

[分子式] C₈H₁₆O₃

[分子量] 154.165

[天然基原] *Forsythia suspensa* の果実. また *Millingtonia hortensis*, *Halleria lucida*, *Clerodendrum indicum*, *Cornus controversa*

[性状] オイル

[その他のデータ] ラセミ体 (small opt. rotns. reported)

----- 文献 -----

Messana, I. et al., *Phytochemistry*, 1984, 23, 2617, (分離)

Nishino, C. et al., *J. Nat. Prod.*, 1988, 51, 1281, (分離)

Hase, T. et al., *Phytochemistry*, 1995, 39, 235; 40, 1581, (diol, 分離, H-NMR, C13-NMR)

Tian, J. et al., *Chin. Chem. Lett.*, 1997, 8, 129-132, (分離, H-NMR, C13-NMR)

§ Rengyoxide

[化学名・別名] 4-Hydroxy-7-oxabicyclo[2.2.1]heptene-1-ethanol (CAS 名)

[CAS No.] 93675-86-6

[化合物分類] 脂肪族化合物 (Bicycloheteroalicyclics (1 × O))

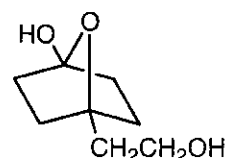
[構造式]

[分子式] C₈H₁₄O₃

[分子量] 158.197

[天然基原] *Forsythia suspensa* の果実

[性状] オイル



----- 文献 -----

Endo, K. et al., *Can. J. Chem.*, 1984, 62, 2011

§ Salicifoliol; 7-Epimer, Me ether

[化学名・別名] Forsythenin

[CAS No.] 239083-58-0

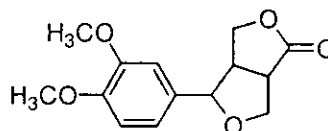
[化合物分類] リグナン化合物 (Miscellaneous furofuranoid lignans)

[構造式]

[分子式] C₁₄H₁₆O₅

[分子量] 264.277

[天然基原] *Forsythia suspensa* の果実



----- 文献 -----

González, A.G. et al., *J. Nat. Prod.*, 1989, 52, 1139-1142, (Salicifoliol)

Ming, D.S. et al., *J. Asian Nat. Prod. Res.*, 1999, 1, 221-226, (Forsythenin)

§ Sinapyl alcohol; (E)-form, 4'-O-β-D-Glucopyranoside

[化学名・別名] Syringin. Lilacin. Methoxyconiferin. Eleutheroside B. Magnolenin. Alyposide. Syringoside. Ligustrin. Ilexanthin A

[CAS No.] 118-34-3

[化合物分類] 単環芳香族 (Simple phenylpropanoids)

[構造式]

[分子式] C₁₇H₂₂O₆

[分子量] 372.371

[天然基原] 次の植物から分離: *Syringa vulgaris*, *Ligustrum* spp., *Jasminum* spp., *Phyllyrea latifolia*, *Phyllyrea decora*, *Paulownia tomentosa*, *Forsythia suspensa*, *Fraxinus* spp., その他

[性状] 針状結晶もしくはプリズム結晶 (H₂O)

[融点] Mp 191-192 °C

[比旋光度]: [α]_D -18 (H₂O)

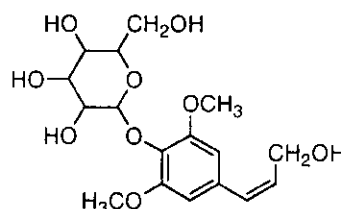
----- 文献 -----

Sutarjadi, T.M.M. et al., *Phytochemistry*, 1978, 17, 564, (分離, UV, IR, H-NMR, Syringin)

Niwa, M. et al., *Chem. Pharm. Bull.*, 1988, 36, 1158, (Syringinose)

Park, H.J. et al., *J. Nat. Prod.*, 1996, 59, 1128, (Syringin 4"-glucoside)

Duebeler, A. et al., *Phytochemistry*, 1997, 45, 51, (cis-Syringin)



§ § モクセイ科シナレンギョウ (*Forsythia viridissima* Lindley) の果実。

§ Arctigenin; (-)-form

[CAS No.] 7770-78-7

[化合物分類] リグナン化合物 (Saturated dibenzylbutyrolactone ns)

[構造式]

[分子式] $C_{21}H_{22}O_6$

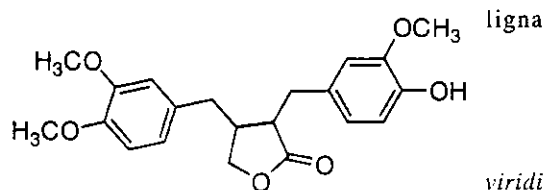
[分子量] 372.417

[天然基原] 次の植物から分離: *Cnicus benedictus*, *Forsythia* *ssima*, *Arctium lappa*, *Ipomoea cairica*, その他

[性状] 板状結晶 (MeOH/Et₂O)

[融点] Mp 102 °C

[比旋光度]: $[\alpha]_D^{25} -37.7$ (EtOH) (-28.7)



ligna

viridi

-----文献-----

Hänsel, R. et al., Z. Naturforsch., B, 1964, 19, 727, (生育, Arctiin)

Inagaki, I. et al., Chem. Pharm. Bull., 1972, 20, 2710, (分離)

Omar, A.A., J. Nat. Prod., 1978, 41, 638, (Arctiin)

Bruno, M. et al., Phytochemistry, 1991, 30, 4165, (分離)

§ Forsythide

[CAS No.] 43043-09-0

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

[構造式]

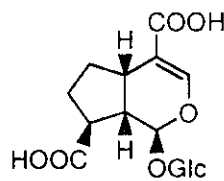
[分子式] $C_{16}H_{22}O_{11}$

[分子量] 390.343

[天然基原] *Forsythia viridissima*

[性状] 粉末

[比旋光度]: $[\alpha]_D^{20} -64.7$ (c, 1 in MeOH)



-----文献-----

Inouye, H. et al., Chem. Pharm. Bull., 1973, 21, 497-502. (分離, H-NMR)

Jensen, S.R. et al., Phytochemistry, 1980, 19, 2685-2688. (Griselinoside)

Foderaro, T.A. et al., Phytochemistry, 1992, 31, 4191-4195, (10-Griselinosidic acid)

Damtoft, S. et al., Phytochemistry, 1994, 37, 173-178, (生合成, *Forsythia europaea* constits, H-NMR, C13-NMR)

§ Forsythide; 10-Me ester

[CAS No.] 42830-21-7

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

[構造式]

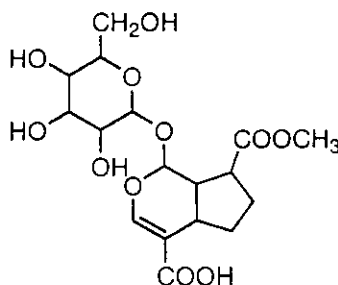
[分子式] $C_{17}H_{24}O_{11}$

[分子量] 404.37

[天然基原] *Forsythia viridissima*

[性状] 粉末

[比旋光度]: $[\alpha]_D^{22} -51.9$ (c, 1 in MeOH)



-----文献-----

Inouye, H. et al., Chem. Pharm. Bull., 1973, 21, 497-502, (分離, H-NMR)

Jensen, S.R. et al., Phytochemistry, 1980, 19, 2685-2688, (Griselinoside)

Damtoft, S. et al., J.C.S. Perkin 1, 1983, 1943-1949, (生合成)

Foderaro, T.A. et al., Phytochemistry, 1992, 31, 4191-4195, (10-Griselinosidic acid)

Damtoft, S. et al., Phytochemistry, 1994, 37, 173-178, (生合成, *Forsythia europaea* constits, H-NMR, C13-NMR)

§ Forsythoside B

[CAS No.] 81525-13-5

[化合物分類] 炭水化物 (Oligosaccharides)

[構造式]

[分子式] $C_{23}H_{44}O_{19}$

[分子量] 756.71

[天然基原] 次の植物の茎から分離:

Phtheirospermum japonicum と *Forsythia viridissima*

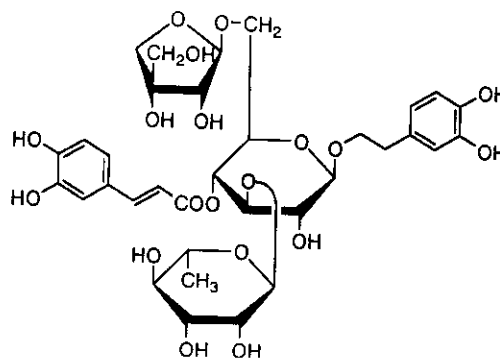
[用途] *Staphylococcus aureus* に対して抗菌活性を示す

[比旋光度]: $[\alpha]_D^{25} -67.2$ (c, 1.37 in MeOH). $[\alpha]_D -93$ (MeOH)

[溶解性] BERDY SOL: ヘキサンに難溶

UV: [neutral] λ_{max} 291 (ϵ 10680); 333 (ϵ 14400) (MeOH) (Berdy)

[その他のデータ] 空気に酸化されやすい



----- 文献 -----

Endo, K. et al., *Heterocycles*, 1982, 19, 261, (分離, H-NMR, C13-NMR)

Takeda, Y., *J. Nat. Prod.*, 1988, 51, 180

Calis, I. et al., *Phytochemistry*, 1992, 31, 3624, (Alyssonoside)

Seidel, V. et al., *Phytochemistry*, 1997, 44, 691, (Ballotetroside)

§ Forsythoside F

[化学名・別名] Arenarioside

[CAS No.] 129832-42-4

[その他の CAS No.] 94130-58-2

[化合物分類] 炭水化物 (Oligosaccharides)

[構造式]

[分子式] $C_{23}H_{44}O_{19}$

[分子量] 756.71

[天然基原] 次の植物から分離: *Forsythia*

viridissima, *Orobanche arenaria*

[用途] Chemotaxonomic marker in the trionychnon

section of the ハマウツボ科

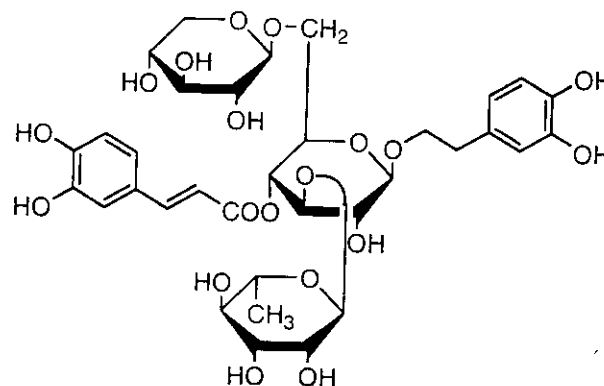
[性状] 無定型の塊

[比旋光度]: $[\alpha]_D -79$ (c, 0.12 in MeOH)

[溶解性] BERDY SOL: メタノール, 水に可溶

UV: [neutral] λ_{max} 282 (MeOH) (Berdy)

[その他のデータ] One of the refs. interchanges the names Pheliposide and Arenarioside



----- 文献 -----

Andary, C. et al., *J. Nat. Prod.*, 1985, 48, 778-783, (分離)

Endo, K. et al., *Heterocycles*, 1990, 30, 291-294, (分離, H-NMR, C13-NMR, Mass)

Rothenburger, J. et al., *Annalen*, 1994, 1113-1115, (分離, H-NMR)

§ Forsythoside G

[CAS No.] 129802-19-3

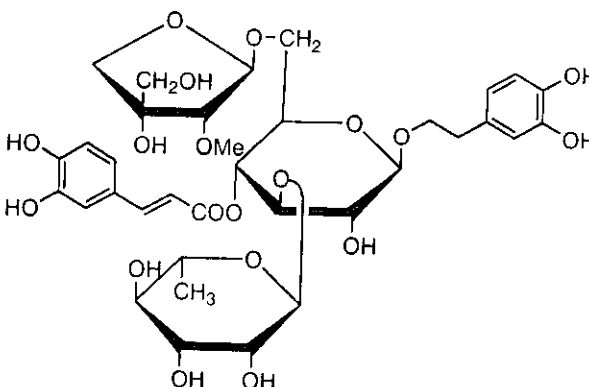
[化合物分類] 炭水化物 (Oligosaccharides)

[構造式]

[分子式] $C_{23}H_{46}O_{19}$

[分子量] 770.737

[天然基原] 次の植物から分離: *Forsythia viridissima* の茎



----- 文献 -----

Endo, K. et al., *Heterocycles*, 1990, 30, 291, (分離, H-NMR, C13-NMR, Mass)

§ **Matairesinol; (-)-form, 4'-O-β-D-Glucopyranoside**

[化学名・別名] Matairesinoside

[CAS No.] 23202-85-9

[化合物分類] リグナン化合物

(Saturated dibenzylbutyrolactone lignans)

[構造式]

[分子式] C₂₀H₃₂O₁₁

[分子量] 520.532

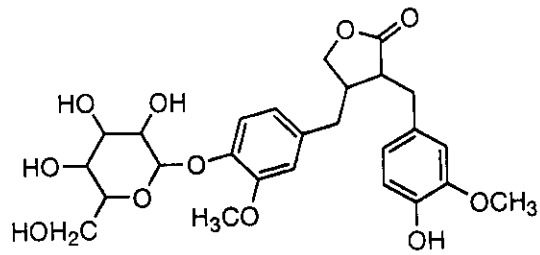
[天然基原] *Trachelospermum asiaticum* の茎, *Forsythia*

ssima の葉

[性状] 結晶 (EtOAc)

[融点] Mp 93 °C

[比旋光度]: [α]_D²⁵ -46 (EtOH)



viridi

-----文献-----

Barton, G.M. et al., J.O.C., 1962, 27, 322, (分離)

Tandon, S. et al., Phytochemistry, 1976, 15, 1789, (分離, UV, IR, H-NMR, Mass)

Taafrout, M. et al., Tet. Lett., 1984, 25, 4127, (分離, 誘導體)

Lin, R.C. et al., Planta Med., 1994, 60, 168, ((+)-Matairesinol)

Nagatsu, A. et al., Chem. Pharm. Bull., 1998, 46, 1044-1047, (4'-apiosylglucoside)

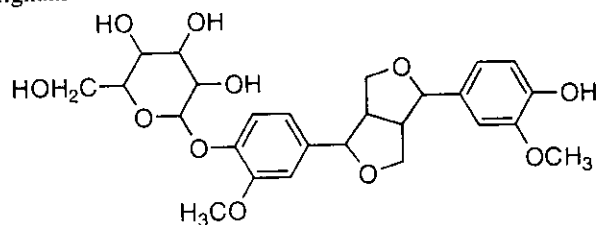
§ § **モクセイ科チヨウセンレンギョウ (*Forsythia koreana* Nakai) の果実。**

§ **Pinoresinol; (+)-form, 4-O-β-D-Glucopyranoside**

[CAS No.] 69251-96-3

[化合物分類] リグナン化合物 (Simple furofuranoid lignans)

[構造式]



[分子式] C₂₀H₃₂O₁₁

[分子量] 520.532

[天然基原] *Forsythia suspensa* の果実, *Forsythia*

ana

-----文献-----

Casabuono, A.C. et al., Phytochemistry, 1994, 35, 479, ((-)-Pinoresinol)

Yang, S.-J. et al., J. Chin. Chem. Soc. (Taipei), 1999, 46, 811-820, (3'-O-Demethylepipinoresinol)

Chen, I.S. et al., J. Nat. Prod., 1999, 62, 833-837, (O-Prenylpinoresinols)

kore

*****レンゲ (Renge) *****

§ § **マメ科レンゲ (*Astragalus sinicus* L.) の花または葉。**

§ **2-Amino-4-(aminooxy)butanoic acid; (S)-form**

[化学名・別名] L-form

[CAS No.] 496-93-5

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

[構造式]

[分子式] C₄H₁₀N₂O₃

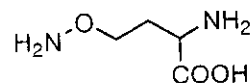
[分子量] 134.135

[天然基原] *Canavalia ensiformis* (Jackbean), *Astragalus sinicus* の未熟な種子

[用途] Potent inhibitor of pyridoxal phosphate-containing enzymes

[性状] 針状結晶 (EtOH)

[融点] Mp 214 °C で分解



[比旋光度]: $[\alpha]_D^{25}$ -8.31

[販売元]Sigma:C4136

-----文献-----

Williamson, J.D. et al., Life Sci., 1974, 14, 2481, (分離)

Rosenthal, G.A., Life Sci., 1978, 23, 93, (レビュー)

Ozinskas, A.J. et al., J.O.C., 1986, 51, 5047, (合成法)

Barlos, K. et al., Annalen, 1986, 287

§ 2-Amino-3-hydroxybutanedioic acid; (2*S*,3*R*)-form

[化学名・別名]L-erythro-form

[CAS No.]7298-98-8

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

[構造式]

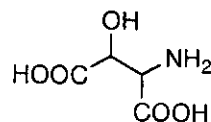
[分子式]C₄H₇NO₄

[分子量]149.103

[天然基原]次の植物から分離: *Astragalus sinicus*. A component of Duramycin and human blood coagulation factor F

[性状]結晶

[比旋光度]: $[\alpha]_D^{25}$ +55.6 (c, 0.9 in 1 M HCl)



-----文献-----

Okai, H. et al., Bull. Chem. Soc. Jpn., 1969, 42, 3550

Ishiyama, T. et al., J. Antibiot., 1975, 28, 821, (分離, 構造決定)

Teintze, M. et al., Biochemistry, 1981, 20, 6446, (分離)

Tohyama, H. et al., CA, 1984, 103, 192814, (分離)

§ Coumestrol

[化学名・別名]3,9-Dihydroxy-6*H*-benzofuro[3,2-*c*][1]benzopyran-6-one(CAS名), 3,9-Dihydroxycoumestan, 7,12-Dihydroxycoumestan (obsol.), 3,9-Dihydroxy-6-oxopterocarpen (obsol.), 6',7'-Dihydroxybenzofuro[3',2',3,4]coumarin (obsol.), Cumostrol

[CAS No.]479-13-0

[化合物分類]フラボノイド(Coumestan flavonoids), 薬物: 卵胞ホルモン(Estrogens)

[構造式]

[分子式]C₁₅H₈O₅

[分子量]268.225

[天然基原]次の植物から分離: *Medicago* spp., *Glycine max*, *Astragalus sinicus*, *Centrosema pubescens*, *Dolichos biflorus*, *Melilotus alba*, *Phaseolus* spp., *Pisum sativum*, *Psoralea corylifolia*, *Trifolium* spp., *Trigonella corniculata* and *Vigna unguiculata* (全てのマメ科, マメ亜科), また *Spinacea oleracea* (アカザ科), *Brassica oleracea* (アブラナ科)

[用途]生体内でエストロゲン受容体とヒト乳房のガン細胞(MCF-7)結合する, エストロゲン薬

[融点]Mp 385 °C

[溶解性]BERDY SOL: 塩基に可溶; メタノール, クロロホルム, エーテルに易溶; 水, ベンゼン, 四塩化炭素, 酸に難溶

[Log P 計算値]Log P 3.12 (計算値)

UV: [neutral] λ_{max} 208 ; 243 ; 343 (MeOH) (Berdy) [neutral] λ_{max} 243 ; 307 ; 343 (EtOH) (Berdy)

[base] λ_{max} 250 ; 280 ; 310 ; 385 (NaOH) (Berdy)

[その他のデータ]325 °Cで昇華, 青色の蛍光を示す

[傷害・毒性]催奇形成作用の報告がある

[化学物質毒性データ総覧(RTECS)登録番号]DF8077000

[販売元]Fluka:27885

-----文献-----

Bikoff, E.M. et al., J.A.C.S., 1958, 80, 3969, (構造決定)

Micheli, R.A. et al., J. Med. Chem., 1962, 5, 321, (薬理)

Schauer, H., Dtsch. Apoth. -Ztg., 1964, 104, 987, (レビュー, 性質)

Harper, S.H. et al., J.C.S.(C), 1969, 1109, (Coumestrin)

Donnelly, D.M.X. et al., J.C.S. Perkin I, 1973, 1737, (9-*O*-Methylcoumestrol)

Murray, R.D.H. et al., The Natural Coumarins, J.Wiley, 1982, 320, (生化学的性質)
Ingham, J.L., Prog. Chem. Org. Nat. Prod., 1983, 43, 1, (レビュー, 生育)
Jurd, L. et al., Aust. J. Chem., 1984, 37, 1127, (9-O-Methylcoumestrol)
Le-Van, N., Phytochemistry, 1984, 23, 1204, (Coumestrin)
Setchell, K.D.R. et al., J. Chromatogr., 1987, 386, 315, (HPLC)

RTECS (化学物質毒性データ)

生体影響物質 : 変異原性物質, 生殖影響物質.

健康障害に関するデータ

その他の多回投与試験

<<試験方法>> 最小毒性量(TDLo).

曝露経路 : 腹腔内投与.

被験動物 : げっ歯類-ラット.

投与量・期間 : 15 mg/kg/15 日間間欠投与

毒性影響 : [内分泌] その他の変化.

[血液] 血清成分の変化(たとえばTP, ビリルビン, コレステロール).

参考文献

TOSCF2 Toxicological Sciences. (Academic Press, 6277 Sea Harbor Dr., Orlando, FL 32887) V.41- 1998-
[Vol.,頁,年(19-)]54,338,2000

生殖に関するデータ

<<試験方法>> 最小毒性量(TDLo).

曝露経路 : 皮下投与.

被験動物 : げっ歯類-ラット.

投与 : 2500 ug/kg

雌雄投与期間 : 産後 1-5 日間の授乳雌.

毒性影響 : [生殖] [母系影響]子宮, 頸管, 膈.

[生殖] [母系影響]その他の影響.

[内分泌] エストロゲン.

参考文献

Toxicologist.12,432,1992

<<試験方法>> 最小毒性量(TDLo).

曝露経路 : 経口投与.

被験動物 : げっ歯類-マウス.

投与 : 234 mg/kg

雌雄投与期間 : 雌 1-13 日間(交配後)

毒性影響 : [生殖] [受精能への影響]その他の受精能の測定値.

変異原性に関するデータ

<<試験方法>> 不定期 DNA 合成.

曝露経路 : 皮下投与.

試験系 : げっ歯類-マウス.

投与量・期間 : 400 mg/kg

参考文献

Cancer Research. 48,14,1988

§ 3,3',4',5,7-Pentahydroxyflavylium (1+); 3-O-[Xylosyl-(1→?)]-glucoside

[化学名・別名] Illicyanin

[化合物分類]フラボノイド(Anthocyanidins and anthocyanins; 5 × O-置換基), フラボノイド(Flavonoids 構造は一部又は全てが未知)

[構造式]有効な構造式はない

[分子式] C₂₁H₂₉O₁₅⁽⁺⁾

[分子量] 581.506

[天然基原] 次の植物から分離: *Lathyrus odoratus* cv. "Harrow"の花弁, *Astragalus sinicus*, *Stauntonia hexaphylla*

[その他のデータ] The various isolates need not have the same struct.

-----文献-----

Ishikura, N. et al., Bot. Mag., 1978, 91, 25, (Illicyanin)

§ 3,3',4',5,7-Pentahydroxy-5'-methoxyflavylium (1+); 3-O-[β-D-Glucopyranosyl-(1→?)]-β

§ 3,3',4',5,7-Pentahydroxy-5'-methoxyflavylium (1+); 3-O-[β-D-Glucopyranosyl-(1→?)]-β-D-glucopyranoside

[化学名・別名] Petundin 3-diglucoside

[CAS No.] 67252-76-0

[化合物分類] フラボノイド (Flavonoids) 構造は一部又は全てが未知), フラボノイド (Anthocyanidins and anthocyanins; 6 × O-置換基)

[構造式] 有効な構造式はない

[分子式] C₂₈H₃₃O₁₇⁽⁺⁾

[分子量] 641.558

[天然基原] *Astragalus sinicus*

-----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., Birkhaumluser

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

*****レンブ (Wax jambu, Mankil) *****

§ § フトモモ科レンブ (*Eugenia javanica* Lamarck) の果実。

§ 5,7-Dihydroxy-6,8-dimethylflavanone; (S)-form

[CAS No.] 56297-79-1

[化合物分類] フラボノイド (Flavanones; 2 × O-置換基)

[構造式]

[分子式] C₁₇H₁₆O₄

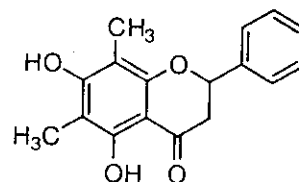
[分子量] 284.311

[天然基原] 次の植物から分離: *Eugenia javanica*, *Agonis spathulata*, *Uvaria afzelii*, *Uvaria lawii*, *Dalea polyadenia*, *Pinus krempfii*, *Matteucia orientalis*

[性状] 青白い黄色の針状結晶 (EtOH)

[融点] Mp 202-204 °C

[比旋光度]: [α]_D²² -48 (c. 3.8 in Me₂CO)



-----文献-----

Mitscher, L.A. et al., J. Nat. Prod., 1973, 36, 422, (分離)

Cannon, J.R. et al., Aust. J. Chem., 1977, 30, 2099, (分離, 成書)

Wollenweber, E. et al., CA, 1979, 91, 120332k, (分離)

Hufford, C.D. et al., J.O.C., 1981, 46, 3073, (分離)

§ 5,7-Dihydroxy-6,8-dimethylflavanone; (S)-form, 5-Me ether

[化学名・別名] 7-Hydroxy-5-methoxy-6,8-dimethylflavanone

[CAS No.] 83247-72-7

[化合物分類] フラボノイド (Flavanones; 2 × O-置換基)

[構造式]

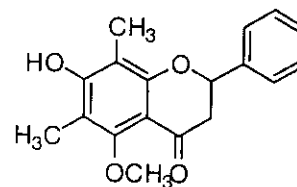
[分子式] C₁₈H₁₈O₄

[分子量] 298.338

[天然基原] *Eugenia javanica*, *Uvaria angolensis*

[性状] 青白い黄色の針状結晶 (MeOH)

[融点] Mp 207-209 °C



-----文献-----

Mitscher, L.A. et al., J. Nat. Prod., 1973, 36, 422, (分離)

Cannon, J.R. et al., Aust. J. Chem., 1977, 30, 2099, (分離, 成書)

Wollenweber, E. et al., CA, 1979, 91, 120332k, (分離)

Hufford, C.D. et al., J.O.C., 1981, 46, 3073, (分離)

§ § フトモモ科ミズレンブ (*Syzygium aqueum* Alstone) の果実。

§ Samarangenin A

[CAS No.] 147103-18-2

[化合物分類] タンニン化合物 (Simple gallate ester tannins)

[構造式]

[分子式] $C_{37}H_{28}O_{18}$

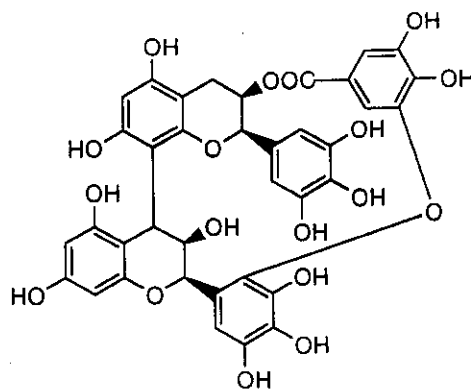
[分子量] 760.617

[天然基原] 次の植物の葉から分離: *Syzygium samarangens*,

gium aqueum

[性状] 褐色の無定型粉末・二水和物

[比旋光度]: $[\alpha]_D^{27} -218.4$ (c, 0.6 in Me_2CO)



Syzy

-----文献-----

Nonaka, G. et al., Chem. Pharm. Bull., 1992, 40, 2671-2673, (分離, 構造決定, H-NMR, C13-NMR)

Lin, L.-C. et al., Planta Med., 2000, 66, 333-336, (H-NMR, C13-NMR, Samarangenin B)

§ Samarangenin A; 3-O-(3,4,5-Trihydroxybenzoyl)

[化学名・別名] Samarangenin B

[CAS No.] 147103-19-3

[化合物分類] タンニン化合物 (Simple gallate ester tannins)

[構造式]

[分子式] $C_{43}H_{32}O_{22}$

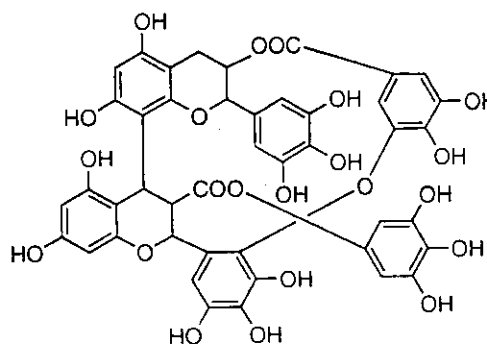
[分子量] 912.724

[天然基原] 次の植物から得られるタンニン成分: *Syzygium*

rangens, *Syzygium aqueum*

[性状] 褐色の無定型粉末・三水和物

[比旋光度]: $[\alpha]_D^{27} -246.9$ (c, 0.7 in Me_2CO)



sama

-----文献-----

Nonaka, G. et al., Chem. Pharm. Bull., 1992, 40, 2671-2673, (分離, 構造決定, H-NMR, C13-NMR)

Lin, L.-C. et al., Planta Med., 2000, 66, 333-336, (H-NMR, C13-NMR, Samarangenin B)

§ § フトモモ科マレイフトモモ (*Syzygium malaccensis* Merrill et Perry (*Eugenia malaccensis* Linne)) の果実。
本調査研究では、成分に関する文献はなかった。

*****ローズマリー (Rosemary) *****

§ § シソ科マンネンロウ (*Rosmarinus officinalis* L.) の花または茎葉。

§ 8,11,13-Abietatriene-11,12,20-triol; 20-Carboxylic acid

[化学名・別名] 11,12-Dihydroxy-8,11,13-abietatrien-20-oic acid. Carnosic acid. Deoxypicrosalvinic acid. Salvin †

[CAS No.] 3650-09-7

[化合物分類] テルペノイド (Abietane diterpenoids)

[構造式]

[分子式] $C_{30}H_{48}O_4$

[分子量] 332.439

[天然基原] 次の植物から分離: *Salvia officinalis*, *Salvia canariensis*, *Salvia*

na, *Rosmarinus officinalis*

[性状] 結晶 (hexane)

[融点] Mp 185-190 °C で分解

[比旋光度]: $[\alpha]_D^{23} +191$ (c, 1.07 in MeOH)

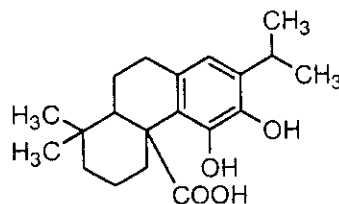
[溶解性] BERDY SOL: エーテル, メタノール, 塩基, クロロホルムに可溶; 水に難溶

UV: [neutral] λ_{max} 212 (ϵ 21500); 233 (ϵ 9650); 284 (ϵ 1690) (EtOH) (Berdy)

-----文献-----

Linde, H. et al., Helv. Chim. Acta, 1964, 47, 1234, (分離, UV, IR, H-NMR)

Wenkert, E. et al., J.O.C., 1965, 30, 2931, (分離, IR, H-NMR, 構造)



apia

Linde, H. et al., *Helv. Chim. Acta*, 1964, 47, 1234, (分離, UV, IR, H-NMR)
 Wenkert, E. et al., *J.O.C.*, 1965, 30, 2931, (分離, IR, H-NMR, 構造)
 Dentali, S.J. et al., *Phytochemistry*, 1990, 29, 993, (分離)
 González, A.G. et al., *Phytochemistry*, 1991, 30, 4067, (分離, H-NMR, C13-NMR)
 Djarmati, Z. et al., *Phytochemistry*, 1992, 31, 1307, (分離, H-NMR, C13-NMR, 結晶構造)

§ *Rosmarinus officinalis* Alkaloid 2

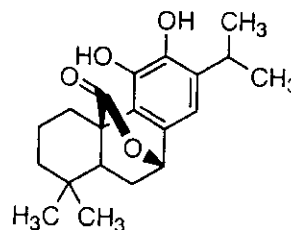
[化合物分類] アルカロイド化合物 (Alkaloids 構造は一部又は全てが未知), WG9000
 [分子式] $C_{20}H_{27}NO_4$
 [分子量] 345.438
 [一般的性質] 構造式は未知
 [天然基原] 次の植物から分離: ローズマリー (*Rosmarinus officinalis*) using NH_3 during extraction
 [性状] 結晶 (toluene)
 [融点] Mp 197-198 °C で分解
 [比旋光度]: $[\alpha]_D +36$ (c, 1.48 in dioxan)
 [その他のデータ] 非天然物

----- 文 献 -----

Yakhontova, L.D. et al., *Khim. Prir. Soedin.*, 1967, 3, 140; *Chem. Nat. Compd. (Engl. Transl.)*, 1967, 3, 118

§ Carnosol

[化学名・別名] 11,12-Dihydroxy-8,11,13-abietatrien-20,7 β -olide. Picrosalvin
 [CAS No.] 5957-80-2
 [化合物分類] テルペノイド (Abietane diterpenoids)
 [構造式]
 [分子式] $C_{30}H_{48}O_4$
 [分子量] 330.423
 [天然基原] 次の植物中の苦味成分: *Salvia carnosa*, *Salvia officinalis*, *Salvia triloba* and *Rosmarinus officinalis*
 [性状] 結晶 (EtOH)
 [融点] Mp 221-226 °C
 [比旋光度]: $[\alpha]_D -66$ (EtOH)
 UV: [neutral] λ_{max} 210 (ϵ 26300); 283 (ϵ 2510) (EtOH) (Berdy)



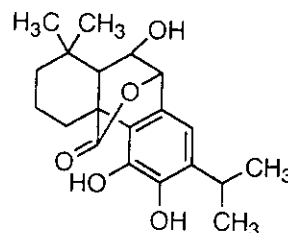
----- 文 献 -----

Brieskorn, C.H. et al., *J.O.C.*, 1964, 29, 2293, (構造決定, 生合成)
 Narayanan, C.R. et al., *Tet. Lett.*, 1965, 3647, (stereochem)
 Nakatani, N. et al., *Agric. Biol. Chem.*, 1984, 48, 2081, (Isorosmanol)
 Al-Hazimi, H.M.G. et al., *Phytochemistry*, 1984, 23, 919, (Isocarnosol)
 Kelecom, A. et al., *Phytochemistry*, 1984, 23, 1677, (Deoxocarnosol)

§ Carnosol; 6 α -Hydroxy

[化学名・別名] 6 α ,11,12-Trihydroxy-8,11,13-abietatrien-20,7 β -olide. Isorosmanol
 [CAS No.] 93780-80-4
 [化合物分類] テルペノイド (Abietane diterpenoids)
 [構造式]

[分子式] $C_{30}H_{48}O_5$
 [分子量] 346.422
 [天然基原] *Rosmarinus officinalis*
 [性状] 結晶
 [融点] Mp 227 °C



----- 文 献 -----

Brieskorn, C.H. et al., *J.O.C.*, 1964, 29, 2293, (構造決定, 生合成)
 Nakatani, N. et al., *Agric. Biol. Chem.*, 1984, 48, 2081, (Isorosmanol)

§ 3-(3,4-Dihydroxyphenyl)-2-hydroxypropanoic acid; (R)-form, 2-O-(3,4-Dihydroxy-E-cinnamoyl)
 [化学名・別名] Rosmarinic acid. Labiatenic acid. Rosemarinic acid

[化合物分類] 薬物: 血小板凝集阻害薬 (Platelet aggregation inhibiting agents), 単環芳香族 (Simple phenylpropanoids), 薬物: 抗 HIV 薬 (Anti-HIV agents), 薬物: 抗炎症薬 (Antiinflammatory agents), 薬物: 抗血栓薬 (Antithrombotic agents), 薬物: 抗ウイルス物質 (Antiviral agents)

[構造式]

[分子式] C₁₈H₁₆O₈

[分子量] 360.32

[天然基原] *Rosmarinus officinalis*, *Melissa officinalis*, *Momordica*

mina, *Mentha piperita*, *Salvia officinalis*, *Teucrium scorodonia*, *ula europaea*, *Coleus blumei*, *Thymus* spp., その他の植物属

[用途] Exhibits 抗血栓, 抗血小板作用を示す. 抗炎症薬. 抗 HIV, 抗

[性状] 結晶・二水和物

[融点] Mp 204 °C で分解

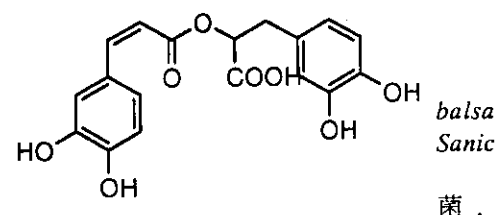
[比旋光度]: [α]_D²⁰ +145

[Log P 計算値] Log P 1.01 (計算値)

UV: [neutral] λ_{max} 230 ; 329 (MeOH) (Berdy)

[傷害・毒性] 50 % 致死量 (LD₅₀) (マウス, 静脈内) 561 mg/kg

[化学物質毒性データ総覧 (RTECS) 登録番号] GD8990000



----- 文献 -----

Kelley, C.J. et al., J.O.C., 1975, 40, 1804; 1976, 41, 449-455, (H-NMR, C13-NMR, Rosmarinic acid)
 Razzaque, A. et al., Planta, 1977, 137, 287, (生合成, Rosmarinic acid)
 Ellis, B.E. et al., Planta, 1979, 147, 163, (生合成, Rosmarinic acid)
 Parnham, M.J. et al., Drugs of the Future, 1985, 10, 756, (レビュー, Rosmarinic acid)
 Englberger, W. et al., Int. J. Immunopharmacol., 1988, 10, 729, (薬理, Rosmarinic acid)
 Peake, P.W. et al., Int. J. Immunopharmacol., 1991, 13, 853, (薬理, Rosmarinic acid)
 Pabsch, K. et al., Rec. Trav. Chim. (J. R. Neth. Chem. Soc.), 1991, 110, 199, (合成法, Rosmarinic acid)
 Mahmood, N., Antiviral Chem. Chemother., 1993, 4, 235, (anti-HIV activity, NMR, Mass, Rosmarinic acid)
 Zou, Z.W. et al., Yaoxue Xuebao, 1993, 28, 241, (薬理, Rosmarinic acid)
 Abraham, S.K., Food Chem. Toxicol., 1996, 34, 15-20, (活性, Rosmarinic acid)
 Binutu, O.A. et al., Planta Med., 1996, 62, 352-353, (活性, Rosmarinic acid)
 Robinson, W.E. et al., Proc. Natl. Acad. Sci. U.S.A., 1996, 93, 6326-6331, (活性, Rosmarinic acid)
 Eicher, T. et al., Synthesis, 1996, 755, (合成法, Rosmarinic acid)
 Bogucki, D.E. et al., Can. J. Chem., 1997, 75, 1783-1794, (合成法, Rosmarinic acid)
 Reimann, E. et al., Monatsh. Chem., 1997, 128, 995-1008; 1998, 129, 187-193, (合成法, Rosmarinic acid)
 Kusano, G. et al., Biol. Pharm. Bull., 1998, 21, 997-999, (活性, Rosmarinic acid)
 Satake, T. et al., Chem. Pharm. Bull., 1999, 47, 1444-1447, (配糖体, Isorinic acid)

***RTECS (化学物質毒性データ) ***

生体影響物質 : 医薬品.

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 : 静脈内投与.

被験動物 : げっ歯類-マウス.

投与量・期間 : 561 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

Drugs of the Future.10,756,1985

§ 14,16-Epoxy-20-nor-5(10),6,8,13-abietatetraene-11,12-dione; (R)
 m

[化学名・別名] Cryptotanshinone

[CAS No.] 35825-57-1

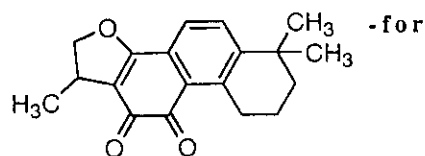
[化合物分類] テルペノイド (Nor- and homoabietane diterpenoids)

[構造式]

[分子式] C₁₉H₂₀O₃

[分子量] 296.365

[天然基原] 次の植物から分離: *Salvia miltiorrhiza* の根, *Rosmarinus officinalis*



[分子量] 296.365

[天然基原] 次の植物から分離: *Salvia miltiorrhiza* の根, *Rosmarinus officinalis*

[性状] 赤色の結晶

[融点] Mp 182 °C

[比旋光度]: $[\alpha]_D^{21} -91.4$ (CHCl₃)

UV: [neutral] λ_{max} 263 (ϵ 29000); 271 (ϵ 25700); 292 (ϵ 8900); 293 (ϵ 8912); 353 (ϵ 2511); 355 (ϵ 2560); 445 (ϵ 2300); 460 (ϵ 3020) (MeOH) (Berdy) [neutral] λ_{max} 221 ; 263 ; 272 ; 290 ; 355 ; 447 (EtOH) (Berdy)

-----文献-----

Takiura, K. et al., Chem. Pharm. Bull., 1962, 10, 112, (分離)

Brieskorn, C.H. et al., Planta Med., 1973, 24, 190, (分離)

Romanova, A.S. et al., Khim. Prir. Soedin., 1977, 13, 414; Chem. Nat. Compd. (Engl. Transl.), 1977, 13, 350, (分離)

§ 20-Hydroxy-12-ursen-3-one; 20 β -form

[CAS No.] 150148-82-6

[化合物分類] テルペノイド (Ursane triterpenoids)

[構造式]

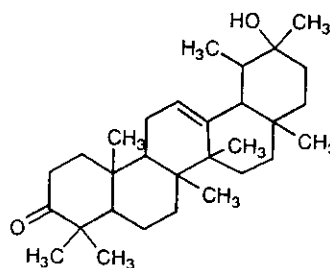
[分子式] C₃₀H₄₈O₂

[分子量] 440.708

[天然基原] *Rosmarinus officinalis*

[性状] 無定型

[比旋光度]: $[\alpha]_D^{20} +107.3$ (c, 0.4 in CHCl₃)



-----文献-----

Ganeva, Y. et al., Planta Med., 1993, 59, 276, (分離, H-NMR, C13-NMR)

§ Rosmadiol

[CAS No.] 85514-31-4

[化合物分類] テルペノイド (Secoabietanes and secofriedoabietane diterpenoids)

[構造式]

[分子式] C₂₀H₂₈O₃

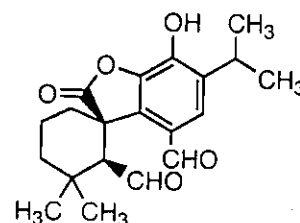
[分子量] 344.407

[天然基原] *Rosmarinus officinalis*

[性状] 結晶 (C₆H₆)

[融点] Mp 225 °C

[比旋光度]: $[\alpha]_D^{24} -216.8$ (c, 0.54 in EtOH)



-----文献-----

Nakatani, N. et al., Agric. Biol. Chem., 1983, 47, 353

Luis, J.G. et al., Phytochemistry, 1993, 33, 635, (分離, H-NMR, C13-NMR)

§ Rosmanol

[化学名・別名] 7,11,12-Trihydroxy-8,11,13-abietatrien-20,6-olide

[CAS No.] 80225-53-2

[化合物分類] テルペノイド (Abietane diterpenoids)

[構造式]

[分子式] C₃₀H₄₆O₅

[分子量] 346.422

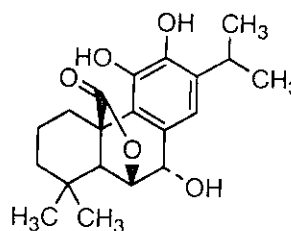
[天然基原] 次の植物から分離: *Rosmarinus officinalis*

[用途] 抗酸化剤

[性状] 結晶 (Me₂CO)

[融点] Mp 241 °C

[比旋光度]: $[\alpha]_D^{18} -34.3$ (c, 0.7 in EtOH)



-----文献-----

Nakatani, N. et al., Agric. Biol. Chem., 1981, 45, 2385-2386; 1984, 48, 2081-2085, (Rosmanol, Epirosmanol)

Fraga, B.N. et al., Phytochemistry, 1985, 24, 1853-1854, (Rosmanol, 結晶構造)

González, A.G. et al., Can. J. Chem., 1989, 67, 208-212, (Rosmanol, 7-Ethoxyrosmanol, 7-Methoxyrosmanol, 分離, H-NMR, C13-NMR)

[化学名・別名] 7-Methylrosmanol, 7-Methoxyrosmanol

[CAS No.] 113085-62-4

[化合物分類] テルペノイド (Abietane diterpenoids)

[構造式]

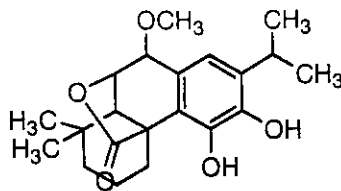
[分子式] $C_{21}H_{28}O_5$

[分子量] 360.449

[天然基原] *Rosmarinus officinalis*

[性状] 淡褐色の粉末

[比旋光度]: $[\alpha]_D^{25} -99.2$ (c, 0.5 in EtOH)



-----文献-----

Arisawa, M. et al., J. Nat. Prod., 1987, 50, 1164-1166, (Methoxyrosmanol)

González, A.G. et al., Can. J. Chem., 1989, 67, 208-212, (Rosmanol, 7-Ethoxyrosmanol, 7-Methoxyrosmanol, 分離, H-NMR, C13-NMR)

Takenaka, M. et al., Biosci., Biotechnol., Biochem., 1997, 61, 1440-1444, (14-Hydroxy-7-O-methylrosmanol, 14-Methoxy-7-O-methylrosmanol)

Urones, J.G. et al., Phytochemistry, 1998, 48, 1035-1038, (Methylepirosmanol, Ethylepirosmanol)

§ Rosmanol; 14-Hydroxy, 7-Me ether

[化学名・別名] 11,12,14-Trihydroxy-7-methoxy-8,11,13-abietatrien-20,6-olide, 14-Hydroxy-7-O-methylrosmanol

[CAS No.] 197649-67-5

[化合物分類] テルペノイド (Abietane diterpenoids)

[構造式]

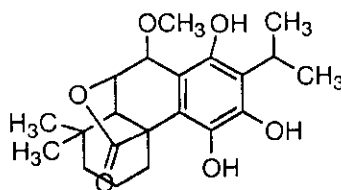
[分子式] $C_{21}H_{28}O_6$

[分子量] 376.449

[天然基原] *Rosmarinus officinalis*

[性状] 黄色の塊

[比旋光度]: $[\alpha]_D^{25} -128$ (c, 0.17 in $CHCl_3$)



-----文献-----

Takenaka, M. et al., Biosci., Biotechnol., Biochem., 1997, 61, 1440-1444, (14-Hydroxy-7-O-methylrosmanol, 14-Methoxy-7-O-methylrosmanol)

§ Rosmanol; 14-Methoxy, 7-Me ether

[化学名・別名] 11,12-Dihydroxy-7,14-dimethoxy-8,11,13-abietatrien-20,6-olide, 14-Methoxy-7-O-methylrosmanol

[CAS No.] 197649-68-6

[化合物分類] テルペノイド (Abietane diterpenoids)

[構造式]

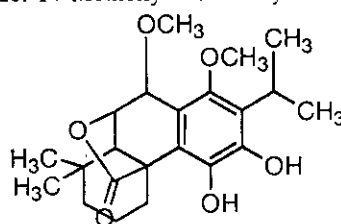
[分子式] $C_{22}H_{30}O_6$

[分子量] 390.475

[天然基原] *Rosmarinus officinalis*

[性状] 黄色の塊

[比旋光度]: $[\alpha]_D^{25} -43$ (c, 0.2 in $CHCl_3$)



-----文献-----

Takenaka, M. et al., Biosci., Biotechnol., Biochem., 1997, 61, 1440-1444, (14-Hydroxy-7-O-methylrosmanol, 14-Methoxy-7-O-methylrosmanol)

§ Rosmanol; 7-Epimer

[化学名・別名] Epirosmanol

[CAS No.] 93380-12-2

[化合物分類] テルペノイド (Abietane diterpenoids)

[構造式]

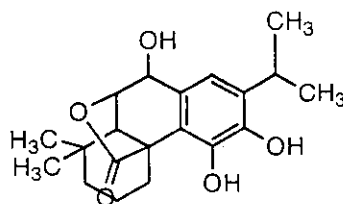
[分子式] $C_{20}H_{26}O_5$

[分子量] 346.422

[天然基原] *Rosmarinus officinalis*

[性状] 結晶 (Me_2CO)

[融点] Mp 221-225 °C



-----文献-----

Nakatani, N. et al., Agric. Biol. Chem., 1981, 45, 2385-2386; 1984, 48, 2081-2085, (Rosmanol, Epirosmanol)

[性状] 結晶 (Me:CO)

[融点] Mp 221-225 °C

----- 文献 -----

Nakatani, N. et al., Agric. Biol. Chem., 1981, 45, 2385-2386; 1984, 48, 2081-2085, (Rosmanol, Epirosmanol)
Urones, J.G. et al., Phytochemistry, 1998, 48, 1035-1038, (Methylepirosmanol, Ethylepirosmanol)

§ Rosmaricine

[CAS No.] 3650-11-1

[化合物分類] テルペノイド (Abietane diterpenoids)

[構造式]

[分子式] $C_{20}H_{27}NO_4$

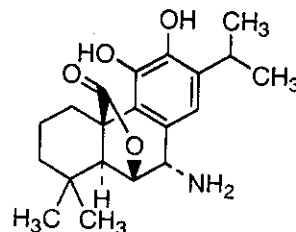
[分子量] 345.438

[天然基原] 次の植物から分離: ローズマリー (*Rosmarinus officinalis*) using NH_3 during extraction. Also derived from NH_3 treatment of Carnosic acid (8,11,13-Abietatriene-11,12,20-triol 参照)

[融点] Mp 199-200 °C で分解

[比旋光度]: $[\alpha]_D^{25} +137$ (c, 1.02 in dioxan)

[その他のデータ] Artifact



----- 文献 -----

Yakhontova, L.D. et al., Zh. Obshch. Khim., 1962, 32, 1337; J. Gen. Chem. USSR (Engl. Transl.), 1962, 32, 1313, (Rosmaricine)

Yakhontova, L.D. et al., Khim. Prir. Soedin., 1971, 7, 416; Chem. Nat. Compd. (Engl. Transl.), 1971, 7, 396, (Isorosmaricine)

§ Rosmic acid

[CAS No.] 197799-63-6

[化合物分類] テルペノイド (Secoabietanes and secofriedoabietane diterpenoids)

[構造式]

[分子式] $C_{21}H_{30}O_7$

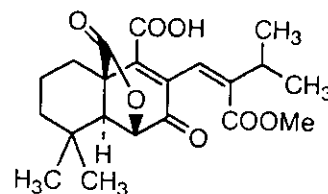
[分子量] 390.432

[天然基原] *Rosmarinus officinalis*

[性状] 黄色の針状結晶

[融点] Mp 191 °C

[比旋光度]: $[\alpha]_D^{25} +37.5$ (c, 0.5 in EtOH)



----- 文献 -----

Takenaka, M. et al., Biosci., Biotechnol., Biochem., 1997, 61, 1440-1444, (分離, H-NMR, C13-NMR)

§ 3',4',5,7-Tetrahydroxyflavone; 3'-O-(4-O-Acetyl-β-D-glucuronopyranoside)

[化合物分類] フラボノイド (Flavones; 4 × O-置換基)

[構造式]

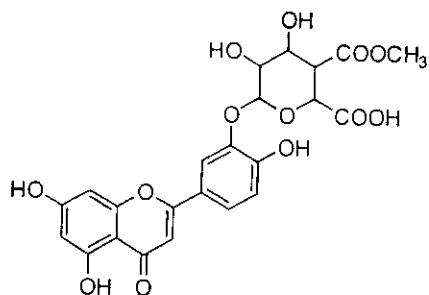
[分子式] $C_{23}H_{20}O_{13}$

[分子量] 504.403

[天然基原] *Rosmarinus officinalis* の葉

[性状] 黄色の粉末

[融点] Mp 220-230 °C で分解



----- 文献 -----

Perkin, A.G., J.C.S., 1900, 77, 1315, (分離)

Diller, E., Ber., 1901, 34, 1452, (分離)

Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe. 2nd edn., Birkhäuser Verlag, Basel, 1972, nos. 1470; 1473, (生育)

Okamura, N. et al., Phytochemistry, 1994, 37, 1463, (3'-glucuronosides)

§ 3',4',5,7-Tetrahydroxyflavone; 3'-O-(O-Acetyl-β-D-glucuronopyranoside)

[天然基原] 次の植物から分離: *Rosmarinus officinalis*
[性状] 暗黄色の粉末
[融点] Mp 177-180 °C

-----文献-----

Perkin, A.G., J.C.S., 1900, 77, 1315, (分離)
Diller, E., Ber., 1901, 34, 1452, (分離)
Karrer, W. et al., *Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhäuser Verlag, Basel, 1972, nos. 1470; 1473, (生育)
(生化学的性質)
The Flavonoids: *Advances in Research since 1980*, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988
Okamura, N. et al., *Phytochemistry*, 1994, 37, 1463, (3'-glucuronosides)

§ 3',4',5,7-Tetrahydroxy-6-methoxyflavone; 7-O-β-D-Glucopyranoside

[化学名・別名] Nepitrin

[CAS No.] 569-90-4

[化合物分類] フラボノイド (Flavones; 5 × O-置換基)

[構造式]

[分子式] C₂₂H₂₂O₁₂

[分子量] 478.409

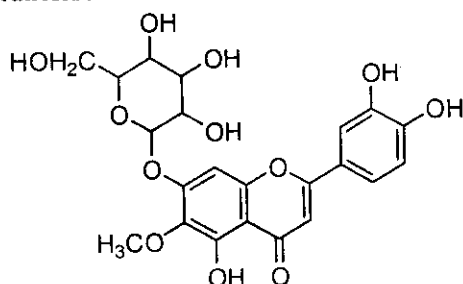
[天然基原] *Nepeta hindostana*, *Rosmarinus officinalis*, *Salvia*
ntosa

[性状] 青白い黄色の針状結晶 (EtOH)

[融点] Mp 172-174 °C. Mp 252-256 °C

[傷害・毒性] 50 % 致死量 (LD₅₀) (マウス, 腹腔内) 794 mg/kg

[化学物質毒性データ総覧 (RTECS) 登録番号] DJ3009500



tome

-----文献-----

Krishnaswamy, N.R. et al., *Indian J. Chem.*, 1968, 6, 676, (Nepitrin)
Imre, S. et al., *Phytochemistry*, 1977, 16, 799, (分離)
RTECS (化学物質毒性データ)

生体影響物質 : 医薬品.

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 : 腹腔内投与.

被験動物 : げっ歯類-マウス.

投与量・期間 : 794 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

Toxicol. 19, 201, 1981

§ 3',4',5,7-Tetrahydroxy-6-methoxyflavone; 3'-O-β-D-Glucopyranoside

[CAS No.] 112208-84-1

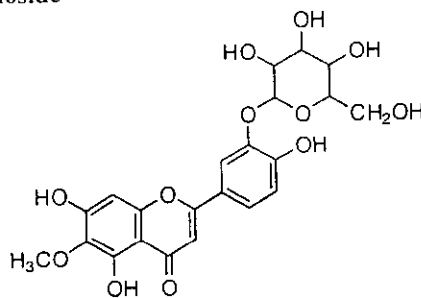
[化合物分類] フラボノイド (Flavones; 5 × O-置換基)

[構造式]

[分子式] C₂₂H₂₂O₁₂

[分子量] 478.409

[天然基原] *Rosmarinus officinalis*



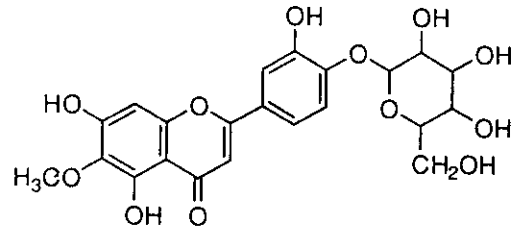
-----文献-----

Krishnaswamy, N.R. et al., *Indian J. Chem.*, 1968, 6, 676, (Nepitrin)
Brieskorn, C.H. et al., *Tet. Lett.*, 1968, 3447, (分離)
Kupchan, S.M. et al., *Tetrahedron*, 1969, 25, 1603, (分離, 構造決定)
Harborne, J.B. et al., *Phytochemistry*, 1971, 10, 367, (7-rutinoside)
Imre, S. et al., *Phytochemistry*, 1977, 16, 799, (分離)

Krishnaswamy, N.R. et al., Indian J. Chem., 1968, 6, 676, (Nepitrin)
 Brieskorn, C.H. et al., Tet. Lett., 1968, 3447, (分離)
 Kupchan, S.M. et al., Tetrahedron, 1969, 25, 1603, (分離, 構造決定)
 Harborne, J.B. et al., Phytochemistry, 1971, 10, 367, (7-rutinoside)
 Imre, S. et al., Phytochemistry, 1977, 16, 799, (分離)
 Merfort, I. et al., Planta Med., 1992, 58, 355, (7-methylbutanoylglucoside)
 Iwashina, T. et al., Phytochemistry, 1999, 51, 1109-1111, (4'-glucoside)

§ 3',4',5,7-Tetrahydroxy-6-methoxyflavone; 4'-O-β-D-Glucopyranoside

[化学名・別名] Eupafolin 4'-glucoside. Nepetin 4'-glucoside
 [CAS No.] 112208-83-0
 [化合物分類] フラボノイド (Flavones; 5 × O-置換基)
 [構造式]



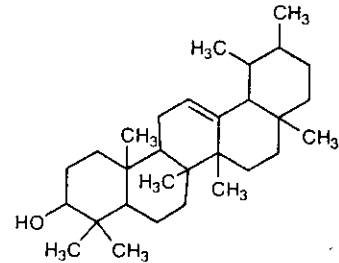
[分子式] C₂₂H₂₂O₁₂
 [分子量] 478.409
 [天然基原] *Cirsium oligophyllum*, *Rosmarinus officinalis*
 [性状] 青白い黄色の粉末
 UV: [neutral] λ_{max} 275 ; 335 (MeOH)

----- 文献 -----

Brieskorn, C.H. et al., Tet. Lett., 1968, 3447, (分離)
 Kupchan, S.M. et al., Tetrahedron, 1969, 25, 1603, (分離, 構造決定)
 Imre, S. et al., Phytochemistry, 1977, 16, 799, (分離)
 Iwashina, T. et al., Phytochemistry, 1999, 51, 1109-1111, (4'-glucoside)

§ 12-Ursen-3-ol; 3 α-form

[化学名・別名] Epi-α-amyrin
 [CAS No.] 5937-48-4
 [化合物分類] テルペノイド (Ursane triterpenoids)
 [構造式]



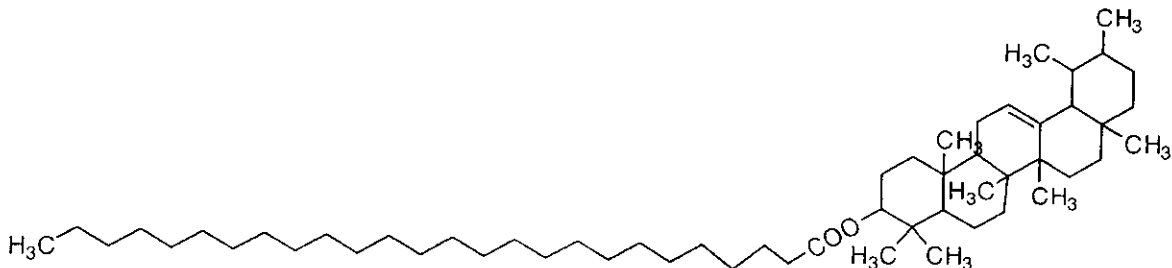
[分子式] C₃₀H₅₀O
 [分子量] 426.724
 [天然基原] 次の植物の葉から分離: *Rosmarinus officinalis*, *Dacryodes edulis*
 [融点] Mp 110-111 °C. Mp 138 °C

----- 文献 -----

Brieskorn, C.H. et al., Arch. Pharm. (Weinheim, Ger.), 1966, 299, 663, (分離, Epiamyrin)
 Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhauser Verlag, Basel, 1972, No. 2011, (生育)

§ 12-Ursen-3-ol; 3 β-form, Hexacosanoyl

[CAS No.] 307319-21-7
 [化合物分類] テルペノイド (Ursane triterpenoids)
 [構造式]



[分子式] C₅₆H₁₀₀O₂
 [分子量] 805.405

Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhauser Verlag, Basel, 1972, No. 2011. (生育)
Zhou, Q. et al., J. Chin. Pharm. Sci., 2000, 9, 131-133; CA, 134, 83483u, (hexacosanoyl)

*****ロベージ (Lovage) *****

§ § セリ科ロベージ (*Levisticum officinale* Koch) の果実, 葉または根茎。

§ 3-Butyl-1 (3*H*)-isobenzofuranone; (*S*)-form

[CAS No.] 3413-15-8

[化合物分類] ベンゾフラノイド (Isobenzofurans)

[構造式]

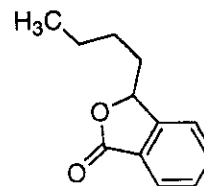
[分子式] $C_{12}H_{14}O_2$

[分子量] 190.241

[天然基原] セロリーオイル (*Levisticum officinale*), また *Ligusticum acutilobum*

[沸点] $Bp_{0.1}$ 106-108 °C

[比旋光度]: $[\alpha]_D^{25}$ -57 (c, 1.96 in $CHCl_3$)



-----文献-----

Naves, Y.R., Helv. Chim. Acta, 1943, 26, 1281, (分離)

Mitsubishi, H. et al., Chem. Pharm. Bull., 1963, 11, 1317; 1966, 14, 777, (分離, 生合成)

Barton, D.H.R. et al., J.C.S., 1963, 1916, (分離, UV, IR, NMR)

Opdyke, D.L.J., Food Cosmet. Toxicol., 1979, 17, 251, (レビュー, 毒性)

Makino, M. et al., Heterocycles, 1998, 48, 1931-1934, (3-Butyl-7-hydroxyisobenzofuranone)

§ Levistolide; (11*E*)-form

[化学名・別名] Levistolide B

[CAS No.] 89708-24-7

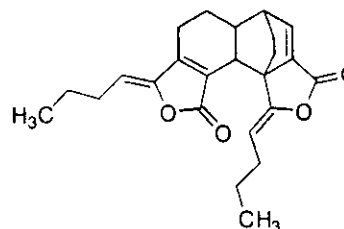
[化合物分類] ベンゾフラノイド (Angeolide group)

[構造式]

[分子式] $C_{23}H_{30}O_4$

[分子量] 380.483

[天然基原] *Levisticum officinale*



-----文献-----

Kaouadji, M. et al., Tet. Lett., 1983, 24, 4677, (Diligustilide)

Cichy, M. et al., Annalen, 1984, 397

Delgado, G. et al., Heterocycles, 1988, 27, 1305, (Diligustilide)

Ogawa, Y. et al., Heterocycles, 1997, 45, 1869-1872, (合成法, H-NMR)

Rios, M.Y. et al., Tetrahedron, 1998, 54, 3355-3366, (Diligustilide, 合成法)

§ Levistolide; (11*Z*)-form

[化学名・別名] Levistolide A

[CAS No.] 89708-23-6

[化合物分類] ベンゾフラノイド (Angeolide group)

[構造式]

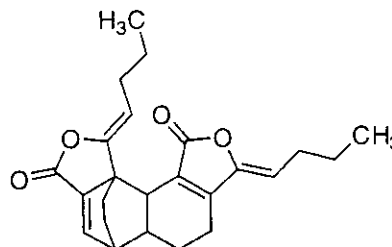
[分子式] $C_{23}H_{30}O_4$

[分子量] 380.483

[天然基原] *Levisticum officinale*

[性状] 結晶 (Et.O/hexane)

[融点] Mp 112-113 °C



-----文献-----

Kaouadji, M. et al., Tet. Lett., 1983, 24, 4677, (Diligustilide)

Cichy, M. et al., Annalen, 1984, 397

Delgado, G. et al., Heterocycles, 1988, 27, 1305, (Diligustilide)

Ogawa, Y. et al., Heterocycles, 1997, 45, 1869-1872, (合成法, H-NMR)

Rios, M.Y. et al., Tetrahedron, 1998, 54, 3355-3366, (Diligustilide, 合成法)

-----文献-----

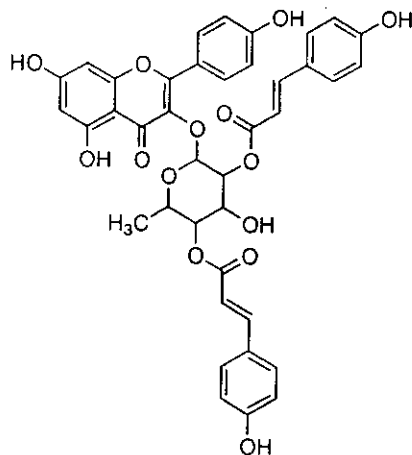
- Kaouadji, M. et al., Tet. Lett., 1983, 24, 4677, (Diligustilide)
 Cichy, M. et al., Annalen, 1984, 397
 Delgado, G. et al., Heterocycles, 1988, 27, 1305, (Diligustilide)
 Ogawa, Y. et al., Heterocycles, 1997, 45, 1869-1872, (合成法, H-NMR)
 Rios, M.Y. et al., Tetrahedron, 1998, 54, 3355-3366, (Diligustilide, 合成法)

*****ローレル (Laurel) *****

§ § クスノキ科ゲッケイジュ (*Laurus nobilis* L.) の葉および果実。

§ Afzelin; 2',4'-Bis-O-(4-hydroxycinnamoyl) (Z-)

[化合物分類] フラボノイド (Flavonols; 4 × O-置換基)
 [構造式]



[分子式] $C_{29}H_{12}O_{14}$
 [分子量] 724.673
 [天然基原] *Laurus nobilis*
 [性状] 黄色の粉末

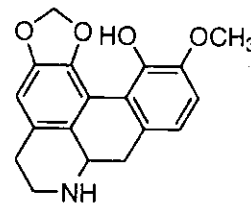
-----文献-----

- Bloor, S.J., Phytochemistry, 1995, 38, 1033, (2,4-Dicoumaroylafzelin)
 Fiorini, C. et al., Phytochemistry, 1998, 47, 821-824, (coumaroylafzelins)

§ Bulbocapnine; (S)-form, N-De-Me

[化学名・別名] 11-Hydroxy-10-methoxy-1,2-methylenedioxy-noraporphine. Launobine. Norbulbocapnine
 [CAS No.] 20497-21-6

[化合物分類] アルカロイド化合物 (Aporphine alkaloids)
 [構造式]



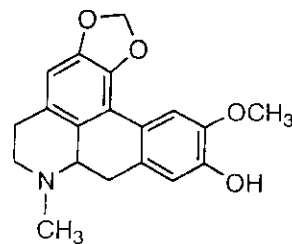
[分子式] $C_{18}H_{17}NO_4$
 [分子量] 311.337
 [天然基原] 次の植物から得られるアルカロイド: *Cassythia americana*, *Laurus nobilis*. また *Lindera* 属と *Illigera* 属に存在 (クスノキ科, ハスノハギリ科)
 [用途] *Scenedesmus obliquus* に対して殺菌活性を示す
 [融点] Mp 214-215 °C
 [比旋光度]: $[\alpha]_D^{25} +192$ (c, 0.95 in $CHCl_3$)

-----文献-----

- Tomita, M. et al., Yakugaku Zasshi, 1963, 83, 763, (Launobine)
 Cava, M.P. et al., J.O.C., 1968, 33, 2443, (Bulbocapnine, Launobine, 分離)
 Lu, S.-T. et al., Yakugaku Zasshi, 1972, 92, 910; CA, 77, 101949m, (O-Methylbulbocapnine)
 Guinaudeau, H. et al., J. Nat. Prod., 1985, 48, 646, (4-Hydroxybulbocapnine)

§ Cassythicine; (S)-form

[CAS No.] 5890-28-8
 [化合物分類] アルカロイド化合物 (Aporphine alkaloids)
 [構造式]



[分子式] $C_{17}H_{15}NO_4$
 [分子量] 325.363
 [基原] 次の植物から得られるアルカロイド: *Cassythia melantha*, *Cassythia glabella*, *Cassythia americana* (*Cassythia filiformis*), *Hernandia cordigera*, *Laurus nobilis*, *Litsea kawakamii*, *Litsea laurifolia*, *Litsea glutinosa* var. *glabraria*, *Neolitsea sericea*, *Ocotea brachybotra* (クスノキ科, ハスノハギリ科)

Yang, T.-H. et al., J. Chin. Chem. Soc. (Taipei), 1971, 18, 133; CA, 77, 16567r, (分離)
Tewari, S. et al., Phytochemistry, 1972, 11, 1149, (分離, H-NMR, Mass)

§ 1,8-Epoxy-*p*-menthane; 2,3-Didehydro

[化学名・別名] Dehydro-1,8-cineole. 1,8-Epoxy-*p*-menth-2-ene

[CAS No.] 92760-25-3

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

[構造式]

[分子式] C₁₀H₁₆O

[分子量] 152.236

[基原] 次の植物から分離: *Laurus nobilis* oil and from the opisthonotal gland secretion of the mite *Caloglyphus rodriguezii*

[性状] オイル

[沸点] Bp₄₀ 78-80 °C

[比旋光度]: [α]_D²⁰ -53 (c, 3 in EtOH)

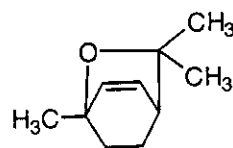
[その他のデータ] 性質は合成品に似ている. 天然物の比旋光度と絶対構造は報告がない

-----文献-----

Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhauser Verlag, Basel, 1972, no. 570, (生育)

Hogg, J.W. et al., Phytochemistry, 1974, 13, 868, (分離, dehydrocineole)

Ayorinde, F.O. et al., Tet. Lett., 1984, 25, 3525, (分離, 合成法, Dehydrocineole)



§ 6,8-Epoxy-*p*-menth-2-ene

[化学名・別名] 4,7,7-Trimethyl-6-oxabicyclo[3.2.1]oct-2-ene

[CAS No.] 52812-45-0

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

[構造式]

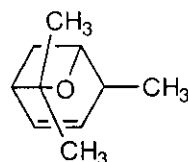
[分子式] C₁₀H₁₆O

[分子量] 152.236

[基原] 次の植物から分離: *Laurus nobilis*

-----文献-----

Hogg, J.W. et al., Phytochemistry, 1974, 13, 868. (分離, Mass, H-NMR)



§ 1(10),5-Germacradiene-4,11,12-triol; (1(10)*E*,4 α,5*E*)-form, 12-Ac

[CAS No.] 143305-08-2

[化合物分類] テルペノイド (Simple guaiane sesquiterpenoids)

[構造式]

[分子式] C₁₇H₂₈O₄

[分子量] 296.406

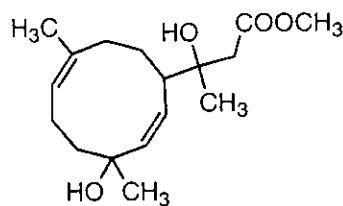
[基原] *Laurus nobilis*

[性状] オイル

[比旋光度]: [α]_D²⁵ -73 (c, 1.9 in CH₂Cl₂)

-----文献-----

Appendino, G. et al., Phytochemistry, 1992, 31, 2537, (分離, H-NMR, C13-NMR)



§ 6-Hydroxy-1(10),4,11(13)-germacratrien-12,8-olide; (1(10)*E*,4*E*,6 α,8 α)-form, Ac

[化学名・別名] Laurenobiolide

[CAS No.] 35001-25-3

[化合物分類] テルペノイド (12,8-Germacranolides and furanogermacrane sesquiterpenoids)

[構造式]

[分子式] C₁₇H₂₈O₄

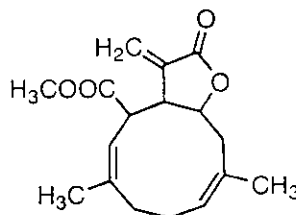
[分子量] 290.358

[基原] *Laurus nobilis*

[性状] 結晶 (Et₂O/hexane)

[融点] Mp 101-103 °C

[比旋光度]: [α]_D²⁰ +17.1 (EtOH)



[構造式]

[分子式] $C_{17}H_{22}O_4$

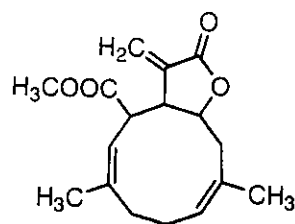
[分子量] 290.358

[基原] *Laurus nobilis*

[性状] 結晶 (Et:O/hexane)

[融点] Mp 101-103 °C

[比旋光度]: $[\alpha]_D^{25} +17.1$ (EtOH)



----- 文献 -----

Shafizadeh, F. et al., *Phytochemistry*, 1973, 12, 857, (分離)

Tada, H. et al., *Chem. Pharm. Bull.*, 1976, 24, 667, (分離)

Bohlmann, F. et al., *Phytochemistry*, 1982, 21, 1169, (分離)

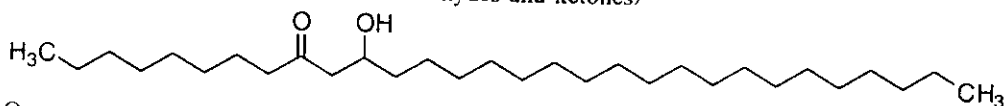
Quijano, L. et al., *Phytochemistry*, 1984, 23, 1971, (分離)

Jakupovic, J. et al., *Phytochemistry*, 1992, 32, 863, (分離)

§ 11-Hydroxy-9-triacontanone; (+)-form

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]



[分子式] $C_{30}H_{60}O_2$

[分子量] 452.803

[基原] *Laurus nobilis* の果実

[性状] ガム

[比旋光度]: $[\alpha]_D^{25} +25$ (c, 0.3 in $CHCl_3$)

----- 文献 -----

Garg, S.N. et al., *J. Nat. Prod.*, 1992, 55, 1315-1319, (分離)

§ Isodomesticine; (S)-form

[CAS No.] 70560-83-7

[化合物分類] アルカロイド化合物 (Aporphine alkaloids)

[構造式]

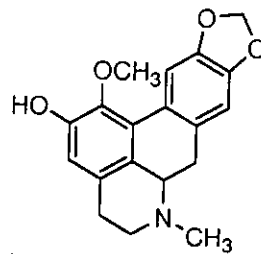
[分子式] $C_{19}H_{17}NO_4$

[分子量] 325.363

[基原] 次の植物から得られるアルカロイド: *Nandina domestica*, *Laurus nobilis* の葉 (ナンテン科, クスノキ科)

[性状] 無定型

[融点] Mp 85 °C



----- 文献 -----

Hocquemiller, R. et al., *J. Nat. Prod.*, 1981, 44, 551, (誘導體)

Pech, B. et al., *J. Nat. Prod.*, 1982, 45, 560, (分離, 誘導體)

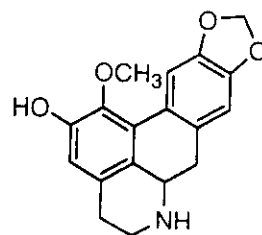
§ Isodomesticine; (S)-form, N-De-Me

[化学名・別名] Norisodomesticine. 2-Hydroxy-1-methoxy-9,10-methylenedioxyraporphine

[CAS No.] 80151-84-4

[化合物分類] アルカロイド化合物 (Aporphine alkaloids)

[構造式]



[分子式] $C_{18}H_{17}NO_4$

[分子量] 311.337

[基原] 次の植物の葉から得られるアルカロイド: *Xylopija danguyella*, *Laurus nobilis* (パンレイシ科)

[性状] 無定型

----- 文献 -----

Govindachari, T.R. et al., *Indian J. Chem.*, 1970, 8, 16, (合成法, UV)

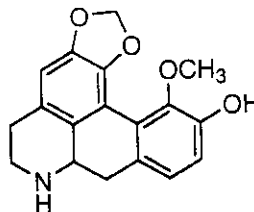
Hoshino, O. et al., *Chem. Pharm. Bull.*, 1978, 26, 3920, (合成法)

§ Nandigerine; (S)-form

[CAS No.] 31520-97-5

[化合物分類] アルカロイド化合物 (Aporphine alkaloids)

[構造式]



[分子式] $C_{18}H_{17}NO_4$

[分子量] 311.337

[基原] 次の植物から得られるアルカロイド: *Hernandia ovigera*, *Hernandia cordigera*, *Hernandia jamaicensis*, *Hernandia catalpifolia*, *Hernandia papuana*, *Laurus nobilis* (ハスノハギリ科)

[性状] 針状結晶 (MeOH)

[融点] Mp 176-177 °C

[比旋光度]: $[\alpha]_D^{25} +248$ (EtOH)

[その他のデータ] Forms MeOH solvate. Mp 99-100 °C

-----文献-----

Cava, M.P. et al., Tet. Lett., 1966, 1577; 4279, (分離, UV, H-NMR, 構造決定, 誘導体)

Cava, M.P. et al., Tetrahedron, 1971, 27, 2639, (分離)

Wu, Y.-C., Heterocycles, 1989, 29, 463, (*N*-Methylnandigerine β -*N*-oxide)

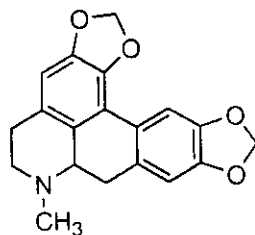
Chen, I.-S. et al., Planta Med., 1997, 63, 154-157, (*N*-Hydroxy)

§ Neolitsine; (S)-form

[CAS No.] 2466-42-4

[化合物分類] アルカロイド化合物 (Aporphine alkaloids)

[構造式]



と *Laurus nobilis* の葉,

[分子式] $C_{19}H_{17}NO_4$

[分子量] 323.348

[基原] 次の植物から得られるアルカロイド: *Neolitsea pulchella*

また *Cassytha americana* (*Cassytha filiformis*) (クスノキ科)

[性状] 針状結晶 (Me₂CO)

[融点] Mp 149-150 °C

[比旋光度]: $[\alpha]_D^{25} +56.5$ (c, 1.57 in CHCl₃)

-----文献-----

Hui, W.H. et al., J.C.S., 1965, 2285, (分離, UV, IR, H-NMR, Mass, 構造決定)

Cava, M.P. et al., J.O.C., 1968, 33, 2443, (分離, UV)

Bick, I.R.C. et al., Bull. Soc. Chim. Fr., 1972, 4596, (分離, UV, H-NMR, Mass, 構造決定, Cryptodrine)

Pai, B.R. et al., Indian J. Chem., Sect. B, 1977, 15, 1042, (合成法, UV, H-NMR, Mass, Cryptodrine)

Pech, B. et al., J. Nat. Prod., 1982, 45, 560, (分離)

Castedo, L. et al., Phytochemistry, 1991, 30, 2781, (Dehydroneolitsine)

§ Neolitsine; (S)-form, *N*-De-Me

[化学名・別名] Cryptodrine. 1,2:9,10-Bismethylenedioxy-noraporphine.

Norne

olitsine

[CAS No.] 41787-55-7

[化合物分類] アルカロイド化合物 (Aporphine alkaloids)

[構造式]

[分子式] $C_{18}H_{15}NO_4$

[分子量] 309.321

[基原] 次の植物から得られるアルカロイド: *Cryptocarya odorata* の幹皮, *Laurus nobilis* の葉 (クスノキ科)

[性状] 不安定な結晶

[比旋光度]: $[\alpha]_D^{25} +61$ (CHCl₃)

-----文献-----

Hui, W.H. et al., J.C.S., 1965, 2285, (分離, UV, IR, H-NMR, Mass, 構造決定)

Cava, M.P. et al., J.O.C., 1968, 33, 2443, (分離, UV)

Bick, I.R.C. et al., Bull. Soc. Chim. Fr., 1972, 4596, (分離, UV, H-NMR, Mass, 構造決定, Cryptodrine)

Pech, B. et al., J. Nat. Prod., 1982, 45, 560, (分離)

§ D-glycero-D-ido-3-Octulose