubiaceae) (163)

206. V3



$C_{19}H_{26}O_{12}$ 446.41 $[M]_{546}$ −197.5° (MeOH) (100 MHz D_2O, 50°) 5.35 (H-1, d, 4.5), 5.08 (H-3, d, 4.5), 5.61 (H-6, dd, 6.0, 2.0), 6.12 (H-7, d, 2.0), 4.90 (H-10, bs), 4.83 (H-1′, d, 7.5), 3.59 (OMe), 2.22 (OAc). Artifact, *Galium verum* (Rubiaceae) (162)

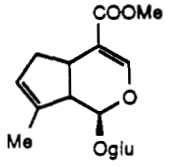
207. 10-METHYLIXOSIDE



$C_{17}H_{22}O_{11}$ 402.35 mp 215–217° uv 220 (MeOH) (400 MHz pyridine-d_5) 6.74 (H-1, d, 3.5), 7.87 (H-3, bs), 3.55 (H-5, ddd, 8.0, 8.0, 2.5), 2.59 (H-6, dddd, 18.5, 2.5, 2.5, 2.5), 2.87 (H-6, dddd, 18.5, 8.0, 2.5, 2.5), 7.05 (H-7, ddd, 4.5, 2.5, 2.5), 3.74 (H-9, ddddd, 8.0, 3.5, 2.5, 2.5, 2.5), 3.60 (COOMe), 5.33 (H-1′, d, 8.0), 4.04 (H-2′, dd, 9.2, 8.0), 4.23 (H-3′, dd, 9.2, 9.2), 4.29 (H-4′, dd, 9.2, 9.2), 3.90 (H-5′, ddd, 9.2, 4.6, 2.5), 4.36 (H-6′, dd, 12.0, 4.6), 4.45

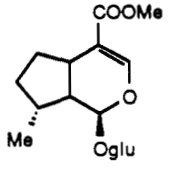
(H-6′, dd, 12.0, 2.5); (pyridine-d_5) 95.7 (C-1), 152.9 (C-3), 111.7 (C-4), 33.2 (C-5), 39.2 (C-6), 145.4 (C-7), 136.3 (C-8), 47.9 (C-9), 167.4 (C-10), 167.3 (C-11), 101.6 (C-1′), 76.0 (C-2′), 78.5 (C-3′), 71.2 (C-4′), 78.4 (C-5′), 62.4 (C-6′), 51.0 (OMe). *Randia dumetorum* (Rubiaceae) (164)

208. 10-DEOXYGENIPOSIDE



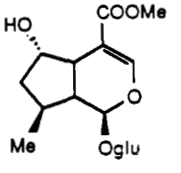
$C_{17}H_{24}O_9$ 372.37 mp 167–168° (500 MHz D_2O) 5.49 (H-1, d, 4.7), 7.53 (H-3, bs), 3.21 (H-5, dt, 8, 4.6), 2.75 (H-6, bddd, 16, 7.5, 1.5), 2.13 (H-6, bd, 16), 5.57 (H-7, m), 2.90 (H-9, m), 1.81 (H-10, m), 3.76 (COOMe), 4.83 (H-1′, d, 8.3). Prepared from asperuloside and gardenoside (165, 166)

209. 7-DEOXY-8-*epi*-LOGANIN



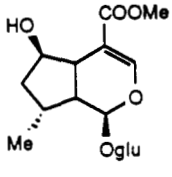
$C_{17}H_{26}O_9$ 374.39 mp 150–152° [α] −128° (MeOH) (D_2O) 96.3 (C-1), 152.6 (C-3), 113.8 (C-4), 32.6 (C-5), 31.6 (C-6), 33.1 (C-7), 36.1 (C-8), 43.4 (C-9), 16.3 (C-10), 171.2 (C-11), 52.6 (OMe), 99.3 (C-1′), 73.5 (C-2′), 76.6 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′). Prepared from geniposide pentaacetate (2)

210. 6-*epi*-DIHYDROCORNIN



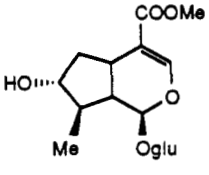
$C_{17}H_{26}O_{10}$ 390.39 (60 MHz D_2O) 5.25 (H-1, d, 8.5), 7.72 (H-3, d, 1.5), 3.03 (H-5, m), 4.54 (H-6), 2.45–1.40 (H-7, H-8, H-9), 1.21 (H-10, d), 3.82 (OMe), 4.92 (H-1′, d, 7.5); (D_2O) 101.5 (C-1), 155.9 (C-3), 106.9 (C-4), 42.0 (C-5), 74.7 (C-6), 42.0 (C-7), 34.5 (C-8), 46.3 (C-9), 21.4 (C-10), 170.9 (C-11), 52.6 (OMe), 100.0 (C-1′), 73.6 (C-2′), 76.8 (C-3′), 70.5 (C-4′), 77.3 (C-5′), 61.6 (C-6′). Reduction of verbenalin (113, 167)

211. PENSTEMONOSIDE



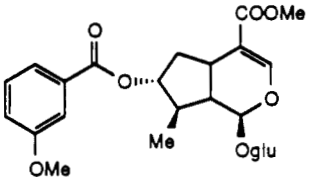
$C_{17}H_{26}O_{10}$ 390.39 mp 74–85° [α] −140.2 (MeOH) uv 232 (MeOH) (360 MHz D_2O) 5.58 (H-1, d, 2.5), 7.48 (H-3, d, 0.9), 2.88 (H-5, bd), 4.23 (H-6, m), 1.80 (H-7, m), 1.50 (H-7, ddd, 14, 9.8, 4.2), 2.58 (H-8, m), 2.71 (H-9, td, 11.7, 9.3, 2.5), 1.02 (H-10, d, 7.2), 3.75 (OMe), 4.76 (H-1′, d, 8.1), 3.25 (H-2′, dd, 9.3, 8.1), 3.51–3.39 (H-3′, H-4′, H-5′), 3.92 (H-6′, dd, 12.3, 2.0), 3.72 (H-6′, dd, 12.3, 5.7); (CD_3OD) 96.1 (C-1), 153.7 (C-3), 111.0 (C-4), 43.0 (C-5)[a], 77.8 (C-6)[b], 41.7 (C-7), 33.8 (C-8), 42.5 (C-9)[a], 16.7 (C-10), 169.5 (C-11), 51.8 (OMe), 99.7 (C-1′), 74.5 (C-2′), 78.1 (C-3′)[b], 71.5 (C-4′), 77.8 (C-5′)[b], 62.7 (C-6′). *Penstemon barbatus* (Scrophulariaceae) (168, 169)

212. 7-*epi*-LOGANIN



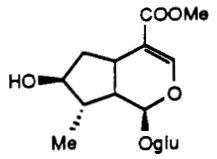
$C_{17}H_{26}O_{10}$ 390.39 [α] −95.5° (MeOH) (200 MHz CD_3OD) 5.32 (H-1, d, 4), 7.40 (H-3, d, 1), 2.84 (H-5, m), 1.78, 1.34 (H-6, m's), 3.92–3.12 (H-7), 1.78 (H-8, m), 2.50 (H-9, m), 1.13 (H-10, d, 7), 4.64 (H-1′, d, 8); (CD_3OD) 97.8 (C-1), 152.5 (C-3), 113.3 (C-4), 31.5 (C-5), 42.0 (C-6), 79.7 (C-7), 44.0 (C-8), 47.1 (C-9), 17.7 (C-10), 169.5 (C-11), 51.7 (OMe), 100.4 (C-1′), 74.8 (C-2′), 78.3 (C-3′)[a], 71.7 (C-4′), 78.1 (C-5′)[a], 62.8 (C-6′). Prepared from swertiaside (5, 143)

213. 7-*epi*-*O*-(*m*-METHOXYBENZOYL) LOGANIN



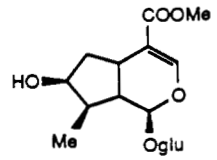
$C_{25}H_{32}O_{12}$ 524.52 (200 MHz CD_3OD) 5.52 (H-1, bd, 2), 7.44 (H-3, bs), 3.04 (H-5, m), 2.02 (H-6, m), 4.90 (H-7, m), 2.02 (H-8, m), 2.45 (H-9, m), 1.24 (H-10, d, 7), 3.66 (COOMe), 4.66 (H-1′, d, 8), 3.92–3.10 (H-2′–H-6′), 7.44 (H-2″, bs), 7.12 (H-4″, dd, 8, 2), 7.34 (H-5″, t, 8), 7.50 (H-6″, d, 8), 3.84 (ArOMe); (CD_3OD) 96.3 (C-1), 152.4 (C-3), 112.6 (C-4), 32.5 (C-5), 38.1 (C-6), 83.5 (C-7), 43.0 (C-8), — (C-9), 18.3 (C-10), 169.3 (C-11), 51.6 (COO*Me*), 100.3 (C-1′), 74.7 (C-2′), 78.4 (C-3′)[a], 71.6 (C-4′), 78.1 (C-5′)[a], 62.6 (C-6′), 167.7 (C=O), 132.9 (C-1″), 115.5 (C-2″), 161.3 (C-3″), 120.2 (C-4″), 130.6 (C-5″), 122.8 (C-6″), 56.0 (ArO*Me*). Synthesized from senburiside I (144)

214. 8-*epi*-LOGANIN



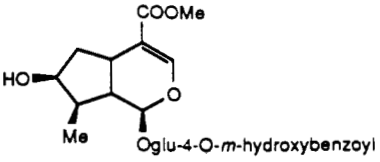
$C_{17}H_{26}O_{10}$ 390.39 [α] −100.9° (MeOH) uv 236 (MeOH) (90 MHz D_2O) 5.59 (H-1, d, 3.0), 7.45 (H-3, bs), 3.11 (H-5, m), 2.4–1.7 (H-6, m), 4.1–3.7 (H-7), 2.30 (H-8, m), 2.73 (H-9, dt, 8.5, 8.5, 3.0), 1.05 (H-10, d, 7.0), 3.76 (OMe), 4.81 (H-1′, d, 7.5); (D_2O) 96.5 (C-1), 152.2 (C-3), 114.0 (C-4), 29.4 (C-5), 39.6 (C-6), 79.0 (C-7), 43.5 (C-8), 41.8 (C-9), 14.0 (C-10), 170.7 (C-11), 52.6 (OMe), 99.1 (C-1′), 73.5 (C-2′), 76.6 (C-3′), 70.5 (C-4′), 77.1 (C-5′), 61.6 (C-6′). *Odontites verna* subsp. *serotina* (Scrophulariaceae) (170)

215. LOGANIN



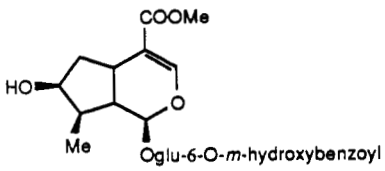
$C_{17}H_{26}O_{10}$ 390.39 (300 MHz CD_3OD) 5.37 (H-1, d, 4.5), 7.37 (H-3, d, 0.5), 3.10 (H-5, m), 2.25 (H-6, ddd, 14, 8, 1.5), 1.60 (H-6, ddd, 14, 7.5, 4.5), 4.04 (H-7, m), 1.86 (H-8, m), 2.03 (H-9, m), 1.08 (H-10, d, 7.5), 3.67 (OMe), 4.65 (H-1′, d, 8), 3.20 (H-2′, d, 8); (D_2O) 97.5 (C-1), 151.7 (C-3), 113.8 (C-4), 30.6 (C-5), 41.2 (C-6), 74.8 (C-7), 40.9 (C-8), 45.7 (C-9), 12.8 (C-10), 170.5 (C-11), 52.5 (OMe), 99.4 (C-1′), 73.6 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′). (2, 171, 172)

216. 4′-*O*-*m*-HYDROXYBENZOYL-LOGANIN



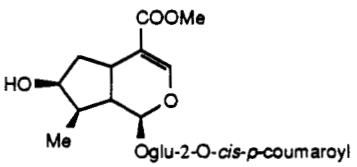
$C_{24}H_{30}O_{12}$ 510.49 uv 297, 232 (MeOH) (300 MHz CD_3OD) 5.30 (H-1, d, 4.5), 7.41 (H-3, d, 1.5), 3.12 (H-5, m), 2.24 (H-6, ddd, 14, 8, 1.5), 1.62 (H-6, ddd, 14, 8, 5), 4.04 (H-7, td, 5, 1.5), 1.88 (H-8, dqd, 9, 6.5, 5), 2.06 (H-9, td, 9, 4.5), 1.11 (H-10, d, 6.5), 3.68 (OMe), 4.76 (H-1′, d, 8), 4.98 (H-4′, t, 9), 7.44 (H-2″, dd, 1.5, 1), 7.02 (H-4″, ddd, 7.5, 1.5, 1), 7.29 (H-5″, t, 7.5), 7.52 (H-6″, dt, 7.5, 1); (CD_3OD) 97.6 (C-1), 152.0 (C-3), 114.2 (C-4), 32.1 (C-5), 42.7 (C-6), 74.9 (C-7)[a], 42.1 (C-8), 46.5 (C-9), 13.4 (C-10), 167.4 (C-11), 51.6 (OMe), 100.1 (C-1′), 75.0 (C-2′)[a], 75.8 (C-3′), 72.9 (C-4′), 76.4 (C-5′), 62.4 (C-6′), 169.5 (C=0), 132.4 (C-1″), 117.2 (C-2″), 158.6 (C-3″), 121.5 (C-4″), 130.6 (C-5″), 121.8 (C-6″). *Gentiana verna* (Gentianaceae) (173)

217. 6′-*O*-*m*-HYDROXYBENZOYL-LOGANIN



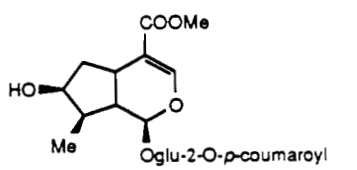
$C_{24}H_{30}O_{12}$ 510.49 uv 302, 237 (EtOH) (100 MHz CD_3OD) 7.37 (H-3, d, 1), 3.05 (H-5, dd, 13, 7), 2.16 (H-6, dd, 12, 7), 1.88 (H-6, m), 1.73 (H-8, m), 1.28 (H-9, m), 0.97 (H-10, d, 7), 3.68 (OMe), 7.42 (H-2″, bs), 6.99 (H-4″, dd, 8, 1), 7.26 (H-5″, t, 8), 7.48 (H-6″, d, 8); (CD_3OD) 99.5 (C-1), 153.1 (C-3), 114.5 (C-4), 33.4 (C-5), 43.7 (C-6), 75.5 (C-7), 43.2 (C-8), 47.2 (C-9), 14.3 (C-10), 170.2 (C-11), 52.3 (OMe), 102.1 (C-1′), 75.6 (C-2′), 78.7 (C-3′), 72.5 (C-4′), 76.1 (C-5′), 65.7 (C-6′), 168.6 (C=O), 133.3 (C-1″), 117.9 (C-2″), 159.6 (C-3″), 122.1 (C-4″), 131.3 (C-5″), 122.1 (C-6″). *Erythraea centaurium* (Gentianaceae) (174)

218. 2′-*O*-*cis*-COUMAROYLLOGANIN



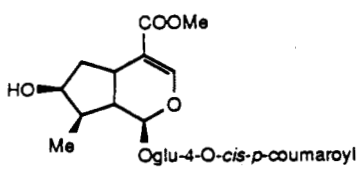
$C_{26}H_{32}O_{12}$ 536.53 uv 305, 295, 230 (MeOH) (300 MHz CD_3OD) 5.37 (H-1, d, 2.5), 7.26 (H-3, d, 1), 2.96–2.89 (H-5, m), 2.16–2.03 (H-6, H-9, m), 1.76–1.58 (H-6, H-8, m), 3.96 (H-7, m), 1.07 (H-10, d, 7), 3.41 (COOMe), 4.88 (H-1′, d, 8), 4.76 (H-2′, t, 8), 7.66 (H-2″, d, 8), 6.73 (H-3″, d, 8), 5.65/6.80 (Hα, Hβ, d's, 13); (CD_3OD) 98.2 (C-1), 151.5 (C-3), 115.3 (C-4), 31.1 (C-5), 42.4 (C-6), 75.2 (C-7), 41.5 (C-8), 46.5 (C-9), 12.6 (C-10), 169.7 (C-11), 51.5 (OMe), 96.4 (C-1′), 74.5 (C-2′), 76.1 (C-3′), 71.9 (C-4′), 78.7 (C-5′), 62.7 (C-6′), 167.6 (C=O), 117.2 (Cα), 146.1 (Cβ), 127.9 (C-1″), 131.7 (C-2″), 116.7 (C-3″), 160.5 (C-4″). *Gentiana pedicellata* (Gentianaceae) (171)

219. 2′-*O*-*trans*-COUMAROYLLOGANIN



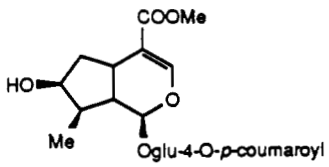
$C_{26}H_{32}O_{12}$ 536.53 uv 305, 295, 230 (MeOH) (300 MHz CD_3OD) 5.42 (H-1, d, 2.5), 7.20 (H-3, d, 1), 2.96–2.89 (H-5, m), 2.16–2.03 (H-6, H-9, m), 1.76–1.58 (H-6, H-8, m), 3.96 (H-7, m), 1.04 (H-10, d, 7), 3.09 (OMe), 4.84 (H-1′, d, 8), 4.71 (H-2′, t, 8), 7.46 (H-2″, d, 8), 6.81 (H-3″, d, 8), 6.23/7.55 (Hα, Hβ, d's, 16); (CD_3OD) 97.9 (C-1), 151.0 (C-3), 115.3 (C-4), 30.8 (C-5), 42.1 (C-6), 75.2 (C-7), 41.2 (C-8), 46.5 (C-9), 12.4 (C-10), 169.5 (C-11), 51.4 (OMe), 97.1 (C-1′), 74.8 (C-2′), 76.1 (C-3′), 71.9 (C-4′) 78.7 (C-5′), 62.7 (C-6′), 168.6 (O=C), 117.2 (Cα), 146.9 (Cβ), 127.7 (C-1″), 131.4 (C-2″), 116.1 (C-3″), 161.1 (C-4″). *Gentiana pedicellata* (Gentianaceae) (171)

220. 4′-*O*-*cis*-*p*-COUMAROYLLOGANIN



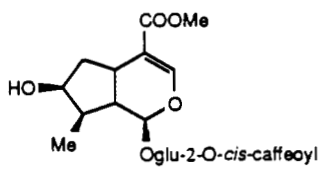
$C_{26}H_{32}O_{12}$ 536.53 uv 310, 295, 230 (MeOH) (300 MHz CD_3OD) 5.27 (H-1, d, 4.5), 7.37 (H-3, d, 1.5), 3.12 (H-5, m), 2.23, 1.62 (H-6, m's), 4.04 (H-7, m), 1.87 (H-8, m), 2.04 (H-9, m), 1.09 (H-10, d, 7), 3.69 (OMe), 4.69 (H-1′, d, 8), 4.80 (H-4′, m), 3.65–3.48 (H-6′, m), 5.80/6.93 (Hα, Hβ, d's, 13), 7.70 (H-2″, d, 8.5), 6.76 (H-3″, d, 8.5); (CD_3OD) 97.9 (C-1), 152.1 (C-3), 114.2 (C-4), 32.2 (C-5), 42.7 (C-6), 75.1 (C-7), 42.2 (C-8), 46.6 (C-9), 13.4 (C-10), 169.6 (C-11), 51.6 (OMe), 100.1 (C-1′), 74.9 (C-2′), 75.8 (C-3′), 72.1 (C-4′), 76.6 (C-5′), 62.5 (C-6′), 167.5 (O=C), 116.1 (Cα), 146.1 (Cβ), 127.2 (C-1″), 133.9 (C-2″), 115.9 (C-3″), 160.3 (C-4″). *Gentiana pedicellata* (Gentianaceae) (140)

221. 4′-*O*-*trans*-*p*-COUMAROYL-LOGANIN



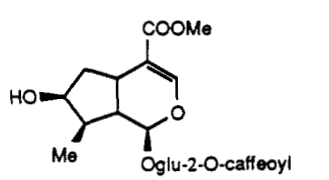
$C_{26}H_{32}O_{12}$ 536.53 uv 310, 295, 230 (MeOH) (300 MHz CD_3OD) 5.28 (H-1, d, 4.5), 7.38 (H-3, d, 1.5), 3.12 (H-5, m), 2.23, 1.62 (H-6, m's), 4.04 (H-7, m), 1.87 (H-8, m), 2.04 (H-9, m), 1.10 (H-10, d, 7), 3.69 (OMe), 4.72 (H-1′, d, 8), 4.80 (H-4′, m), 3.65–3.48 (H-6′, m), 6.36/7.68 (Hα, Hβ, d's, 16), 7.48 (H-2″, d, 8.5), 6.82 (H-3″, d, 8.5); (CD_3OD) 97.9 (C-1), 152.1 (C-3), 114.2 (C-4), 32.2 (C-5), 42.7 (C-6), 75.1 (C-7), 42.2 (C-8), 46.6 (C-9), 13.4 (C-10), 169.6 (C-11), 51.6 (OMe), 100.1 (C-1′), 74.9 (C-2′), 75.8 (C-3′), 72.5 (C-4′), 76.6 (C-5′), 62.5 (C-6′), 168.6 (O=C), 114.9 (Cα), 147.3 (Cβ), 127.6 (C-1″), 131.3 (C-2″), 116.9 (C-3″), 161.5 (C-4″). *Gentiana pedicellata* (Gentianaceae) (140)

222. 2′-*O*-*cis*-CAFFEOYLLOGANIN



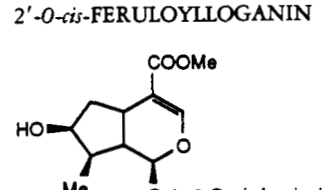
$C_{26}H_{32}O_{13}$ 552.53 uv 323, 290, 230 (MeOH) (300 MHz CD_3OD) 5.37 (H-1, d, 2.5), 7.26 (H-3, d, 1), 2.99–2.87 (H-5, m), 2.15–2.05, 1.76–1.60 (H-6, m's), 3.96 (H-7, m), 1.75–1.60 (H-8, m), 2.15–2.05 (H-9, m), 1.07 (H-10, d, 7), 3.58 (OMe), 4.80 (H-1′, d, 8), 4.84 (H-2′, t, 8), 5.63/6.75 (Hα, Hβ, d's, 13), 6.50 (H-2″, d, 2), 7.90 (H-5″, d, 8), 7.12 (H-6″, dd, 8, 2); (CD_3OD) 98.5 (C-1), 150.8 (C-3), 115.0 (C-4), 31.3 (C-5), 42.3 (C-6), 75.2 (C-7), 41.5 (C-8), 46.6 (C-9), 12.5 (C-10), 169.6 (C-11), 51.4 (OMe), 95.9 (C-1′), 74.5 (C-2′), 76.0 (C-3′), 71.8 (C-4′), 78.6 (C-5′), 62.7 (C-6′), 168.0 (O=C), 115.1 (Cα), 146.8 (Cβ), 128.2 (C-1″), 115.4 (C-2″), 146.0 (C-3″), 149.1 (C-4″), 116.6 (C-5″), 123.1 (C-6″). *Gentiana pedicellata* (Gentianaceae) (171)

223. 2′-*O*-*trans*-CAFFEOYLLOGANIN



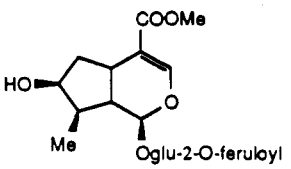
$C_{26}H_{32}O_{13}$ 552.53 uv 323, 290, 230 (MeOH) (300 MHz CD_3OD) 5.42 (H-1, d, 2.5), 7.20 (H-3, d, 1), 2.99–2.87 (H-5, m), 2.15–2.05, 1.76–1.60 (H-6, m's), 3.96 (H-7, m), 1.75–1.60 (H-8, m), 2.15–2.05 (H-9, m), 1.06 (H-10, d, 7), 3.18 (OMe), 4.85 (H-1′, d, 8), 4.79 (H-2′, t, 8), 6.18/7.48 (Hα, Hβ, d's, 16), 7.04 (H-2″, d, 2), 6.79 (H-5″, d, 8), 6.95 (H-6″, dd, 8, 2); (CD_3OD) 97.8 (C-1), 150.4 (C-3), 115.0 (C-4), 30.9 (C-5), 42.1 (C-6), 75.2 (C-7), 41.2 (C-8), 46.6 (C-9), 12.5 (C-10), 169.5 (C-11), 51.4 (OMe), 96.2 (C-1′), 74.7 (C-2′), 76.0 (C-3′), 71.8 (C-4′), 78.6 (C-5′), 62.7 (C-6′), 167.9 (O=C), 115.1 (Cα), 146.9 (Cβ), 128.0 (C-1″), 115.5 (C-2″), 146.0 (C-3″), 149.0 (C-4″), 116.6 (C-5″), 123.1 (C-6″). *Gentiana pedicellata* (Gentianaceae) (171)

224. 2′-*O*-*cis*-FERULOYLLOGANIN



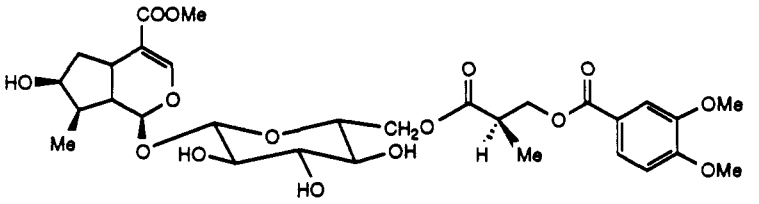
$C_{27}H_{34}O_{13}$ 566.56 uv 320, 295, 230 (MeOH) (300 MHz CD_3OD) 5.35 (H-1, d, 2.5), 7.26 (H-3, d, 1), 2.98–2.89 (H-5, m), 2.14–2.06 (H-6, H-9, m), 1.75–1.59 (H-6, H-8, m), 3.98 (H-7, m), 1.06 (H-10, d, 7), 3.46 (COOMe), 4.87 (H-1′, d, 8), 4.84 (H-2′, t, 8), 5.69/6.80 (Hα, Hβ, d's, 13), 7.18 (H-2″, d, 8), 6.76 (H-5″, d, 8), 7.10 (H-6″, dd, 8, 2), 3.87 (ArOMe); (CD_3OD) 98.1 (C-1), 150.9 (C-3), 115.4 (C-4), 31.1 (C-5), 42.4 (C-6), 75.1 (C-7), 41.5 (C-8), 46.6 (C-9), 12.6 (C-10), 169.2 (C-11), 51.5 (COO*Me*), 96.8 (C-1′), 74.4 (C-2′), 76.0 (C-3′), 71.8 (C-4′), 78.6 (C-5′), 62.7 (C-6′), 168.3 (O=C), 115.5 (Cα), 146.2 (Cβ), 127.9 (C-1″), 112.3 (C-2″), 149.6 (C-3″), 147.6 (C-4″), 116.3 (C-5″), 124.2 (C-6″), 56.5 (ArOMe). *Gentiana pedicellata* (Gentianaceae) (171)

225. 2′-*O*-*trans*-FERULOYLLOGANIN



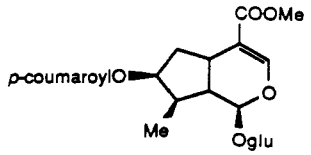
$C_{27}H_{34}O_{13}$ 566.56 uv 320, 295, 230 (MeOH) (300 MHz CD_3OD) 5.40 (H-1, d, 2.5), 7.21 (H-3, d, 1), 2.98–2.89 (H-5, m), 2.14–2.06 (H-6, H-9, m), 1.75–1.59 (H-6, H-8, m), 3.98 (H-7, m), 1.05 (H-10, d, 7), 3.18 (COOMe), 4.84 (H-1′, d, 8), 4.80 (H-2′, t, 8), 7.81 (H-2″, d, 2), 6.83 (H-5″, d, 8), 7.07 (H-6″, 8, 2), 3.92 (ArOMe), 6.25/7.55 (Hα, Hβ, d's, 16); (CD_3OD) 97.7 (C-1), 150.5 (C-3), 115.1 (C-4), 30.9 (C-5), 42.1, (C-6), 75.1 (C-7), 41.3 (C-8), 46.6 (C-9), 12.5 (C-10), 169.0 (C-11), 51.3 (COO*Me*), 96.2 (C-1′), 74.7 (C-2′), 76.0 (C-3′), 71.8 (C-4′), 78.6 (C-5′), 62.7 (C-6′), 168.0 (O=C), 115.6 (Cα), 146.7 (Cβ), 127.1 (C-1″), 112.3 (C-2″), 149.5 (C-3″), 147.5 (C-4″), 116.5 (C-5″), 124.2 (C-6″), 56.6 (ArOMe). *Gentiana pedicellata* (Gentianaceae) (171)

226. 6′-*O*-[2(*R*)-METHYL-3-VERATROYLOXYPROPANOYL] LOGANIN



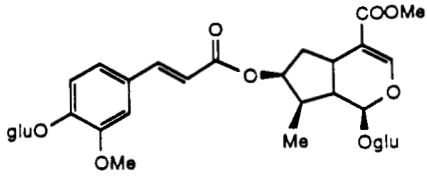
$C_{30}H_{40}O_{15}$ 640.64 [α] −32° (MeOH) uv 290, 255, 240, 225 (MeOH) (400 MHz CD_3OD) 5.06 (H-1, d, 5), 7.34 (H-3, d, 1.5), 3.08 (H-5, m), 1.51 (H-6α, ddd, 14, 8.5, 5), 2.22 (H-6β, ddd, 14, 7.5, 1.5), 3.99 (H-7, m), 1.81 (H-8, dqd, 9, 7, 5), 1.94 (H-9, td, 9, 5), 1.04 (H-10, d, 7), 3.67 (COOMe), 4.59 (H-1′, d, 8), 3.18 (H-2′, dd, 9, 8), 3.35–3.30 (H-3′, H-4′, m), 3.48 (H-5′, ddd, 9, 6.5, 2), 4.59 (H-6′, dd, 12, 2), 4.18 (H-6′, dd, 12, 6.5), 2.99 (H-2″, pd, 7, 5.5), 4.43 (H-3″, dd, 10.5, 7), 4.36 (H-3″, dd, 10.5, 5.5), 1.23 (H-4″, d, 7), 7.50 (H-2‴, d, 2), 7.02 (H-5‴, d, 8), 7.63 (H-6‴, dd, 8, 2), 3.89, 3.87 (OMe); (CD_3OD) 98.3 (C-1), 150.3 (C-3), 113.9 (C-4), 32.5 (C-5), 42.9 (C-6), 74.9 (C-7), 42.4 (C-8), 46.5 (C-9), 13.8 (C-10), 169.5 (C-11), 51.6 (COO*Me*), 100.3 (C-1′), 74.8 (C-2′), 77.7 (C-3′), 71.7 (C-4′), 75.8 (C-5′), 64.9 (C-6′), 175.2 (C-1″), 40.8 (C-2″), 67.0 (C-3″), 14.1 (C-4″), 167.5 (O=C), 123.5 (C-1‴), 113.6 (C-2‴), 150.3 (C-3‴), 155.1 (C-4‴), 112.2 (C-5‴), 125.0 (C-6‴), 56.6 (ArOMe). *Gentiana pyrenaica* (Gentianaceae) (175)

227. 7-*O*-*p*-COUMAROYLLOGANIN



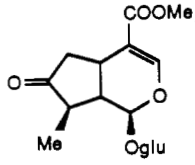
$C_{26}H_{32}O_{10}$ 536.53 uv 281, 239 (MeOH) (360 MHz CD_3OD) 5.20 (H-1, d, 4.5), 7.34 (H-3, d, 1), 3.06 (H-5, m), 1.69 (H-6α, m), 2.24 (H-6β, ddd, 11, 8, 2), 5.16 (H-7, bt), 1.89 (H-8, m), 2.04 (H-9, m), 1.00 (H-10, d, 6.5), 4.57 (H-1′, d, 8), 3.30–3.28 (H-2′–H-5′), 3.81 (H-6′, dd, 12, 2), 3.70 (H-6′, dd, 12, 6), 3.60 (OMe), 6.14/7.45 (Hα, Hβ, d's, 16), 7.30 (H-2″, d, 9), 6.62 (H-3″, d, 9). *Desfontainia spinosa* (Loganiaceae) (176)

228. PERICLYMENOSIDE



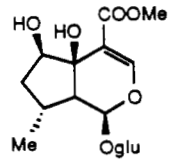
$C_{33}H_{44}O_{18}$ 728.70 [α] −54.2° (MeOH) uv 318, 293, 234, 220 (MeOH) (300 MHz CD_3OD) 5.30–5.27 (H-1), 7.44 (H-3, s), 3.16 (H-5, m), 1.79 (H-6α, m), 2.13 (H-6β, m), 5.30–5.27 (H-7), 2.17 (H-8, m), 2.34 (H-9, dd, 14.7, 8), 1.10 (H-10, d, 6.5), 3.70 (COOMe), 4.68 (H-1′, d, 7.9), 3.56–3.20 (H-2′–H-5′, H-2‴–H-5‴), 7.26 (H-2″, bs), 7.17 (H-5″, H-6″, bs), 6.45/7.62 (Hα, Hβ, d's, 15.9), 3.90 (ArOMe), 4.97 (H-1‴, d, 7.1); (CD_3OD) 97.8 (C-1), 152.8 (C-3), 113.2 (C-4), 32.8 (C-5), 40.5 (C-6), 78.7 (C-7), 41.1 (C-8), 47.2 (C-9), 14.0 (C-10), 169.5 (C-11), 52.0 (OMe), 100.3 (C-1′), 74.8 (C-2′), 78.0 (C-3′), 71.6 (C-4′), 78.4 (C-5′), 62.9 (C-6′), 168.6 (O=C), 117.6 (Cα), 146.2 (Cβ), 130.5 (C-1″), 112.5 (C-2″), 151.0 (C-3″), 150.1 (C-4″), 117.4 (C-5″), 123.7 (C-6″), 57.0 (ArOMe), 102.2 (C-1‴), 74.8 (C-2‴), 77.8 (C-3‴), 71.3 (C-4‴), 78.3 (C-5‴), 62.6 (C-6‴). *Lonicera periclymenum* (Caprifoliaceae) (139)

229. 7-KETOLOGANIN (7-Dehydrologanin)



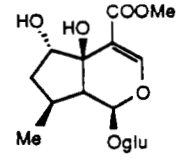
$C_{17}H_{24}O_{10}$ 388.37 mp 194° [α] −150.5° (MeOH) uv 234 (MeOH) (300 MHz CD_3OD) 5.61 (H-1, d, 3.2), 7.48 (H-3, d, 1.4), 3.5–3.1 (H-5, m), 2.51 (H-6α, bddd, 19, 3.6, 1.3), 2.63 (H-6β, dd, 19.1, 8.0), 2.17–2.08 (H-8, m), 2.33 (H-9, ddd, 10.2, 7, 3.2), 1.15 (H-10, d, 7), 3.69 (COOMe), 4.67 (H-1′, d, 7.8), 4.07–3.97 (H-2′, m), 3.55–3.16 (H-3′–H-5′, m), 3.9 (H-6′, dd, 12, 2), 3.65 (H-6′, dd, 12, 5.9); (CD_3OD) 95.5 (C-1), 153.4 (C-3), 111.2 (C-4), 28.4 (C-5), 43.6 (C-6), 220.7 (C-7), 44.8 (C-8), 46.7 (C-9), 13.9 (C-10), 169.0 (C-11), 100.4 (C-1′), 74.8 (C-2′), 78.1 (C-3′), 71.7 (C-4′), 78.6 (C-5′), 62.9 (C-6′). Prepared from asperuloside, *Strychnos roborans* (Loganiaceae) (177–179)

230. PENSTEMOSIDE



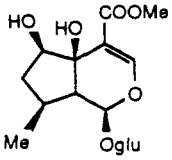
$C_{17}H_{26}O_{11}$ 406.39 [α] −171° (MeOH) uv 234 (MeOH) (400 MHz D_2O) 5.77 (H-1, s), 7.57 (H-3, s), 4.25 (H-6, t, 4.3), 1.45 (H-7, ddd, 13.8, 7.5, 4.7), 1.76 (H-7, ddd, 13.8, 6.9, 3.8), 2.57 (H-8, H-9, m), 0.84 (H-10, d, 6.8), 3.69 (OMe), 4.69 (H-1′, d, 8.2); (D_2O) 96.3 (C-1), 155.5 (C-3), 112.3 (C-4), 73.2 (C-5), 76.3 (C-6), 39.6 (C-7), 30.5 (C-8), 49.2 (C-9), 16.2 (C-10), 169.1 (C-11), 52.6 (OMe), 99.4 (C-1′), 77.1 (C-2′), 76.2 (C-3′), 73.3 (C-4′), 70.4 (C-5′), 61.5 (C-6′). *Pedicularis palustris* (Scrophulariaceae) (180)

231. α-DIHYDROHASTATOSIDE



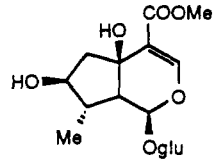
$C_{17}H_{26}O_{11}$ 406.39 (60 MHz D_2O) 5.41 (H-1, d, 8.0), 7.72 (H-3, s), 4.44 (H-6, m), 2.24–1.73 (H-7, H-8, H-9), 1.12 (H-10, d, 6), 3.84 (OMe), 4.88 (H-1′, d, 7); (D_2O) 101.3 (C-1), 156.7 (C-3), 110.7 (C-4), 80.7 (C-5), 79.3 (C-6), 40.0 (C-7), 34.2 (C-8), 56.0 (C-9), 21.1 (C-10), 169.7 (C-11), 52.7 (OMe), 99.7 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′). Reduction of hastatoside (2, 5, 167)

232. β-DIHYDROHASTATOSIDE



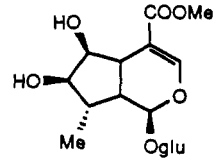
$C_{17}H_{26}O_{11}$ 406.39 (60 MHz D_2O) 5.82 (H-1, d, 1.5), 7.66 (H-3, s), 4.22 (H-6, m), 2.42–1.32 (H-7, H-8, H-9), 1.17 (H-10, d, 5.5), 3.84 (OMe), 4.85 (H-1′, d, 7); (D_2O) 96.0 (C-1), 154.8 (C-3), 112.2 (C-4), 73.3 (C-5), 76.2 (C-6), 39.8 (C-7), 30.8 (C-8), 54.8 (C-9), 19.6 (C-10), 169.4 (C-11), 52.8 (OMe), 99.7 (C-1′), 73.3 (C-2′), 76.2 (C-3′), 70.5 (C-4′), 77.3 (C-5′), 61.5 (C-6′). *Penstemon nitidus* (Scrophulariaceae), reduction of hastatoside (2, 5, 167, 181)

233. 5-HYDROXY-8-*epi*-LOGANIN



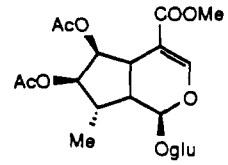
$C_{17}H_{26}O_{11}$ 406.39 (400 MHz CD_3OD) 5.74 (H-1, d, 1.6), 7.47 (H-3, s), 2.57 (H-6, dd, 13.6, 6.7), 2.03 (H-6, dd, 13.6, 5.6), 3.54 (H-7, m), 2.26 (H-8, m), 2.79 (H-9, dd, 10.3, 1.4), 0.95 (H-10, d, 7.4), 3.72 (OMe), 4.55 (H-1′, d, 7.9); (CD_3OD) 95.7 (C-1), 153.4 (C-3), 115.3 (C-4), 71.5 (C-5), 48.0 (C-6), 77.9 (C-7), 43.6 (C-8), 51.6 (C-9), 13.8 (C-10), 168.1 (C-11), 51.6 (OMe), 99.7 (C-1′), 74.4 (C-2′), 77.5 (C-3′), 71.7 (C-4′), 78.4 (C-5′), 62.8 (C-6′). Hydrogenation of strictoloside (182)

234. 5-DEOXYPULCHELLOSIDE I



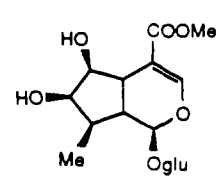
$C_{17}H_{26}O_{11}$ 406.39 uv 238 (MeOH) (250 MHz D_2O) 5.63 (H-1, d, 1.5), 7.50 (H-3, s), 2.96 (H-5, bd, 9, <1.5), 4.13 (H-6, bd, 4, <1.5), 3.65 (H-7, dd, 9, 4), 2.34 (H-8, m, 10, 9, 7), 2.89 (H-9, m), 1.11 (H-10, d, 7), 3.77 (OMe), 4.76 (H-1′, d), 3.25 (H-2′, t), 3.56–3.36 (H-3′, H-4′, H-5′), 3.95, 3.75 (H-6′, dd's). *Citharexylum fruticosum* f. *subserratum* (Verbenaceae) (183)

235. BARBATOSIDE



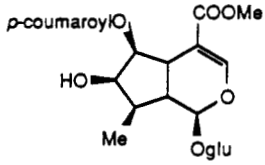
$C_{21}H_{30}O_{13}$ 490.46 mp 91–94° uv 233 (MeOH) (400 MHz CD_3OD) 5.60 (H-1, d, 3), 7.50 (H-3, d, 0.8), 3.05 (H-5, d, 9), 5.37 (H-6, dd, 4.3, 2.7), 4.76 (H-7, dd, 9.2, 4.3), 2.51 (H-8, m), 2.83 (H-9, ddd, 10.2, 9, 3), 1.09 (H-10, d, 7.3), 3.69 (OMe), 2.06, 1.97 (OAc), 4.61 (H-1′, d, 7.9); (CD_3OD) 95.7 (C-1), 154.0 (C-3), 109.8 (C-4), 37.8 (C-5)[a], 78.4 (C-6), 79.7 (C-7), 37.4 (C-8)[a], 40.2 (C-9), 13.5 (C-10), 172.3 (C-11)[b], 51.8 (OMe), 100.0 (C-1′), 74.7 (C-2′), 78.1 (C-3′)[c], 71.8 (C-4′), 77.2 (C-5′)[c], 62.9 (C-6′), 171.7, 168.4 (O=*C*Me)[b], 20.7, 20.6 (O=C*Me*). *Penstemon barbatus* (Scrophulariaceae) (184)

236. 6β-HYDROXYLOGANIN



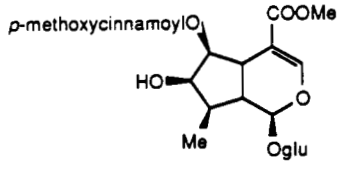
$C_{17}H_{26}O_{11}$ 406.39 mp 220–222° [α] −107.2° (MeOH) (270 MHz D_2O) 5.38 (H-1, d, 3.6), 7.48 (H-3, bs), 2.89 (H-5, bdd, 9, 5.4), 3.96 (H-6, t, 5), 3.89 (H-7, t, 5), 1.96 (H-8, m, 9.6, 6.5, 5.1), 2.26 (H-9, dt, 9.6, 9, 3.6), 1.09 (H-10, d, 6.5), 3.74 (OMe); (D_2O) 97.4 (C-1), 153.1 (C-3), 111.3 (C-4), 38.4 (C-5), 79.5 (C-6), 75.1 (C-7), 37.9 (C-8), 44.7 (C-9), 13.4 (C-10), 170.8 (C-11), 52.8 (OMe), 99.4 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.6 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

237. 6-*O*-*trans*-*p*-COUMAROYL-6β-HYDROXYLOGANIN



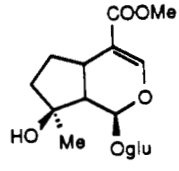
$C_{26}H_{32}O_{13}$ 552.53 mp 200–202° [α] −78.0° (MeOH) uv 312, 301, 229 (MeOH) (400 MHz DMSO-d_6) 5.32 (H-1, d, 6), 7.40 (H-3, s), 3.09 (H-5, m), 4.98 (H-6, m), 4.06 (H-7, bt, 4), 2.01 (H-8, m), 2.14 (H-9, m), 0.94 (H-10, d, 8), 3.61 (OMe), 4.94 (H-1′, d, 7.5), 4.5–3.5 (H-2′–H-5′, m), 4.42 (H-6′, d, 9), 6.36/7.56 (Hα, Hβ, d's, 16), 7.51 (H-2″, d, 10), 6.75 (H-3″, d, 10), 9.98 (ArOH, bs); (CD_3OD) 97.8 (C-1), 154.0 (C-3), 110.5 (C-4), 39.7 (C-5), 78.4 (C-6), 79.0 (C-7), 37.4 (C-8), 46.1 (C-9), 14.9 (C-10), 170.1 (C-11), 52.0 (OMe), 100.2 (C-1′), 74.7 (C-2′), 78.0 (C-3′), 71.6 (C-4′), 77.6 (C-5′), 62.8 (C-6′), 169.0 (O=C), 115.3 (Cα), 146.7 (Cβ), 127.3 (C-1″), 131.1 (C-2″), 116.8 (C-3″), 161.3 (C-4″). *Nyctanthes arbortristis* (Oleaceae) (186)

238. ARBORTRISTOSIDE A



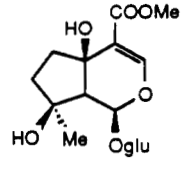
$C_{27}H_{34}O_{13}$ 566.56 mp 226–228° [α] −90° (MeOH) uv 310, 300, 235 (EtOH) (? MHz DMSO-d_6) 5.35 (H-1, d, 8), 7.42 (H-3, s), 4.95 (H-6, m), 4.1 (H-7, t, 4.5), 2.15 (H-8, H-9, m), 1.00 (H-10, bs), 3.65 (COOMe), 4.95 (H-1′, m), 4.48 (H-6′, d, 9), 6.47/7.5 (Hα, Hβ, d's, 16), 7.65 (H-2″, d, 10), 6.95 (H-3″, d, 10), 3.79 (ArOMe); (DMSO-d_6) 95.1 (C-1), 152.1 (C-3), 108.5 (C-4), 42 (C-5), 76.7 (C-6), 70 (C-7), 35 (C-8), 44.6 (C-9), 14.9 (C-10), 167.2 (C-11), 51.1 (COO*Me*), 98.6 (C-1′), 73 (C-2′), 77.2 (C-3′), 70 (C-4′), 75.7 (C-5′), 61.2 (C-6′), 166.2 (O=C), 115.6 (Cα), 144.2 (Cβ), 126.7 (C-1″), 130 (C-2″), 114.4 (C-3″), 161.1 (C-4″), 55.3 (ArOMe). *Nyctanthes arbortristis* (Oleaceae) (187)

239. MUSSAENOSIDE



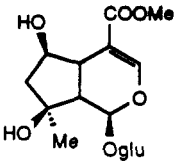
$C_{17}H_{26}O_{10}$ 390.39 [α] −106° (MeOH) uv 238 (MeOH) (360 MHz D_2O) 5.51 (H-1, d, 2.8), 7.41 (H-3, s), 3.08 (H-5, m), 2.20, 1.69 (H-6, m's), 1.69, 1.44 (H-7, m's), 2.32 (H-9, dd, 9.7, 2.7), 1.26 (H-10, s), 3.69 (OMe), 4.75 (H-1′, d, 8.1), 3.22 (H-2′, dd, 9.3, 8.1), 3.45–3.30 (H-3′, H-4′, H-5′), 3.87 (H-6′, dd, 12.4, 2.1), 3.69 (H-6′, dd, 12.4, 5.8); (D_2O) 95.2 (C-1), 151.9 (C-3), 113.3 (C-4), 30.3 (C-5), 29.6 (C-6), 40.4 (C-7), 80.4 (C-8), 51.4 (C-9), 23.7 (C-10), 170.6 (C-11), 52.6 (OMe), 99.1 (C-1′), 73.4 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′). *Mussaenda* (Rubiaceae), *Besseya plantaginea* (Scrophulariaceae) (2, 88, 188)

240. IPOLAMIIDE (revision of Tarphetalin)



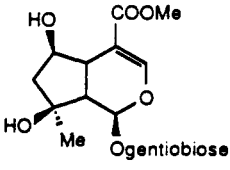
$C_{17}H_{26}O_{11}$ 406.39 mp 142–143° [α] −139° (MeOH) uv 231 (EtOH) (90 MHz D_2O) 5.81 (H-1, d, 1.8), 7.52 (H-3, s), 2.49 (H-9, d, 0.8), 1.15 (H-10, s), 3.74 (OMe); (D_2O?) 94.4 (C-1), 153.0 (C-3), 113.8 (C-4), 71.3 (C-5), 37.9 (C-6), 39.4 (C-7), 79.0 (C-8), 60.6 (C-9), 22.7 (C-10), 169.0 (C-11), 52.6 (OMe), 99.2 (C-1′), 73.2 (C-2′), 76.1 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′). *Stachytarpheta jamaicensis* (Verbenaceae) (189–191)

241. SHANZHISIDE METHYL ESTER



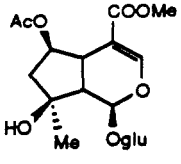
$C_{17}H_{26}O_{11}$ 406.39 mp 116–124° [α] −115° (MeOH) uv 234 (EtOH) (250 MHz CD_3OD) 5.57 (H-1, d, 3), 7.41 (H-3, d, 1), 2.99 (H-5, m, 10, 3.5, 1), 4.03 (H-6, m, 6.5, 6, 3.5), 2.01 (H-7, dd, 13, 6.5), 1.83 (H-7, dd, 13, 6), 2.61 (H-9, dd, 10, 3), 1.26 (H-10, s), 3.72 (OMe), 4.61 (H-1′, d, 8), 3.91 (H-6′, dd, 12, 2), 3.64 (H-6′, dd, 12, 6); (CD_3OD) 94.9 (C-1), 152.9 (C-3), 111.4 (C-4), 41.5 (C-5), 78.0 (C-6)[a], 51.9 (C-7), 79.1 (C-8), 51.7 (C-9), 24.7 (C-10), 169.8 (C-11), 49.1 (OMe), 99.9 (C-1′), 74.6 (C-2′), 78.3 (C-3′), 71.6 (C-4′), 77.5 (C-5′)[a], 62.9 (C-6′). *Canthium subcordatum* (Rubiaceae) (192, 193)

242. SHANZHISIN METHYL ESTER GENTIOBIOSIDE



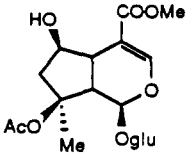
$C_{23}H_{36}O_{16}$ 568.53 mp >150° (dec) [α] −56° (MeOH) uv 232 (MeOH) (250 MHz CD_3OD) 5.54 (H-1, d, 3), 7.41 (H-3, d, 1), 3.02 (H-5, dd, 9.5, 4), 4.05 (H-6, ddd, 6, 6, 4), 2.04 (H-7, dd, 13.5, 6), 1.82 (H-7, dd, 13.5, 6), 1.28 (H-10, s), 4.64 (H-1′, d, 8), 4.18 (H-6′, dd, 12, 2), 4.38 (H-1″, d, 8), 3.88 (H-6″, bd, 12), 3.73 (COOMe), other signals 3.66 (m, 1-2Hs), 3.50 (dd, 8, 8), 2.58 (dd, 9.5, 3), 3.44–3.12; (CD_3OD) 95.5 (C-1), 153.1 (C-3), 111.8 (C-4), 42.0 (C-5), 77.6 (C-6)[a], 52.1 (C-7)[b], 79.4 (C-8), 51.6 (C-9)[b], 25.0 (C-10), 170.0 (C-11), 100.2 (C-1″), 105.3 (C-1″), 63.0 (C-6″), 78.1, 77.8[a], 76.2, 75.4, 74.8, 71.9, 70.3 (C-2′–C-6′, C-2″–C-5″). *Canthium subcordatum* (Rubiaceae) (192)

243. 6-*O*-ACETYLSHANZHISIDE METHYL ESTER



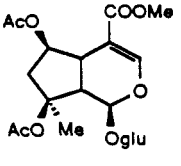
$C_{19}H_{28}O_{12}$ 448.42 mp 227–228° [α] −118.7° (MeOH) uv 233 (MeOH) X-ray (80 MHz D_2O) 5.56 (H-1, d, 4), 7.58 (H-3, s), 3.40 (H-5, m), 5.14 (H-6, m), 2.31 (H-7, dd, 14, 7), 1.91 (H-7, dd, 14, 4.5), 2.64 (H-9, dd, 9.5, 4), 1.38 (H-10, s), 3.75 (OMe), 2.17 (OAc), 4.87 (H-1′, d, 7.5), 4.20–3.45 (H-2′–H-6′); (D_2O) 94.2 (C-1), 152.8 (C-3), 108.5 (C-4), 37.3 (C-5), 78.3 (C-6), 45.6 (C-7), 78.3 (C-8), 49.8 (C-9), 24.1 (C-10), 169.1 (C-11), 51.9 (OMe), 173.6 (O=*C*Me), 20.7 (O=C*Me*), 98.4 (C-1′), 72.8 (C-2′), 75.8 (C-3′)[a], 69.7 (C-4′), 76.4 (C-5′)[a], 60.9 (C-6′). *Barleria lupulina* (Acanthaceae) (194)

244. 8-*O*-ACETYLSHANZHISIDE METHYL ESTER (revision of Barlerin)



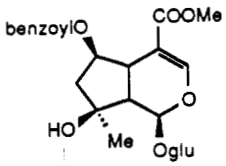
$C_{19}H_{28}O_{12}$ 448.42 mp 180° [α] −85° (MeOH) uv 235 (EtOH) (?MHz D_2O) 5.98 (H-1, d, 1.5), 7.61 (H-3, s), 3.02 (H-5, H-9, m), 2.16 (H-7, m), 1.50 (H-10, s), 3.72 (OMe), 2.00 (OAc), 4.70 (H-1′, d, 7), 3.40 (H-6′, m); (D_2O) 95.4 (C-1), 153.5 (C-3), 109.2 (C-4), 41.0 (C-5), 75.3 (C-6), 46.7 (C-7), 89.8 (C-8), 48.8 (C-9), 22.5 (C-10), 61.5 (C-6′). *Barleria prionitis* (Acanthaceae) (149, 195, 196)

245. 6,8-DI-*O*-ACETYLSHANZHISIDE METHYL ESTER (revision of Acetylbarlerin)



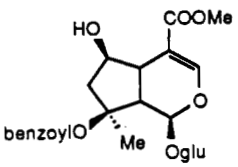
$C_{21}H_{30}O_{13}$ 490.46 [α] −99° (MeOH) uv 235 (EtOH) (? MHz D_2O) 5.90 (H-1, d, 2), 7.61 (H-3, s), 5.20 (H-6, m), 1.50 (H-10, s), 3.72 (OMe), 2.10, 2.05 (OAc), 4.70 (H-1′, d, 7); (D_2O) 95.1 (C-1), 154.3 (C-3), 108.0 (C-4), 38.7 (C-5), 78.8 (C-6), 44.3 (C-7), 89.5 (C-8), 48.9 (C-9), 22.4 (C-10), 61.5 (C-6′). *Barleria prionitis* (Acanthaceae) (195, 196)

246. 6-*O*-BENZOYLSHANZHISIDE METHYL ESTER



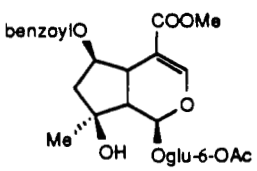
$C_{24}H_{30}O_{12}$ 510.49 [α] −96° ($CHCl_3$) uv 281, 275, 241 (MeOH) (270 MHz $CDCl_3$) 5.49 (H-1, d, 1.5), 7.38 (H-3, s), 5.49 (H-6, m), 1.35 (H-10, s), 4.00 (OMe), 4.74 (H-1′, d, 9), 4.40–3.30 (H-6′), 8.02 (H-2″, d, 8), 7.38 (H-3″, t, 8), 7.52 (H-4″, t, 8); ($CDCl_3$) 93.6 (C-1), 151.8 (C-3), 108.6 (C-4), 36.9 (C-5), 78.2 (C-6), 46.7 (C-7), 77.6 (C-8), 50.0 (C-9), 24.3 (C-10), 167.2 (C-11), 51.0 (OMe), 98.4 (C-1′), 73.0 (C-2′), 76.3 (C-3′), 70.0 (C-4′), 76.3 (C-5′), 61.5 (C-6′), 166.1 (C=O), 130.1 (C-1″), 129.3 (C-2″), 128.1 (C-3″), 132.7 (C-4″). *Plectronia odorata* (Rubiaceae) (197)

247. 8-*O*-BENZOYLSHANZHISIDE METHYL ESTER



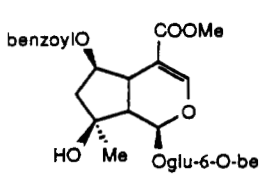
$C_{24}H_{30}O_{12}$ 510.49 [α] −34° ($CHCl_3$) uv 280, 275, 243 (MeOH) (270 MHz $CDCl_3$) 5.93 (H-1, d, 1.5), 7.43 (H-3, s), 1.60 (H-10, s), 3.52 (OMe), 4.72 (H-1′, d, 9), 3.90–3.20 (H-6′), 7.99 (H-2″, d, 8), 7.39 (H-3″, t, 8), 7.52 (H-4″, t, 8); ($CDCl_3$) 94.5 (C-1), 152.2 (C-3), 108.8 (C-4), 40.8 (C-5), 76.3 (C-6), 46.8 (C-7), 88.5 (C-8), 48.4 (C-9), 21.7 (C-10), 168.1 (C-11), 51.6 (OMe), 99.0 (C-1′), 73.0 (C-2′), 76.1 (C-3′), 69.8 (C-4′), 75.4 (C-5′), 61.7 (C-6′), 166.3 (C=O), 130.9 (C-1″), 129.6 (C-2″), 128.4 (C-3″), 133.0 (C-4″). *Plectronia odorata* (Rubiaceae) (197)

248. 6-*O*-BENZOYL-6′-*O*-ACETYL-SHANZHISIDE METHYL ESTER



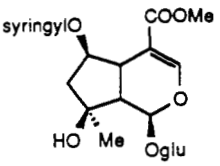
$C_{26}H_{32}O_{13}$ 552.53 [α] −78° ($CHCl_3$) uv 281, 275, 242 (MeOH) (270 MHz $CDCl_3$) 5.34 (H-1, d, 1.5), 7.45 (H-3, s), 3.53 (H-5, dd, 9, 4.5), 5.36 (H-6, ddd, 7, 4.5, 1), 2.23 (H-7α; dd, 16, 7), 1.99 (H-7β, dd, 16, 1), 2.63 (H-9, dd, 9, 1.5), 1.38 (H-10, s), 3.57 (COOMe), 4.74 (H-1′, d, 9), 4.00–3.30 (H-5′), 4.41 (H-6′, dd, 12, 6.5), 4.27 (H-6′, dd, 12, 2), 2.10 (OAc), 8.03 (H-2″, d, 8), 7.40 (H-3″, t, 8), 7.52 (H-4″, t, 8); ($CDCl_3$) 94.1 (C-1), 152.0 (C-3), 108.6 (C-4), 38.5 (C-5), 78.7 (C-6)[a], 46.4 (C-7), 78.8 (C-8)[a], 50.7 (C-9), 24.9 (C-10), 171.6 (C-11), 51.5 (OMe), 98.3 (C-1′), 73.2 (C-2′), 76.0 (C-3′), 69.9 (C-4′), 74.2 (C-5′), 63.1 (C-6′), 165.9 (O=C), 130.2 (C-1″), 129.6 (C-2″), 128.4 (C-3″), 133.0 (C-4″). *Plectronia odorata* (Rubiaceae) (197)

249. 6,6′-DI-*O*-BENZOYLSHANZHISIDE METHYL ESTER



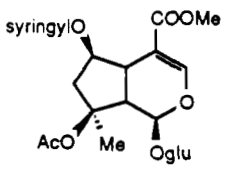
$C_{31}H_{34}O_{13}$ 614.60 [α] −68° ($CHCl_3$) uv 281, 275, 243 (MeOH) (270 MHz $CDCl_3$) 5.36 (H-1, d, 1.5), 7.48 (H-3, s), 3.54 (H-5, dd, 9, 2), 5.36 (H-6, m), 2.26 (H-7α, dd, 16, 7), 2.00 (H-7β, dd, 16, 1), 2.66 (H-9, dd, 9, 1.5), 1.35 (H-10, s), 3.61 (COOMe), 4.74 (H-1′, d, 9), 4.40–3.50 (H-5′), 4.74 (H-6′, dd, 13, 7), 4.61 (H-6′, dd, 13, 2), 8.08 (H-2″, H-2‴, d, 8), 7.48 (H-3″, H-3‴, t, 8), 7.58 (H-4″, H-4‴, t, 8). *Plectronia odorata* (Rubiaceae) (197)

250. 6-*O*-SYRINGYLSHANZHISIDE METHYL ESTER



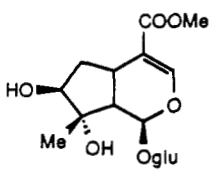
$C_{26}H_{34}O_{15}$ 586.55 [α] −117.3° (MeOH) uv 275, 221 (MeOH) (100 MHz pyridine-d_5) 6.07 (H-1, d, 4.5), 7.74 (H-3, s), 1.43 (H-10, s), 3.55 (COOMe), 5.37 (H-1′, d, 7.2), 7.78 (H-2″, s), 3.80 (ArOMe); (pyridine-d_5) 94.9 (C-1), 152.6 (C-3), 109.3 (C-4), 38.2 (C-5), 78.3 (C-6), 48.1 (C-7), 77.7 (C-8), 51.3 (C-9), 25.7 (C-10), 167.1 (C-11)[a], 51.3 (COO*Me*), 120.9 (C-1″), 108.4 (C-2″), 148.6 (C-3″), 142.7 (C-4″), 166.4 (O=C), 56.4 (ArOMe). Hydrolysis of 6-*O*-syringyl-8-*O*-acetylshanzhiside methyl ester (198)

251. 6-*O*-SYRINGYL-8-*O*-ACETYL-SHANZHISIDE METHYL ESTER



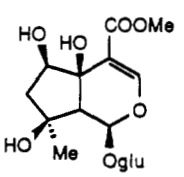
$C_{28}H_{36}O_{16}$ 628.58 [α] −71.0° (MeOH) uv 276, 221 (MeOH) (100 MHz pyridine-d_5) 6.31 (H-1, d, 3.6), 7.74 (H-3, d, 1.2), 1.71 (H-10, s), 3.60 (COOMe), 1.93 (OAc), 5.36 (H-1′, d, 7.2), 7.69 (H-2″, s), 3.83 (ArOMe); (pyridine-d_5) 95.1 (C-1), 153.6 (C-3), 107.7 (C-4), 39.2 (C-5), 78.1 (C-6), 44.7 (C-7), 88.3 (C-8), 49.7 (C-9), 21.5 (C-10)[a], 166.6 (C-11)[b], 51.1 (COO*Me*), 170.5 (O=C*Me*), 21.9 (O=C*Me*)[a], 165.9 (O=C)[b], 120.4 (C-1″), 108.4 (C-2″), 148.5 (C-3″), 143.0 (C-4″), 56.4 (ArOMe). *Salvia digitaloides* (Labiatae) (198)

252. 8-*epi*-CARYPTOSIDE



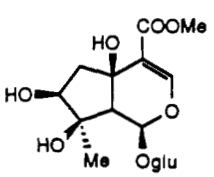
$C_{17}H_{26}O_{11}$ 406.39 pentaacetate mp 167° (pentaacetate, ? MHz $CDCl_3$) 5.35 (H-1, d, 9), 7.32 (H-3, s), 3.15 (H-5, m), 5.15–4.2 (H-7), 2.19 (H-9, m), 1.35 (H-10, s), 3.65 (OMe), 5.15–4.2 (H-1′–H-6′), 2.08, 2.0, 1.98, 1.85 (OAc); (pentaacetate $CDCl_3$) 93.4 (C-1), 151.2 (C-3), 109.4 (C-4), 33.8 (C-5), 46.8 (C-6), 72.3 (C-7), 79.9 (C-8), 46.8 (C-9), — (C-10), 166.5 (C-11), 50.8 (OMe), 95.8 (C-1′), 70.7 (C-2′), 72.5 (C-3′), 68.2 (C-4′), 75.8 (C-5′), 61.7 (C-6′), 170.6, 170.1, 169.9, 169.4, 169.0 (O=C*Me*), 24.5, 21.2, 20.7, 20.6, 20.2 (O=C*Me*). *Barleria prionitis* (Acanthaceae) (19, 199)

253. 6β-HYDROXYIPOLAMIIDE



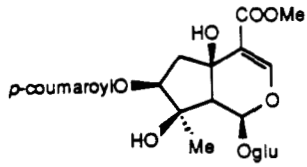
$C_{17}H_{26}O_{12}$ 422.39 mp 192–193° [α] −161° (MeOH) uv 231 (MeOH) (90 MHz D_2O) 5.86 (H-1, s), 7.60 (H-3, s), 4.15 (H-6, t), 2.16, 1.90 (H-7, 13.5, 8, 6.4), 2.63 (H-9, s), 1.18 (H-10, s), 3.77 (OMe); (D_2O) 94.2 (C-1), 154.5 (C-3), 112.8 (C-4), 70.4 (C-5), 74.5 (C-6), 47.0 (C-7), 74.7 (C-8), 59.1 (C-9), 23.6 (C-10), 169.0 (C-11), 52.7 (OMe), 99.3 (C-1′), 73.3 (C-2′), 76.1 (C-3′)[a], 70.4 (C-4′), 77.2 (C-5′)[a], 61.5 (C-6′). *Stachytarpheta mutabilis* (Verbenaceae) (200)

254. LAMIIDE



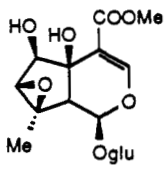
$C_{17}H_{26}O_{12}$ 422.39 mp 186–188° [α] −127° (MeOH) uv 229 (EtOH) (400 MHz CD_3OD) 5.81 (H-1, d, 0.8), 7.42 (H-3, s), 2.35 (H-6, dd, 15, 5.1), 2.24 (H-6, dd, 15, 3.3), 3.51 (H-7, dd, 5, 3.4), 2.78 (H-9, bs), 1.08 (H-10, s), 3.72 (OMe), 4.59 (H-1′, d, 7.9); (CD_3OD) 95.3 (C-1), 152.4 (C-3), 115.4 (C-4), 69.2 (C-5), 46.7 (C-6), 77.6 (C-7), 79.1 (C-8), 58.0 (C-9), 21.2 (C-10), 168.0 (C-11), 99.6 (C-1′), 74.3 (C-2′), 77.4 (C-3′), 71.6 (C-4′), 78.3 (C-5′), 62.7 (C-6′), 51.7 (OMe). *Penstemon strictus* (Scrophulariaceae) (182, 201)

255. DURANTOSIDE 4



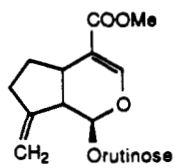
$C_{26}H_{32}O_{14}$ 568.53 no data available. *Duranta plumeri* (Verbenaceae) (202)

256. SESAMOSIDE



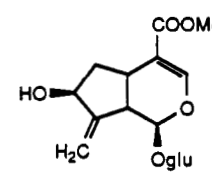
$C_{17}H_{24}O_{12}$ 420.37 uv 234 (MeOH) (200 MHz CD_3OD) 5.50 (H-1, d, 8.7), 7.58 (H-3, s), 4.32 (H-6, d, 1.4), 3.46 (H-7, d, 1.4), 2.52 (H-9, d, 8.7), 1.51 (H-10, s), 3.75 (COOMe), 4.72 (H-1′, d, 7.8); (CD_3OD) 96.7 (C-1), 155.4 (C-3), 112.9 (C-4), 74.9 (C-5), 77.5 (C-6), 65.9 (C-7), 63.7 (C-8), 54.3 (C-9), 17.8 (C-10), 169.0 (C-11), 52.3 (OMe), 99.9 (C-1′), 74.6 (C-2′), 77.7 (C-3′)[a], 71.7 (C-4′), 78.7 (C-5′)[a], 63.0 (C-6′). *Sesamum angolense* (Pedaliaceae) (203)

257. JIOGLUTOSIDE B



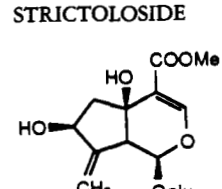
$C_{23}H_{34}O_{13}$ 518.51 [α] −50.1° (MeOH) uv 237 (EtOH) (500 MHz CD_3OD) 5.29 (H-1, d, 5.3), 7.46 (H-3, d, 1.2), 3.01 (H-5, bq, 7), 2.06, 1.69 (H-6, m's), 2.34 (H-7, m), 2.77 (H-9, t), 5.11 (H-10, bdq, 7.3, 2.1), 3.67 (OMe), 4.65 (H-1′, d, 7.9), 3.20 (H-2′, dd, 9.1, 7.9), 3.36 (H-3′, t, 9), 3.29 (H-4′, dd, 9.7, 9), 3.43 (H-5′, ddd, 9.7, 6.2, 1.9), 3.97 (H-6′, dd, 11.3, 1.9), 3.63 (H-6′, dd, 11.3, 6.2), 4.73 (H-1″, d, 1.7), 3.81 (H-2″, dd, 3.4, 1.7), 3.65 (H-3″, dd, 9.5, 3.4), 3.36 (H-4″, t, 9.5), 3.64 (H-5″, dq, 9.5, 6.3), 1.25 (H-6″, d, 6.3); (CD_3OD) 96.8 (C-1), 153.7 (C-3), 111.2 (C-4), 35.7 (C-5), 31.9 (C-6, C-7), 149.9 (C-8), 46.1 (C-9), 110.3 (C-10), 169.2 (C-11), 51.7 (OMe), 100.1 (C-1′), 74.6 (C-2′), 77.8 (C-3′), 71.5 (C-4′), 76.9 (C-5′), 68.0 (C-6′), 102.1 (C-1″), 72.1 (C-2″)[a], 72.3 (C-3″)[a], 73.8 (C-4″), 69.7 (C-5″), 18.0 (C-6″). *Rehmannia glutinosa* var. *hueichingensis* (Scrophulariaceae) (75)

258. GARDOSIDE METHYL ESTER



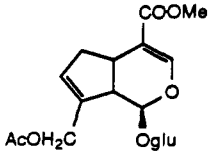
$C_{17}H_{24}O_{10}$ 388.37 [α] −35.1° (MeOH) uv 240 (MeOH) (400 MHz D_2O) 5.40 (H-1, d, 4.0), 7.40 (H-3, d, 0.5), 3.1–3.0 (H-5), 2.0–1.8 (H-6), 4.37 (H-7, bt, 6.0), 3.1–3.0 (H-9), 5.30 (H-10, bs), 3.65 (COOMe), 4.85 (H-1′, d, 8.0), 3.22 (H-2′, dd, 9.2, 8.0), 3.48–3.35 (H-3′), 3.30 (H-4′, bt, 11), 3.48–3.35 (H-5′), 3.95 (H-6′, dd, 13.3, 2.2), 3.62 (H-6′, dd, 13.3, 6.6); (D_2O?) 96.5 (C-1), 153.1 (C-3), 113.5 (C-4), 30.6 (C-5), 39.0 (C-6), 72.8 (C-7), 150.9 (C-8), 43.8 (C-9), 111.1 (C-10), 169.9 (C-11), 52.4 (OMe), 99.0 (C-1′), 73.2 (C-2′), 76.8 (C-3′)[a], 70.1 (C-4′), 76.1 (C-5′)[a], 61.2 (C-6′). *Parentucellia viscosa*, *Melampyrum arvense* (Scrophulariaceae) (146, 204)

259. STRICTOLOSIDE



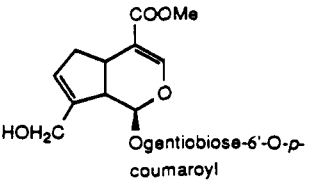
$C_{17}H_{24}O_{11}$ 404.37 mp 88–91° (400 MHz CD_3OD) 5.87 (H-1, d, 1.8), 7.50 (H-3, s), 2.92 (H-6, dd, 12, 7), 1.88 (H-6, dd, 12, 10.5), 4.12 (H-7, m), 3.14 (H-9, m), 5.33, 5.27 (H-10, t's, 2.4), 3.72 (COOMe), 4.57 (H-1′, d, 7.9); (CD_3OD) 96.7 (C-1), 154.8 (C-3), 112.5 (C-4), 69.9 (C-5), 46.1 (C-6), 71.9 (C-7), 151.4 (C-8), 53.6 (C-9), 111.5 (C-10), 167.8 (C-11), 51.7 (OMe), 100.0 (C-1′), 74.3 (C-2′), 77.5 (C-3′), 71.6 (C-4′), 78.4 (C-5′), 62.7 (C-6′). *Penstemon strictus* (Scrophulariaceae) (182)

260. 10-*O*-ACETYLGENIPOSIDE



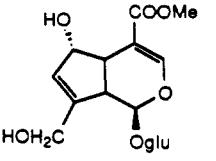
$C_{19}H_{26}O_{11}$ 430.41 mp 173–175° [α] +22.1 (MeOH) uv 239 (MeOH) (60 MHz CD_3OD) 5.13 (H-1, d, 8.0), 7.51 (H-3, d, 1.0), 5.83 (H-7, m), 3.68 (OMe), 2.04 (OAc). *Gardenia jasminoides* forma *grandiflora* (Rubiaceae) (205)

261. 6″-*O*-*p*-COUMAROYLGENIPIN GENTIOBIOSIDE



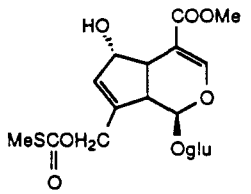
$C_{32}H_{40}O_{17}$ 696.66 [α] +3.9° (MeOH) uv 313, 300, 230 (MeOH) (? MHz D_2O/Me_2CO-d_6) 5.21 (H-1, d, 7.3), 7.46 (H-3, d, 1.0), 3.14 (H-5, dd, 14.5, 7.7), 2.76, 2.21 (H-6, m's), 5.81 (H-7, bs), 2.76 (H-9, t, 7.7), 4.31, 4.19 (H-10, d's, 14.0), 3.69 (COOMe), 4.77 (H-1′, d, 8.1), 3.55–3.27 (H-2′–H-5′, H-2″–H-5″), 4.14 (H-6′, dd, 11.7, 1.8), 3.88 (H-6′, m), 4.48 (H-1″, d, 7.7), 4.53 (H-6″, dd, 12.1, 1.8), 4.31 (H-6″, dd, 12.1, 5.9), 6.40/7.66 (Hα, Hβ, d's, 16.1), 7.56 (H-2‴, d, 8.8), 6.90 (H-3‴, d, 8.8); (D_2O/Me_2CO-d_6) 98.0 (C-1), 143.6 (C-3), 112.2 (C-4), 35.6 (C-5), 39.2 (C-6), 128.9 (C-7), 148.9 (C-8), 46.5 (C-9), 60.7 (C-10), 169.5 (C-11), 52.1 (OMe), 100.0 (C-1′), 74.6 (C-2′)[a], 76.9 (C-3′)[b], 70.9 (C-4′)[c], 76.9 (C-5′), 69.5 (C-6′), 104.1 (C-1″), 73.9 (C-2″)[a], 76.3 (C-3″)[b], 70.4 (C-4″)[c], 74.2 (C-5″), 64.5 (C-6″), 168.9 (O=C), 114.8 (Cα), 146.6 (Cβ), 126.7 (C-1‴), 131.2 (C-2‴), 116.8 (C-3‴), 153.1 (C-4‴). *Gardenia jasminoides* (Rubiaceae) (206)

262. 6α-HYDROXYGENIPOSIDE (Deacetyldaphylloside, Deacetylasperulosidic acid methyl ester)



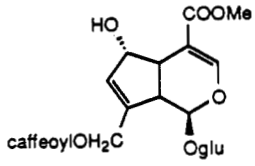
$C_{17}H_{24}O_{11}$ 404.37 mp 129–133° uv 238 (H_2O) (200 MHz D_2O) 5.05 (H-1, d, 9.0), 7.65 (H-3, d, 1.2), 3.26 (H-5, m), 6.01 (H-7, m), 2.56 (H-9, bt, 9.0), 4.45 (H-10, 2d's, 15), 3.47 (COOMe); (CD_3OD) 101.6 (C-1), 155.4 (C-3), 108.3 (C-4), 42.7 (C-5), 75.4 (C-6), 130.0 (C-7), 151.5 (C-8), 45.9 (C-9), 61.7 (C-10), 169.5 (C-11), 51.6 (OMe), 100.5 (C-1′), 75.0 (C-2′), 77.8 (C-3′), 71.6 (C-4′), 78.5 (C-5′), 62.8 (C-6′). Hydrolysis of asperuloside and gardenoside (207–209)

263. METHYL PAEDEROSIDATE



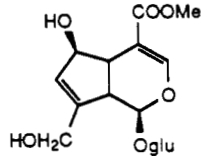
$C_{19}H_{26}O_{12}S$ 478.47 [α] +13° (MeOH) (200 MHz CD_3OD) 5.06 (H-1, d, 8.4), 7.66 (H-3, d, 1.2), 3.04 (H-5, m, 7.8, 6.0, 1.2), 3.62 (H-6, dd, 12.0, 6.0), 6.02 (H-7, m), 2.63 (H-9, dd, 8.4, 7.8), 5.10, 4.94 (H-10, bd's, 15), 3.74 (OMe), 2.34 (SMe), 4.72 (H-1′, d, 7.6), 3.86 (H-6′, dd, 12.0, 1.2); (D_2O) 101.7 (C-1), 157.7 (C-3), 109.3 (C-4), 42.8 (C-5), 72.6 (C-6), 134.4 (C-7), 146.3 (C-8), 47.2 (C-9), 68.1 (C-10), 172.4 (C-11), 54.6 (OMe), 176.5 (O=*C*SMe), 15.6 (O=CS*Me*), 103.0 (C-1′), 76.7 (C-2′), 78.4 (C-3′), 72.3 (C-4′), 78.9 (C-5′), 63.6 (C-6′). Artifact of the extraction of the aphid *Acyrthosiphon nipponicus* (159)

264. 10-*O*-CAFFEOYLDEACETYL-DAPHYLLOSIDE



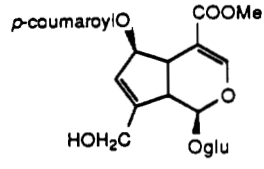
$C_{26}H_{30}O_{14}$ 556.52 [α] −3.6° (MeOH) uv 330, 303, 235, 223 (MeOH) (heptaacetate 250 MHz $CDCl_3$) 4.80 (H-1, d, 8), 7.54 (H-3, d, 1.5), 3.25 (H-5, td, 8, 1.5), 5.74 (H-6, dd, 8, 2), 6.07 (H-7, d, 2), 2.65 (H-9, t, 8), 4.92 (H-10), 3.71 (COOMe), 4.94 (H-1′, d), 5.23–5.05 (H-2′–H-4′), 3.73 (H-5′, m), 4.17 (H-6′), 2.3–1.93 (OAc), 6.40/7.63 (Hα, Hβ, d's, 16), 7.36 (H-2″, d, 2), 7.20 (H-5″, d, 8.5), 7.41 (H-6″, dd, 8.5, 2); (CD_3OD) 100.7 (C-1), 155.4 (C-3), 108.0 (C-4), 42.3 (C-5), 75.3 (C-6), 131.7 (C-7), 146.1 (C-8), 46.3 (C-9), 63.3 (C-10), 169.3 (C-11), 51.9 (OMe), 101.4 (C-1′), 74.8 (C-2′), 77.8 (C-3′), 71.5 (C-4′), 78.3 (C-5′), 62.9 (C-6′), 168.8 (O=C), 114.8 (Cα)[a], 147.4 (Cβ), 127.6 (C-1″), 116.5 (C-2″), 146.7 (C-3″), 149.6 (C-4″), 115.3 (C-5″)[a], 123.1 (C-6″). *Randia formosa* (Rubiaceae) (210)

265. 6β-HYDROXYGENIPOSIDE (Scandoside methyl ester)



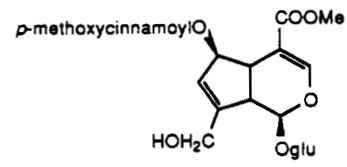
$C_{17}H_{24}O_{11}$ 404.37 (CD_3OD) 98.4 (C-1), 153.9 (C-3), 110.0 (C-4), 47.1 (C-5), 82.9 (C-6), 130.0 (C-7), 147.9 (C-8), 47.6 (C-9), 61.4 (C-10), 171.0 (C-11), 52.1 (OMe), 100.3 (C-1′), 74.8 (C-2′), 77.9 (C-3′), 71.5 (C-4′), 78.4 (C-5′), 61.0 (C-6′). (208, 211)

266. 6-*O*-*p*-COUMAROYLSCANDOSIDE METHYL ESTER (Oldenlandoside I)



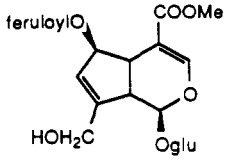
$C_{26}H_{30}O_{13}$ 550.52 mp 141–142° [α] −180° (MeOH) uv 314, 302, 231 (EtOH) (60 MHz CD_3OD) 5.15 (H-1, d, 5), 7.32 (H-3, d), 5.53 (H-6, bs), 5.70 (H-7, bs), 4.30 (H-10, bs), 3.53 (COOMe), 6.15/7.43 (Hα, Hβ, d's, 16), 7.27 (H-2″, d, 8), 6.63 (H-3″, d, 8); (DMSO-d_6) 95.2 (C-1), 152.2 (C-3), 108.1 (C-4), 41.1 (C-5), 81.4 (C-6), 124.7 (C-7), 149.9 (C-8), 45.5 (C-9), 58.9 (C-10), 166.4 (C-11)[a], 51.0 (OMe), 98.4 (C-1′), 73.1 (C-2′), 77.2 (C-3′), 69.9 (C-4′), 76.5 (C-5′), 61.0 (C-6′), 166.0 (O=C)[a], 114.3 (Cα), 144.6 (Cβ), 125.0 (C-1″), 130.2 (C-2″), 115.7 (C-3″), 159.7 (C-4″). *Oldenlandia diffusa* = *Hedyotis diffusa* (Rubiaceae) (212, 213)

267. 6-*O*-*p*-METHOXYCINNAMOYL-SCANDOSIDE METHYL ESTER



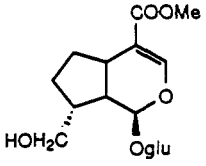
$C_{27}H_{32}O_{13}$ 564.54 mp 114–116° [α] −165° (MeOH) uv 312, 299, 230 (EtOH) (60 MHz DMSO-d_6) 5.34 (H-1, d, 5), 7.50 (H-3, s), 5.78 (H-7, m), 3.60 (COOMe), 6.47/7.67 (Hα, Hβ, d's, 16), 7.58 (H-2″, d, 8), 7.00 (H-3″, d, 8), 3.81 (ArOMe); (DMSO-d_6) 95.3 (C-1), 152.2 (C-3), 108.1 (C-4), 40.1 (C-5), 81.6 (C-6), 124.7 (C-7), 149.9 (C-8), 45.6 (C-9), 58.9 (C-10), 166.4 (C-11)[a], 51.0 (COO*Me*), 98.5 (C-1′), 73.1 (C-2′), 77.2 (C-3′), 69.9 (C-4′), 76.5 (C-5′), 61.0 (C-6′), 165.8 (O=C), 144.1 (Cα), 114.3 (Cβ), 126.6 (C-1″), 130.0 (C-2″), 115.5 (C-3″), 150.1 (C-4″), 55.2 (ArOMe). *Hedyotis diffusa* (Rubiaceae) (213)

268. 6-*O*-FERULOYLSCANDOSIDE METHYL ESTER (Oldenlandoside II)



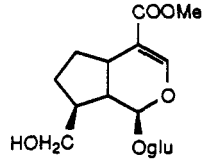
$C_{27}H_{32}O_{14}$ 580.54 mp 124–126° [α] −164° (MeOH) uv 327.5, 299, 236, 221 (EtOH) (60 MHz DMSO-d_6) 5.35 (H-1, d, 4.5), 7.50 (H-3, s), 5.78 (H-7, m), 3.60 (COOMe), 6.45/7.62 (Hα, Hβ, d's, 16), 7.35 (H-2″, m), 6.83 (H-5″, d, 8.5), 7.20 (H-6″, d, 8.5), 3.83 (ArOMe); (DMSO-d_6) 95.3 (C-1), 151.7 (C-3), 108.1 (C-4), 39.9 (C-5), 81.3 (C-6), 124.7 (C-7), 149.5 (C-8), 45.5 (C-9), 58.6 (C-10), 166.1 (C-11)[a], 50.6 (COO*Me*), 98.5 (C-1′), 73.0 (C-2′), 76.9 (C-3′), 69.9 (C-4′), 76.4 (C-5′), 60.9 (C-6′), 165.6 (O=C)[a], 144.3 (Cα), 114.6 (Cβ), 125.5 (C-1″), 111.7 (C-2″), 149.1 (C-3″), 147.7 (C-4″), 115.4 (C-5″), 122.4 (C-6″), 55.7 (ArOMe). *Oldenlandia diffusa* = *Hedyotis diffusa* (Rubiaceae) (212, 213)

269. 8α-DIHYDROGENIPOSIDE



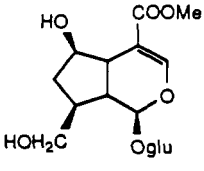
$C_{17}H_{26}O_{10}$ 390.39 mp 148.5–150° [α] −82.2° (MeOH) uv 238.5 (MeOH) (60 MHz D_2O) 5.52 (H-1, d, 5.5), 7.51 (H-3, s), 3.75 (OMe), 4.85 (H-1′, d, 7); (D_2O) 96.1 (C-1), 152.7 (C-3), 112.4 (C-4), 34.8 (C-5), 27.0 (C-6)[a], 31.3 (C-7)[a], 42.2 (C-8)[b], 44.7 (C-9)[b], 63.3 (C-10), 170.3 (C-11), 52.5 (OMe), 99.4 (C-1′), 73.6 (C-2′), 77.1 (C-3′), 70.4 (C-4′), 76.5 (C-5′), 61.6 (C-6′). Catalytic hydrogenation (Pt) of geniposide (44, 214)

270. ADOXOSIDE (8β-Dihydrogeniposide, 6,7-Dihydroapodantheroside)



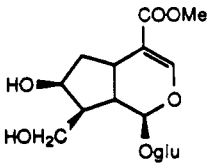
$C_{17}H_{26}O_{10}$ 390.39 [α] −81.0° (MeOH) uv 234 (MeOH) (360 MHz D_2O) 5.23 (H-1, d, 6), 7.48 (H-3, d, 1.0), 2.83 (H-5, bq, 14.3, 7.0), 2.08, 1.42 (H-6, m's), 1.80, 1.32 (H-7, m's), 2.08 (H-8, m), 1.96 (H-9, bdd, 13.7, 6.0), 3.58 (H-10, dd, 11.0, 7.0), 3.53 (H-10, dd, 11.0, 7.5), 3.70 (OMe), 4.78 (H-1′, d, 8.1), 3.28 (H-2′, dd, 9.2, 8.1), 3.45–3.35 (H-3′–H-5′), 3.88 (H-6′, dd, 12.4, 2.1), 3.70 (H-6′, dd, 12.4, 5.5); (D_2O) 98.6 (C-1), 153.2 (C-3), 111.8 (C-4), 35.0 (C-5), 32.4 (C-6), 27.8 (C-7), 43.1 (C-8), 43.7 (C-9), 65.9 (C-10), 170.7 (C-11), 52.6 (OMe), 99.9 (C-1′), 73.6 (C-2′), 76.6 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′). *Castilleja integra*, *Euphrasia rostkoviana* (Scrophulariaceae) (2, 66, 88, 215)

271. 6β-HYDROXYADOXOSIDE



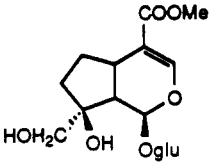
$C_{17}H_{26}O_{11}$ 406.39 [α] −83.4° (MeOH) (360 MHz D_2O) 5.48 (H-1, d, 3.9), 7.49 (H-3, d, 1.3), 2.90 (H-5, bdd, 7.8, 3.4), 4.21 (H-6, bdd, 7.8, 3.7), 2.12, 1.37 (H-7, m's), 2.12 (H-8, m), 2.33 (H-9, m), 3.64 (H-10, dd, 11.0, 6.3), 3.60 (H-10, 11.0, 6.1), 3.73 (OMe), 4.77 (H-1′, d, 8.1), 3.25 (H-2′, dd, 9.3, 8.1), 3.50–3.35 (H-3′–H-5′), 3.90 (H-6′, dd, 12.3, 2.1), 3.70 (H-6′, dd, 12.3, 5.7); (D_2O) 97.3 (C-1), 153.5 (C-3), 109.4 (C-4), 41.0 (C-5)[a], 76.9 (C-6)[b], 35.7 (C-7), 41.6 (C-8)[a], 42.6 (C-9)[a], 65.9 (C-10), 170.5 (C-11), 52.6 (OMe), 99.5 (C-1′), 73.4 (C-2′), 76.4 (C-3′)[b], 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′). *Castilleja integra* (Scrophulariaceae) (88)

272. 10-HYDROXYLOGANIN



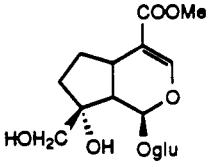
$C_{17}H_{26}O_{11}$ 406.39 hexaacetate [α] −58.9° (MeOH) uv 236 (MeOH) (200 MHz CD_3OD) 5.16 (H-1, d, 6), 7.46 (H-3, d, 1.2), 1.54 (H-6ax, ddd, 14, 10, 4.5), 2.26 (H-6eq, ddd, 14, 7, 1.5), 4.30 (H-7, t), 2.08 (H-8, H-9, m), 4.81 (H-1′, d, 8 in D_2O), 3.76 (COOMe in D_2O). *Galium mollugo* (Rubiaceae) (153, 216)

273. 8-*epi*-SPLENDOSIDE



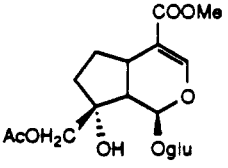
$C_{17}H_{26}O_{11}$ 406.39 mp 100–102° [α] −66.7° (MeOH) (D_2O) 95.2 (C-1), 152.5 (C-3), 112.4 (C-4), 32.5 (C-5), 29.4 (C-6), 34.3 (C-7), 84.7 (C-8), 50.4 (C-9), 66.0 (C-10), 171.2 (C-11), 52.7 (OMe), 99.4 (C-1′), 73.5 (C-2′), 76.4 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.5 (C-6′). Catalytic hydrogenation of gardenoside (2, 217)

274. SPLENDOSIDE



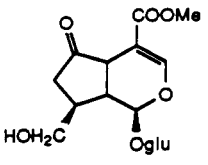
$C_{17}H_{26}O_{11}$ 406.39 pentaacetate mp 124–125° [α] −68.5° (EtOH) (90 MHz D_2O) 5.54 (H-1, d, 4), 7.52 (H-3, d, 1.5), 3.0 (H-5, m), 2.34 (H-9, dd, 9, 4), 3.60 (H-10, s), 3.76 (OMe); (D_2O) 96.0 (C-1), 153.0 (C-3), 112.2 (C-4), 33.6 (C-5), 30.6 (C-6), 36.0 (C-7), 82.9 (C-8), 45.7 (C-9), 68.6 (C-10), 170.4 (C-11), 52.6 (OMe), 99.8 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.5 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

275. SPLENDOSIDE 10-ACETATE (10-*O*-Acetylsplendoside)



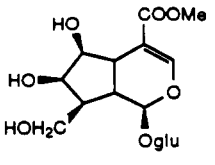
$C_{19}H_{28}O_{12}$ 448.42 (90 MHz D_2O) 4.11 (H-10, s), 2.12 (OAc); (D_2O) 95.5 (C-1), 152.6 (C-3), 112.6 (C-4), 32.4 (C-5), 30.1 (C-6), 36.3 (C-7), 80.9 (C-8), 46.6 (C-9), 71.0 (C-10), 170.6 (C-11), 52.5 (OMe), 99.4 (C-1′), 73.4 (C-2′), 76.3 (C-3′), 70.2 (C-4′), 77.0 (C-5′), 61.4 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

276. 10-HYDROXYCORNIN



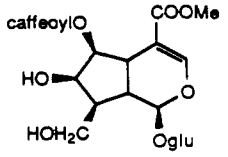
$C_{17}H_{24}O_{11}$ 404.37 no data available. *Penstemon nitidus* (Scrophulariaceae) (181)

277. NYCTANTHOSIDE (revision of stereochemistry at C-8)



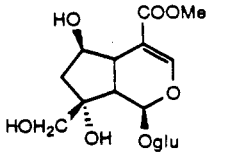
$C_{17}H_{26}O_{12}$ 422.39 no data given. (185)

278. ARBORTRISTOSIDE B (6-*O*-Caffeoylnyctanthoside)



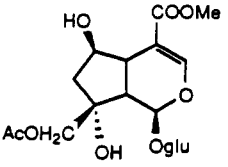
$C_{26}H_{32}O_{15}$ 584.53 [α] −69° (MeOH) mp 156–158° (octaacetate) (octaacetate, ? MHz $CDCl_3$) 5.4 (H-1, d, 8), 7.39 (H-3, s), 3.05 (H-5, dd, 7.5, 1.5), 5.4 (H-6), 2.38 (H-9, m), 4.25 (H-10, m), 3.7 (COOMe), 5.4 (H-1′, d, 8), 5.3–4.7 (H-2′–H-4′, m), 4.25 (H-6′, m), 6.36/7.65 (Hα, Hβ, d's, 16), 7.39 (H-2″, d, 2), 7.21 (H-5″, d, 10), 7.45 (H-6″, dd, 10, 2); (octaacetate $CDCl_3$) 94.5 (C-1), 151.7 (C-3), 108.8 (C-4), 39.4 (C-5), 76.4 (C-6), 72 (C-7), 35.3 (C-8), 41.6 (C-9), 63.4 (C-10), 168 (C-11), 51.6 (OMe), 96.0 (C-1′), 70.6 (C-2′), 72.4 (C-3′), 68.1 (C-4′), 72.4 (C-5′), 61.5 (C-6′), 166.2 (O=C), 118.5 (Cα), 143.8 (Cβ), 133.0 (C-1″), 124.1 (C-2″), 142.6 (C-3″), 143.8 (C-4″), 123.0 (C-5″), 126.5 (C-6″), 170.6, 170.2, 169.9, 169.6, 169.4, 169.1 (O=*C*Me), 20.6, 20.1 (O=C*Me*). *Nyctanthes arbortristis* (Oleaceae) (187)

279. 6β-HYDROXYSPLENDOSIDE



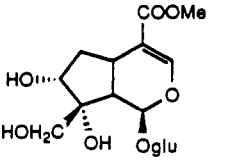
$C_{17}H_{26}O_{12}$ 422.39 pentaacetate mp 140–141° [α] −80.5° ($CHCl_3$) (270 MHz D_2O) 5.63 (H-1, d, 2.5), 7.54 (H-3, d, 1.5), 2.94 (H-5, bdd, 9, 3), 4.34 (H-6, m, 9, 2.5), 2.65 (H-9, dd), 3.67 (H-10, s), 3.76 (OMe); (D_2O) 95.1 (C-1), 153.6 (C-3), 109.8 (C-4), 40.4 (C-5), 76.3 (C-6), 44.0 (C-7), 81.7 (C-8), 44.5 (C-9), 69.0 (C-10), 170.4 (C-11), 52.7 (OMe), 99.2 (C-1′), 73.4 (C-2′), 76.3 (C-3′), 70.3 (C-4′), 77.0 (C-5′), 61.4 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

280. 6β-HYDROXYSPLENDOSIDE 10-ACETATE



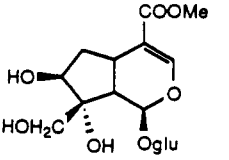
$C_{19}H_{28}O_{13}$ 464.42 (90 MHz D_2O) 4.25 (H-10, bs), 2.19 (OAc); (D_2O) 94.8 (C-1), 153.5 (C-3), 109.3 (C-4), 40.2 (C-5), 75.9 (C-6), 44.2 (C-9), 80.0 (C-8), 45.2 (C-9), 72.0 (C-10), — (C-11), 52.6 (OMe), 99.0 (C-1′), 73.3 (C-2′), 76.3 (C-3′), 70.2 (C-4′), 77.0 (C-5′), 61.4 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

281. 7α-HYDROXYSPLENDOSIDE



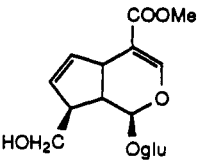
$C_{17}H_{26}O_{12}$ 422.39 hexaacetate mp 175–176° [α] −99.2° ($CHCl_3$) (hexaacetate 270 MHz $CDCl_3$) 5.51 (H-1, d, 3.5), 7.37 (H-3, bs), 2.90 (H-5, q), 2.64 (H-6α, dt, 13.0, 8.0, 7.0), 1.73 (H-6β, dt, 13.0, 9.0, 7.5), 4.96 (H-7, dd, 9.0, 7.0), 2.38 (H-9, dd, 10.0, 3.5), 4.08 (H-10), 3.71 (OMe); (hexaacetate $CDCl_3$) 93.1 (C-1), 149.6 (C-3), 112.2 (C-4), 27.5 (C-5), 34.9 (C-6), 74.8 (C-7), 78.1 (C-8), 43.2 (C-9), 66.5 (C-10), — (C-11), 51.1 (OMe), 96.1 (C-1′), 70.3 (C-2′), 72.0 (C-3′), 67.9 (C-4′), 72.0 (C-5′), 61.4 (C-6′). Oxidation of geniposide pentaacetate (185)

282. 7β-HYDROXYSPLENDOSIDE



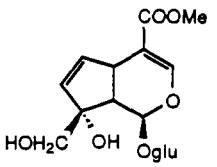
$C_{17}H_{26}O_{12}$ 422.39 hexaacetate mp 131–133° [α] −57.0° ($CHCl_3$) (hexaacetate 270 MHz $CDCl_3$) 5.38 (H-1, d, 4.5), 7.40 (H-3, d, 1.5), 3.05 (H-5, m), 2.25 (H-6α, ddd, 14.0, 7.5, 4.5), 2.10 (H-6β, ddd, 14.0, 7.5, 4.5), 5.00 (H-7, t, 4.5, 4.5), 2.45 (H-9, dd, 9.5, 4.5), 4.18 (H-10), 3.71 (OMe), 2.09–1.96 (OAc); (hexaacetate $CDCl_3$) 94.1 (C-1), 150 (C-3), 111.4 (C-4), 29.7 (C-5), 35.9 (C-6), 80.2 (C-7), 80.6 (C-8), 44.4 (C-9), 66.3 (C-10), 166.5 (C-11), — (OMe), 96.6 (C-1′), 70.2 (C-2′), 72.0 (C-3′), 67.9 (C-4′), 72.0 (C-5′), 61.4 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

283. APODANTHEROSIDE



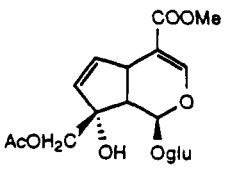
$C_{17}H_{24}O_{10}$ 388.27 pentaacetate mp 126° uv 233 (?) (pentaacetate 270 MHz $CDCl_3$) 6.15 (H-1, s), 7.35 (H-3, s), 3.7 (H-5, dd, 9, 2.5), 6.3 (H-6, dd, 6, 2.5), 5.9 (H-7, dd, 6, 1.5), 3.0 (H-8, dd, 9, 1.5), 2.55 (H-9, t, 9), 4.2 (H-10, d, 12), 3.75 (COOMe), 4.3 (H-6′, d, 12), 2.05–1.95 (OAc). *Feretia apodanthera* (Rubiaceae) (215)

284. MONOTROPEIN METHYL ESTER (Galioside)



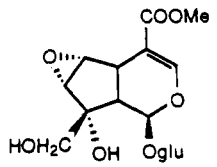
$C_{17}H_{24}O_{11}$ 404.37 [α] −86.2° (MeOH) uv 238 (MeOH) (90 MHz D_2O) 5.72 (H-1, d, 1.9), 7.50 (H-3, d, 1.3), 3.5–3.0 (H-5, m), 6.32 (H-6, dd, 5.7, 3.0), 5.78 (H-7, dd, 5.7, 1.7), 2.78 (H-9, dd, 8.3, 1.9), 3.82 (OMe); (D_2O) 94.4 (C-1), 151.2 (C-3), 110.3 (C-4), 37.1 (C-5), 137.0 (C-6), 132.1 (C-7), 84.7 (C-8), 44.1 (C-9), 69.6 (C-10), 169.3 (C-11), 51.8 (OMe), 98.4 (C-1′), 72.7 (C-2′), 76.3 (C-3′), 72.5 (C-4′), 75.7 (C-5′), 60.7 (C-6′). (154, 218)

285. GALIOSIDE 10-ACETATE



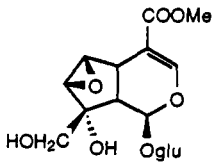
$C_{19}H_{26}O_{12}$ 446.41 [α] −63.6° (MeOH) (90 MHz D_2O) 4.25 (H-10, s), 2.17 (OAc); (D_2O) 95.0 (C-1), 151.9 (C-3), 110.8 (C-4), 37.6 (C-5), 131.8 (C-6), 138.3 (C-7), 83.8 (C-8), 45.7 (C-9), 70.7 (C-10), 170.0 (C-11), 52.6 (OMe), 99.0 (C-1′), 73.4 (C-2′), 76.4 (C-3′), 70.3 (C-4′), 76.9 (C-5′), 61.4 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

286. 6α,7α-EPOXYSPLENDOSIDE



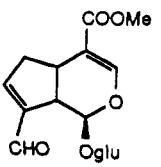
$C_{17}H_{24}O_{12}$ 420.37 pentaacetate [α] −6.5° ($CHCl_3$) (pentaacetate 90 MHz $CDCl_3$) 5.31 (H-1, d, 9.0), 7.47 (H-3, d, 2.0), 3.09 (H-5, m), 3.8 (H-6), 3.49 (H-7, d, 3.0), 1.93 (H-9, t, 9.0), 4.11 (H-10), 3.76 (COOMe), 2.14–1.98 (OAc); (pentaacetate $CDCl_3$) 98.6 (C-1), 152.5 (C-3), 104.5 (C-4), 36.4 (C-5), 60.0 (C-6), 56.1 (C-7), 79.3 (C-8), 39.4 (C-9), 67.3 (C-10), 166.6 (C-11), 51.4 (OMe), 99.2 (C-1′), 70.8 (C-2′), 72.4 (C-3′), 68.2 (C-4′), 72.4 (C-5′), 61.4 (C-6′). Oxidation of galioside pentaacetate (185)

287. 6β,7β-EPOXYSPLENDOSIDE



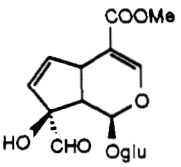
$C_{17}H_{24}O_{12}$ 420.37 pentaacetate mp 182–183° [α] −85.6° ($CHCl_3$) (90 MHz D_2O) 5.66 (H-1, bs), 7.53 (H-3, d, 1.5), 4.00 (H-6, bd, 2.5), 3.48 (H-7, d, 2.5), 2.22 (H-9, bd, 8.5), 3.76 (COOMe); (pentaacetate $CHCl_3$) 92.3 (C-1), 151.6 (C-3), 106.8 (C-4), 31.6 (C-5), 59.0 (C-6)[a], 58.3 (C-7)[a], 77.6 (C-8), 42.7 (C-9), 68.1 (C-10), 166.1 (C-11), 51.2 (OMe), 95.0 (C-1′), 70.3 (C-2′), 72.1 (C-3′), 67.8 (C-4′), 72.1 (C-5′), 61.4 (C-6′). *Fouquieria diguetii* (Fouquieriaceae) (185)

288. 10-DEHYDROGENIPOSIDE



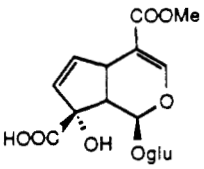
$C_{17}H_{22}O_{10}$ 386.35 tetraacetate mp 128–130° (tetraacetate 200 MHz $CDCl_3$) 6.17 (H-1, d, 2.1), 7.36 (H-3, s), 2.91, 2.72 (H-6, m's), 6.93 (H-7, m), 9.75 (H-10, s), 3.71 (COOMe), 2.13, 2.03, 2.00, 1.90 (OAc). Hydrolysis of gardenoside (207)

289. 10-DEHYDROGARDENOSIDE



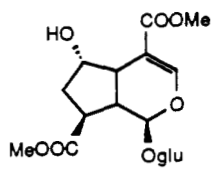
$C_{17}H_{22}O_{11}$ 402.35 (pentaacetate 60 MHz $CDCl_3$) 5.60 (H-1, d, 2.0), 7.30 (H-3, bs), 6.63 (H-6, dd, 7.0, 3.0), 6.03 (H-7, dd, 7.0, 2.0), 3.07 (H-9, dd, 9.5, 2.0), 9.44 (H-10, s), 3.77 (COOMe), 2.14–1.92 (OAc). *Randia canthioides* (Rubiaceae) (14)

290. MOLLUGOSIDE (8α-Hydroxy-apodanthoside)



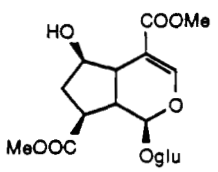
$C_{17}H_{22}O_{12}$ 418.36 uv 230 (?) (? MHz D_2O) 5.68 (H-1, d, 1.3), 7.46 (H-3, d, 1.3), 3.9–3.5 (H-5, m), 6.35 (H-6, dd, 6.0, 2.7), 5.74 (H-7, dd, 6.0, 1.7), 3.12 (H-9, dd, 9.0, 1.3), 3.78 (COOMe), 4.82 (H-1′, d, 7.5); (D_2O) 94.7 (C-1), 151.8 (C-3), 111.0 (C-4), 37.2 (C-5), 133.2 (C-6), 138.3 (C-7), 86.6 (C-8), 47.5 (C-9), 182.1 (C-10), 170.3 (C-11), 52.6 (OMe), 99.0 (C-1′), 73.4 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.0 (C-5′), 61.5 (C-6′). *Galium mollugo* (Rubiaceae) (219)

291. α-DIHYDROGRISELINOSIDE



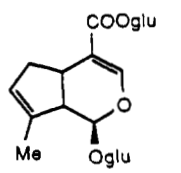
$C_{18}H_{26}O_{12}$ 434.40 (D_2O) 100.6 (C-1), 156.2 (C-3), 106.2 (C-4), 42.8 (C-5), 73.9 (C-6), 37.8 (C-7), 45.0 (C-8), 42.1 (C-9), 178.7 (C-10), 170.6 (C-11), 53.6, 52.8 (OMe), 100.2 (C-1′), 73.5 (C-2′), 76.6 (C-3′), 70.3 (C-4′), 77.1 (C-5′), 61.5 (C-6′). Reduction of griselinoside (2)

292. β-DIHYDROGRISELINOSIDE



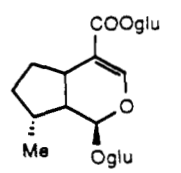
$C_{18}H_{26}O_{12}$ 434.40 (D_2O) 96.4 (C-1), 153.8 (C-3), 109.0 (C-4), 41.5 (C-5), 76.4 (C-6), 35.7 (C-7), 43.8 (C-8), 42.8 (C-9), 177.9 (C-10), 170.2 (C-11), 53.6, 52.8 (OMe), 99.4 (C-1′), 73.4 (C-2′), 76.4 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′). Reduction of griselinoside (2)

293. ASYSTASIOSIDE B



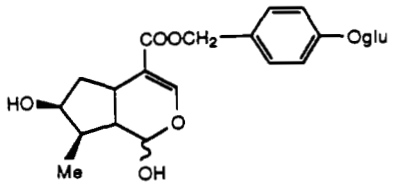
$C_{22}H_{32}O_{14}$ 520.49 (500 MHz D_2O) 5.51 (H-1, d, 4.8), 7.71 (H-3, bs), 3.23 (H-5, dt, 8, 5), 2.77 (H-6, bdd, 16, 7), 2.18 (H-6, bd, 16), 5.58 (H-7, m), 2.90 (H-9, m), 1.82 (H-10, bs), 4.84 (H-1′, d, 8), 5.64 (H-1″, d, 8); (D_2O) 97.2 (C-1), 155.6 (C-3), 110.5 (C-4), 35.6 (C-5), 38.6 (C-6), 127.9 (C-7), 139.1 (C-8), 49.8 (C-9), 15.5 (C-10), 168.2 (C-11), 99.4 (C-1′), 73.6 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′), 94.6 (C-1″), 72.8 (C-2″), 76.4 (C-3″), 70.0 (C-4″), 77.6 (C-5″), 61.3 (C-6″). *Asystasia bella* (Acanthaceae) (41)

294. ASYSTASIOSIDE A



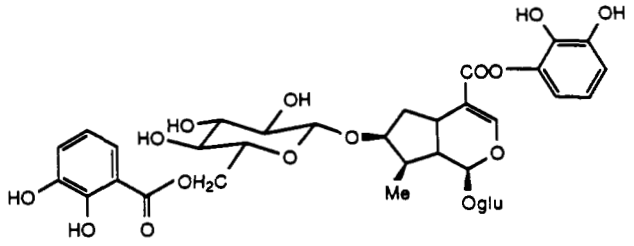
$C_{22}H_{34}O_{14}$ 522.51 [α] −74° (MeOH) (500 MHz D_2O) 5.58 (H-1, d, 3.6), 7.69 (H-3, s), 2.97 (H-5, bdt, 8.5, 5), 2.07 (H-6, dq, 13.2, 8), 1.64 (H-6, ddt, 13, 8, 5), 1.82 (H-7, m), 1.33 (H-7, dq, 12.6, 8), 2.35 (H-8, m), 2.44 (H-9, dt, 8.6, 3.7), 1.04 (H-10, d, 7.1), 4.83 (H-1′, d, 8), 5.64 (H-1″, d, 8); (D_2O) 97.1 (C-1), 154.7 (C-3), 112.7 (C-4), 32.5 (C-5), 31.5 (C-6), 33.1 (C-7), 36.1 (C-8), 43.4 (C-9), 16.3 (C-10), 168.4 (C-11), 99.2 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′), 94.5 (C-1″), 72.8 (C-2″), 76.4 (C-3″), 70.0 (C-4″), 77.6 (C-5″), 61.3 (C-6″). *Asystasia bella* (Acanthaceae) (41)

295. URCEOLATOSIDE D



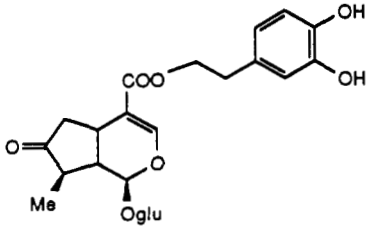
$C_{23}H_{30}O_{11}$ 482.48 mp 153–161° [α] −42.5° (MeOH) uv 236 (MeOH) (60 MHz Me_2CO-d_6) 7.57 (H-3, s), 1.10 (H-10, d, 6), 5.15 (OCH_2Ar, s), 7.19, 7.47 (H-2′, H-3′, d's, 9), 1.40–2.50 (4H). *Viburnum urceolatum* (Caprifoliaceae) (220)

296. DEPRESSOSIDE



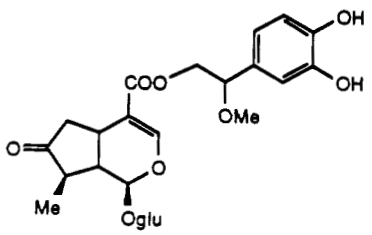
$C_{35}H_{42}O_{20}$ 782.70 [α] −31° (MeOH) uv 317, 277, 242, 217 (MeOH) (250 MHz CD_3OD) 5.40 (H-1, bs), 7.52 (H-3, d, 1), 3.18 (H-5, m), 2.41 (H-6α, bdd, 15, 8, 1.5), 1.86 (H-6β, bd, 15, 8, 5.5), 5.40 (H-7, bs), 2.23 (H-8, H-9, m), 1.13 (H-10, d, 6), 4.73 (H-1′, d, 7.5)[a], 3.62–3.24 (H-2′–H-5′, H-2‴–H-5‴, m), 3.93 (H-6′, dd, 12, 1.5), 3.70 (H-6′, dd, 12, 5.5), 6.63 (H-4″, dd, 8, 1.5), 6.53 (H-5″, dd, 8, 8), 6.47 (H-6″, dd, 8, 1.5), 4.70 (H-1‴, d, 8.5)[a], 4.52 (H-6‴, dd, 12, 1.5), 4.26 (H-6‴, dd, 12, 7), 7.00 (H-4⁗, dd, 8, 1.5), 6.73 (H-5⁗, dd, 8, 8), 7.32 (H-6⁗, dd, 8, 1.5); (CD_3OD) 97.3 (C-1), 152.3 (C-3), 114.1 (C-4), 32.3 (C-5), 40.3 (C-6), 80.1 (C-7), 41.0 (C-8), 47.1 (C-9), 13.5 (C-10), 168.6 (C-11), 100.2 (C-1′), 74.7 (C-2′), 78.3 (C-3′)[b], 71.5 (C-4′), 77.9 (C-5′)[b], 62.7 (C-6′), 136.5 (C-1″), 147.3 (C-2″), 147.1 (C-3″), 120.1 (C-4″), 109.9 (C-5″), 111.9 (C-6″), 104.0 (C-1‴), 74.7 (C-2‴), 77.5 (C-3‴), 71.9 (C-4‴), 75.5 (C-5‴), 64.5 (C-6‴), 171.2 (O=C), 113.1 (C-1⁗), 151.3 (C-2⁗), 147.0 (C-3⁗), 121.7 (C-4⁗), 120.0 (C-5⁗), 121.1 (C-6⁗). *Gentiana depressa* (Gentianaceae) (221)

297. SYRINGOPICROSIDE B



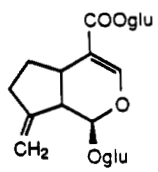
$C_{24}H_{30}O_{12}$ 510.49 hexaacetate mp 76–78° [α] −81.1° ($CHCl_3$) (hexaacetate 60 MHz $CDCl_3$) 5.43 (H-1, bs), 7.31 (H-3, bs), 1.14 (H-10, d, 6.2), 4.31 (Hα, t, 6.8), 2.94 (Hβ, t, 6.8), 7.15–6.83 (H-2″, H-5″, H-6″), 2.29 (ArOAc), 2.09, 2.03, 2.00, 1.80 (OAc); (hexaacetate $CDCl_3$) 93.5 (C-1), 151.0 (C-3), 111.1 (C-4), 26.5 (C-5), 41.9 (C-6)[a], 217.6 (C-7), 43.0 (C-8)[a], 45.1 (C-9)[a], 13.2 (C-10), 166.3 (C-11), 96.1 (C-1′), 70.7 (C-2′), 72.5 (C-3′), 68.5 (C-4′), 72.5 (C-5′), 61.8 (C-6′), 64.4 (Cα), 34.5 (Cβ), 136.8 (C-1″), 123.8 (C-2″), 142.4 (C-3″), 141.2 (C-4″), 124.1 (C-5″), 127.0 (C-6″), 20.6, 20.1 (O=C*Me*), 170.8, 170.4, 169.7, 169.3, 168.4 (O=C*Me*). *Syringa reticulata* (Oleaceae) (222)

298. SYRINGOPICROSIDE C



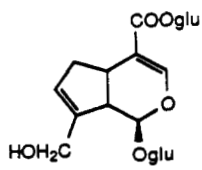
$C_{25}H_{32}O_{13}$ 540.52 hexaacetate mp 74–76° [α] −86.9° ($CHCl_3$) (hexaacetate 60 MHz $CDCl_3$) 5.45 (H-1, bs), 7.35 (H-3, bs), 1.14 (H-10, d, 6.2), 7.30–7.00 (H-2″, H-5″, H-6″), 3.30 (OMe), 2.29 (ArOAc), 2.09, 2.03, 2.00, 1.85 (OAc); (hexaacetate $CDCl_3$) 93.6 (C-1), 151.2 (C-3), 111.0 (C-4), 26.5 (C-5), 41.9 (C-6)[a], 217.6 (C-7), 43.0 (C-8)[a], 45.1 (C-9)[a], 13.2 (C-10), 166.3 (C-11), 96.1 (C-1′), 70.7 (C-2′), 72.5 (C-3′), 68.5 (C-4′), 72.5 (C-5′), 61.8 (C-6′), 67.4 (Cα), 80.8 (Cβ), 127.0 (C-1″), 122.3 (C-2″), 142.7 (C-3″), 137.1 (C-4″), 124.0 (C-5″), 125.0 (C-6″), 57.4 (OMe), 20.6, 20.1 (O=C*Me*), 170.9, 170.4, 169.7, 169.4, 168.4 (O=*C*Me). *Syringa reticulata* (Oleaceae) (222)

299. ASYSTASIOSIDE C



$C_{22}H_{32}O_{14}$ 520.49 (500 MHz D_2O) 5.59 (H-1, d, 4.6), 7.72 (H-3, d, 0.7), 3.11 (H-5, q, 6), 2.07, 1.82 (H-6, m's), 2.39 (H-7), 2.98 (H-9, m), 5.19, 5.17 (H-10, m's), 4.90 (H-1′, d, 8), 5.65 (H-1″, d, 8.1); (D_2O) 97.2 (C-1), 155.2 (C-3), 112.2 (C-4), 31.0 (C-5), 30.5 (C-6), 34.2 (C-7), 150.6 (C-8), 45.8 (C-9), 109.9 (C-10), 168.4 (C-11), 99.5 (C-1′), 73.5 (C-2′), 76.5 (C-3′), 70.4 (C-4′), 77.2 (C-5′), 61.5 (C-6′), 94.6 (C-1″), 72.8 (C-2″), 76.4 (C-3″), 70.0 (C-4″), 77.6 (C-5″), 61.3 (C-6″). *Asystasia bella* (Acanthaceae) (41)

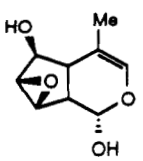
300. ASYSTASIOSIDE D



$C_{22}H_{32}O_{15}$ 536.49 (250 MHz D_2O) 5.30 (H-1, d, 6.8), 7.71 (H-3, d, 0.7), 3.22 (H-5, q, 7.5), 2.85, 2.16 (H-6, m's), 5.84 (H-7, m), 2.85 (H-9), 4.25, 4.22 (H-10, d's, 14), 4.80 (H-1′, d, 8), 5.60 (H-1″, d, 7.6); (D_2O) 98.3 (C-1), 155.6 (C-3), 111.6 (C-4), 35.1 (C-5), 38.9 (C-6), 130.2 (C-7), 142.1 (C-8), 46.6 (C-9), 60.7 (C-10), 168.6 (C-11), 99.8 (C-1′), 73.7 (C-2′), 76.6 (C-3′), 70.4 (C-4′), 77.1 (C-5′), 61.5 (C-6′), 94.7 (C-1″), 72.9 (C-2″), 76.5 (C-3″), 70.1 (C-4″), 77.7 (C-5″), 61.4 (C-6″). *Asystasia bella* (Acanthaceae) (41)

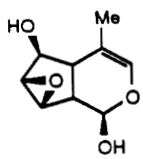
Group 4 (iridoid aglycones)

301. α-DEUTZIOGENIN



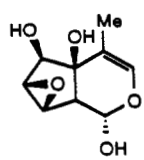
$C_9H_{12}O_4$ 184.19 mp 145–153° (dec) (90 MHz D_2O) 5.41 (H-1, d, 3.5), 5.98 (H-3, s, fine structure), 2.1–2.7 (H-5), 4.18 (H-6, d, 7.5), 3.7–3.5 (H-7, H-8), 2.72 (H-9, dd, 8.3, 3.5), 1.56 (H-11, s, fs); (D_2O) 89.4 (C-1), 133.0 (C-3), 113.0 (C-4), 38.3 (C-5), 77.9 (C-6), 61.1 (C-7), 57.6 (C-8), 41.6 (C-9), 16.6 (C-11); *Deutzia scabra* (Saxifragaceae/Hydrangeaceae) (223)

302. β-DEUTZIOGENIN



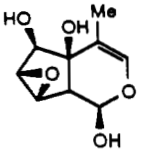
$C_9H_{12}O_4$ 184.19 mp 145–153° (dec) (90 MHz D_2O) 4.60 (H-1, d, 10), 6.10 (H-3, s, fine structure), 1.96 (H-5, bt, 7.7, 7.5), 4.05 (H-6, dd, 7.5, 1.5), 3.7–3.5 (H-7, H-8), 2.40 (H-9, dd, 10, 7.7), 1.56 (H-11, s, fs); (D_2O) 93.5 (C-1), 135.9 (C-3), 113.0 (C-4), 41.1 (C-5), 78.5 (C-6), 59.5 (C-7), 56.7 (C-8), 44.1 (C-9), 16.1 (C-11). *Deutzia scabra* (Saxifragaceae/Hydrangeaceae) (223, 224)

303. α-SCABROGENIN



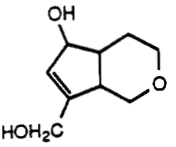
$C_9H_{12}O_5$ 200.19 (90 MHz D_2O) 5.54 (H-1, d, 3.8), 6.13 (H-3, s, fine structure), 4.30 (H-6), 3.8–3.6 (H-7, H-8), 2.78 (H-9, d, 3.8), 1.60 (H-11, s, fs); (D_2O) 91.4 (C-1), 136.4 (C-3), 113.9 (C-4), 72.2 (C-5), 77.3 (C-6), 60.9 (C-7), 56.4 (C-8), 50.0 (C-9), 11.8 (C-11). *Deutzia scabra* (Saxifragaceae) (223)

304. β-SCABROGENIN



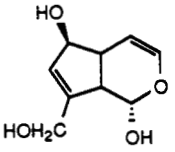
$C_9H_{12}O_5$ 200.19 (90 MHz D_2O) 4.82 (H-1, d, 10.5), 6.20 (H-3, s, fine structure), 4.34 (H-6, d, 1.5), 3.8–3.6 (H-7, H-8), 2.52 (H-9, d, 10.5), 1.60 (H-11, s, fs); (D_2O) 94.5 (C-1), 138.2 (C-3), 115.2 (C-4), 74.1 (C-5), 77.6 (C-6), 59.6 (C-7), 56.0 (C-8), 52.3 (C-9), 11.5 (C-11). *Deutzia scabra* (Saxifragaceae) (223)

305. compound not named (1-DEHYDROXY-3,4-DIHYDROAUCUBIGENIN)



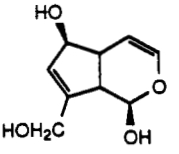
$C_9H_{14}O_3$ 170.21 [α] +181.0° (MeOH) (diacetate, ? MHz $CDCl_3$) 3.75 (H-1, dd, 14.4, 6.6), 3.67 (H-1, dd, 14.4, 6.4), 4.19 (H-3, m), 1.87–1.73 (H-4, m), 3.08 (H-5, m), 5.05 (H-6, d, 5.8), 5.75 (H-7, bs), 3.08 (H-9, m), 4.65 (H-10, d, 14), 4.59 (H-10, d, 14), 2.08, 2.07 (OAc); (pyridine-d_5) 61.8 (C-1)[a], 60.5 (C-3)[a], 28.5 (C-4), 43.6 (C-5), 87.3 (C-6), 126.2 (C-7), 150.5 (C-8), 49.6 (C-9), 67.4 (C-10). *Scrophularia ningpoensis* (Scrophulariaceae) (225)

306. α-AUCUBIGENIN



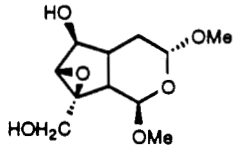
$C_9H_{12}O_4$ 184.19 mp 110° (α + β, 1:6) (300 MHz D_2O) 5.30 (H-1, d, 3.3), 6.16 (H-3, dd), 4.47 (H-6, sext), 5.67 (H-7); (D_2O) 92.2 (C-1), 140.2 (C-3), 105.3 (C-4), 43.7 (C-5), 81.4 (C-6), 131.0 (C-7), 147.4 (C-8), 47.2 (C-9), 60.7 (C-10). Hydrolysis of aucubin (226)

307. β-AUCUBIGENIN



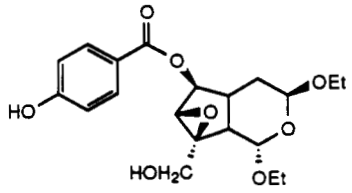
$C_9H_{12}O_4$ 184.19 mp 110° (β + α, 6:1) (300 MHz D_2O) 4.71 (H-1, d, 6.7), 6.23 (H-3, dd, 6, 1.5), 5.03 (H-4, dd, 6, 3.5), 2.56 (H-5, m), 4.42 (H-6, sext), 5.69 (H-7, bs), 2.73 (H-9, bt, 6.7), 4.15 (H-10, dd, 15); (D_2O) 95.3 (C-1), 141.3 (C-3), 105.3 (C-4), 45.1 (C-5), 82.0 (C-6), 129.7 (C-7), 147.4 (C-8), 48.7 (C-9), 60.7 (C-10). Hydrolysis of aucubin (226, 227)

308. ECCREMOCARPOL A



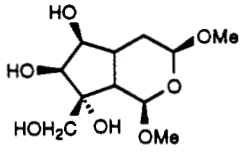
$C_{11}H_{18}O_6$ 246.26 [α] −29° (MeOH) (400 MHz CD_3OD) 4.94 (H-1, d, 4), 4.72 (H-3, dd, 7.5, 3), 1.92 (H-4, ddd, 14, 5, 3), 1.87 (H-4, dd, 14, 7.5), 1.98 (H-5, ddd, 8, 5, 1), 4.07 (H-6, dd, 8, 1), 2.77 (H-9, dd, 8, 4), 3.97/3.56 (H-10, d's, 13), 3.46, 3.40 (OMe); (CD_3OD) 98.7 (C-1), 95.3 (C-3), 29.1 (C-4), 35.6 (C-5), 77.4 (C-6), 60.9 (C-7), 63.2 (C-8), 40.6 (C-9), 60.7 (C-10), 55.4, 54.4 (OMe). *Eccremocarpus scaber* (Bignoniaceae) (228)

309. SPECIONIN



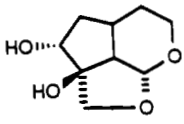
$C_{20}H_{26}O_8$ 394.42 uv 254 (MeOH) (360 MHz $CDCl_3$) 5.06 (H-1, d, 4), 4.89 (H-3, dd, 6.9, 3), 2.00/1.87 (H-4, m, 13.9, 7.2, 6.9, 5.1, 3), 2.45 (H-5, m, 8.4, 8.2, 7.2, 5.1), 5.37 (H-6, dd, 8.4, 1.4), 3.77 (H-7, d, 1.4), 2.81 (H-9, dd, 8.2, 4.0), 4.02/3.74 (H-10, d's, 12.5), 3.87/3.85 (OCH_2CH_3, d, 9.4), 3.51/3.48 (OCH_2CH_3, d, 8.5), 1.24/1.21 (OCH_2CH_3, 7), 7.98 (H-2′, d, 8.7), 6.87 (H-3′, d, 8.7); (? solv) 97.7 (C-1), 94.8 (C-3), 30.4 (C-4), 34.2 (C-5), 80.7 (C-6), 61.2 (C-7), 67.3 (C-8), 41.2 (C-9), 61.4 (C-10), 64.8, 64.0 (OCH_2CH_3), 15.6, 15.5 (OCH_2CH_3), 168.2 (O=C), 121.5 (C-1′), 132.8 (C-2′), 116.3 (C-3′), 164.0 (C-4′). *Catalpa speciosa* (Bignoniaceae) (229, 230)

310. ECCREMOCARPOL B



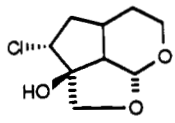
$C_{11}H_{20}O_7$ 264.27 [α] −18.5° (MeOH) (400 MHz CD_3OD) 5.14 (H-1, d, 3), 5.07 (H-3, dd, 3.5, 1), 2.38 (H-4, ddd, 14, 10, 1), 1.66 (H-4, dd, 14, 3.5), 2.57 (H-5, ddd, 14, 4.5, 1), 4.10 (H-6, d, 6.5), 3.99 (H-7, d, 6.5), 2.65 (H-9, dd, 4.5, 3), 3.84 (H-10), 3.50, 3.46 (OMe); (CD_3OD) 97.0 (C-1), 91.1 (C-3), 35.0 (C-4), 36.7 (C-5), 76.9 (C-6), 75.9 (C-7), 81.2 (C-8), 37.3 (C-9), 63.8 (C-10), 55.4, 54.4 (OMe). *Eccremocarpus scaber* (Bignoniaceae) (228)

311. CISTANIN



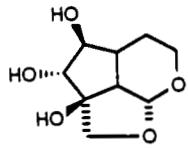
$C_9H_{14}O_4$ 186.21 mp 123–124° [α] +62.6° (MeOH) (400 MHz pyridine-d_5) 5.76 (H-1, d, 6), 4.18 (H-3α, ddd, 12, 11, 2), 3.57 (H-3β, ddd, 11, 4, 2), 1.28 (H-4α, bd, 14), 1.83 (H-4β, m), 2.38 (H-5, m), 1.96 (H-6α, ddd, 12, 12, 6), 2.19 (H-6β, ddd, 12, 12, 12), 4.77 (H-7, ddd, 12, 6, 1.5), 2.51 (H-9, dd, 9, 6), 5.22 (H-10α, d, 10), 3.99 (H-10β, dd, 10, 1.5); (pyridine-d_5) 101.4 (C-1), 55.5 (C-3), 25.0 (C-4), 26.9 (C-5), 37.0 (C-6), 79.2 (C-7), 88.7 (C-8), 47.1 (C-9), 71.5 (C-10). *Cistanche salsa* (Orobanchaceae) (231)

312. CISTACHLORIN



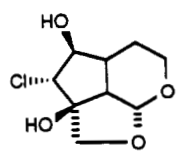
$C_9H_{13}ClO_3$ 204.65 mp 66–67° [α] +59.1° (MeOH) (400 MHz pyridine-d_5) 5.72 (H-1, d, 6), 4.03 (H-3α, ddd, 12, 11, 2), 3.54 (H-3β, ddd, 11, 4, 2), 1.23 (H-4α, bd, 14), 1.77 (H-4β, m), 2.35 (H-5, m), 2.00 (H-6α, ddd, 12, 12, 6), 2.13 (H-6β, ddd, 12, 12, 12), 4.65 (H-7, ddd, 12, 6, 1.5), 2.52 (H-9, dd, 9, 6), 4.84 (H-10α, d, 10), 3.99 (H-10β, dd, 10, 1.5); (pyridine-d_5) 101.6 (C-1), 55.4 (C-3), 24.4 (C-4), 28.8 (C-5), 38.8 (C-6), 67.7 (C-7), 88.8 (C-8), 47.2 (C-9), 73.5 (C-10). *Cistanche salsa* (Orobanchaceae) (231)

313. REHMAGLUTIN A



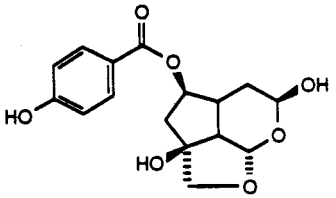
$C_9H_{14}O_5$ 202.21 mp 134–136° [α] +43.6° (MeOH) triacetate mp 128–130° (triacetate 500 MHz $CDCl_3$) 5.34 (H-1, d, 5.2), 4.07 (H-3α, ddd, 12.8, 11.9, 2.4), 3.63 (H-3β, dd, 11.9, 4.9), 1.46 (H-4α, bd, 14.6), 1.78 (H-4β, dddd, 14.6, 12.8, 5.2, 4.9), 2.64 (H-5, ddd, 11, 9.8, 5.2), 5.44 (H-6, dd, 11, 9.5), 5.85 (H-7, dd, 9.5, 1.5), 2.74 (H-9, dd, 9.8, 5.2), 4.59 (H-10α, d, 10.5), 3.59 (H-10β, dd, 10.5, 1.5); (Me_2CO-d_6) 101.0 (C-1), 56.4 (C-3), 22.4 (C-4), 34.9 (C-5), 75.4 (C-6), 85.0 (C-7), 85.2 (C-8), 44.9 (C-9), 71.0 (C-10); (triacetate Me_2CO-d_6) 99.1 (C-1), 55.5 (C-3), 21.1 (C-4), 32.5 (C-5), 73.1 (C-6), 78.0 (C-7), 88.6 (C-8), 41.3 (C-9), 67.5 (C-10). *Rehmannia glutinosa* (Scrophulariaceae) (232)

314. REHMAGLUTIN D



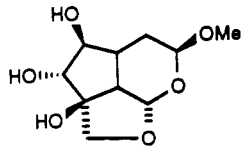
$C_9H_{13}ClO_4$ 220.65 mp 132–133° [α] +60.6° (MeOH) diacetate mp 96–97° (diacetate 500 MHz $CDCl_3$) 5.46 (H-1, d, 5.2), 4.06 (H-3α, ddd, 12.2, 12.0, 2.1), 3.62 (H-3β, dd, 12, 5.2), 1.47 (H-4α, bd, 14.3), 1.77 (H-4β, dddd, 14.3, 12.2, 5.2, 4.6), 2.56 (H-5, ddd, 10.4, 9.8, 4.6), 5.39 (H-6, dd, 10.4, 10.4), 4.81 (H-7, dd, 10.4, 1.5), 2.85 (H-9, dd, 9.8, 5.2), 4.61 (H-10α, d, 10.7), 3.74 (H-10β, dd, 10.7, 1.5); (Me_2CO-d_6) 101.3 (C-1), 56.3 (C-3), 22.3 (C-4), 39.0 (C-5), 73.0 (C-6), 75.3 (C-7), 85.5 (C-8), 46.2 (C-9), 76.4 (C-10), (diacetate Me_2CO-d_6) 101.2 (C-1), 56.3 (C-3), 21.1 (C-4), 35.8 (C-5), 75.6 (C-6), 67.5 (C-7), 90.5 (C-8), 42.7 (C-9), 69.5 (C-10). *Rehmannia glutinosa* (Scrophulariaceae) (232)

315. CATALPIN



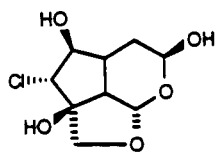
$C_{16}H_{18}O_7$ 322.31 mp 93–94° uv 258 (MeOH) (400 MHz CD_3OD) 5.51 (H-1, d, 5.4), 5.38 (H-3, dd, 7.5, 3.6), 1.92 (H-4α, ddd, 11.5, 3.6, 3.6), 1.55 (H-4β, ddd, 11.5, 7.5, 3.6), 2.69 (H-5, dddd, 11.5, 6.5, 3.6, 3.6), 5.26 (H-6, ddd, 8.2, 7.8, 6.5), 2.54 (H-7α, dd, 11.0, 7.8), 2.01 (H-7β, ddd, 11.0, 8.2, 1.5), 2.48 (H-9, dd, 11.5, 5.4), 3.90 (H-10α, d, 10.8), 3.76 (H-10β, dd, 10.8, 1.5), 7.88 (H-2′, d, 8.8), 6.82 (H-3′, d, 8.8); (Me_2CO-d_6) 101.3 (C-1), 90.1 (C-3), 30.1 (C-4), 41.0 (C-5), 76.6 (C-6), 45.9 (C-7), 85.2 (C-8), 51.5 (C-9), 79.3 (C-10), 122.9 (C-1′), 133.6 (C-2′), 116.5 (C-3′), 163.2 (C-4′), 167.0 (C=O). *Catalpa ovata* (Bignoniaceae) (233)

316. JIOGLUTIN C



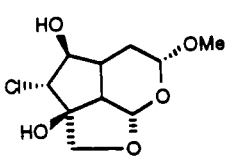
$C_{10}H_{16}O_6$ 232.23 [α] +58.1° (MeOH) (500 MHz CD_3OD) 5.43 (H-1, d, 5.3), 4.87 (H-3, dd, 8.1, 4.7), 2.01 (H-4, ddd, 14.1, 4.7, 2.6), 1.46 (H-4, ddd, 14.1, 8.1, 5.7), 2.15 (H-5, dddd, 10.4, 10.3, 5.7, 2.6), 3.61 (H-6, dd, 10.4, 8.9), 3.81 (H-7, dd, 8.9, 1.1), 2.29 (H-9, dd, 10.3, 5.3), 4.21 (H-10α, d, 10.1), 3.52 (H-10β, 10.1, 1.1), 3.41 (OMe); (CD_3OD) 101.2 (C-1), 97.6 (C-3), 27.7 (C-4), 36.5 (C-5), 77.6 (C-6), 84.9 (C-7), 86.0 (C-8), (C-9 under solv), 73.6 (C-10), 56.0 (OMe). *Rehmannia glutinosa* var. *hueichingensis* (Scrophulariaceae) (234)

317. REHMAGLUTIN B



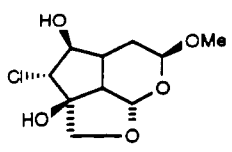
$C_9H_{13}ClO_5$ 236.65 mp 152–153° [α] +33.8° (MeOH) diacetate mp 147–148° (diacetate 500 MHz $CDCl_3$) 5.59 (H-1, d, 4.9), 6.41 (H-3, dd, 7.3, 6.4), 1.63 (H-4α, ddd, 14.7, 7.3, 4.9), 2.11 (H-4β, ddd, 14.7, 6.4, 3.8), 2.47 (H-5, dddd, 10.5, 10.1, 4.9, 3.8), 5.20 (H-6, dd, 10.1, 10.1), 4.25 (H-7, d, 10.1), 2.71 (H-9, dd, 10.5, 4.9), 4.34 (H-10α, d, 11), 3.86 (H-10β, d, 11); (Me_2CO-d_6) 102.1 (C-1), 85.8 (C-3), 32.4 (C-4), 38.9 (C-5), 74.8 (C-6), 78.1 (C-7), 89.9 (C-8), 48.4 (C-9), 74.3 (C-10), (diacetate Me_2CO-d_6) 100.6 (C-1), 86.2 (C-3), 26.7 (C-4), 36.4 (C-5), 79.0 (C-6), 70.1 (C-7), 90.8 (C-8), 52.8 (C-9), 76.6 (C-10). *Rehmannia glutinosa* (Scrophulariaceae) (232)

318. JIOGLUTIN B (3-*epi*-Jioglutin A)



$C_{10}H_{15}ClO_5$ 250.68 [α] −63.2° (MeOH) (500 MHz CD_3OD) 5.48 (H-1, d, 6.6), 4.72 (H-3, dd, 4.4, 2.6), 1.87 (H-4, ddd, 14.7, 2.6, 1.8), 1.77 (H-4, ddd, 14.7, 7.2, 4.4), 2.11 (H-5, dddd, 11.5, 10, 7.2, 1.8), 4.23 (H-6, dd, 10, 9.6), 3.92 (H-7, dd, 9.6, 0.8), 2.51 (H-9, dd, 11.5, 6.6), 4.10 (H-10α, d, 10.1), 3.63 (H-10β, dd, 10.1, 0.8), 3.39 (OMe); (CD_3OD) 101.3 (C-1), 98.5 (C-3), 26.8 (C-4), 35.4 (C-5), 80.4 (C-6), 72.5 (C-7), 87.8 (C-8), 46.7 (C-9), 75.4 (C-10), 55.7 (OMe). *Rehmannia glutinosa* var. *hueichingensis* (Scrophulariaceae) (234)

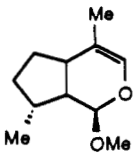
319. JIOGLUTIN A (3-*O*-Methylrehmaglutin B)



$C_{10}H_{15}ClO_5$ 250.68 [α] +63.3° (MeOH) (500 MHz CD_3OD) 5.46 (H-1, d, 5.3), 4.87 (H-3, dd, 7.6, 5.4), 2.07 (H-4, ddd, 14.5, 5.4, 2.6), 1.51 (H-4, ddd, 14.5, 7.6, 5.7), 2.21 (H-5, dddd, 10.3, 10.1, 5.7, 2.6), 3.75 (H-6, dd, 10.1, 9.8), 3.96 (H-7, dd, 9.8, 0.8), 2.45 (H-9, dd, 10.3, 5.3), 4.16 (H-10α, d, 10.4), 3.67 (H-10β, dd, 10.4, 0.8), 3.40 (OMe); (CD_3OD) 100.6 (C-1), 97.9 (C-3), 27.4 (C-4), 38.1

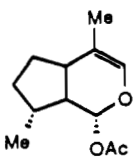
(C-5), 78.8 (C-6), 73.3 (C-7), 86.1 (C-8), 50.7 (C-9), 75.7 (C-10), 55.9 (OMe). *Rehmannia glutinosa* var. *hueichingensis* (Scrophulariaceae) (234)

320. (1*R*)-1-METHOXYMYODESERT-3-ENE (Myodesertin)



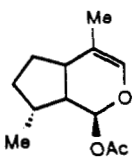
$C_{11}H_{18}O_2$ 182.26 bp 67° (2mm Hg) [α] −165° (EtOH/$CHCl_3$) uv 220 (EtOH) (100 MHz $CDCl_3$) 5.97 (H-1, m), 4.57 (H-3, d, 3.8), 1.03 (H-10, d, 7), 1.50 (H-11, m), 3.42 (OMe). *Myoporum deserti* (Myoporaceae) (235, 236)

321. (1*R*)-1-ACETOXYMYODESERT-3-ENE



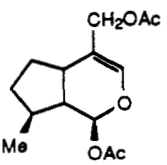
$C_{12}H_{18}O_3$ 210.27 mp 17° [α] +273° ($CHCl_3$) (100 MHz $CDCl_3$) 5.96 (H-1, q, 1.5), 6.19 (H-3, dd, 2.4, 0.5), 2.38–2.28, 2.28–2.19, 2.10–1.97, 1.92–1.78, 1.73–1.60, 1.43–1.29 (H-5–H-9, m's), 1.01 (H-10, d, 7), 1.60 (H-11, m), 2.06 (OAc); ($CDCl_3$) 89.7 (C-1), 132.7 (C-3), 114.2 (C-4), 39.0 (C-5), 32.3 (C-6), 30.7 (C-7), 36.5 (C-8), 42.7 (C-9), 17.1 (C-10)[a], 15.0 (C-11)[a], 169.7 (O=*C*Me), 21.5 (O=C*Me*). *Myoporum deserti* (Myoporaceae) (237)

322. (1*S*)-1-ACETOXYMYODESERT-3-ENE



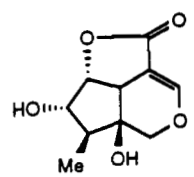
$C_{12}H_{18}O_3$ 210.27 [α] −183° ($CHCl_3$) (100 MHz $CDCl_3$) 6.04 (H-1, d, 3.8), 6.00 (H-3, q, 1.5), 2.53–2.44, 2.29–2.18, 1.80–1.58, 1.35–1.18 (H-5–H-9, m's), 1.02 (H-10, d, 7.1), 1.54 (H-11, m), 2.07 (OAc); ($CDCl_3$) 90.8 (C-1), 134.7 (C-3), 113.4 (C-4), 37.0 (C-5), 32.8 (C-6), 29.1 (C-7), 35.3 (C-8), 42.7 (C-9), 16.3 (C-10)[a], 16.0 (C-11)[a], 169.8 (O=*C*Me), 21.2 (O=C*Me*). *Myoporum deserti* (Myoporaceae) (237)

323. TEUCREIN



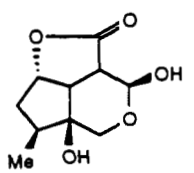
$C_{14}H_{20}O_5$ 268.31 bp 125–130° (0.5 mm Hg) [α] −73.5° (C_6H_6) (? MHz $CDCl_3$) 5.87 (H-1, d, 4.3), 6.30 (H-3, s), 2.66 (H-5, m), 1.07 (H-10, d, 5.5), 4.66, 4.24 (H-11, d's, 11.9), 2.10, 2.04 (OAc); ($CDCl_3$) 91.5 (C-1), 140.0 (C-3), 112.8 (C-4), 48.0 (C-5), 32.9 (C-6), 30.0 (C-7), 35.0 (C-8), 35.0 (C-9), 20.2 (C-10), 63.9 (C-11), 170.2, 169.2 (O=*C*Me), 20.9, 20.8 (O=C*Me*). *Teucrium marum* (Labiatae) (238)

324. GELSEMIDE



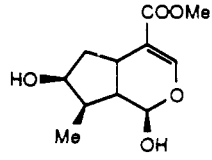
$C_{10}H_{12}O_5$ 212.20 mp 179–180° [α] −343° (MeOH) (270 MHz D_2O) 4.25/3.95 (H-1, 11.9), 7.53 (H-3, d, 2.5), 3.44 (H-5, dd, 7.3, 2.5), 5.12 (H-6, t, 7.2), 4.14 (H-7, dd, 10.5, 7.2), 1.98 (H-8, dq, 10.5, 6.8), 1.11 (H-10, d, 6.8); (D_2O) 67.3 (C-1), 154.0 (C-3), 102.5 (C-4), 47.5 (C-5), 80.3 (C-6), 78.8 (C-7), 42.1 (C-8), 72.3 (C-9), 9.7 (C-10), 174.5 (C-11). *Gelsemium sempervirens* (Loganiaceae) (239)

325. 9-HYDROXYSEMPEROSIDE AGLUCONE



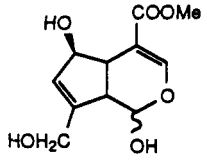
$C_{10}H_{14}O_5$ 214.22 (90 MHz $CDCl_3$) 3.91/3.47 (H-1, 13), 5.52 (H-3, bs), 2.98 (H-4, H-5, d-like), 5.06 (H-6, q-like, 4.5), 2.35–1.75 (H-7, H-8), 0.98 (H-10, d, 5.5); ($CDCl_3$/CD_3OD) 57.9 (C-1), 89.0 (C-3), 43.7 (C-4), 46.0 (C-5), 82.9 (C-6), 37.4 (C-7), 35.2 (C-8), 72.7 (C-9), 9.1 (C-10), 176.0 (C-11). Enzymatic hydrolysis of 9-hydroxysemperoside (239)

326. LOGANETIN



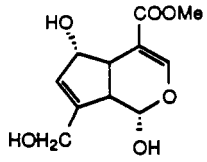
$C_{11}H_{16}O_5$ 228.24 uv 230 (MeOH) (200 MHz $CDCl_3$) 4.96 (H-1 and OH, m), 7.44 (H-3, s), 3.16 (H-5, bq, 8), 1.57 (H-6α, m, 14, 8.5, 4), 2.58 (H-6β, dd, 13, 7.5), 4.15 (H-7, m), 1.95 (H-8, H-9, m), 1.14 (H-10, d, 7.5), 3.74 (OMe); (D_2O) 96.3 (C-1), 153.4 (C-3), 112.2 (C-4), 32.1 (C-5), 41.5 (C-6), 74.8 (C-7), 41.5 (C-8), 46.8 (C-9), 13.7 (C-10), 170.9 (C-11), 52.6 (OMe). Hydrolysis of loganin, *Gentiana verna* (Gentianaceae) (240, 241)

327. DEACETYLASPERULOSIDIC ACID METHYL ESTER AGLYCONE



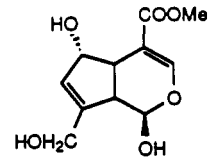
$C_{11}H_{14}O_6$ 242.23 triacetate [α] +118.0° ($CHCl_3$) uv 234 (MeOH) (triacetate 60 MHz $CDCl_3$) 5.68 (H-1, d, 10), 7.57 (H-3, d, 2), 3.19 (H-5, ddd, 8, 6.4, 2), 5.73 (H-6, dd, 6.4, 3), 6.15 (H-7, bs), 2.75 (H-9, d, 10, 8), 4.68 (H-10, bs), 3.71 (COOMe), 2.17–1.94 (OAc). *Randia canthioides* (Rubiaceae) (242)

328. 6α-HYDROXY-1-*epi*-GENIPIN



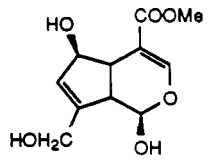
$C_{11}H_{14}O_6$ 242.23 from 1α,1β-mixture (100 MHz CD_3OD) 4.82 (H-1, d, 7), 7.62 (H-3, s), 2.95 (H-5, bt, 7), 5.96 (H-7, bs), 2.37 (H-9, bt, 8), 4.46 (H-10, m), 3.70 (COOMe); (CD_3OD) 90.8 (C-1), 154.7 (C-3), 108.1 (C-4), 39.4 (C-5), 75.3 (C-6), 130.3 (C-7), 150.1 (C-8), 45.6 (C-9), 61.8 (C-10), 169.8 (C-11). Enzymatic hydrolysis of 6α-hydroxygeniposide (243)

329. 6α-HYDROXYGENIPIN



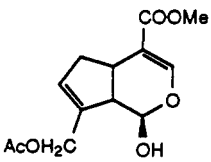
$C_{11}H_{14}O_6$ 242.23 from 1α,1β-mixture (100 MHz CD_3OD) 5.50 (H-1, d, 4), 7.51 (H-3, s), 2.95 (H-5, bt, 7), 5.96 (H-7, bs), 2.37 (H-9, bt, 8), 4.46 (H-10, m), 3.70 (COOMe); (CD_3OD) 100.6 (C-1), 156.4 (C-3), 107.4 (C-4), 43.0 (C-5), 75.6 (C-6), 129.7 (C-7), 151.8 (C-8), 47.8 (C-9), 61.4 (C-10), 169.4 (C-11). Enzymatic hydrolysis of 6α-hydroxygeniposide (243)

330. 6β-HYDROXYGENIPIN (Scandoside methyl ester aglucone)



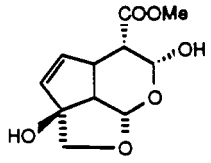
$C_{11}H_{14}O_6$ 242.23 [α] +396° (MeOH) uv 239 (MeOH) (100 MHz CD_3OD) 4.74 (H-1, d, 8), 7.54 (H-3, s), 2.90 (H-5, m), 5.80 (H-7, bs), 2.90 (H-9, m), 4.22 (H-10, m), 3.76 (COOMe); (CD_3OD) 98.5 (C-1), 155.0 (C-3), 110.0 (C-4), 47.0 (C-5), 83.0 (C-6), 130.1 (C-7), 148.0 (C-8), 47.0 (C-9), 61.5 (C-10), 171.0 (C-11). Enzymatic hydrolysis of 6β-hydroxygeniposide (243)

331. 10-*O*-ACETYLGENIPIN



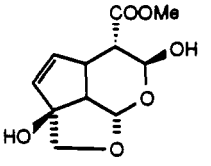
$C_{13}H_{16}O_6$ 268.27 [α] +48.2° ($CHCl_3$) uv 240 (MeOH) (60 MHz $CDCl_3$) 7.52 (H-3, d, 1.0), 5.75 (H-7, m), 3.71 (COOMe), 2.10 (OAc). Enzymatic hydrolysis of 10-*O*-acetylgeniposide (205)

332. GARDENOGENIN A



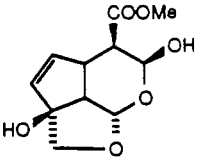
$C_{11}H_{14}O_6$ 242.23 mp 141–143° [α] +117.5° (MeOH) (360 MHz CD_3OD) 5.50 (H-1, d, 5.8), 5.38 (H-3, d, 2.6), 2.69 (H-4, dd, 9.4, 2.6), 3.54 (H-5, tt, 9.4, 9.4, 2.2, 2), 5.92 (H-6, dd, 5.4, 2.2), 5.74 (H-7, dd, 5.4, 2), 2.67 (H-9, dd, 9.4, 5.8), 3.79, 3.54 (H-10, d's, 9.3), 3.72 (COOMe); (CD_3OD) 90.3 (C-1), 101.1 (C-3), 49.5 (C-4), 48.3 (C-5), 138.0 (C-6), 135.5 (C-7), 93.9 (C-8), 40.5 (C-9), 74.7 (C-10), 172.9 (C-11), 52.5 (OMe). Enzymatic hydrolysis of gardenoside (244)

333. GARDENOGENIN B (α-Gardiol)



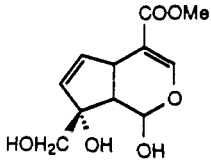
$C_{11}H_{14}O_6$ 242.23 [α] +152° (MeOH) (360 MHz CD_3OD) 5.55 (H-1, d, 5.7), 5.18 (H-3, d, 8.6), 2.71 (H-4, dd, 8.6, 5.4), 3.54 (H-5, m, 8.5, 5.4), 5.81 (H-6, d, 5.8), 5.79 (H-7, d, 5.8), 2.64 (H-9, d, 8.5, 5.7), 3.94/3.78 (H-10, d's, 9.8), 3.74 (COOMe); (D_2O) 101.2 (C-1), 90.3 (C-3), 47.3 (C-4), 43.4 (C-5), 135.7 (C-6, C-7), 93.0 (C-8), 51.1 (C-9), 75.8 (C-10), 174.4 (C-11), 53.6 (OMe). Enzymatic hydrolysis of gardenoside, *Rothmannia globosa* (Rubiaceae). Artifact from gardenoside? (244, 245)

334. β-GARDIOL



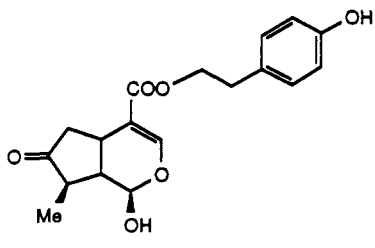
$C_{11}H_{14}O_6$ 242.23 mp 122–124° [α] +211° (MeOH) (100 MHz $CDCl_3$) 5.62 (H-1, d, 6.3), 5.37 (H-3, dd, 7.4, 2.1), 2.82 (H-4, dd, 6.4, 2), 3.7 (H-5, m), 5.97 (H-6, dd, 5.1, 1.8), 5.87 (H-7, dd, 5.4, 2.1), 2.70 (H-9, dd, 8.9, 6.3), 3.92/3.67 (H-10, 9.5), 3.82 (COOMe); (D_2O) 101.5 (C-1), 89.2 (C-3), 46.9 (C-4), 41.7 (C-5), 138.5 (C-6), 134.1 (C-7), 93.4 (C-8), 46.9 (C-9), 73.0 (C-10), 173.8 (C-11), 53.4 (OMe). *Rothmannia globosa* (Rubiaceae). Artifact from gardenoside? (245)

335. GALIOSIDE AGLUCONE



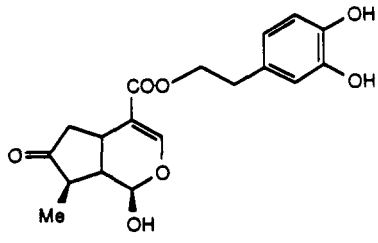
$C_{11}H_{14}O_6$ 242.23 mp 110–115° [α] +52.9° (MeOH) (200 MHz CD_3OD) (H-1 under HDO), 7.45 (H-3, d, 1.4), 3.53 (H-5, m), 6.08 (H-6, dd, 5.6, 2.3), 5.61 (H-7, dd, 5.6, 2.3), 3.55 (H-10, m), 3.72 (COOMe). Enzymatic hydrolysis of galioside (244)

336. SYRINGOPICROGENIN A



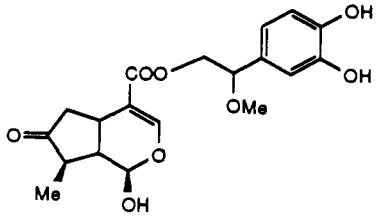
$C_{18}H_{20}O_6$ 332.35 diacetate [α] −75.0° ($CHCl_3$) (60 MHz $CDCl_3$) 6.29 (H-1, d, 2.1), 7.38 (H-3, d, 1.6), 1.18 (H-10, d, 6.6), 4.43 (Hα, t, 6.7), 2.95 (Hβ, t, 6.7), 7.11 (H-2′, H-3′, q, 8.8), 2.29 (ArOAc), 2.13 (C-1 OAc); ($CDCl_3$) 89.5 (C-1), 151.6 (C-3), 110.2 (C-4), 26.6 (C-5), 42.2 (C-6)[a], 217.1 (C-7), 43.2 (C-8)[a], 44.6 (C-9)[a], 13.1 (C-10), 166.3 (C-11), 64.8 (Cα), 34.6 (Cβ), 135.6 (C-1′), 130.0 (C-2′), 121.9 (C-3′), 149.8 (C-4′), 169.7, 169.5 (O=*C*Me), 21.1, 20.9 (O=C*Me*). *Syringa reticulata* (Oleaceae) (222)

337. SYRINGOPICROGENIN B



$C_{18}H_{20}O_7$ 348.35 triacetate [α] −65.2° ($CHCl_3$) (60 MHz $CDCl_3$) 6.29 (H-1, d, 2.1), 7.38 (H-3, d, 1.5), 1.17 (H-10, d, 6.4), 4.34 (Hα, t, 6.7), 2.95 (Hβ, t, 6.7), 7.17–7.00 (H-2′, H-5′, H-6′), 2.28 (ArOAc), 2.13 (C-1 OAc); ($CDCl_3$) 89.5 (C-1), 151.8 (C-3), 110.0 (C-4), 26.6 (C-5), 42.1 (C-6)[a], 217.2 (C-7), 43.2 (C-8)[a], 44.5 (C-9)[a], 13.1 (C-10), 166.3 (C-11), 64.5 (Cα), 34.5 (Cβ), 136.9 (C-1′), 123.6 (C-2′), 142.3 (C-3′), 141.1 (C-4′), 124.1 (C-6′), 127.1 (C-6′), 169.5, 168.6 (O=*C*Me), 20.8, 20.6 (O=C*Me*). *Syringa reticulata* (Oleaceae) (222)

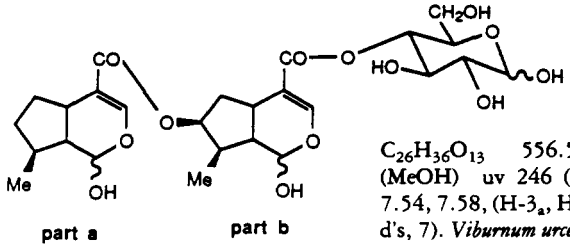
338. SYRINGOPICROGENIN C



$C_{19}H_{22}O_8$ 378.38 triacetate [α] −36.3° ($CHCl_3$) (triacetate 60 MHz $CDCl_3$) 6.30 (H-1, d, 2.1), 7.42 (H-3, d, 1.2), 1.18 (H-10, d, 6.6), 4.27 (Hα, m), 3.80 (Hβ, q, 5.1, 2.1), 7.30–7.00 (H-2′, H-5′, H-6′), 3.32 (OMe), 2.28 (ArOAc), 2.13 (C-1 OAc); (triacetate $CDCl_3$) 89.5 (C-1), 152.1 (C-3), 110.0 (C-4), 26.6 (C-5), 42.2 (C-6)[a], 217.2 (C-7), 43.2 (C-8)[a], 44.6 (C-9)[a], 13.1 (C-10), 166.3 (C-11), 67.4 (Cα), 80.9 (Cβ), 57.5 (OMe), 127.2 (C-1′), 122.2 (C-2′), 142.6 (C-3′), 137.2 (C-4′), 123.9 (C-5′), 125.1 (C-6′), 169.6, 168.4 (O=*C*Me), 20.8, 20.6 (O=C*Me*). *Syringa reticulata* (Oleaceae) (222)

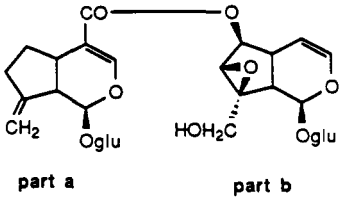
Group 5 (bis-iridoids and bis-iridoid aglycones)

339. URCEOLATOSIDE B



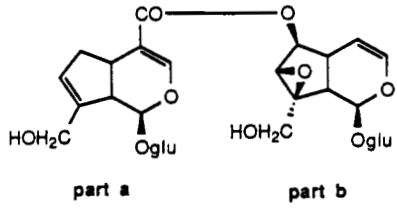
$C_{26}H_{36}O_{13}$ 556.56 mp 148–152° [α] −15° (MeOH) uv 246 (MeOH) (100 MHz pyridine-d_5) 7.54, 7.58, ($H\text{-}3_a$, $H\text{-}3_b$, s's), 0.8, 0.94 ($H\text{-}10_a$, $H\text{-}10_b$, d's, 7). *Viburnum urceolatum* (Caprifoliaceae) (220)

340. RADIATOSIDE C



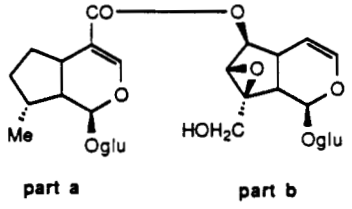
$C_{31}H_{42}O_{18}$ 702.66 [α] −125.3° (MeOH) uv 234 (MeOH) (400 MHz D_2O) 5.12 ($H\text{-}1_a$, d, 5.8), 7.38 ($H\text{-}3_a$, d, 1), 2.78 ($H\text{-}5_a$, m), 2.24–1.55 ($H\text{-}6_a$, $H\text{-}7_a$), 2.92 ($H\text{-}9_a$, dd, 8, 5.8), 5.00 ($H\text{-}10_a$, bdd, 6.3, 1.9), 4.78 ($H\text{-}1'_a$, d, 7.9), 4.97 ($H\text{-}1_b$, d, 9.5), 6.19 ($H\text{-}3_b$, dd, 6, 1.9), 4.82 ($H\text{-}4_b$, dd, 6, 3.5), 2.48 ($H\text{-}5_b$, m), 4.83 ($H\text{-}6_b$, dd, 7.9, 1), 3.73 ($H\text{-}7_b$, bs), 2.62 ($H\text{-}9_b$, dd, 9.5, 8), 3.89, 3.79 ($H\text{-}10_b$, 13.2), 4.68 ($H\text{-}1'_b$, d, 7.9); (CD_3OD) 96.6 ($C\text{-}1_a$), 150.4 ($C\text{-}3_a$), 111.0 ($C\text{-}4_a$), 31.1 ($C\text{-}5_a$), 30.9 ($C\text{-}6_a$), 36.1 ($C\text{-}7_a$), 154.4 ($C\text{-}8_a$), 45.7 ($C\text{-}9_a$), 110.0 ($C\text{-}10_a$), 169.4 ($C\text{-}11_a$), 99.4 ($C\text{-}1'_a$), 73.5 ($C\text{-}2'_a$), 77.4 ($C\text{-}3'_a$)[a], 70.3 ($C\text{-}4'_a$), 76.5 ($C\text{-}5'_a$)[a], 61.5 ($C\text{-}6'_a$), 95.0 ($C\text{-}1_b$), 141.7 ($C\text{-}3_b$), 103.2 ($C\text{-}4_b$), 34.3 ($C\text{-}5_b$), 80.4 ($C\text{-}6_b$), 60.3 ($C\text{-}7_b$), 67.2 ($C\text{-}8_b$), 42.2 ($C\text{-}9_b$), 60.4 ($C\text{-}10_b$), 99.1 ($C\text{-}1'_b$), 73.5 ($C\text{-}2'_b$), 77.0 ($C\text{-}3'_b$)[a], 70.3 ($C\text{-}4'_b$), 76.5 ($C\text{-}5'_b$)[a], 61.5 ($C\text{-}6'_b$). *Argylia radiata* (Bignoniaceae) (246)

341. RADIATOSIDE B



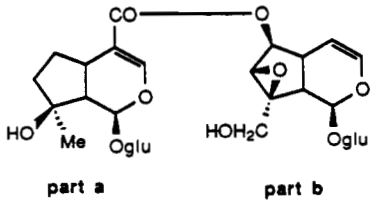
$C_{31}H_{42}O_{19}$ 718.66 [α] −138.6° (MeOH) uv 234 (MeOH) [400 MHz CD_3OD-$CDCl_3$ (2:8)] 5.09 (H-1_a, d, 7.2), 7.47 (H-3_a, d, 0.5), 2.72 (H-5_a, m), 1.98 (H-6_a, m), 5.68 (H-7_a, bs), 2.48 (H-9_a, t, 7.2), 4.19, 4.07 (H-10_a, 14), 4.99 (H-1_b, d, 9.5), 6.19 (H-3_b, dd, 6, 1.9), 4.82 (H-4_b, dd, 6, 3.5), 2.48 (H-5_b, m), 4.84 (H-6_b, dd, 7.9, 1), 3.73 (H-7_b, bs), 2.64 (H-9_b, dd, 9.5, 8), 3.91, 3.70 (H-10_b, 13.2); (CD_3OD) 98.0 (C-1_a), 154.2 (C-3_a), 109.9 (C-4_a), 35.0 (C-5_a), 36.2 (C-6_a), 130.0 (C-7_a), 141.6 (C-8_a), 46.9 (C-9_a), 61.4 (C-10_a), 169.3 (C-11_a), 99.4 (C-$1'_a$), 73.7 (C-$2'_a$), 77.1 (C-$3'_a$)[a], 70.4 (C-$4'_a$), 76.6 (C-$5'_a$)[a], 61.5 (C-$6'_a$), 96.4 (C-1_b), 141.2 (C-3_b), 102.5 (C-4_b), 33.8 (C-5_b), 80.5 (C-6_b), 60.7 (C-7_b), 67.2 (C-8_b), 42.3 (C-9_b), 60.5 (C-10_b), 99.4 (C-$1'_b$), 73.7 (C-$2'_b$), 77.2 (C-$3'_b$)[a], 70.4 (C-$4'_b$), 76.6 (C-$5'_b$)[a], 61.5 (C-$6'_b$). *Argylia radiata* (Bignoniaceae) (246)

342. ARGYLIOSIDE



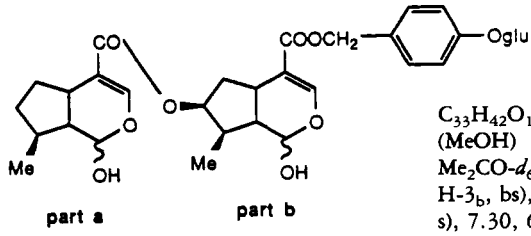
$C_{31}H_{44}O_{18}$ 704.68 [α] −126° (MeOH) uv 234 (MeOH) (400 MHz CD_3OD) 5.43 (H-1_a, d, 5.1), 7.43 (H-3_a, bs), 2.92 (H-5_a, bq, 8.3, 8.3, 8.3), 1.59 (H-$6_a\alpha$), dddd, 12.6, 9, 8.3), 2.07 (H-$6_a\beta$, dddd, 12.6, 8.3, 8.3, 8.3), 1.76 (H-$7_a\alpha$, dddd, 12.4, 8.3), 1.36 (H-$7_a\beta$, dddd, 12.4, 9, 8.3, 8.3), 2.23 (H-8_a, H-9_a, m, 8.3, 7.3, 5.1), 1.06 (H-10_a, d, 7.3), 4.71 (H-$1'_a$, d, 7.2), 5.08 (H-1_b, d, 9.3), 6.32 (H-3_b, dd, 6.5, 1.8), 4.74 (H-4_b, dd, 6.5, 4), 2.48 (H-5_b, m, 7.5, 7.2, 4, 1.8), 4.66 (H-6_b, dd, 7.2, 2.2), 3.64 (H-7_b, bs, 2.2), 2.54 (H-9_b, dd, 9.3, 7.5), 3.64, 4.08 (H-10_b, d, 13.2), 4.65 (H-$1'_b$, d, 7.2); (CD_3OD) 95.1 (C-1_a), 152.5 (C-3_a), 112.1 (C-4_a), 32.2 (C-5_a), 31.0 (C-6_a)[a], 33.3 (C-7_a)[a], 34.3 (C-8_a), 43.5 (C-9_a), 15.7 (C-10_a), 167.9 (C-11_a), 98.7 (C-$1'_a$), 73.7 (C-$2'_a$), 77.3 (C-$3'_a$)[b], 69.6 (C-$4'_a$), 77.1 (C-$5'_a$)[b], 61.9 (C-$6'_a$), 94.1 (C-1_b), 141.3 (C-3_b), 102.1 (C-4_b), 36.4 (C-5_b), 80.5 (C-6_b), 59.2 (C-7_b), 65.2 (C-8_b), 42.0 (C-9_b), 60.1 (C-10_b), 98.7 (C-$1'_b$), 73.7 (C-$2'_b$), 77.1 (C-$3'_b$)[b], 69.6 (C-$4'_b$), 76.6 (C-$5'_b$)[b], 61.9 (C-$6'_b$). *Argylia radiata* (Bignoniaceae) (247)

343. RADIATOSIDE



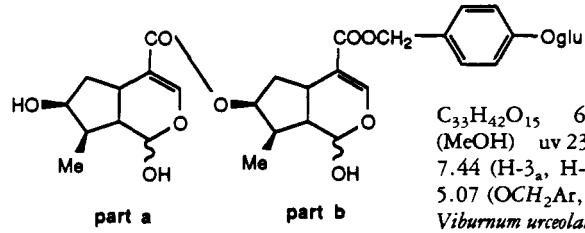
$C_{31}H_{44}O_{91}$ 720.68 [α] −48.9° (MeOH) uv 234 (MeOH) (400 MHz CD_3OD) 5.09 (H-1_a, d, 9.5), 6.33 (H-3_a, dd, 6.5, 1.8), 4.68 (H-4_a, dd, 6.5, 4), 2.57 (H-5_a, m), 4.88 (H-6_a, dd, 8, 1), 3.64 (H-7_a, m), 2.60 (H-9_a, dd, 9.5, 7.5), 4.09, 3.79 (H-10_a, 13.2), 4.59 (H-$1'_a$, d, 8), 5.45 (H-1_b, d, 3.5), 7.49 (H-3_b, s), 1.6–2.4 (H-5_b, H-6_b, H-7_b), 3.10 (H-9_b, m), 1.40 (H-10_b, s), 4.75 (H-$1'_b$, d, 8); (CD_3OD) 94.1 (C-1_a)[a], 141.5 (C-3_a), 102.0 (C-4_a), 35.5 (C-5_a), 80.2 (C-6_a), 58.7 (C-7_a), 65.8 (C-8_a), 42.1 (C-9_a), 59.4 (C-10_a), 98.8 (C-$1'_a$), 73.7 (C-$2'_a$), 77.5 (C-$3'_a$)[b], 70.7 (C-$4'_a$), 76.8 (C-$5'_a$)[b], 61.6 (C-$6'_a$), 94.6 (C-1_b)[a], 151.8 (C-3_b), 113.2 (C-4_b), 30.7 (C-5_b), 29.7 (C-6_b), 39.8 (C-7_b), 80.1 (C-8_b), 51.1 (C-9_b), 23.7 (C-10_b), 169.3 (C-11_b), 98.8 (C-$1'_b$), 73.8 (C-$2'_b$), 77.3 (C-$3'_b$)[b], 70.7 (C-$4'_b$), 77.0 (C-$5'_b$)[b], 61.8 (C-$6'_b$). *Argylia radiata* (Bignoniaceae) (248)

344. URCEOLATOSIDE A



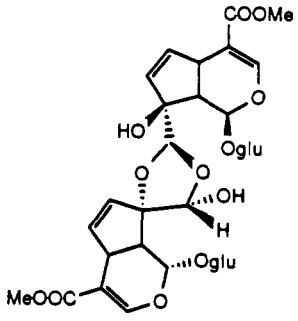
$C_{33}H_{42}O_{14}$ 662.69 mp 136–140° [α] −56° (MeOH) uv 240, 228, 204 (MeOH) (60 MHz Me_2CO-d_6) 4.93 (H-1_a, H-1_b, H-$1''_b$, m), 7.38 (H-3_a, H-3_b, bs), 1.08 (H-10_a, H-10_b, d, 7), 5.02 (OCH_2Ar, s), 7.30, 6.99 (H-$2'_b$, H-$3'_b$, d's, 10). *Viburnum urceolatum* (Caprifoliaceae) (220)

345. URCEOLATOSIDE C



$C_{33}H_{42}O_{15}$ 678.69 mp 134–138° [α] −42.1° (MeOH) uv 238, 228 (MeOH) (60 MHz Me_2CO-d_6) 7.44 (H-3_a, H-3_b, bs), 1.07 (H-10_a, H-10_b, bd, 6), 5.07 (OCH_2Ar, s), 7.36, 7.00 (H-$2'_b$, H-$3'_b$, d's, 9). *Viburnum urceolatum* (Caprifoliaceae) (220)

346. 10-DEHYDROGARDENOSIDE DIMER



$C_{34}H_{44}O_{22}$ 804.71 mp 168–170° [α] −113.9° (H_2O) uv 235 (MeOH) (200 MHz D_2O) 5.87 (H-1, d, 2), 7.46 (H-3, bs), 6.40 (H-6, dd, 6, 3), 5.74 (H-7, dd, 6, 2), 2.77 (H-9, dd, 8, 2), 5.23 (H-10, s), 5.94 (H-1′, d, 1.2), 7.50 (H-3′, bs), 6.46 (H-6′, dd, 6.4, 3.2), 5.84 (H-7′, dd, 6.4, 1), 2.99 (H-9′, dd, 9.2, 1.2), 5.58 (H-10′, s), 3.77 (COOMe); (nonaacetate $CDCl_3$), 92.9, 92.7 (C-1, C-1′), 149.5, 149.4 (C-3, C-3′), 111.7, 111.5 (C-4, C-4′), 37.2 (C-5, C-5′), 133.5, 128.9 (C-6, C-6′), 138.8, 136.0 (C-7, C-7′), 96.1, 84.3 (C-8, C-8′), 51.7, 49.9 (C-9, C-9′), 105.7, 94.1 (C-10, C-10′), 166.6, 166.5 (C-11, C-11′), 51.3 (OMe). *Randia canthioides* (Rubiaceae) (14)

TABLE 2. Alphabetical Compound Index

TABLE 3. Molecular Formula Index

21 Procumboside
52 Virginioside

$C_{15}H_{23}ClO_{10}$
127 Asystasioside E
128 Glutinoside
55 Linarioside

$C_{15}H_{24}O_8$
120 Capensioside

$C_{15}H_{24}O_9$
35 Ajugol
56 3,4-Dihydroaucubin
121 (8*S*)-7,8-Dihydroaucubin
31 Myoporoside

$C_{15}H_{24}O_{10}$
122 5,7-Bisdeoxycynanchoside
51 Daunoside
87 Dihydrocatalpol
53 Physoside

$C_{15}H_{24}O_{11}$
124 10-Descinnamoylglobularimin
125 10-Descinnamoylglobularinin
123 Paulownioside
6 Scabrosidol (5β,7α-Dihydroxydeutziol)

$C_{15}H_{24}O_{12}$
129 Cynanchoside (7α,10-Dihydroxyharpagide)

$C_{16}H_{18}O_7$
315 Catalpin

$C_{16}H_{20}O_{10}$
15 Randioside

$C_{16}H_{22}O_9$
189 7-Deoxygardoside
166 Ugandoside

$C_{16}H_{22}O_{10}$
202 Gelsemide 7-glucoside

$C_6H_{22}O_{11}$
195 Gardenosidic acid
196 Monotropein

$C_{16}H_{24}O_8$
144 5-Deoxystansioside (Stanside, 8-*epi*-Boschnaloside)

$C_{16}H_{24}O_9$
149 Cachineside I (7β-Hydroxystanside)
169 7-Deoxy-8-*epi*-Loganic acid
198 Dihydrobrasoside
168 1,5,9-*epi*-Deoxyloganic acid
145 Plantarenaloside (Yuheinoside)
199 Semperoside
147 Stansioside

$C_{16}H_{24}O_{10}$
191 Adoxosidic acid
143 Asperulosidol
161 Cachineside V
170 8-*epi*-Loganic acid
158 Euphroside
201 9-Hydroxysemperoside
175 Loganic acid
137 4-Methylantirrinoside
183 Mussaenosidic acid
151 Tecomoside
200 Vebraside

$C_{16}H_{24}O_{11}$
163 Cachineside IV

$C_{16}H_{24}O_{12}$
194 Unedide

$C_{16}H_{26}O_7$
132 Boschnaside (8-*epi*-Iridodial glucoside)

$C_{16}H_{26}O_8$
138 Decapetaloside
133 7β-Hydroxy-8-*epi*-iridodial glucoside

$C_{16}H_{26}O_9$
134 5-Deoxylamiol
140 α-Dihydroverbenol
141 β-Dihydroverbenol
142 11-Hydroxydecapetaloside

$C_{17}H_{22}O_{10}$
288 10-Dehydrogeniposide

$C_{17}H_{22}O_{11}$
289 10-Dehydrogardenoside
207 10-Methylixoside

$C_{17}H_{22}O_{12}$
290 Mollugoside (8α-Hydroxyapodanthoside)

$C_{17}H_{24}O_9$
208 10-Deoxygeniposide

$C_{17}H_{24}O_{10}$
5 6′-*O*-Acetyldeutzioside
283 Apodantheroside
258 Gardoside methyl ester
229 7-Ketologanin (7-Dehydrologanin)

$C_{17}H_{24}O_{11}$
276 10-Hydroxycornin
262 6α-Hydroxygeniposide (Deacetyldaphylloside, Deacetylasperulosidic acid methyl ester)
265 6β-Hydroxygeniposide (Scandoside methyl ester)
284 Monotropein methyl ester (Galioside)
259 Strictoloside

$C_{17}H_{24}O_{12}$
286 6α,7α-Epoxysplendoside
287 6β,7β-Epoxysplendoside
256 Sesamoside

$C_{17}H_{26}O_9$
209 7-Deoxy-8-*epi*-Loganin
157 Pinifolin

$C_{17}H_{26}O_{10}$
32 6-*O*-Acetylmioporoside
33 8-*O*-Acetylmioporoside
270 Adoxoside (8β-Dihydrogeniposide, 6,7-Dihydroapodantheroside)
36 Ajugoside (Leonuride)
269 8α-Dihydrogeniposide
210 6-*epi*-Dihydrocornin
212 7-*epi*-Loganin
214 8-*epi*-Loganin
215 Loganin
239 Mussaenoside
211 Penstemonoside

$C_{17}H_{26}O_{11}$
44 8-*O*-Acetylharpagide
234 5-Deoxypulchelloside I

231 α-Dihydrohastatoside
232 β-Dihydrohastatoside
252 8-*epi*-Caryptoside
273 8-*epi*-Splendoside
271 6β-Hydroxyadoxoside
233 5-Hydroxy-8-*epi*-loganin
236 6β-Hydroxyloganin
272 10-Hydroxyloganin
240 Ipolamiide
230 Penstemoside
241 Shanzhiside methyl ester
274 Splendoside

$C_{17}H_{26}O_{12}$
253 6β-Hydroxyipolamiide
279 6β-Hydroxysplendoside
281 7α-Hydroxysplendoside
282 7β-Hydroxysplendoside
54 Jaranidoside
254 Lamiide
277 Nyctanthoside

$C_{18}H_{20}O_6$
336 Syringopicrogenin A

$C_{18}H_{20}O_7$
337 Syringopicrogenin B

$C_{18}H_{22}O_{11}S$
203 Paederoside

$C_{18}H_{24}O_{12}$
193 6-*O*-Acetylscandoside

$C_{18}H_{26}O_{11}$
171 7-*O*-Acetyl-8-*epi*-loganic acid (MS-6)
178 7-*O*-Acetylloganic acid
184 8-*O*-Acetylmussaenosidic acid (MS-5)

$C_{18}H_{26}O_{12}$
291 α-Dihydrogriselinoside
292 β-Dihydrogriselinoside

$C_{18}H_{28}O_{10}$
139 10-*O*-Acetyl-6β-hydroxymongolioside
135 5-Deoxylamioside
136 6-Deoxylamioside

$C_{19}H_{22}O_8$
338 Syringopicrogenin C

$C_{19}H_{26}O_{11}$
260 10-*O*-Acetylgeniposide

$C_{19}H_{26}O_{12}$
285 Galioside 10-acetate
206 V3

$C_{19}H_{26}O_{12}S$
263 Methyl paederosidate

$C_{19}H_{28}O_{12}$
243 6-*O*-Acetylshanzhiside methyl ester
244 8-*O*-Acetylshanzhiside methyl ester
275 Splendoside 10-acetate (10-*O*-Acetylsplendoside)

$C_{19}H_{28}O_{13}$
280 6β-Hydroxysplendoside 10-acetate

$C_{20}H_{26}O_8$
309 Specionin

$C_{20}H_{28}O_{11}$
26 6-*O*-Angeloylantirrinoside
27 6-*O*-Senecioylantirrinoside

$C_{20}H_{30}O_{13}$
62 Aucubigenin-1-*O*-β-serotinoside
14 Mentzelosylepoxydecaloside
66 6-*O*-β-D-Xylopyranosylaucubin

$C_{21}H_{28}O_{11}$
45 Caprarioside (8-*O*-Benzoylharpagide)

$C_{21}H_{30}O_{13}$
235 Barbatoside
245 6,8-di-*O*-Acetylshanzhiside methyl ester
18 Teucardoside

$C_{21}H_{30}O_{14}$
19 Allobetonicoside

$C_{21}H_{32}O_{13}$
10 Quinovosyldecaloside
68 Sinuatol (6-*O*-α-L-Rhamnopyranosylaucubin)

$C_{21}H_{32}O_{14}$
8 Allosyldecaloside
60 Aucubigenin-1-*O*-β-cellobioside
16 10-Deoxymelittoside
65 6-*O*-Glucopyranosylaucubin
61 6′-*O*-Glucosylaucubin
9 Glucosyldecaloside

$C_{21}H_{32}O_{15}$
12 Allosylepoxydecaloside
13 Glucosylepoxydecaloside
81 Melittoside
89 Rehmannioside A
90 Rehmannioside B

$C_{21}H_{32}O_{16}$
119 Calycinoside (5-*O*-Glucosylmacfadienoside)

$C_{21}H_{34}O_{14}$
34 Rehmannioside C

$C_{21}H_{34}O_{15}$
126 Verbascoside B

$C_{22}H_{26}O_{10}$
63 2′-*O*-Benzoylaucubin

$C_{22}H_{26}O_{11}$
76 Agnuside (10-*O*-*p*-Hydroxybenzoylaucubin)
73 6-*O*-*p*-Hydroxybenozyl-6-*epi*-aucubin

$C_{22}H_{26}O_{12}$
84 6-*O*-*p*-Hydroxybenozyl-6-*epi*-monomelittoside

$C_{22}H_{26}O_{13}$
107 Verproside

$C_{22}H_{28}O_{11}$
37 6-*O*-*p*-Hydroxybenzoylajugol

$C_{22}H_{32}O_{14}$
293 Asystasioside B
299 Asystasioside C

$C_{22}H_{32}O_{15}$
300 Asystasioside D

$C_{22}H_{34}O_{14}$
294 Asystasioside A
146 Plantarenalosigenin-1-*O*-β-gentiobioside
148 Stansiosigenin-1-*O*-β-gentiobioside

$C_{23}H_{26}O_{12}$
190 7-*O*-*p*-Hydroxybenzoylgardoside

$C_{23}H_{28}O_9$
1 Undulatin (4′-*O*-*p*-Coumaroyl-7,8-dihydro-8-dehydroxymethyl-bartsioside)

$C_{23}H_{28}O_{11}$
152 7-*O*-Benzoyltecomoside

$C_{23}H_{28}O_{12}$
172 7-*O*-*p*-Hydroxybenzoyl-8-*epi*-loganic acid
186 6′-*O*-*p*-Hydroxybenzoylmussaenosidic acid
153 7-*O*-*p*-Hydroxybenzoyltecomoside
85 6-*O*-*p*-Methoxybenozyl-6-*epi*-monomelittoside
185 Negundoside (2′-*O*-*p*-hydroxybenzoyl-mussaenosidic acid)
180 Swertiaside (7-*epi*-(*m*-Hydroxybenzoyl) loganic acid)

$C_{23}H_{28}O_{13}$
108 6-*O*-Isovanilloylcatalpol

$C_{23}H_{30}O_{11}$
295 Urceolatoside D

$C_{23}H_{30}O_{12}$
57 Nishindaside
38 6-*O*-Vanilloylajugol

$C_{23}H_{34}O_{13}$
257 Jioglutoside B

$C_{23}H_{36}O_{16}$
242 Shanzhisin methyl ester gentiobioside

$C_{24}H_{28}O_{10}$
77 Isoscrophularioside (10-*O*-Cinnamoyl-aucubin, Lytanthosalin)

$C_{24}H_{28}O_{11}$
23 Decumbeside A
22 Decumbeside B
78 *cis*-Eurostoside (10-*O*-*cis*-*p*-Coumaroyl-aucubin)
79 *trans*-Eurostoside (10-*O*-*trans*-*p*-Coumaroylaucubin)
117 Globularicisin (10-*O*-*cis*-Cinnamoylcatalpol)
118 Globularin

$C_{24}H_{28}O_{12}$
24 6′-*O*-*p*-Coumaroylprocumbide
110 Specioside (6-*O*-*p*-Coumaroylcatalpol)

$C_{24}H_{30}O_{11}$
46 8-*O*-*cis*-Cinnamoylharpagide
40 6-*O*-*p*-Coumaroylajugol

$C_{24}H_{30}O_{12}$
246 6-*O*-Benzoylshanzhiside methyl ester
247 8-*O*-Benozylshanzhiside methyl ester
48 6′-*O*-*p*-Coumaroylharpagide
47 8-*O*-*p*-Coumaroylharpagide
216 4′-*O*-*m*-Hydroxybanozylloganin
217 6′-*O*-*m*-Hydroxybenzoylloganin
297 Syringopicroside B

$C_{24}H_{30}O_{13}$
109 6-*O*-Veratroylcatalposide

$C_{25}H_{28}O_{11}$
25 6′-*O*-Cinnamoylantirrinoside

$C_{25}H_{28}O_{12}$
204 V 1

$C_{25}H_{28}O_{13}$
197 Andromedoside

$C_{25}H_{30}O_{10}$
150 Campenoside

$C_{25}H_{30}O_{11}$
162 Campsiside
173 7-*O*-Cinnamoyl-8-*epi*-loganic acid
187 2′-*O*-Cinnamoylmussaenosidic acid
154 7-*O*-Cinnamoyltecomoside (5-Hydroxycampenoside)
74 6-*O*-*p*-Methoxycinnamoylaucubin

$C_{25}H_{30}O_{12}$
176 4′-*O*-*cis*-*p*-Coumaroylloganic acid
177 4′-*O*-*trans*-*p*-Coumaroylloganic acid
155 7-*O*-*p*-Coumaroyltecomoside
111 6-*O*-*p*-Methoxycinnamoylcatalposide
164 Pondraneoside (5-Hydroxycampsiside)

$C_{25}H_{30}O_{13}$
165 Cachineside III
112 6-*O*-*cis*-Feruloylcatalpol
113 6-*O*-*trans*-Feruloylcatalpol

$C_{25}H_{32}O_{12}$
30 6-Desoxy-8-*O*-isoferuloylharpagide
213 7-*epi*-(*m*-Methoxybenzoyl)loganin
41 6-*O*-*cis*-Feruloylajugol
42 6-*O*-*trans*-Feruloylajugol

$C_{25}H_{32}O_{13}$
298 Syringopicroside C

$C_{25}H_{36}O_{11}$
75 Amareloside (6-*O*-Foliamenthoyl-6-*epi*-aucubin)

$C_{25}H_{36}O_{12}$
28 Kickxioside
116 Nemoroside (6-*O*-Foliamenthoyl-catalpol)
29 6-*O*-Nerol-8-oylantirrinoside

$C_{25}H_{38}O_{11}$
43 Nemorososide (6-*O*-Foliamenthoyl-ajugol)

$C_{26}H_{30}O_{13}$
266 6-*O*-*p*-Coumaroylscandoside methyl ester (Oldenlandoside I)

$C_{26}H_{30}O_{14}$
264 10-Caffeoyldeacetyldaphylloside

$C_{26}H_{32}O_{12}$
218 2′-*O*-*cis*-Coumaroylloganin
219 2′-*O*-*trans*-Coumaroylloganin
220 4′-*O*-*cis*-*p*-Coumaroylloganin
221 4′-*O*-*trans*-*p*-Coumaroylloganin
227 7-*O*-*p*-Coumaroylloganin
156 7-*O*-*p*-Methoxycinnamoyltecomoside

$C_{26}H_{32}O_{13}$
248 6-*O*-Benzoyl-6′-*O*-acetylshanzhiside methyl ester
222 2′-*O*-*cis*-Caffeoylloganin
223 2′-*O*-*trans*-Caffeoylloganin
237 6-*O*-*trans*-*p*-Coumaroyl-6β-hydroxy-loganin
50 Decumbeside C

49 Decumbeside D

$C_{26}H_{32}O_{14}$
255 Durantoside 4
188 Tarennine (6-*O*-Feruloylshanzhiside)

$C_{26}H_{32}O_{15}$
278 Arbortristoside B (6-*O*-Caffeoylnyctanthoside)

$C_{26}H_{34}O_{15}$
250 6-*O*-Syringylshanzhiside methyl ester

$C_{26}H_{36}O_{13}$
339 Urceolatoside B

$C_{26}H_{38}O_{11}$
167 Lamourouxide I

$C_{26}H_{38}O_{12}$
159 8-*O*-Foliamenthoyleuphroside

$C_{26}H_{40}O_{18}$
67 Sinuatoside (6-*O*-Sinuatosylaucubin)

$C_{27}H_{28}O_{13}$
205 V 2

$C_{27}H_{30}O_{11}$
192 10-*O*-(5-Phenyl-2,4-pentadienoyl) geniposidic acid

$C_{27}H_{32}O_{11}$
174 7-*O*-(5-Phenyl-2,4-Pentadienoyl)-8-*epi*-loganic acid

$C_{27}H_{32}O_{13}$
267 6-*O*-*p*-Methoxycinnamoylscandoside methyl ester

$C_{27}H_{32}O_{14}$
268 6-*O*-*p*-Feruloylscandoside methyl ester (Oldenlandoside II)

$C_{27}H_{34}O_{13}$
238 Arbortristoside A
224 2′-*O*-*cis*-Feruloylloganin
225 2′-*O*-*trans*-Feruloylloganin

$C_{27}H_{42}O_{20}$
83 Rehmannioside D (Sophorosylmonomelittoside)

$C_{27}H_{44}O_{15}$
64 6-*O*-Glucosyl-2′-*O*-benzoylaucubin

$C_{28}H_{36}O_{16}$
251 6-*O*-Syringyl-8-*O*-acetylshanzhiside methyl ester

$C_{29}H_{40}O_{16}$
39 6-*O*-(4″-*O*-α-L-Rhamnopyranosylvanilloyl)ajugol

$C_{30}H_{32}O_{14}$
182 Senburiside II [7-*epi*-(di-*m*-Hydroxybenzoyl)loganic acid]

$C_{30}H_{38}O_{14}$
70 Nigroside 1 [6-*O*-(3″-*O*-Cinnamoyl-α-L-rhamnopyranosyl)aucubin]
69 Nigroside 2 [6-*O*-(2″-*O*-Cinnamoyl-α-L-rhamnopyranosyl)aucubin]

$C_{30}H_{38}O_{15}$
71 3″-*O*-*p*-Coumaroylsinuatol [6-*O*-(3″-*O*-*p*-Coumaroyl-α-L-rhamnopyranosyl)aucubin]

$C_{30}H_{38}O_{16}$
82 10-*O*-*trans*-Cinnamoylmelittoside
92 6-*O*-(3″-*O*-*p*-Coumaroyl-α-L-rhamnopyranosyl)catalpol
91 Saccatoside [6-*O*-(2″-*O*-*p*-Coumaroyl-α-L-rhamnopyranosyl)catalpol]

$C_{30}H_{38}O_{17}$
94 6-*O*-(2″-*O*-Caffeoylrhamnopyranosyl) catalpol
95 6-*O*-(3″-*O*-Caffeoylrhamnopyranosyl) catalpol

$C_{30}H_{38}O_{18}$
115 Speedoside

$C_{30}H_{40}O_{15}$
226 6′-*O*-[2(*R*)-Methyl-3-veratroyloxypropanoyl]loganin

$C_{31}H_{34}O_{13}$
249 6,6′-*O*-Dibenzoylshanzhiside methyl ester

$C_{31}H_{40}O_{16}$
93 Verbascoside A

$C_{31}H_{40}O_{17}$
96 6-*O*-(2″-*O*-Isoferuloylrhamnopyranosyl) catapol
97 6-*O*-(3″-*O*-Isoferuloylrhamnopyranosyl) catapol

$C_{31}H_{40}O_{18}$
114 Welloside

$C_{31}H_{42}O_{18}$
340 Radiatoside C

$C_{31}H_{42}O_{19}$
341 Radiatoside B

$C_{31}H_{44}O_{18}$
342 Argylioside

$C_{31}H_{44}O_{19}$
343 Radiatoside

$C_{32}H_{40}O_{17}$
261 6″-*O*-*p*-Coumaroylgenipin gentiobioside

$C_{32}H_{42}O_{18}$
179 Periclymenosidic acid

$C_{33}H_{42}O_{14}$
344 Urceolatoside A

$C_{33}H_{42}O_{15}$
345 Urceolatoside C

$C_{33}H_{42}O_{16}$
72 6-*O*-(2″-*O*-Acetyl, 3-*O*-*p*-methoxy-*trans*-cinnamoyl)rhamnopyranosylaucubin

$C_{33}H_{42}O_{17}$
98 Pulverulentoside I

$C_{33}H_{42}O_{18}$
99 Pulverulentoside II

$C_{33}H_{44}O_{18}$
228 Periclymenoside

$C_{34}H_{38}O_{16}$
181 Senburiside I

$C_{34}H_{44}O_{22}$
346 10-Dehydrogardenoside dimer

$C_{35}H_{42}O_{20}$
296 Depressoside

$C_{35}H_{44}O_{18}$
104 Scropolioside A

$C_{36}H_{52}O_{14}$
160 2′,8-*O*-Difoliamenthoyleuphoroside

$C_{39}H_{44}O_{19}$
101 Premnoside B
$C_{39}H_{44}O_{20}$
100 Premnoside A
$C_{40}H_{46}O_{19}$
103 Premnoside D
$C_{40}H_{46}O_{20}$
102 Premnoside C
$C_{41}H_{46}O_{17}$
105 Scropolioside B
$C_{42}H_{48}O_{18}$
106 6-*O*-(2,3,4-*O*-Acetyl-cinnamoyl-*p*-methoxycinnamoyl)rhamnosylcatalpol

TABLE 4. Plant Index

For cases in which plant family identification were not given or in which two family names were found for a single species, a recent authoritative dictionary (249) was used.

ACKNOWLEDGMENTS

Preparation of this manuscript was supported by NSF grant CHE-8521382 and a Colorado State University Graduate Fellowship to C.B. Thanks are extended to S.R. Jensen for providing his list of iridoids as a check on our compilation, to A. Bianco for helpful comments, and to R. Jaramillo for help in preparing the manuscript.

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Received 23 April 1990