

[分子式] $C_{20}H_{36}O_7$

[分子量] 378.421

[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 A₆₆)

§ Gibberellin A₆₄; 15 β-Hydroxy

[化学名・別名] Gibberellin A₁₀₁

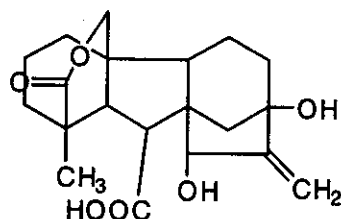
[化合物分類] テルペノイド (Gibberellins)

[構造式]

[分子式] $C_{20}H_{36}O_6$

[分子量] 362.422

[基原] *Helianthus annuus* の種子



-----文献-----

Owen, D.J. et al., *Phytochemistry*, 1996, 42, 921, (GA₁₀₁)

§ Gibberellin A₅₅; 15 β-Hydroxy

[化学名・別名] Gibberellin A₁₀₀

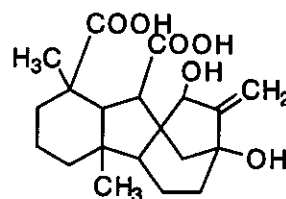
[化合物分類] テルペノイド (Gibberellins)

[構造式]

[分子式] $C_{20}H_{36}O_6$

[分子量] 364.438

[基原] *Helianthus annuus* の種子



-----文献-----

Owen, D.J. et al., *Phytochemistry*, 1996, 42, 921, (GA₁₀₀)

§ Gibberellin A₄; 15 β-Hydroxy

[化学名・別名] Gibberellin A₇₅

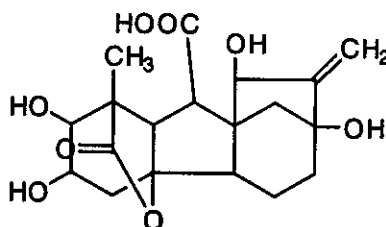
[化合物分類] テルペノイド (Gibberellins)

[構造式]

[分子式] $C_{19}H_{24}O_6$

[分子量] 380.394

[基原] *Helianthus annuus* の種子



-----文献-----

Castellaro, S.J. et al., *J.C.S. Perkin 1*, 1990, 145, (GA₇₅)

§ 3-O-α-D-Glucopyranuronosyl-D-xylose (CAS 名)

[CAS No.] 85269-45-0

[化合物分類] 炭水化物 (Glycuronic acids), 炭水化物 (Disaccharides)

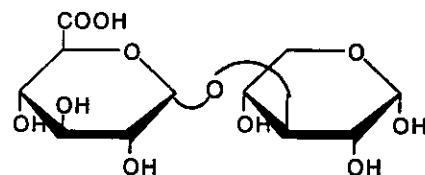
[構造式]

[分子式] $C_{11}H_{18}O_{11}$

[分子量] 326.257

[基原] 次の植物から分離: partial acid hydrolysates of sunflower (*Helianthus annuus*) head hemicellulose, pear cell-wall xylan, from various wheat-straw preparations and from corn hulls

[比旋光度]: $[\alpha]_D +18$ (H₂O)



-----文献-----

Adams, G.A., *Can. J. Chem.*, 1952, 30, 698; 1953, 31, 134, (分離)

Bishop, C.T., *Can. J. Chem.*, 1953, 31, 134; 1955, 33, 1521, (分離)

Aspinall, G.O. et al., *J.C.S.*, 1954, 1731, (分離)

Brasch, D.J. et al., *Tappi*, 1956, 39, 581; 768, (分離, 誘導體)

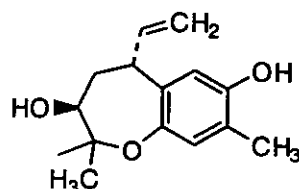
Yoshida, S. et al., *Agric. Biol. Chem.*, 1990, 54, 1319, (分離)

§ Heliannuol C

[CAS No.] 161730-08-1

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

[構造式]



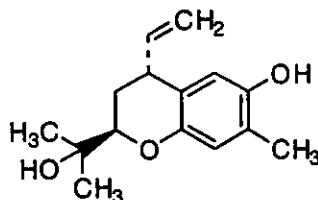
[分子式] $C_{15}H_{20}O_3$
[分子量] 248.321
[一般的性質] A rearranged bisabolane sesquiterpenoid
[基原] *Helianthus annuus*
[性状] オイル
[比旋光度]: $[\alpha]_D^{25} -38$ (c, 0.1 in $CHCl_3$)

-----文献-----

Mac acute i as, F.A. et al., J.O.C., 1994, 59, 8261-8266, (分離, H-NMR, C13-NMR)

§ Heliannuol E

[CAS No.] 241139-49-1
[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] 黄色のオイル
[比旋光度]: $[\alpha]_D^{25} -68.6$ (c, 0.1 in $CHCl_3$)



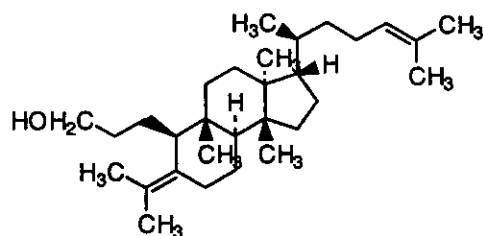
-----文献-----

Mac acute i as, F.A. et al., Tet. Lett., 1999, 40, 4725-4728, (分離, H-NMR, C13-NMR)

§ Helianol

[化学名・別名] 19(10 → 9)-Abeo-3,4-secotirucalla-4,24-dien-3-ol
[CAS No.] 178330-51-3

[化合物分類] テルペノイド (Tirucallane/euphane triterpenoids)
[構造式]
[分子式] $C_{30}H_{52}O$
[分子量] 428.74
[基原] *Helianthus annuus*
[性状] ガム
[その他のデータ] 構造式は 1998 年に改正された

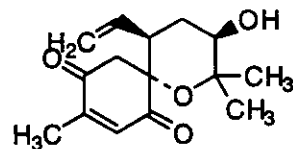


-----文献-----

Akihisa, T. et al., Chem. Pharm. Bull., 1996, 44, 1255-1257, (分離, H-NMR, C13-NMR)
Akihisa, T. et al., J. Nat. Prod., 1998, 61, 409-412, (分離, H-NMR, C13-NMR, 構造決定)

§ Heliespirone A

[CAS No.] 202533-71-9
[化合物分類] テルペノイド (Miscellaneous cyclohexane sesquiterpenoids)
[構造式]
[分子式] $C_{15}H_{20}O_4$
[分子量] 264.321
[基原] *Helianthus annuus*
[性状] 黄色のオイル
[比旋光度]: $[\alpha]_D^{25} -29$ (c, 0.1 in $CHCl_3$)



-----文献-----

Mar acute i as, F.A. et al., Tet. Lett., 1998, 39, 427-430, (分離, H-NMR, C13-NMR)

§ 4,6-Heneicosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $H_3C(CH_2)_{14}COCH_2COCH_2CH_2CH_3$
[分子式] $C_{21}H_{40}O_2$
[分子量] 324.546
[基原] *Helianthus annuus* の花粉

-----文献-----

Schultz, S. et al., Phytochemistry, 2000, 54, 325-336, (分離, 合成法)

§ 4,6-Heneicosanedione; 4-Alcohol

[化学名・別名] 4-Hydroxy-6-heneicosanone

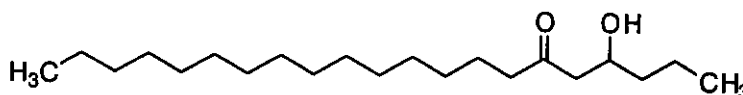
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $C_{21}H_{42}O_2$

[分子量] 326.562

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 4,6-Heneicosanedione; 6-Alcohol

[化学名・別名] 6-Hydroxy-4-heneicosanone

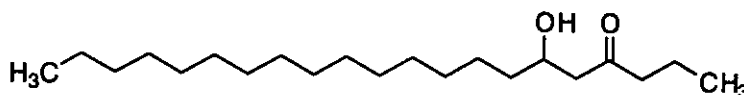
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $C_{21}H_{42}O_2$

[分子量] 326.562

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 6,8-Heneicosanedione

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

[構造式] $H_3C(CH_2)_{11}COCH_2CO(CH_2)_6CH_3$

[分子式] $C_{21}H_{40}O_2$

[分子量] 324.546

[基原] the pollen of *Helianthus annuus*

[基原] *Helianthus annuus* の花粉

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 6,8-Heneicosanedione; 6-Alcohol

[化学名・別名] 6-Hydroxy-8-heneicosanone

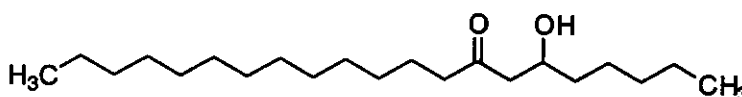
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $C_{21}H_{42}O_2$

[分子量] 326.562

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 6,8-Heneicosanedione; 8-Alcohol

[化学名・別名] 8-Hydroxy-6-heneicosanone

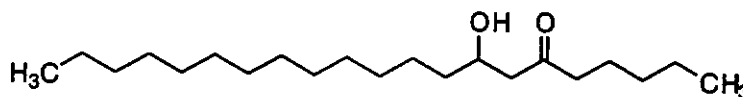
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $C_{21}H_{42}O_2$

[分子量] 326.562

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 8,10-Hentriacontanedione

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

[構造式] $H_3C(CH_2)_{20}COCH_2CO(CH_2)_6CH_3$

[分子式] $C_{31}H_{60}O_2$

[分子量] 464.814

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 4,6-Heptacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{20}\text{COCH}_2\text{COCH}_2\text{CH}_2\text{CH}_3$

[分子式] $\text{C}_{27}\text{H}_{52}\text{O}_2$

[分子量] 408.707

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 4,6-Heptacosanedione; 4-Alcohol

[化学名・別名] 4-Hydroxy-6-heptacosanone

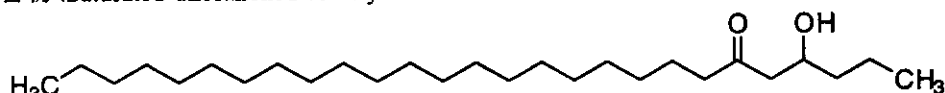
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $\text{C}_{27}\text{H}_{54}\text{O}_2$

[分子量] 410.722

[基原] *Helianthus annuus* の花粉



-----文献-----

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

§ 6,8-Heptacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{18}\text{COCH}_2\text{CO}(\text{CH}_2)_6\text{CH}_3$

[分子式] $\text{C}_{27}\text{H}_{52}\text{O}_2$

[分子量] 408.707

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 6,8-Heptacosanedione; 6-Alcohol

[化学名・別名] 6-Hydroxy-8-heptacosanone

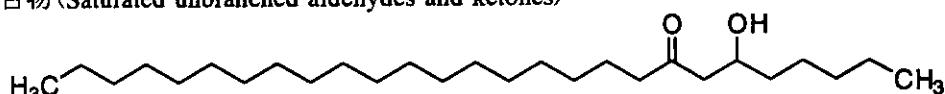
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $\text{C}_{27}\text{H}_{54}\text{O}_2$

[分子量] 410.722

[基原] *Helianthus annuus* の花粉



-----文献-----

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

§ 8,10-Heptacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{16}\text{COCH}_2\text{CO}(\text{CH}_2)_8\text{CH}_3$

[分子式] $\text{C}_{27}\text{H}_{52}\text{O}_2$

[分子量] 408.707

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 10,12-Heptacosanedione

[CAS No.] 95605-27-9

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{14}\text{COCH}_2\text{CO}(\text{CH}_2)_8\text{CH}_3$

[分子式] $\text{C}_{27}\text{H}_{52}\text{O}_2$

[分子量] 408.707

[基原] タバコ, *Helianthus annuus*

[用途] 抗酸化剤
[性状] 結晶 (Me₂CO)
[融点] Mp 50-51 °C

-----文献-----

Matsuzaki, T., Agric. Biol. Chem., 1988, 52, 2341-2342, (分離, UV, H-NMR, Mass)
Schultz, S. et al., Phytochemistry, 2000, 54, 325-336, (分離)

§ 12,14-Heptacosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] H₃C(CH₂)₁₂COCH₂:CO(CH₂)₁₀CH₃
[分子式] C₂₇H₅₂O₂
[分子量] 408.707
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 4,6-Hexacosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] H₃C(CH₂)₁₉COCH₂:COCH₂:CH₂:CH₃
[分子式] C₂₆H₅₀O₂
[分子量] 394.68
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 5,7-Hexacosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] H₃C(CH₂)₁₈COCH₂:CO(CH₂)₃CH₃
[分子式] C₂₆H₅₀O₂
[分子量] 394.68
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 6,8-Hexacosanedione

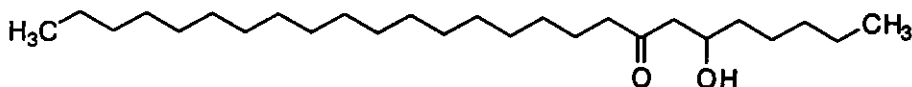
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] H₃C(CH₂)₁₇COCH₂:CO(CH₂)₄CH₃
[分子式] C₂₆H₅₀O₂
[分子量] 394.68
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 6,8-Hexacosanedione; 6-Alcohol

[化学名・別名] 6-Hydroxy-8-hexacosanone
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式]
[分子式] C₂₆H₅₂O₂
[分子量] 396.696
[基原] *Helianthus annuus* の花粉



-----文献-----

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

§ 7,9-Hexacosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] H₃C(CH₂)₁₆COCH₂:CO(CH₂)₅CH₃
[分子式] C₂₆H₅₀O₂

[分子量] 394.68

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 10,12-Hexacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{12}\text{COCH}_2\text{CO}(\text{CH}_2)_8\text{CH}_3$

[分子式] $\text{C}_{26}\text{H}_{50}\text{O}_2$

[分子量] 394.68

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 11,13-Hexacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{12}\text{COCH}_2\text{CO}(\text{CH}_2)_8\text{CH}_3$

[分子式] $\text{C}_{26}\text{H}_{50}\text{O}_2$

[分子量] 394.68

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 1-Hydroxy-4-oxo-2,5,10-bisabolatrien-12-al; (E)-form

[化学名・別名] Glandulone C

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

[構造式]

[分子式] $\text{C}_{15}\text{H}_{20}\text{O}_3$

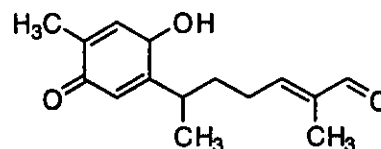
[分子量] 248.321

[基原] *Helianthus annuus*

[性状] 茶色のオイル

[比旋光度]: $[\alpha]_D^{25} +23.6$ (c, 0.12 in MeOH)

UV: [neutral] λ_{max} 230 ; 292 (MeOH) (Berdy)



-----文献-----

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

Mendoza, G.V. et al., *J. Nat. Prod.*, 1993, 56, 2073, (分離, H-NMR, C13-NMR, 合成法)

§ 1-Hydroxy-4-oxo-2,5,10-bisabolatrien-12-al; (E)-form, 1-Ketone

[化学名・別名] 1,4-Dioxo-2,5,10-bisabolatrien-12-al. Glandulone A

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

[構造式]

[分子式] $\text{C}_{15}\text{H}_{18}\text{O}_3$

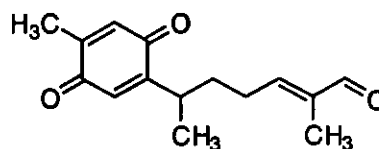
[分子量] 246.305

[基原] *Helianthus annuus*

[性状] 茶色のオイル

[比旋光度]: $[\alpha]_D^{25} +142.5$ (c, 0.12 in MeOH)

UV: [neutral] λ_{max} 232 ; 262 (MeOH) (Berdy)



-----文献-----

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

Mendoza, G.V. et al., *J. Nat. Prod.*, 1993, 56, 2073, (分離, H-NMR, C13-NMR, 合成法)

§ 8-Hydroxy-14-oxo-1(10),4,11(13)-germacatrien-12,6-olide; (1(10)

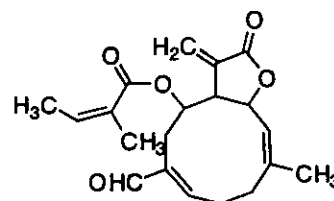
E,4E,6\alpha,8\beta)-form, Angeloyl

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

[構造式]

[分子式] $\text{C}_{20}\text{H}_{24}\text{O}_5$

[分子量] 344.407



[基原] *Helianthus annuus*

-----文献-----

Saleh, A.A. et al., J.C.S. Perkin 1, 1980, 1090, (Glabratolide)

Bohlmann, F. et al., Annalen, 1984, 228

Kijjoo, A. et al., Phytochemistry, 1993, 32, 383, (分離)

Hernaacutendez, L.R. et al., Phytochemistry, 1996, 42, 1367; 1369, (誘導體)

§ 15-Hydroxy-19-trachylobanoic acid; (*ent*-15 β)-form

[CAS No.] 83404-76-6

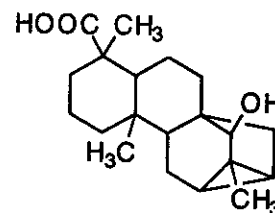
[化合物分類] テルペノイド (Trachylobane diterpenoids)

[構造式]

[分子式] $C_{20}H_{30}O_3$

[分子量] 318.455

[基原] Occurs as esters in sunflower heads (*Helianthus annuus*). Also occurs in *Viguera pazensis* as an inseparable mixt. of 15-esters



-----文献-----

Ferguson, G. et al., J. Chem. Res., Synop., 1982, 200, (結晶構造)

Bohlmann, F. et al., Annalen, 1984, 495, (分離)

§ 16-Kauren-19-ol; *ent*-form, 19-Carboxylic acid, Me ester

[CAS No.] 41473-15-8

[化合物分類] テルペノイド (Kaurane diterpenoids)

[構造式]

[分子式] $C_{27}H_{42}O_2$

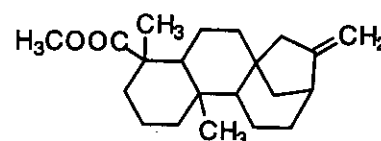
[分子量] 316.483

[基原] 次の植物から分離: *Helianthus annuus*, *Othonna cylindrica*, その他

[性状] 結晶 (MeOH)

[融点] Mp 88-89 °C

[比旋光度]: $[\alpha]_D -107$ (c, 3.2 in $CHCl_3$)



-----文献-----

Kalinowskii, A.I. et al., Khim. Prir. Soedin., 1971, 7, 281-286; Chem. Nat. Compd. (Engl. Transl.), 1971, 7, 269-273, (acid, Mass)

Piozzi, F. et al., Phytochemistry, 1971, 10, 1164-1166, (aldehyde, 分離)

Bohlmann, F. et al., Chem. Ber., 1973, 106, 841-844, (分離)

§ 20(29)-Lupene-3,16,28-triol; (3 β , 16 β)-form

[化学名・別名] Heliantriol B₂

[CAS No.] 61229-18-3

[化合物分類] テルペノイド (Lupane triterpenoids)

[構造式]

[分子式] $C_{30}H_{50}O_3$

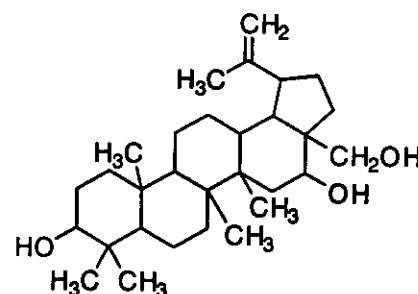
[分子量] 458.723

[基原] *Beyeria brevifolia*, *Calendula officinalis*, *Helianthus annuus*, *Stenocereus thurberi*

[性状] 結晶 (MeOH)

[融点] Mp 300-301 °C

[比旋光度]: $[\alpha]_D +8$ (c, 0.4 in $CHCl_3$)



-----文献-----

Errington, S.G. et al., Aust. J. Chem., 1976, 29, 1809, (分離, H-NMR)

St Pyrek, J., Pol. J. Chem. (Rocz. Chem.), 1979, 53, 2465, (分離)

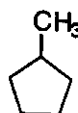
Kircher, H.W., Phytochemistry, 1980, 19, 2707, (分離)

§ Methylcyclopentane (CAS 名) (旧 CAS 名)

[CAS No.] 96-37-7

[化合物分類] 脂肪族化合物 (Monocarbocyclic alkanes)

[構造式]



[分子式] C_6H_{12}
 [分子量] 84.161
 [基原] 次の植物から分離: *Artemisia annua*, *Helianthus annuus*. Also found in petroleum
 [性状] 液体
 [融点] Fp-139.8 °C
 [沸点] Bp 72-72.2 °C
 [濃度] d^4_4 0.747
 [屈折率] n^20_D 1.4088
 [傷害・毒性] 発火しやすい, 発火温度: -29 °C, 自然発火温度: 258/361 °C
 [化学物質毒性データ総覧 (RTECS) 登録番号] GY4640000
 [販売元] Aldrich: M3940-7; Fluka: 66495

-----文献-----

Bernard, M. et al., Ullmanns Encykl. Tech. Chem., 4. Aufl., 1975, 9, 680, (レビュー)
 Bowen, R.D. et al., Org. Mass Spectrom., 1977, 12, 453, (Mass)
 Liu, Q. et al., CA, 1988, 109, 134804t, (分離)
 Pham-Delegue, M.H. et al., J. Chem. Ecol., 1989, 15, 329, (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>> 認知された最小致死濃度 (LCLo) に関する試験

曝露経路 : 吸入.
 被験動物 : げっ歯類-マウス.
 投与量・期間 : 95 gm/m³
 毒性影響 : [行動] 全身麻痺.
 [行動] 痙攣または発作閾値への影響.
 [肺, 胸郭, または呼吸] 呼吸抑制.

参照文献

Naunyn-Schmiedeberg's Archiv fuer Experimentelle Pathologie und Pharmakologie. (Berlin, Ger.)
 149,116,1930

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 : 10 gm/kg/4 週間間欠投与
 毒性影響 : [栄養と総代謝] 体重減少または体重増加.
 [慢性データ関連] 死亡

参照文献

Toxicology and Industrial Health. (Princeton Scientific Pub. Co., POB 2155, Princeton, NJ 08540) 1(3)
 ,67,1985

§ 25-Methyl-24-methylenecholest-5-en-3-ol; 3 β -form

[化学名・別名] 25-Methyl-24-methylenecholesterol
 [CAS No.] 89702-24-9
 [化合物分類] ステロイド (Ergostane steroids; excluding withanolides and brassinolides). (C28).

[構造式]

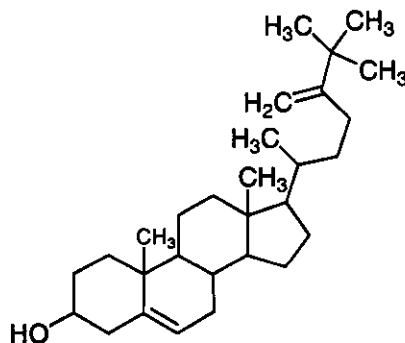
[分子式] $C_{25}H_{48}O$

[分子量] 412.698

[基原] *Brassica juncea*, *Helianthus annuus*, *Phaseolus vulgaris*,
Wrightia tinctoria

[性状] 結晶 (EtOH)

[融点] Mp 158.5-160 °C



-----文献-----

Matsumoto, T. et al., Phytochemistry, 1983, 22, 2619; 1984, 23, 921; 1988, 27, 629; 3231, (分離)

§ 6,8-Nonacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{20}\text{COCH}_2\text{CO}(\text{CH}_2)_4\text{CH}_3$
[分子式] $\text{C}_{29}\text{H}_{56}\text{O}_2$
[分子量] 436.76
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 8,10-Nonacosanedione (CAS 名)

[CAS No.] 58170-84-6
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{18}\text{COCH}_2\text{CO}(\text{CH}_2)_6\text{CH}_3$
[分子式] $\text{C}_{29}\text{H}_{56}\text{O}_2$
[分子量] 436.76
[基原] 多くの *Rhododendron* とタバコ属の葉から得られるワックス, *Helianthus annuus* の花粉
[用途] 抗酸化剤

-----文献-----

Evans, D. et al., *Phytochemistry*, 1975, 14, 2447, (分離, chromatog, Mass)
Matsuzaki, T. et al., *Agric. Biol. Chem.*, 1988, 52, 2341, (分離, UV, H-NMR, Mass)
Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336

§ 10,12-Nonacosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{16}\text{COCH}_2\text{CO}(\text{CH}_2)_6\text{CH}_3$
[分子式] $\text{C}_{29}\text{H}_{56}\text{O}_2$
[分子量] 436.76
[基原] *Helianthus annuus* の花粉

-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 12,14-Nonacosanedione (CAS 名)

[CAS No.] 58141-94-9
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{14}\text{COCH}_2\text{CO}(\text{CH}_2)_{10}\text{CH}_3$
[分子式] $\text{C}_{29}\text{H}_{56}\text{O}_2$
[分子量] 436.76
[基原] *Eucalyptus* と *Rhododendron* spp. の葉オイル, *Helianthus annuus* の花粉

-----文献-----

Horn, D.H.S. et al., *Aust. J. Chem.*, 1964, 17, 464, (分離)
Evans, D. et al., *Phytochemistry*, 1975, 14, 2447, (分離, chromatog, Mass)
Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336

§ 4,6-Nonadecanedione

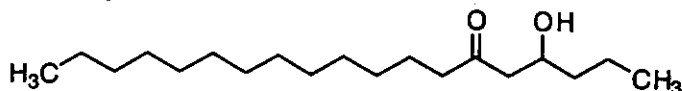
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{12}\text{COCH}_2\text{COCH}_2\text{CH}_2\text{CH}_3$
[分子式] $\text{C}_{19}\text{H}_{36}\text{O}_2$
[分子量] 296.492
[基原] *Helianthus annuus* の花粉

-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 4,6-Nonadecanedione; 4-Alcohol

[化学名・別名] 4-Hydroxy-6-nonadecanone
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式]
[分子式] $\text{C}_{19}\text{H}_{36}\text{O}_2$
[分子量] 298.508
[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., Phytochemistry, 2000, 54, 325-336, (分離, 合成法)

§ 4,6-Nonadecanedione; 6-Alcohol

[化学名・別名] 6-Hydroxy-4-nonadecanone

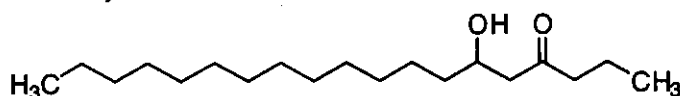
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $C_{19}H_{38}O_2$

[分子量] 298.508

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., Phytochemistry, 2000, 54, 325-336, (分離, 合成法)

§ Nopalinic acid

[化学名・別名] N-(4-Amino-1-carboxybutyl) glutamic acid (CAS 名). N^2 -(1,3-Dicarboxypropyl) ornithine. Ormaline

[CAS No.] 63409-16-5

[化合物分類] アミノ酸とペプチド (Miscellaneous modified aminoacids)

[構造式] $H_2N(CH_2)_3CH(COOH)NHCH(COOH)CH_2CH_2COOH$

[分子式] $C_{10}H_{18}N_2O_6$

[分子量] 262.262

[基原] 次の植物から分離: *Nicotiana tabacum* と *Helianthus annuus* のクラウンゴールカルス. Human urine collagen degradation prod.

-----文献-----

Firmin, J.L. et al., Phytochemistry, 1977, 16, 761, (分離, 合成法)

Scott, I.M. et al., Phytochemistry, 1978, 17, 1103, (生合成)

§ 5,7-Octacosanedione

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

[構造式] $H_3C(CH_2)_{20}COCH_2CO(CH_2)_3CH_3$

[分子式] $C_{28}H_{54}O_2$

[分子量] 422.733

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 6,8-Octacosanedione

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

[構造式] $H_3C(CH_2)_{19}COCH_2CO(CH_2)_6CH_3$

[分子式] $C_{28}H_{54}O_2$

[分子量] 422.733

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 7,9-Octacosanedione

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

[構造式] $H_3C(CH_2)_{18}COCH_2CO(CH_2)_5CH_3$

[分子式] $C_{28}H_{54}O_2$

[分子量] 422.733

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 8,10-Octacosanedione

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

[構造式] $H_3C(CH_2)_{17}COCH_2CO(CH_2)_4CH_3$

[分子式] $C_{28}H_{54}O_2$
[分子量] 422.733
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 10,12-Octacosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $H_3C(CH_2)_{15}COCH_2CO(CH_2)_8CH_3$
[分子式] $C_{28}H_{54}O_2$
[分子量] 422.733
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 11,13-Octacosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $H_3C(CH_2)_{14}COCH_2CO(CH_2)_9CH_3$
[分子式] $C_{28}H_{54}O_2$
[分子量] 422.733
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 12,14-Octacosanedione

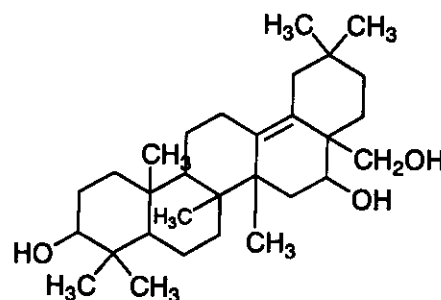
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
[構造式] $H_3C(CH_2)_{13}COCH_2CO(CH_2)_{10}CH_3$
[分子式] $C_{28}H_{54}O_2$
[分子量] 422.733
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 13(18)-Oleanene-3,16,28-triol; (3 β ,16 β)-form

[化学名・別名] Heliantriol A₁, Coflotriol
[CAS No.] 26540-64-7
[化合物分類] テルペノイド (Oleanane triterpenoids)
[構造式]
[分子式] $C_{30}H_{50}O_3$
[分子量] 458.723
[基原] 次の植物の花から分離: *Helianthus annuus*, *Calendula officinalis*



[性状] 針状結晶 (EtOAc)

[融点] Mp 279-281 °C

[比旋光度]: $[\alpha]_D -36.7$ (c, 1 in CHCl₃)

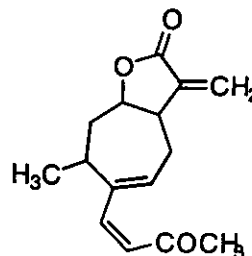
-----文献-----

Kubota, T. et al., *Tetrahedron*, 1967, 23, 3333, (合成法)

St. Pyrek, J., *Pol. J. Chem. (Rocz. Chem.)*, 1979, 53, 2465, (分離)

§ 4-Oxo-1(5),2,11(13)-xanthatrien-12,8-olide; (8 β ,10 β)-form

[化学名・別名] 8-Epixanthatin
[化合物分類] テルペノイド (Xanthane sesquiterpenoids)
[構造式]
[分子式] $C_{15}H_{18}O_3$
[分子量] 246.305
[基原] *Helianthus annuus*
[用途] 植物成長抑制作用を示す



-----文献-----

Yokotani-Tomita, K. et al., *Phytochemistry*, 1997, 46, 503-506, (8-Epixanthatin, H-NMR)

§ 4,6-Pentacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{18}\text{COCH}_2\text{COCH}_2\text{CH}_2\text{CH}_3$

[分子式] $\text{C}_{25}\text{H}_{48}\text{O}_2$

[分子量] 380.653

[基原] *Helianthus annuus* の花粉

-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 4,6-Pentacosanedione; 4-Alcohol

[化学名・別名] 4-Hydroxy-6-pentacosanone

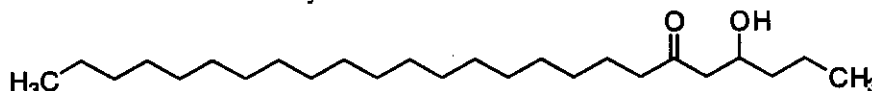
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $\text{C}_{25}\text{H}_{50}\text{O}_2$

[分子量] 382.669

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 4,6-Pentacosanedione; 6-Alcohol

[化学名・別名] 6-Hydroxy-4-pentacosanone

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

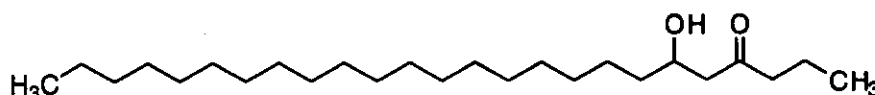
[構造式]

[分子式] $\text{C}_{25}\text{H}_{50}\text{O}_2$

[分子量] 382.669

[基原] *Helianthus annuus* の

花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 6,8-Pentacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{16}\text{COCH}_2\text{CO}(\text{CH}_2)_4\text{CH}_3$

[分子式] $\text{C}_{25}\text{H}_{48}\text{O}_2$

[分子量] 380.653

[基原] *Helianthus annuus* の花粉

-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 6,8-Pentacosanedione; 6-Alcohol

[化学名・別名] 6-Hydroxy-8-pentacosanone

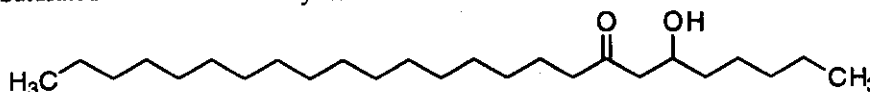
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式]

[分子式] $\text{C}_{25}\text{H}_{50}\text{O}_2$

[分子量] 382.669

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 7,9-Pentacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{15}\text{COCH}_2\text{CO}(\text{CH}_2)_5\text{CH}_3$

[分子式] $\text{C}_{25}\text{H}_{48}\text{O}_2$

[分子量] 380.653

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 10,12-Pentacosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{12}\text{COCH}_2\text{CO}(\text{CH}_2)_8\text{CH}_3$

[分子式] $\text{C}_{25}\text{H}_{48}\text{O}_2$

[分子量] 380.653

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 3,3',4',5,7-Pentahydroxyflavylum (1+); 3-O- (O-Malonyl-β-D-xylopyranoside)

[化学名・別名] Cyanidin 3-(malonylxyloside)

[CAS No.] 156736-60-6

[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] $\text{C}_{25}\text{H}_{21}\text{O}_{13}$ ^(*)

[分子量] 505.411

[基原] *Helianthus annuus* の種子

-----文献-----

Mazza, G. et al., *Phytochemistry*, 1994, 35, 237, (3-malonylxyloside)

§ 1-Phenyl-1,3-docosanedione

[化学名・別名] 1-Benzoyl-2-heneicosanone

[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{18}\text{COCH}_2\text{COPh}$

[分子式] $\text{C}_{28}\text{H}_{46}\text{O}_2$

[分子量] 414.67

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 1-Phenyl-1,3-dodecanedione

[化学名・別名] 1-Benzoyl-2-undecanone

[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_8\text{COCH}_2\text{COPh}$

[分子式] $\text{C}_{18}\text{H}_{26}\text{O}_2$

[分子量] 274.402

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 1-Phenyl-1,3-eicosanedione (CAS 名)

[化学名・別名] 1-Benzoyl-2-nonadecanone

[CAS No.] 58446-52-9

[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式] $\text{PhCOCH}_2\text{CO}(\text{CH}_2)_{16}\text{CH}_3$

[分子式] $\text{C}_{26}\text{H}_{42}\text{O}_2$

[分子量] 386.617

[基原] *Helianthus annuus* の花粉

[用途] Heat stabiliser for PVC

-----文献-----

Ger. Pat., 1975, 2 600 516; CA, 85, 125135j, (用途)

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

§ 1-Phenyl-1,3-eicosanedione; 3-Alcohol

[化学名・別名] 3-Hydroxy-1-phenyl-1-eicosanone

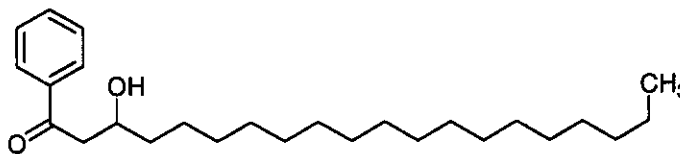
[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式]

[分子式] $C_{26}H_{44}O_2$

[分子量] 388.632

[基原] *Helianthus annuus* の花粉



----- 文献 -----

Eur. Pat., 1995, 658 592; CA, 123, 288308k, (合成法, 用途)

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

§ 1-Phenyl-1,3-heneicosanedione

[化学名・別名] 1-Benzoyl-2-eicosanone

[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式] $H_3C(CH_2)_{17}COCH_2COPh$

[分子式] $C_{27}H_{44}O_2$

[分子量] 400.643

[基原] *Helianthus annuus* の花粉

----- 文献 -----

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

§ 1-Phenyl-1,3-heneicosanedione; 3-Alcohol

[化学名・別名] 3-Hydroxy-1-phenyl-1-heneicosanone. 1-Benzoyl-2-eicosanol

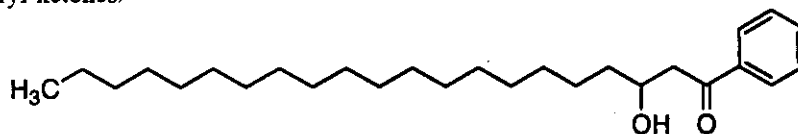
[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式]

[分子式] $C_{27}H_{46}O_2$

[分子量] 402.659

[基原] *Helianthus annuus* の花粉



----- 文献 -----

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

§ 1-Phenyl-1,3-heptadecanedione

[化学名・別名] 1-Benzoyl-2-hexadecanone

[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式] $H_3C(CH_2)_{13}COCH_2COPh$

[分子式] $C_{23}H_{36}O_2$

[分子量] 344.536

[基原] *Helianthus annuus* の花粉

----- 文献 -----

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

§ 1-Phenyl-1,3-heptadecanedione; 3-Alcohol

[化学名・別名] 3-Hydroxy-1-phenyl-1-heptadecanone. 1-Benzoyl-2-hexadecanol

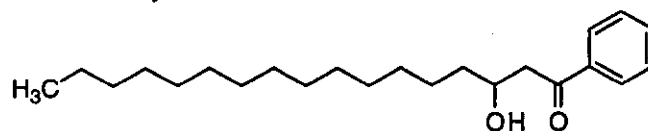
[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式]

[分子式] $C_{23}H_{38}O_2$

[分子量] 346.552

[基原] *Helianthus annuus* の花粉



----- 文献 -----

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

§ 1-Phenyl-1,3-hexadecanedione

[化学名・別名] 1-Benzoyl-2-pentadecanone

[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式] $H_3C(CH_2)_{12}COCH_2COPh$

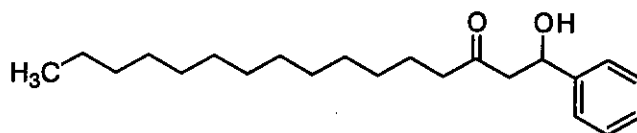
[分子式] $C_{27}H_{54}O_2$
[分子量] 330.509
[基原] *Helianthus annuus* の花粉

-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 1-Phenyl-1,3-hexadecanedione; 1-Alcohol

[化学名・別名] 1-Hydroxy-1-phenyl-3-hexadecanone
[化合物分類] 単環芳香族 (Simple aryl ketones)
[構造式]
[分子式] $C_{27}H_{54}O_2$
[分子量] 332.525
[基原] *Helianthus annuus* の花粉

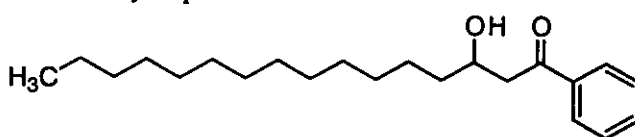


-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 1-Phenyl-1,3-hexadecanedione; 3-Alcohol

[化学名・別名] 3-Hydroxy-1-phenyl-1-hexadecanone. 1-Benzoyl-2-pentadecanol
[化合物分類] 単環芳香族 (Simple aryl ketones)
[構造式]
[分子式] $C_{27}H_{54}O_2$
[分子量] 332.525
[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 1-Phenyl-1,3-nonadecanedione

[化学名・別名] 1-Benzoyl-2-octadecanone
[化合物分類] 単環芳香族 (Simple aryl ketones)
[構造式] $H_3C(CH_2)_{15}COCH_2COPh$
[分子式] $C_{25}H_{40}O_2$
[分子量] 372.59
[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 1-Phenyl-1,3-octadecanedione

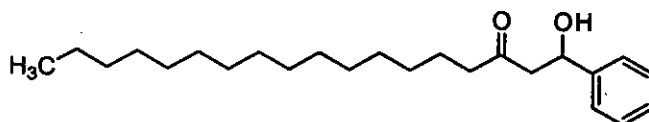
[化学名・別名] 1-Benzoyl-2-heptadecanone
[化合物分類] 単環芳香族 (Simple aryl ketones)
[構造式] $H_3C(CH_2)_{14}COCH_2COPh$
[分子式] $C_{24}H_{38}O_2$
[分子量] 358.563
[基原] *Helianthus annuus* の花粉

-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 1-Phenyl-1,3-octadecanedione; 1-Alcohol

[化学名・別名] 1-Hydroxy-1-phenyl-3-octadecanone
[化合物分類] 単環芳香族 (Simple aryl ketones)
[構造式]
[分子式] $C_{27}H_{54}O_2$
[分子量] 360.579
[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 1-Phenyl-1,3-octadecanedione; 3-Alcohol

[化学名・別名] 3-Hydroxy-1-phenyl-1-octadecanone. 1-Benzoyl-2-heptadecanol

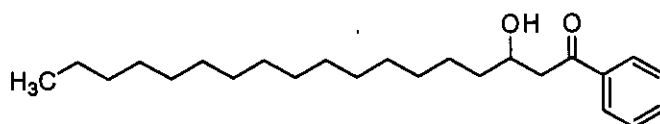
[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式]

[分子式] $C_{24}H_{40}O_2$

[分子量] 360.579

[基原] *Helianthus annuus* の花粉



-----文献-----

Schultz, S. et al., *Phytochemistry*, 2000, 54, 325-336, (分離, 合成法)

§ 1-Phenyl-1,3-pentadecanedione

[化学名・別名] 1-Benzoyl-2-tetradecanone

[化合物分類] 単環芳香族 (Simple aryl ketones)

[構造式] $H_3C(CH_2)_{11}COCH_2COPh$

[分子式] $C_{21}H_{32}O_2$

[分子量] 316.483

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ Serylvalylglycylglutamic acid

[化学名・別名] Toxin AS I. AS I

[化合物分類] アミノ酸とペプチド (Oligopeptides (4-10 residues))

[構造式] H-Ser-Val-Gly-Glu-OH

[分子式] $C_{15}H_{26}N_4O_4$

[分子量] 390.392

[基原] Prod. by *Alternaria alternata* on *Helianthus annuus*

[用途] Phytotoxin

[性状] 結晶 (Et₂O)

UV: [neutral] λ_{max} 210 (MeOH) (Berdy)

-----文献-----

Liakopoulou-Kyriakides, M. et al., *Phytochemistry*, 1997, 45, 37, (分離, 合成法, Mass)

§ Stigmasta-7,24-dien-3-ol; (3 β ,5 α)-form

[化学名・別名] Peposterol

[CAS No.] 50632-69-4

[化合物分類] ステロイド (Stigmastane steroids). (C₂₉), AJ1550

[構造式]

[分子式] $C_{29}H_{48}O$

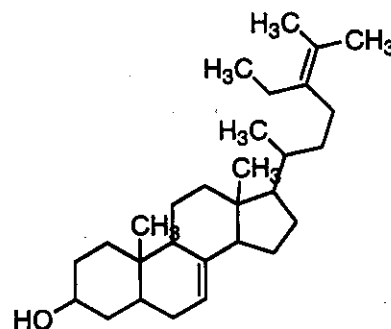
[分子量] 412.698

[基原] *Helianthus annuus*, *Cucurbita pepo*, 多数のウリ科の植物

[性状] 結晶 (MeOH)

[融点] Mp 130-131 °C

[比旋光度]: $[\alpha]_D^{25} +5$ (c, 0.8 in CHCl₃)



-----文献-----

Hamberg, E.E. et al., *Phytochemistry*, 1973, 12, 1767, (分離)

Nes, W.D. et al., *Lipids*, 1977, 12, 511; 521; 522, (Peposterol)

Akihisa, T. et al., *Lipids*, 1986, 21, 39, (分離, H-NMR, C13-NMR)

§ 20-Taraxastene-3,16-diol; (3 β ,16 β)-form

[化学名・別名] Faradiol. Isoamidendiol

[CAS No.] 20554-95-4

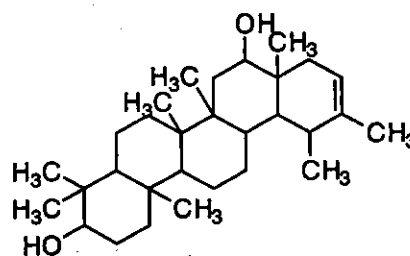
[化合物分類] テルペノイド (Taraxastane triterpenoids)

[構造式]

[分子式] $C_{30}H_{50}O_2$

[分子量] 442.74

[基原] *Inter alia*, *Arnica montana*, *Tussilago farfara*, *Helianthus annuus*, *Senecio alpinus*, *Calendula officinalis*



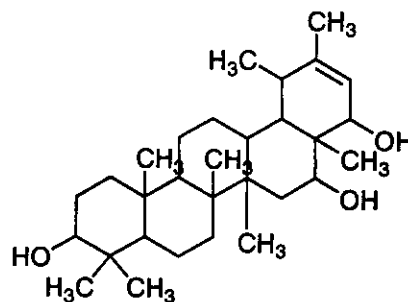
[性状] 結晶
[融点] Mp 236-237 °C
[比旋光度]: $[\alpha]_D +44$

----- 文 献 -----

Zimmerman, J., *Helv. Chim. Acta*, 1943, 26, 642-647, (Faradiol, 分離)
St. Pyrek, J. et al., *Tet. Lett.*, 1973, 809-810, (Faradiol, 構造決定)
St. Pyrek, J., *Pol. J. Chem. (Rocz. Chem.)*, 1977, 51, 2331-2342, (Faradiol, 構造決定)
Zitterl-Eglseer, K. et al., *J. Ethnopharmacol.*, 1997, 57, 139-144, (Faradiol esters)

§ 20-Taraxastene-3,16,22-triol; (3 β ,16 β ,22 α)-form

[化学名・別名] Heliantriol C
[CAS No.] 71876-60-3
[化合物分類] テルペノイド (Taraxastane triterpenoids)
[構造式]
[基原] *Calendula officinalis*, *Helianthus annuus*
[性状] 結晶
[融点] Mp 229-230 °C (220-226 °C)
[比旋光度]: $[\alpha]_D +77$ (MeOH)

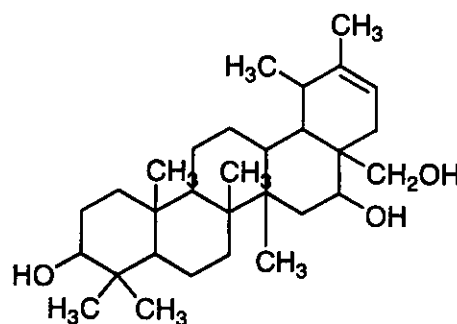


----- 文 献 -----

St Pyrek, J., *Pol. J. Chem. (Rocz. Chem.)*, 1979, 53, 1071, (分離, H-NMR, Mass)
Wilkomorski, B. et al., *Phytochemistry*, 1985, 24, 3066; 1986, 25, 2667, (分離, H-NMR, Mass)

§ 20-Taraxastene-3,16,28-triol; (3 β ,16 β)-form

[化学名・別名] Heliantriol B₀. Heterobetulin
[CAS No.] 74715-49-4
[化合物分類] テルペノイド (Taraxastane triterpenoids)
[構造式]
[分子式] C₃₀H₅₀O₃
[分子量] 458.723
[基原] *Helianthus annuus*, *Calendula officinalis*
[性状] 結晶 (EtOH 溶液)
[融点] Mp 248-254 °C
[比旋光度]: $[\alpha]_D +33$ (MeOH)

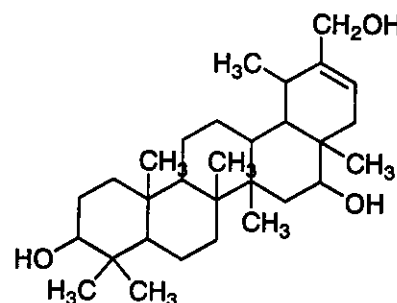


----- 文 献 -----

St Pyrek, J., *Pol. J. Chem. (Rocz. Chem.)*, 1979, 53, 2465, (分離, H-NMR, Mass)

§ 20-Taraxastene-3,16,30-triol; (3 β ,16 β)-form

[化学名・別名] Heliantriol F
[CAS No.] 71876-59-0
[化合物分類] テルペノイド (Taraxastane triterpenoids)
[構造式]
[分子式] C₃₀H₅₀O₃
[分子量] 458.723
[基原] *Helianthus annuus*, *Calendula officinalis*
[性状] 結晶 (EtOH 溶液) (as tri-Ac)
[融点] Mp 190-193 °C (tri-Ac)
[比旋光度]: $[\alpha]_D +53.1$ (MeOH) (tri-Ac)



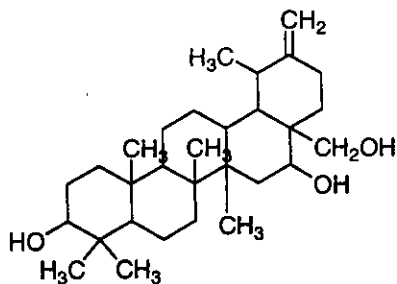
----- 文 献 -----

St Pyrek, J., *Pol. J. Chem. (Rocz. Chem.)*, 1979, 53, 1071, (分離, H-NMR, Mass)
Wilkomorski, B. et al., *Phytochemistry*, 1985, 24, 3066; 1986, 25, 2667, (分離, H-NMR, Mass)

§ 20(30)-Taraxastene-3,16,28-triol; (3 β ,16 β)-form

[化学名・別名] Heliantriol B₁
[CAS No.] 74715-48-3
[化合物分類] テルペノイド (Taraxastane triterpenoids)
[構造式]

[分子式] $C_{30}H_{50}O_3$
 [分子量] 458.723
 [基原] *Helianthus annuus*, *Calendula officinalis*
 [性状] 結晶 (hexane) (as tri-Ac)
 [融点] Mp 182-187 °C (tri-Ac)



-----文献-----

St Pyrek, J., Pol. J. Chem. (Rocz. Chem.), 1979, 53, 2465, (分離, H-NMR)

§ 4,6-Tetracosanedione

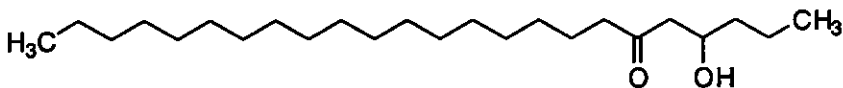
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
 [構造式] $H_3C(CH_2)_{17}COCH_2COCH_2CH_2CH_3$
 [分子式] $C_{24}H_{46}O_2$
 [分子量] 366.626
 [基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 4,6-Tetracosanedione; 4-Alcohol

[化学名・別名] 4-Hydroxy-6-tetracosanone
 [化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
 [構造式]
 [分子式] $C_{24}H_{46}O_2$
 [分子量] 368.642
 [基原] *Helianthus annuus* の花粉



-----文献-----

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

§ 5,7-Tetracosanedione

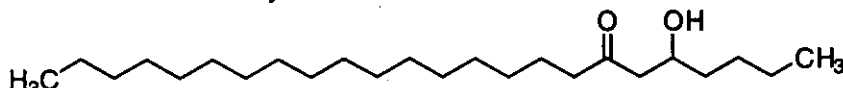
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
 [構造式] $H_3C(CH_2)_{16}COCH_2CO(CH_2)_3CH_3$
 [分子式] $C_{24}H_{46}O_2$
 [分子量] 366.626
 [基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 5,7-Tetracosanedione; 5-Alcohol

[化学名・別名] 5-Hydroxy-7-tetracosanone
 [化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
 [構造式]
 [分子式] $C_{24}H_{46}O_2$
 [分子量] 368.642
 [基原] *Helianthus annuus* の花粉



-----文献-----

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

§ 6,8-Tetracosanedione

[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)
 [構造式] $H_3C(CH_2)_{15}COCH_2CO(CH_2)_4CH_3$
 [分子式] $C_{24}H_{46}O_2$
 [分子量] 366.626
 [基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 7,9-Tetracosanedione

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

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{14}\text{COCH}_2\text{CO}(\text{CH}_2)_8\text{CH}_3$

[分子式] $\text{C}_{24}\text{H}_{46}\text{O}_2$

[分子量] 366.626

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 10,12-Tetracosanedione

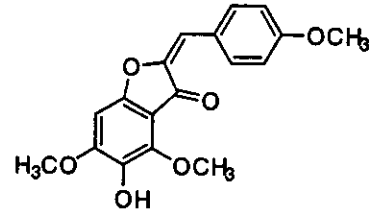
[化合物分類] 脂肪族化合物 (Saturated unbranched aldehydes and ketones)

[構造式] $\text{H}_3\text{C}(\text{CH}_2)_{11}\text{COCH}_2\text{CO}(\text{CH}_2)_8\text{CH}_3$

[分子式] $\text{C}_{24}\text{H}_{46}\text{O}_2$

[分子量] 366.626

[基原] *Helianthus annuus* の花粉



-----文献-----

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

§ 4,4',5,6-Tetrahydroxyaurone; 4,4',6-Tri-Me ether

[化学名・別名] 5-Hydroxy-4,4',6-trimethoxyaurone

[CAS No.] 137648-02-3

[化合物分類] フラボノイド (Aurone flavonoids)

[構造式]

[分子式] $\text{C}_{18}\text{H}_{16}\text{O}_6$

[分子量] 328.321

[基原] 次の植物の花から分離: *Helianthus annuus*

-----文献-----

Alfatafta, A.A. et al., *Phytochemistry*, 1992, 31, 4109

§ 2',3',4,4'-Tetrahydroxychalcone; (E)-form, 3',4'-Di-Me ether

[化学名・別名] 2',4-Dihydroxy-3',4'-dimethoxychalcone. Heliannone A

[CAS No.] 193411-10-8

[その他の CAS No.] 193746-16-6

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

[構造式]

[分子式] $\text{C}_{17}\text{H}_{16}\text{O}_5$

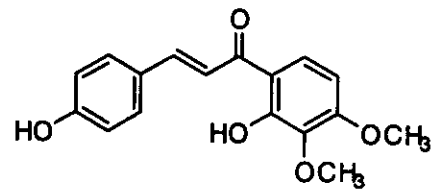
[分子量] 300.31

[基原] *Helianthus annuus*

[性状] 黄色の結晶 (hexane/EtOAc)

[融点] Mp 144-146 °C (synthetic)

UV: [neutral] λ_{max} 303 (sh); 365 (MeOH)



-----文献-----

Macias, F.A. et al., *Phytochemistry*, 1997, 45, 683-687, (Heliannone A)

Rao, Y.K., *J. Nat. Prod.*, 2001, 64, 368-369, (Heliannone A, 合成法)

§ 1,8,10,15-Tetrahydroxy-3-oxo-11(13)-germacren-12,6-olide; (1 α, 4 ξ, 6 α, 8 β, 10R)-form, 1,10-Di-Me ether, 8-angeloyl

[化学名・別名] 8 β -Angeloyloxy-15-hydroxy-1 α

,10R-dimethoxy-3-oxo-11(13)-germacren-12,6 α-olide

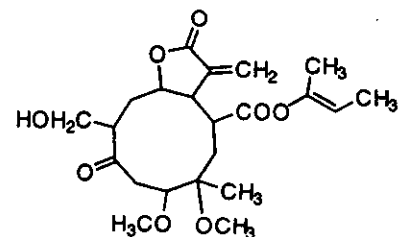
[化合物分類] テルペノイド (12,6-Germacranolide sesquiterpenoids)

[構造式]

[分子式] $\text{C}_{22}\text{H}_{32}\text{O}_8$

[分子量] 424.49

[基原] *Helianthus annuus*



-----文献-----

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

§ 19-Trachylobanoic acid; *ent*-form, Thujyl

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

[構造式]

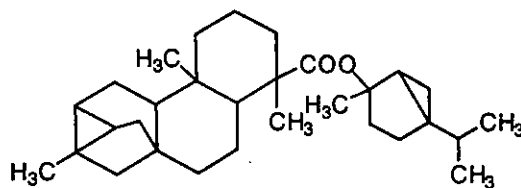
[分子式] $C_{30}H_{46}O_2$

[分子量] 438.692

[基原] 次の植物から分離: *Helianthus annuus*

[性状] 結晶

[融点] Mp 128-131 °C



-----文献-----

St Pyrek, J., *J. Nat. Prod.*, 1984, 47, 822

Faulkner, D.F. et al., *Planta Med.*, 1985, 354

Leong, Y.W. et al., *Phytochemistry*, 1997, 45, 1457-1459, (分離, H-NMR, C13-NMR)

Toyota, M. et al., *J.O.C.*, 2000, 65, 4565-4570, (合成法)

§ 19-Trachylobanoic acid; *ent*-form, 19-Aldehyde

[化学名・別名] *ent*-19-Trachylobanal

[CAS No.] 94061-33-3

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

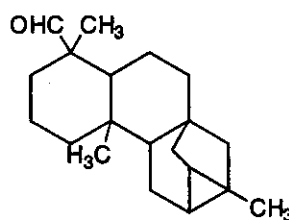
[構造式]

[分子式] $C_{20}H_{30}O$

[分子量] 286.456

[基原] ヒマワリ (*Helianthus annuus*)

[性状] オイル



-----文献-----

St Pyrek, J., *J. Nat. Prod.*, 1984, 47, 822

Faulkner, D.F. et al., *Planta Med.*, 1985, 354

Leong, Y.W. et al., *Phytochemistry*, 1997, 45, 1457-1459, (分離, H-NMR, C13-NMR)

Toyota, M. et al., *J.O.C.*, 2000, 65, 4565-4570, (合成法)

§ 7,9-Triacontanedione

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

[構造式] $H_3C(CH_2)_{20}COCH_2CO(CH_2)_9CH_3$

[分子式] $C_{30}H_{58}O_2$

[分子量] 450.787

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 10,12-Triacontanedione

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

[構造式] $H_3C(CH_2)_{17}COCH_2CO(CH_2)_9CH_3$

[分子式] $C_{30}H_{58}O_2$

[分子量] 450.787

[基原] *Helianthus annuus* の花粉

-----文献-----

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

§ 11,13-Triacontanedione

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

[構造式] $H_3C(CH_2)_{16}COCH_2CO(CH_2)_9CH_3$

[分子式] $C_{30}H_{58}O_2$

[分子量] 450.787

[基原] *Helianthus annuus* の花粉

-----文献-----