

参照文献

Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) 103,197,1982  
《試験方法》 姉妹染色分体交換.  
曝露経路 : 腹腔内投与.  
試験系 : げっ歯類-マウス.  
投与量・期間: 100 mg/kg/5 日間 (間欠的)

参照文献

Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) 122,347,1983  
《試験方法》 精子形態学.  
曝露経路 : 腹腔内投与.  
試験系 : げっ歯類-マウス.  
投与量・期間: 20 mg/kg

参照文献

Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) 158,189,1985  
《試験方法》 小核試験.  
試験系 : げっ歯類-ハムスター卵巣.  
投与量・期間: 200 nmol/L

参照文献

Mutation Research. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) 367,99,1996  
《試験方法》 形態的形質交換.  
試験系 : げっ歯類-ハムスター腎臓.  
投与量・期間: 2500 ug/L

参照文献

Lancet. (7 Adam St., London WC2N 6AD, UK) 1,112,1979  
《試験方法》 ほ乳類の体細胞突然変異試験  
試験系 : げっ歯類-ハムスター肺.  
投与量・期間: 5 mg/L

参照文献

Carcinogenesis (London). (Oxford Univ. Press, Pinkhill House, Southfield Road, Eynsham, Oxford OX8 1JJ, UK) 5,501,1984

\*\*\* REVIEWS \*\*\*

IARC Cancer Review: Animal Inadequate Evidence

IMEMDT IARC Monographs on the Evaluation of Carcinogenic Risk of Chemicals to Man. (WHO Publications Centre USA, 49 Sheridan Ave., Albany, NY 12210) V.1- 1972- [Vol.,頁,年(19-)] 37,141,1985

§ 1,2,5,6-Tetrahydro-3-pyridinecarboxylic acid (CAS 名)

[化学名・別名] Guvacine.  $\Delta^3$ -Tetrahydronicotinic acid

[CAS No.] 498-96-4

[化合物分類] アルカロイド化合物 (Nicotinic acid derived alkaloids), 薬物: 摂取抑制薬 (Uptake inhibitors)

[構造式]

[分子式]  $C_6H_7NO_2$

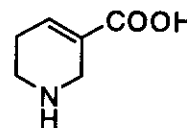
[分子量] 127.143

[基原] 次の植物から得られるアルカロイド: *Areca catechu* (betel nut) (ヤシ科)

[用途] 4-Aminobutanoic acid (GABA) 摂取の強い抑制因子

[融点] Mp 293-295 °C で分解 (271-272 °C)

[販売元] Sigma:G8891



----- 文献 -----

Jahns, E., Ber., 1891, 24, 2615, (分離)

Wohl, A. et al., Ber., 1907, 40, 4698, (構造決定)

Freudenberg, K., Ber., 1918, 51, 976; 1668, (構造決定)

v. Euler, H. et al., Helv. Chim. Acta, 1944, 27, 382, (分離)

Krogsgaard-Larsen, P. et al., Acta Chem. Scand., Ser. B, 1978, 32, 327, (合成法, 薬理)

§ 1,2,5,6-Tetrahydro-3-pyridinecarboxylic acid; Me ester

[化学名・別名] Guvacoline. Norarecoline

[CAS No.] 495-19-2

[化合物分類] アルカロイド化合物 (Nicotinic acid derived alkaloids)

[構造式]

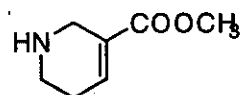
[分子式]  $C_7H_{11}NO_2$

[分子量] 141.169

[基原] 次の植物から得られるアルカロイド: *Areca catechu* (ヤシ科)

[融点] Mp 27 °C

[沸点] Bp<sub>13.5</sub> 114 °C (lit. gives a pressure range)



-----文献-----

Jahns, E., Ber., 1891, 24, 2615, (分離)

v. Euler, H. et al., Helv. Chim. Acta, 1944, 27, 382, (分離)

Krogsgaard-Larsen, P. et al., Acta Chem. Scand., Ser. B, 1978, 32, 327, (合成法, 薬理)

\*\*\*\*\*フェイジョア (Feijoa, Pineapple guava) \*\*\*\*\*

§ § フトモモ科フェイジョア (*Feijoa sellowiana* Berg) の果実。

§ Benzoic acid; Isopropyl ester

[化学名・別名] Isopropyl benzoate. FEMA 2932

[CAS No.] 939-48-0

[化合物分類] 単環芳香族 (Simple benzoic acids and esters)

[構造式]

[分子式]  $C_{10}H_{12}O_2$

[分子量] 164.204

[基原] 次の植物に存在する: feijoa fruit (*Feijoa sellowiana*), リンゴ, pear

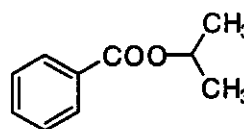
[用途] Polymerisation catalyst, flavour ingredient

[沸点] Bp 218-219 °C

[濃度]  $d_{15}^{15}$  1.02

[傷害・毒性] 引火点: 89/99 °C. 眼と皮膚を刺激する. 50%致死量 (LD<sub>50</sub>) (ラット, 経口) 3730 mg/kg

[化学物質毒性データ総覧 (RTECS) 登録番号] DH3150000



-----文献-----

Opdyke, D.L.J., Food Cosmet. Toxicol., 1979, 17, 715, (レビュー, 毒性)

Tremblay, G.C. et al., Pharmacol. Ther., 1993, 60, 63, (レビュー, 薬理, 毒性)

Baba, S. et al., Biol. Pharm. Bull., 1995, 18, 643, (C13-NMR, 代謝)

Luck, E. et al., Antimicrobial Food Additives: Characteristics, Uses, Effects, 2nd edn., Springer-Verlag, 1996, 174, (専門書)

\*\*\*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>> LD50 試験 (50%致死量試験).

曝露経路 : 経口投与.

被験動物 : げっ歯類-ラット.

投与量・期間 : 3730 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

Archives of Industrial Hygiene and Occupational Medicine. (Chicago, IL) 4,119,1951

<<試験方法>> LD50 試験 (50%致死量試験).

曝露経路 : 皮膚への塗布

被験動物 : げっ歯類-ウサギ.

投与量・期間 : 20 mL/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

Archives of Industrial Hygiene and Occupational Medicine. (Chicago, IL) 4,119,1951

\*\*\*米国に於ける状況\*\*\*

EPA TSCA Section 8(b) CHEMICAL INVENTORY

\*\*\*\*\*フェネグリーク (Fenugreek) \*\*\*\*\*

§ § マメ科コロハ (*Trigonella foenum-graecum* L.) の種子.

§ 2-Amino-4-hydroxy-3-methylpentanoic acid; (2R,3R,4R)-form

[化合物分類] アミノ酸とペプチド (Non-protein  $\alpha$ -aminoacids)

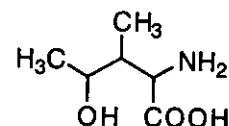
[構造式]

[分子式]  $C_6H_{13}NO_3$

[分子量] 147.174

[基原] Minor amino acid constit. of *Trigonella foenum-graecum* の種子

[比旋光度]:  $[\alpha]_D^{20} +1$  (c, 1 in  $H_2O$ )



-----文献-----

Alcock, N.W. et al., *Phytochemistry*, 1989, 28, 1835

Yang, J. et al., *Yaoxue Xuebao*, 1993, 28, 197-201; *CA*, 119, 156209m, (Desmodilactone)

§ 2-Amino-4-hydroxy-3-methylpentanoic acid; (2S,3R,4S)-form

[化合物分類] アミノ酸とペプチド (Non-protein  $\alpha$ -aminoacids)

[構造式]

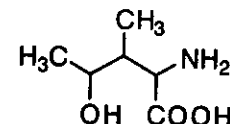
[分子式]  $C_6H_{13}NO_3$

[分子量] 147.174

[基原] *Trigonella foenum-graecum* の主成分

[比旋光度]:  $[\alpha]_D^{20} +31$  (c, 1 in  $H_2O$ )

[その他のデータ] 立体構造は 1989 年に改正された



-----文献-----

Alcock, N.W. et al., *Phytochemistry*, 1989, 28, 1835

Yang, J. et al., *Yaoxue Xuebao*, 1993, 28, 197-201; *CA*, 119, 156209m, (Desmodilactone)

§ 6,7-Dihydroxyflavone; 6-Me ether

[化学名・別名] 7-Hydroxy-6-methoxyflavone. *Trigraecum*

[CAS No.] 38070-97-2

[化合物分類] フラボノイド (Flavones; 2 × O-置換基)

[構造式]

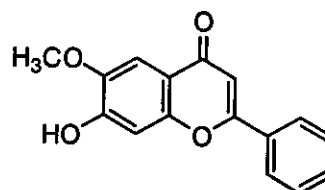
[分子式]  $C_{16}H_{12}O_4$

[分子量] 268.268

[基原] 次の植物から分離: *Trigonella foenum-graecum*, *Dalbergia cochinchinensis*

[性状] 針状結晶 (EtOH/MeOH)

[融点] Mp 246-247 °C (149-151 °C)



-----文献-----

Bhardwaj, D.K. et al., *Proc. Indian Natl. Sci. Acad., Part A*, 1987, 53, 463; 1988, 54, 638, (*Trigraecum*)

Pathak, V. et al., *Phytochemistry*, 1997, 46, 1219-1223, (*Trigraecum*)

§ Fenugreekine

[CAS No.] 55069-02-8

[化合物分類] ステロイド (Steroids 構造は未知)

[一般的性質]  $C_{27}$  steroid sapogenin peptide ester

[構造式] 不明

[基原] 次の植物の種子から分離: *Trigonella foenum-graecum*

[性状] 結晶

[融点] Mp 202-208 °C

[比旋光度]:  $[\alpha]_D^{25} +43$  (c, 0.528 in AcOH)

-----文献-----

Ghosal, S. et al., *Phytochemistry*, 1974, 13, 2247, (分離)

Totte, J. et al., *Farm. Tijdschr. Belg.*, 1983, 60, 203, (レビュー)

§ Fenugrin B

[CAS No.] 70896-47-8

[関連 CAS No.] 70896-48-9

[化合物分類] 構造未知の天然物

[一般的性質] 構造は未知

[基原] 次の植物の種子から分離: *Trigonella foenum-graecum*

-----文献-----

Gangrade, H. et al., Indian Drugs Pharm. Ind., 1979, 16, 149; CA, 91, 52711f, (分離)

§ Furostane-2,3,22,26-tetrol; (2  $\alpha$ ,3  $\beta$ ,5  $\alpha$ ,22  $\xi$ ,25*R*)-form, 3-*O*-[ $\beta$ -D-Xylopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranoside], 26-*O*- $\beta$ -D-glucopyranoside

[化学名・別名] Trigoneoside XI<sub>b</sub>

[CAS No.] 290347-58-9

[化合物分類] ステロイド (Furostane steroids). (C27).

[構造式]

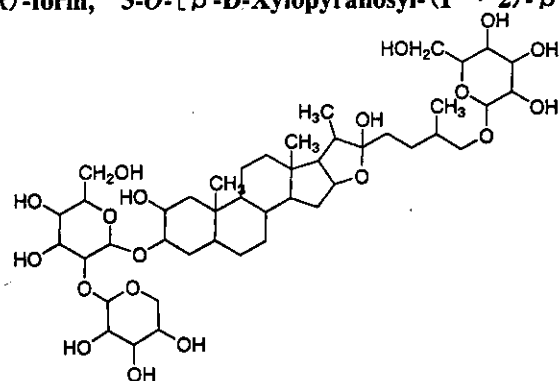
[分子式] C<sub>44</sub>H<sub>74</sub>O<sub>19</sub>

[分子量] 907.057

[基原] *Trigonella foenum-graecum*

[性状] 粉末

[比旋光度]: [ $\alpha$ ]<sub>D</sub><sup>23</sup> -24.7 (c, 0.2 in MeOH)



----- 文献 -----

Gupta, R.K. et al., Phytochemistry, 1986, 25, 2205-2207, (Trigofoenosides)

Murakami, T. et al., Chem. Pharm. Bull., 2000, 48, 994-1000, (Trigoneosides)

§ Furostane-2,3,22,26-tetrol; (2  $\alpha$ ,3  $\beta$ ,5  $\alpha$ ,22  $\xi$ ,25*R*)-form, 3-*O*-[ $\alpha$ -L-Rhamnopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranoside], 26-*O*- $\beta$ -D-glucopyranoside

[化学名・別名] Trigoneoside X<sub>a</sub>

[CAS No.] 290347-51-2

[化合物分類] ステロイド (Furostane steroids). (C27).

[構造式]

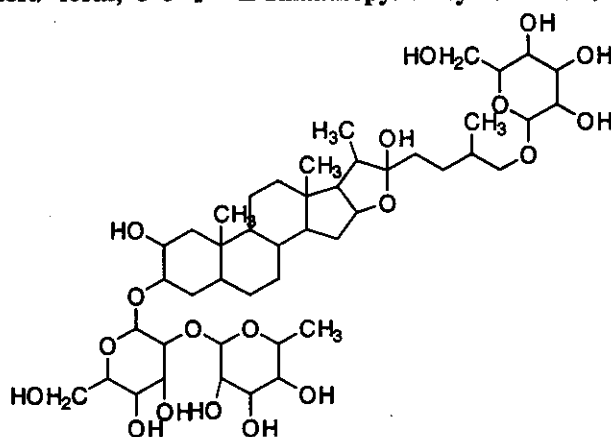
[分子式] C<sub>43</sub>H<sub>70</sub>O<sub>19</sub>

[分子量] 921.084

[基原] *Trigonella foenum-graecum*

[性状] 粉末

[比旋光度]: [ $\alpha$ ]<sub>D</sub><sup>22</sup> -51.5 (c, 0.6 in MeOH)



----- 文献 -----

Gupta, R.K. et al., Phytochemistry, 1986, 25, 2205-2207, (Trigofoenosides)

Murakami, T. et al., Chem. Pharm. Bull., 2000, 48, 994-1000, (Trigoneosides)

§ Furostane-2,3,22,26-tetrol; (2  $\alpha$ ,3  $\beta$ ,5  $\alpha$ ,22  $\xi$ ,25*R*)-form, 3-*O*-[ $\alpha$ -L-Rhamnopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranoside], 26-*O*-[ $\alpha$ -L-rhamnopyranosyl-(1  $\rightarrow$  4)]- $\beta$ -D-glucopyranoside

[化学名・別名] Trigofoenoside C

[CAS No.] 99753-12-5

[化合物分類] ステロイド (Furostane steroids). (C27).

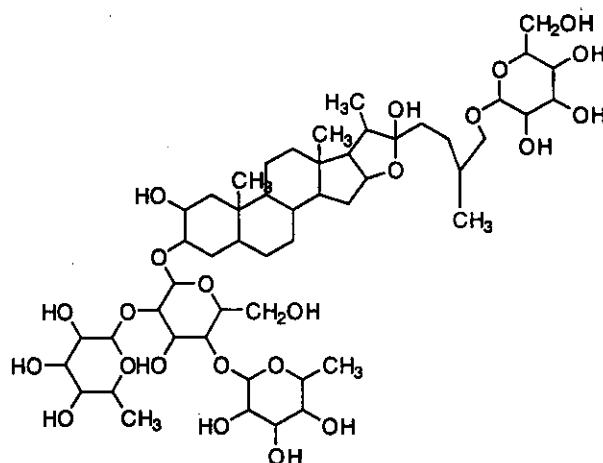
[構造式]

[分子式] C<sub>51</sub>H<sub>86</sub>O<sub>23</sub>

[分子量] 1067.227

[基原] 次の植物の種子から分離: *Trigonella foenum-graecum*

[融点] Mp 210 °Cで分解 (as 22-Me ether)



----- 文献 -----

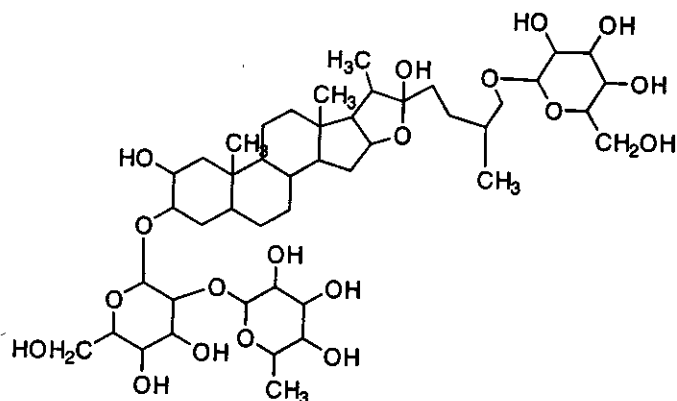
Gupta, R.K. et al., Phytochemistry, 1986, 25, 2205-2207, (Trigofoenosides)

Murakami, T. et al., Chem. Pharm. Bull., 2000, 48, 994-1000, (Trigoneosides)

§ Furostane-2,3,22,26-tetrol; (2  $\alpha$ ,3  $\beta$ ,5  $\alpha$ ,22  $\xi$ ,25*S*)-form, 3-*O*-[ $\alpha$ -L-Rhamnopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranoside], 26-*O*- $\beta$ -D-glucopyranoside

[化学名・別名] Trigoneoside X<sub>c</sub>

[CAS No.] 290347-38-5  
 [化合物分類] ステロイド (Furostane steroids).  
 (C27).  
 [構造式]



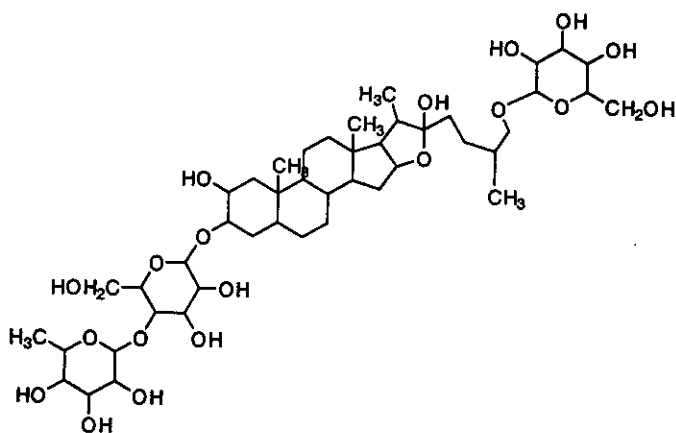
[分子式]  $C_{45}H_{76}O_{19}$   
 [分子量] 921.084  
 [基原] *Trigonella foenum-graecum*  
 [性状] 粉末  
 [比旋光度]:  $[\alpha]_D^{22} -49.2$  (c, 0.6 in MeOH)

----- 文献 -----

Gupta, R.K. et al., *Phytochemistry*, 1986, 25, 2205-2207, (Trigofenosides)  
 Murakami, T. et al., *Chem. Pharm. Bull.*, 2000, 48, 994-1000, (Trigoneosides)

§ Furostane-2,3,22,26-tetrol; (2  $\alpha$ , 3  $\beta$ , 5  $\alpha$ , 22  $\xi$ , 25S)-form, 3-O-[ $\alpha$ -L-Rhamnopyranosyl-(1  $\rightarrow$  4)- $\beta$ -D-glucopyranoside], 26-O- $\beta$ -D-glucopyranoside

[化学名・別名] Trigofenoside B  
 [CAS No.] 99753-11-4  
 [化合物分類] ステロイド (Furostane steroids).  
 (C27).  
 [構造式]



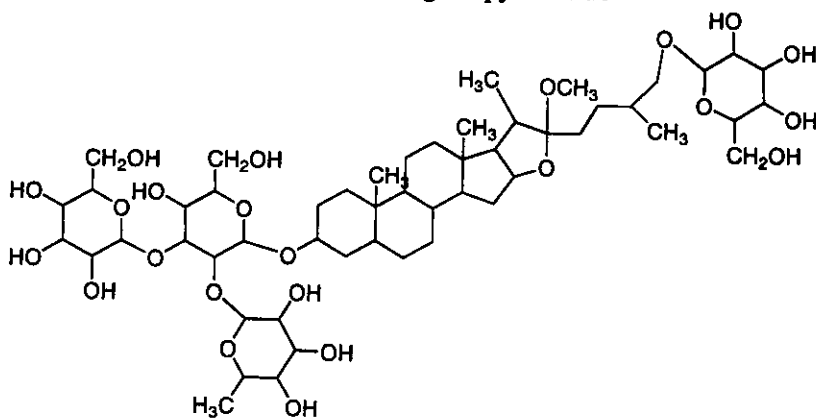
[分子式]  $C_{45}H_{76}O_{19}$   
 [分子量] 921.084  
 920.498085  
 [基原] 次の植物の種子から分離: *Trigonella foenum-graecum*  
 [融点] Mp 198-200 °C で分解 (as 22-Me ether)

----- 文献 -----

Gupta, R.K. et al., *Phytochemistry*, 1986, 25, 2205-2207, (Trigofenosides)  
 Murakami, T. et al., *Chem. Pharm. Bull.*, 2000, 48, 994-1000, (Trigoneosides)

§ Furostane-3,22,26-triol; (3  $\beta$ , 5  $\alpha$ , 22  $\xi$ , 25S)-form, 22-Me ether, 3-O-[ $\alpha$ -L-rhamnopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranosyl-(1  $\rightarrow$  3)]- $\beta$ -D-glucopyranoside, 26-O- $\beta$ -D-glucopyranoside

[CAS No.] 74971-02-1  
 [化合物分類] ステロイド  
 (Furostane steroids). (C27).  
 [構造式]



[分子式]  $C_{52}H_{88}O_{23}$   
 [分子量] 1081.253  
 [基原] コロハの種子 (*Trigonella foenum-graecum*)  
 [性状] 無定型

----- 文献 -----

Shvets, S.A. et al., *Khim. Prir. Soedin.*, 1995, 31, 247; *Chem. Nat. Compd. (Engl. Transl.)*, 1995, 31, 203, (Petuniosides)

§ Furost-4-ene-3,22,26-triol; (3  $\beta$ , 22  $\xi$ , 25R)-form, 3-O-[ $\alpha$ -L-Rhamnopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranosyl-(1  $\rightarrow$  3)]- $\beta$ -D-glucopyranoside, 26-O- $\beta$ -D-glucopyranoside

-D-glucopyranoside], 26-O-β

-D-glucopyranoside

[化学名・別名] Trigoneoside XIIb

[CAS No.] 290348-00-4

[化合物分類] ステロイド

(Furostane steroids). (C27).

[構造式]

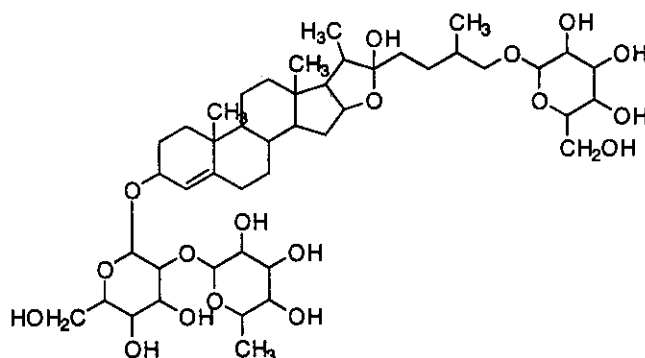
[分子式] C<sub>45</sub>H<sub>74</sub>O<sub>18</sub>

[分子量] 903.609

[基原] *Trigonella foenum-graecum*

[性状] 粉末

[比旋光度]: [α]<sub>D</sub><sup>22</sup> -48.2 (c, 0.5 in MeOH)



----- 文献 -----

Murakami, T. et al., Chem. Pharm. Bull., 2000, 48, 994-1000, (分離, H-NMR, C13-NMR)

§ Furost-4-ene-3,22,26-triol; (3 β, 22 ξ, 25S) -form, 3-O-[α-L-Rhamnopyranosyl-(1 → 2) -β-D-glucopyranoside], 26-O-β-D-glucopyranoside

[化学名・別名] Trigoneoside XIIIa

[CAS No.] 290347-97-6

[化合物分類] ステロイド

(Furostane steroids). (C27).

[構造式]

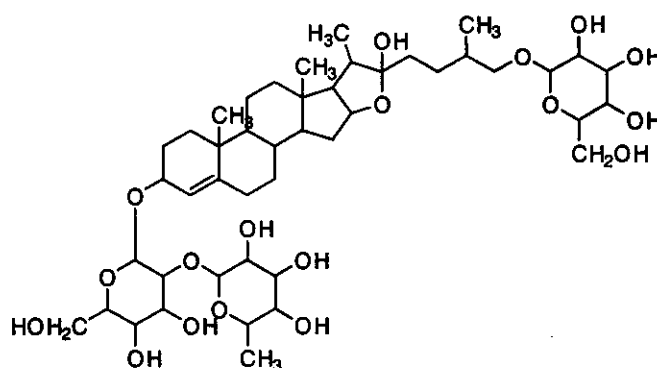
[分子式] C<sub>45</sub>H<sub>74</sub>O<sub>18</sub>

[分子量] 903.069

[基原] *Trigonella foenum-graecum*

[性状] 粉末

[比旋光度]: [α]<sub>D</sub><sup>20</sup> -48.8 (c, 0.6 in MeOH)



----- 文献 -----

Murakami, T. et al., Chem. Pharm. Bull., 2000, 48, 994-1000, (分離, H-NMR, C13-NMR)

§ Furost-5-ene-3,22,26-triol; (3 β, 22R, 25R) -form, 3-O-[α-L-Rhamnopyranosyl-(1 → 2) -β-D-glucopyranosyl-(1 → 6) -β-D-glucopyranoside], 26-O-β-D-glucopyranoside

[化学名・別名] Trigofenoside F

[CAS No.] 94714-56-4

[化合物分類] ステロイド (Furostane steroids). (C27).

[構造式]

[分子式] C<sub>51</sub>H<sub>84</sub>O<sub>23</sub>

[分子量] 1065.211

[基原] 次の植物の

種子から分離: コ

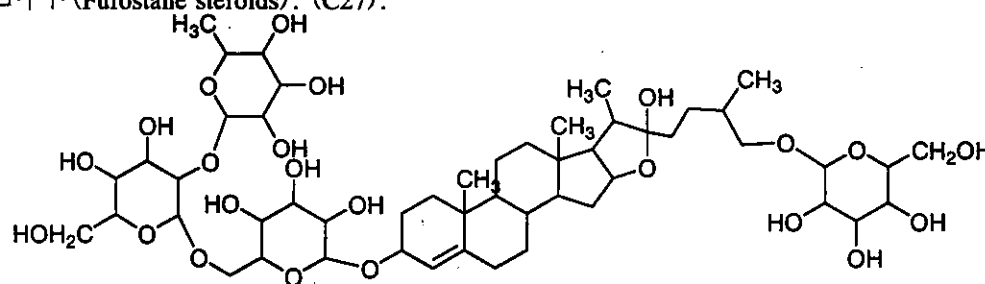
ロハ (*Trigonella*

*foenum-graecum*)

[性状] 無定型の塊

[融点] Mp 233-236

℃



----- 文献 -----

Gupta, R.K. et al., Phytochemistry, 1984, 23, 2605; 1985, 24, 2399, (Trigofenosides)

Gupta, R.K. et al., Indian J. Chem., Sect. B, 1985, 24, 1215, (Trigofenoside E1)

§ Furost-5-ene-3,22,26-triol; (3 β, 22 R, 25 R) -form, 3-O-[α-L-Rhamnopyranosyl-(1 → 2) -[β-D-xylopyranosyl-(1 → 4) ] -β-D-glucopyranosyl-(1 → 6) -β-D-glucopyranoside], 26-O-β-D-glucopyranoside

[化学名・別名] Trigofenoside G

[CAS No.] 94714-57-5

[化合物分類] ステロイド (Furostane steroids).

(C27)

[構造式]

[分子式]  $C_{56}H_{92}O_{27}$

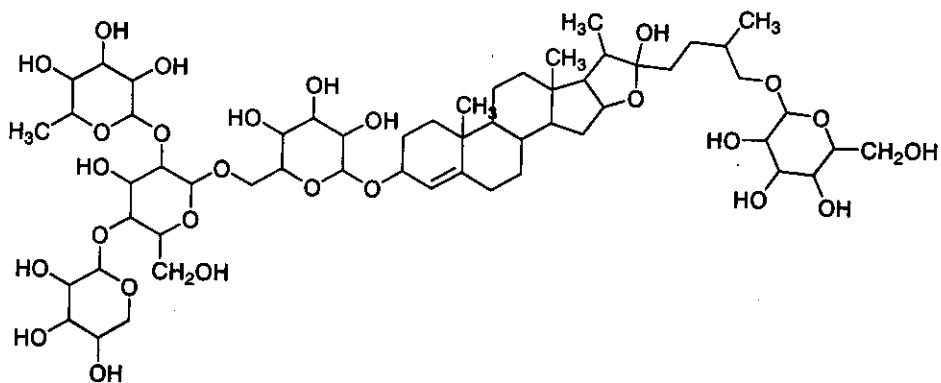
[分子量] 1197.327

[基原] 次の植物の種子から分離: コロハ

(*Trigonella foenum-graecum*)

[性状] 無定型の塊

[融点] Mp 275-278 °C



-----文献-----

Gupta, R.K. et al., *Phytochemistry*, 1984, 23, 2605; 1985, 24, 2399, (Trigofenosides)

Gupta, R.K. et al., *Indian J. Chem., Sect. B*, 1985, 24, 1215, (Trigofenoside E1)

§ Furost-5-ene-3,22,26-triol; (3  $\beta$ , 22R, 25R)-form, 22-Me ether, 3-O-[ $\alpha$ -L-rhamnopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-xylopyranosyl-(1  $\rightarrow$  4)]- $\beta$ -D-glucopyranoside], 26-O- $\beta$ -D-glucopyranoside

[化学名・別名] Trigofenoside E1

[CAS No.]

101910-70-7

[化合物分類]

ステロイド

(Furostane steroids).

(C27)

[構造式]

[分子式]  $C_{51}H_{84}O_{22}$

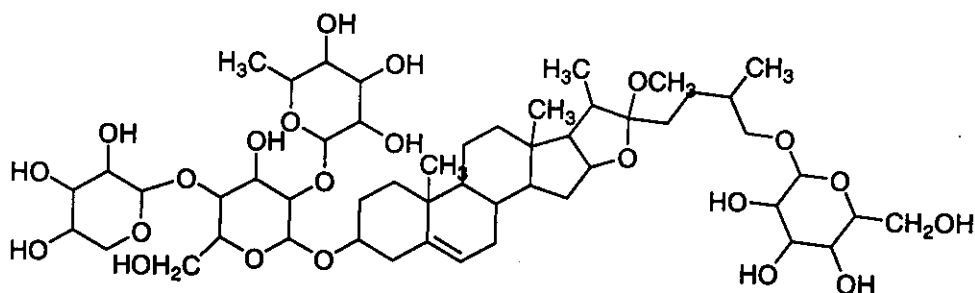
[分子量] 1049.211

[基原] 次の植物の種子から分離: コロハ *Trigonella foenum-graecum*

[性状] 無定型の粉末 (MeOH/Me<sub>2</sub>CO)

[融点] Mp 230-231 °C

[比旋光度]:  $[\alpha]_D -57.9$  (c, 1 in Py)



-----文献-----

Gupta, R.K. et al., *Phytochemistry*, 1984, 23, 2605; 1985, 24, 2399, (Trigofenosides)

Gupta, R.K. et al., *Indian J. Chem., Sect. B*, 1985, 24, 1215, (Trigofenoside E1)

§ Furost-5-ene-3,22,26-triol; (3  $\beta$ , 22R, 25S)-form, 3-O-[ $\alpha$ -L-Rhamnopyranosyl-(1  $\rightarrow$  2)-[ $\alpha$ -L-rhamnopyranosyl-(1  $\rightarrow$  4)]- $\beta$ -D-glucopyranoside], 26-O- $\beta$ -D-glucopyranoside

[化学名・別名] Asparasaponin I. Trigonelloside C. Yamogenintetraside C. Protoneodioscin

[CAS No.] 60478-69-5

[化合物分類] ステロイド (Furostane steroids). (C27).

[構造式]

[分子式]  $C_{51}H_{84}O_{22}$

[分子量] 1049.211

[基原] 次の植物の苦味成分: white asparagus shoots

(*Asparagus officinalis*),

*Dioscorea collettii* var.

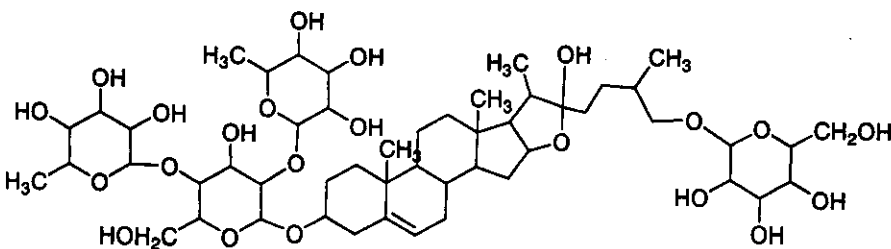
*hypoglauca*, コロハ

(*Trigonella foenum-graecum*)

[性状] 無定型

[融点] Mp 166-168 °Cで分解

[比旋光度]:  $[\alpha]_D^{13} -70.1$  (c, 0.01 in Py)



-----文献-----

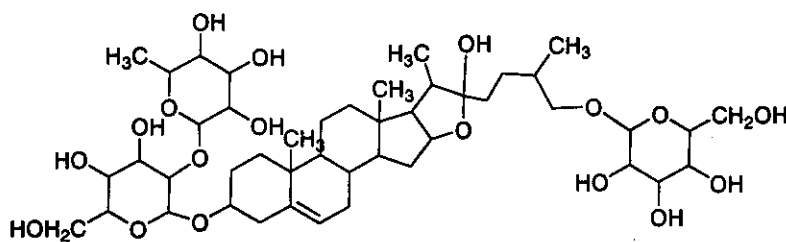
Bogacheva, N.G. et al., *Khim. Prir. Soedin.*, 1976, 12, 268; *Chem. Nat. Compd. (Engl. Transl.)*, 1976, 12, 242, (Trigonelloside C)

Kawano, K. et al., Agric. Biol. Chem., 1977, 41, 1, (Asparasaponins)  
 Bogacheva, N.G. et al., Khim.-Farm. Zh., 1977, 11, 65, (Yamogenintetrosides)

§ Furost-5-ene-3,22,26-triol; (3 $\beta$ ,22*R*,25*S*)-form, 3-*O*-[ $\alpha$ -L-Rhamnopyranosyl-(1 $\rightarrow$ 2)- $\beta$ -D-glucopyranoside], 26-*O*- $\beta$ -D-glucopyranoside

[化学名・別名] Trigofenoside A  
 [CAS No.] 99705-66-5  
 [化合物分類] ステロイド (Furostane steroids). (C27)  
 [構造式]

[分子式] C<sub>45</sub>H<sub>74</sub>O<sub>18</sub>  
 [分子量] 903.069  
 [基原] 次の植物の種子から分離: コロハ (*Trigonella foenum-graecum*)  
 [性状] 無定型の粉末  
 [融点] Mp 219-221 °C で分解  
 [比旋光度]: [ $\alpha$ ]<sub>D</sub> -90 (c, 1 in Py)



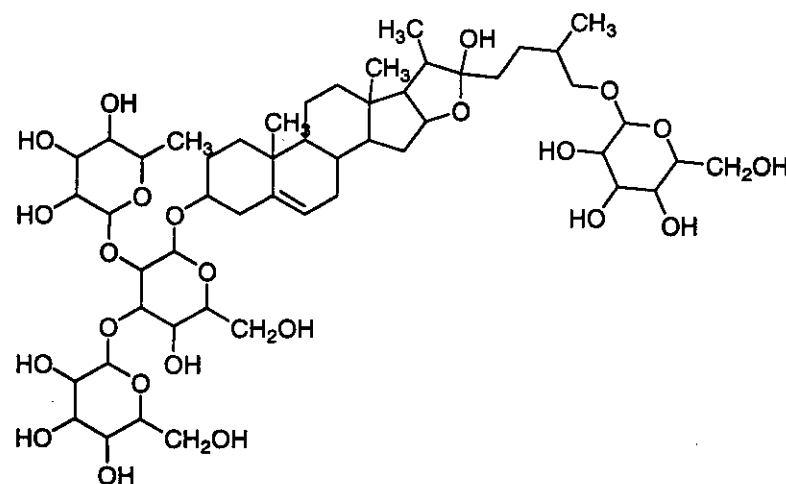
-----文献-----

Gupta, R.K. et al., Phytochemistry, 1984, 23, 2605; 1985, 24, 2399, (Trigofenosides)  
 Gupta, R.K. et al., Indian J. Chem., Sect. B, 1985, 24, 1215, (Trigofenoside E1)

§ Furost-5-ene-3,22,26-triol; (3 $\beta$ ,22*R*,25*S*)-form, 3-*O*-[ $\alpha$ -L-Rhamnopyranosyl-(1 $\rightarrow$ 2)-[ $\beta$ -D-glucopyranosyl-(1 $\rightarrow$ 3)]- $\beta$ -D-glucopyranoside], 26-*O*- $\beta$ -D-glucopyranoside

[化学名・別名] Trigofenoside D  
 [CAS No.] 99664-39-8  
 [化合物分類] ステロイド (Furostane steroids). (C27)  
 [構造式]

[分子式] C<sub>51</sub>H<sub>84</sub>O<sub>23</sub>  
 [分子量] 1065.211  
 [基原] 次の植物から分離: コロハ (*Trigonella foenum-graecum*) の種子, *Dioscorea collettii* var. *hypoglauca*  
 [性状] 無定型の粉末  
 [融点] Mp 246-248 °C (220 °C で分解)  
 [比旋光度]: [ $\alpha$ ]<sub>D</sub> -73.2 (c, 1 in Py)



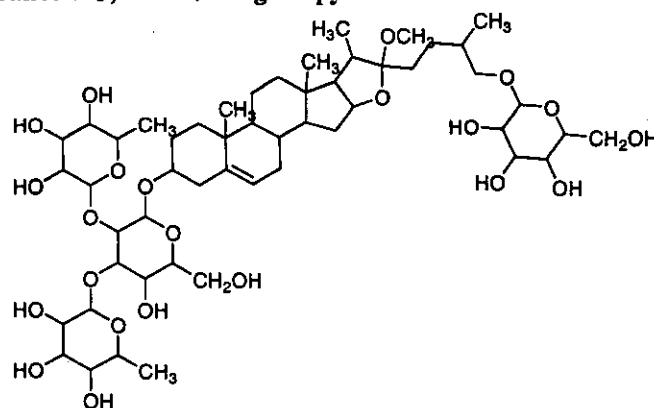
-----文献-----

Gupta, R.K. et al., Phytochemistry, 1984, 23, 2605; 1985, 24, 2399, (Trigofenosides)

§ Furost-5-ene-3,22,26-triol; (3 $\beta$ ,22*R*,25*S*)-form, 22-Me ether, 3-*O*-[ $\alpha$ -L-rhamnopyranosyl-(1 $\rightarrow$ 2)-[ $\alpha$ -L-rhamnopyranosyl-(1 $\rightarrow$ 4)]- $\beta$ -D-glucopyranoside], 26-*O*- $\beta$ -D-glucopyranoside

[化学名・別名] Yamogenintetroside B  
 [CAS No.] 60478-70-8  
 [化合物分類] ステロイド (Furostane steroids). (C27)  
 [構造式]

[分子式] C<sub>52</sub>H<sub>86</sub>O<sub>22</sub>  
 [分子量] 1063.238  
 [基原] コロハ *Trigonella foenum-graecum*  
 [性状] 無定型





-----文献-----

Bogacheva, N.G. et al., *Khim.-Farm. Zh.*, 1977, 11, 65, (Yamogenintetrosides)

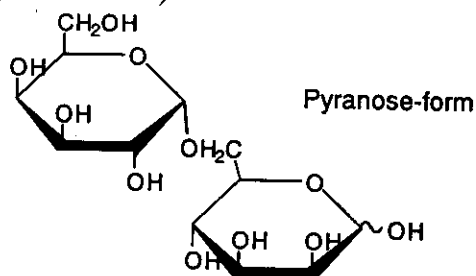
§ 6-O- $\alpha$ -D-Galactopyranosyl-D-mannose (CAS 名) (旧 CAS 名)

[化学名・別名] Epimelibiose

[CAS No.] 17296-19-4

[化合物分類] AF9200, 炭水化物 (Disaccharides)

[構造式]



[分子式] C<sub>12</sub>H<sub>22</sub>O<sub>11</sub>

[分子量] 342.299

[基原] 植物のガラクトマンナン of 反復単位. 次の植物の部分的加水分解で分離: オオヤマネコ (*Medicago sativa*), コロハ (*Trigonella foenum-graecum*), オウギヤシのナッツ (*Borassus flabellifer*), トウヒの幹及び種子 *Anthyllis vulneraria*, *Sesbania aegyptiaca*, ガラナ (*Cyamopsis tetragonoloba*) の酵素的加水分解

[性状] 結晶 (EtOH 溶液)

[融点] Mp 201-202 °C

[比旋光度]:  $[\alpha]_D^{25} +120$  (c, 1.0 in H<sub>2</sub>O),  $[\alpha]_D^{30} +124$  (H<sub>2</sub>O)

-----文献-----

Whistler, R.L. et al., *J.A.C.S.*, 1951, 73, 4189; 1952, 74, 3795, (分離)

Courtois, J.E. et al., *Bull. Soc. Chim. Biol.*, 1957, 39, 715, (分離)

Meier, H., *Acta Chem. Scand.*, 1960, 14, 749, (分離)

Mukherjee, A.K. et al., *Can. J. Chem.*, 1961, 39, 1408, (分離)

Somme, R., *Acta Chem. Scand.*, 1967, 21, 685, (分離)

Bhattacharyya, S.B., *Phytochemistry*, 1983, 22, 161, (分離)

§ Graecunin I

[CAS No.] 71123-81-4

[化合物分類] ステロイド (Steroids 構造は未知), ステロイド (Spirostane steroids). (C27).

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の種子

[性状] 無定型の粉末

[融点] Mp 193-194 °C

[比旋光度]:  $[\alpha]_D -84$  (EtOH)

-----文献-----

Varshney, I.P. et al., *Indian J. Chem., Sect. B*, 1978, 16, 1134, (分離)

§ Graecunin A

[CAS No.] 67621-48-1

[化合物分類] ステロイド (Steroids 構造は未知), ステロイド (Spirostane steroids). (C27).

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の葉

[性状] 無定型の粉末

-----文献-----

Varshney, I.P. et al., *J. Indian Chem. Soc.*, 1977, 54, 1135, (分離)

Varshney, I.P. et al., *J. Nat. Prod.*, 1984, 47, 44, (分離)

§ Graecunin B

[CAS No.] 67621-49-2

[化合物分類] ステロイド (Spirostane steroids). (C27)., ステロイド (Steroids 構造は未知)

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の葉

[性状] 無定型の粉末

[融点] Mp 154-156 °C

[比旋光度]:  $[\alpha]_D -46$  (EtOH)

-----文献-----

Varshney, I.P. et al., J. Indian Chem. Soc., 1977, 54, 1135, (分離)

Varshney, I.P. et al., J. Nat. Prod., 1984, 47, 44, (分離)

#### § Graecunin C

[CAS No.] 67621-50-5

[化合物分類] ステロイド (Spirostane steroids). (C27)., ステロイド (Steroids 構造は未知)

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の葉

[性状] 無定型の粉末

[融点] Mp 147-149 °C

[比旋光度]:  $[\alpha]_D +9.5$  (EtOH)

-----文献-----

Varshney, I.P. et al., J. Indian Chem. Soc., 1977, 54, 1135, (分離)

Varshney, I.P. et al., J. Nat. Prod., 1984, 47, 44, (分離)

#### § Graecunin D

[CAS No.] 74350-29-1

[化合物分類] ステロイド (Spirostane steroids). (C27)., ステロイド (Steroids 構造は未知)

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の葉

[性状] 無定型の粉末

[融点] Mp 141-142 °C

[比旋光度]:  $[\alpha]_D +49$  (EtOH)

-----文献-----

Varshney, I.P. et al., J. Nat. Prod., 1984, 47, 44

#### § Graecunin F

[CAS No.] 89899-79-6

[化合物分類] ステロイド (Steroids 構造は未知), ステロイド (Spirostane steroids). (C27).

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の葉

[性状] 無定型の粉末

-----文献-----

Varshney, I.P. et al., J. Nat. Prod., 1984, 47, 44, (分離)

#### § Graecunin H

[CAS No.] 71123-80-3

[化合物分類] ステロイド (Steroids 構造は未知), ステロイド (Spirostane steroids). (C27).

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の種子

[性状] 無定型の粉末

[融点] Mp 181-182 °C

[比旋光度]:  $[\alpha]_D -72$  (EtOH)

-----文献-----

Varshney, I.P. et al., Indian J. Chem., Sect. B, 1978, 16, 1134, (分離)

#### § Graecunin J

[CAS No.] 71123-82-5

[化合物分類] ステロイド (Steroids 構造は未知), ステロイド (Spirostane steroids). (C27).

[一般的性質] 構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の種子

[性状] 無定型の粉末

[融点] Mp 186-187 °C

[比旋光度]:  $[\alpha]_D -25.2$  (EtOH)

-----文献-----

Varshney, I.P. et al., Indian J. Chem., Sect. B, 1978, 16, 1134, (分離)

### § Graecunin K

[CAS No.]71123-83-6

[化合物分類]ステロイド (Steroids 構造は未知), ステロイド (Spirostane steroids). (C27).

[一般的性質]構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の種子

[性状]無定型の粉末

[融点]Mp 195-196 °C

[比旋光度]: $[\alpha]_D -44$  (EtOH)

-----文献-----

Varshney, I.P. et al., Indian J. Chem., Sect. B, 1978, 16, 1134, (分離)

### § Graecunin L

[CAS No.]71123-84-7

[化合物分類]ステロイド (Spirostane steroids). (C27)., ステロイド (Steroids 構造は未知)

[一般的性質]構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の種子

[性状]無定型の粉末

[融点]Mp 252-253 °C

-----文献-----

Varshney, I.P. et al., Indian J. Chem., Sect. B, 1978, 16, 1134, (分離)

### § Graecunin M

[化合物分類]ステロイド (Spirostane steroids). (C27)., ステロイド (Steroids 構造は未知)

[一般的性質]構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の種子

[性状]無定型の粉末

-----文献-----

Varshney, I.P. et al., Indian J. Chem., Sect. B, 1978, 16, 1134, (分離)

### § Graecunin N

[CAS No.]71123-86-9

[化合物分類]ステロイド (Spirostane steroids). (C27)., ステロイド (Steroids 構造は未知)

[一般的性質]構造未知の Spirostanol saponin

[基原] *Trigonella foenum-graecum* の種子

[性状]無定型の構造.

[融点]Mp 238-239 °C

[比旋光度]: $[\alpha]_D -45.7$  (EtOH)

-----文献-----

Varshney, I.P. et al., Indian J. Chem., Sect. B, 1978, 16, 1134, (分離)

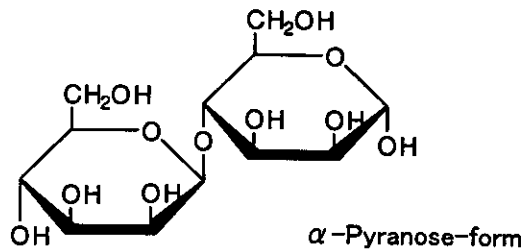
### § 4-O-β-D-Mannopyranosyl-D-mannose

[化学名・別名]Mannobiose

[CAS No.]14417-51-7

[化合物分類]炭水化物 (Disaccharides)

[構造式]



[分子式]  $C_{12}H_{22}O_{11}$

[分子量] 342.299

[基原] The major repeating unit in the mannose chains of plant mannans, galacto and glucomannans. 次の植物の部分的加水分解で分離: ivory nut (*Phytelephas macrocarpa*) マンナン, ガラナ (*Cyamopsis* sp.), オウギヤシのナッツのマンナン (*Borassus flabellifer*), コロハ (*Trigonella foenum-graecum*), オオヤマネコ (*Medicago sativa*) のガラクトマンナン, アメリカツガの木部繊維 (*Tsuga heterophylla*), white spruce (*Picea glauca*), *Larix decidua*, *Pinus strobus*, アメリカハナノキ (*Acer rubrum*) のグルコマンナン, *Pinus taeda* hemicellulose. また *Narcissus tazetta* の球根中の粘液, *Rhodotorula glutinis* の酵母細胞外マンナン, *Sesbania aegyptiaca* の種子

[性状]結晶 (MeOH)

[融点]Mp 203-204 °C (198-199 °C)

[比旋光度]:  $[\alpha]_D^{20} -8$  (c, 1.6 in H<sub>2</sub>O) (-2.3, -4)  
[その他のデータ] Some sources report a hydrate, Mp 122-124 °C

----- 文献 -----

Courtois, J.E. et al., Bull. Soc. Chim. Biol., 1958, 40, 2031, (分離)  
Mukherjee, A.K. et al., Can. J. Chem., 1961, 39, 1408, (分離)  
Kato, K. et al., Agric. Biol. Chem., 1969, 33, 1446, (分離, 構造決定)  
Gorin, P.A.J. et al., Carbohydr. Res., 1975, 39, 3, (分離, C13-NMR)  
Bhattacharyya, S.B., Phytochemistry, 1983, 22, 161, (分離)  
Sheldrick, B. et al., Carbohydr. Res., 1984, 132, 1, (結晶構造)

§ Spirosta-3,5-diene; (25S)-form

[化学名・別名]  $\Delta^{3,5}$ -Deoxyneotigogenin

[CAS No.] 37064-21-4

[化合物分類] ステロイド (Spirostane steroids). (C27)

[構造式]

[分子式] C<sub>27</sub>H<sub>40</sub>O<sub>2</sub>

[分子量] 396.612

[基原] 次の植物から分離: *Heloniopsis orientalis*, *Majanthemum dilatatum*, *Chamaerops humilis*, *Trigonella foenum-graecum*

[性状] 結晶 (Me<sub>2</sub>CO)

[融点] Mp 181 °C (164 °C)

[比旋光度]:  $[\alpha]_D^{25} -175$  (CHCl<sub>3</sub>)

[その他のデータ] たぶん天然物ではない

----- 文献 -----

Panizo, F.M. et al., CA, 1962, 60, 853, (分離)  
Bedour, M.S. et al., J. Pharm. Sci., 1964, 53, 1276, (分離)  
Dawidar, A.A.M. et al., Phytochemistry, 1969, 8, 261, (分離, 25R-form)  
Hardman, R. et al., Phytochemistry, 1972, 11, 2073, (分割)  
Minghe, Y. et al., Planta Med., 1983, 49, 38, (分離)

§ Spirost-5-en-3-ol; (3  $\beta$ , 25R)-form, 3-O-[ $\alpha$ -D-Glucopyranosyl-(1  $\rightarrow$  2)- $\alpha$ -L-rhamnopyranosyl-(1  $\rightarrow$  6)- $\alpha$ -D-glucopyranoside]

[化学名・別名] Graecunin G

[CAS No.] 74350-31-5

[構造式]

[分子式] C<sub>53</sub>H<sub>72</sub>O<sub>17</sub>

[分子量] 885.054

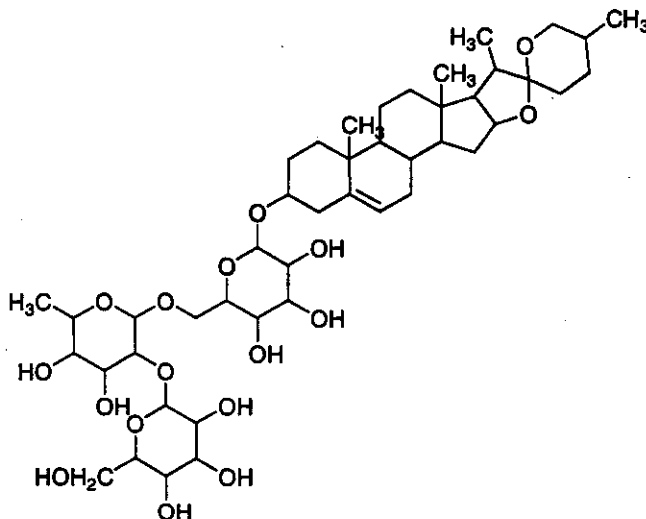
[基原] 次の植物の葉から分離:

*Trigonella foenum-graecum*

[性状] 無定型の粉末

[融点] Mp 123-125 °C

[比旋光度]:  $[\alpha]_D -3$  (EtOH)



----- 文献 -----

Varshney, I.P. et al., J. Nat. Prod., 1984, 47, 44, (Graecunins)

§ Trigonelline

[化学名・別名] Coffearin. Gynesis. N-Methylnicotinic betaine. 3-Carboxy-1-methylpyridinium betaine

[CAS No.] 535-83-1

[化合物分類] アルカロイド化合物 (Nitrogenous marine toxins), 薬物: 抗高血糖症薬 (Antihyperglycaemic agents), アルカロイド化合物 (Miscellaneous pyridine alkaloids)

[構造式]

[分子式] C<sub>7</sub>H<sub>7</sub>NO<sub>2</sub>

[分子量] 137.138

[基原] 次の植物から得られるアルカロイド: *Trigonella foenum-graecum* (マメ科), *Schumanniphyton magnificum* (アカネ科), その他多くの植物属; またコーヒー豆, 多くの動物と海綿 *Calyx niceaensis* にも存在する

[用途] 抗高血糖症薬

[性状] プリズム結晶・一水和物 (EtOH 溶液)

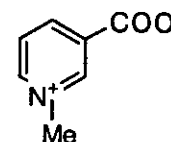
[融点] Mp 218 °C で分解 (無水物)

[溶解性] 水によく溶ける; BERDY SOL: 水, メタノール, エタノールに可溶; クロロホルム, エーテルに難溶

[傷害・毒性] 50% 致死量 (LD<sub>50</sub>) (ラット, 経口) 5000 mg/kg

[化学物質毒性データ総覧 (RTECS) 登録番号] YF6825000

[販売元] Rare Chemicals Library: S57682-4



----- 文 献 -----

Gorter, K., *Annalen*, 1910, 372, 237, (分離)

Wehrli, F.W., *Helv. Chim. Acta*, 1971, 54, 229, (H-NMR, C13-NMR)

Ghosal, S. et al., *Planta Med.*, 1973, 23, 321, (分離, UV, IR, H-NMR)

Houghton, P.J. et al., *Planta Med.*, 1987, 53, 262, (分離)

\*\*\*RTECS (化学物質毒性データ)\*\*\*

生体影響物質 : 変異原性物質, 天然物.

\*\*\*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>> LD50 試験 (50% 致死量試験).

曝露経路 : 経口投与.

被験動物 : げっ歯類-ラット.

投与量・期間 : 5 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.

参考文献

*Archives Internationales de Pharmacodynamie et de Therapie*. (Heymans Institute of Pharmacology, De Pintelaan 185, B-9000 Ghent, Belgium) 210,27,1974

<<試験方法>> LD50 試験 (50% 致死量試験).

曝露経路 : 皮下投与.

被験動物 : げっ歯類-ラット.

投与量・期間 : 5 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.

参考文献

*Proceedings of the Society for Experimental Biology and Medicine*. (Academic Press, Inc., 1 E. First St., Duluth, MN 55802) 62,19,1946

\*\*\*変異原性に関するデータ\*\*\*

<<試験方法>> 微生物を用いた突然変異試験.

試験系 : 大腸菌 *Salmonella typhimurium*

投与量・期間 : 1 mmol/plate

参考文献

*Mutation Research*. (Elsevier Science Pub. B.V., POB 211, 1000 AE Amsterdam, Netherlands) 391,171,1997

§ 3,4,7-Trimethyl-2H-1-benzopyran-2-one

[化学名・別名] 3,4,7-Trimethylcoumarin. Trigoforin

[CAS No.] 14002-93-8

[化合物分類] ベンゾピラノイド (Non-oxygenated coumarins)

[構造式]

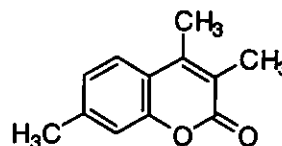
[分子式] C<sub>12</sub>H<sub>12</sub>O<sub>2</sub>

[分子量] 188.226

[基原] *Trigonella foenum-graecum*

[性状] 結晶 (MeOH)

[融点] Mp 112-113 °C



----- 文 献 -----

Khurana, S.K. et al., *Phytochemistry*, 1982, 21, 2145, (分離)

Mali, R.S. et al., Indian J. Chem., Sect. B, 1985, 24, 1271, (合成法)

§ Vitexin; 2''-O-(4-Hydroxycinnamoyl)

[化学名・別名] 2''-O-p-Coumaroylvitexin

[CAS No.] 59282-55-2

[化合物分類] フラボノイド (Flavones; 3 × O-置換基)

[構造式]

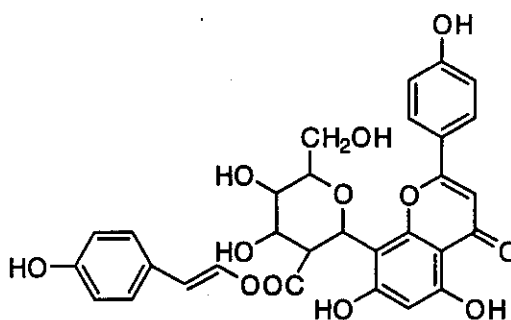
[分子式] C<sub>30</sub>H<sub>26</sub>O<sub>12</sub>

[分子量] 578.528

[基原] 次の植物から分離: コロハ *Trigonella foenum-graecum* の種子

[性状] 黄色の針状結晶

[融点] Mp 195-198 °C



-----文献-----

Wagner, H. et al., Phytochemistry, 1972, 11, 1518, (分離)

Soeder, R.W. et al., Phytochemistry, 1972, 11, 3079, (分離)

Seshadri, R. et al., Indian J. Chem., 1974, 12, 783, (分離)

Jurnak, F.A. et al., Acta Cryst. B, 1975, 31, 1304, (結晶構造)

Giaminetto, I.B. et al., J. Nat. Prod., 1975, 38, 265, (分離)

Niemann, G.J. et al., Phytochemistry, 1975, 14, 1436, (分離)

Sood, A.R. et al., Phytochemistry, 1976, 15, 351, (2''-4-hydroxycinnamoyl)

\*\*\*\*\*フェンネル(ウイキョウ)\*\*\*\*\*

§ § セリ科フェンネル (*Foeniculum vulgare* Miller) の果実。

§ 2,3-Butanediol; (2 ξ, 3 ξ)-form, O-β-D-Glucopyranoside

[CAS No.] 146763-54-4

[化合物分類] 脂肪族化合物 (Saturated unbranched alcohols)

[構造式]

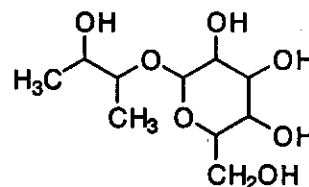
[分子式] C<sub>10</sub>H<sub>20</sub>O<sub>7</sub>

[分子量] 252.264

[基原] *Viscum coloratum*, ウイキョウ (*Foeniculum vulgare*)

[性状] 無定型の粉末

[比旋光度]: [α]<sub>D</sub><sup>25</sup> -32 (c, 0.2 in MeOH)



-----文献-----

Plattner, J.J. et al., J.A.C.S., 1971, 93, 1758, (絶対構造)

Kitajima, J. et al., Chem. Pharm. Bull., 1998, 46, 1643-1646, (分離, 配糖体)

Shindo, M. et al., J.O.C., 1998, 63, 9351-9357, (ethers, 合成法, H-NMR, C13-NMR, IR)

Lewis, R.J., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold, 1992, BOT000

§ 2,3-Butanediol; (2 ξ, 3 ξ)-form, O-[β-D-Apiofuranosyl-(1 → 6)-β-D-glucopyranoside]

[化合物分類]

脂肪族化合物 (Saturated unbranched alcohols),

炭水化物 (Disaccharides)

[構造式]

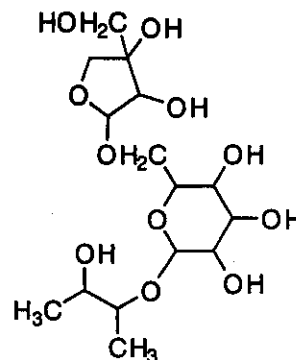
[分子式] C<sub>15</sub>H<sub>28</sub>O<sub>11</sub>

[分子量] 384.38

[基原] ウイキョウ (*Foeniculum vulgare*)

[性状] 無定型の粉末

[比旋光度]: [α]<sub>D</sub><sup>25</sup> -46 (c, 0.2 in MeOH)



-----文献-----

Plattner, J.J. et al., J.A.C.S., 1971, 93, 1758, (絶対構造)

Kong, D.Y. et al., Yaoxue Xuebao, 1992, 27, 792; CA, 118, 165184, (配糖体)  
Kitajima, J. et al., Chem. Pharm. Bull., 1998, 46, 1643-1646, (分離, 配糖体)  
Shindo, M. et al., J.O.C., 1998, 63, 9351-9357, (ethers, 合成法, H-NMR, C13-NMR, IR)  
Lewis, R.J., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold, 1992, BOT000

§ 1,2,3-Butanetriol; (2*R*\*,3*R*\*)-form

[化合物分類] 炭水化物 (1-Deoxy sugars), 炭水化物 (Tetritols)

[構造式]

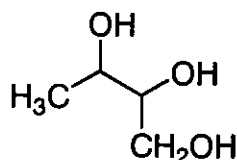
[分子式] C<sub>4</sub>H<sub>10</sub>O<sub>3</sub>

[分子量] 106.121

[基原] *Foeniculum vulgare* の果実

[性状] 無定型の粉末

[比旋光度]: [α]<sub>D</sub><sup>25</sup> +3 (c, 0.1 in MeOH)



-----文献-----

Bebault, G.M. et al., Can. J. Chem., 1972, 50, 3373, (合成法)

Kitajima, J. et al., Chem. Pharm. Bull., 1999, 47, 988-992, (分離, H-NMR, C13-NMR)

§ 1-Deoxyglucitol; D-form

[化学名・別名] 1-Deoxy-D-glucitol. 6-Deoxy-L-glitol

[CAS No.] 18545-96-5

[化合物分類] 炭水化物 (Hexitols), 炭水化物 (1-Deoxy sugars)

[構造式]

[分子式] C<sub>6</sub>H<sub>14</sub>O<sub>5</sub>

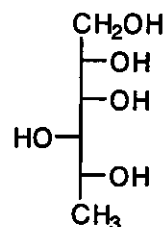
[分子量] 166.174

[基原] *Foeniculum vulgare* の果実

[性状] 針状結晶 (MeOH)

[融点] Mp 131-132 °C

[比旋光度]: [α]<sub>D</sub><sup>25</sup> +5 (c, 0.5 in H<sub>2</sub>O)



-----文献-----

Lewis, D. et al., J.C.S. Perkin 2, 1991, 197-200, (性質, conformn)

Kitajima, J. et al., Chem. Pharm. Bull., 1999, 47, 988-992, (分離, H-NMR, C13-NMR)

§ 1-Deoxyribose; D-form

[化学名・別名] 1-Deoxy-D-ribose. 5-Deoxy-L-ribose

[CAS No.] 13046-76-9

[化合物分類] 炭水化物 (1-Deoxy sugars), 炭水化物 (Pentitols)

[構造式]

[分子式] C<sub>5</sub>H<sub>12</sub>O<sub>4</sub>

[分子量] 136.147

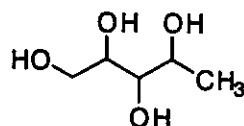
[基原] *Foeniculum vulgare* の果実

[性状] 結晶 (MeCN)

[融点] Mp 69 °C

[比旋光度]: [α]<sub>D</sub><sup>25</sup> +15 (c, 0.9 in H<sub>2</sub>O)

[その他のデータ] The CAS no. was originally applied erroneously to the L-enantiomer



-----文献-----

Hough, L. et al., Can. J. Chem., 1958, 36, 1720, (合成法, L-form)

Buck, K.W. et al., Carbohydr. Res., 1966, 2, 115, (合成法)

Sepulchre, A.-M. et al., Carbohydr. Res., 1972, 24, 311, (合成法, D-form)

§ 1-Deoxyxylitol; D-form

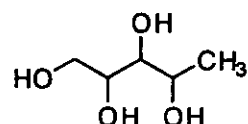
[化学名・別名] 1-Deoxy-D-xylitol. 5-Deoxy-L-xylitol

[CAS No.] 68832-17-7

[化合物分類] 炭水化物 (1-Deoxy sugars), 炭水化物 (Pentitols)

[構造式]

[分子式] C<sub>5</sub>H<sub>12</sub>O<sub>4</sub>



[分子量] 136.147

[基原] *Foeniculum vulgare* の果実

[性状] 結晶 (EtOH 溶液)

[融点] Mp 77-78 °C

[比旋光度]:  $[\alpha]_D^{20}$  0 (H<sub>2</sub>O)

----- 文献 -----

Zissis, E. et al., J.A.C.S., 1953, 75, 129, (D-form)

Ness, A.T. et al., J.A.C.S., 1953, 75, 132, (L-form, DL-form)

Kitajima, J. et al., Chem. Pharm. Bull., 1999, 47, 988-992, (分離, H-NMR, C13-NMR)

**§ 2,3-Dihydro-7-hydroxy-2,2-dimethyl-4-oxo-4H-1-benzopyran-6-propanoic acid; O-β-D-Glucopyranoside**

[化合物分類] ベンゾピラノイド (1-Benzopyrans)

[構造式]

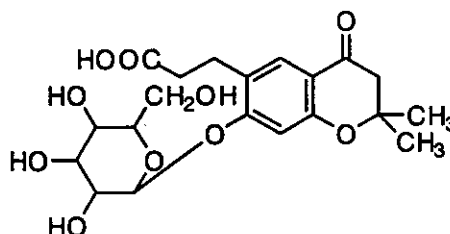
[分子式] C<sub>20</sub>H<sub>26</sub>O<sub>10</sub>

[分子量] 426.419

[基原] ウイキョウ, *Foeniculum vulgare*

[性状] 無定型の粉末

[比旋光度]:  $[\alpha]_D^{22}$  -68 (c, 0.8 in MeOH)



----- 文献 -----

Kitajima, J. et al., Chem. Pharm. Bull., 1999, 47, 1448-1450

**§ 4,5-Dihydro-4-hydroxy-5-(hydroxymethyl)-2(3H)-furanone; (4R,5S)-form**

[化学名・別名] L-erythro-form. 2-Deoxy-L-ribonolactone

[CAS No.] 38996-14-4

[化合物分類] 炭水化物 (2-Deoxy sugars), 炭水化物 (Aldonic acids)

[構造式]

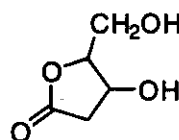
[分子式] C<sub>5</sub>H<sub>8</sub>O<sub>4</sub>

[分子量] 132.116

[基原] *Foeniculum vulgare* の果実

[性状] オイル

[比旋光度]:  $[\alpha]_D^{22}$  +3.5 (c, 0.8 in MeOH).  $[\alpha]_D^{20}$  +13.5 (c, 0.8 in H<sub>2</sub>O)



----- 文献 -----

Fernaacutendez, M.V. et al., Tetrahedron, 1990, 46, 7911, (合成法, H-NMR, C13-NMR)

Kita, Y. et al., J.O.C., 1998, 53, 554-561, (合成法)

Matsumoto, K. et al., Bull. Chem. Soc. Jpn., 1995, 68, 670, (合成法)

Kitajima, J. et al., Chem. Pharm. Bull., 1999, 47, 988-992, (分離, H-NMR, C13-NMR)

**§ 9,10-Dihydroxy-2-fenchone**

[化学名・別名] 1,3-Bis(hydroxymethyl)-3-methylbicyclo[2.2.1]heptan-2-one. 9,10-Dihydroxyfenchone

[CAS No.] 240495-77-6

[化合物分類] テルペノイド (Fenchane monoterpenoids)

[構造式]

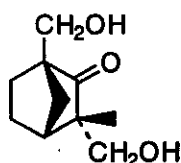
[分子式] C<sub>10</sub>H<sub>16</sub>O<sub>3</sub>

[分子量] 184.235

[基原] *Foeniculum vulgare* (ウイキョウ)

[性状] 無定型の粉末

[比旋光度]:  $[\alpha]_D^{23}$  +4.6 (c, 0.4 in MeOH)



----- 文献 -----

Ishikawa, T. et al., Chem. Pharm. Bull., 1999, 47, 805-808, (分離, H-NMR, C13-NMR)

**§ 6,9-Dihydroxyfenchone; (1R,3S,4S,6R)-form, 6-O-β-D-Glucopyranoside**

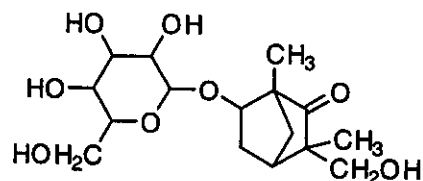
[CAS No.] 217960-73-1

[化合物分類] テルペノイド (Fenchane monoterpenoids)

[構造式]



[分子式]  $C_{16}H_{26}O_8$   
 [分子量] 346.377  
 [基原] *Foeniculum vulgare*  
 [性状] 無定型の粉末  
 [比旋光度]:  $[\alpha]_D^{25} -64.5$  (c, 0.7 in MeOH)

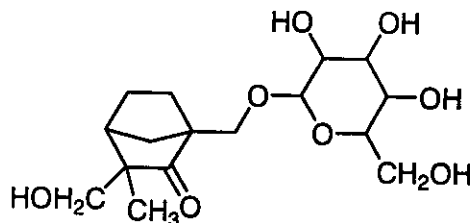


-----文献-----

Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1599-1602, (分離, H-NMR, C13-NMR)

§ 8,10-Dihydroxyfenchone; (1S,3R,4R)-form, 10-O-β-D-Glucopyranoside

[CAS No.] 217960-79-7  
 [化合物分類] テルペノイド (Fenchane monoterpeneoids)  
 [構造式]  
 [分子式]  $C_{16}H_{26}O_8$   
 [分子量] 346.377  
 [基原] *Foeniculum vulgare*  
 [性状] 針状結晶 (MeOH)  
 [融点] Mp 86-88 °C  
 [比旋光度]:  $[\alpha]_D^{25} +12.7$  (c, 0.3 in MeOH)

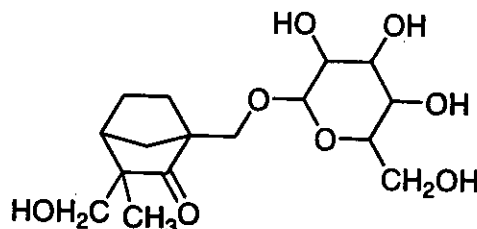


-----文献-----

Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1599-1602, (分離, H-NMR, C13-NMR)

§ 9,10-Dihydroxyfenchone; (1S,3S,4R)-form, 10-O-β-D-Glucopyranoside

[CAS No.] 217960-77-5  
 [化合物分類] テルペノイド (Fenchane monoterpeneoids)  
 [構造式]  
 [分子式]  $C_{16}H_{26}O_8$   
 [分子量] 346.377  
 [基原] *Foeniculum vulgare*  
 [性状] 針状結晶 (MeOH)  
 [融点] Mp 167-169 °C  
 [比旋光度]:  $[\alpha]_D^{25} -13.8$  (c, 1.4 in MeOH)

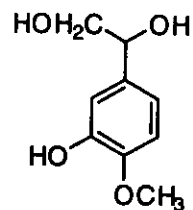


-----文献-----

Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1599-1602, (分離, H-NMR, C13-NMR)

§ 1-(3,4-Dihydroxyphenyl)-1,2-ethanediol; (R)-form, 4'-Me ether

[化学名・別名] 1-(3-Hydroxy-4-methoxyphenyl)-1,2-ethanediol  
 [CAS No.] 213466-88-7  
 [化合物分類] 単環芳香族 (Simple phenols)



[構造式]  
 [分子式]  $C_9H_{12}O_4$   
 [分子量] 184.191  
 [基原] ウイキョウ (*Foeniculum vulgare*)  
 [性状] 無定型の粉末 (天然物); 結晶 (合成品)  
 [融点] Mp 97-98 °C (合成品)

[比旋光度]:  $[\alpha]_D^{25} -22.5$  (c, 0.2 in MeOH) (天然物).  $[\alpha]_D -34.2$  (c, 0.54 in MeOH) (合成品)

-----文献-----

Freudenberg, K. et al., Chem. Ber., 1947, 80, 149, (誘導體)

Kitajima, J. et al., Chem. Pharm. Bull., 1998, 46, 1587-1590; 1999, 47, 1448-1450, (分離, 4'-Me derivs, 3',4'-di-Me glucosides)

Fisher, A.J. et al., Synth. Commun., 1998, 28, 2959-2968, (4'-Me ether)

§ 1-(3,4-Dihydroxyphenyl)-1,2-ethanediol; (R)-form, 4'-Me ether, 3'-O-β-D-glucopyranoside

[CAS No.] 217972-13-9  
 [化合物分類] 単環芳香族 (Simple phenols)  
 [構造式]

[分子式]  $C_{15}H_{22}O_9$

[分子量] 346.333

[基原] ウイキョウ (*Foeniculum vulgare*)

[性状] 無定型の粉末

[比旋光度]:  $[\alpha]_D^{23} -52$  (c, 0.3 in MeOH)

Freudenberg, K. et al., Chem. Ber., 1947, 80, 149, (誘導體)

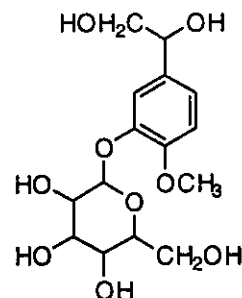
Hegedus, B., Helv. Chim. Acta, 1963, 46, 2604-2612, (3-Me ether sulfate)

Adamczyk, M. et al., Org. Prep. Proced. Int., 1990, 22, 526, (3'-Me ether, 成書)

Bianchi, G. et al., Phytochemistry, 1994, 35, 1335, (分離)

Kitajima, J. et al., Chem. Pharm. Bull., 1998, 46, 1587-1590; 1999, 47, 1448-1450, (分離, 4'-Me derivs, 3',4'-di-Me glucosides)

Fisher, A.J. et al., Synth. Commun., 1998, 28, 2959-2968, (4'-Me ether)



§ 1-(3,4-Dihydroxyphenyl)-1,2-ethanediol; (R)-form, 3',4'-Di-Me ether, 1-O-β-D-glucopyranoside

[CAS No.] 251905-98-3

[化合物分類] 単環芳香族 (Simple phenols)

[構造式]

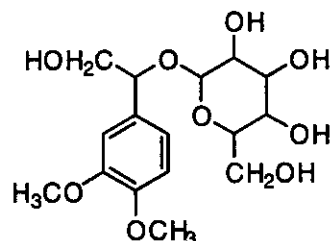
[分子式]  $C_{16}H_{24}O_9$

[分子量] 360.36

[基原] *Foeniculum vulgare* (ウイキョウ)

[性状] 無定型の粉末

[比旋光度]:  $[\alpha]_D^{24} -87$  (c, 0.1 in MeOH)



----- 文献 -----

Adamczyk, M. et al., Org. Prep. Proced. Int., 1990, 22, 526, (3'-Me ether, 成書)

Bianchi, G. et al., Phytochemistry, 1994, 35, 1335, (分離)

De Tommasi, N. et al., Phytochemistry, 1996, 42, 163, (β-Hydroxy-3',4'-dimethoxyphenylethyl glucoside)

Kitajima, J. et al., Chem. Pharm. Bull., 1998, 46, 1587-1590; 1999, 47, 1448-1450, (分離, 4'-Me derivs, 3',4'-di-Me glucosides)

Fisher, A.J. et al., Synth. Commun., 1998, 28, 2959-2968, (4'-Me ether)

§ 1-(3,4-Dihydroxyphenyl)-1,2-ethanediol; (R)-form, 3',4'-Di-Me ether, 2-O-β-D-glucopyranoside

[CAS No.] 251913-30-1

[化合物分類] 単環芳香族 (Simple phenols)

[構造式]

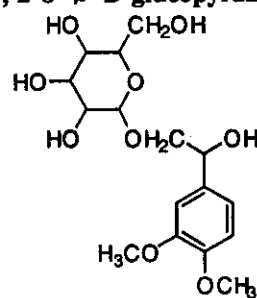
[分子式]  $C_{16}H_{24}O_9$

[分子量] 360.36

[基原] *Foeniculum vulgare* (ウイキョウ)

[性状] 無定型の粉末

[比旋光度]:  $[\alpha]_D^{24} -45$  (c, 0.1 in MeOH)



----- 文献 -----

Freudenberg, K. et al., Chem. Ber., 1947, 80, 149, (誘導體)

Hegedus, B., Helv. Chim. Acta, 1963, 46, 2604-2612, (3-Me ether sulfate)

Adamczyk, M. et al., Org. Prep. Proced. Int., 1990, 22, 526, (3'-Me ether, 成書)

Bianchi, G. et al., Phytochemistry, 1994, 35, 1335, (分離)

De Tommasi, N. et al., Phytochemistry, 1996, 42, 163, (β-Hydroxy-3',4'-dimethoxyphenylethyl glucoside)

Kitajima, J. et al., Chem. Pharm. Bull., 1998, 46, 1587-1590; 1999, 47, 1448-1450, (分離, 4'-Me derivs, 3',4'-di-Me glucosides)

Fisher, A.J. et al., Synth. Commun., 1998, 28, 2959-2968, (4'-Me ether)

§ 2,6-Dimethyl-7-octene-1,6-diol; 8-O-β-D-Glucopyranoside

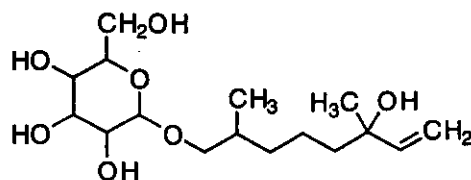
[CAS No.] 219814-33-2

[化合物分類] テルペノイド (Acyclic monoterpenoids)

[構造式]

[分子式]  $C_{16}H_{30}O_7$

[分子量] 334.409



[基原] *Foeniculum vulgare*

[性状] 無定型の粉末

-----文献-----

Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1748-1751, (分離, H-NMR, C13-NMR)

§ 3,7-Dimethyl-6-octene-1,2,3,8-tetrol; (2*E*,3*E*,6*E*)-form

[CAS No.] 240495-79-8

[化合物分類] テルペノイド (Acyclic monoterpenoids)

[構造式]

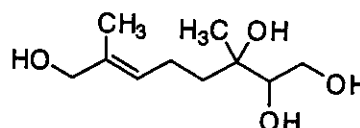
[分子式] C<sub>10</sub>H<sub>20</sub>O<sub>4</sub>

[分子量] 204.266

[基原] *Foeniculum vulgare*

[性状] シロップ

[比旋光度]: [α]<sub>D</sub><sup>23</sup> -41.8 (c, 0.2 in MeOH)



-----文献-----

Ishikawa, T. et al., Chem. Pharm. Bull., 1999, 47, 805-808, (分離, H-NMR, C13-NMR)

§ 1,8-Epoxy-*p*-menthane-2,4-diol; (1*R*,2*R*,4*R*)-form

[CAS No.] 176896-61-0

[構造式]

[分子式] C<sub>10</sub>H<sub>18</sub>O<sub>3</sub>

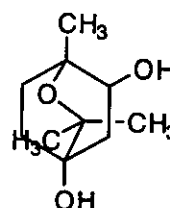
[分子量] 186.25

[基原] *Foeniculum vulgare* and of bushtail possum urine

[性状] 針状結晶 (MeOH)

[融点] Mp 158-159 °C

[比旋光度]: [α]<sub>D</sub><sup>26</sup> -23 (c, 0.2 in MeOH)



-----文献-----

Carman, R.M. et al., Aust. J. Chem., 1994, 47, 2087, (分離, H-NMR, C13-NMR, 合成法)

Ono, M. et al., Chem. Pharm. Bull., 1996, 44, 337-342, (Foeniculosides)

Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1738-1742, (*Foeniculum vulgare* constits)

§ 1,8-Epoxy-*p*-menthane-2,4-diol; (1*R*,2*R*,4*R*)-form, 2-*O*-β-D-Glucopyranoside

[化学名・別名] Foeniculoside VI

[CAS No.] 174390-07-9

[化合物分類] テルペノイド (p-Menthane monoterpenoids)

[構造式]

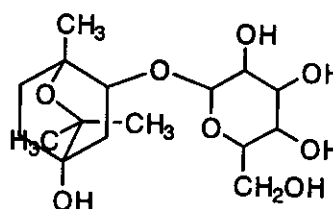
[分子式] C<sub>16</sub>H<sub>28</sub>O<sub>8</sub>

[分子量] 348.392

[基原] *Foeniculum vulgare*

[性状] 粉末

[比旋光度]: [α]<sub>D</sub><sup>27</sup> -59.5 (c, 0.1 in MeOH)



-----文献-----

Carman, R.M. et al., Aust. J. Chem., 1994, 47, 2087, (分離, H-NMR, C13-NMR, 合成法)

Ono, M. et al., Chem. Pharm. Bull., 1996, 44, 337-342, (Foeniculosides)

Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1738-1742, (*Foeniculum vulgare* constits)

§ 1,8-Epoxy-*p*-menthane-2,4-diol; (1*R*,2*R*,4*R*)-form, 4-*O*-β-D-Glucopyranoside

[化学名・別名] Foeniculoside VII

[CAS No.] 174285-77-9

[化合物分類] テルペノイド (p-Menthane monoterpenoids)

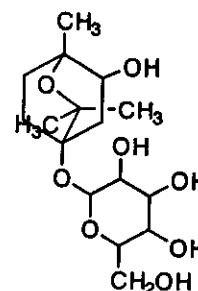
[構造式]

[分子式] C<sub>16</sub>H<sub>28</sub>O<sub>8</sub>

[分子量] 348.392

[基原] *Foeniculum vulgare*

[性状] 粉末



-----文献-----

Carman, R.M. et al., Aust. J. Chem., 1994, 47, 2087, (分離, H-NMR, C13-NMR, 合成法)  
Ono, M. et al., Chem. Pharm. Bull., 1996, 44, 337-342, (Foeniculosides)  
Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1738-1742, (*Foeniculum vulgare* constits)

§ 1,8-Epoxy-*p*-menthane-2,4-diol; (1*S*,2*R*,4*S*)-form

[CAS No.] 219546-81-3

[化合物分類]テルペノイド (p-Menthane monoterpeneoids)

[構造式]

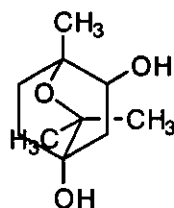
[分子式] C<sub>10</sub>H<sub>18</sub>O<sub>3</sub>

[分子量] 186.25

[基原] *Foeniculum vulgare*

[性状] 粉末

[比旋光度]: [α]<sub>D</sub><sup>26</sup> -31.2 (c, 0.2 in MeOH)



-----文献-----

Carman, R.M. et al., Aust. J. Chem., 1994, 47, 2087, (分離, H-NMR, C13-NMR, 合成法)  
Ono, M. et al., Chem. Pharm. Bull., 1996, 44, 337-342, (Foeniculosides)  
Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1738-1742, (*Foeniculum vulgare* constits)

§ 1,8-Epoxy-*p*-menthane-2,4-diol; (1*S*,2*R*,4*S*)-form, 2-*O*-β

-*D*-Glucopyranoside

[化学名・別名] Foeniculose V

[CAS No.] 174232-47-4

[化合物分類]テルペノイド (p-Menthane monoterpeneoids)

[構造式]

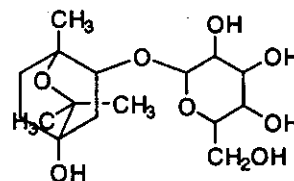
[分子式] C<sub>16</sub>H<sub>28</sub>O<sub>8</sub>

[分子量] 348.392

[基原] *Foeniculum vulgare*

[性状] 粉末

[比旋光度]: [α]<sub>D</sub><sup>29</sup> -56.9 (c, 3.6 in MeOH)



-----文献-----

Carman, R.M. et al., Aust. J. Chem., 1994, 47, 2087, (分離, H-NMR, C13-NMR, 合成法)  
Ono, M. et al., Chem. Pharm. Bull., 1996, 44, 337-342, (Foeniculosides)  
Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1738-1742, (*Foeniculum vulgare* constits)

§ 1,8-Epoxy-*p*-menthane-2,4-diol; (1*S*,2*S*,4*S*)-form, 2-*O*-β-*D*-Glucopyranoside

[CAS No.] 219583-09-2

[化合物分類]テルペノイド (p-Menthane monoterpeneoids)

[構造式]

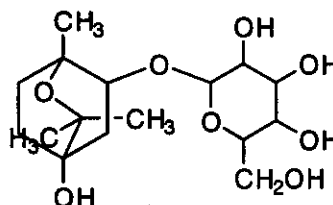
[分子式] C<sub>16</sub>H<sub>28</sub>O<sub>8</sub>

[分子量] 348.392

[基原] *Foeniculum vulgare*

[性状] 無定型の粉末

[比旋光度]: [α]<sub>D</sub><sup>23</sup> -23.5 (c, 0.1 in MeOH)



-----文献-----

Ishikawa, T. et al., Chem. Pharm. Bull., 1998, 46, 1738-1742, (*Foeniculum vulgare* constits)

§ 1,8-Epoxy-*p*-menthane-2,5-diol; (1*S*,2*R*,4*S*,5*R*)-form

[CAS No.] 219546-82-4

[化合物分類]テルペ

[分子式] C<sub>10</sub>H<sub>18</sub>O<sub>3</sub>

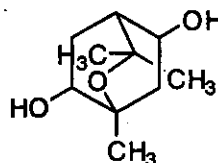
[分子量] 186.25

[基原] *Foeniculum vulgare*

[性状] 針状結晶 (MeOH) もしくは粉末

[融点] Mp 151-153 °C

[比旋光度]: [α]<sub>D</sub><sup>26</sup> -62.2 (c, 0.5 in MeOH)



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