

§ **Dammar-25-ene-3,12,20,24-tetrol; (3 $\beta$ ,12 $\beta$ ,20S,24 $\xi$ )-form, 24-Hydroperoxide, 3-O-[ $\beta$ -D-glucopyranosyl-(1 $\rightarrow$ 2)- $\beta$ -D-glucopyranoside] 20-O-[ $\beta$ -D-glucopyranosyl-(1 $\rightarrow$ 6)- $\beta$ -D-glucopyranoside]**

[化学名・別名] Notoginsenoside C

[CAS No.] 193895-49-7

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>54</sub>H<sub>92</sub>O<sub>25</sub>

[分子量] 1141.306

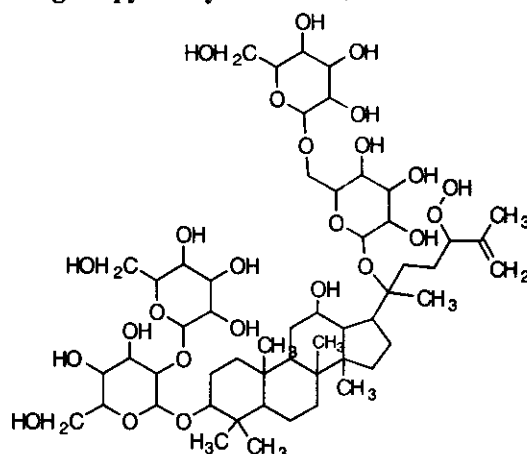
[正確な分子量] 1140.592775

[基原] *Panax notoginseng*

[性状] 結晶 (MeOH 溶液)

[融点] Mp 199-202 °C

[比旋光度]:  $[\alpha]_D^{22} +14.4$  (c, 0.1 in MeOH)



-----文献-----

Yoshikawa, M. et al., Chem. Pharm. Bull., 1997, 45, 1039, (Notoginsenoside)

§ **Dammar-24-ene-3,12,20-triol; (3 $\beta$ ,12 $\beta$ ,20S)-form, 3-O- $\beta$ -D-Glucopyranoside, 20-O-[ $\alpha$ -arabinofuranosyl-(1 $\rightarrow$ 6)- $\beta$ -glucopyranoside]**

[化学名・別名] Notoginsenoside F.

[CAS No.] 88105-29-7

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>47</sub>H<sub>80</sub>O<sub>17</sub>

[分子量] 917.139

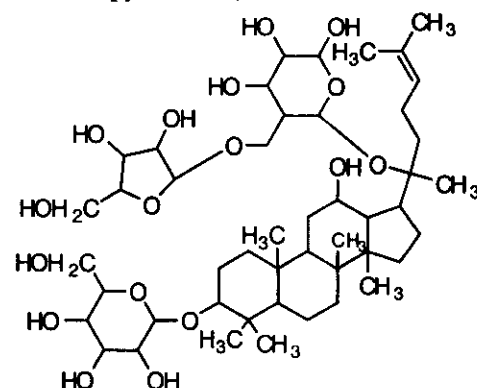
[正確な分子量] 916.539555

[基原] *Panax notoginseng* の葉

[性状] 針状結晶 (MeOH)

[融点] Mp 179-184 °C

[比旋光度]:  $[\alpha]_D^{27} -0.3$  (c, 0.8 in MeOH)



-----文献-----

Matsuura, H. et al., Chem. Pharm. Bull., 1983, 31, 2281, (Notoginsenoside R<sub>4</sub>)

Yang, T.R. et al., Phytochemistry, 1983, 22, 1473, (Notoginsenoside)

Anufriev, V.P. et al., Carbohydr. Res., 1997, 304, 179, (Ginsenoside R<sub>g</sub>)

Lewis, R.J., Sax's Dangerous Properties of Industrial Materials, 8th edn., Van Nostrand Reinhold, 1992, PAF450

§ **Dammar-24-ene-3,12,20-triol; (3 $\beta$ ,12 $\beta$ ,20S)-form, 3-O- $\beta$ -D-Glucopyranoside, 20-O-[ $\alpha$ -L-arabinopyranosyl-(1 $\rightarrow$ 2)- $\beta$ -D-glucopyranoside]**

[CAS No.] 259795-17-0

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>47</sub>H<sub>80</sub>O<sub>17</sub>

[分子量] 917.139

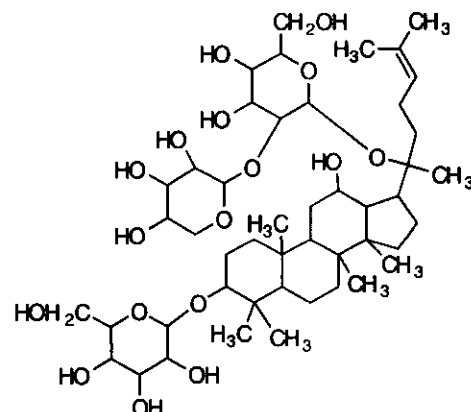
[正確な分子量] 916.539555

[基原] *Panax notoginseng*

[性状] 無定型の粉末

[融点] Mp 189-192 °C

[比旋光度]:  $[\alpha]_D^{21} +34.5$  (c, 0.08 in MeOH)

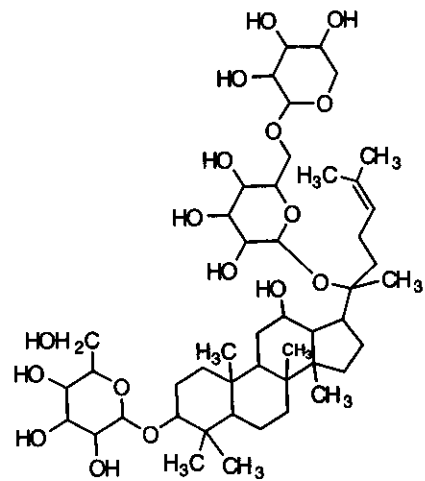


-----文献-----

Nagai, M. et al., Tet. Lett., 1967, 3579, (分離)  
 Sanada, S. et al., Chem. Pharm. Bull., 1974, 22, 421; 2407, (分離, 構造決定)  
 Lin, T.D. et al., Chem. Pharm. Bull., 1976, 24, 253, (分離)  
 Besso, H. et al., Chem. Pharm. Bull., 1982, 30, 2380; 4534, (分離)  
 Takemoto, T. et al., Yakugaku Zasshi, 1983, 103, 173; 1015; 1984, 104, 1043; 1986, 106, 664; 1987, 107, 355, (Gypenoside)  
 Yoshikawa, K. et al., Chem. Pharm. Bull., 1989, 37, 852, (Gypenoside)  
 Martindale, The Extra Pharmacopoeia, 30th edn., Pharmaceutical Press, 1993, 1372  
 Yang, Y.W. et al., Huaxue Xuebao, 1994, 52, 234; CA, 120, 299100a, (Ginsenoside Rb<sub>1</sub>, H-NMR, C13-NMR)  
 Anufriev, V.P. et al., Carbohydr. Res., 1997, 304, 179, (Ginsenoside Rg<sub>3</sub>)  
 Ma, W.G. et al., Phytochemistry, 1999, 52, 1133, (*Panax notoginseng* saponin)

§ **Dammar-24-ene-3,12,20-triol; (3 $\beta$ ,12 $\beta$ ,20S)-form, 3-O- $\beta$ -D-Glucopyranoside, 20-O-[ $\beta$ -D-xylopyranosyl-(1 $\rightarrow$ 6)- $\beta$ -D-glucopyranoside]**

[化学名・別名] Gynosaponin I. Gypenoside IX. Notoginsenoside F<sub>4</sub>  
 [CAS No.] 80321-63-7  
 [化合物分類] テルペノイド (Dammarane triterpenoid)  
 [構造式]



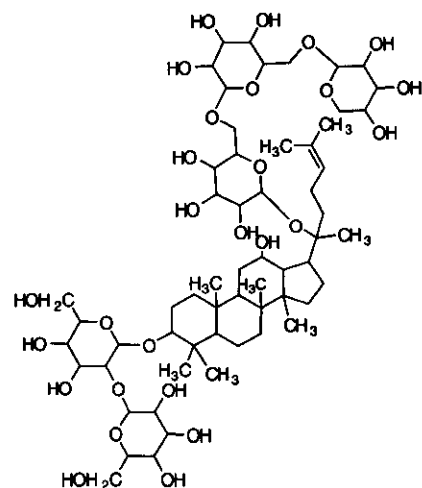
[分子式] C<sub>47</sub>H<sub>80</sub>O<sub>17</sub>  
 [分子量] 917.139  
 [正確な分子量] 916.539555  
 [基原] *Gynostemma pentaphyllum*, *Panax notoginseng*  
 [性状] 結晶・三水和物  
 [融点] Mp 183-185 °C  
 [比旋光度]: [α]<sub>D</sub><sup>27</sup> +1 (c, 3 in MeOH). [α]<sub>D</sub><sup>22</sup> +14.2 (c, 1.5 in H<sub>2</sub>O)

-----文献-----

Tanaka, O. et al., Chem. Pharm. Bull., 1972, 20, 1204; 1985, 33, 2323; 3852, (構造決定, Gynosaponin S)  
 Matsuura, H. et al., Chem. Pharm. Bull., 1983, 31, 2281, (Notoginsenoside R<sub>4</sub>)  
 Yang, T.R. et al., Phytochemistry, 1983, 22, 1473, (Notoginsenoside)  
 Takemoto, T. et al., Yakugaku Zasshi, 1983, 103, 173; 1015; 1984, 104, 1043; 1986, 106, 664; 1987, 107, 355, (Gypenoside)  
 Yoshikawa, K. et al., Chem. Pharm. Bull., 1989, 37, 852, (Gypenoside)

§ **Dammar-24-ene-3,12,20-triol; (3 $\beta$ ,12 $\beta$ ,20S)-form, 3-O-[ $\beta$ -D-Glucopyranosyl-(1 $\rightarrow$ 2)- $\beta$ -D-glucopyranoside] 20-O-[ $\beta$ -D-xylopyranosyl-(1 $\rightarrow$ 6)- $\beta$ -D-glucopyranosyl-(1 $\rightarrow$ 6)- $\beta$ -D-glucopyranoside]**

[化学名・別名] Notoginsenoside R<sub>4</sub>  
 [CAS No.] 87741-77-3  
 [化合物分類] テルペノイド (Dammarane triterpenoid)  
 [構造式]



[分子式] C<sub>59</sub>H<sub>100</sub>O<sub>27</sub>  
 [分子量] 1241.423  
 [正確な分子量] 1240.645205  
 [基原] *Panax notoginseng*  
 [性状] 無定型の粉末  
 [比旋光度]: [α]<sub>D</sub><sup>16</sup> +8.9 (c, 1 in MeOH)

-----文献-----

Matsuura, H. et al., Chem. Pharm. Bull., 1983, 31, 2281, (Notoginsenoside R<sub>4</sub>)

Yang, T.R. et al., Phytochemistry, 1983, 22, 1473, (Notoginsenoside)

§ Dammar-24-ene-3,12,20-triol; (3 β,12 β,20S)-form, 3-O-[β-D-Glucopyranosyl-(1 → 6)-β-D-glucopyranoside] 20-O-β-D-glucopyranoside

[CAS No.] 259795-16-9

[化合物分類]テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>48</sub>H<sub>82</sub>O<sub>18</sub>

[分子量] 947.165

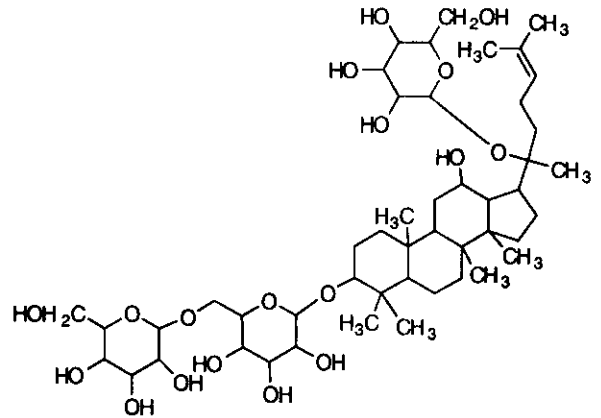
[正確な分子量] 946.55012

[基原] *Panax notoginseng*

[性状] 無定型の粉末

[融点] Mp 190-194 °C

[比旋光度]: [α]<sub>D</sub><sup>21</sup> +13.2 (c, 0.45 in MeOH)



-----文献-----

Matsuura, H. et al., Chem. Pharm. Bull., 1983, 31, 2281, (Notoginsenoside R<sub>4</sub>)

Yang, T.R. et al., Phytochemistry, 1983, 22, 1473, (Notoginsenoside)

§ Dammar-24-ene-3,12,20-triol; (3 β,12 β,20S)-form, 3-O-[β-Xylopyranosyl-(1 → 2)-β-glucopyranosyl-(1 → 2)-β-glucopyranoside] 20-O-[β-xylopyranosyl-(1 → 6)-β-glucopyranoside]

[化学名・別名] Notoginsenoside F

[CAS No.] 88122-52-5

[化合物分類]テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>58</sub>H<sub>98</sub>O<sub>26</sub>

[分子量] 1211.397

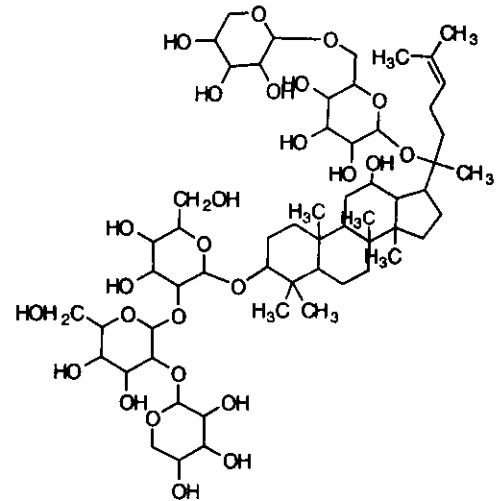
[正確な分子量] 1210.63464

[基原] *Panax notoginseng* の葉

[性状] 針状結晶 (MeOH)

[融点] Mp 219-223 °C

[比旋光度]: [α]<sub>D</sub><sup>18</sup> -1.4 (c, 0.67 in H<sub>2</sub>O)



-----文献-----

Matsuura, H. et al., Chem. Pharm. Bull., 1983, 31, 2281,

(Notoginsenoside R<sub>4</sub>)

Yang, T.R. et al., Phytochemistry, 1983, 22, 1473, (Notoginsenoside)

§ Dammar-24-ene-3,12,20-triol; (3  $\beta$ ,12  $\beta$ ,20S)-form, 3-O- $[\beta$ -D-Xylopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranoside] 20-O- $[\beta$ -D-glucopyranosyl-(1  $\rightarrow$  6)- $\beta$ -D-glucopyranoside]

[化学名・別名] Notoginsenoside F.

[CAS No.] 88100-04-3

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式]  $C_{59}H_{100}O_{27}$

[分子量] 1241.423

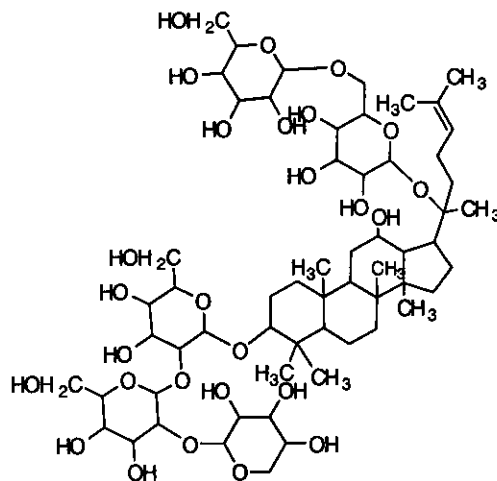
[正確な分子量] 1240.645205

[基原] *Panax notoginseng* の葉

[性状] 針状結晶 (MeOH)

[融点] Mp 235-240  $^{\circ}C$

[比旋光度]:  $[\alpha]_D^{17} -2$  (c, 1.0 in H<sub>2</sub>O)



-----文献-----

Matsuura, H. et al., Chem. Pharm. Bull., 1983, 31, 2281, (Notoginsenoside R<sub>4</sub>)

Yang, T.R. et al., Phytochemistry, 1983, 22, 1473, (Notoginsenoside)

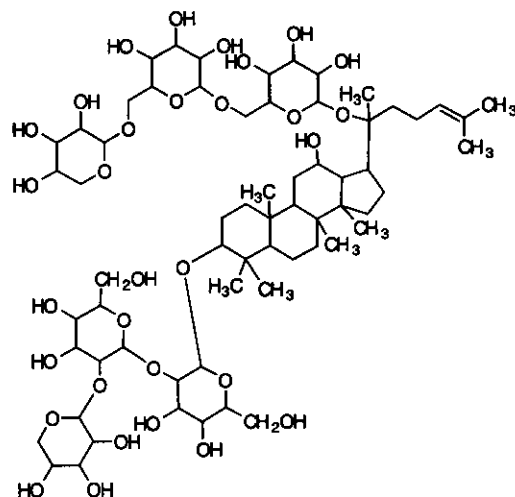
§ Dammar-24-ene-3,12,20-triol; (3  $\beta$ ,12  $\beta$ ,20S)-form, 3-O- $[\beta$ -D-Xylopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-Glucopyranosyl-(1  $\rightarrow$  2)- $\beta$ -D-glucopyranoside] 20-O- $[\beta$ -D-Xylopyranosyl-(1  $\rightarrow$  6)- $\beta$ -D-Glucopyranosyl-(1  $\rightarrow$  6)- $\beta$ -D-glucopyranoside]

[化学名・別名] Notoginsenoside D

[CAS No.] 193895-50-0

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]



[分子式]  $C_{64}H_{106}O_{31}$

[分子量] 1373.539

[正確な分子量] 1372.687465

[基原] *Panax notoginseng*

[性状] 結晶 (MeOH 溶液)

[融点] Mp 207-210  $^{\circ}C$

[比旋光度]:  $[\alpha]_D +6.5$  (c, 0.1 in MeOH)

-----文献-----

Matsuura, H. et al., Chem. Pharm. Bull., 1983, 31, 2281, (Notoginsenoside R<sub>4</sub>)

Yang, T.R. et al., Phytochemistry, 1983, 22, 1473, (Notoginsenoside)

§ § ウコギ科トチバニンジン (*Panax japonicus* C. A. Meyer) の根。

§ Dammar-22-ene-3,6,12,20,24-pentol; (3  $\beta$ ,6  $\alpha$ ,12  $\beta$ ,20S,22E,24  $\xi$ )-form, 6-O- $[\alpha$

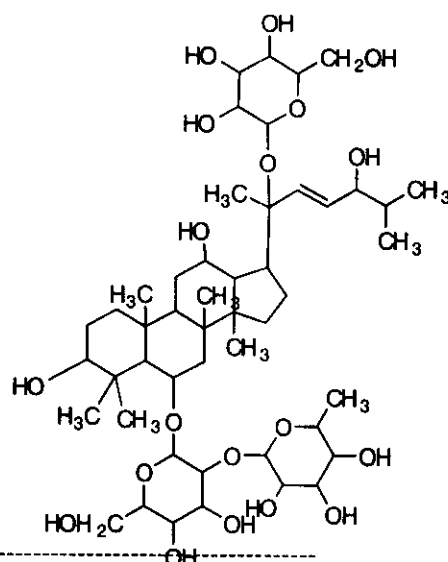
**-L-Rhamnopyranosyl-(1 → 2)-β-D-glucopyranoside] 20-O-β-D-glucopyranoside**

[化学名・別名] Majoroside F<sub>5</sub>

[CAS No.] 125309-99-1

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]



[分子式] C<sub>48</sub>H<sub>82</sub>O<sub>19</sub>

[分子量] 963.164

[正確な分子量] 962.545035

[基原] *Panax japonicus* var. *major*

-----文献-----

Wang, D.Q. et al., *Yaoxue Xuebao*, 1989, 24, 633; *CA*, 112, 95498m, (Majoroside F<sub>5</sub>)

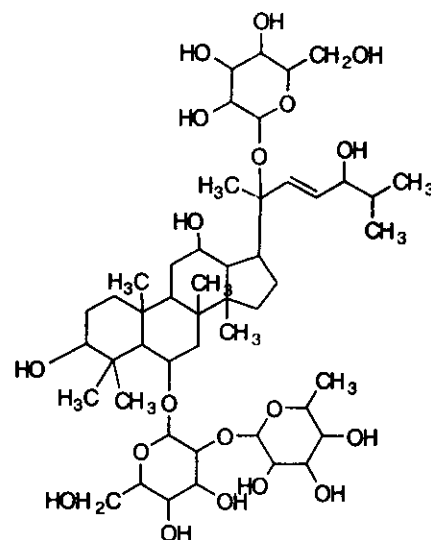
**§ Dammar-23-ene-3,6,12,20,25-pentol; (3β,6α,12β,20S,23E)-form, 6-O-[α-L-Rhamnopyranosyl-(1 → 2)-β-D-glucopyranoside] 20-O-β-D-glucopyranoside**

[化学名・別名] Majoroside F<sub>6</sub>

[CAS No.] 125310-00-1

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]



[分子式] C<sub>48</sub>H<sub>82</sub>O<sub>19</sub>

[分子量] 963.164

[正確な分子量] 962.545035

[基原] *Panax japonicus* var. *major*

-----文献-----

Wang, D.Q. et al., *Yaoxue Xuebao*, 1989, 24, 633; *CA*, 112, 95498m, (Majoroside F<sub>6</sub>)

**§ Dammar-22-ene-3,12,20,24-tetrol; (3β,12β,20S,22E,24ξ)-form, 3-O-[β-D-Glucopyranosyl-(1 →**

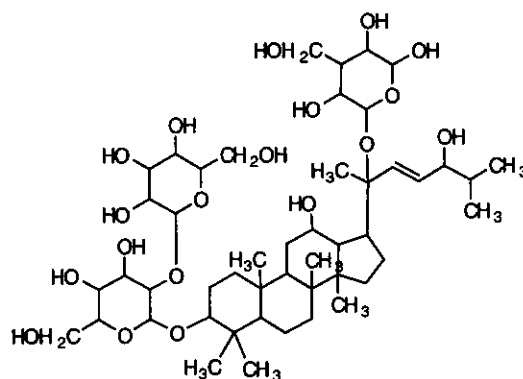
2) - $\beta$ -D-glucopyranoside] 20-O- $\beta$ -D-glucopyranoside

[化学名・別名] Bipinnatifidoside F<sub>2</sub>

[CAS No.] 125310-01-2

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]



[分子式] C<sub>48</sub>H<sub>82</sub>O<sub>19</sub>

[分子量] 963.164

[正確な分子量] 962.545035

[基原] *Panax japonicus* var. *pinnatifidus*

-----文献-----

Wang, D.Q. et al., *Yaoxue Xuebao*, 1989, 24, 593; *CA*, 113, 187990q, (Bipinnatifidoside F<sub>2</sub>)

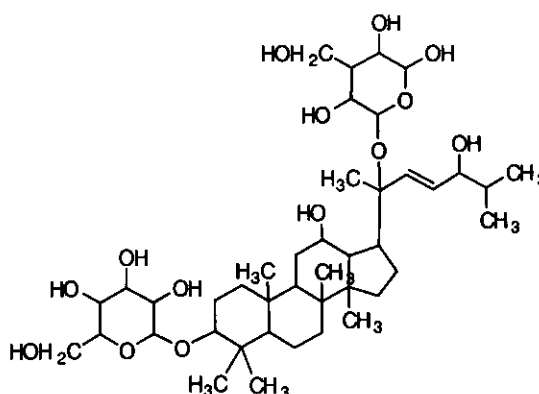
§ Dammar-22-ene-3,12,20,24-tetrol; (3 $\beta$ ,12 $\beta$ ,20S,22E,24 $\xi$ )-form, 3,20-Di-O- $\beta$ -D-glucopyranoside

[化学名・別名] Majoroside F<sub>3</sub>

[CAS No.] 114019-98-6

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]



[分子式] C<sub>42</sub>H<sub>72</sub>O<sub>14</sub>

[分子量] 801.022

[正確な分子量] 800.49221

[基原] *Panax japonicus*

-----文献-----

Feng, B. et al., *CA*, 1988, 108, 183641a, (Majoroside F<sub>3</sub>)

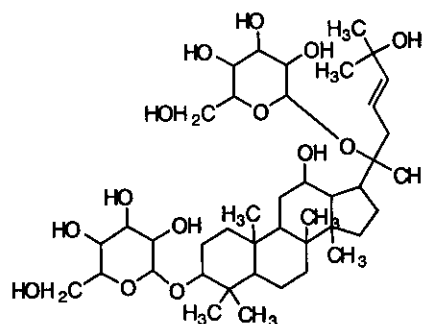
§ Dammar-23-ene-3,12,20,25-tetrol; (3 $\beta$ ,12 $\beta$ ,20S,23 $\xi$ )-form, 3,20-Di-O- $\beta$ -D-glucopyranoside

[化学名・別名] Majoroside F<sub>4</sub>

[CAS No.] 114019-99-7

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]



[分子式] C<sub>42</sub>H<sub>72</sub>O<sub>14</sub>

[分子量] 801.022

[正確な分子量] 800.49221

[基原] *Panax japonicus*

-----文献-----

Feng, B. et al., *CA*, 1988, 108, 183641a, (Majoroside F<sub>4</sub>)

§ Dammar-25-ene-3,12,20,24-tetrol; (3 $\beta$ ,12 $\beta$ ,20S,24R)-form, 3-O-[\mathbf{\beta}-D-Glucopyranosyl-(1 $\rightarrow$ 2)- $\beta$

**-D-glucopyranoside] 20-O-β-D-glucopyranoside**

[化学名・別名] Majoroside F<sub>1</sub>

[CAS No.] 114128-16-4

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>48</sub>H<sub>82</sub>O<sub>19</sub>

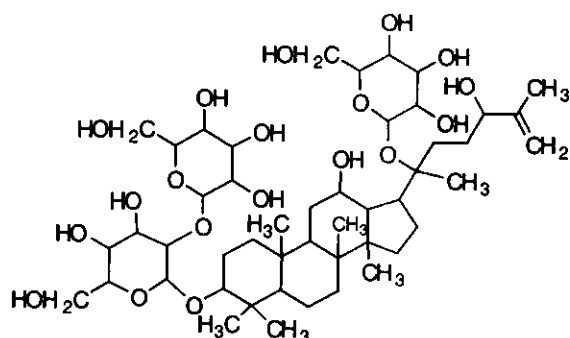
[分子量] 963.164

[正確な分子量] 962.545035

[基原] *Panax japonicus*, *Panax vietnamensis*

[性状] 粉末

[比旋光度]: [α]<sub>D</sub><sup>25</sup> +9.3 (c, 0.9 in MeOH)



-----文献-----

Ikekawa, M. et al., *Phytochemistry*, 1972, 11, 3037

Feng, B. et al., *CA*, 1988, 108, 183641a, (Majoroside)

**§ Dammar-25-ene-3,12,20,24-tetrol; (3β,12β,20S,24S)-form, 3,20-Di-O-β-D-glucopyranoside**

[化学名・別名] Majoroside F<sub>2</sub>

[CAS No.] 114019-97-5

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

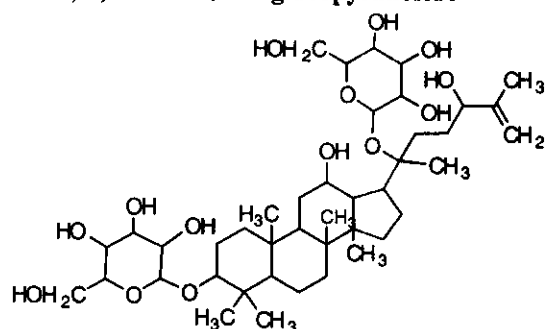
[分子式] C<sub>42</sub>H<sub>72</sub>O<sub>14</sub>

[分子量] 801.022

[正確な分子量] 800.49221

[基原] *Panax japonicus*

[融点] Mp 186-189 °C



-----文献-----

Ikekawa, M. et al., *Phytochemistry*, 1972, 11, 3037

Feng, B. et al., *CA*, 1988, 108, 183641a, (Majoroside)

**§ Dammar-25-ene-3,12,20,24-tetrol; (3β,12β,20S,24ξ)-form, 3-O-[β-D-Glucopyranosyl-(1→2)-β-D-glucopyranoside] 20-O-β-D-glucopyranoside**

[化学名・別名] Bipinnatifidoside F<sub>1</sub>

[CAS No.] 125409-60-1

[化合物分類] テルペノイド (Dammarane triterpenoid)

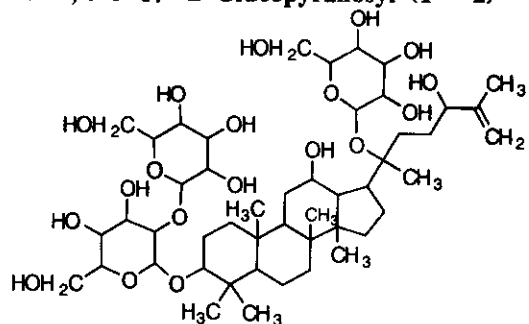
[構造式]

[分子式] C<sub>48</sub>H<sub>82</sub>O<sub>19</sub>

[分子量] 963.164

[正確な分子量] 962.545035

[基原] *Panax japonicus* var. *bipinnatifidus*



-----文献-----

Wang, D.Q. et al., *Yaoxue Xuebao*, 1989, 24, 593, (Bipinnatifidoside F<sub>1</sub>)

**§ 20,24-Epoxydammarane-3,6,12,25-tetrol; (3β,6α,12β,20S,24S)-form, 6-O-[β-D-Xylopyranosyl-**

**(1 → 2)-β-D-glucopyranoside]**

[化学名・別名] Majonoside R2

[CAS No.] 81534-63-6

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>41</sub>H<sub>70</sub>O<sub>14</sub>

[分子量] 786.996

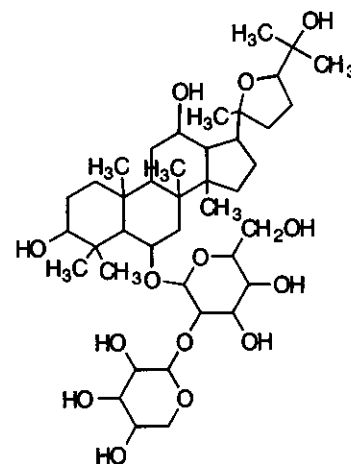
[正確な分子量] 786.47656

[基原] *Panax japonicus*

[性状] 無定型の粉末

[比旋光度]: [α]<sub>D</sub><sup>15</sup> -2.4 (c, 1.13 in MeOH)

-----文献



Morita, T. et al., Chem. Pharm. Bull., 1982, 30, 4341, (Majonoside)

**§ 20,24-Epoxydammarane-3,6,12,25-tetrol; (3β,6α,12β,20S,24S)-form, 6-O-[β-D-Glucopyranosyl-(1 → 2)-β-D-glucopyranoside]**

[化学名・別名] Majonoside R1

[CAS No.] 81534-62-5

[化合物分類] テルペノイド (Dammarane triterpenoid)

[構造式]

[分子式] C<sub>42</sub>H<sub>72</sub>O<sub>15</sub>

[分子量] 817.022

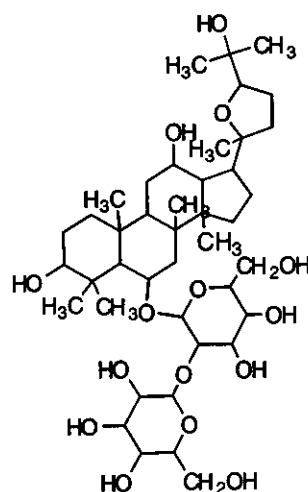
[正確な分子量] 816.487125

[基原] *Panax japonicus*

[性状] 無定型の粉末

[比旋光度]: [α]<sub>D</sub><sup>15</sup> +1 (c, 1.13 in MeOH)

-----文献



Morita, T. et al., Chem. Pharm. Bull., 1982, 30, 4341, (Majonoside)

\*\*\*\*\*シナモン (Cinnamon) \*\*\*\*\*

§ § クスノキ科ニッケイ (*Cinnamomum loureirii* Nee) の樹皮, 根, 茎, 枝葉または花。  
本調査研究では研究報告ない。

\*\*\*\*\*酢 (Vinegar) \*\*\*\*\*



§ § 食酢またはピネガー。

\*\*\*\*\*スイカ (Watermelon) \*\*\*\*\*

§ § ウリ科スイカ (*Citrullus vulgaris* Schrad.) の果実。

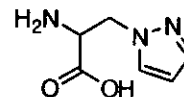
§ 2-Amino-3-(1-pyrazolyl) propanoic acid; (-)-form

[化学名・別名] L-form

[CAS No.] 2734-48-7

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

[構造式]



[基原] *Citrullus vulgaris* の種子に存在するアミノ酸とウリ科のその他の属

[性状] 結晶 (EtOH 溶液)

[融点] Mp 243 °C で分解

[比旋光度]:  $[\alpha]_D^{20}$  -73 (c, 3.4 in H<sub>2</sub>O)

-----文献-----

Noe, F.F. et al., *Biochem. J.*, 1960, 77, 543, (分離, 合成法)

Dunnill, P.M. et al., *Biochem. J.*, 1963, 86, 388, (分離)

Takehita, M. et al., *J. Biol. Chem.*, 1963, 238, 660, (分離, 合成法)

Dunnill, P.M. et al., *Phytochemistry*, 1965, 4, 933, (生育)

Frisch, D.M. et al., *Phytochemistry*, 1967, 6, 921, (生合成)

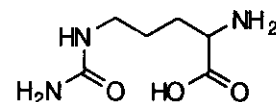
§ Citrulline; (-)-form

[化学名・別名] L-form

[CAS No.] 372-75-8

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

[構造式]



[基原] スイカ *Citrullus vulgaris* と紅藻類 *Grateloupia filicina* に存在する。ウリ科や藻類, カビ類を含むその他の種々の植物に広く分布する

[性状] プリズム結晶 (MeOH 溶液)

[融点] Mp 222 °C

[比旋光度]:  $[\alpha]_D^{25}$  +22 (c, 2 in 1M HCl)

[PKa 値] pK<sub>a2</sub> 9.41 (25 °C, 0.1M NaCl)

-----文献-----

Dunnill, P.M. et al., *Phytochemistry*, 1965, 4, 933, (生育)

Ashida, T. et al., *Acta Cryst. B*, 1972, 28, 1367, (結晶構造)

Karrer, W. et al., *Konstitution und Vorkommen der Organischen Pflanzenstoffe*, 2nd edn., Birkhaumluser Verlag, Basel, 1972, no. 2391, (生育)

Msall, M. et al., *N. Engl. J. Med.*, 1984, 310, 1500, (薬理)

Wakamiya, T. et al., *Tetrahedron*, 1984, 40, 235, (分離, 成書)

Toffoli, P. et al., *Acta Cryst. C*, 1987, 43, 945, (結晶構造)

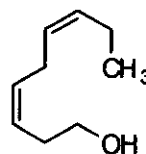
Martindale, *The Extra Pharmacopoeia*, 30th edn., Pharmaceutical Press, 1993, 1038

§ 3,6-Nonadien-1-ol; (3Z,6E)-form

[CAS No.] 53250-56-9

[化合物分類] 脂肪族化合物 (Unbranched alkenic alcohol)

[構造式]



[基原] 次の植物から分離: *Citrullus vulgaris*, *Cucumis melo*

-----文献-----

Kemp, T.R. et al., *J. Agric. Food Chem.*, 1974, 22, 717, (分離)

Kemp, T.R. et al., *Phytochemistry*, 1974, 13, 1167, (分離, 合成法)

Kajiwara, T. et al., *Agric. Biol. Chem.*, 1975, 39, 1617; 1977, 41, 1481, (合成法)

Nation, J.L., *Environ. Entomol.*, 1975, 4, 27

Hatanaka, A. et al., *Phytochemistry*, 1975, 14, 2589, (分離)

Flath, R.A. et al., J. Agric. Food Chem., 1978, 26, 835, (分離)

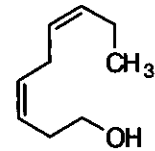
§ 3,6-Nonadien-1-ol; (*all-Z*)-form

[CAS No.] 53046-97-2

[化合物分類] 脂肪族化合物 (Unbranched alkenic alcohol)

[構造式]

[基原] 次の植物から分離: *Citrullus vulgaris*, *Cucumis melo*. Constit. of sex pheromone of Caribbean and Mexican fruit flies (*Anastrepha suspensa*, *Anastrepha luden*)



-----文献-----

Kemp, T.R. et al., J. Agric. Food Chem., 1974, 22, 717, (分離)

Kemp, T.R. et al., Phytochemistry, 1974, 13, 1167, (分離, 合成法)

Hatanaka, A. et al., Phytochemistry, 1975, 14, 2589, (分離)

Flath, R.A. et al., J. Agric. Food Chem., 1978, 26, 835, (分離)

§ *Citrullus vulgaris* Trypsin inhibitor I

[化学名・別名] CVTI I

[化合物分類] アミノ酸とペプチド (Linear polypeptide)

[構造式]

H-Gly-Arg-Arg-Cys-Pro-Arg-Ile-Tyr-Met-Glu-Cys-Lys-Arg-Asp-Ala-Asp-Cys-

Leu-Ala-Asp-Cys-Val-Cys-Leu-Gln-His-Gly-Ile-Cys-Gly-OH

[基原] *Citrullus vulgaris* の種子成分

[用途] Trypsin inhibitor

-----文献-----

Otlewski, J. et al., Hoppe Seyler's Z. Physiol. Chem., 1987, 368, 1505, (分離, 構造決定)

\*\*\*\*\*スイセン (*Narcissus*) \*\*\*\*\*

§ § ヒガンバナ科クチベニズイセン (*Narcissus poeticus* L.) の花。

§ Astragalin; *O*'-Benzoyl

[化学名・別名] Astragalin monobenzoate

[CAS No.] 27436-82-4

[化合物分類] フラボノイド (Flavonoid 構造は一部又は全てが未知), フラボノイド (Flavonol; 4 × O-置換基)

[構造式] 有効な構造式はない

[分子式] C<sub>28</sub>H<sub>24</sub>O<sub>12</sub>

[分子量] 552.49

[正確な分子量] 552.12678

[基原] 次の植物から分離: *Narcissus poeticus*

-----文献-----

Zapesochay, G.G. et al., Khim. Prir. Soedin., 1980, 16, 186; 1984, 20, 582; Chem. Nat. Compd.

The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988

Budzianowski, J., Phytochemistry, 1990, 29, 3643; 1991, 30, 1679, (誘導体)

Jung, K.Y. et al., Phytochemistry, 1993, 34, 1196, (誘導体)

§ Astragalin; *O*'-(4-Hydroxybenzoyl)

[CAS No.] 27321-64-8

フラボノイド (Flavonol; 4 × O-置換基), フラボノイド (Flavonoid 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] C<sub>28</sub>H<sub>24</sub>O<sub>13</sub>

[分子量] 568.49

[正確な分子量] 568.121695

[基原] 次の植物から分離: *Narcissus poeticus*

-----文献-----

The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988  
Jung, K.Y. et al., Phytochemistry, 1993, 34, 1196, (誘導体)

§ Clivonine; (+)-form, *O*-Propanoyl

[化学名・別名] Poetinatine

[CAS No.] 52657-07-5

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

[構造式]

[分子式]  $C_{20}H_{23}NO_6$

[分子量] 373.405

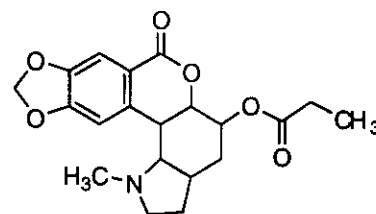
[正確な分子量] 373.152539

[基原] 次の植物から得られるアルカロイド: *Narcissus poeticus* var. *ornatus* (ヒガンバナ科)

[性状] プリズム結晶 (Me<sub>2</sub>CO)

[融点] Mp 212-213 °C

[比旋光度]:  $[\alpha]_D^{20} +50$  (c, 0.15 in CHCl<sub>3</sub>)



-----文献-----

Döpke, W. et al., Z. Chem., 1974, 14, 57, (Poetinatine)

§ Homolycorine

[化学名・別名] Narcipoetine

[CAS No.] 477-20-3

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

[構造式]

[分子式]  $C_{18}H_{21}NO_4$

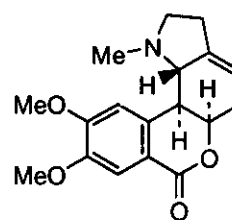
[分子量] 315.368

[正確な分子量] 315.147059

[基原] 次の植物から得られるアルカロイド: *Narcissus poeticus*, その他ヒガンバナ科の多くの属

[融点] Mp 175 °C

[比旋光度]:  $[\alpha]_D^{20} +85$  (95% EtOH)



-----文献-----

Wagner, J. et al., Tetrahedron, 1996, 52, 6591, (cd, Homolycorine, 9-*O*-Demethylhomolycorine)

§ Lycorine; (+)-form, *O*<sup>1</sup>-Ac

[化学名・別名] Poetaminine

[CAS No.] 73543-66-5

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

[構造式]

[分子式]  $C_{18}H_{19}NO_5$

[分子量] 329.352

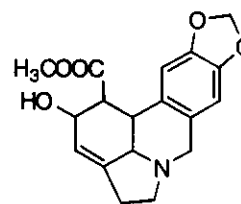
[正確な分子量] 329.126324

[基原] 次の植物の球根から得られるアルカロイド: *Narcissus poeticus* var. *ornatus* (ヒガンバナ科)

[性状] 針状結晶 (MeOH)

[融点] Mp 221-223 °C

[比旋光度]:  $[\alpha]_D^{20} +100$  (c, 0.2 in EtOH)



-----文献-----

Döpke, W. et al., Naturwissenschaften, 1963, 50, 354; 1965, 52, 60; 61, (Poetaminine, Jonquilline)

§ Narcissidine

[CAS No.] 27857-07-4

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

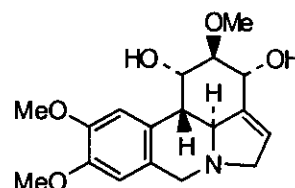
[構造式]

[分子式]  $C_{18}H_{23}NO_5$

[分子量] 333.383

[正確な分子量] 333.157624

[基原] 次の植物から得られるアルカロイド: *Narcissus poeticus*, その他多くのヒガンバナ科の属



Absolute configuration

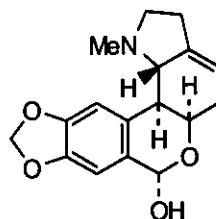
[融点] Mp 218-219 °C で分解  
[比旋光度]:  $[\alpha]_D^{25} -32$  (CHCl<sub>3</sub>)

-----文献-----

Clardy, J.C. et al., J.A.C.S., 1970, 92, 1781, (結晶構造, IR)  
Fuganti, C. et al., Chem. Comm., 1974, 350, (生合成)  
Quirion, J.C. et al., J. Nat. Prod., 1991, 54, 1112, (3-O-Acetylnarcissidine)  
Kihara, M. et al., Chem. Pharm. Bull., 1995, 43, 318, (3-O-Acetylnarcissidine, 3-O-Acetylnarcissidine N-oxide)

### § Oduline

[CAS No.] 477-18-9  
[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)  
[構造式]  
[分子式] C<sub>17</sub>H<sub>19</sub>NO<sub>2</sub>  
[分子量] 301.341



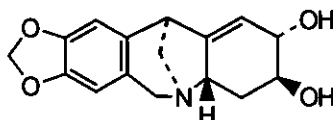
[正確な分子量] 301.131409  
[基原] 次の植物の球根から得られるアルカロイド: *Narcissus jonquilla* の雑種 'Golden sceptre' と *Narcissus odorus* var. *rugulosus* (*Narcissus jonquilla* x *Narcissus poeticus*) (ヒガンバナ科)  
[性状] プリズム結晶 (Me<sub>2</sub>CO)  
[融点] Mp 168 °C  
[比旋光度]:  $[\alpha]_D^{25} +239$  (c, 0.35 in CHCl<sub>3</sub>)

-----文献-----

Boit, H.-G. et al., Chem. Ber., 1957, 90, 725, (分離, IR)  
Boit, H.G. et al., Naturwissenschaften, 1958, 45, 85, (分離, IR, 構造決定, 生育, Masonine)  
Kreh, M. et al., Phytochemistry, 1995, 38, 1533, (O-Methyloduline, N-Demethylmasonine)

### § Pancracine

[CAS No.] 21416-14-8  
[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)  
[構造式]  
[分子式] C<sub>16</sub>H<sub>17</sub>NO<sub>2</sub>  
[分子量] 287.315  
[正確な分子量] 287.115759



Absolute configuration

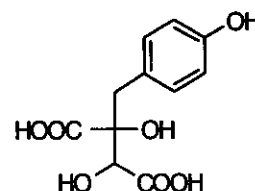
[基原] 次の植物から得られるアルカロイド: *Pancreatum maritimum*, *Narcissus poeticus*, *Hippeastrum bifida*, *Hippeastrum vittatum* (ヒガンバナ科)  
[性状] 細長いプリズム結晶 (MeOH)  
[融点] Mp 272-273 °C  
[比旋光度]:  $[\alpha]_D^{25} -74$  (c, 0.02 in MeOH)

-----文献-----

Ishizaki, M. et al., J.O.C., 1992, 57, 7285, (合成法, Pancracine, Brunsvigine, Manthine)

### § Piscidic acid; (2R,3)-form

[CAS No.] 35388-57-9  
[化合物分類] 炭水化物 (Aldaric acid)  
[構造式]  
[基原] 次の植物から分離: *Piscidia erythrina* の樹皮, *Narcissus poeticus*, *Cimicifuga simplex*, *Agave americana*, *Opuntia ficus-indica*  
[性状] 細長いプリズム結晶 (EtOAc/CHCl<sub>3</sub>)  
[融点] Mp 186-187 °C  
[比旋光度]:  $[\alpha]_D +42.8$  (c, 0.8 in MeOH)  
[UV]: [neutral]  $\lambda_{max}$  255 (log  $\epsilon$  3.88); 277 (log  $\epsilon$  3.17) (MeOH)



-----文献-----

Buckle, A.L.J. et al., J.C.S., 1954, 3981, (合成法)  
Nordal, A. et al., Acta Chem. Scand., 1964, 18, 1979; 1966, 20, 1431, (分離)  
Yoshihara, T. et al., Tet. Lett., 1971, 3809, (stereochem)

Takahira, M. et al., *Phytochemistry*, 1998, 49, 2115, (分離, UV, H-NMR, C13-NMR, Mas)  
Toshima, H. et al., *Biosci., Biotechnol., Biochem.*, 1999, 63, 964; 1934, (合成法)  
Kruse, S.O. et al., *Planta Med.*, 1999, 65, 763, (分離)

#### § Poetamine

[化合物分類] アルカロイド化合物 (Alkaloid 構造は一部又は全てが未知), アルカロイド化合物 (Amaryllidaceae alkaloid)  
[構造式] なし  
[分子式]  $C_{29}H_{32}N_2O_7$   
[分子量] 520.581  
[正確な分子量] 520.220953  
[一般的性質] ヒガンバナ科のアルカロイド. 構造式は未知  
[基原] 次の植物の球根から分離: *Narcissus poeticus* var. *ornatus* (ヒガンバナ科)  
[性状] プリズム結晶 (MeOH)  
[融点] Mp 258-260 °C で分解  
[比旋光度]:  $[\alpha]_D^{24} -160$  (c, 0.2 in EtOH)

-----文献-----

Döpke, W., *Naturwissenschaften*, 1963, 50, 354, (分離, IR)

#### § Poetaricine

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid), アルカロイド化合物 (Alkaloid 構造は一部又は全てが未知)  
[構造式] なし  
[分子式]  $C_{16}H_{17}NO_4$   
[分子量] 287.315  
[正確な分子量] 287.115759  
[一般的性質] ヒガンバナ科のアルカロイド. 構造式は未知  
[基原] 次の植物から分離: *Narcissus poeticus* var. *ornatus* (ヒガンバナ科)  
[性状] プリズム結晶 (MeOH)  
[融点] Mp 273 °C で分解  
[比旋光度]:  $[\alpha]_D^{23} -60$  (c, 0.2 in EtOH)

-----文献-----

Döpke, W., *Naturwissenschaften*, 1963, 50, 595, (分離, IR)

#### § Poeticine

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid), アルカロイド化合物 (Alkaloid 構造は一部又は全てが未知)  
[構造式] なし  
[分子式]  $C_{20}H_{23}NO_6$   
[分子量] 373.405  
[正確な分子量] 373.152539  
[一般的性質] ヒガンバナ科のアルカロイド. 構造式は未知  
[基原] 次の植物の球根から分離: *Narcissus poeticus* (ヒガンバナ科)  
[性状] 針状結晶 (Me<sub>2</sub>CO)  
[融点] Mp 209-210 °C  
[比旋光度]:  $[\alpha]_D^{25} -89$  (c, 0.3 in CHCl<sub>3</sub>)

-----文献-----

Boit, H.-G. et al., *Chem. Ber.*, 1956, 89, 2462, (分離)

#### § Populnin; 3-O-(O-Benzoyl-β-D-glucopyranoside)

[CAS No.] 27436-81-3  
[化合物分類] フラボノイド (Flavonol; 4 × O-置換基), フラボノイド (Flavonoid 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]  $C_{34}H_{34}O_{17}$

[分子量] 714.632

[正確な分子量] 714.179605

[基原] 次の植物から分離: *Narcissus poeticus*

-----文献-----

Schoensiegel, I. et al., Z. Naturforsch., B, 1969, 24, 1213, (3-benzoylglucoside)

### § Populnin; 3-O-(4-Hydroxybenzoyl-β-D-glucopyranoside)

[CAS No.] 27321-63-7

[化合物分類] フラボノイド (Flavonol; 4 × O-置換基)

[構造式] 有効な構造式はない

[分子式] C<sub>21</sub>H<sub>24</sub>O<sub>18</sub>

[分子量] 730.632

[正確な分子量] 730.17452

[基原] 次の植物から分離: *Narcissus poeticus*

-----文献-----

Schoensiegel, I. et al., Z. Naturforsch., B, 1969, 24, 1213, (3-benzoylglucoside)

### § § ヒガンバナ科スイセン (*Narcissus tazetta* L.) の花。

#### § Dihydrolycorine; Di-Ac

[化学名・別名] Nartazine. Diacetyldihydrolycorine

[CAS No.] 475-90-1

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

[構造式]

[分子式] C<sub>20</sub>H<sub>23</sub>NO<sub>8</sub>

[分子量] 373.405

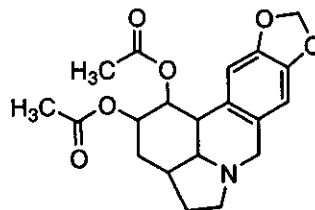
[正確な分子量] 373.152539

[基原] 次の植物の球根から得られるアルカロイド: *Narcissus tazetta*. また *Galanthus nivalis* (ヒガンバナ科) から得られる

[性状] 長針状結晶 (Me<sub>2</sub>CO)

[融点] Mp 185-186 °C

[比旋光度]: [α]<sub>D</sub><sup>25</sup> -120 (c, 0.25 in CHCl<sub>3</sub>)



-----文献-----

Boit, H.-G. et al., Chem. Ber., 1956, 89, 2462, (Nartazine)

Nakagawa, Y. et al., J.C.S., 1959, 3736, (stereochem)

Boit, H.-G. et al., Naturwissenschaften, 1960, 47, 109, (Nartazine)

Sandberg, F. et al., Acta Pharm. Suec., 1968, 5, 61; CA, 69, 25043d, (分離)

#### § β-D-Glucopyranosyl-(1 → 4)-β-D-mannopyranosyl-(1 → 4)-D-mannose (CAS 名) (旧 CAS 名)

[CAS No.] 28072-82-4

[関連 CAS No.] 94799-30-1

[化合物分類] 炭水化物 (Oligosaccharide)

[構造式]

[分子式] C<sub>18</sub>H<sub>32</sub>O<sub>16</sub>

[分子量] 504.441

[正確な分子量] 504.16904

[基原] 次の植物の加水分解で分離: カラマツの木部のグルコ

マンナン (*Larix decidua*), konjac glucomannan (*Amorphophallus konjac*), *Bletilla striata*, スイセン

(*Narcissus tazetta*), *Nyctanthes arbor-tristis* の種子のグルコマンナンから分離

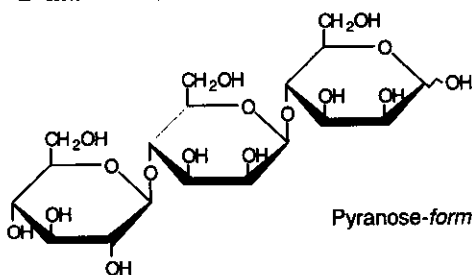
[性状] 結晶 (MeOH)

[融点] Mp 174-176 °C (160-162 °C)

[比旋光度]: [α]<sub>D</sub><sup>25</sup> -16 (c, 0.5 in H<sub>2</sub>O), [α]<sub>D</sub><sup>24</sup> -7.8 (H<sub>2</sub>O)

-----文献-----

Perila, O. et al., Can. J. Chem., 1961, 39, 815



Aspinall, G.O. et al., J.C.S., 1962, 214  
 Kato, K. et al., Carbohydr. Res., 1973, 29, 469, (構造決定)  
 Tomoda, M. et al., Chem. Pharm. Bull., 1976, 24, 1807, (分離)  
 Shimizu, K. et al., Agric. Biol. Chem., 1983, 47, 949, (分離)  
 Takahashi, R. et al., Agric. Biol. Chem., 1984, 48, 2943  
 Kusakabe, I. et al., Agric. Biol. Chem., 1988, 52, 519, (合成法)  
 Singh, R.B. et al., J. Indian Chem. Soc., 1989, 66, 258, (分離, 構造決定)

§ 4-O-β-D-Glucopyranosyl-D-mannose (CAS 名) (旧 CAS 名)

[化学名・別名] Epicellobiose. Glucosidomannose

[CAS No.] 15761-61-2

[関連 CAS No.] 94799-29-8, 102046-24-2

[化合物分類] 炭水化物 (Disaccharide)

[構造式]

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

[分子量] 342.299

[正確な分子量] 342.116215

[基原] 次の植物から得られるグルコマンナンの部分的水分解で分離される: *Amorphophallus* spp., 白トウヒ (*Pinus glauca*), western ドクニンジン (*Tsuga heterophylla*), 赤カエデ (*Acer rubrum*), eastern white pine (*Pinus strobu*), カラマツ (*Larix decidua*), ジンクスマツ (*Pinus banksiana*), *Narcissus tazetta*; from hemicelluloses of lobolly pine (*Pinus taeda*), *Betula papyrifera*, pine (*Pinus caribaea*)

[性状] Cryst.

[融点] Mp 135-138 °C (anhyd.). Mp 179-182 °C

[比旋光度]: [α]<sub>D</sub><sup>20</sup> +11 → +6 (H<sub>2</sub>O). [α]<sub>D</sub> 0 (H<sub>2</sub>O)

-----文献-----

Haskins, W.T. et al., J.A.C.S., 1941, 63, 1724, (合成法)

Smith, F. et al., J.A.C.S., 1956, 78, 1404, (分離)

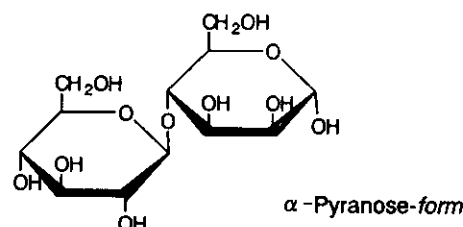
Mian, J. et al., Can. J. Chem., 1960, 38, 1511, (分離)

Tyminski, A. et al., J.A.C.S., 1960, 82, 2823, (分離)

Perila, O. et al., Can. J. Chem., 1961, 39, 815, (分離)

Kato, K. et al., Carbohydr. Res., 1973, 29, 469, (構造決定)

Usui, T. et al., Agric. Biol. Chem., 1979, 43, 863, (C13-NMR)



§ 3-Glucopyranosyloxy-4',5,7-trihydroxy-3'-methoxyflavone; 6''-O-α-L-Rhamnopyranosyl

[化学名・別名] Narcissin; Isorhamnetin 3-rutinoside. Narcissoside

[CAS No.] 604-80-8

[化合物分類] フラボノイド (Flavonol; 5 × O-置換基)

[構造式]

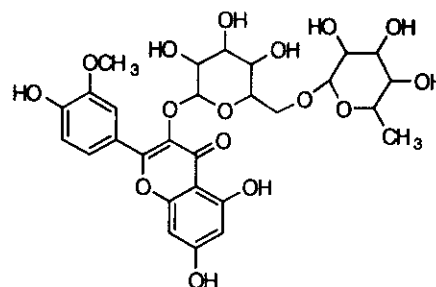
[基原] *Narcissus tazetta* の花, *Lilium aurantum* の花粉, *Herniaria glabra*, *Cereus grandiflorus*, 等の成分.

[性状] 青白い黄色の針状結晶・三水和物

[融点] Mp 180-182 °C

[比旋光度]: [α]<sub>D</sub><sup>20</sup> -67.7 (c, 10.0 in Py)

[溶解性] BERDY SOL: メタノール, EtOAc に可溶; 水に易溶; ヘキサン, クロロホルムに難溶



-----文献-----

Houmlrhammer, L. et al., Chem. Ber., 1966, 99, 1384, (Cacticin, Narcissin)

Karrer, W. et al., Konstitution und Vorkommen der Organischen Pflanzenstoffe, 2nd edn., Birkhauser Verlag, Basel, 1972, no. 1539, (生育)

Burasheva, G.S. et al., Khim. Priir. Soedin., 1975, 11, 254; 1976, 12, 663; 1977, 13, 280; Chem. Nat. Compd. (Engl. Transl.), 1975, 11, 261; 1976, 12, 596; 1977, 13, 242, (誘導体)

The Flavonoids: Advances in Research since 1980, (Ed. Harborne, J.B.), Chapman and Hall, London, 1988

§ Haemultine; ar-Methoxy

[化学名・別名] Fiancine

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

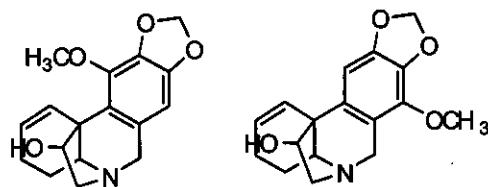
[構造式]

[基原] 次の植物の球根から分離: *Narcissus tazetta*,  
*Hippeastrum aulicum* var. *robustum* (ヒガンバナ科)

[融点] Mp 239-241 °C で分解

[比旋光度]:  $[\alpha]_D^{25} +75$  (c, 0.2 in  $\text{CHCl}_3$ )

[その他のデータ] 構造式は暫定的



-----文献-----

Boit, H.-G. et al., Chem. Ber., 1956, 89, 2462; 1958, 91, 1965, (分離)

Boit, H.-G. et al., Naturwissenschaften, 1958, 45, 262; 1960, 47, 109, (分離)

Fales, H.M. et al., J.O.C., 1961, 26, 1617, (合成法, UV, 構造決定)

### § $\beta$ -D-Mannopyranosyl-(1 → 4)- $\beta$ -D-glucopyranosyl-(1 → 4)-D-glucose (CAS 名)

[CAS No.] 50692-77-8

[化合物分類] 炭水化物 (Oligosaccharide)

[構造式]

[分子式]  $\text{C}_{18}\text{H}_{32}\text{O}_{16}$

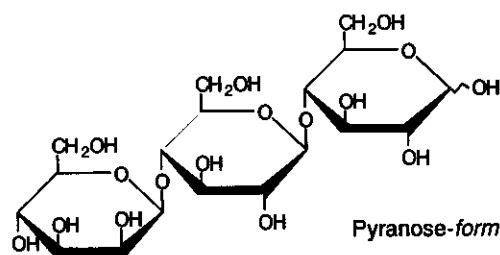
[分子量] 504.441

[正確な分子量] 504.16904

[基原] *Bletilla striata* の塊茎の粘液成分. 次の植物から得られるグルコマンナン酵素的加水分解により分離; ユリ, Jack pine (*Pinus banksiana*), *Narcissus tazetta*, またカラマツ (*Larix decidua*) のグルコマンナンから分離

[性状] 無定型

[比旋光度]:  $[\alpha]_D^{20} +5.7$  (c, 0.5 in  $\text{H}_2\text{O}$ ).  $[\alpha]_D^{17} +17$  (c, 1.0 in  $\text{H}_2\text{O}$ )



-----文献-----

Perila, O. et al., Can. J. Chem., 1961, 39, 815

Aspinall, G.O. et al., J.C.S., 1962, 214

Kato, K. et al., Agric. Biol. Chem., 1976, 40, 2495, (分離)

Tomoda, M. et al., Chem. Pharm. Bull., 1976, 24, 1807, (分離, H-NMR)

### § $\beta$ -D-Mannopyranosyl-(1 → 4)- $\beta$ -D-glucopyranosyl-(1 → 4)-D-mannose (旧 CAS 名)

[CAS No.] 28152-46-7

[化合物分類] 炭水化物 (Oligosaccharide)

[構造式]

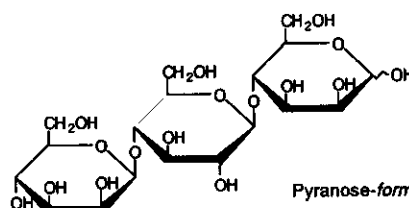
[分子式]  $\text{C}_{18}\text{H}_{32}\text{O}_{16}$

[分子量] 504.441

[正確な分子量] 504.16904

[基原] 次の植物から得られるグルコマンナンの部分的加水分解から分離: *Bletilla striata*, *Narcissus tazetta*, *Arum maculatum*, *Arum orientale*, カラマツ (*Larix decidua*). Isol. from enzymic reaction on *Amorphophallus konjac* glucomannan

[比旋光度]:  $[\alpha]_D^{23} -5.8$  (c, 2.2 in  $\text{H}_2\text{O}$ ).  $[\alpha]_D^{25} -8$  (c, 0.4 in  $\text{H}_2\text{O}$ )



-----文献-----

Tomoda, M. et al., Chem. Pharm. Bull., 1976, 24, 1807, (分離)

Usui, T. et al., Agric. Biol. Chem., 1979, 43, 863, (C13-NMR)

Koleva, M. et al., CA, 1981, 95, 165582r, (分離)

Shimizu, K. et al., Agric. Biol. Chem., 1983, 47, 949, (分離)

Kusakabe, I. et al., Agric. Biol. Chem., 1988, 52, 519, (合成法)

### § $\beta$ -D-Mannopyranosyl-(1 → 4)- $\beta$ -D-mannopyranosyl-(1 → 4)-D-glucose

[CAS No.] 50692-76-7

[化合物分類] 炭水化物 (Oligosaccharide)

[構造式]



[分子式]  $C_{18}H_{32}O_{16}$

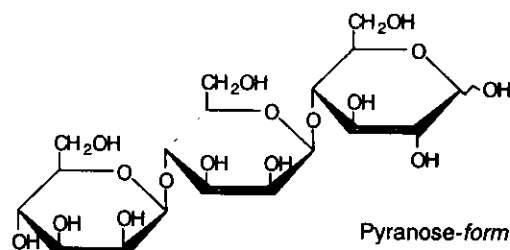
[分子量] 504.441

[正確な分子量] 504.16904

[基原] 次の植物から得られる粘液成分: スイセン (*Narcissus tazetta*) の球根; *Bletilla striata* の塊茎と *Arum maculatum*, ユリのグルコマンナンから得られる

[性状] 無定型

[比旋光度]:  $[\alpha]_D -8$  (c, 1.0 in  $H_2O$ )



-----文献-----

Perila, O. et al., *Can. J. Chem.*, 1961, 39, 815, (分離)

Kato, K. et al., *Carbohydr. Res.*, 1973, 29, 469, (分離)

Kato, K. et al., *Agric. Biol. Chem.*, 1976, 40, 2495

Tomoda, M. et al., *Chem. Pharm. Bull.*, 1976, 24, 1807, (分離, H-NMR)

Holeva, M., *CA*, 1981, 95, 165582r; 1983, 100, 20436h, (分離)

### § 3-O-β-D-Mannopyranosyl-D-mannose (CAS 名) (旧 CAS 名)

[CAS No.] 50692-75-6

[化合物分類] 炭水化物 (Disaccharide)

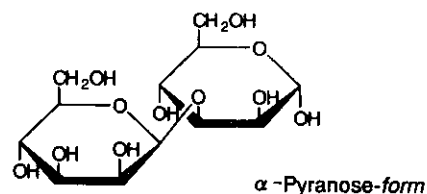
[構造式]

[分子式]  $C_{12}H_{22}O_{11}$

[分子量] 342.299

[正確な分子量] 342.116215

[基原] 次の植物から分離: f *Narcissus tazetta*, *Rhototorula glutinis*



-----文献-----

Kato, K. et al., *Carbohydr. Res.*, 1973, 29, 469, (分離)

Gorin, P.A.J. et al., *Carbohydr. Res.*, 1975, 39, 3, (C13-NMR)

Awad, L.F. et al., *Bull. Chem. Soc. Jpn.*, 1986, 59, 1587, (Me gly, C13-NMR)

### § 4-O-β-D-Mannopyranosyl-D-mannose (CAS 名) (旧 CAS 名)

[化学名・別名] Mannobiose

[CAS No.] 14417-51-7

[化合物分類] 炭水化物 (Disaccharide)

[構造式]

[分子式]  $C_{12}H_{22}O_{11}$

[分子量] 342.299

[正確な分子量] 342.116215

[基原] 次の植物酸による部分加水分解で分離; ivory nut (*Phytelephas macrocarpa*) mannan, guaran (*Cyamopsis* sp.), palmyra palm nut mannan (*Borassus flabellifer*), fenugreek (*Trigonella foenum-graecum*), lucerne (*Medicago sativa*) galactomannans, western hemlock wood cellulose (*Tsuga heterophylla*), white spruce (*Picea glauca*), *Larix decidua*, *Pinus strobu* and red maple (*Acer rubrum*) glucomannan and *Pinus taeda* hemicellulose. また *Narcissus tazetta* の球根中の粘液, 酵母細胞外マンナン: *Rhodotorula glutinis*, *Sesbania aegyptiaca* の種子から得られる

[性状] 結晶 (MeOH)

[融点] Mp 203-204 °C (198-199 °C)

[比旋光度]:  $[\alpha]_D^{20} -8$  (c, 1.6 in  $H_2O$ ) (-2.3, -4)

-----文献-----

Courtois, J.E. et al., *Bull. Soc. Chim. Biol.*, 1958, 40, 2031, (分離)

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

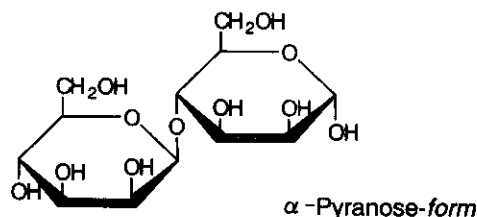
Kato, K. et al., *Agric. Biol. Chem.*, 1969, 33, 1446, (分離, 構造決定)

Gorin, P.A.J. et al., *Carbohydr. Res.*, 1975, 39, 3, (分離, C13-NMR)

Thiem, J. et al., *Chem. Ber.*, 1979, 112, 1035, (α-D-pyr octa-Ac, α-D-Ph pyr, α-D-Ph pyr hepta-Ac, α-D-Ph pyr ditosyl, α/β-D-benzyl pyr hepta A)

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

Sheldrick, B. et al., *Carbohydr. Res.*, 1984, 132, 1, (結晶構造)



## § Mannotriose

[化学名・別名]  $\beta$ -D-Mannopyranosyl-(1 $\rightarrow$ 4)- $\beta$

D-mannopyranosyl-(1 $\rightarrow$ 4)-D-mannose (CAS名) (旧CAS名)

[CAS No.] 28173-52-6

[化合物分類] 炭水化物 (Oligosaccharide)

[構造式]

[分子式]  $C_{18}H_{32}O_{16}$

[分子量] 504.441

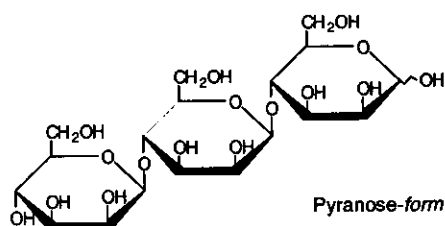
[正確な分子量] 504.16904

[基原] 次の植物の酸や酵素による部分加水分解で分離: マンナン, 例えば; ivory nut (*Phytelephas macrocarpa*), Palmyra palm (*Borassus flabellifer*), ガラクトマンナン, 例えば; lucerne (*Medicago sativa*), *Sesbania aegyptiaca* の種子, グルコマンナン, 例えば; white spruce (*Picea glauca*), *Larix decidua*, jack pine (*Pinus banksiana*), *Bletilla striata* and *Narcissus tazetta*. 次の植物の酵素加水分解で分離: brown copra meal, *Pinus densiflora*. 市販大豆汁 (豆乳) の成分

[性状] 結晶 (EtOH)

[融点] Mp 167 $^{\circ}$ C. Mp 211-213 $^{\circ}$ C (219 $^{\circ}$ C)

[比旋光度]:  $[\alpha]_D^{25}$  -21 (c, 3.0 in H<sub>2</sub>O)



-----文献-----

Aspinall, G.O. et al., J.C.S., 1958, 215; 1962, 214, (分離)

Tomoda, M. et al., Chem. Pharm. Bull., 1976, 24, 1807, (分離)

Usui, T. et al., Agric. Biol. Chem., 1979, 43, 863, (C13-NMR)

Tanaka, R. et al., CA, 1982, 97, 24116w, (生育)

Shimizu, K. et al., Agric. Biol. Chem., 1983, 47, 949, (分離)

Kusakabe, I. et al., Agric. Biol. Chem., 1983, 47, 2391, (分離, 性質)

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

Mackie, W. et al., Int. J. Biol. Macromol., 1986, 8, 43, (結晶構造)

Park, G.G. et al., CA, 1989, 110, 171717h, (生育)

Takano, Y. et al., CA, 1991, 115, 278391c, (生育, C13-NMR, HPLC)

## § Maritidine; (+)-form

[CAS No.] 22331-07-3

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

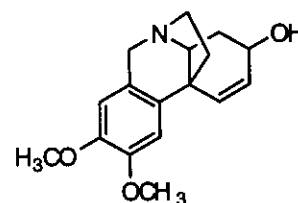
[構造式]

[基原] 次の植物から得られるアルカロイド: *Pancratium maritimum*, *Hippeastrum ananuca*, *Narcissus tazetta* var. *chinensis*, *Narcissus papyraceus*, *Zephyranthes robusta*, *Zephyranthes sulphurea*, *Zephyranthes flava* (ヒガンバナ科)

[性状] プリズム結晶 (EtOH/hexane)

[融点] Mp 253-256 $^{\circ}$ C (263-265 $^{\circ}$ C)

[比旋光度]:  $[\alpha]_D^{25}$  +31 (c, 0.09 in MeOH)



-----文献-----

Tani, S. et al., Chem. Pharm. Bull., 1981, 29, 3381, (O-Methylmaritidine)

Kihara, M. et al., Chem. Pharm. Bull., 1987, 35, 1070, (Normaritidine)

Bastida, J. et al., Planta Med., 1988, 54, 524, (9-O-Demethylmaritidine)

Suau, R. et al., Heterocycles, 1990, 31, 517, (O-Methylmaritidine)

Sener, B. et al., J. Chem. Soc. Pak., 1994, 16, 275, ((-)-Normaritidine)

## § Maritidine; (+)-form, Me ether

[化学名・別名] O-Methylmaritidine

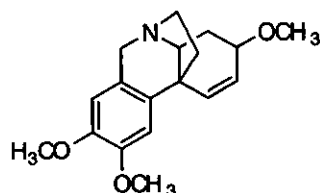
[CAS No.] 80550-22-7

[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)

[構造式]

[分子式]  $C_{18}H_{23}NO_3$

[分子量] 301.385



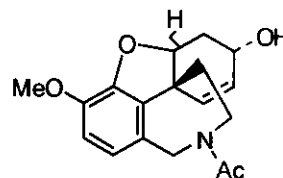
[正確な分子量] 301.167794  
[基原] 次の植物から得られるアルカロイド微量成分: *Narcissus tazetta* の球根, *Narcissus papyraceus* (ヒガンバナ科) の地上部  
[性状] プリズム結晶 (Et<sub>2</sub>O)  
[融点] Mp 88-89 °C  
[比旋光度]:  $[\alpha]_D^{23} +30.9$  (c, 1 in CHCl<sub>3</sub>)

-----文献-----

Tani, S. et al., Chem. Pharm. Bull., 1981, 29, 3381, (*O*-Methylmaritidine)  
Kihara, M. et al., Chem. Pharm. Bull., 1987, 35, 1070, (Normaritidine)  
Bastida, J. et al., Planta Med., 1988, 54, 524, (9-*O*-Demethylmaritidine)  
Suau, R. et al., Heterocycles, 1990, 31, 517, (*O*-Methylmaritidine)  
Sener, B. et al., J. Chem. Soc. Pak., 1994, 16, 275, ((-)-Normaritidine)

§ Narcisine

[CAS No.] 107894-72-4  
[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)  
[構造式]  
[分子式] C<sub>18</sub>H<sub>21</sub>NO<sub>4</sub>  
[分子量] 315.368  
[正確な分子量] 315.147059  
[基原] 次の植物の球根から得られるアルカロイド: *Narcissus tazetta* (ヒガンバナ科)  
[性状] 針状結晶 (MeOH)  
[融点] Mp 158-160 °C  
[比旋光度]:  $[\alpha]_D^{20} -18$  (c, 0.5 in CHCl<sub>3</sub>)



-----文献-----

Abdallah, O.M., Phytochemistry, 1993, 34, 1447, (分離, UV, IR, H-NMR, C13-NMR, 構造決定)

§ Papyramine; 3-Epimer

[化学名・別名] 3-Epipapyramine. 6-Hydroxy-3-*O*-methylepipimaritidine  
[化合物分類] アルカロイド化合物 (Amaryllidaceae alkaloid)  
[構造式]  
[分子式] C<sub>18</sub>H<sub>23</sub>NO<sub>4</sub>  
[分子量] 317.384  
[正確な分子量] 317.162709  
[基原] 次の植物の球根から得られるアルカロイド: *Narcissus tazetta* var. *chinensis* (ヒガンバナ科)  
[性状] 淡黄色の結晶  
[比旋光度]:  $[\alpha]_D^{20} -10.2$  (c, 0.45 in CHCl<sub>3</sub>)

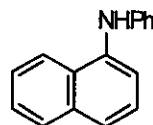


-----文献-----

Song, G., Fenxi Huaxue, 1981, 9, 520; CA, 96, 162994m, (H-NMR, 構造)  
Hung, S. et al., Huaxue Xuebao, 1981, 39, 529; CA, 96, 139653r, (分離, 構造決定)  
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Suau, R. et al., Heterocycles, 1990, 31, 517, (*O*-Methylpapyramine)

§ *N*-Phenyl-1-naphthylamine

[化学名・別名] 1-Anilinonaphthalene. Antioxidant PAN  
[CAS No.] 90-30-2  
[化合物分類] 多環芳香族 (Naphthalene)  
[構造式]  
[分子式] C<sub>16</sub>H<sub>13</sub>N  
[分子量] 219.285  
[正確な分子量] 219.104799  
[基原] *Eichhornia crassipes* と *Narcissus tazetta* の成分  
[用途] Rubber vulcanisation accelerator. 抗酸化剤.  
[性状] プリズム結晶もしくは針状結晶 (EtOH), 葉状結晶 (petrol)  
[融点] Mp 62 °C



[沸点] Bp<sub>528</sub> 335 °C. Bp<sub>8</sub> 226 °C

[傷害・毒性] 発ガン物質. 50 % 致死量 (LD<sub>50</sub>) (ラット, 経口) 1625 mg/kg

[化学物質毒性データ総覧 (RTEC) 登録番号] QM4500000

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Sadtler Standard C-13 NMR Spectra, 4628, (C13-NMR)

Streiff, J., Annalen, 1881, 209, 151, (合成法, N-Ac, N-benzoyl)

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

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\*\*\*RTECS (化学物質毒性データ) \*\*\*

生体影響物質 : 催腫瘍物質. 変異原物質.

\*\*\*健康障害に関するデータ\*\*\*

\*\*\*急性毒性に関するデータ\*\*\*

<<試験方法>> LD50 試験 (50%致死量試験).

曝露経路 : 経口投与.

被験動物 : げっ歯類-ラット.

投与量・期間 : 1625 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.

参考文献

AMRL\*\* Aerospace Medical Research Laboratory Report. (Aerospace Technical Div., Air Force Systems Command, Wright-Patterson Air Force Base, OH 45433) [Vol.,頁,年(19-)] TR-74-78,1974

<<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 : 1231 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.

参考文献

AMRL\*\* Aerospace Medical Research Laboratory Report. (Aerospace Technical Div., Air Force Systems Command, Wright-Patterson Air Force Base, OH 45433) [Vol.,頁,年(19-)] TR-74-78,1974

<<試験方法>> 認知されている最小致死量 (LDLo) 試験.

曝露経路 : 皮膚への塗布

被験動物 : げっ歯類-ウサギ.

投与量・期間 : 8 gm/kg

毒性影響 : [肝臓] その他の変化.  
[腎臓・尿路・膀胱] その他の変化.  
[皮膚と付属器官] その他の皮膚炎. (全身ばく露後)

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\*\*\*催腫瘍性に関するデータ\*\*\*

<<試験方法>> 最小毒性量 (TDLo) 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 : 5400 mg/kg/9 週間間欠投与

毒性影響 : [催腫瘍性] RTECS 基準による発がん性.  
[肺, 胸郭, または呼吸] 腫瘍  
[腎臓・尿路・膀胱] 腎臓腫瘍.

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<<試験方法>> 毒性量 (TD) (最低以外の)

曝露経路 : 経口投与.