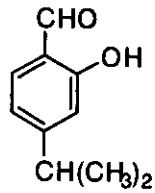
Raharivelomanana, P. et al., Phytochemistry, 1995, 41, 243, (C13-NMR)

§ 2-Hydroxy-4-isopropylbenzaldehyde
[化学名・別名]2-Hydroxy-4-(1-methylethyl)benzaldehyde(CAS 名). 4-Isopropylsalicylaldehyde(旧 CAS 名). 2-Hydroxy-*p*-mentha-1,3,5-trien-7-al. Macropone
[化合物分類]テルペノイド(p-Menthane monoterpenoids)
[構造式]

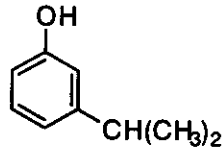


[分子式]$C_{10}H_{12}O_2$
[分子量]164.204
[基原]次の植物のオイルから分離: *Eucalyptus cneorifolia*, *Thujopsis dolabrata*
[性状]オイル
[沸点]Bp_2 108 ℃
[屈折率]n^{24}_D 1.548

----------文 献----------

Birch, A.J. et al., Aust. J. Chem., 1953, 6, 369
Yoshikoshi, A., Nippon Kagaku Zasshi, 1960, 81, 981; CA, 56, 6104, (分離)

§ 3-Isopropylphenol
[化学名・別名]3-(1-Methylethyl)phenol(CAS 名). *m*-Hydroxycumene
[CAS No.]618-45-1
[関連 CAS No.]26967-76-0
[その他の CAS No.]25168-06-3
[化合物分類]単環芳香族(Simple phenols)
[構造式]



[分子式]$C_9H_{12}O$
[分子量]136.193
[基原]次の植物のオイルから分離: *Chamaecyparis taiwanensis*, *Thujopsis dolabrata*
[融点]Mp 26 ℃
[沸点]Bp 228 ℃. Bp_{11} 109-110 ℃
[PKa 値]pK_{a1} 10.16 (20 ℃)
[傷害・毒性]50 %致死量(LD_{50})(マウス, 経口) 1630 mg/kg
[化学物質毒性データ総覧(RTECS)登録番号]SL5800000
[販売元]Aldrich:36389-8; Fluka:59724

----------文 献----------

Aldrich Library of IR Spectra, 2nd Ed., 576B, (IR)
Gilman, H. et al., J.O.C., 1954, 19, 1067
Lin, Y.-T. et al., CA, 1963, 58, 9412, (分離)

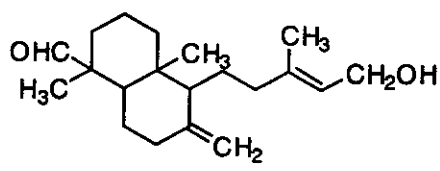
***RTECS (化学物質毒性データ) ***
健康障害に関するデータ
急性毒性に関するデータ

〈〈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-マウス.
投与量・期間 : 1630 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

Gigiena i Sanitariya. For English translation, see HYSAAV.(V/O Mezhdunarodnaya Kniga, 113095 Moscow, USSR)46(1),94,1981

§ 8(17),13-Labdadiene-15,19-diol; (13*E*)-form, 19-Aldehyde
[化学名・別名]15-Hydroxy-8(17),13 E-labdadien-19-al. Agatholal. Contortolal. Isoagatholal
[CAS No.]3650-31-5
[化合物分類]テルペノイド(Labdane diterpenoids)
[構造式]



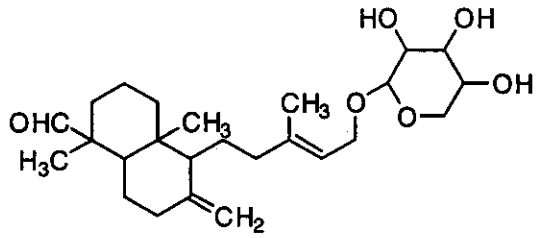
[分子式]$C_{20}H_{32}O_2$
[分子量]304.472
[基原]*Thujopsis dolabrata*, *Pinus contorta*

[性状]オイル
[比旋光度]:[α]$_D$ +22.5 (c, 1 in $CHCl_3$)

---文 献---

Hasegawa, S. et al., Phytochemistry, 1980, 19, 2479, (Isoagatholal, Isoagatholal xyloside)

§ 8(17),13-Labdadiene-15,19-diol; (13*E*)-form, 19-Aldehyde, 15-*O*-β-D-xylopyranoside
[化学名・別名]Isoagatholal xylopyranoside
[CAS No.]73493-46-6
[化合物分類]テルペノイド(Labdane diterpenoids)
[構造式]

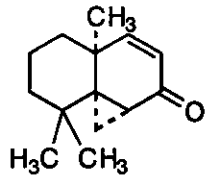


[分子式]$C_{25}H_{40}O_6$
[分子量]436.587
[基原]次の植物から分離: *Thujopsis dolabrata*
[性状]無定型の塊(EtOAc)
[融点]Mp 132-140 ℃で分解
[比旋光度]:[α]$_D^{24}$ -35 (c, 1 in $CHCl_3$)

---文 献---

Hasegawa, S. et al., Phytochemistry, 1980, 19, 2479, (Isoagatholal, Isoagatholal xyloside)
Su, W.-C. et al., Phytochemistry, 1994, 37, 1109, (分離, H-NMR, C13-NMR)

§ Mayurone
[化学名・別名]15-Nor-1-thujopsen-3-one
[CAS No.]4677-90-1
[化合物分類]テルペノイド(Thujopsane sesquiterpenoids)
[構造式]

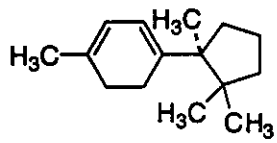


[分子式]$C_{14}H_{20}O$
[分子量]204.311
[基原]*Thuja* spp., *Thujopsis dolabrata*
[性状]結晶(petrol)
[融点]Mp 70-71 ℃
[比旋光度]:[α]$_D^{20}$ +253.4 ($CHCl_3$)

---文 献---

Chetty, C.L. et al., Tet. Lett., 1965, 3773, (分離)
Ito, S. et al., Tet. Lett., 1965, 3777, (分離)

§ 1-Methyl-4-(1,2,2-trimethylcyclopentyl)-1,3-cyclohexadiene
[化学名・別名]2-Cuprenene
[CAS No.]5046-93-5
[化合物分類]テルペノイド(Cuparane sesquiterpenoids)
[構造式]

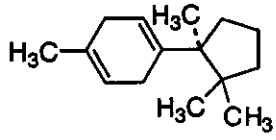


[分子式]$C_{15}H_{24}$
[分子量]204.355
[基原]*inter alia*, *Thujopsis dolabrata*
[性状]オイル
[沸点]Bp 140-141 ℃

---文 献---

Dauben, W.G. et al., J.O.C., 1966, 31, 315

§ 1-Methyl-4-(1,2,2-trimethylcyclopentyl)-1,4-cyclohexadiene
[化学名・別名]4-Cuprenene
[CAS No.]4895-23-2
[化合物分類]テルペノイド(Cuparane sesquiterpenoids)
[構造式]



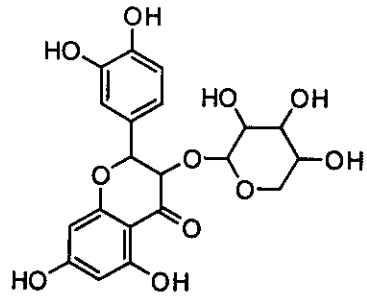
[分子式]$C_{15}H_{24}$
[分子量]204.355
[基原]*inter alia*, *Thujopsis dolabrata*
[性状]オイル

[沸点]Bp 140-141 ℃
[比旋光度]:[α]$_D$ +50 (c, 1.1 in $CHCl_3$)

----------文 献----------

Dauben, W.G. et al., J.O.C., 1966, 31, 315

§ 3,3',4',5,7-Pentahydroxyflavanone; (2*R*,3*R*)-form, 3-*O*-β-D-Xylopyranoside

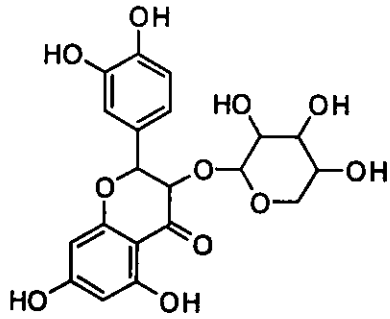


[CAS No.]75714-88-4
[化合物分類]フラボノイド(Dihydroflavonols; 5 × O-置換基)
[構造式]
[分子式]$C_{20}H_{20}O_{11}$
[分子量]436.371
[基原]*Thujopsis dolabrata* の葉
[性状]無定型の粉末
[比旋光度]:[α]$_D$ -8.4 (c, 1.00 in Me_2CO)

----------文 献----------

Clark-Lewis, J.W. et al., J.C.S., 1958, 2367, (構造決定, 絶対構造)
Aft, H. et al., J.O.C., 1961, 26, 1958, (分離, 誘導体)
Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag,
Pavanasasivam, G. et al., J.C.S. Perkin 1, 1975, 612, (Dihydroisorhamnetin)
The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 585, (生育)
The Flavonoids: Advances in Research, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1982, 375, (生育)

§ 3,3',4',5,7-Pentahydroxyflavanone; (2*R*,3*S*)-form, 3-*O*-β-D-Xylopyranoside

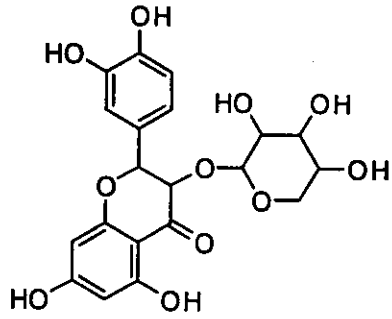


[CAS No.]109430-54-8
[化合物分類]フラボノイド(Dihydroflavonols; 5 × O-置換基)
[構造式]
[分子式]$C_{20}H_{20}O_{11}$
[分子量]436.371
[基原]*Thujopsis dolabrata*
[性状]無定型
[比旋光度]:[α]$_D^{21}$ -93.3 (c, 0.89 in Me_2CO 溶液)

----------文 献----------

Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 1637, (生育)
The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 585, (生育)
King, B.L., Am. J. Bot., 1977, 64, 250, (Dihydrohyperin) (生育)

§ 3,3',4',5,7-Pentahydroxyflavanone; (2*S*,3*R*)-form, 3-*O*-β-D-Xylopyranoside

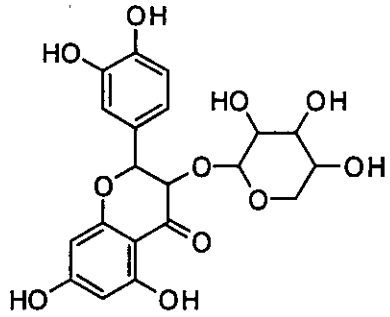


[CAS No.]109430-53-7
[化合物分類]フラボノイド(Dihydroflavonols; 5 × O-置換基)
[構造式]
[分子式]$C_{20}H_{20}O_{11}$
[分子量]436.371
[基原]*Thujopsis dolabrata*
[性状]無定型
[比旋光度]:[α]$_D^{24}$ +2.3 (c, 0.25 in Me_2CO)

----------文 献----------

Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 1637, (生育)
The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 585, (生育)
The Flavonoids: Advances in Research, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1982, 375, (生育)

§ 3,3',4',5,7-Pentahydroxyflavanone; (2*S*,3*S*)-form, 3-*O*-β-D-Xylopyranoside
[CAS No.] 109430-52-6
[化合物分類] フラボノイド (Dihydroflavonols; 5 × O-置換基)
[構造式]

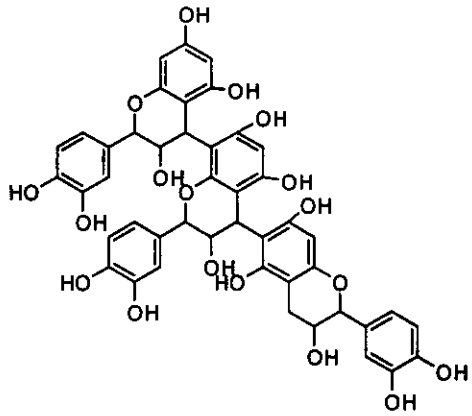


[分子式] $C_{20}H_{20}O_{11}$
[分子量] 436.371
[基原] *Thujopsis dolabrata*
[性状] 無定型の粉末
[比旋光度]: $[\alpha]_D^{21}$ -122.2 (c, 1.00 in Me_2CO)

----------文 献----------

Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhäuser Verlag, Basel, 1972, no. 1637, (生育)
The Flavonoids, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1975, 585, (生育)
The Flavonoids: Advances in Research, (Eds. Harborne, J.B. et al), Chapman and Hall, London, 1982, 375, (生育)

§ 3,3',4',5,7-Pentahydroxyflavan(4 → 8)-3,3',4',5,7-pentahydroxyflavan(4 → 6)-3,3',4',5,7-pentahydroxyflavan; (2*R*,2'*R*,2''*R*,3*R*,3'*R*,3''*S*,4*R*,4'*R*)-form
[化学名・別名] Epicatechin (4 β → 8) epicatechin (4 β → 6) catechin. Arecatannin B_1
[CAS No.] 79763-28-3
[化合物分類] フラボノイド (Proanthocyanidin flavonoids)
[構造式]

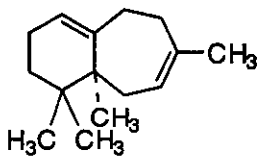


[分子式] $C_{45}H_{38}O_{18}$
[分子量] 866.784
[基原] 次の植物から分離: *Areca catechu*, *Betula* spp., *Illicium anisatum*, *Pinus taeda*, *Thujopsis dolabrata*
[性状] 灰白色の無定型の塊+ 1/2H_2O
[比旋光度]: $[\alpha]_D$ +207 (c, 0.11 in H_2O)

----------文 献----------

Nonaka, G. et al., Chem. Comm., 1981, 781, (分離)
Hemingway, R.W. et al., J.C.S. Perkin 1, 1982, 1209, (分離)
Ezaki-Furuichi, E. et al., Agric. Biol. Chem., 1986, 50, 2061, (分離)
Nonaka, G. et al., Chem. Pharm. Bull., 1987, 35, 1105, (分離)
Kolodziej, H., Phytochemistry, 1989, 28, 3487; 1990, 29, 955, (分離)
Cui, C.-B. et al., Chem. Pharm. Bull., 1992, 40, 889, (分離, H-NMR, C13-NMR)

§ α-Pseudowiddrene
[CAS No.] 32540-28-6
[化合物分類] テルペノイド (Miscellaneous bicyclic sesquiterpenoids)
[構造式]

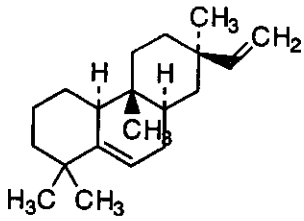


[分子式] $C_{15}H_{24}$
[分子量] 204.355
[基原] *Thujopsis dolabrata*
[性状] オイル
[比旋光度]: $[\alpha]_D^{26}$ +67.7 ($CHCl_3$)

----------文 献----------

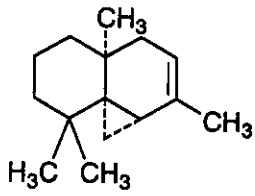
Ito, S. et al., Tet. Lett., 1974, 1041

§ 5,15-Rosadiene
[化学名・別名] 13-Epirimuene

[CAS No.]89618-20-2
[関連 CAS No.]3895-07-6, 10036-89-2, 94681-67-1
[化合物分類]テルペノイド(Rosane diterpenoids)
[構造式]

[分子式]$C_{20}H_{32}$
[分子量]272.473
[基原]次の植物のオレオレジンから分離: *Pinus pallasiana*, *Thujopsis dolabrata*
[性状]液体
[比旋光度]:[α]$_D^{20}$ +37.9
[その他のデータ]Identification not certain

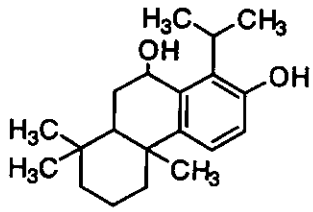
----------文 献----------

Anderson, B.F. et al., Acta Cryst. B, 1970, 26, 882-888, (結晶構造)
Vlad, P.F. et al., Khim. Prir. Soedin., 1975, 11, 257; Chem. Nat. Compd. (Engl. Transl.), 1975, 11, 266, (13-epirimuene)
Garc acute i a-Alvarez, M.C. et al., Phytochemistry, 1981, 20, 167-169, (H-NMR, C13-NMR)
Nagahama, S. et al., Phytochemistry, 1994, 36, 77-78, (分離)

§ 3-Thujopsene
[化学名・別名]Thujopsene. Widdrene

[CAS No.]470-40-6
[化合物分類]テルペノイド(Thujopsane sesquiterpenoids)
[構造式]
[分子式]$C_{15}H_{24}$
[分子量]204.355
[基原]*Thujopsis dolabrata*, *Widdringtonia* spp. and other woods with the characteristic fragrance of pencil wood
[性状]液体
[沸点]Bp$_{12}$ 121-122 ℃
[比旋光度]:[α]$_D$ -79.7
[販売元]Fluka:89235

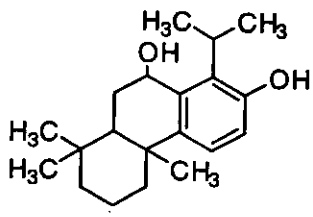
----------文 献----------

Norin, T., Acta Chem. Scand., 1961, 15, 1676; 1963, 17, 738, (分離, 構造決定)
Nabeta, K. et al., Agric. Biol. Chem., 1986, 50, 2915, (生合成)

§ 8,11,13-Totaratriene-7,13-diol; 7 α-form

[CAS No.]6811-52-5
[化合物分類]テルペノイド(Totarane diterpenoids)
[構造式]
[分子式]$C_{20}H_{30}O_2$
[分子量]302.456
[基原]次の植物から分離: *Thujopsis dolabrata* の葉
[性状]結晶(petrol)
[融点]Mp 180-190 ℃
[比旋光度]:[α]$_D$ +10 (c, 1.0 in $CHCl_3$)

----------文 献----------

Chow, Y.L. et al., Acta Chem. Scand., 1962, 16, 1305, (合成法, 構造)
Eriomoto, H.Y. et al., Chem. Pharm. Bull., 1977, 25, 507, (分離)
Kuo, Y.H. et al., J. Chin. Chem. Soc. (Peking), 1984, 31, 417, (分離)

§ 8,11,13-Totaratriene-7,13-diol; 7 β-form

[CAS No.]24338-19-0
[化合物分類]テルペノイド(Totarane diterpenoids)
[構造式]

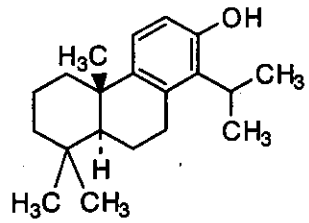
[分子式]$C_{20}H_{30}O_2$
[分子量]302.456

[基原] *Thujopsis dolabrata*
[性状] 結晶 (C_6H_6/petrol)
[融点] Mp 200-201 ℃

----------文 献----------

Chow, Y.L. et al., Acta Chem. Scand., 1962, 16, 1305, (合成法, 構造)
Eriomoto, H.Y. et al., Chem. Pharm. Bull., 1977, 25, 507, (分離)
Kuo, Y.H. et al., J. Chin. Chem. Soc. (Peking), 1984, 31, 417, (分離)

§ 8,11,13-Totaratrien-13-ol



[化学名・別名] Totarol. 14-Isopropyl-8,11,13-podocarpatrien-13-ol
[CAS No.] 511-15-9
[化合物分類] テルペノイド (Totarane diterpenoids)
[構造式]
[分子式] $C_{20}H_{30}O$
[分子量] 286.456
[基原] *Podocarpus* spp. また *Dacrydium cupressinum*, *Tetraclinis articulata*, *Thujopsis dolabrata* からも得られる
[性状] 結晶 (petrol)
[融点] Mp 132 ℃
[比旋光度]: $[\alpha]_D^{20}$ +42.5 (EtOH)
UV: [neutral] λ_{max} 278 (ε 1980) (EtOH) (Berdy)

----------文 献----------

Chow, Y.-L. et al., Acta Chem. Scand., 1962, 16, 1305, (構造決定)
Nishida, T. et al., Org. Magn. Reson., 1977, 9, 203, (C13-NMR)
Ying, B.P. et al., Phytochemistry, 1991, 30, 1951, (H-NMR, C13-NMR)
Bendall, J.G. et al., Aust. J. Chem., 1995, 48, 883, (レビュー)

§ 10-Undecenoic acid (CAS 名)

[化学名・別名] Undecylenic acid, USAN
[CAS No.] 112-38-9
[化合物分類] 脂肪族化合物 (Unbranched alkenic carboxylic acids and lactones), 薬物: 抗カビ薬 (Antifungal agents)
[構造式] $H_2C=CH(CH_2)_8COOH$
[分子式] $C_{11}H_{20}O_2$
[分子量] 184.278
[基原] 次の植物の代謝物: *Rhodotorula glutinis* var. *lusitanica*. また *Thujopsis dolabrata* と *Juniperus chinensis* の葉から得られるオイルからも得られる. Formed on pyrol. of ricinoleic acid
[用途] 抗カビ剤. 単純なエステルは香水や香料原料
[融点] Mp 24.5 ℃
[沸点] Bp 275 ℃. Bp_{15} 165 ℃
[溶解性] 水に不溶; エタノール, クロロホルム, エーテル, ベンゼンに混和する
[屈折率] n^{25}_D 1.448
[傷害・毒性] 激しい皮膚刺激. 50 %致死量 (LD_{50}) (ラット, 経口) 2500 mg/kg
[化学物質毒性データ総覧 (RTECS) 登録番号] YQ2975000
[販売元] Aldrich:12467-2; Fluka:94192; Sigma:U1754

----------文 献----------

Gunstone, F.D. et al., Chem. Phys. Lipids, 1977, 18, 115, (C13-NMR)
Opdyke, D.L.J., Food Cosmet. Toxicol., 1978, 16, 883, (レビュー, 毒性)
Hunting, A.L.L., Cosmet. Toiletries, 1981, 96, 29, (レビュー, 用途)
Dalavoy, V.S. et al., J. Sci. Ind. Res., 1981, 40, 520, (レビュー)
Negwer, M., Organic-Chemical Drugs and their Synonyms, 6th edn., Akademie-Verlag, 1987, 2165
Purgett, M.D. et al., J. Polym. Sci., Part A: Polym. Chem., 1988, 26, 677, (polym, esters)

***RTECS (化学物質毒性データ) ***

生体影響物質　　: 農業化学品. 一時刺激物質.

健康障害に関するデータ

皮膚/眼の刺激に関するデータ

〈〈試験方法〉〉 標準ドライズ (Draize) 試験法.

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：500 mg/24 時間
反応の症度　：重度
参照文献
Food and Cosmetics Toxicology.(London, UK) 16,883,1978

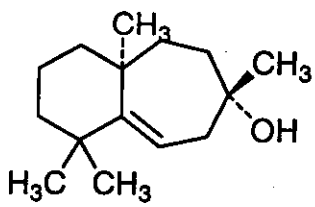
急性毒性に関するデータ

〈〈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：2500 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
"Pesticide Index," Frear, E.H., ed., State College, PA, College Science Pub.,4,386,1969
〈〈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-マウス.
投与量・期間：8150 mg/kg
毒性影響　　：〔行動〕傾眠(全身活動度の低下).
〔行動〕興奮.
〔行動〕筋収縮または痙直.
参照文献
Journal of Investigative Dermatology.(Williams & Wilkins Co., 428 E. Preston St., Baltimore, MD 21202) 13,145,1949
〈〈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：960 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
Journal of Investigative Dermatology.(Williams & Wilkins Co., 428 E. Preston St., Baltimore, MD 21202) 13,145,1949
〈〈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-モルモット.
投与量・期間：50 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
"Patty's Industrial Hygiene and Toxicology," 3rd rev. ed., Clayton, G.D., and F.E. Clayton, eds., New York, John Wiley & Sons, Inc.,2C,4954,1982

その他の多回投与試験

〈〈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-ラット.
投与量・期間：140 gm/kg/8 週間継続投与
毒性影響　　：〔栄養と総代謝〕体重減少または体重増加.
参照文献
Journal of Investigative Dermatology.(Williams & Wilkins Co., 428 E. Preston St., Baltimore, MD 21202) 13,145,1949

§ Widdrol



[CAS No.]6892-80-4
[化合物分類]テルペノイド(Miscellaneous bicyclic sesquiterpenoids)
[構造式]
[分子式]$C_{15}H_{26}O$
[分子量]222.37
[基原]*Thujopsis dolabrata*, *Widdringtonia* spp.. また *Cupressus arizonica*, *Chamaecyparis thyoides*,

Juniperus spp.からも得られる
[性状]結晶(petrol)
[融点]Mp 98 ℃
[比旋光度]:[α]$_D$ +105 (c, 2.3 in $CHCl_3$)

----------文 献----------

Erdtman, H., Acta Chem. Scand., 1958, 12, 267, (分離)
Itocirc, S. et al., Tet. Lett., 1964, 3375, (構造決定)

§§ヒノキ科ヒノキアスナロ(*Thujopsis dolabrata* Sieb. et Zucc. var. *hondai* Makino)の枝葉または材。
本調査研究では、成分に関する文献はなかった。

***********ピプシシワ (Common popsissewa) ***********

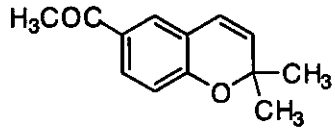
§§イチヤクソウ科(*Chimaphila umbellata* Nutt. var. *occidentalis* Blake)の茎葉。
本調査研究では、成分に関する文献はなかった。

§§イチヤクソウ科(*Chimaphila umbellata* (L.) Nuttall)の茎葉。
本調査研究では、成分に関する文献はなかった。

***********ヒマワリ (Sunflower) ***********

§§キク科ヒマワリ(*Helianthus annuus* L.)の種実、花、葉、及び根。

§ 6-Acetyl-2,2-dimethyl-2*H*-1-benzopyran
[化学名・別名]1-(2,2-Dimethyl-2*H*-1-benzopyran-6-yl) ethanone(CAS名). 6-Acetyl-2,2-dimethyl-3-chromene. Demethoxyencecalin
[CAS No.]19013-07-1
[化合物分類]ベンゾピラノイド(1-Benzopyrans)
[構造式]

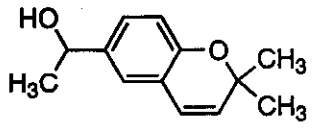


[分子式]$C_{13}H_{14}O_2$
[分子量]202.252
[基原]*Helianthella uniflora* と *Helianthus annuus* の根
[用途]抗カビ剤
[性状]オイル
[沸点]$Bp_{0.05}$ 95 ℃

----------文 献----------

Bohlmann, F. et al., Chem. Ber., 1970, 103, 90; 1972, 105, 863, (分離, H-NMR, 合成法)
Bohlmann, F. et al., Phytochemistry, 1981, 20, 281, (分離, IR, H-NMR, Mass, 誘導体)
Varga, E. et al., Fitoterapia, 1984, 55, 307, (分離)
Satoh, A. et al., Biosci., Biotechnol., Biochem., 1996, 60, 664, (分離, 活性)

§ 6-Acetyl-2,2-dimethyl-2*H*-1-benzopyran; 1'-Alcohol
[化学名・別名]6-(1-Hydroxyethyl)-2,2-dimethyl-2*H*-1-benzopyran. α,2,2-Trimethyl-2*H*-1-benzopyran-6-methanol(CAS名). Demethoxyencecalinol
[CAS No.]71822-00-9
[化合物分類]ベンゾピラノイド(1-Benzopyrans)
[構造式]



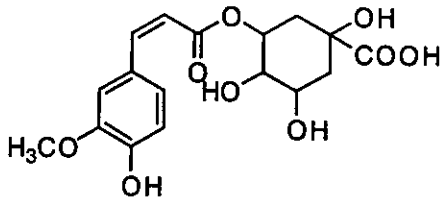
[分子式]$C_{13}H_{16}O_2$
[分子量]204.268
[基原]*Baccharis cassinaefolia*, *Helianthus annuus*
[性状]オイル

----------文 献----------

Bohlmann, F. et al., Chem. Ber., 1970, 103, 90; 1972, 105, 863, (分離, H-NMR, 合成法)
Bohlmann, F. et al., Phytochemistry, 1981, 20, 281, (分離, IR, H-NMR, Mass, 誘導体)
Varga, E. et al., Fitoterapia, 1984, 55, 307, (分離)

Satoh, A. et al., Biosci., Biotechnol., Biochem., 1996, 60, 664, (分離, 活性)

§ 3-*O*-Caffeoylquinic acid; (*E*)-form, 3'-Me ether
[化学名・別名]3-*O*-Feruloylquinic acid
[CAS No.]62929-69-5
[化合物分類]脂肪族化合物(Monocarbocyclic carboxylic acids and lactones)
[構造式]

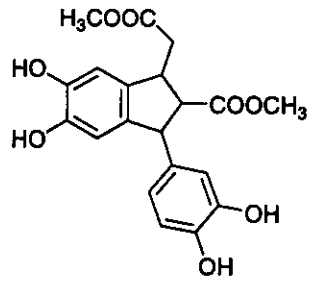


[分子式]$C_{17}H_{20}O_9$
[分子量]368.34
[基原]コーヒー豆. また *Lycopersicon esculentum*, *Helianthus annuus*, *Nicotiana tabacum* からも得られる
[融点]Mp 196-197 ℃
[比旋光度]:[α]$_D^{28}$ -42.8(EtOH)
UV: [neutral] λ $_{max}$ 325 (ε 19200) (EtOH) (Berdy)

----------文 献----------

Ida, Y. et al., Phytochemistry, 1994, 35, 209, (3-Feruloylquinic acid)

§ 2-Carboxy-3-(3,4-dihydroxyphenyl)-2,3-dihydro-5,6-dihydroxy-1*H*-indene-1-acetic acid; (1*R,2*R**,3*R**)-form, Di-Me ester**
[CAS No.]191280-20-3
[化合物分類]多環芳香族(Indenes), リグナン化合物(Neolignans)
[構造式]

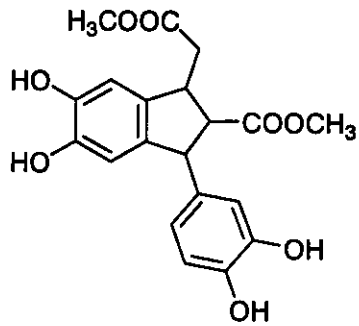


[分子式]$C_{20}H_{20}O_8$
[分子量]388.373
[基原]*Helianthus annuus* の種子
[性状]ガム
[比旋光度]:[α]$_D^{24}$ +93.6 (c, 0.25 in MeOH)

----------文 献----------

Kato, T. et al., Nat. Prod. Lett., 1997, 9, 161-165, (分離, H-NMR, C13-NMR)

§ 2-Carboxy-3-(3,4-dihydroxyphenyl)-2,3-dihydro-5,6-dihydroxy-1*H*-indene-1-acetic acid; (1*R,2*S**,3*S**)-form, Di-Me ester**
[CAS No.]191280-19-0
[化合物分類]多環芳香族(Indenes), リグナン化合物(Neolignans)
[構造式]

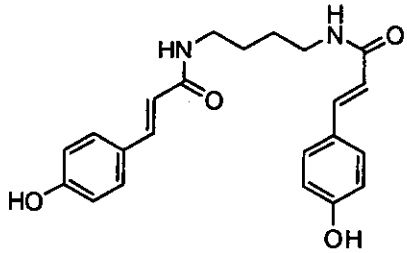


[分子量]388.373
[基原]*Helianthus annuus* の種子
[性状]ガム
[比旋光度]:[α]$_D^{24}$ +58 (c, 0.25 in MeOH)

----------文 献----------

Kato, T. et al., Nat. Prod. Lett., 1997, 9, 161-165, (分離, H-NMR, C13-NMR)

§ Di-4-coumaroylputrescine
[化学名・別名]*N*,*N*'-1,4-Butanediylbis[3-(4-hydroxyphenyl)-2-propenamide](CAS 名). *N*,*N*'-Bis(4-hydroxycinnamoyl)-1,4-butanediamine
[CAS No.]37946-59-1
[化合物分類]アルカロイド化合物(Putrescine alkaloids)
[構造式]



[分子式]$C_{22}H_{24}N_2O_4$
[分子量]380.443
[天然添加物]次の植物から得られるアルカロイド: *Dianthus caryophyllus*, *Helianthus annuus*, *Nicotiana tabacum*, *Pyrus communis*, *Rubus idaeus*, *Vicia faba* (ナデシコ

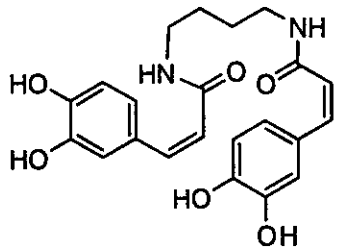
科, キク科, ナス科, バラ科, マメ科)

----------文 献 ----------

Martin-Tanguy, J. et al., C. R. Hebd. Seances Acad. Sci. Ser. D, 1973, 276, 1433, (UV, 構造決定, 合成法, Diferuloylputrescine)
Cabanne, F. et al., C. R. Hebd. Seances Acad. Sci. Ser. D, 1976, 282, 1959, (UV, 構造決定, Dicaffeoylputrescine)
Martin-Tanguy, J. et al., Phytochemistry, 1978, 17, 1927, (生育, 誘導体)

§ Di-4-coumaroylputrescine; 3',3''-Dihydroxy

[化学名・別名]Dicaffeoylputrescine. *N*,*N*'-Bis(3,4-dihydroxycinnamoyl)-1,4-butanediamine
[CAS No.]60422-23-3
[化合物分類]アルカロイド化合物(Putrescine alkaloids)
[構造式]



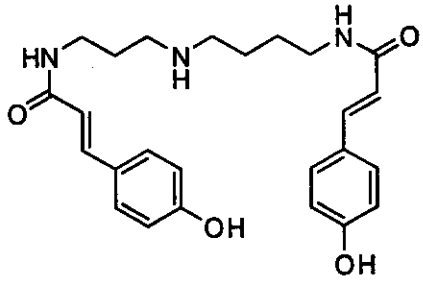
[分子式]$C_{22}H_{24}N_2O_6$
[分子量]412.441
[天然添加物]次の植物から得られるアルカロイド: *Helianthus annuus*, *Pyrus communis*, *Nicotiana tabacum*, *Salix* spp. (キク科, バラ科, ナス科, ヤナギ科)

----------文 献 ----------

Martin-Tanguy, J. et al., C. R. Hebd. Seances Acad. Sci. Ser. D, 1973, 276, 1433, (UV, 構造決定, 合成法, Diferuloylputrescine)
Cabanne, F. et al., C. R. Hebd. Seances Acad. Sci. Ser. D, 1976, 282, 1959, (UV, 構造決定, Dicaffeoylputrescine)

§ N^1, N^{10}-Dicoumaroylspermidine

[化学名・別名]N^1, N^{10}-Bis(4-hydroxycinnamoyl)spermidine
[CAS No.]65715-79-9
[関連 CAS No.]101330-61-4
[化合物分類]アルカロイド化合物(Acyclic spermidine alkaloids)
[構造式]



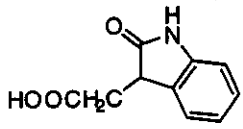
[分子式]$C_{25}H_{31}N_3O_4$
[分子量]437.538
[天然添加物]次の植物から得られるアルカロイド: *Dianthus caryophyllus*, *Helianthus annuus*, *Aesculus hippocastanum*, *Vicia faba*, *Pyrus communis* (ナデシコ科, トチノキ科, マメ科, バラ科, ナス科)

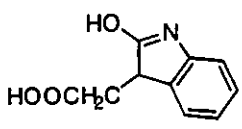
----------文 献 ----------

Deleacutetang, J., Ann. Tab., Sect. 2, 1974, 11, 123; CA, 84, 147656m, (UV, H-NMR, 構造決定, Dicaffeoylspermidine)
Cabanne, F. et al., Physiol. Veg., 1977, 15, 429; CA, 88, 86095m, (UV, 構造決定)

§ 2,3-Dihydro-2-oxo-1*H*-indole-3-acetic acid; (ξ)-form

[構造式]





Tautomeric structure

[分子式]$C_{10}H_9NO_3$
[分子量]191.186
[基原]Prod. of catabolism of 1*H*-Indole-3-acetic acid in *Zea mays*. Also isol. from *Ribes rubrum*, *Brassica* spp. and *Helianthus annuus*

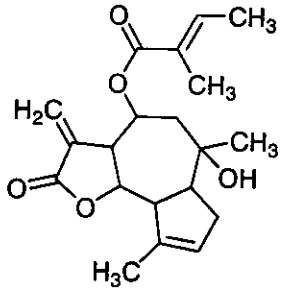
----------文 献 ----------

Kinashi, H. et al., Agric. Biol. Chem., 1976, 40, 2465, (分離)
Lower, P., J.C.S. Perkin 1, 1987, 753, (合成法, H-NMR)

§ 8,10-Dihydroxy-3,11(13)-guaiadien-12,6-olide; (1 α,5 α,6 α,8 β,10 β)-form, 8-Angeloyl

[化学名・別名]Annuolide G
[化合物分類]テルペノイド(12,6-Guaianolide sesquiterpenoids)

[構造式]

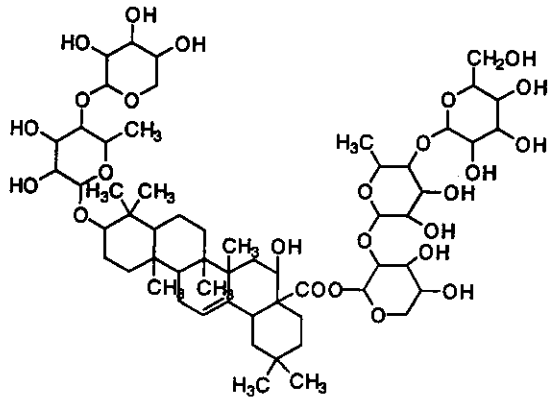


[分子式] $C_{20}H_{26}O_5$
[分子量] 346.422
[基原] *Helianthus annuus*
[性状] オイル

---文 献---

Macias, F.A. et al., Phytochemistry, 1996, 43, 1205, (Annuolide G)

§ 3,16-Dihydroxy-12-oleanen-28-oic acid; (3 β,16 α)-form, 3-*O*-[D-Xylopyranosyl-(1 → 4)-L-rhamnopyranoside], 28-*O*-[D-glucopyranosyl-(1 → 4)-L-rhamnopyranosyl-(1 → 2)-L-arabinopyranosyl] ester
[化学名・別名] Helianthoside B
[CAS No.] 29108-67-6
[化合物分類] テルペノイド (Oleanane triterpenoids)
[構造式]

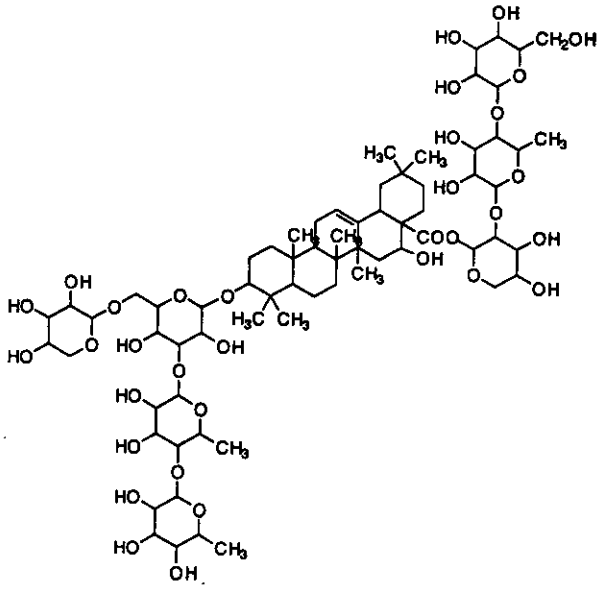


[分子式] $C_{58}H_{94}O_{25}$
[分子量] 1191.366
[基原] 次の植物から分離: *Helianthus annuus*

---文 献---

Transl.), 1968, 4, 121; 1969, 5, 51; 112; 277, (Helianthosides)

§ 3,16-Dihydroxy-12-oleanen-28-oic acid; (3 β,16 α)-form, 3-*O*-[α-L-Rhamnopyranosyl-(1 → 4)-α-L-rhamnopyranosyl-(1 → 3)-[D-xylopyranosyl-(1 → 6)]-D-glucopyranoside], 28-*O*-[D-glucopyranosyl-(1 → 4)-L-rhamnopyranosyl-(1 → 2)-L-arabinopyranosyl] ester
[化学名・別名] Helianthoside C
[CAS No.] 25503-42-8
[化合物分類] テルペノイド
(Oleanane triterpenoids)
[構造式]



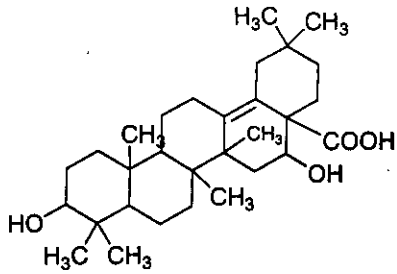
[分子式] $C_{70}H_{114}O_{34}$
[分子量] 1499.65
1498.71916
[基原] 次の植物から得られるサポニン: *Helianthus annuus*
[融点] Mp 215-217 ℃

---文 献---

Cheban, P.L. et al., Khim. Prir. Soedin., 1968, 4, 140; 1969, 5, 59; 129; 327; Chem. Nat. Compd. (Engl. Transl.), 1968, 4, 121; 1969, 5, 51; 112; 277, (Helianthosides)

§ 3,16-Dihydroxy-13(18)-oleanen-28-oic acid; (3 β,16 α)-form
[化学名・別名] Albigenic acid

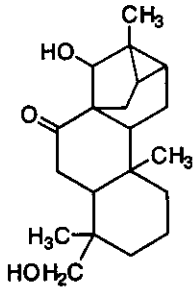
[CAS No.]664-40-4
[化合物分類]テルペノイド(Oleanane triterpenoids)
[構造式]



[分子式]$C_{30}H_{48}O_4$
[分子量]472.707
[基原]*Albizzia lebbek*, *Codonopsis lanceolata*. *Helianthus annuus* から配当体として得られる
[性状]結晶(MeOH)
[融点]Mp 246-248℃で分解
[比旋光度]:[α]$_D^{31}$ -13 (EtOH)

----------文 献----------

Barua, A.K. et al., Tetrahedron, 1959, 7, 19, (分離)
Kasprzyk, Z. et al., Pol. J. Chem. (Rocz. Chem.), 1968, 42, 1463, (合成法)
Kubota, T. et al., Tet. Lett., 1969, 771, (合成法)
Han, B.H. et al., CA, 1978, 88, 71431, (分離)

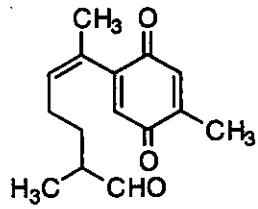


§ 15,19-Dihydroxy-7-trachylobanone; (*ent*-15 β)-form
[CAS No.]137648-01-2
[化合物分類]テルペノイド(Trachylobane diterpenoids)
[構造式]
[分子式]$C_{20}H_{30}O_3$
[分子量]318.455
[基原]*Helianthus annuus*

----------文 献----------

Alfatafta, A.A. et al., Phytochemistry, 1992, 31, 4109, (分離, H-NMR, C13-NMR)

§ 1,4-Dioxo-2,5,7,10-bisabolatetraen-12-al



[化学名・別名]Glandulone B
[化合物分類]テルペノイド(Bisabolane sesquiterpenoids)
[構造式]
[分子式]$C_{15}H_{16}O_3$
[分子量]244.29
[基原]*Helianthus annuus*
[性状]茶色のオイル
[比旋光度]:[α]$_D^{25}$ -3.3 (c, 0.12 in MeOH)
UV: [neutral] λ $_{max}$ 235 ; 263 (MeOH) (Berdy)

----------文 献----------

Spring, O. et al., Phytochemistry, 1992, 31, 1541, (分離, H-NMR)

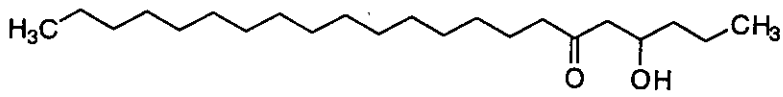
§ 4,6-Docosanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{15}COCH_2COCH_2CH_2CH_3$
[分子式]$C_{22}H_{42}O_2$
[分子量]338.573
[基原]*Helianthus annuus* の花粉

----------文 献----------

Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 4,6-Docosanedione; 4-Alcohol
[化学名・別名]4-Hydroxy-6-docosanone
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]

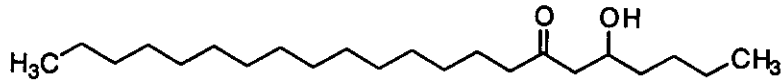
[分子式] $C_{22}H_{44}O_2$
[分子量] 340.588
[基原] *Helianthus annuus* の花粉



---文 献---
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 5,7-Docosanedione
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $H_3C(CH_2)_{14}COCH_2CO(CH_2)_3CH_3$
[分子式] $C_{22}H_{42}O_2$
[分子量] 338.573
[基原] *Helianthus annuus* の花粉
---文 献---
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

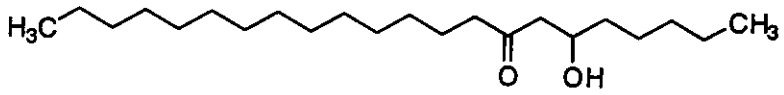
§ 5,7-Docosanedione; 5-Alcohol
[化学名・別名] 5-Hydroxy-7-docosanone
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式]
[
分子式] $C_{22}H_{44}O_2$
[分子量] 340.588
[基原] *Helianthus annuus* の花粉



---文 献---
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

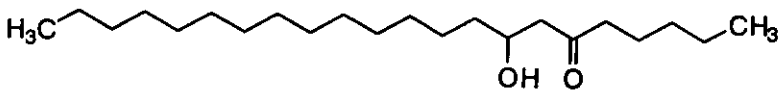
§ 6,8-Docosanedione
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $H_3C(CH_2)_{13}COCH_2CO(CH_2)_4CH_3$
[分子式] $C_{22}H_{42}O_2$
[分子量] 338.573
[基原] *Helianthus annuus* の花粉
---文 献---
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 6,8-Docosanedione; 6-Alcohol
[化学名・別名] 6-Hydroxy-8-docosanone
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式]
[分子式] $C_{22}H_{44}O_2$
[分子量] 340.588
[基原] *Helianthus annuus* の花粉



---文 献---
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 6,8-Docosanedione; 8-Alcohol
[化学名・別名] 8-Hydroxy-6-docosanone
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式]
[分子式] $C_{22}H_{44}O_2$
[分子量] 340.588
[基原] *Helianthus annuus* の花粉



---文 献---
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

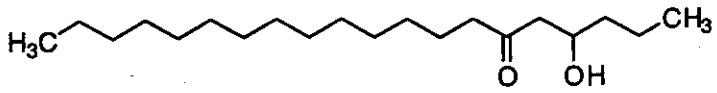
§ 7,9-Docosanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{12}COCH_2CO(CH_2)_5CH_3$
[分子式]$C_{22}H_{42}O_2$
[分子量]338.573
[基原]*Helianthus annuus* の花粉
----------文 献----------
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 10,12-Dotriacontanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{19}COCH_2CO(CH_2)_8CH_3$
[分子式]$C_{32}H_{62}O_2$
[分子量]478.841
[基原]*Helianthus annuus* の花粉
----------文 献----------
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 11,13-Dotriacontanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{18}COCH_2CO(CH_2)_9CH_3$
[分子式]$C_{32}H_{62}O_2$
[分子量]478.841
[基原]*Helianthus annuus* の花粉
----------文 献----------
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 12,14-Dotriacontanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{17}COCH_2CO(CH_2)_{10}CH_3$
[分子式]$C_{32}H_{62}O_2$
[分子量]478.841
[基原]*Helianthus annuus* の花粉
----------文 献----------
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 4,6-Eicosanedione
[化学名・別名]4,6-Icosanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{13}COCH_2COCH_2CH_2CH_3$
[分子式]$C_{20}H_{38}O_2$
[分子量]310.519
[基原]*Helianthus annuus* の花粉
----------文 献----------
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 4,6-Eicosanedione; 4-Alcohol
[化学名・別名]4-Hydroxy-6-eicosanone
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]


[分子式]$C_{20}H_{40}O_2$
[分子量]312.535
[基原]*Helianthus annuus* の花粉
----------文 献----------
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

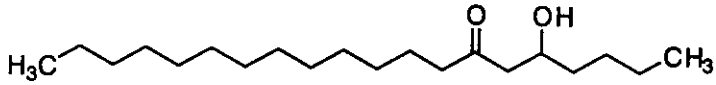
§ 5,7-Eicosanedione

[化学名・別名]5,7-Icosanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{12}COCH_2CO(CH_2)_3CH_3$
[分子式]$C_{20}H_{38}O_2$
[分子量]310.519
[基原]*Helianthus annuus* の花粉

----------文 献----------

Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 5,7-Eicosanedione; 5-Alcohol
[化学名・別名]5-Hydroxy-7-eicosanone
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]
[分子式]$C_{20}H_{40}O_2$
[分子量]312.535
[基原]*Helianthus annuus* の花粉



----------文 献----------

Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

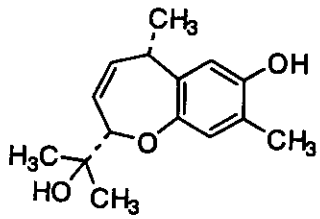
§ 6,8-Eicosanedione
[化学名・別名]6,8-Icosanedione
[化合物分類]脂肪族化合物(Saturated unbranched aldehydes and ketones)
[構造式]$H_3C(CH_2)_{11}COCH_2CO(CH_2)_4CH_3$
[分子式]$C_{20}H_{38}O_2$
[分子量]310.519
[基原]*Helianthus annuus* の花粉

----------文 献----------

Schultz, S. et al., Phytochemistry, 2000, 54, 325-336

§ 5,10-Epoxy-1,3,5,8-bisabolatetraene-2,11-diol
[化学名・別名]Heliannuol B
[CAS No.]161730-07-0

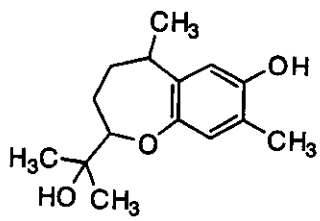
[化合物分類]テルペノイド(Bisabolane sesquiterpenoids)
[構造式]
[分子式]$C_{15}H_{20}O_3$
[分子量]248.321
[基原]*Helianthus annuus*
[性状]オイル
[比旋光度]:$[\alpha]_D^{25}$ -18 (c, 0.1 in $CHCl_3$)



----------文 献----------

Mac acute i as, F.A. et al., J.O.C., 1994, 59, 8261-8266, (分離, H-NMR, C13-NMR)
Takabatake, K. et al., J.C.S. Perkin 1, 2000, 1807-1808, (合成法, 絶対構造)

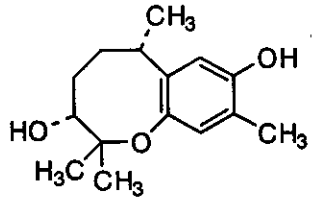
§ 5,10-Epoxy-1,3,5,8-bisabolatetraene-2,11-diol; 8,9-Dihydro
[化学名・別名]5,10-Epoxy-1,3,5-bisabolatriene-2,11-diol. Heliannuol D
[CAS No.]161730-09-2
[化合物分類]テルペノイド(Bisabolane sesquiterpenoids)
[構造式]
[分子式]$C_{15}H_{22}O_3$
[分子量]250.337
[基原]*Helianthus annuus*
[性状]結晶($CHCl_3$)
[融点]Mp 59-61 ℃
[比旋光度]:$[\alpha]_D^{25}$ +16 (c, 0.1 in $CHCl_3$)



----------文 献----------

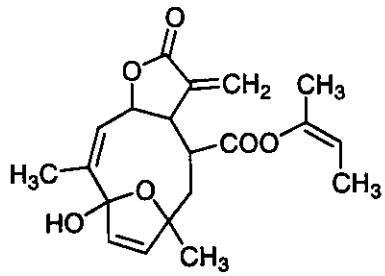
Mac acute i as, F.A. et al., J.O.C., 1994, 59, 8261-8266, (分離, H-NMR, C13-NMR)
Takabatake, K. et al., J.C.S. Perkin 1, 2000, 1807-1808, (合成法, 絶対構造)

§ 5,11-Epoxy-1,3,5-bisabolatriene-2,10-diol
[化学名・別名]Heliannuol A
[CAS No.]148054-17-5
[化合物分類]テルペノイド(Bisabolane sesquiterpenoids)
[構造式]
[分子式]$C_{15}H_{22}O_3$
[分子量]250.337
[基原]*Helianthus annuus*
[性状]結晶($CHCl_3$)
[融点]Mp 80-81 ℃
[比旋光度]:$[\alpha]_D$ -55.4 (c, 0.3 in MeOH)
UV: [neutral] λ_{max} 280 (ε) (EtOH) (Derep)



文 献
Mac acute i as, F.A. et al., Tet. Lett., 1993, 34, 1999, (分離, H-NMR, C13-NMR, 結晶構造)
Takabatake, K. et al., J.C.S. Perkin 1, 2000, 1807-1808, (合成法, 絶対構造)

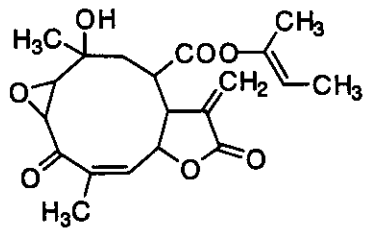
§ 3,10-Epoxy-3,8-dihydroxy-1,4,11(13)-germacratrien-12,6-olide; (3 α,4Z,6 α,8 β,10 β)-form, 8-Angeloyl
[化学名・別名]Helivypolide D
[CAS No.]253340-19-1
[化合物分類]テルペノイド(12,6-Germacranolide sesquiterpenoids)
[構造式]



[分子式]$C_{20}H_{24}O_6$
[分子量]360.406
[基原]*Helianthus annuus* cv. Peredovick
[性状]オイル

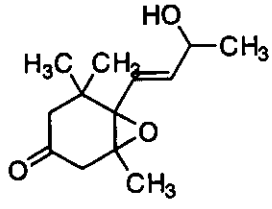
文 献
Mac acute i as, F.A. et al., Phytochemistry, 1999, 52, 613-621, (Helivypolide D)

§ 1,2-Epoxy-8,10-dihydroxy-3-oxo-4,11(13)-germacradien-12,6-olide; (1 β,2 α,4Z,6 α,8 β,10 α)-form, 8-Angeloyl
[化学名・別名]Helivypolide E
[CAS No.]56377-62-9
[化合物分類]テルペノイド(12,6-Germacranolide sesquiterpenoids)
[構造式]
[分子式]$C_{20}H_{24}O_7$
[分子量]376.405
[基原]*Helianthus annuus* cv. Peredovick
[性状]オイル



文 献
Mac acute i as, F.A. et al., Phytochemistry, 1999, 52, 613-621, (分離, H-NMR, C13-NMR)

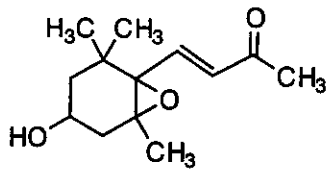
§ 5,6-Epoxy-7-megastigmene-3,9-diol; (5 α,6 α,7E,9 ξ)-form, 3-Ketone
[化学名・別名]5,6-Epoxy-9-hydroxy-7-megastigmen-3-one. Annuionone C
[CAS No.]155418-97-6
[化合物分類]テルペノイド(Megastigmane norterpenoids)
[構造式]
[分子式]$C_{13}H_{20}O_3$
[分子量]224.299
[基原]*Helianthus annuus*
[性状]オイル
[比旋光度]:$[\alpha]_D^{25}$ -8 (c, 0.1 in $CHCl_3$)



文 献

Marc acute i as, F.A. et al., Phytochemistry, 1998, 48, 631-636; 1999, 52, 613-621, (Annuionones)

§ 5,6-Epoxy-7-megastigmene-3,9-diol; (3 β,5 β,6 β,7*E*)-form, 9-Ketone
[化学名・別名]5,6-Epoxy-3-hydroxy-7-megastigmen-9-one. Annuionone D
[CAS No.]61116-99-2
[化合物分類]テルペノイド(Megastigmane norterpenoids)
[構造式]

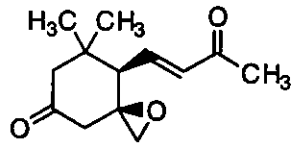


[分子式]$C_{13}H_{20}O_3$
[分子量]224.299
[基原]*Helianthus annuus* cv. Peredovick
[性状]オイル

----------文 献----------

Marc acute i as, F.A. et al., Phytochemistry, 1998, 48, 631-636; 1999, 52, 613-621, (Annuionones)

§ 5,13-Epoxy-7-megastigmene-3,9-dione
[化学名・別名]Annuionone B
[CAS No.]211183-73-2
[化合物分類]テルペノイド(Megastigmane norterpenoids)
[構造式]

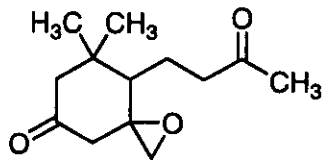


[分子式]$C_{13}H_{18}O_3$
[分子量]222.283
[基原]*Helianthus annuus*
[性状]オイル
[比旋光度]:$[\alpha]_D^{25}$ -13.5 (c, 0.1 in $CHCl_3$)

----------文 献----------

Marc acute i as, F.A. et al., Phytochemistry, 1998, 48, 631-636, (分離, H-NMR, C13-NMR)

§ 5,13-Epoxy-7-megastigmene-3,9-dione; 7,8-Dihydro
[化学名・別名]5,13-Epoxy-3,9-megastigmanedione. Annuionone A
[CAS No.]201288-96-2
[化合物分類]テルペノイド(Megastigmane norterpenoids)
[構造式]

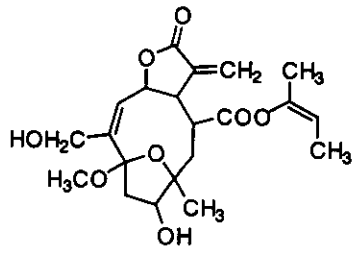


[分子式]$C_{13}H_{20}O_3$
[分子量]224.299
[基原]*Helianthus annuus*
[性状]オイル
[比旋光度]:$[\alpha]_D^{25}$ +12.3 (c, 0.4 in $CHCl_3$)

----------文 献----------

Marc acute i as, F.A. et al., Phytochemistry, 1998, 48, 631-636, (分離, H-NMR, C13-NMR)

§ 3,10-Epoxy-1,3,8,15-tetrahydroxy-4,11(13)-germacradien-12,6-olide; (1 α,3 α *OH*,4*Z*,6 α,8 β,10 β)-form, 3-Me ether, 8-angeloyl
[化学名・別名]3-*O*-Methylniveusin A
[化合物分類]テルペノイド(12,6-Germacranolide sesquiterpenoids)
[構造式]



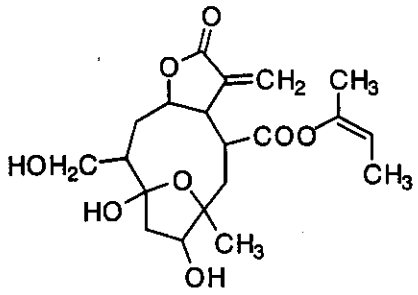
[分子式]$C_{21}H_{28}O_8$
[分子量]408.447
[基原]*Helianthus annuus*

----------文 献----------

Ohno, N. et al., Phytochemistry, 1980, 19, 609
Alfatafta, A.A. et al., Phytochemistry, 1992, 31, 4109, (分離, H-NMR, C13-NMR)
Spring, O. et al., Phytochemistry, 2000, 55, 255-261, (分離, H-NMR, C13-NMR)

§ 3,10-Epoxy-1,3,8,15-tetrahydroxy-4,11(13)-germacradien-12,6-olide; (1 α,3 α *OH*,4*Z*,6 α,8 β,10 β)-form, 4 ξ,5-Dihydro, 8-angeloyl
[化学名・別名]4,5-Dihydroniveusin A

[CAS No.]98204-96-7
[化合物分類]テルペノイド(12,6-Germacranolide sesquiterpenoids)
[構造式]

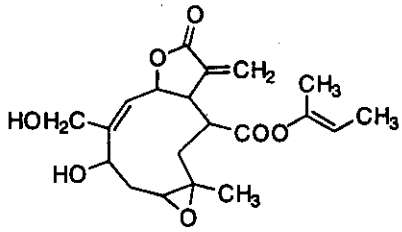


[分子式]$C_{20}H_{28}O_8$
[分子量]396.436
[基原]*Helianthus annuus*
[性状]針状結晶($CHCl_3$)
[融点]Mp 95-96 ℃

----------文 献----------

Ohno, N. et al., Phytochemistry, 1980, 19, 609
Alfatafta, A.A. et al., Phytochemistry, 1992, 31, 4109, (分離, H-NMR, C13-NMR)
Spring, O. et al., Phytochemistry, 2000, 55, 255-261, (分離, H-NMR, C13-NMR)

§ 1,10-Epoxy-3,8,15-trihydroxy-4,11(13)-germacradien-12,6-olide; (1 β,3 β,4Z,6 α,8 β,10 α)-form, 8-Angeloyl

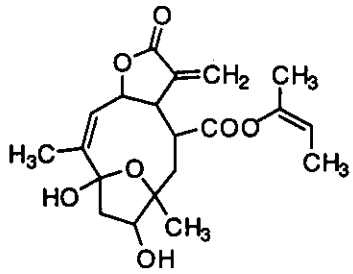


[化学名・別名]15-Hydroxyleptocarpin
[CAS No.]121541-07-9
[化合物分類]テルペノイド(12,6-Germacranolide sesquiterpenoids)
[構造式]
[分子式]$C_{20}H_{26}O_7$
[分子量]378.421
[基原]*Tithonia rotundifolia*, *Helianthus annuus*
[性状]ガム
[比旋光度]:$[\alpha]_D$ -84.5 (c, 0.24 in MeOH)

----------文 献----------

Peacuterez, C.A.L. et al., Phytochemistry, 1984, 23, 823, (15-Hydroxyleptocarpin)

§ 3,10-Epoxy-1,3,8-trihydroxy-4,11(13)-germacradien-12,6-olide; (1 α,3 α,4Z,6 α,8 β)-form, 8-Angeloyl



[化学名・別名]Niveusin C. Annuithrin
[CAS No.]75680-27-2
[化合物分類]テルペノイド(12,6-Germacranolide sesquiterpenoids)
[構造式]
[分子式]$C_{20}H_{26}O_7$
[分子量]378.421
[基原]*Helianthus niveus*, *Helianthus annuus*, *Helianthus maximiliana*
[性状]結晶(EtOAc)もしくはオイル
[融点]Mp 88-89 ℃. Mp 125-126 ℃
[比旋光度]:$[\alpha]_D$ -148 (c, 0.28 in MeOH)
[化学物質毒性データ総覧(RTECS)登録番号]EM9252300

----------文 献----------

Ohno, N. et al., Phytochemistry, 1980, 19, 609, (Niveusin C)

***RTECS (化学物質毒性データ) ***

生体影響物質　　：変異原性物質.

健康障害に関するデータ
変異原性に関するデータ

〈〈試験方法〉〉 DNA 阻害.
試験系　　：げっ歯類-マウス腹水性腫瘍..
投与量・期間：20 mg/L

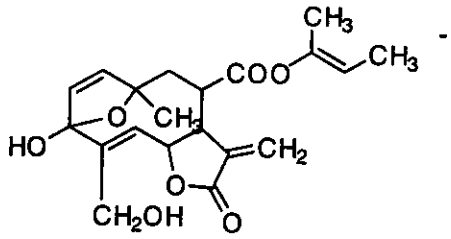
参照文献

Zeitschrift fuer Naturforschung, Section C: Biosciences. (Verlag der Zeitschrift fuer Naturforschung, Postfach 2645, D-7400 Tuebingen, Fed. Rep. Ger.) 37,1087,1982

〈〈試験方法〉〉 変異原試験ー通常の試験法.
試験系　　：げっ歯類-マウス腹水性腫瘍..
投与量・期間：20 mg/L

参照文献
Zeitschrift fuer Naturforschung, Section C: Biosciences. (Verlag der Zeitschrift fuer Naturforschung, Postfach 2645, D-7400 Tuebingen, Fed. Rep. Ger.) 37,1087,1982

§ 3,10-Epoxy-3,8,15-trihydroxy-1,4,11(13) germacratrien-12,6-olide; (3 β,6 α,8 β,10 β)-form, 8-Angeloyl

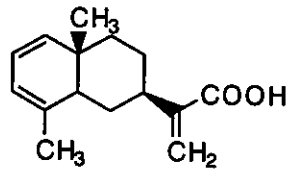


[化学名・別名] 1,2-Anhydridoniveusin
[CAS No.] 121519-08-2
[化合物分類] テルペノイド (12,6-Germacranolide sesquiterpenoids)
[構造式]
[分子式] $C_{20}H_{24}O_7$
[分子量] 376.405
[基原] *Helianthus annuus*

----------文献----------

Spring, O. et al., Phytochemistry, 1989, 28, 745-749, (1,2-Anhydridoniveusin)
Meragelman, K.M. et al., J. Nat. Prod., 1998, 61, 105-107, (3-Methyl-1,2-anhydridoniveusin)

§ 1,3,11(13)-Eudesmatrien-12-oic acid

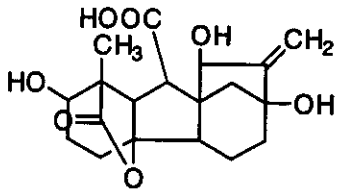


[CAS No.] 96383-98-1
[化合物分類] テルペノイド (Simple eudesmane sesquiterpenoids)
[構造式]
[分子式] $C_{15}H_{20}O_2$
[分子量] 232.322
[基原] *Helianthus annuus*, *Berkheya pauciflora* の地上部

----------文献----------

Bohlmann, F. et al., Planta Med., 1984, 50, 192, (分離)
Alfatafta, A.A. et al., Phytochemistry, 1992, 31, 4109, (分離, H-NMR, C13-NMR)

§ Gibberellin A_{72} ; 15 β-Hydroxy

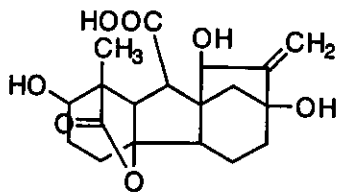


[化学名・別名] Gibberellin A_{72}
[CAS No.] 105593-21-3
[化合物分類] テルペノイド (Gibberellins)
[構造式]
[分子式] $C_{19}H_{24}O_7$
[分子量] 364.394
[基原] 次の植物の種子から分離: *Helianthus annuus*

----------文献----------

Hutchison, M. et al., Phytochemistry, 1988, 27, 2695, (Gibberellin A_{72})
Castellaro, S.J. et al., J.C.S. Perkin 1, 1990, 145, (3-Epigibberellin A_{72})

§ Gibberellin A_{73} ; 15 β-Hydroxy, 3-epimer

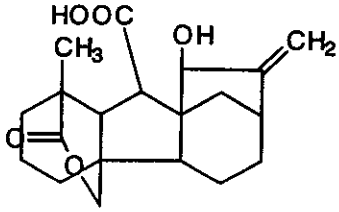


[化学名・別名] 3-Epigibberellin A_{72}. 3-*epi*-Gibberellin A_{72}
[CAS No.] 128712-79-8
[化合物分類] テルペノイド (Gibberellins)
[構造式]
[分子式] $C_{19}H_{24}O_7$
[分子量] 364.394
[基原] 次の植物から分離: *Helianthus annuus*

----------文献----------

Castellaro, S.J. et al., J.C.S. Perkin 1, 1990, 145, (3-Epigibberellin A_{72})

§ Gibberellin A_{15} ; 15 β-Hydroxy



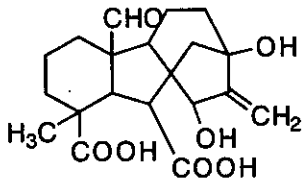
[化学名・別名] Gibberellin A_{64}
[CAS No.] 73208-09-0
[化合物分類] テルペノイド (Gibberellins)
[構造式]

[分子式]$C_{20}H_{26}O_5$
[分子量]346.422
[基原]次の植物の種子から分離: *Helianthus annuus*

---文 献---

Hutchison, M. et al., Phytochemistry, 1988, 27, 2695, (Gibberellin A_{64})

§ Gibberellin A_{19} ; 15 β-Hydroxy
[化学名・別名]Gibberellin A_{102}
[化合物分類]テルペノイド(Gibberellins)
[構造式]

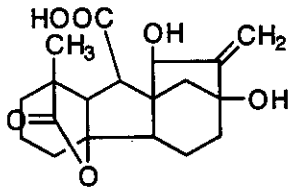


[分子式]$C_{20}H_{26}O_7$
[分子量]378.421
[基原]*Helianthus annuus* の種子

---文 献---

Owen, D.J. et al., Phytochemistry, 1996, 42, 921-925, (GA_{102})

§ Gibberellin A_{20} ; 15 β-Hydroxy
[化学名・別名]Gibberellin A_{67}
[CAS No.]105593-16-6
[化合物分類]テルペノイド(Gibberellins)
[構造式]

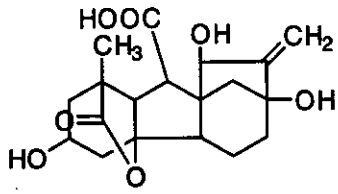


[分子式]$C_{19}H_{24}O_6$
[分子量]348.395
[基原]ヒマワリ(*Helianthus annuus*)の種子
[性状]結晶(Me_2CO/petrol)
[融点]Mp 135-137 ℃

---文 献---

Dolan, S.C. et al., J.C.S. Perkin 1, 1986, 2741, (GA_{67})

§ Gibberellin A_{29} ; 2 β,15 β-Dihydroxy
[化学名・別名]Gibberellin A_{76}. 15 β-Hydroxygibberellin A_{29}
[CAS No.]128712-78-7
[化合物分類]テルペノイド(Gibberellins)
[構造式]

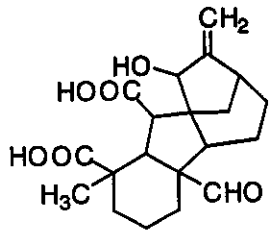


[分子式]$C_{19}H_{24}O_7$
[分子量]364.394
[基原]ヒマワリ種子: *Helianthus annuus*

---文 献---

Nakayama, M. et al., Agric. Biol. Chem., 1990, 54, 837, (GA_{77})
Castellaro, S.J. et al., J.C.S. Perkin 1, 1990, 145, (GA_{76})

§ Gibberellin A_{24} ; 15 β-Hydroxy
[化学名・別名]Gibberellin A_{65}
[CAS No.]79515-13-2
[化合物分類]テルペノイド(Gibberellins)
[構造式]



[分子式]$C_{20}H_{26}O_6$
[分子量]362.422
[基原]次の植物の種子から分離: *Helianthus annuus*

---文 献---

Hutchison, M. et al., Phytochemistry, 1988, 27, 2695, (Gibberellin A_{65})

§ Gibberellin A_{25} ; 15 β-Hydroxy
[化学名・別名]Gibberellin A_{66}
[CAS No.]70980-48-2
[化合物分類]テルペノイド(Gibberellins)
[構造式]