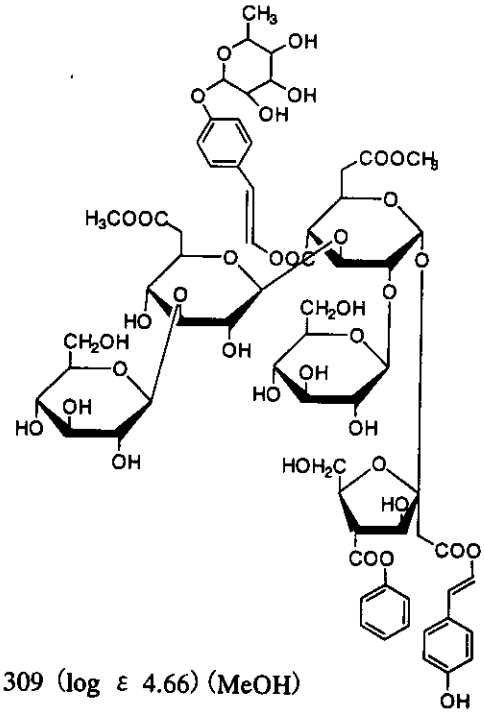
[化学名・別名]Tenuifoliose M
[CAS No.]147742-18-5
[化合物分類]炭水化物(Oligosaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]



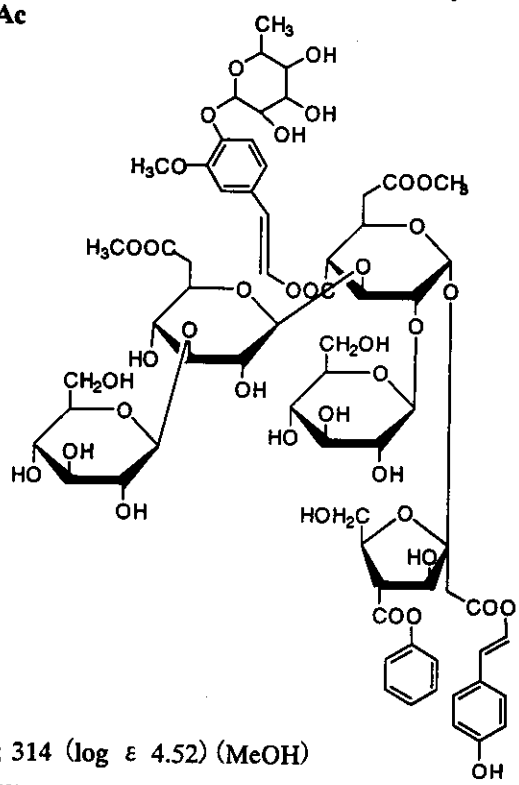
[分子式]$C_{65}H_{82}O_{37}$
[分子量]1455.341
[基原]*Polygala tenuifolia*
[性状]粉末・五水和物
[比旋光度]:[α]$_D^{24}$ -29.2 (c, 0.5 in MeOH)
UV: [neutral] λ $_{max}$ 226 (log ε 4.69); 299 (sh) (log ε 4.64); 309 (log ε 4.66) (MeOH)

----------文 献----------

Miyase, T. et al., Chem. Pharm. Bull., 1991, 39, 3082; 1992, 40, 2741, (分離, UV, H-NMR, C13-NMR)
Saitoh, H. et al., Chem. Pharm. Bull., 1994, 42, 1879, (分離, UV, H-NMR, C13-NMR)

§ β -D-Fructofuranosyl β -D-glucopyranosyl-(1 → 3) -β -D-glucopyranosyl-(1 → 3) -[β -D-glucopyranosyl-(1 → 2)]- α -D-glucopyranoside; 1^B-(4-Hydroxy-*E*-cinnamoyl), 4^A-(3-methoxy-4- α -L-rhamnopyranosyloxy-*E*-cinnamoyl), 2^B-benzoyl, 6^A,6^D-di-Ac

[化学名・別名]Tenuifoliose G
[CAS No.]147742-12-9
[化合物分類]炭水化物(Oligosaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]



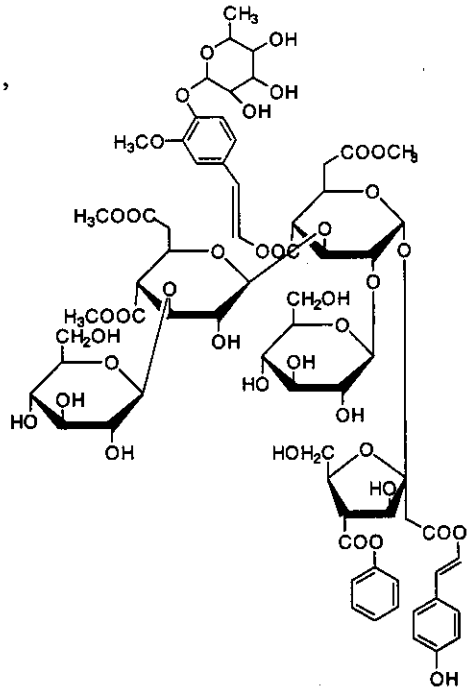
[分子式]$C_{66}H_{84}O_{38}$
[分子量]1485.367
[基原]*Polygala tenuifolia*
[性状]粉末・四水和物
[比旋光度]:[α]$_D$ -22.2 (c, 0.4 in MeOH)
UV: [neutral] λ $_{max}$ 229 (log ε 4.54); 298 (sh) (log ε 4.49); 314 (log ε 4.52) (MeOH)

----------文 献----------

Miyase, T. et al., Chem. Pharm. Bull., 1991, 39, 3082; 1992, 40, 2741, (分離, UV, H-NMR, C13-NMR)
Saitoh, H. et al., Chem. Pharm. Bull., 1994, 42, 1879, (分離, UV, H-NMR, C13-NMR)

§ β -D-Fructofuranosyl β -D-glucopyranosyl-(1 → 3) -β -D-glucopyranosyl-(1 → 3) -[β -D-glucopyranosyl-(1 → 2)]- α -D-glucopyranoside; 1^B-(4-Hydroxy-*E*-cinnamoyl), 4^A-(3-methoxy-4- α -L-rhamnopyranosyloxy-*E*-cinnamoyl), 2^B-benzoyl, 4^D,6^A,6^D-tri-Ac

[化学名・別名]Tenuifoliose F
[CAS No.]139682-06-7
[化合物分類]炭水化物(Oligosaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]

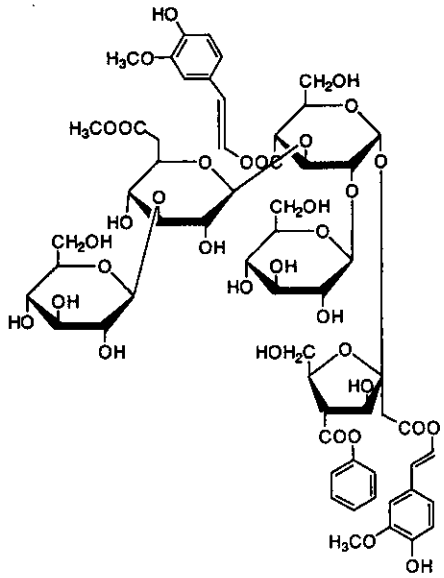


[分子式]$C_{68}H_{86}O_{39}$
[分子量]1527.404
[基原]*Polygala tenuifolia*
[性状]粉末
[比旋光度]:[α]$_D^{25}$ -52.3

----------文 献----------

Miyase, T. et al., Chem. Pharm. Bull., 1991, 39, 3082; 1992, 40, 2741, (分離, UV, H-NMR, C13-NMR)
Saitoh, H. et al., Chem. Pharm. Bull., 1994, 42, 1879, (分離, UV, H-NMR, C13-NMR)

§ β -D-Fructofuranosyl β -D-glucopyranosyl-(1 → 3) -β -D-glucopyranosyl-(1 → 3) -[β -D-glucopyranosyl-(1 → 2)] -α -D-glucopyranoside; 1^B,4^A-Bis(4-hydroxy-3-methoxy-*E*-cinnamoyl) , 2^B-benzoyl, 6^D-Ac
[化学名・別名]Tenuifoliose P
[CAS No.]147742-21-0
[化合物分類]炭水化物(Oligosaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]



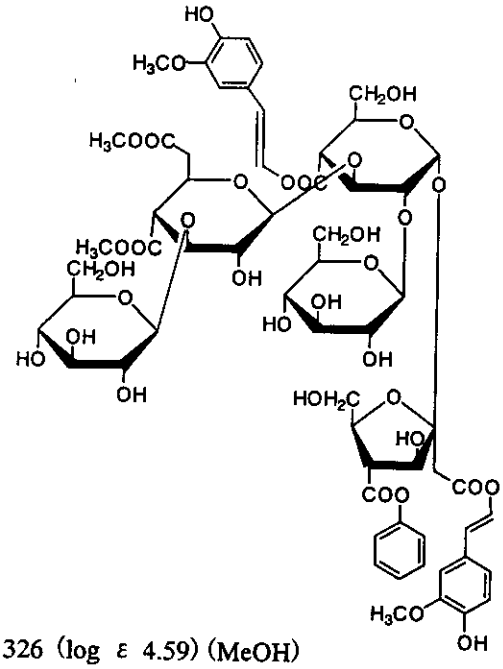
[分子式]$C_{59}H_{74}O_{34}$
[分子量]1327.213
[基原]*Polygala tenuifolia*
[性状]粉末・三水和物
[比旋光度]:[α]$_D^{24}$ -7.7 (c, 0.9 in MeOH)
UV: [neutral] λ $_{max}$ 232 (log ε 4.54); 299 (sh) (log ε 4.44); 326 (log ε 4.6) (MeOH)

----------文 献----------

Miyase, T. et al., Chem. Pharm. Bull., 1991, 39, 3082; 1992, 40, 2741, (分離, UV, H-NMR, C13-NMR)
Saitoh, H. et al., Chem. Pharm. Bull., 1994, 42, 1879, (分離, UV, H-NMR, C13-NMR)

§ β -D-Fructofuranosyl β -D-glucopyranosyl-(1 → 3) -β -D-glucopyranosyl-(1 → 3) -[β -D-glucopyranosyl-(1 → 2)] -α -D-glucopyranoside; 1^B,4^A-Bis(4-hydroxy-3-methoxy-*E*-cinnamoyl) , 2^B-benzoyl, 4^D,6^D-di-Ac
[化学名・別名]Tenuifoliose O

[CAS No.]147742-20-9
[化合物分類]炭水化物(Oligosaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]

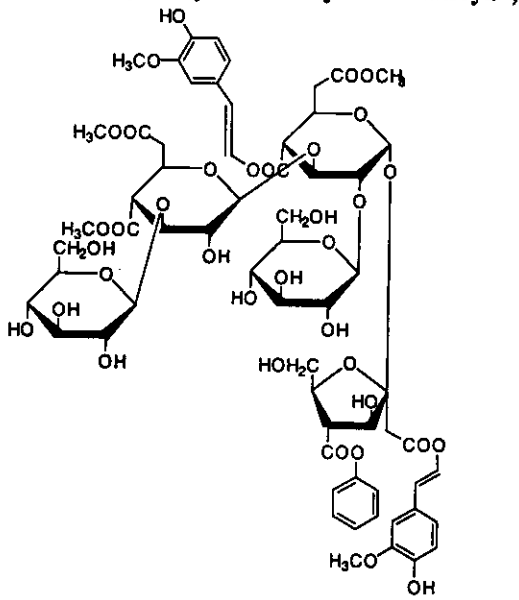


[分子式]$C_{61}H_{76}O_{35}$
[分子量]1369.25
[基原]*Polygala tenuifolia*
[性状]粉末+ 1・1/2H_2O
[比旋光度]:[α]$_D^{24}$ -17.4 (c, 0.9 in MeOH)
UV: [neutral] λ $_{max}$ 232 (log ε 4.54); 297 (sh) (log ε 4.44); 326 (log ε 4.59) (MeOH)

----------文 献----------

Miyase, T. et al., Chem. Pharm. Bull., 1991, 39, 3082; 1992, 40, 2741, (分離, UV, H-NMR, C13-NMR)
Saitoh, H. et al., Chem. Pharm. Bull., 1994, 42, 1879, (分離, UV, H-NMR, C13-NMR)

§ β -D-Fructofuranosyl β -D-glucopyranosyl-(1 → 3) -β -D-glucopyranosyl-(1 → 3) -[β -D-glucopyranosyl-(1 → 2)] -α -D-glucopyranoside; 1^B,4^A-Bis(4-Hydroxy-3-methoxy-*E*-cinnamoyl) , 2^B-benzoyl, 4^D,6^A,6^D-tri-Ac
[化学名・別名]Tenuifoliose N
[CAS No.]147742-19-6
[化合物分類]炭水化物(Oligosaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]



[分子式]$C_{63}H_{78}O_{36}$
[分子量]1411.288
[基原]*Polygala tenuifolia*
[性状]粉末+ 1・1/2H_2O
[比旋光度]:[α]$_D^{24}$ -26.6 (c, 0.6 in MeOH)
UV: [neutral] λ $_{max}$ 230 (log ε 4.53); 299 (sh) (log ε 4.45); 322 (log ε 4.55) (MeOH)

----------文 献----------

Miyase, T. et al., Chem. Pharm. Bull., 1991, 39, 3082; 1992, 40, 2741, (分離, UV, H-NMR, C13-NMR)
Saitoh, H. et al., Chem. Pharm. Bull., 1994, 42, 1879, (分離, UV, H-NMR, C13-NMR)

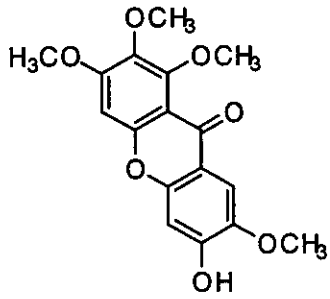
§ Mangiferin; 7-Me ether, 6'-*O*-β-D-apiofuranoside
[化学名・別名]Polygalaxanthone III
[CAS No.]162857-78-5
[化合物分類]単環芳香族(Xanthones; 4 × O-置換基)
[構造式]
[分子式]$C_{25}H_{28}O_{15}$
[分子量]568.487
[基原]*Polygala tenuifolia* の根

[性状]黄色の無定型の粉末
[比旋光度]:[α]$_D^{24}$ -78 (c, 0.6 in MeOH)
[その他のデータ]Struct. revised in 1999, prev. assigned as the isomeric Isomangiferin deriv.

---文 献---

Miyase, T. et al., J. Nat. Prod., 1999, 62, 993-996, (Polygalaxanthone III)

§ 1,2,3,6,7-Pentahydroxyxanthone; 1,2,3,7-Tetra-Me ether

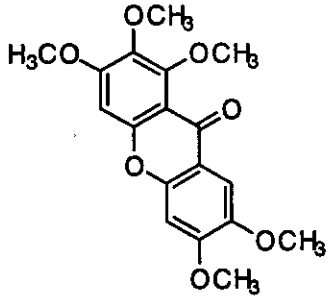


[化学名・別名]6-Hydroxy-1,2,3,5,7-tetramethoxyxanthone
[CAS No.]64756-87-2
[化合物分類]単環芳香族(Xanthones; 5 × O-置換基)
[構造式]
[分子式]$C_{17}H_{16}O_7$
[分子量]332.309
[基原]*Polygala tenuifolia*
[性状]針状結晶(EtOH)
[融点]Mp 225 ℃

---文 献---

Dreyer, D.L., Tetrahedron, 1969, 25, 4415, (分離, UV, IR, H-NMR)
Ito, H. et al., Phytochemistry, 1977, 16, 1614, (分離, 誘導体)
Silveira, E.R. et al., Phytochemistry, 1995, 39, 1433, (Onjixanthone II)

§ 1,2,3,6,7-Pentahydroxyxanthone; Penta-Me ether

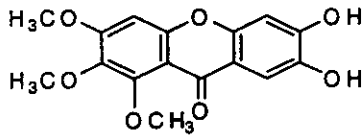


[化学名・別名]1,2,3,6,7-Pentamethoxyxanthone
[CAS No.]64756-86-1
[化合物分類]単環芳香族(Xanthones; 5 × O-置換基)
[構造式]
[分子式]$C_{18}H_{18}O_7$
[分子量]346.336
[基原]*Polygala tenuifolia*
[性状]結晶(EtOH)
[融点]Mp 183 ℃

---文 献---

Dreyer, D.L., Tetrahedron, 1969, 25, 4415, (分離, UV, IR, H-NMR)
Stout, G.H. et al., Tetrahedron, 1969, 25, 5295, (合成法, UV, H-NMR)
Ito, H. et al., Phytochemistry, 1977, 16, 1614, (分離, 誘導体)

§ 1,2,3,6,8-Pentahydroxyxanthone; 1,2,3-Tri-Me ether

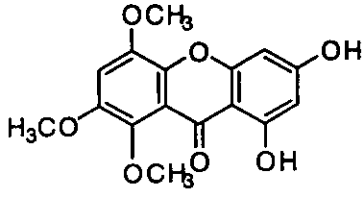


[CAS No.]145523-73-5
[化合物分類]単環芳香族(Xanthones; 5 × O-置換基)
[構造式]
[分子式]$C_{16}H_{14}O_7$
[分子量]318.282
[基原]*Polygala tenuifolia*
[性状]黄色の針状結晶
[融点]Mp 164-166 ℃

---文 献---

Ghosal, S., J.C.S. Perkin 1, 1974, 2538, (分離, 構造決定)
Gunasekera, S.P. et al., J.C.S. Perkin 1, 1975, 2447, (分離, UV, H-NMR)
Ortega, E.P. et al., Phytochemistry, 1988, 27, 1912, (分離, H-NMR, C13-NMR)
Fujita, T. et al., Phytochemistry, 1992, 31, 3997, (分離, H-NMR)

§ 1,2,4,6,8-Pentahydroxyxanthone; 1,2,4-Tri-Me ether



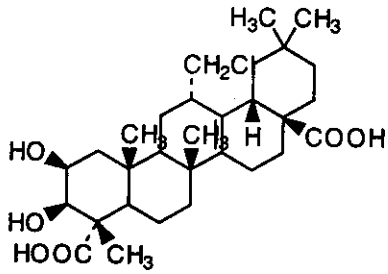
[化学名・別名]6,8-Dihydroxy-1,2,4-trimethoxyxanthone
[CAS No.]145523-72-4
[化合物分類]単環芳香族(Xanthones; 5 × O-置換基)
[構造式]
[分子式]$C_{16}H_{14}O_7$

[分子量]318.282
[基原]*Polygala tenuifolia*
[性状]黄色の針状結晶（MeOH）
[融点]Mp 239-240 ℃

----------文 献----------

Fujita, T. et al., Phytochemistry, 1992, 31, 3997,（1,2,4-Tri-Me ether, 分離, H-NMR）

§ Senegenin



[化学名・別名]Tenuifolic acid
[CAS No.]2469-34-3
[化合物分類]テルペノイド(Nor-, seco- and abeooleanane triterpenoids)
[構造式]
[分子式]$C_{30}H_{45}ClO_6$
[分子量]537.135
[基原]*Polygala senega*. Derived from Presenegenin by treatment with HCl. また*Polygala tenuifolia*, *Bredemeyera floribunda* からも得られる
[性状]結晶(EtOH 溶液)
[融点]Mp 290-292 ℃
[比旋光度]:[α]$_D$ +19 (c, 0.74 in EtOH)
[化学物質毒性データ総覧(RTECS)登録番号]RC8815000

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Tschesche, R. et al., Naturwissenschaften, 1965, 52, 303
Pelletier, S.W. et al., Chem. Comm., 1966, 727,（構造決定）
Lewis, R.J., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold, 1992, SBY000

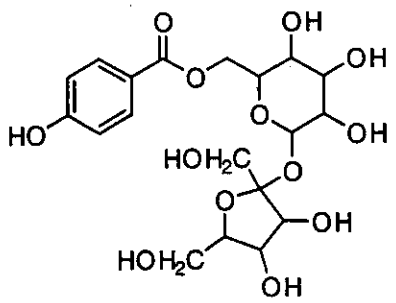
RTECS（化学物質毒性データ）
健康障害に関するデータ
急性毒性に関するデータ

〈〈試験方法〉〉認知されている最低致死量に関する試験
曝露経路　：経口投与.
被験動物　：げっ歯類-マウス.
投与量・期間：1 gm/kg
毒性影響　：致死量以外に毒性影響に関する報告はない.
参照文献
"Abdernalden's Handbuch der Biologischen Arbeitsmethoden."（Leipzig, Ger. Dem. Rep.）4,1289,1935

〈〈試験方法〉〉LD50 試験(50%致死量試験).
曝露経路　：腹腔内投与.
被験動物　：げっ歯類-マウス.
投与量・期間：3 mg/kg
毒性影響　：致死量以外に毒性影響に関する報告はない.
参照文献
"CRC Handbook of Antibiotic Compounds,", Berdy, J., Boca Raton, FL, CRC Press, ,259,1982

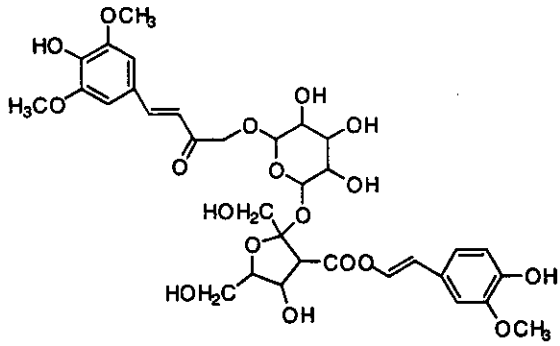
〈〈試験方法〉〉認知されている最低致死量に関する試験
曝露経路　：皮下投与.
被験動物　：げっ歯類-マウス.
投与量・期間：30 mg/kg
毒性影響　：致死量以外に毒性影響に関する報告はない.
参照文献
"Abdernalden's Handbuch der Biologischen Arbeitsmethoden."（Leipzig, Ger. Dem. Rep.）4,1289,1935

〈〈試験方法〉〉認知されている最低致死量に関する試験
曝露経路　：静脈内投与.
被験動物　：げっ歯類-マウス.
投与量・期間：45 mg/kg
毒性影響　：致死量以外に毒性影響に関する報告はない.
参照文献
"Abdernalden's Handbuch der Biologischen Arbeitsmethoden."（Leipzig, Ger. Dem. Rep.）4,1289,1935

§ Sucrose; 6-(4-Hydroxybenzoyl)
[化学名・別名]6-(4-Hydroxybenzoyl) sucrose. Sibiricose A_3
[CAS No.]139726-39-9
[化合物分類]炭水化物(Disaccharides)
[構造式]

[分子式]$C_{19}H_{26}O_{13}$
[分子量]462.407
[基原]*Crescentia cujete*, *Polygala tenuifolia*, *Polygala sibirica* の根
[性状]無定型の粉末
[比旋光度]:$[\alpha]_D$ +22 (c, 0.5 in MeOH). $[\alpha]_D^{23}$ +29 (c, 1.3 in MeOH)
UV: [neutral] λ_{max} 258 (log ε 4.03) (MeOH)

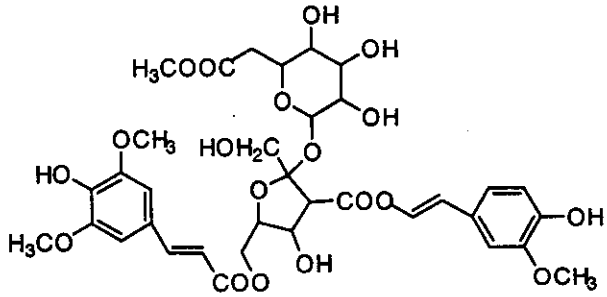
----------文 献----------

Khan, R., Adv. Carbohydr. Chem. Biochem., 1976, 33, 235, (レビュー)
Sucrochemistry, (Ed. Hickson, J.L.), ACS Symp. Series, 1977, 41, (レビュー)
Opdyke, D.L.J., Food Chem. Toxicol., 1982, 20, 827, (レビュー, 毒性, octa-Ac)
James, C.E. et al., Prog. Chem. Org. Nat. Prod., 1989, 55, 117, (レビュー)
Lin, W.H. et al., Yaoxue Xuebao, 1995, 30, 752, (Sibiriosides)
Miyase, T. et al., J. Nat. Prod., 1999, 62, 993-996, (Sibiricoses A1 -A6)

§ Sucrose; 3'-*O*-(4-Hydroxy-3-methoxycinnamoyl), 6-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl)
[化学名・別名]3'-*O*-Feruloyl-6-*O*-sinapoylsucrose
[CAS No.]154287-47-5
[化合物分類]炭水化物(Disaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]

[分子式]$C_{33}H_{40}O_{18}$
[分子量]724.668
[基原]*Polygala reinii* と *Polygala tenuifolia* の根

----------文 献----------

De Tommasi, N. et al., J. Nat. Prod., 1993, 56, 134, (sinapoyl derivs)
Lou, H. et al., Phytochemistry, 1993, 32, 1283, (6-Sinapoylsucrose)

§ Sucrose; 3'-*O*-(4-Hydroxy-3-methoxycinnamoyl) (*E*-), 6'-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl) (*E*-), 6-Ac
[CAS No.]154287-49-7
[化合物分類]炭水化物(Disaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]

[分子式]$C_{35}H_{42}O_{19}$
[分子量]766.705
[基原]*Polygala tenuifolia*

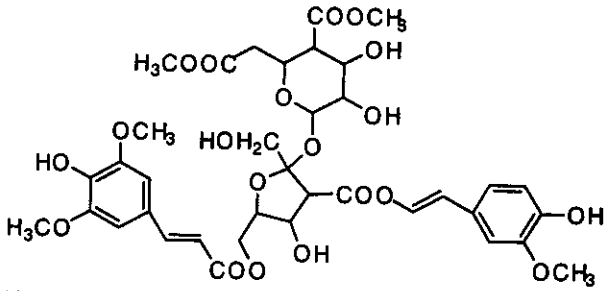
文献----------

Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)
Kollonitsch, V., Sucrose Chemicals, Kline, The International Sugar Research Foundation, Washington, D.C., 1970, (レビュー)
Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 654, (生育)
Khan, R., Adv. Carbohydr. Chem. Biochem., 1976, 33, 235, (レビュー)
Sucrochemistry, (Ed. Hickson, J.L.), ACS Symp. Series, 1977, 41, (レビュー)

Opdyke, D.L.J., Food Chem. Toxicol., 1982, 20, 827, (レビュー, 毒性, octa-Ac)
Lewis, R.J., Food Additives Handbook, Van Nostrand Reinhold International, New York, 1989, SNH000
James, C.E. et al., Prog. Chem. Org. Nat. Prod., 1989, 55, 117, (レビュー)

§ Sucrose; 3'-*O*-(4-Hydroxy-3-methoxycinnamoyl) (*E*-), 6'-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl) (*E*-), 4,6-di-Ac

[CAS No.] 154287-48-6
[化合物分類] 単環芳香族 (Simple phenylpropanoids), 炭水化物 (Disaccharides)
[構造式]



[分子式] $C_{37}H_{44}O_{20}$
[分子量] 808.743
[基原] *Polygala tenuifolia*

----------文 献----------
Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)
Kollonitsch, V., Sucrose Chemicals, Kline, The International Sugar Research Foundation, Washington, D.C., 1970, (レビュー)
Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 654, (生育)
Khan, R., Adv. Carbohydr. Chem. Biochem., 1976, 33, 235, (レビュー)
Sucrochemistry, (Ed. Hickson, J.L.), ACS Symp. Series, 1977, 41, (レビュー)
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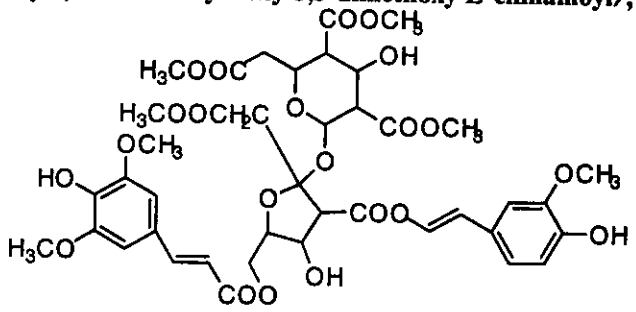
Lewis, R.J., Food Additives Handbook, Van Nostrand Reinhold International, New York, 1989, SNH000
James, C.E. et al., Prog. Chem. Org. Nat. Prod., 1989, 55, 117, (レビュー)
Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)

§ Sucrose; 3'-*O*-(4-Hydroxy-3-methoxy-*E*-cinnamoyl), 6'-*O*-(4-hydroxy-3,5-dimethoxy-*E*-cinnamoyl), 1',2,4,6-tetra-Ac

[化学名・別名] Tenuifoliside E
[CAS No.] 162901-87-3
[化合物分類] 単環芳香族 (Simple phenylpropanoids), 炭水化物 (Disaccharides)
[構造式]

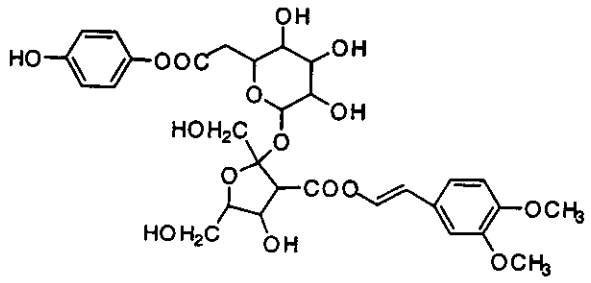


[分子式] $C_{41}H_{48}O_{22}$
[分子量] 892.817
[基原] *Polygala tenuifolia* の根
[性状] 無定型の粉末
[比旋光度]: $[\alpha]_D^{24}$ -45.5 (c, 1.12 in MeOH)

----------文 献----------
Ikeya, Y. et al., Chem. Pharm. Bull., 1991, 39, 2600; 1994, 42, 2305, (Tenuifolisides)

§ Sucrose; 3'-*O*-(3,4-Dimethoxycinnamoyl) (*E*-), 6-*O*-(4-hydroxybenzoyl)

[CAS No.] 154287-50-0
[化合物分類] 単環芳香族 (Simple phenylpropanoids), 炭水化物 (Disaccharides)
[構造式]



[分子式] $C_{30}H_{36}O_{16}$
[分子量] 652.605
[基原] *Polygala tenuifolia*

----------文 献----------
Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)
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Basel, 1972, no. 654, (生育)
Khan, R., Adv. Carbohydr. Chem. Biochem., 1976, 33, 235, (レビュー)
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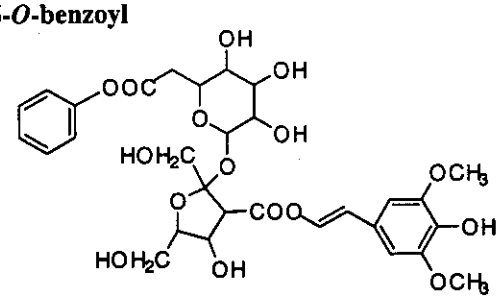
Khan, R., Adv. Carbohydr. Chem. Biochem., 1976, 33, 235, (レビュー)
Sucrochemistry, (Ed. Hickson, J.L.), ACS Symp. Series, 1977, 41, (レビュー)

§ Sucrose; 3'-*O*-(4-Hydroxy-3,5-dimethoxycinnamoyl) (*E*-), 6-*O*-benzoyl

[CAS No.]154287-46-4
[化合物分類]単環芳香族(Simple phenylpropanoids),
炭水化物(Disaccharides)
[構造式]



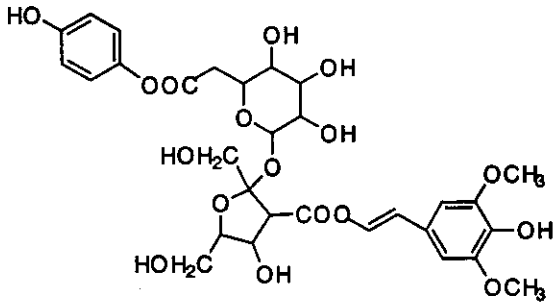
[分子式]$C_{30}H_{36}O_{16}$
[分子量]652.605
[基原]*Polygala tenuifolia*, *Polygala sibirica*

----------文 献----------

Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)
Kollonitsch, V., Sucrose Chemicals, Kline, The International Sugar Research Foundation, Washington, D.C., 1970, (レビュー)
Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 654, (生育)
Khan, R., Adv. Carbohydr. Chem. Biochem., 1976, 33, 235, (レビュー)
Sucrochemistry, (Ed. Hickson, J.L.), ACS Symp. Series, 1977, 41, (レビュー)
Opdyke, D.L.J., Food Chem. Toxicol., 1982, 20, 827, (レビュー, 毒性, octa-Ac)
James, C.E. et al., Prog. Chem. Org. Nat. Prod., 1989, 55, 117, (レビュー)

§ Sucrose; 3'-*O*-(4-Hydroxy-3,5-dimethoxycinnamoyl), 6-*O*-(4-hydroxybenzoyl)

[化学名・別名]Tenuifoliside B
[CAS No.]139726-36-6
[化合物分類]炭水化物(Disaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]



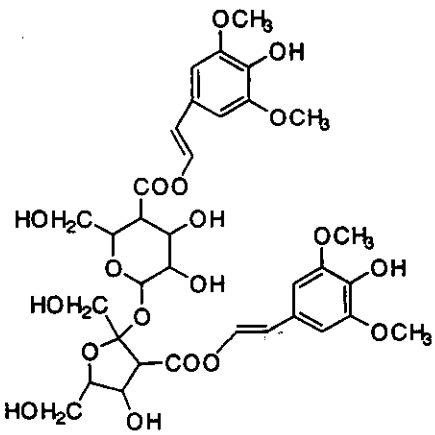
[分子式]$C_{30}H_{36}O_{17}$
[分子量]668.604
[基原]*Polygala tenuifolia* の根
[性状]無定型の黄色の粉末
[比旋光度]:$[\alpha]_D^{24}$ –20.8 (c, 1.01 in MeOH)

----------文 献----------

Ikeya, Y. et al., Chem. Pharm. Bull., 1991, 39, 2600; 1994, 42, 2305, (Tenuifolisides)

§ Sucrose; 3',4-Bis-*O*-(4-hydroxy-3,5-dimethoxy-*E*-cinnamoyl)

[化学名・別名]Sibiricose A4. 3',4-Disinapoylsucrose
[CAS No.]241125-73-5
[化合物分類]炭水化物(Disaccharides),
単環芳香族(Simple phenylpropanoids)



[構造式]
[分子式]$C_{34}H_{42}O_{19}$
[分子量]754.694
[基原]*Polygala sibirica* と *Polygala tenuifolia* の根
[性状]無定型の粉末
[比旋光度]:$[\alpha]_D^{23}$ –23 (c, 1.13 in MeOH)

UV: [neutral] λ_{max} 234 (log ε 4.48); 316 (log ε 4.47) (MeOH)

文 献

Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)
Kollonitsch, V., Sucrose Chemicals, Kline, The International Sugar Research Foundation, Washington, D.C., 1970, (レビュー)
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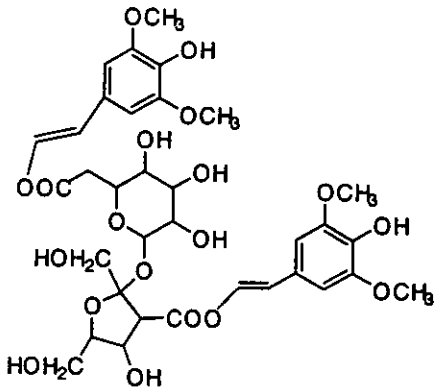
Opdyke, D.L.J., Food Chem. Toxicol., 1982, 20, 827, (レビュー, 毒性, octa-Ac)
James, C.E. et al., Prog. Chem. Org. Nat. Prod., 1989, 55, 117, (レビュー)
De Tommasi, N. et al., J. Nat. Prod., 1993, 56, 134, (sinapoyl derivs)
Mathlouthi, M. et al., Sucrose, Blackie, 1995, (専門書)

§ Sucrose; 3',6-Bis-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl)



[化学名・別名]3',6-Disinapoylsucrose
[CAS No.]139891-98-8
[化合物分類]炭水化物(Disaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]
[分子式]$C_{34}H_{42}O_{19}$
[分子量]754.694
[基原]*Polygala virgata, Polygala reinii, Polygala tenuifolia, Raphanus sativus, Securidaca longipedunculata*
[性状]黄色の粉末
[融点]Mp 138-141 ℃
[比旋光度]:[α]$_D$ −94 (c, 0.2 in MeOH)

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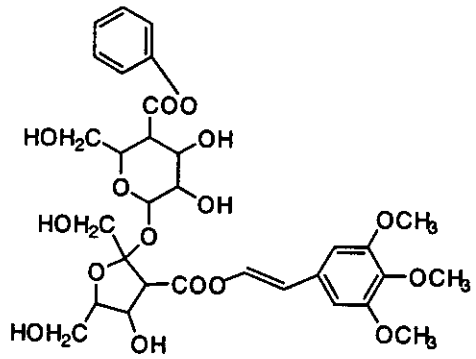
De Tommasi, N. et al., J. Nat. Prod., 1993, 56, 134, (sinapoyl derivs)
Lou, H. et al., J. Nat. Prod., 1993, 56, 1437, (Neohancoside D)
Bashir, A. et al., Phytochemistry, 1993, 32, 741; 1633, (acetylsinapoyl derivs)
Lou, H. et al., Phytochemistry, 1993, 32, 1283, (6-Sinapoylsucrose)

§ Sucrose; 3'-*O*-(3,4,5-Trimethoxycinnamoyl), 4-*O*-benzoyl



[CAS No.]154287-43-1
[化合物分類]炭水化物(Disaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]
[分子式]$C_{31}H_{38}O_{16}$
[分子量]666.632
[基原]*Polygala reinii* と *Polygala tenuifolia* の根

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Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)
Kollonitsch, V., Sucrose Chemicals, Kline, The International Sugar Research Foundation, Washington, D.C., 1970, (レビュー)
Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag,
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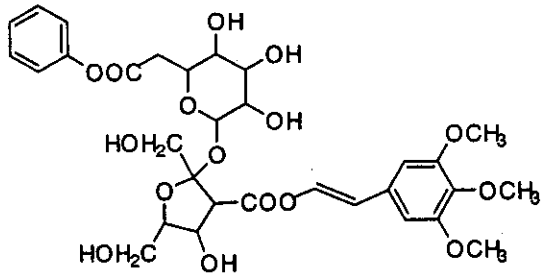
Sucrochemistry, (Ed. Hickson, J.L.), ACS Symp. Series, 1977, 41, (レビュー)
Opdyke, D.L.J., Food Chem. Toxicol., 1982, 20, 827, (レビュー, 毒性, octa-Ac)
Lewis, R.J., Food Additives Handbook, Van Nostrand Reinhold International, New York, 1989, SNH000
Sashida, Y. et al., Chem. Pharm. Bull., 1991, 39, 2362, (cinnamates)
Mathlouthi, M. et al., Sucrose, Blackie, 1995, (専門書)

§ Sucrose; 3'-*O*-(3,4,5-Trimethoxycinnamoyl), 6-*O*-benzoyl

[CAS No.]154287-41-9
[化合物分類]炭水化物(Disaccharides),

単環芳香族(Simple phenylpropanoids)
[構造式]



[分子式]$C_{31}H_{38}O_{16}$
[分子量]666.632
[基原]*Polygala reinii* と *Polygala tenuifolia* の根

----------文 献----------

Tollens, B. et al., Kurzes Handbuch der Kohlenhydrate, 4th edn., J.A. Barth, 1935, 477, (レビュー)
Kollonitsch, V., Sucrose Chemicals, Kline, The International Sugar Research Foundation, Washington, D.C., 1970, (レビュー)
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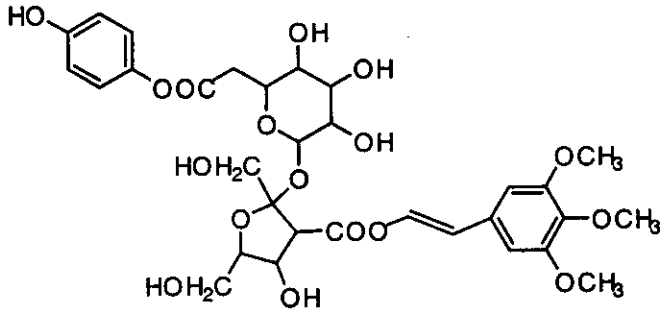
Khan, R., Adv. Carbohydr. Chem. Biochem., 1976, 33, 235, (レビュー)
Sucrochemistry, (Ed. Hickson, J.L.), ACS Symp. Series, 1977, 41, (レビュー)
Opdyke, D.L.J., Food Chem. Toxicol., 1982, 20, 827, (レビュー, 毒性, octa-Ac)
James, C.E. et al., Prog. Chem. Org. Nat. Prod., 1989, 55, 117, (レビュー)
Rathbone, E.B., Carbohydr. Res., 1990, 205, 402, (合成法, 成書, acetates)
Sashida, Y. et al., Chem. Pharm. Bull., 1991, 39, 2362, (cinnamates)
Mathlouthi, M. et al., Sucrose, Blackie, 1995, (専門書)

§ Sucrose; 3'-*O*-(3,4,5-Trimethoxycinnamoyl), 6-*O*-(4-hydroxybenzoyl)
[化学名・別名]Tenuifoliside A
[CAS No.]139726-35-5
[化合物分類]単環芳香族(Simple phenylpropanoids),
炭水化物(Disaccharides)
[構造式]

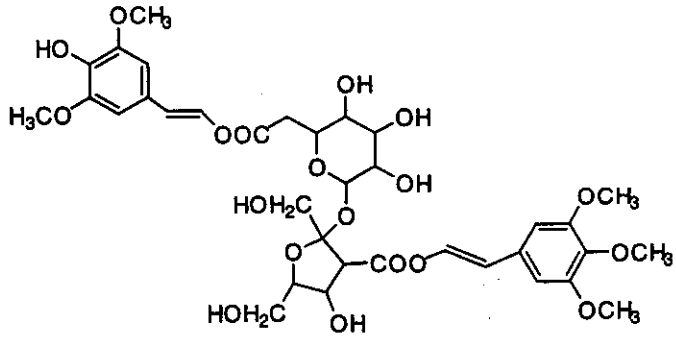


[分子式]$C_{28}H_{32}O_{17}$
[分子量]640.551
[一般的性質]CAS name defective
[基原]*Polygala tenuifolia* の根
[性状]無定型の黄色の粉末
[比旋光度]:$[\alpha]_D^{24}$ –20.5 (c, 1.52 in MeOH)

----------文 献----------

Ikeya, Y. et al., Chem. Pharm. Bull., 1991, 39, 2600; 1994, 42, 2305, (Tenuifolisides)

§ Sucrose; 3'-*O*-(3,4,5-Trimethoxycinnamoyl), 6-*O*-(4-hydroxy-3,5-dimethoxycinnamoyl)
[化学名・別名]Tenuifoliside C
[CAS No.]139726-37-7
[化合物分類]炭水化物(Disaccharides),
単環芳香族(Simple phenylpropanoids)
[構造式]



[分子式]$C_{35}H_{44}O_{19}$
[分子量]768.721
[基原]*Polygala tenuifolia* の根
[性状]無定型の黄色の粉末
[比旋光度]:$[\alpha]_D^{24}$ –53.6 (c, 1.51 in MeOH)

----------文 献----------

Ikeya, Y. et al., Chem. Pharm. Bull., 1991, 39, 2600; 1994, 42, 2305, (Tenuifolisides)

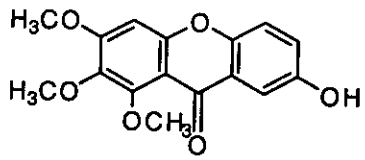
§ Tenuidine
[化合物分類]アルカロイド化合物(Alkaloids 構造は一部又は全てが未知)

[分子式] $C_{21}H_{31}N_3O_5$
[分子量] 405.493
[一般的性質] 構造は未知
[基原] 次の植物から得られるアルカロイド: *Polygala tenuifolia* (ヒメハギ科)
[融点] Mp 256 ℃
[比旋光度]: $[\alpha]_D^{19.5}$ +1200 (EtOH)

----------文 献----------

Kim, J.H., Yakhak Hoeji, 1964, 8, 59; CA, 65, 12248c

§ 1,2,3,7-Tetrahydroxyxanthone; 1,2,3-Tri-Me ether
[化学名・別名] 7-Hydroxy-1,2,3-trimethoxyxanthone. Onjixanthone I
[CAS No.] 136083-92-6
[化合物分類] 単環芳香族(Xanthones; 4 × O-置換基)
[構造式]
[分子式] $C_{16}H_{14}O_6$
[分子量] 302.283
[基原] *Polygala tenuifolia*
[性状] 黄色の針状結晶 (CH_2Cl_2/EtOH)
[融点] Mp 237-240 ℃



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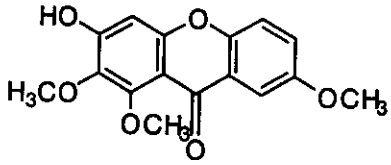
Dhasmana, H. et al., Phytochemistry, 1989, 28, 2819, (tri-Me ether 1-glucoside)
Ikeya, Y. et al., Phytochemistry, 1991, 30, 2061, (分離, H-NMR, C13-NMR)
Fujita, T. et al., Phytochemistry, 1992, 31, 3997, (分離, H-NMR)

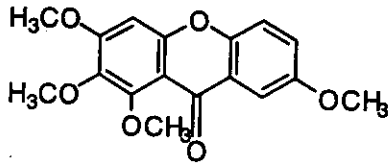
§ 1,2,3,7-Tetrahydroxyxanthone; 1,2,7-Tri-Me ether
[化学名・別名] 3-Hydroxy-1,2,7-trimethoxyxanthone
[CAS No.] 145541-99-7
[化合物分類] 単環芳香族(Xanthones; 4 × O-置換基)
[構造式]
[分子式] $C_{16}H_{14}O_6$
[分子量] 302.283
[基原] *Polygala tenuifolia*
[性状] 黄色の針状結晶 (EtOH)
[融点] Mp 193-195 ℃



----------文 献----------

Dhasmana, H. et al., Phytochemistry, 1989, 28, 2819, (tri-Me ether 1-glucoside)
Gendaramyn, O. et al., Chem. Pharm. Bull., 1998, 46, 1827-1828, (2,7-di-Me 3-glucoside)

§ 1,2,3,7-Tetrahydroxyxanthone; Tetra-Me ether
[化学名・別名] 1,2,3,7-Tetramethoxyxanthone
[CAS No.] 22804-52-0
[化合物分類] 単環芳香族(Xanthones; 4 × O-置換基)
[構造式]
[分子式] $C_{17}H_{16}O_6$
[分子量] 316.31
[基原] 次の植物から分離: *Frasera albicaulis*, *Polygala tenuifolia*
[性状] 結晶 (CH_2Cl_2/hexane)
[融点] Mp 135-136 ℃



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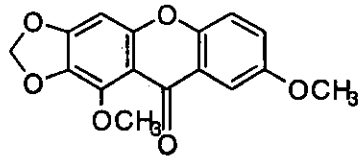
Stout, G.H. et al., Tetrahedron, 1969, 25, 1947; 1961, (分離, 構造決定, 合成法)
Dreyer, D.L. et al., Phytochemistry, 1981, 20, 493, (2,3-di-Me ether, 分離)
Rodriguez, S. et al., Phytochemistry, 1995, 40, 1256, (1-diglucosides)

§ 1,2,3,7-Tetrahydroxyxanthone; 2,3-Methylene, 1,7-di-Me ether
[化学名・別名] 1,7-Dimethoxy-2,3-methylenedioxyxanthone
[CAS No.] 145523-71-3
[化合物分類] 単環芳香族(Xanthones; 4 × O-置換基)

[構造式]
[分子式]$C_{16}H_{12}O_6$
[分子量]300.267
[基原]*Polygala tenuifolia*
[性状]黄色の針状結晶（EtOH）
[融点]Mp 253-254 ℃



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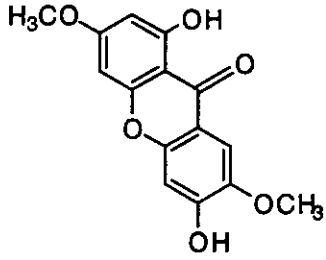
Pinheiro, T.R. et al., Phytochemistry, 1998, 48, 725-728,（2,3-methylene ethers）

§ 1,3,6,7-Tetrahydroxyxanthone; 3,7-Di-Me ether
[化学名・別名]1,6-Dihydroxy-3,7-dimethoxyxanthone
[CAS No.]69618-09-3
[化合物分類]単環芳香族(Xanthones; 4 × O-置換基)
[構造式]
[分子式]$C_{15}H_{12}O_6$
[分子量]288.256
[基原]*Polygala tenuifolia*
[性状]黄色の針状結晶（EtOH）
[融点]Mp 264-265 ℃



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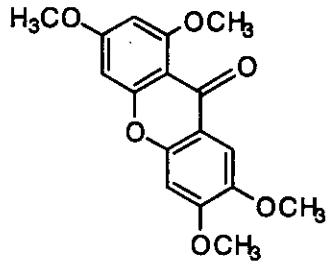
Ueno, A., Yakugaku Zasshi, 1962, 82, 1482; 1486,（分離）
Owen, P.J. et al., J.C.S. Perkin 1, 1974, 1018,（分離）
Ikeya, Y. et al., Phytochemistry, 1991, 30, 2061,（分離, 誘導体）
Hu, L. et al., Phytochemistry, 1999, 52, 1371-1373,（3,6-Dihydroxy-1,7-dimethoxyxanthone）

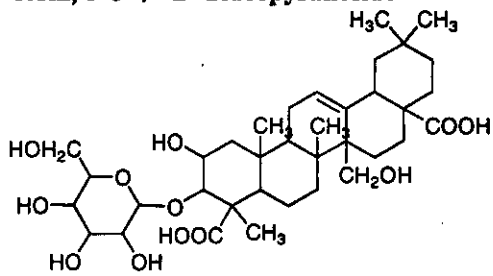
§ 1,3,6,7-Tetrahydroxyxanthone; Tetra-Me ether
[化学名・別名]1,3,6,7-Tetramethoxyxanthone
[CAS No.]3542-74-3
[化合物分類]単環芳香族(Xanthones; 4 × O-置換基)
[構造式]
[分子式]$C_{17}H_{16}O_6$
[分子量]316.31
[基原]*Allanblackia floribunda*, *Polygala tenuifolia*
[性状]クリーム色の塊
[融点]Mp 210-212 ℃



---文 献---

Ueno, A., Yakugaku Zasshi, 1962, 82, 1482; 1486,（分離）
Fujita, T. et al., Phytochemistry, 1992, 31, 3997-4000,（tetra-Me ether）

§ 2,3,27-Trihydroxy-12-oleanene-23,28-dioic acid;（2 β,3 β）-form, 3-*O*-β-D-Glucopyranoside
[化学名・別名]Tenuifolin
[CAS No.]20183-47-5
[化合物分類]テルペノイド(Oleanane triterpenoids)
[構造式]
[分子式]$C_{36}H_{56}O_{12}$
[分子量]680.831
[基原]*Polygala tenuifolia*, *Polygala senega*, *Pygeum africanum*
[性状]結晶(EtOH)
[融点]Mp 298-300 ℃
[比旋光度]:[α]$_D$ +49（c, 0.8 in EtOH）

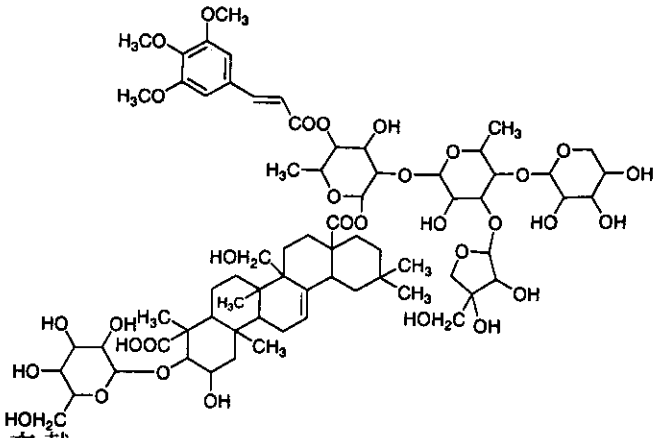


---文 献---

Yosioka, I. et al., Tet. Lett., 1966, 6303,（分離）
Zhang, D. et al., Chem. Pharm. Bull., 1996, 44, 173-179; 810-815; 2092-2099,（Polygalasaponins）
Zhang, D. et al., Phytochemistry, 1998, 47, 459-466,（Polygalasaponins XLIII-XLVI）

§ 2,3,27-Trihydroxy-12-oleanene-23,28-dioic acid;（2 β,3 β）-form, 3-*O*-β-D-Glucopyranoside, 28-*O*-[β-D-apiofuranosyl-(1 → 3)-[β-D-xylopyranosyl-(1 → 4)]-α-L-rhamnopyranosyl-(1 → 2)-

[3,4,5-trimethoxycinnamoyl-(→ 4)]-β-D-fucopyranosyl] ester
[化学名・別名]Onjisaponin G
[CAS No.]80722-15-2
[化合物分類]テルペノイド(Oleanane triterpenoids)
[構造式]

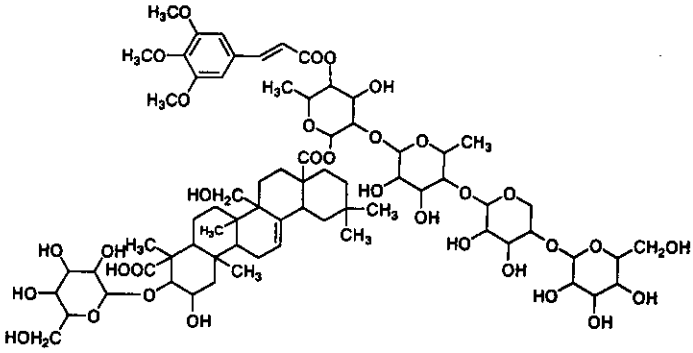


[分子式]$C_{70}H_{104}O_{32}$
[分子量]1457.572
[基原]次の植物から分離: *Polygala tenuifolia*
[性状]粉末(EtOH)
[融点]Mp 245-247 ℃で分解
[比旋光度]:[α]$_D^{17}$ -15 (c, 1.33 in MeOH)

---文献---

Sakuma, S. et al., Chem. Pharm. Bull., 1981, 29, 2431-2441; 1982, 30, 810-821, (C13-NMR, Onjisaponins)

§ 2,3,27-Trihydroxy-12-oleanene-23,28-dioic acid; (2β,3β)-form, 3-*O*-β-D-Glucopyranoside, 28-*O*-[β-D-glucopyranosyl-(1 → 4)-β-D-xylopyranosyl-(1 → 4)-α-L-rhamnopyranosyl-(1 → 2)-[3,4,5-trimethoxycinnamoyl-(→ 4)]-β-D-fucopyranosyl] ester
[化学名・別名]Onjisaponin E
[CAS No.]82410-35-3
[化合物分類]テルペノイド
(Oleanane triterpenoids)
[構造式]

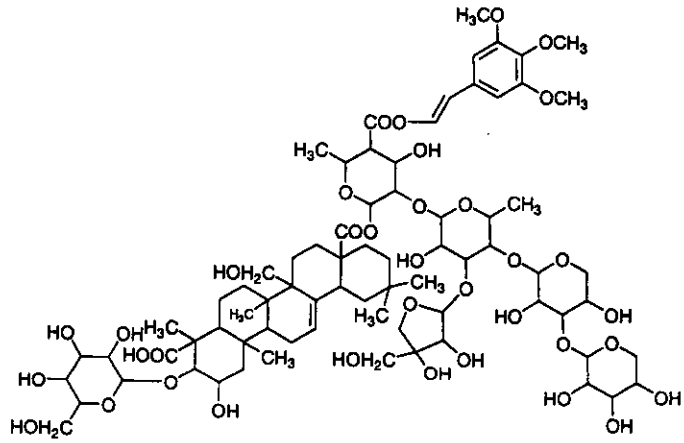


[分子式]$C_{71}H_{106}O_{33}$
[分子量]1487.599
[基原]次の植物から分離: *Polygala tenuifolia*
[性状]針状結晶・四水和物 (EtOH 溶液)
[融点]Mp 245-247 ℃ (分解)
[比旋光度]:[α]$_D^{17}$ -6.5 (c, 1 in MeOH)

---文献---

Sakuma, S. et al., Chem. Pharm. Bull., 1981, 29, 2431-2441; 1982, 30, 810-821, (C13-NMR, Onjisaponins)

§ 2,3,27-Trihydroxy-12-oleanene-23,28-dioic acid; (2β,3β)-form, 3-*O*-β-D-Glucopyranoside, 28-[β-D-apiofuranosyl-(1 → 3)-[α-L-arabinopyranosyl-(1 → 3)-β-D-xylopyranosyl-(1 → 4)]-α-L-rhamnopyranosyl-(1 → 2)-[(→ 4)-(3,4,5-trimethoxycinnamoyl)]-6-deoxy-β-D-galactopyranosyl] ester
[化学名・別名]Onjisaponin F. Polygalasaponin XXXI
[CAS No.]79103-90-5
[化合物分類]テルペノイド
(Oleanane triterpenoids)
[構造式]



[分子式]$C_{75}H_{112}O_{36}$
[分子量]1589.688
[基原]次の植物から分離: *Polygala tenuifolia*, *Polygala japonica*
[性状]粉末(EtOH)
[融点]Mp 246-249 ℃(分解)
[比旋光度]:[α]$_D^{17}$ -10.7 (c, 1.15 in MeOH).
[α]$_D^{30}$ -12 (c, 0.25 in MeOH)

---文献---

Sakuma, S. et al., Chem. Pharm. Bull., 1981, 29, 2431-2441; 1982, 30, 810-821, (C13-NMR, Onjisaponins)
Zhang, D. et al., Chem. Pharm. Bull., 1996, 44, 173-179; 810-815; 2092-2099, (Polygalasaponins)
Zhang, D. et al., Phytochemistry, 1998, 47, 459-466, (Polygalasaponins XLIII-XLVI)

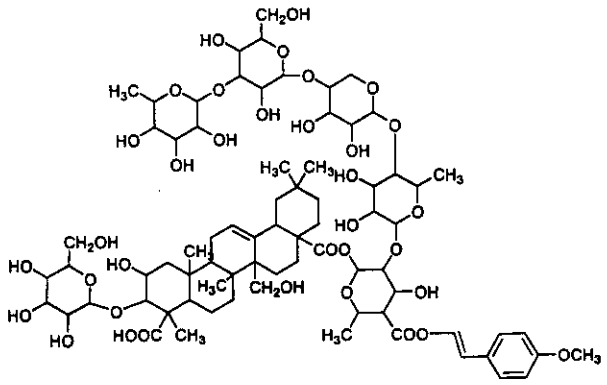
§ 2,3,27-Trihydroxy-12-oleanene-23,28-dioic acid; (2 β,3 β)-form, 3-*O*-β-Glucopyranoside, 28-*O*-[α-L-rhamnopyranosyl-(1 → 3)-β-D-galactopyranosyl-(1 → 4)-β-D-xylopyranosyl-(1 → 4)-α-L-rhamnopyranosyl-(1 → 2)-[4-methoxycinnamoyl-(→ 4)]-β-D-fucopyranosyl] ester

[化学名・別名]Onjisaponin B. Senegin III. Sinegin 3

[CAS No.]35906-36-6

[化合物分類]テルペノイド(Oleanane triterpenoids)

[構造式]



[分子式]$C_{75}H_{112}O_{35}$

[分子量]1573.689

[基原]次の植物から分離: *Polygala senega*, *Polygala tenuifolia*

[性状]粉末(EtOH 溶液)

[融点]Mp 249-251 ℃で分解

[比旋光度]:$[\alpha]_D^{17}$ -10.2 (c, 1.08 in MeOH)

----------文 献----------

Tsukitani, Y. et al., Chem. Pharm. Bull., 1973, 21, 791; 1564, (Senegins)

Sakuma, S. et al., Chem. Pharm. Bull., 1981, 29, 2431-2441; 1982, 30, 810-821, (C13-NMR, Onjisaponins)

Yoshikawa, M. et al., Chem. Pharm. Bull., 1995, 43, 350-352; 2115-2122; 1996, 44, 1305-1313, (Senegasaponins, Senegins)

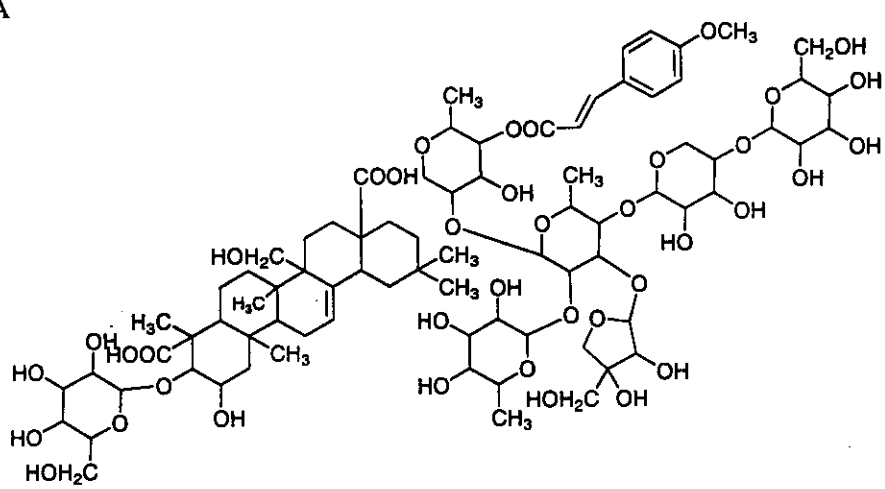
§ 2,3,27-Trihydroxy-12-oleanene-23,28-dioic acid; (2 β,3 β)-form, 3-*O*-β-D-Glucopyranoside, 28-*O*-[β-D-apiofuranosyl-(1 → 3)-[β-D-galactopyranosyl-(1 → 4)-β-D-xylopyranosyl-(1 → 4)]-α-L-rhamnopyranosyl-(1 → 2)-α-L-rhamnopyranosyl-(1 → 3)-[4-methoxycinnamoyl-(→ 4)]-β-D-fucopyranosyl] ester

[化学名・別名]Onjisaponin A

[CAS No.]82410-33-1

[化合物分類]テルペノイド
(Oleanane triterpenoids)

[構造式]



[分子式]$C_{90}H_{120}O_{39}$

[分子量]1705.805

[基原]次の植物から分離:
Polygala tenuifolia

[性状]粉末(EtOH)

[融点]Mp 253-254 ℃ (分解)

[比旋光度]:$[\alpha]_D^{17}$ -18.4 (c, 1.24 in MeOH)

----------文 献----------

Sakuma, S. et al., Chem. Pharm. Bull., 1981, 29, 2431-2441; 1982, 30, 810-821, (C13-NMR, Onjisaponins)

Zhang, D. et al., Chem. Pharm. Bull., 1996, 44, 173-179; 810-815; 2092-2099, (Polygalasaponins)

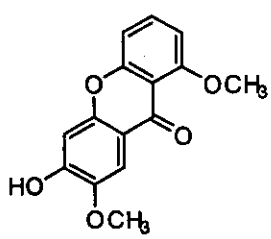
§ 1,6,7-Trihydroxyxanthone; 1,7-Di-Me ether

[化学名・別名]6-Hydroxy-1,7-dimethoxyxanthone

[CAS No.]145523-70-2

[化合物分類]単環芳香族(Xanthones; 3 × O-置換基)

[構造式]



[分子式]$C_{15}H_{12}O_5$

[分子量]272.257

[基原]次の植物から分離: *Polygala tenuifolia*

[性状]黄色の針状結晶 (EtOH)

[融点]Mp 261-262 ℃

----------文 献 ----------

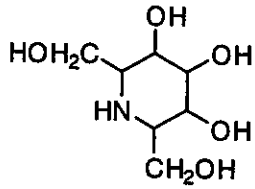
Jackson, B. et al., J.C.S.(C), 1969, 2201, (分離)
Carpenter, I. et al., J.C.S.(C), 1969, 2421, (分離)
Fujita, T. et al., Phytochemistry, 1992, 31, 3997, (分離)
Peres, V. et al., Phytochemistry, 1997, 44, 191, (レビュー, 生育)
Tosa, H. et al., Phytochemistry, 1997, 45, 133, (7-Me ether)

*********ヒヤシンス (Hyacinth) *********

§ §ユリ科ヒヤシンス(*Hyacinthus orientalis* L.)の花または鱗茎。

§ 2,6-Bis(hydroxymethyl)-3,4,5-piperidinetriol; (2*R*,3*R*,4*R*,5*S*,6*R*)-form

[化学名・別名]D-*glycero*-L-*gulo*-form. α-Homonojirimycin
[CAS No.]119557-99-2
[化合物分類]アルカロイド化合物(Simple piperidine alkaloids)
[構造式]



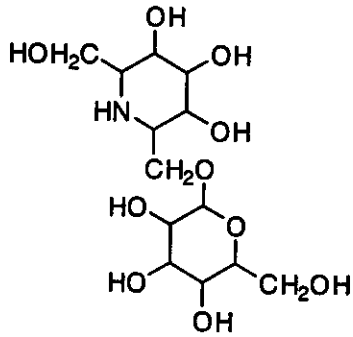
[分子式]$C_7H_{15}NO_5$
[分子量]193.199
[基原]次の植物から得られるアルカロイド: *Aglaonema treubii*, *Adenophera* spp. *Hyacinthus orientalis*, *Omphalea diandra*
[用途]数種のα-glucosidases 抑制因子
[融点]Mp 206-207 ℃
[比旋光度]:$[\alpha]_D^{20}$ +88.2 (c, 0.54 in H_2O)
UV: [neutral] λ_{max} 0 (end) (ε) (MeOH) (Derep) [neutral] λ_{max} (H_2O) (Berdy)

----------文 献 ----------

Holt, K.E. et al., J.C.S. Perkin 1, 1994, 231-234, (α-Homomannojirimycin, β-Homonojirimycin, 合成法, H-NMR, 生化学)
Shilvlock, J.P. et al., Tetrahedron: Asymmetry, 1998, 9, 3505-3516, (α-Homomannojirimycin, β-Homomannojirimycin, 合成法, H-NMR)
Watson, A.A. et al., Phytochemistry, 2000, 56, 265-295, (レビュー)

§ 2,6-Bis(hydroxymethyl)-3,4,5-piperidinetriol; (2*R*,3*R*,4*R*,5*S*,6*R*)-form, 7-*O*-β-D-Glucopyranoside

[化学名・別名]1"-*O*-β-D-Glucopyranosyl-α-homonojirimycin. MDL 25637. 2,6-Dideoxy-7-*O*-β-D-glucopyranosyl-2,6-imino-D-*glycero*-L-*gulo*-heptitol(CAS 名)
[CAS No.]104343-33-1
[その他の CAS No.]104419-80-9
[化合物分類]薬物: 抗高血糖症薬(Antihyperglycaemic agents), アルカロイド化合物(Simple piperidine alkaloids)
[構造式]

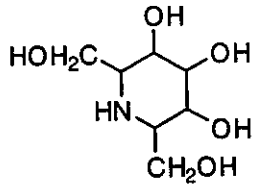


[分子式]$C_{13}H_{25}NO_{10}$
[分子量]355.341
[基原]次の植物から得られるアルカロイド: *Commelina communis*, *Aglaonema treubii*, *Hyacinthus orientalis*, *Lobelia sessilifolia*
[用途]強いα-glucosidase 抑制因子, competitive inhibitor for intestinal sucrase. Also inhibits maltase, trehalase, glucoamylase and α-amylase. Antidiabetic agent
[性状]無定型の粉末・一水和物
[融点]Mp 84-86 ℃. Mp 131-134 ℃ (as hydrochloride). Mp 216-219 ℃ (合成品)
[比旋光度]:$[\alpha]_D^{20}$ +20 (c, 0.5 in H_2O). $[\alpha]_D$ +24.7 (c, 0.7 in H_2O). $[\alpha]_D$ +27.5 (c, 1 in H_2O)

----------文 献 ----------

Liu, P.S., J.O.C., 1987, 52, 4717-4721, (α-Homonojirimycin, H-NMR, Mass, 誘導体, 合成法)
Bruce, T. et al., Tetrahedron, 1992, 48, 10191-101200, (α-Homomannojirimycin, 6-Epi-α-homomannojirimycin, 合成法, H-NMR, C13-NMR, 生化学)
Holt, K.E. et al., J.C.S. Perkin 1, 1994, 231-234, (α-Homomannojirimycin, β-Homonojirimycin, 合成法, H-NMR, 生化学)
Shilvlock, J.P. et al., Tetrahedron: Asymmetry, 1998, 9, 3505-3516, (α-Homomannojirimycin, β-Homomannojirimycin, 合成法, H-NMR)

§ 2,6-Bis(hydroxymethyl)-3,4,5-piperidinetriol; (2*R*,3*R*,4*R*,5*R*,6*S*)-form



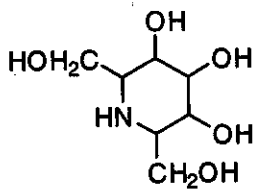
[化学名・別名] β-Homomannojirimycin
[CAS No.] 154349-07-2
[化合物分類] アルカロイド化合物(Simple piperidine alkaloids)
[構造式]
[分子式] $C_7H_{15}NO_5$
[分子量] 193.199
[基原] 次の植物から得られるアルカロイド: *Aglaonema treubii* and *Hyacinthus orientalis*
[用途] β-Mannosidase 抑制因子
[性状] 吸湿性の塊
[比旋光度]: $[\alpha]_D$ +12.1 (c, 0.27 in H_2O)

----------文 献----------

Bruce, T. et al., Tetrahedron, 1992, 48, 10191-101200, (α-Homomannojirimycin, 6-Epi-α-homomannojirimycin, 合成法, H-NMR, C13-NMR, 生化学)
Holt, K.E. et al., J.C.S. Perkin 1, 1994, 231-234, (α-Homomannojirimycin, β-Homonojirimycin, 合成法, H-NMR, 生化学)
Shilvlock, J.P. et al., Tetrahedron: Asymmetry, 1998, 9, 3505-3516, (α-Homomannojirimycin, β-Homomannojirimycin, 合成法, H-NMR)

§ 2,6-Bis(hydroxymethyl)-3,4,5-piperidinetriol; (2*R*,3*R*,5*R*,6*R*)-form

[化学名・別名] α-Homomannojirimycin. α-Homomannonojirimycin
[CAS No.] 127995-29-3
[化合物分類] アルカロイド化合物(Simple piperidine alkaloids)
[基原] 次の植物から得られるアルカロイド: *Hyacinthus orientalis, Aglaonema treubii*
[構造式]

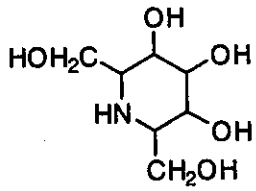


[分子式] $C_7H_{15}NO_5$
[分子量] 193.199
[用途] Nonselective α-glucosidase inhibitor
[性状] 吸湿性の塊
[比旋光度]: $[\alpha]_D$ +4.4 (c, 0.55 in H_2O) (natural).
$[\alpha]_D$ 20 +7.4 (c, 0.55 in H_2O) (synthetic)
[その他のデータ] C-4 is achiral

----------文 献----------

Liu, P.S., J.O.C., 1987, 52, 4717-4721, (α-Homonojirimycin, H-NMR, Mass, 誘導体, 合成法)
Bruce, T. et al., Tetrahedron, 1992, 48, 10191-101200, (α-Homomannojirimycin, 6-Epi-α-homomannojirimycin, 合成法, H-NMR, C13-NMR, 生化学)
Holt, K.E. et al., J.C.S. Perkin 1, 1994, 231-234, (α-Homomannojirimycin, β-Homonojirimycin, 合成法, H-NMR, 生化学)
Shilvlock, J.P. et al., Tetrahedron: Asymmetry, 1998, 9, 3505-3516, (α-Homomannojirimycin, β-Homomannojirimycin, 合成法, H-NMR)
Watson, A.A. et al., Phytochemistry, 2000, 56, 265-295, (レビュー)

§ 2,6-Bis(hydroxymethyl)-3,4,5-piperidinetriol; (2*RS*,3*RS*,4*RS*,5*SR*,6*SR*)-form



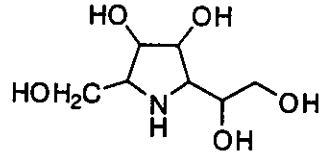
[化学名・別名] β-Homonojirimycin
[CAS No.] 157544-15-5
[化合物分類] アルカロイド化合物(Simple piperidine alkaloids)
[構造式]
[分子式] $C_7H_{15}NO_5$
[分子量] 193.199
[基原] 次の植物から得られるアルカロイド: *Aglaonema treubii*, *Hyacinthus orientalis*
[性状] 物理化学的性質については報告がない.
[その他のデータ] *Meso*-stereoisomer

----------文 献----------

Bruce, T. et al., Tetrahedron, 1992, 48, 10191-101200, (α-Homomannojirimycin, 6-Epi-α-homomannojirimycin, 合成法, H-NMR, C13-NMR, 生化学)
Holt, K.E. et al., J.C.S. Perkin 1, 1994, 231-234, (α-Homomannojirimycin, β-Homonojirimycin, 合成法,

H-NMR, 生化学)
Shilvlock, J.P. et al., Tetrahedron: Asymmetry, 1998, 9, 3505-3516, (α-Homomannojirimycin, β-Homomannojirimycin, 合成法, H-NMR)
Watson, A.A. et al., Phytochemistry, 2000, 56, 265-295, (レビュー)

§ 2-(1,2-Dihydroxyethyl)-3,4-dihydroxy-5-(hydroxymethyl)pyrrolidine; (1 ξ,2*R*,3*R*,4*R*,5*R*)-form
[化学名・別名]2,5-Dideoxy-2,5-imino-*glycero*-D-*manno*-heptitol
[CAS No.]197390-30-0
[化合物分類]アルカロイド化合物(Simple pyrrolidine alkaloids)
[構造式]

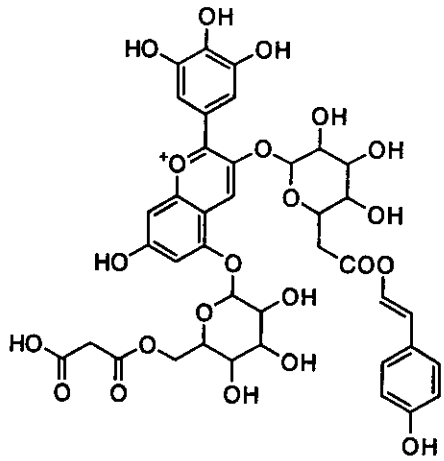


[分子式]$C_7H_{15}NO_5$
[分子量]193.199
[基原]次の植物の葉から得られるアルカロイド: *Hyacinthoides non-scripta*, *Hyacinthus orientalis*
[用途]β-glucosidases 抑制因子
[比旋光度]:$[\alpha]_D^{25}$ +31.5 (c, 0.4 in H_2O)
[その他のデータ]C-1' config. not determined

----------文 献----------

Watson, A.A. et al., Phytochemistry, 1997, 46, 255-259, (分離, H-NMR, C13-NMR)
Asano, N. et al., J. Nat. Prod., 1998, 61, 625-628, (分離)

§ 3,3',4',5,5',7-Hexahydroxyflavylium(1+); 3-*O*-[4-Hydroxy-*Z*-cinnamoyl-(→6)-β-D-glucopyranoside], 5-*O*-[6-*O*-malonyl-β-D-glucopyranoside]
[化学名・別名]Malonyl-*cis*-awobanin
[CAS No.]163959-19-1
[その他の CAS No.]138752-16-6
[化合物分類]フラボノイド(Anthocyanidins and anthocyanins; 6 × O-置換基)
[構造式]

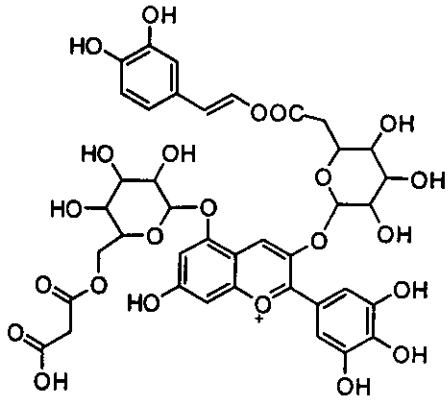


[分子式]$C_{39}H_{39}O_{22}^{(+)}$
[分子量]859.724
[基原]*Commelina communis* と *Hyacinthus orientalis* の花

----------文 献----------

Goto, T. et al., Tet. Lett., 1978, 2413; 1982, 23, 3695; 1983, 24, 2181; 4863; 1986, 27, 1801, (Awobanin, Violanin, Gentiodelphin, Platyconin, Malonylawobanin)
Ishikawa, T. et al., Phytochemistry, 1999, 52, 517-521, (Acetylmalonylawobanin, Malonylawobanin)

§ 3,3',4',5,5',7-Hexahydroxyflavylium(1+); 3-*O*-[3,4-Dihydroxy-*E*-cinnamoyl-(→6)-β-D-glucopyranoside], 5-*O*-(6-*O*-malonyl-β-D-glucopyranoside)
[化学名・別名]Monodemalonylsalviadelphin
[CAS No.]128508-46-3
[化合物分類]フラボノイド(Anthocyanidins and anthocyanins; 6 × O-置換基)
[構造式]

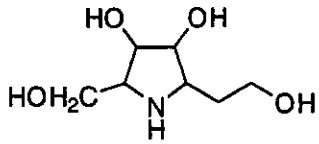


[分子式]$C_{39}H_{39}O_{23}^{(+)}$
[分子量]875.723
[基原]次の植物から分離: *Salvia splendens*, *Hyacinthus orientalis*

----------文 献----------

Kondo, T. et al., Tet. Lett., 1989, 30, 6055; 6729, (Lobelinin derivs, Salviadelphin, Salviamalvin, Monodemalonylsalviadelphin)

§ 2-(2-Hydroxyethyl)-5-(hydroxymethyl)-3,4-pyrrolidinediol; (2*R*,3*R*,4*R*,5*R*)-form
[化学名・別名]D-*manno*-form. 2,5,6-Trideoxy-2,5-imino-D-*manno*-heptitol
[CAS No.]205762-20-5
[化合物分類]アルカロイド化合物(Miscellaneous pyrrolidine alkaloids), 炭水化物(Higher alditols)
[構造式]

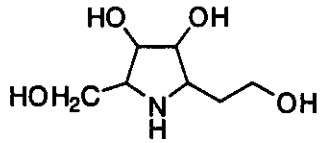


[分子式]$C_7H_{15}NO_4$
[分子量]177.2
[基原]次の植物の球根から得られるアルカロイド: *Hyacinthus orientalis*
[用途] α-glucosidase 抑制因子
[比旋光度]:[α]$_D$ +98.5 (c, 1.13 in H_2O)

---文 献---

Asano, N. et al., J. Nat. Prod., 1998, 61, 625-628, (分離, H-NMR, C13-NMR)

§ 2-(2-Hydroxyethyl)-5-(hydroxymethyl)-3,4-pyrrolidinediol; (2*R*,3*S*,4*S*,5*S*)-form
[化学名・別名]D-*gulo*-form. 2,5,6-Trideoxy-2,5-imino-D-*gulo*-heptitol
[CAS No.]205762-22-7
[化合物分類]炭水化物(Higher alditols), アルカロイド化合物(Miscellaneous pyrrolidine alkaloids)
[構造式]

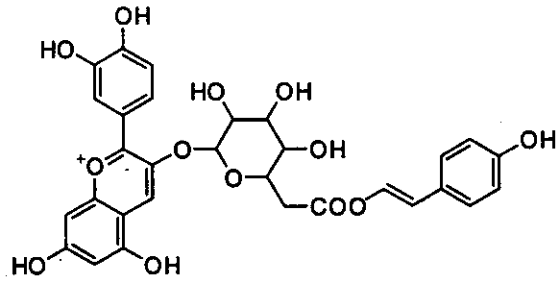


[分子式]$C_7H_{15}NO_4$
[分子量]177.2
[基原]次の植物の球根から得られるアルカロイド: *Hyacinthus orientalis*
[用途] α-fucosidase 抑制因子
[比旋光度]:[α]$_D$ +41.4 (c, 0.56 in H_2O)

---文 献---

Asano, N. et al., J. Nat. Prod., 1998, 61, 625-628, (分離, H-NMR, C13-NMR)

§ 3,3',4',5,7-Pentahydroxyflavylium(1+); 3-*O*-[4-Hydroxycinnamoyl-(→6)-β-D-glucopyranoside]
[化学名・別名]Hyacinthin
[CAS No.]56767-17-0
[化合物分類]フラボノイド(Anthocyanidins and anthocyanins; 5 × O-置換基)
[構造式]

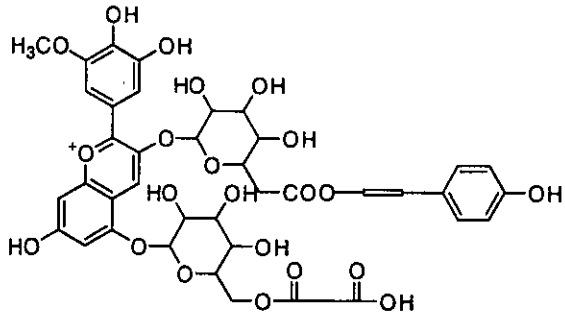


[分子式]$C_{30}H_{27}O_{13}^{(+)}$
[分子量]595.535
[基原]次の植物から分離: *Hyacinthus orientalis*, ブドウ

---文 献---

Robinson, R. et al., J.C.S., 1927, 2086; 1932, 2494, (分離, 合成法)
Harborne, J.B., Phytochemistry, 1963, 2, 85; 1964, 3, 151; 453, (構造決定, 配等体)
Vega, F.A. et al., Chem. Ind. (London), 1967, 954, (分離)
Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag, Basel, 1972, nos. 1713; 1715; 1716, (生育)
Iacobucci, G.A. et al., Tetrahedron, 1983, 39, 3005, (レビュー)
The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988

§ 3,3',4',5,7-Pentahydroxy-5'-methoxyflavylium(1+); 3-*O*-[4-Hydroxy-*E*-cinnamoyl-(→6)-β-D-glucopyranoside], 5-*O*-(6-*O*-malonyl-β-D-glucopyranoside)
[CAS No.]163857-14-5
[化合物分類]フラボノイド(Anthocyanidins and anthocyanins; 6 × O-置換基)
[構造式]

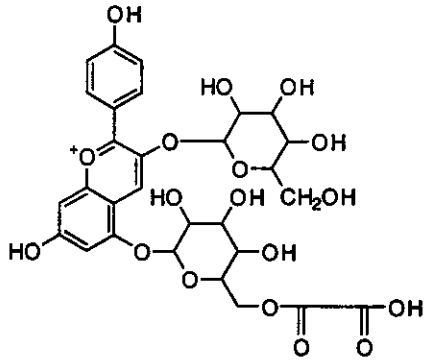


[分子式] $C_{40}H_{41}O_{22}^{(+)}$
[分子量] 873.751
[基原] *Hyacinthus orientalis* の花

---文 献---

Bell, J.C. et al., J.C.S., 1934, 1604, (分離)
Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäser Verlag, Basel, 1972, no. 1742, (生育)
Iacobucci, G.A. et al., Tetrahedron, 1983, 39, 3005, (レビュー)

§ 3,4',5,7-Tetrahydroxyflavylium (1+); 3-*O*-β-
D-Glucopyranoside, 5-*O*-(6-*O*-malonyl-β-D-glucopyranoside)
[化合物分類] フラボノイド
(Anthocyanidins and anthocyanins; 4 × O-置換基)
[構造式]

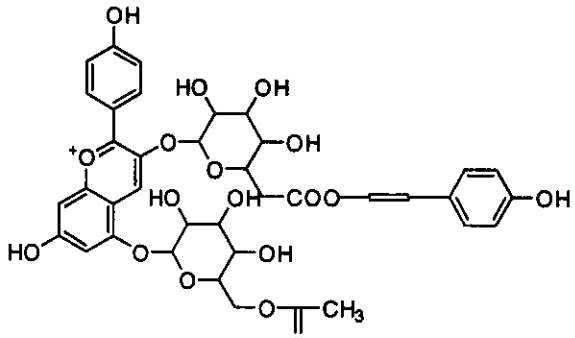


[分子式] $C_{30}H_{33}O_{18}^{(+)}$
[分子量] 681.58
[基原] *Hyacinthus orientalis* の花

---文 献---

Karrer, P. et al., Helv. Chim. Acta, 1927, 10, 67; 1928, 12, 292, (分離, Monardein)
Robertson, A. et al., J.C.S., 1928, 1460; 1533, (分離)
Timberlake, C.F. et al., The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 215, (レビュー)
Iacobucci, G.A. et al., Tetrahedron, 1983, 39, 3005, (レビュー)
The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988

§ 3,4',5,7-Tetrahydroxyflavylium (1+); 3-*O*-[4-Hydroxy-*E*-cinnamoyl-(→ 6)-β-D-glucopyranoside], 5-*O*-[6-*O*-acetyl-β-D-glucopyranoside]
[化合物分類] フラボノイド
(Anthocyanidins and anthocyanins; 4 × O-置換基)
[構造式]

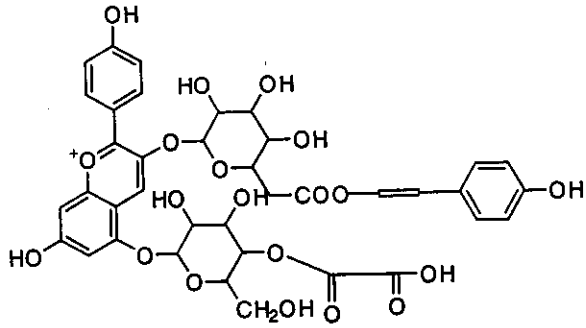


[分子式] $C_{38}H_{39}O_{18}^{(+)}$
[分子量] 783.715
[基原] *Hyacinthus orientalis* の花
[性状] 粉末

---文 献---

Karrer, P. et al., Helv. Chim. Acta, 1927, 10, 67; 1928, 12, 292, (分離, Monardein)
Timberlake, C.F. et al., The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 215, (レビュー)
Iacobucci, G.A. et al., Tetrahedron, 1983, 39, 3005, (レビュー)
The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988

§ 3,4',5,7-Tetrahydroxyflavylium (1+); 3-*O*-[4-Hydroxy-*E*-cinnamoyl-(→ 6)-β-D-glucopyranoside], 5-*O*-(4-*O*-malonyl-β-D-glucopyranoside)
[化合物分類] フラボノイド (Anthocyanidins and anthocyanins; 4 × O-置換基)
[構造式]

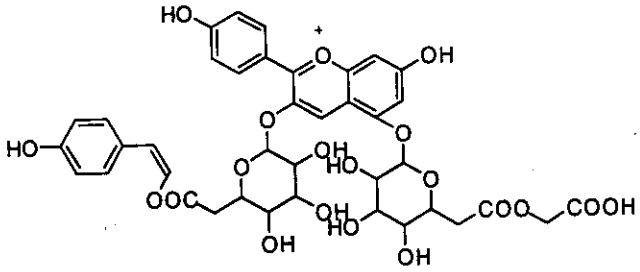


[分子式] $C_{39}H_{39}O_{20}^{(+)}$
[分子量] 827.725
[基原] *Hyacinthus orientalis* の花

文 献

Karrer, P. et al., Helv. Chim. Acta, 1927, 10, 67; 1928, 12, 292, (分離, Monardein)
Timberlake, C.F. et al., The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 215, (レビュー)
Iacobucci, G.A. et al., Tetrahedron, 1983, 39, 3005, (レビュー)
The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988

§ 3,4',5,7-Tetrahydroxyflavylium (1+);
3-*O*-[4-Hydroxy-*E*-cinnamoyl-(→ 6)-β-D-glucopyranoside],
5-*O*-(6-*O*-malonyl-β-D-glucopyranoside)
[化学名・別名] Monodemalonylmonardein
[CAS No.] 101205-00-9
[化合物分類] フラボノイド
(Anthocyanidins and anthocyanins; 4 × O-置換基)
[構造式]

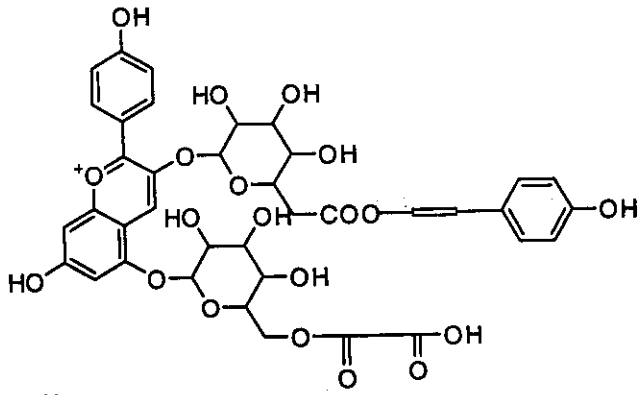


[分子式] $C_{39}H_{39}O_{20}^{(+)}$
[分子量] 827.725
[基原] 次の植物から分離: *Salvia coccinea*, *Salvia splendens*, *Hyacinthus orientalis* の花

文 献

Karrer, P. et al., Helv. Chim. Acta, 1927, 10, 67; 1928, 12, 292, (分離, Monardein)
Timberlake, C.F. et al., The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 215, (レビュー)
The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988
Terahara, N. et al., J.C.S. Perkin 1, 1990, 3327, (Rubrocampanin)

§ 3,4',5,7-Tetrahydroxyflavylium (1+); 3-*O*-[4-Hydroxy-*Z*-cinnamoyl-(→ 6)-β-D-glucopyranoside],
5-*O*-(6-*O*-malonyl-β-D-glucopyranoside)
[化合物分類] フラボノイド
(Anthocyanidins and anthocyanins; 4 × O-置換基)
[構造式]



[分子式] $C_{39}H_{39}O_{20}^{(+)}$
[分子量] 827.725
[基原] *Hyacinthus orientalis* の花

文 献

Karrer, P. et al., Helv. Chim. Acta, 1927, 10, 67; 1928, 12, 292, (分離, Monardein)
Timberlake, C.F. et al., The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 215, (レビュー)
Iacobucci, G.A. et al., Tetrahedron, 1983, 39, 3005, (レビュー)
The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988