Chemistry of Natural Compounds, Vol. 32, No. 3, 1996

ALKALOIDS. PLANTS, STRUCTURES, PROPERTIES[1]

CHAPTER 2, continued

UDC 547.944/945

R. Shakirov, M. V. Telezhenetskaya, I. A. Bessonova, S. F. Aripova, I. A. Israilov, M. N. Sultankhodzhaev, V. I. Vinogradova, V. I. Akhmedzhanova, T. S. Tulyaganov, B. T. Salimov, and V. A. Tel'nov

[1] For the beginning of the review, see Chemistry of Natural Compounds, No. 1, 102; No. 2, 216 (1996).

Institute of the Chemistry of Plant Substances, Academy of Sciences of the Republic of Uzbekistan, Tashkent, fax (3712) 89 14 75. Translated from Khimiya Prirodnykh Soedinenii, No. 3, pp. 410-512, May-June, 1996.

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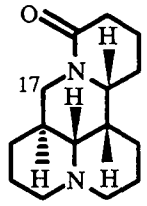
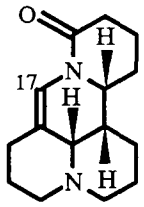


DARVASAMINE

Leontice alberti, L. darwasica
$C_{15}H_{24}N_2O$: 248.1889
Mp: 102° (eth.)
$[\alpha]_D$+72° (alc.)

{h-chl. 355°, p-chl. 265° (dec.), m-i. 305° (dec.), h-i. 297°} [1]
Sol-y.: r-sol. chlf., alc., meth., ac., water; sp. sol. eth., petr. eth.
Stereochemistry of sporine: [2]
IR: 3000-2800, 1645, 1460, 1420, 1350, 1310 [1]
Mass: 248(M^+, 58), 247(100), 219, 205, 191, 177, 162, 150, 138, 136, 98, 83, 55 [1]
PMR: 4.45(1H, q, J=13.5; 3, H-17e) [1]
ORD: [3]

1. Zunnunzhanov A., Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 851.
2. Sadykov A.S., Izv. AN SSSR, 1983, 2432.
3. Zunnunzhanov A., Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 373.

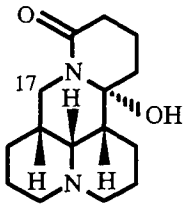


DARVASINE

Leontice alberti, L.darwasica
$C_{15}H_{22}N_2O$: 246.1732
Mp: 145° (eth.) [1]
$[\alpha]_D$–183° (alc.) [1]

{p-chl. 250°, m-i. 262°, picr. 231°} [1]
Sol-y.: r-sol. ac., bz., chlf., alc., meth., petr. eth., water; sp. sol. eth. [2]
UV: 244(4.30) [1]
IR: 1670, 1645 [1]
Mass: 246(M^+, 56), 245(100), 231, 217, 204, 149, 148, 135, 108, 98, 96, 82 [2]
PMR: 6.81(1H, s, H-17) [1]
ORD: [3]

1. Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 132.
2. Zunnunzhanov A., Author's Abstract of Candidate's Dissertation, Tashkent, 1974.
3. Zunnunzhanov A., Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 373.

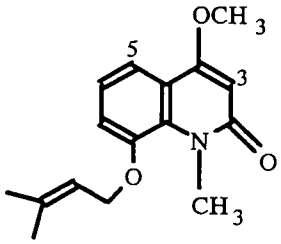


DARVASOLINE

Leontice darwasica
$C_{15}H_{24}N_2O_2$: 264.1838
Mp: 116° (eth.)
$[\alpha]_D$–28°

{p-chl. 237°, m-i. 249°}
Sol-y.: r-sol. chlf., alc., meth., ac. water; sp. sol. eth.
IR: 3440, 2800-2700, 1640
Mass: 264(M^+, 60), 246, 203, 176, 150(70), 136(100), 96, 83

1. Zunnunzhanov A., Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 115.

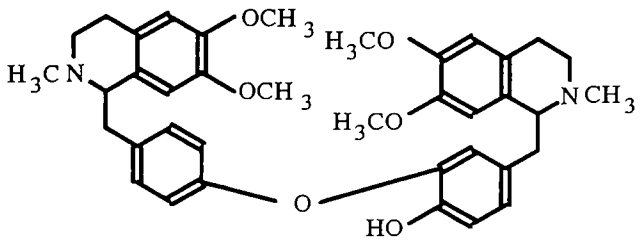


DAURINE

Haplophyllum dauricum
$C_{16}H_{19}NO_3$: 273.1365
Mp: 117-118° (hx.)
Sol-y.: sol. alc., chlf., meth.

UV: 215, 235, 254, 268 sh, 276 sh, 286 sh, 328(4.44, 4.40, 3.85, 3.80, 3.68, 3.35) [1]
IR: 1655, 1600, 1580, 1490, 1470, 1395, 1322, 1265, 1240, 1160, 1110, 1080, 1048, 990 [2]
Mass: 273(M^+, 33), 205(100), 190, 174, 162, 69(18) [1, 2]
PMR: 1.73, 1.80(3H, s, 2×CH_3), 3.91, 3.93(3H, s, NCH_3, OCH_3), 4.57, 5.52(2H, d, 1H, t, J=6.8, =CH–CH_2–O), 6.05(1H, s, H-3), 7.09(1H, dd, J=7.8; 2.4, H-7), 7.13(1H, t, J=7.8; 7.2, H-6), 7.60(1H, dd, J=7.2; 2.4, H-5) [1]

1. Bessonova I.A., Batsurén D., Abdullaev N.D., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 116.
2. Bessonova I.A., Unpub.

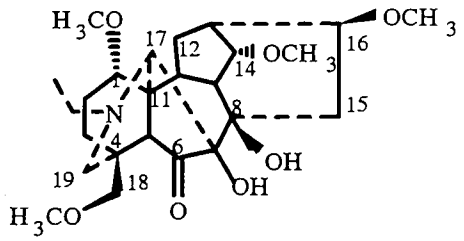


DAURICINE

Menispermum dauricum
$C_{38}H_{44}N_2O_6$: 624.3199
Mp: 115°
$[\alpha]_D$–139° (alc.) [1]

UV: 283(4.00) [2]
Mass: 624(M^+), 329, 314, 297, 206(100), 203, 192, 190 [3]
PMR: 2.44, 2.48(2×NCH_3), 3.78, 3.80, 3.82(4×OCH_3) [2]
Abs. conf.: 1R, 1'R [2]
Pharm.: Hypotensive [4], antiinflammatory and anesthetic action [5].

1. Il'inskaya T.N., DAN SSSR, 1956, **108**, 1081.
2. Guha K.P., Mukherjee B., Mukherjee R., J. Natur. Prod., 1979, **42**, 1.
3. Baldas J., Bick I.R.C., Ibuka T., Kapil R.S., Porter Q.N., J. Chem. Soc. Perkin I, 1972, 592.
4. Nikol'skaya B.S., Farmakol. Toksikol., 1958, No. 2, 28.
5. Berezhinskaya V.V., Nikitina S.S., Trutneva E.A., Trudy VILR, 1971, **14**, 43.



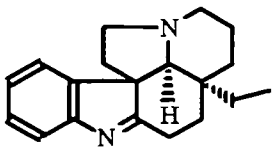
6-DEHYDROACOSANINE

Aconitum sajanense
$C_{25}H_{39}NO_7$: 465.2726
Mp: 140-141° (meth.-hx.)
Sol-y.: sol. chlf., ac., meth.

IR: 3548, 3480, 1743
Mass: 465(M^+, 7.4), 450(3), 448(1), 447(1), 435(29), 434(100), 422(2), 416(22), 407(3), 406(8.5)
PMR: 1.00(3H, t, J=7.5, NCH_2CH_3), 3.23, 3.27, 3.27, 3.27(3H, s, 4×OCH_3), 3.57(1H, t, J=4.5, H-14β)
^{13}C NMR:

C-1	83.4	C-10	37.7	C-19	52.7
2	26.2	11	43.5	NCH_3	50.7
3	32.6	12	28.3	CH_3	15.3
4	39.0	13	45.8	C-1′	56.3
5	56.1	14	84.0	14′	57.7
6	219.6	15	34.3	16′	57.6
7	84.8	16	81.9	18′	59.2
8	75.5	17	63.0		
9	45.8	18	76.8		

1. Vaisov Z.M., Bessonova I.A., Khim. Prir. Soedin., 1992, 531.

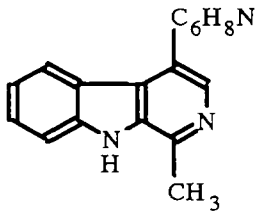


(–)-1,2-DEHYDROASPIDOSPERMIDINE

Vinca erecta
$C_{19}H_{24}N_2$: 280.1939
Mp: amorph. [1, 2]

$[\alpha]_D$–236° (meth.) [1], –212° (alc.) [2]
UV: 216, 223, 267(4.21, 4.23, 3.70) [1]; 222, 228, 253(4.39, 4.26, 3.78) [3]
Mass: 280(M^+), 251, 210 [1, 4]
PMR: 0.45(3H, m, CH_3), 7.15-7.65(H-Ar) [1]

1. Rakhimov D.A., Sharipov M.R., Aripov Kh.N., Malikov V.M., Shakirov T.T., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 713.
2. Bycroft B.W., Schumann D., Patel M.B., Schmid H., Helv. Chim. Acta, 1964, **47**, 1147.
3. Biemann K., Spiteller-Friedman M., Spiteller G., J. Am. Chem. Soc., 1963, **85**, 631.
4. Biemann K., Spiteller G., J. Am. Chem. Soc., 1962, **84**, 4578.

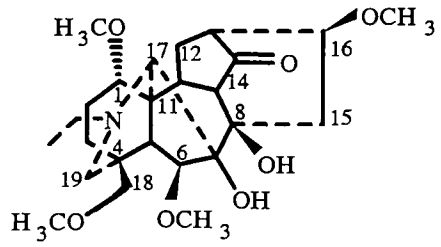


DEHYDROBREVICOLLINE

Carex brevicollis
$C_{17}H_{17}N_3$: 263.1422
Mp: 237-238° (meth.)
{di h-chl. 280° (water-alc.), m-i. 252° (water-alc.)}

Sol-y.: sp. sol. alc., ac., bz.
UV: 245, 288, 305, 338, 352
IR: 810
Mass: 263(M^+), 82(100)

1. Terent'eva I.V., Shirshova T.I., Sholl' A.F., Kovalenko V.I., in: Brevicolline – an Alkaloid of the Sedge *Carex brevicollis*, [in Russian], Kishinev (1969), pp. 36, 88.



14-DEHYDROBROWNIINE

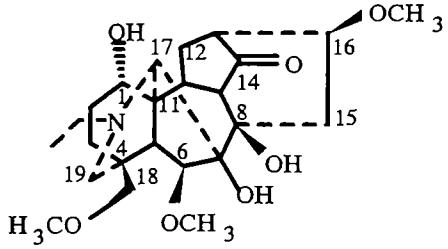
Delphinium biternatum
$C_{25}H_{39}NO_7$: 465.2726
Mp: 176-178° (meth.)
$[\alpha]_D$+32° (chlf.)

Sol-y.: sol. chlf.
IR: 3513, 3455, 1755, 1100 [1]
PMR: 1.00(3H, t, J=7, NCH_2CH_3), 3.23, 3.26, 3.32(6H, 3H, 3H, s, 4×OCH_3) [1]
^{13}C NMR : [2]

C-1	85.5	C-10	43.9	C-19	52.7
2	25.5	11	49.0	NCH2	51.4
3	32.5	12	25.3	CH3	14.3
4	38.5	13	49.5	C-1′	56.1
5	46.1	14	216.3	6′	57.6
6	89.8	15	33.1	16′	56.3
7	88.9	16	85.5	18′	59.2
8	85.5	17	65.9		
9	53.8	18	77.9		

Pharm.: LD_{50} 68 mg/kg (i/v, mice). Possesses spasmolytic and weak antiarrhythmic action [3].

1. Salimov B.T., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 106.
2. Pelletier S.W., Mody N.V., Sawhney R.S., Can. J. Chem., 1979, **57**, 1652.
3. Dzhakhangirov F.N., Unpub.



14-DEHYDRODELCOSINE (SHIMOBURO BASE II, 14-DEHYDROILIENSINE)

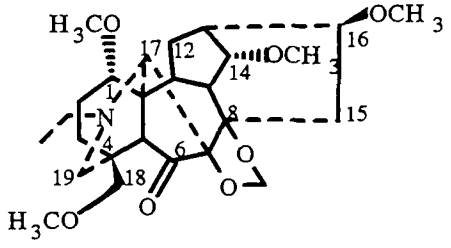
Delphinium biternatum
$C_{24}H_{37}NO_7$: 451.257
Mp: 208-210° (meth.) [1]
$[\alpha]_D$+26° (chlf.) [1]

Sol-y.: sol. chlf., ac. [1]
IR: 3455, 3275, 1750, 1460, 1440, 1400, 1390, 1340, 1300, 1290, 1245, 1217, 1174, 1130, 1100, 1080, 1054, 1025, 990, 975, 960, 947, 887, 874, 818, 790, 770, 750, 713
Mass: 451(M^+, 9), 436(100), 434(29), 420(84), 418(29), 395(4), 364(3)
PMR: 1.08(3H, t, J=7, NCH_2CH_3), 3.28(9H, s, 3×OCH_3) [1]
^{13}C NMR: [2]

C-1	72.1	C-9	53.1	C-17	66.4
2	27.3	10	40.9	18	77.0
3	29.6	11	49.7	19	57.3
4	37.5	12	27.5	NCH_2	50.5
5	45.3	13	46.8	CH_3	13.6
6	89.7	14	214.8	6′	56.6
7	87.3	15	34.8	16′	56.0
8	82.9	16	86.3	18′	59.0

Pharm.: LD_{50} 94.2 mg/kg (i/v, mice). In high doses exhibits a curaremimetic action [3].

1. Salimov B.T., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 106; Unpub.
2. Sakai S., Takayama H., Okamoto T., J. Pharm. Soc. Jpn., 1979, **99**, 647.
3. Dzhakhangirov F.N., Unpub.



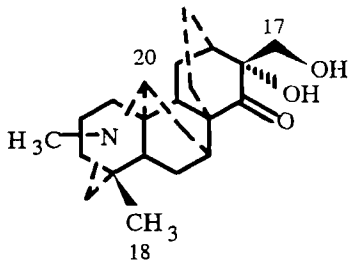
6-DEHYDRODELCORINE

Delphinium corymbosum, D.iliense
$C_{26}H_{39}NO_7$: 477.2726
Mp: 142-144° (eth.)
$[\alpha]_D$–64° (meth.)

IR: 1740, 1100 [1, 2]
Mass: 477(M^+, 6), 462(4), 446(100), 432(6), 416(12.5) [1, 2]
PMR: 1.00(3H, t, J=7, NCH_2CH_3), 3.22, 3.25, 3.28, 3.32(3H, s, 4×OCH_3), 3.60(1H, t, J=5, H-14β), 5.00, 5.43(1H, d, J=2, CH_2O_2) [2]
^{13}C NMR: [3]

C-1	82.7	C-10	38.6	C-19	53.4
2	26.5	11	46.1	NCH_2	50.2
3	32.2	12	27.7	CH_3	13.7
4	41.8	13	38.7	CH_2O_2	95.3
5	56.5	14	82.4	C-1′	55.9
6	216.7	15	32.9	14′	58.1
7	90.4	16	82.3	16′	56.5
8	81.5	17	63.0	18′	59.2
9	47.8	18	76.8		

1. Zhamierashvili M.G., Tel'nov V.A., Unpub.
2. Zhamierashvili M.G., Tel'nov V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 836.
3. Pelletier S.W., Mody N.V., Jr., Dailey O.D., Can. J. Chem., 1980, **58**, 1875.

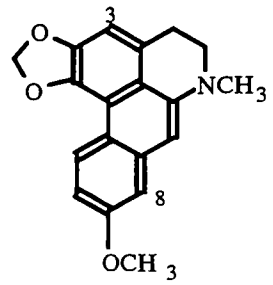


DEHYDRODICTYSINE

Delphinium dictyocarpum
$C_{21}H_{31}NO_3$: 345.2304
Mp{acetonide}: 145° (ac.)
$[\alpha]_D$ {acetonide}: –58° (chlf.)
IR{acetonide}: 1735, 1090

Mass: 345(M^+), 328, 317, 316, 314, 300(100), 286, 274, 258, 256, 172
PMR{acetonide}: 0.64(3H, s, 18-CH_3), 1.40, 1.48(3H, s, 3×CH_3), 2.18(3H, s, NCH_3), 3.14(1H, s, H-20), 3.75, 3.91(1H, d, J=10, H-17)

1. Salimov B.T., Tashkhodzhaev B., Yunusov M.S., Khim. Prir. Soedin., 1982, 86.

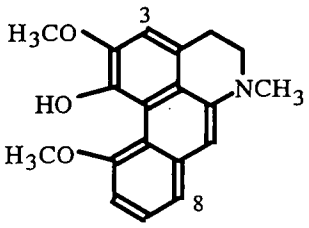


DEHYDROISOLAURELINE

Liriodendron tulipiferum
$C_{19}H_{17}NO_3$: 307.1208
Mp: 143-145° (bz.)
Sol-y.: r-sol. org. solvent
UV: 264, 334(4.75, 4.08)

PMR(CCl_4): 2.96(3H, s, NCH_3), 3.81(3H, s, OCH_3), 6.08(2H, s, CH_2O_2), 6.29, 6.70(1H, H-7, H-3), 6.77, 8.59(1H, d, J=8, H-10, H-11), 6.83(1H, s, H-8)

1. Ziyaev R., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 715.

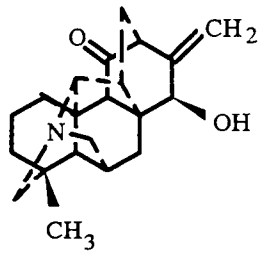


DEHYDROISOTHEBAINE

Papaver orientale, P.pseudo-orientale
$C_{19}H_{19}NO_3$: 309.1365
Mp: amorph.
UV: 267, 340, 391, 438 [1]

Mass: 309(M^+, 100), 294, 292, 154.5($^{++}$) [2]
PMR: 3.00(3H, s, NCH_3), 3.22(4H, narrow s, 2×CH_2), 3.92(6H, s, 2×OCH_3), 6.40, 6.97(1H, s, H-Ar), 6.75-7.25(3H, m, H-Ar) [1]

1. Israilov I.A., Manushakyan M.A., Mnatsakanyan V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 258.
2. Manushakyan M.A., Author's Abstract of Candidate's Dissertation, Tashkent, 1987.

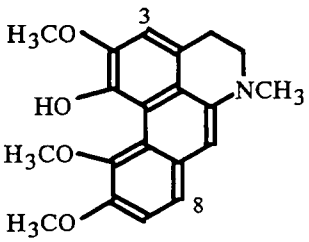


11-DEHYDROCOBUSINE

Aconitum talassicum
$C_{20}H_{25}NO_2$: 311.1885
Mp: 239-241° (ac.)
Sol-y.: sol. chlf., meth.

UV: 304(2.27) [1]
IR: 3080, 1725 [1, 2]
Mass: 311(M^+, 87), 283(100), 266(38) [1, 2]
PMR: 0.93(3H, s, 18-CH_3), 4.07(1H, narrow s, H-15β), 5.07, 5.15(1H, narrow s, =CH_2) [2]
CD: 0(262), 3.33(305), 2.64(313), 0(335) [1]

1. Sakai S.-I., Yamamoto I., Yamaquchi K., Takayama H., Ito M., Okamoto T., Chem. Pharm. Bull., 1982, **30**, 4579.
2. Nishanov A.A., Sultankhodzhaev M.N., Yunusov M.S., Khim. Prir. Soedin., 1989, 857.

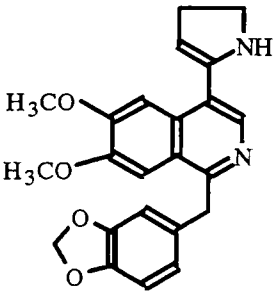


DEHYDROCORYDINE

Glaucium corniculatum, G.fimbrilligerum, G.oxylobum
$C_{20}H_{21}NO_4$: 339.1471
Mp: amorph.

UV: 220, 310, 340(4.33, 4.27, 4.10)
PMR: 2.96(3H, s, NCH_3), 3.65, 3.89, 3.93(3H, s, 3×OCH_3), 6.32, 6.97(1H, s, H-Ar), 7.10, 7.34(1H, d, J=8, o-H-Ar).

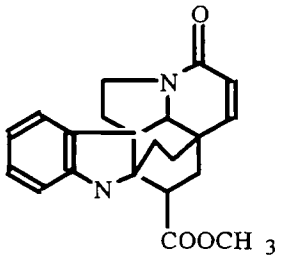
1. Karimova S.U., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 224.



DEHYDRONORMACROSTOMINE

Papaver macrostomum
$C_{23}H_{22}N_2O_4$: 390.1580
Mp: 193-195° (ac.)
UV: 249, 295, 317, 333 sh
Mass: 390(M^+), 389(100), 376, 375, 373, 361, 359, 347, 345, 344, 343, 331, 317, 316, 315, 180, 135, 77

1. Mnatsakanyan V.A., Preininger V., Simanek V., Jurina J., Klasek A., Dolejs L., Santavy F., Collect., 1979, **42**, 1421.

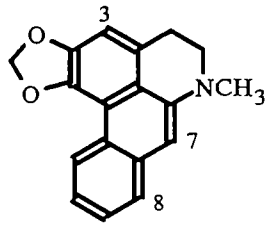


14,15-DEHYDRO-3-OXOKOPSININE

Vinca erecta
$C_{21}H_{22}N_2O_3$: 350.1631
Mp: 231-232° (meth.) [1], 227-231° [2]
$[\alpha]_D$–93° (chlf.) [1], –99° [2]

UV: 244, 292(3.93, 3.42) [1, 2]
IR: 3365, 1720, 1660, 1600, 815, 760 [1, 2]
Mass: 350(M^+), 227, 215, 214, 195, 168, 154 [1, 2]
PMR: 3.69(3H, s, $COOCH_3$), 5.20-6.10(2H, J=10, CH=CH), 6.55-7.20(4H, H-Ar)

1. Sharipov M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 263.
2. Linde H.H.A., Helv. Chim. Acta, 1965, **48**, 1822.

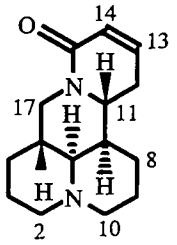


DEHYDROROEMERINE

Liriodendron tulipiferum
$C_{18}H_{15}NO_2$: 277.1103
Mp: 88-90° (bz.)

UV: 254, 262, 332(4.61, 4.76, 4.12)
Mass: 277(M^+, 100), 262, 246, 232, 218, 138.5($^{++}$)
PMR(CCl_4): 2.95(3H, s, NCH_3), 6.07(2H, s, CH_2O_2), 6.34, 6.71(1H. s, H-7, H-3), 7.02-7.40(3H, m, 3H-Ar), 8.68(1H, H-11) [1]
HPLC: [2]

1. Ziyaev R., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 715.
2. Hutin M., Oztekin A., Cave A., Foucher J.P., J. Chromatogr., 1983, **265**, 139.

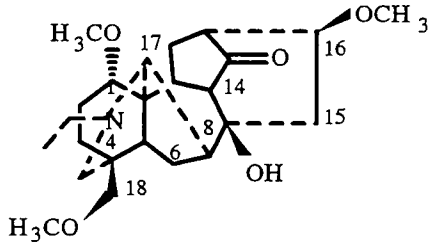


13,14-DEHYDROSOPHORIDINE

Sophora alopecuroides
$C_{15}H_{22}N_2O$: 246.1732
Mp: 84-85° (petr. eth.) [1]
$[\alpha]_D$+78° (alc.)

UV: 253(3.00) [2]
IR: 2795, 2750, 2690, 2672, 1650, 1596 [2]
Mass: 246(M^+, 75), 245(100), 231(6), 217(9), 203(5), 188(4), 177(88), 160(10), 150(82), 137(14), 122(23), 96(71) [2]
PMR: 3.24(H-11), 3.66(H-17$_e$), 5.74(H-13), 6.24(H-14) [2]; 3.03(1H, m, H-11β), 3.20(1H, d, J=13.5; 11, H-17a), 3.69(1H, d, J=13.5; 5, H-17β), 5.82(1H, dd, J=10.5; 3.5; 5, H-13), 6.04(1H, d, J=10.5, H-14) [3]

1. Kushmuradov Yu.K., Kuchkarov S., Aslanov Kh.A., Khim. Prir. Soedin., 1978, 231.
2. Kuchkarov S., Kushmuradov Yu.K., Aslanov Kh.A., Sadykov A.S., Khim. Prir. Soedin., 1977, 541.
3. Morinaga K., Ueno A., Fukushima S., Namikoshi M., Itaka Y., Okuda S., Chem. Pharm. Bull., 1978, **26**, 2483.



14-DEHYDROTALATIZAMINE

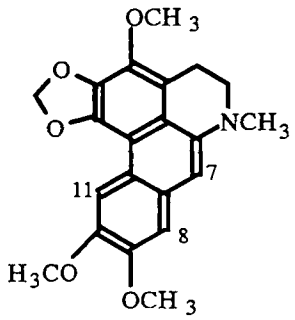
Aconitum saposhnikovii
$C_{24}H_{37}NO_5$: 419.2672
Mp: 128-130° (eth.)
IR: 3300, 1750 [1, 2]
Mass: 419(M^+, 23), 404(18), 388(100), 374(15), 372(17) [1]

PMR: 1.03(3H, t, J=7, NCH_2CH_3), 3.19, 3.21, 3.21(3H, 6H, s, 3×OCH_3) [1]
^{13}C NMR: [3]

C-1	85.5	C-9	55.3	C-17	63.8
2	25.7	10	46.2*	18	79.3
3	32.6	11	48.9	19	53.1
4	38.8	12	24.6	NCH_2	49.4
5	45.8*	13	43.9	CH_3	13.7
6	25.2	14	216.2	C-1′	56.1
7	45.8*	15	36.8	18′	59.5
8	82.8	16	86.2	16′	56.3

1. Sultankhodzhaev M.N., Yunusov M.S., Khim. Prir. Soedin., 1982, 265.
2. Boido V., Edwards O.E., Handa K.L., Kolt R.J., Purushothaman K.K., Can. J. Chem., 1984, **62**, 778.
3. Pelletier S.W., Srivastava S.K., Joshi B.S., Olsen J.D., Heterocycles, 1985, **23**, 331.

* The assignments may be interchanged.

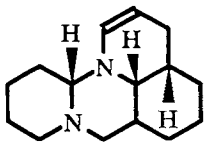


DEHYDROTHALICMINE (DEHYDROOCOTEINE)

Thalictrum isopyroides, Th. minus
$C_{21}H_{21}NO_5$: 367.1420
Mp: 190-191° (chlf.-alc.)
UV: 267, 337(4.60, 3.93)
IR: 2845, 1640-1590, 960
Mass: 367(M^+, 100), 352

PMR: 2.94(3H, s, NCH_3), 3.07-3.32(4H, m), 3.95, 4.05(6H, 3H, s, 3×OCH_3), 6.10(2H, s, CH_2O_2), 6.52(1H, s, H-8), 6.98(1H, s, H-7), 8.28(1H, s, H-11)

1. Maekh S.Kh., Khodzhaev V.G., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 381.

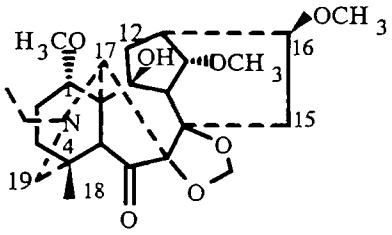


DEHYDROSCHOBERINE

Nitraria komarovii
$C_{15}H_{24}N_2$
Mp: oil

$[\alpha]_D \pm 0°$
IR: 2940, 2860, 2810, 2750, 1680-1630, 1450, 1375, 1365, 1310, 1290, 1275, 1245, 1185, 1135, 1125, 1105, 1090, 1055, 1035, 1020, 980, 970, 950, 930, 895, 855, 815, 785.
Mass: 232(M^+), 231, 205, 203, 192, 190, 178, 176, 175, 148, 96, 61.
PMR: (CD_3OD): 1.50, 2.65(m), 3.18(1H, m), 4.61(1H, narrow s), 5.40(1H, narrow s)
PMR: (CD_3OD+CF_3COOH): 1.75-2.95, 3.48; 3.82, 4.72(1H, m), 5.88(1H, narrow s), 8.72(1H, narrow s)

1. Tulyaganov T.S., Khim. Prir. Soedin., 1993, 39.



DEHYDROELDELIDINE

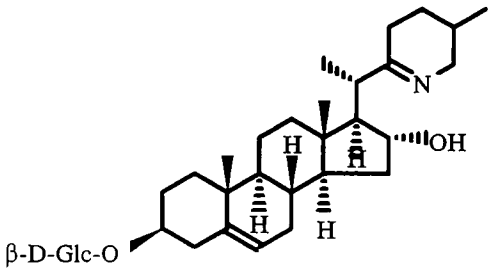
Delphinium ternatum
$C_{25}H_{37}NO_7$: 463.2570
Mp: 121-122° (hx.)
IR: 3600-3400, 1745, 1100

Mass: 463(M^+), 448, 446, 432(100), 418, 400, 390, 382, 372, 368
PMR: 0.88(3H, s, 18-CH_3), 1.02(3H, t, J=7, NCH_2CH_3), 3.26, 3.29, 3.34(3H, s, 3×OCH_3), 4.09(1H, t, J=5, H-14β), 5.00, 5.44(1H, s, CH_2O_2) [1]
^{13}C NMR: [2]

C-1	77.0	C-10	80.3	C-19	56.5
2	27.0	11	51.7	NCH_2	50.0
3	39.2	12	37.7	CH_3	13.7
4	35.2	13	38.3	O-CH_2O	95.5
5	57.2	14	81.3	C-1′	55.7
6	216.7	15	34.0	14′	58.1
7	90.2	16	81.0	16′	56.5
8	82.8	17	62.6		
9	51.2	18	25.0		

Pharm.: LD_{50} 198 mg/kg (i/v, mice). Toxicity low. Possesses a brief hypotensive and gangioblocking action. Exhibits an antiarrhythmic action on models of arrhythmia in rats evoked by aconitine and calcium chloride [3].

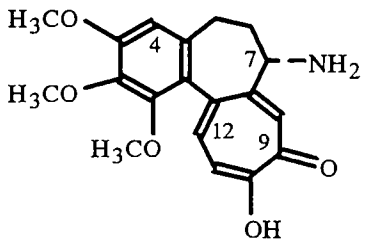
1. Matveev V.M., Narzullaev A.S., Sabirov S.S., Yunusov M.S., Khim. Prir. Soedin., 1985, 131.
2. Pelletier S.W., Mody N.V., Jr., Dailey O.D., Can. J. Chem., 1980, **58**, 1875.
3. Dzhakhangirov F.N., Unpub.



DEACETYLVERALOSINE

Veratrum lobelianum
$C_{33}H_{53}NO_7$: 575.3822
Mp: 238-240° (meth.)
$[\alpha]_D$–30° (chlf.)
Sol-y.: sp. sol. meth., ac.; sol. chlf.
IR: 3400, 2935, 1650, 1450, 1100-1000

1. Ubaidullaev K.A., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 678.



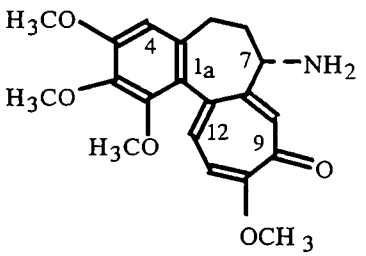
DEACETYLCOLCHICEINE

Merendera robusta
$C_{19}H_{21}NO_5$: 343.1420
Mp: 151-153° [1]
$[\alpha]_D$–180° [2]; –152° [1]

UV: 244, 350 [2]
Mass: 312, 207 [1]
PMR: 3.66, 3.92, 3.94(3H, s, 3×OCH_3) [2]
^{13}C NMR: [3]

C-1	149.9	C-7	53.2	C-12	139.9
2	140.5	7a	153.0	12a	133.8
3	153.0	8	119.5	1a	127.5
4	107.5	9	169.1	1-OCH_3	60.5
4a	135.3	10	172.2	2-OCH_3	60.5
5	29.8	11	123.6	3-OCH_3	55.9
6	36.3				

1. Turdikulov Kh., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1972, 247.
2. Yusupov M.K., in: The Chemisty of Plant Substances [in Russian], Fan, Tashkent, (1972), p. 19.
3. Elguero J., Muller R.N., Blade-Font A., Faure R., Vincent E., J. Bull. Soc. Chim. Belg., 1980, **89**, 193.



DEACETYLCOLCHICINE

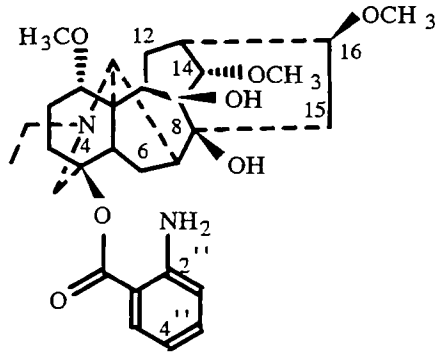
Merendera robusta
$C_{20}H_{23}NO_5$: 357.1576
Mp: amorph.
$[\alpha]_D$–146°

UV: 246, 350 [1]
IR: 3400, 1616, 1590, 1561, 1486, 1443, 1430, 1398, 1374, 1348, 1320, 1282, 1154, 1137, 1113, 1092, 1049, 1012, 996, 985, 915, 898, 862, 839 [2]
Mass: 357($M^{+\cdot}$, 100), 329(21), 328(22), 312(71), 298(77) [2]
PMR: 1.00-1.90, 1.90-2.60(7H, m, H-5, H-6, H-7, NH_2), 3.64, 3.88, 3.98(3H, 6H, 3H, s, 4×OCH_3), 6.52(1H, s, H-4), 6.77, 7.17(1H, d, J=11, H-11, H-12), 7.72(1H, s, H-8) [2]
^{13}C NMR: [3]

C-1	150.9	C-7	53.8	C-12a	136.5
2	141.6	7a	154.5	1a	125.9
3	153.6	8	132.0	1-OCH_3	61.0
4	107.4	9	179.8	2-OCH_3	61.1
4a	134.5	10	164.0	3-OCH_3	56.3
5	30.7	11	111.9	10-OCH_3	56.3
6	40.6	12	135.3		

HPLC: [4]
Pharm.: LD_{50} 20 mg/kg. LD_{100} 30 mg/kg. Antitumoral activity [5].

1. Turdikulov Kh., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1972, 247.
2. Capraro H.-G., Brossi A., Helv. Chim. Acta, 1979, **62**, 965.
3. Hufford C.D., Capraro H.-G., Brossi A., Helv. Chim. Acta, 1980, **63**, 50.
4. Ko R.J., Wen Yen Li, Koda R.T., J. Chromatogr., 1990, **525**, 411.
5. Kiselev V.V., Khim. Prir. Soedin., 1977, 3.



N-DEACETYLLAPPACONITINE (PUBERANIDINE)

Aconitum leucostomum, A.orientale, A.septentrionale
$C_{30}H_{42}N_2O_7$: 542.2992
Mp: 209-214° [1]
$[\alpha]_D$+42° (alc.)
Sol-y.: sol. chlf., meth., ac.
IR: 3500, 3380, 1680, 1608, 1580, 1240

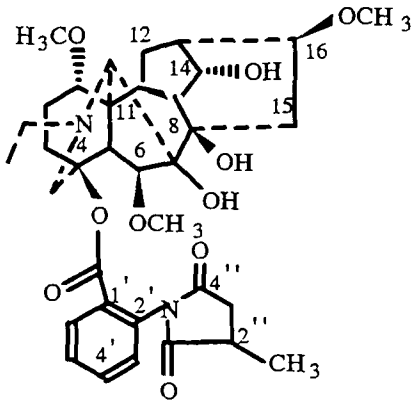
Mass: 542($M^{+\cdot}$), 527, 525, 511, 405(100)
PMR: 1.10(3H, t, J=7), 3.26, 3.28, 3.40(3H, s, 3×OCH_3), 6.56-7.75(H-Ar) [2]
^{13}C NMR: [3]

C-1	83.1	C-12	24.2	C-14′	57.9
2	26.4	13	49.0	14′	57.9
3	32.1	14	90.3	16′	56.1
4	84.6	15	44.9	Ar-C=O	167.7
5	48.8	16	83.0	1″	112.2
6	26.9	17	61.6	2″	150.6
7	47.7	18	–	3″	116.8
8	75.7	19	55.7	4″	134.1
9	78.6	NCH_2	50.1	5″	116.4
10	36.5	CH_3	13.8	6″	131.7
11	51.0	1′	56.5		

HPLC: [4]

Pharm.: Pronounced antiarrhythmic, local anesthetic, analgesis, and antiinflammatory action. Main metabolite of lappaconitine. Blocks fast sodium channels of excitable terminals [5, 6].

1. Usmanova S.K., Tel'nov V.A., Abdullaev N.D., Khim. Prir. Soedin., 1993, No. 3.
2. Marion L., Fonzes L., Wilkins C.K., Boca J.R., Sandberg F., Thorsen R., Linden E., Can. J. Chem., 1967, **45**, 969.
3. Yu D., Das B.C., Planta Medica, 1983, **49**, 85.
4. Fuming Xie, Hongcheng Wang, Henling Shu, Jianhua Li, Jirong Jiang, Jenpin Chang, Yuyuan Hsieh, J. Chromatogr., 1990, **526**, 109.
5. Dzhakhangirov F.N., Sirotenko E.G., Rashkes Ya.V., DAN UzSSR, 1990, No. 8, 44.
6. Dzhakhangirov F.N., Salimov B.T., Bessonova I.A., Sultankhodzhaev M.N., Khim. Prir. Soedin., 1995, 841.



14-DEACETYLNUDICAULINE

Delphinium elatum

$C_{36}H_{48}N_2O_{10}$: 668.7274

Mp: amorph.

$[\alpha]_D$+27° (meth.) [1]

Mass: 668(M^+, 4), 653(15), 651(9), 640(14), 638(40), 637(100), 216(35) [1]

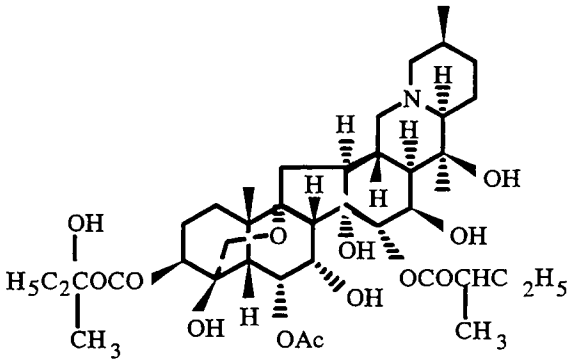
PMR: 1.06(3H, t, J=7.2, NCH_2CH_3), 3.25, 3.36(3H, 6H, s, 3×OCH_3), 7.30(1H, dd, J=7.5; 2), 7.57(1H, dt, J=7.5; 2), 7.72(1H, dt, J=7.5; 2), 8.06(1H, dd, J=7.5; 2) [2]

^{13}C NMR: [2]

C-1	84.9	C-13	46.0	Ar-C=O	164.2
2	25.3	14	75.2	1′	127.0
3	32.1	15	33.1	2′	133.1
4	37.8	16	81.7	3′	129.4
5	45.1	17	65.0	4′	133.7
6	90.3	18	69.4	5′	131.0
7	89.2	19	52.3	6′	130.0
8	76.3	NCH_2	51.2	1″	179.9
9	50.1	CH_3	14.2	2″	37.0
10	36.3	1-OCH_3	56.1	3″	35.2
11	48.3	6-OCH_3	58.3	4″	175.9
12	27.4	16-OCH_3	56.5	5″	16.3

Pharm.: LD_{50} 4.2 mg/kg (i/v, mice). Possesses a pronounced curemimetic action [3].

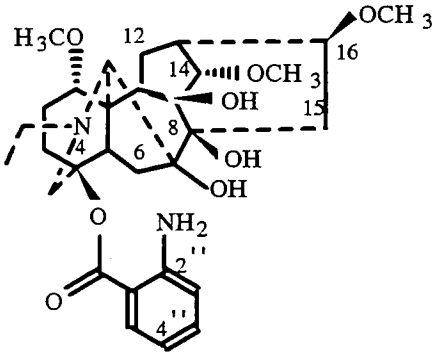
1. Vaisov Z.M., Tel'nov V.A., Bessonova I.A., Khim. Prir. Soedin., 1993, 82; Unpub.
2. Benn M.H., Okanga F.I., Manavu R.M., Phytochem., 1989, **28**, 919.
3. Dzhakhangirov F.N., Salimov B.T., Bessonova I.A., Sultankhodzhaev M.N., Khim. Prir. Soedin., 1995, 841; Unpub.



DEACETYLPROTOVERATRINE A

Veratrum lobelianum, V.nigrum, V.oxysepalum
$C_{39}H_{61}NO_{13}$: 751.4143
Mp: 191-192° (bz.)
$[\alpha]_D$–15° (pyr.)
UV(H^+): 259, 290, 370, 540 [1]
IR: 1740, 1250 [1, 2]

1. Bondarenko N.V., Khim. Prir. Soedin., 1982, 529.
2. Kupchan S.M., Ayres C.I., Hensler R.H., J. Am. Chem. Soc., 1960, **82**, 2616.

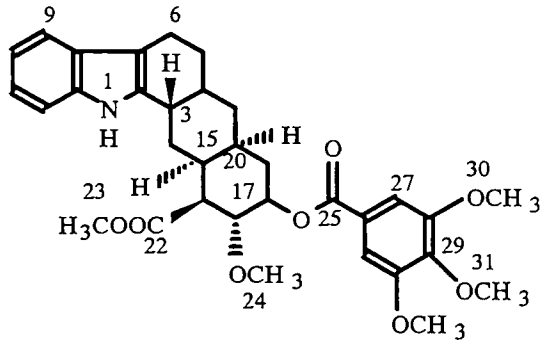


N-DEACETYLRANACONITINE

Aconitum septentrionale
$C_{30}H_{42}N_2O_8$: 558.2941
Mp: 125-127°
$[\alpha]_D$+44°
Sol-y.: sol. chlf., meth., ac.
IR: 3600-3370, 1695, 1625, 1597, 1572, 1496, 1465, 1303, 1255, 1163, 1100, 1040, 950, 755 [1]

Mass: 558, 527, 434, 421(100), 406, 392, 390, 376, 361, 137 [1]
PMR: 1.08(3H, t, J=7, NCH_2CH_3), 3.22, 3.26, 3.36(3H, s, 3×OCH_3), 6.50-7.66(H-Ar) [2]

1. Usmanova S.K., Tel'nov V.A., Unpub.
2. Jiang S.-N., Zhu Y.-L., Zhao Z.-Y., Zhu R-H., Acta Pharmaceutica Sinica, 1983, **18**, 440.



DESERPIDINE

Rauwolfia vomitoria
$C_{32}H_{38}N_2O_8$: 578.2628
Mp: 229-231° [1]
$[\alpha]_D$–137° (chlf.) [1]
UV: 217, 271(4.81, 4.30) [1]
IR: 3000, 1720, 1470, 1420, 1340, 1230, 1130 [1, 2]

Mass: 578(M^+, 95), 577(56), 370(53), 369(38), 368(47), 354(49), 195(100), 184(38) [2]; 578(M^+, 31), 577(38), 383(8), 367(26), 366(16), 365(24), 221(46), 212(16), 195(100), 184(26), 170(32), 156(38) [3]

^{13}C NMR: [4][1]

C-2	61.8	C-13	57.2	C-23	141.6
3	133.0	14	159.4*	24	141.6
5	140.1	15	161.0***	25	27.3
6	176.8*	16	141.4	26	67.8
7	85.5	17	115.5	27	86.2
8	65.3	18	115.5	28	39.8
9	74.0**	19	169.4*	29	50.7
10	72.1	20	163.8***	30	137.4
11	75.4**	21	144.0	31	133.1
12	82.3	22	20.3		

1. Holubek, No. 91.
2. Habib M.S., Court W.E., Planta Medica, 1974, **25**, 331.
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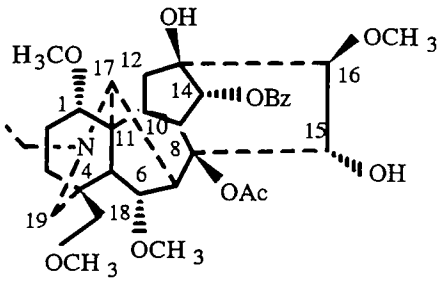
4. Levin R.H., Lallemand J.-L., Roberts J.D., J. Org. Chem., 1973, **38**, 1983.



3-DEOXYACONITINE

Aconitum firmum, A.tauricum
$C_{34}H_{47}NO_{10}$: 629.3200
Mp: 174-176°
$[\alpha]_D$+16° (alc.)
Sol-y.: sol. chlf., meth.

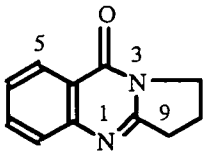
UV: 231 [1]
IR: 3495, 1725, 1715, 1280, 1120, 1095, 725, 715 [1]
Mass: 629(M^+, 1.3), 614(1.4), 598(75.3), 569(6.9), 554(14), 538(100), 525(18), 523(16.9), 510(18.1), 508(30), 494(7.1), 492(6.8) [2]
PMR: 1.02(3H, t, J=7, NCH_2CH_3), 1.34(3H, s, Ac), 3.07, 3.18, 3.65(3H, 6H, 3H, s, OCH_3), 4.78(1H, d, J=5, H-14β), 7.40-8.00(H-Ar) [1, 2]
^{13}C NMR: [3]

C-1	85.2	C-13	74.0	C-18′	59.0
2	26.3	14	78.8*	C=O	172.2
3	35.2	15	79.0*	CH_3	21.3
4	39.0	16	90.2	Ar-C=O	165.9
5	49.1	17	61.2	1′	129.9
6	83.3	18	80.2	2″	129.5
7	45.1	19	53.3	3″	128.5
8	92.0	NCH_2	49.1	4″	133.1
9	44.6	CH_3	13.4	5″	128.5
10	41.0	C-1′	56.0	6″	129.5
11	49.9	6′	57.9		
12	36.7	16′	60.9		

1. Wang Y.G., Zhu Y.-L., Zhu R.-H., Acta Pharmaceutica Sinica, 1980, **15**, 526.
2. Vaisov Z.M., Tel'nov V.A., Bessonova I.A., Unpub.

[1] Signals given relative to the chemical shift of CS_2 (192.8 ppm).

3. Pelletier S.W., Djarmati Z., J. Am. Chem. Soc., 1976, **98**, 2626.



DEOXYVASICINONE

Linaria transiliensis, Nitraria komarovii, N.sibirica, Peganum harmala, R.nigellastrum

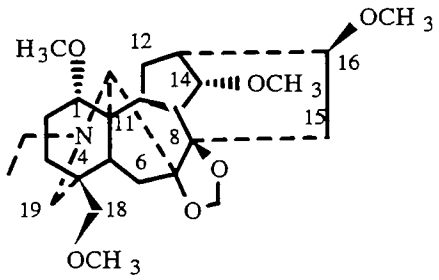
$C_{11}H_{10}N_2O$: 186.0793

Mp: 110-111° (eth.)
{picr. 188°, h-chl. 250-251°, h-b. 293°}
Sol-y.: r-sol. bz., chlf., alc., eth. [1]
UV: 224, 267, 272, 302, 314(4.20, 4.63, 3.59, 3.40, 3.33) [2]
IR: 1675, 1616 [1]; 1681, 1626 [2]
Mass: 186($M^{+\cdot}$, 100), 185(80) [3]
PMR: 2.20(2H, m, H-10), 3.10(2H, H-9), 4.15(2H, m, H-11), 8.20(1H, d, H-5) [4]
^{13}C NMR: [5]

C-2	159.4	C-6	126.7*	C-9	32.4
4	160.6	7	133.9	10	19.4
4a	120.4	8	126.1*	11	46.4
5	125.7	8a	142.4		

HPLC: [6, 7]
Pharm.: LD_{50} 158, 446 mg/kg (i/v, i/p, mice). Muscle relaxant, hypnotic, sedative action [8].

1. Koretskaya N.I., Zh. Org. Khim., 1957, **27**, 3361.
2. Chatterjee A., Ganguly M., Phytochem., 1968, **7**, 307.
3. Plugar' V.N., Gorovits T.T., Tulyaganov N., Rashkes Ya.V., Khim. Prir. Soedin., 1977, 250.
4. Vittory R.L., Gatta F., Gazz. Chim. Ital., 1969, **99**, 59.
5. Johne S., Jung B., Groger D., J. Pract. Chem., 1977, **319**, 919.
6. Nuritdinov Kh.R.., Sargazakov K., Abdullaev Sh., Aripov Kh.N., Khim. Prir. Soedin., 1989, 293.
7. D'yakonov A.L., Kabulov B.D., Khim. Prir. Soedin., 1991, 297.
8. Tulyaganov N.T., in: The Pharmacology of Natural Compounds [in Russian], Fan, Tashkent, 1979, p. 71.



6-DEOXYDELCORINE

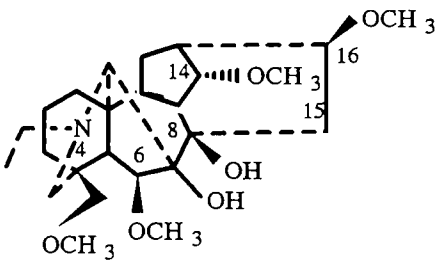
Delphinium corymbosum
$C_{26}H_{41}NO_6$: 463.2934
Mp: 93-95° (hx.)
$[\alpha]_D$ −14° (meth.)
IR: 1100 [1]
Mass: 463($M^{+\cdot}$), 448, 432(100) [1]

MR: 1.01(3H, t, J=7, NCH_2CH_3), 3.22, 3.25, 3.30, 3.36(3H, s, 4×OCH_3), 3.6(1H, t, J=5, H-14β), 4.86, 4.96 (1H, s, CH_2O_2) [1, 2]

^{13}C NMR: [3]

C-1	83.1	C-10	43.6	C-19	52.6
2	26.6	11	50.8	NCH_2	50.4
3	32.2	12	28.0	CH_3	13.8
4	38.1	13	38.3	CH_2O_2	93.3
5	44.5	14	83.5	C-1′	55.4
6	32.2	15	33.1	14′	57.6
7	90.5	16	81.9	16′	56.1
8	81.7	17	61.8	18′	59.3
9	47.8	18	79.0		

1. Narzullaev A.S., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 412.
2. Pelletier S.W., Mody N.V., Varughese K.I., Maddry J.A., Desai H.K., J. Am. Chem. Soc., 1981, **103**, 6536.
3. Salimov B.T., Yunusov M.S., Abdullaev N.D., Vaisov Z.M., Khim. Prir. Soedin., 1985, 95.

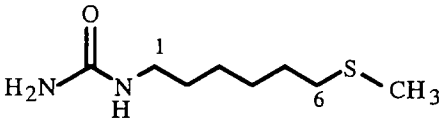


DEOXYDELSOLINE

Aconitum monticola
$C_{25}H_{41}NO_6$: 451.2934
Mp: 134-135° (ac.) [1]
IR: 3550, 3400 [1]
Mass: 451(M^+, 45), 436(100), 420(97), 418(93) [1]

PMR: 1.41(3H, t, J=7, NCH_2CH_3), 3.10, 3.12, 3.16, 3.30(3H, s, 4×OCH_3), 3.48(1H, t, J=5, H-14β) [1]
Pharm.: LD_{50} 101 mg/kg (i/v, mice). Weak ganglioblocking and curaremimetic action [2].

1. Ametova É.F., Yunusov M.S., Tel'nov V.A., Khim. Prir. Soedin., 1982, 504.
2. Dzhakhangirov F.N., Unpub.



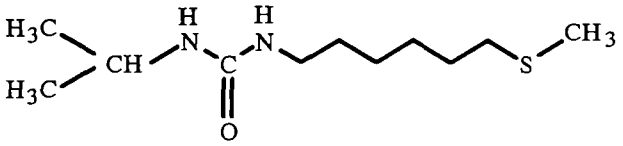
DEOXYDIPTHOCARPAINE

Dipthychocarpus strictus
$C_8H_{18}N_2OS$: 190.1660

Mp: 118-119° (ac.-meth.)
IR: 3390, 3220, 1660.
Mass: 190(M^+), 175, 143, 129, 73, 61, 44.
PMR: 2.06(3H, s, SCH_3), 1.10-1.62(8H, m, 4×CH_2), 2.44(2H, t, SCH_2), 3.08(2H, m, NCH_2) [1]
^{13}C NMR: [2]

C-1	40.6	C-4	28.6	SCH_3	15.3
2	30.7	5	29.2	NHCO	165.6
3	26.7	6	34.0		

1. Abdilalimov O., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 535.
2. Aripova S.F., Author's Abstract of Doctoral Dissertation, Tashkent, 1991.

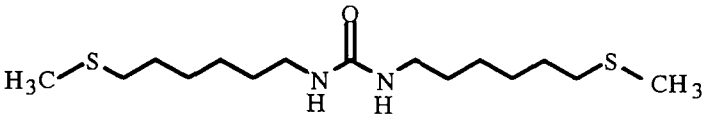


DEOXYDIPTHOCARPAMINE

Dipthychocarpus strictus
$C_{11}H_{24}N_2OS$: 232.1610

Mp: 108-109°
Sol-y.: sol. ac., chlf., meth., meth., alc.
IR: 3350, 3330, 1630
Mass: 232(M^+), 217, 185(100), 171, 157, 143, 129, 115, 101, 58, 44
PMR: 1.08(6H, d, J=6, $C(CH_3)_2$), 1.10-1.75(8H, m, 4×CH_2), 2.06(3H, s, CH_3S), 2.42(2H, t, CH_2S), 3.06(2H, t, CH_2N), 3.77(1H, m, CHN), 5.44(1H, d, J=8, NHCH), 5.63(1H, t, NHCO)

1. Aripova S.F., Author's Abstract of Doctoral Dissertation, Tashkent, 1991.

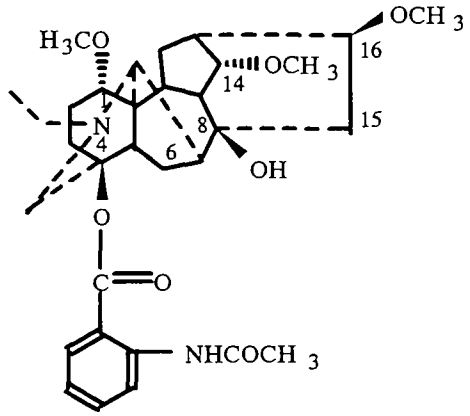


DEOXYDIPTHOCARPIDINE

Dipthychocarpus strictus
$C_{15}H_{32}N_2OS_2$: 320.1956

Mp: 57-59°
$[\alpha]_D$ 0°
IR: 3335, 1630
Mass: 320(M^+), 305, 273(100), 227, 199, 157, 118, 75, 61.
PMR: 1.10-1.90(16H, m, 8×CH_2), 2.04(6H, s, 2×SCH_3), 2.40(2H, t, 2×SCH_2), 3.09(2H, t, 2×NCH_2), 5.03(2H, m, 2×NH)

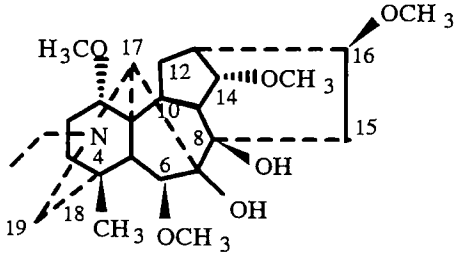
1. Abdilalimov O., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 363.



9-DEOXYLAPPACONITINE

Aconitum rubicundum
$C_{32}H_{44}N_2O_7$: 568.3149
Mp: 195-198° (eth.)
Sol-y.: sol. chlf., meth., ac.
Mass: 568(M^+, 2), 553(2), 537(15), 535(2), 389(100), 376(30), 374(26), 360(9), 359(15), 358(18) [1]
PMR: 1.06(3H, t, J=7, NCH_2CH_3), 2.16(3H, s, Ac), 3.23, 3.26, 3.35(3H, s, OCH_3), 3.62(1H, t, J=5, H-14β), 6.94, 7.40(1H, t, J=7, H-Ar), 7.80, 8.58(1H, d, J=7, H-Ar) [1, 2]

1. Nishanov A.A., Sultankhodzhaev M.N., Yunusov M.S., Kondrat'ev V.G., Khim. Prir. Soedin., 1991, 403.
2. Shanhao J., Shanhai H., Baozhu S., Yuanlong Z., Bingnan Z., Huaxue Xuebao, 1988, **46**, 26; C.A., 1988, **108**, 21, 183673n.



18-DEOXYLYCOCTONINE

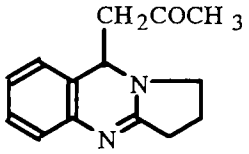
Delphinium confusum
$C_{25}H_{41}NO_6$: 451.2934
Mp: 73-75° (hx.-eth.)
IR: 3600-3400, 1100
Mass: 451(M^+), 436, 434, 433, 420(100)

PMR: 0.94(3H, s, 18-CH_3), 1.00(3H, t, J=7, NCH_2CH_3), 3.34, 3.36, 3.45(3H, 3H, 6H, s, 4×OCH_3), 3.57(1H, t, J=5, H-14β), 4.06(1H, narrow s, H-6α) [1]
^{13}C NMR [2]:

C-1	82.8	C-10	46.2**	C-19	56.8
2	33.8*	11	49.3	NCH_2	50.9
3	37.3	12	28.9	CH_3	14.0
4	34.1	13	38.2	C-1′	57.7
5	43.4**	14	84.5	6′	55.6
6	91.5	15	26.8	14′	58.2
7	88.6	16	84.1	16′	56.2
8	77.6	17	64.3		
9	55.2**	18	26.8		

Pharm.: LD_{50} 124 mg/kg (i/v, mice). In doses of 5-10 mg/kg lowers arterial pressure and exhibits an H-cholinoblocking action. Possesses weak antiarrhythmic activity [3].

1. Narzullaev A.S., Yunusov M.S., Matveev V.M., Sabirov S.S., Khim. Prir. Soedin., 1989, 48.
2. Jones A.J., Benn M.H., Can. J. Chem., 1973, **51**, 486.
3. Dzhakhangirov F.N., Unpub.

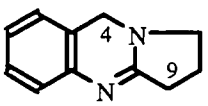


DEOXYPEGANIDINE

Peganum harmala
$C_{14}H_{16}N_2O$: 228.1263
Mp: 76-78° [1], 69-70° [2]

{picr. 176°, p-chl. 167°, nitr. 157°, oxime 179°} [2]
UV: 218, 224 sh, 292(4.13, 4.09, 3.88) [2]
IR: 1710, 1628, 1593, 1490 [2]
Mass: 228(M^+, 12) 171(100), 143(3), 116(5), 89(2)
PMR: 1.95(3H, s, CH_3), 2.00(2H, m, H-10), 2.20, 3.50(4H, m, H-9, H-11), 2.85(2H, t, H-12), 5.14(1H, t, H-4), 7.05(4H, m, H-Ar) [2]
Pharm.: LD_{50} 143, 254, 380 mg/kg (i/v, i/p, s/c, mice). Causes salivation, lacrimation, and vomiting [3].

1. Telezhenetskaya M.V., Unpub.
2. Zharekeev B.Kh., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 279.
3. Sadritdinov, p. 32.

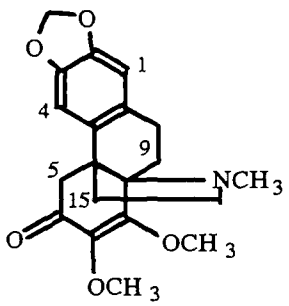


DEOXYPEGANINE

Nitraria komarovii, Peganum harmala, P.nigellastrum

$C_{11}H_{12}N_2$: 172.1001
Mp: 86-87° [1]
{h-chl. 250°, nitr. 138° (dec.), p-chl. 245°, picr. 204°} [1]
Sol-y.: r-sol. org. solvent; i.s. water [2]
UV: 225, 303 [2]
IR: 1635, 1600, 1510, 1490 [2]
Mass: 172(M^+), 171(100) [3]
PMR(CF_3COOH): 2.02, 2.75, 3.46(2H, m, H-10, H-9, H-11), 4.45(2H, s, H-4), 6.86(4H, H-Ar)
X-ray spectral analysis{$2\times C_{11}H_{13}N_2^+ \times [ZnCl_4]^{2-}$}: [4]
HPLC: [5, 6]
Pharm.: LD_{50} 54, 24 mg/kg (s/c, i/v, mice). High anticholinesterase activity [7]. Nontoxic [8]. Used in medicine for treating damage to the peripheral nervous system [9].

1. Khashimov Kh.N., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 456.
2. Telezhenetskaya M.V., Unpub.
3. Plugar' V.N., Rashkes Ya.V., Karimov A., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 68.
4. Sargazakov K.D., Molchanov L.V., Tashkhodzhaev B., Aripov Kh.N., Khim. Prir. Soedin., 1991, 862.
5. D'yakonov A.L., Kabulov B.D., Khim. Prir. Soedin., 1991, 297.
6. Nuritdinov Kh.R., Sargazakov K.D., Molchanov L.V., Aripov Kh.N., in: Proceedings of an All-Union Conference on the Use of Chromatography in the Food, Microbiological, and Medicinal Industries [in Russian], Gelendzhik, 8-12 October, 1990.
7. Yunusov S.Yu., Tulyaganov N., Telezhenetskaya M.V., Sadritdinov F.S., Khashimov Kh., Author's Certificate SSSR, No. 605614, Byull. Izobret., 1978, No. 17, 14.
8. Muratova V.V., Ashrafova R.A., Sadritdinov F.S., Med. Zh. Uzb., 1984, No. 1, 53.
9. Information Materials for Pharmaceutical and Medical Institutions of the Ministry of Health of Uzbek SSR [in Russian], Meditsina, Tashkent, 1981, No. 6, p. 28.

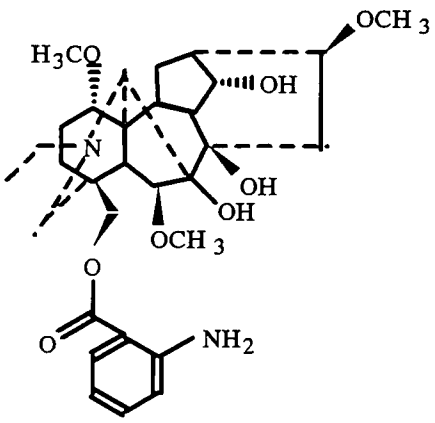


DELAVAYINE

Stephania delavayi
$C_{20}H_{23}NO_5$: 357.1576
Mp: 149-150° (alc.)
$[\alpha]_D$–240° (chlf.)
{h-chl. 204°, m-i. 192°, des-base 120°} [1]
UV: 238, 268(3.59, 3.97) [1]

IR: 1670, 1608 [1]
PMR: 1.90-2.20(4H, m, H-9, H-15), 2.46, 3.00(1H, J=16, H-5), 2.49(3H, s, NCH_3), 3.40, 4.06(3H, s, $2\times OCH_3$), 5.84(2H, s, CH_2O_2), 6.41, 6.64(1H, s, H-1, H-4) [2]

1. Fadeeva I.I., Il'inskaya T.N., Perel'son M.E., Kuzovkov A.D., Khim. Prir. Soedin., 1970, 140.
2. Fadeeva I.I., Il'inskaya T.N., Perel'son M.E., Kuzovkov A.D., Khim. Prir. Soedin., 1971, 784.

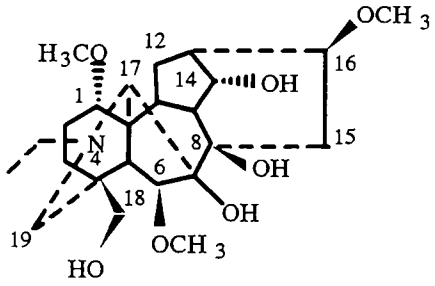


DELECTINE

Delphinium dictyocarpum
$C_{31}H_{44}N_2O_8$: 572.3098
Mp: 107-109° (hx.-ac.)
$[\alpha]_D$+49° (chlf.) [1, 2]
IR: 3475, 1695, 1595, 1100 [1]
Mass: 572(M^+), 557, 555, 541(100), 539, 120 [1, 3]
PMR: 1.02(3H, t, J=7, NCH_2CH_3), 3.20, 3.32, 3.34(3 H, s, 3×OCH_3), 5.71(2H, narrow s, NH_2), 6.65-7.80(H-Ar) [1].

Pharm.: LD_{50} 35.8 mg/kg (i/v, mice). In acute experiments on cats causes lowering of the arterial pressure and depression of the conduction of nervous impulses in sympathic ganglia; in high doses (10-15 mg/kg) blocks the transmission of impulses from nerve to muscle [3].

1. Salimov B.T., Yunusov M.S., Yunusov S.Yu., Narzullaev A.S., Khim. Prir. Soedin., 1975, 665.
2. Salimov B.T., Abdullaev N.D., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 235.
3. Salimov B.T., Author's Abstract of Candidate's Dissertation, Tashkent, 1979.
4. Dzhakhangirov F.N., Unpub.



DELECTININE

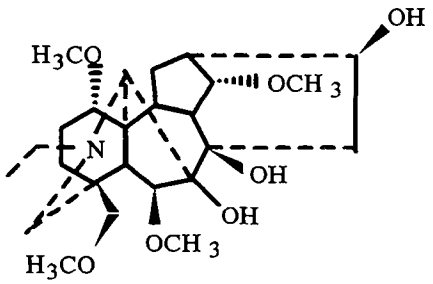
Delphinium dictyocarpum, D.elatum
$C_{24}H_{39}NO_7$: 453.2726
Mp: 167-169° (hx.-ac.)
$[\alpha]_D$+42° (chlf.)
Sol-y.: sol. chlf., ac., meth.
IR: 3445, 1110 [1]

Mass: 453(M^+), 438, 422(100), 420 [1]
PMR: 0.99(3H, t, J=7, NCH_2CH_3), 3.20, 3.29, 3.37(3H, s, 3×OCH_3) [1]
^{13}C NMR [2]:

C-1	85.1	C-10	36.5	C-19	52.8
2	25.3	11	48.2	NCH_2	51.3
3	31.6	12	27.5	CH_3	14.2
4	38.8	13	46.1	C-1′	56.0
5	45.1	14	75.3	6′	58.1
6	90.1	15	33.1	16′	56.5
7	89.0	16	81.8		
8	76.3	17	65.4		
9	49.5	18	67.6		

Pharm.: LD_{50} 130 mg/kg (i/v, mice).Weak hypotensive and ganglioblocking action [2].

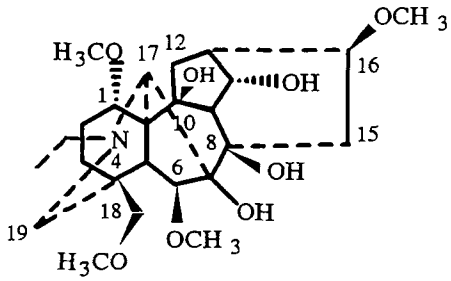
1. Salimov B.T., Abdullaev N.D., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 235.
2. Pelletier S.W., Sawhney R.S., Heterocycles, 1978, 9, 463.
3. Dzhakhangirov F.N., Unpub.



DELBITERINE

Delphinium biternatum
$C_{25}H_{41}NO_7$: 467.2883
Mp: 137-138° (ac.)
IR: 3495, 1100
Mass: 467(M^+), 452, 436(100), 434
PMR: 1.02(3H, t, J=7, NCH_2CH_3), 3.17, 3.25, 3.38(3H, 3H, 6H, s, 4×OCH_3)

1. Salimov B.T., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 106.



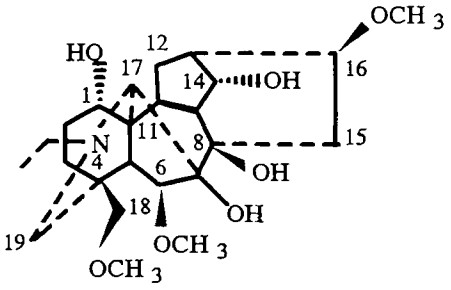
DELCAROLINE

Aconitum turczaninowii
$C_{25}H_{41}NO_8$: 483.2832
Mp: amorph.
$[\alpha]_D$+50° (meth.)
{p-chl. 162°}

IR: 3442, 1083 [1]
PMR: 1.05(3H, t, NCH_2CH_3), 3.25, 3.30, 3.35, 3.42(3H, s, 4×OCH_3), 4.06(1H, m, H-14β) [1, 2]
^{13}C NMR: [2]

C-1	79.4	C-10	79.9	C-19	52.5
2	25.5	11	53.8	NCH_2	51.3
3	32.2	12	37.6	CH_3	14.3
4	38.1	13	37.0	C-1′	55.5
5	45.1	14	73.6	6′	57.7
6	90.8	15	33.9	16′	56.3
7	88.0	16	81.3	18′	59.1
8	75.1	17	66.1		
9	54.0	18	77.2		

1. Batbayar N., Batsurén D., Sultankhodzhaev M.N., Khim. Prir. Soedin., 1993, 60; Unpub.
2. Pelletier S.W., Mody N.V., Desai H.K., Heterocycles, 1981, **16**, 747.



DELCOSINE (DELPHAMINE, ILIENSINE, LUCACONINE, TAKAOBASE 1)

Aconitum barbatum, A.orientale, A.turczaninowii, Consolida divaricata, C.orientalis, Delphinium ajacis, D.biternatum, D.confusum
$C_{24}H_{39}NO_7$: 453.2726

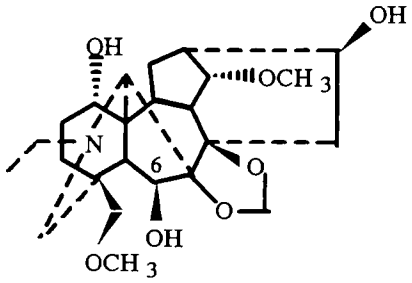
Mp: 203-204° (alc.)
$[\alpha]_D$+54° (abs. alc.)
Sol-y.: sol. chlf.
IR: 3530, 3475, 3370, 1480, 1410, 1362, 1305, 1230, 1170, 1100, 940, 885, 870, 810, 770, 753, 718

Mass: 453(M^+, 12), 438(100), 436(33), 422(60), 420(6) [1]
PMR: 1.01(3H, t, J=7, NCH_2CH_3), 3.34, 3.36, 3.39(3H, s, 3×OCH_3), 4.02(1H, s, H-6β), 4.10(1H, dd, J=4.5, H-14β) [2]
^{13}C NMR: [3]

C-1	72.7	C-9	45.3	C-17	66.3
2	27.5	10	39.4	18	77.4
3	29.4	11	48.9	19	57.1
4	37.6	12	29.4	NCH_2	50.4
5	44.0	13	45.3	CH_3	13.7
6	90.1	14	75.8	C-6′	57.4
7	87.9	15	34.5	16′	56.4
8	78.1	16	82.0	18′	59.1

Pharm.: LD_{50} 107 mg/kg (i/v, mice). Curaremimetic action [4].

1. Yunusov M.S., Nezhevenko V.E., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 770.
2. Sakai S., Takayama H., Okamoto T., Yakugaku Zasshi, 1979, 99, 647.
3. Pelletier S.W., Mody N.V., Sawhney R.S., Bhattacharyya J., Heterocycles, 1977, 7, 327.
4. Dzhakhangirov F.N., Sadritdinov F., DAN UzSSR, 1977, No. 1, 33.

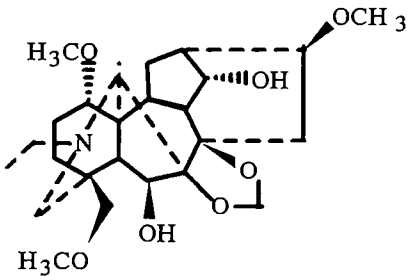


DELCORININE

Delphinium corymbosum
$C_{24}H_{37}NO_7$: 451.2560
Mp 226-228° (ac.)
IR: 3470, 3330, 1090.
Mass: 451(M^+), 436, 434(100%), 421, 406, 404, 392, 390, 378, 376, 149.

PMR: 1.07(3H, t, J=7.0, NCH_2CH_3),3.31, 3.33(3H, s, 2×OCH_3), 4.32(1H, narrow s, H-6α), 5.07; 5.12(1H, s, CH_2O_2).

1. Salimov B.T., Unpub.

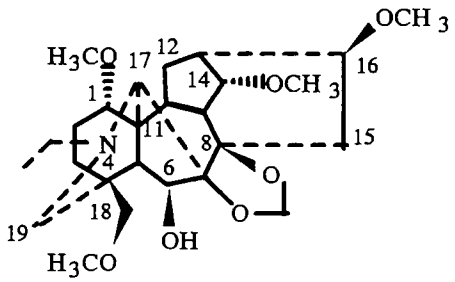


DELCORIDINE

Delphinium corymbosum, D.iliense
$C_{25}H_{39}NO_7$: 465.2726
Mp: amorph. [1]
{p-chl. 222-223°} [2]
IR: 3400, 1100
Mass: 465(M^+), 450, 434(100)

PMR: 1.00(3H, t, J=7, NCH_2CH_3), 3.15, 3.20, 3.25(3H, s, 3×OCH_3), 5.00, 5.10(1H, s, CH_2O_2) [1]

1. Zhamierashvili M.G., Tel'nov V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 663.
2. Salimov B.T., Yunusov M.S., Abdullaev N.D., Vaisov Z.M., Khim. Prir. Soedin., 1985, 95.



DELCORINE

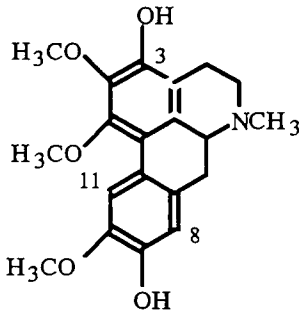
Delphinium corymbosum, D.iliense, D.ternatum
$C_{26}H_{41}NO_7$: 479.2883
Mp: 200-202° (meth.)
$[\alpha]_D$−18° (chlf.)
{h-chl. 118°}

IR: 3520, 1100
Mass: 479(M^+), 462, 448(100)
PMR: 1.00(3H, t, J=7, NCH_2CH_3), 3.22, 3.28, 3.30, 3.40(3H, s, 4×OCH_3), 3.69(1H, t, J=5, H-14β), 4.22(1H, s, H-6α), 5.01, 5.07(1H, s, CH_2O_2) [1]
^{13}C NMR: [2]

C-1	83.1	C-10	40.3	C-19	53.7
2	26.4	11	50.2	NCH_2	50.7
3	31.8	12	28.1	CH_2	14.0
4	38.1	13	37.9	CH_2O_2	92.9
5	52.6	14	82.5	C-1′	55.5
6	78.9	15	33.3	14′	57.8
7	92.7	16	81.8	16′	56.3
8	83.9	17	63.9	18′	59.6
9	48.1	18	78.9		

Pharm.: Ganglioblocking and curaremimetic [3], antiarrhythmic action. More active than procainamide [procaine amide hydrochloride] and quinidine [4].

1. Narzullaev A.S., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 497.
2. Pelletier S.W., Mody N.V., Jr., Dailey O.D., Can. J. Chem., 1980, **58**, 1875.
3. Tulyaganov N., Dzhakhangirov F.N., Sadritdinov F.S., Khamdamov I., in: The Pharmacology of Plant Substances [in Russian], Fan, Tashkent, 1976, p. 76.
4. Dzhakhangirov F.N., Unpub.

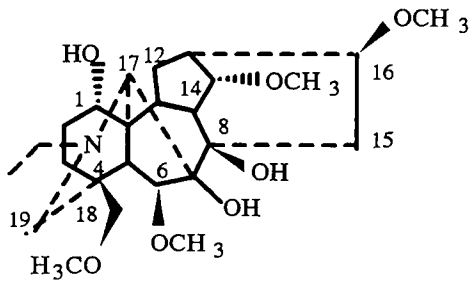


DELPORPHINE

Delphinium dictyocarpum
$C_{20}H_{23}NO_5$: 357.1576
Mp: 116-117° (alc.)
$[\alpha]_D$+68° (alc.)
UV: 217, 283, 304, 315(4.54, 4.13, 4.08, 4.01)
IR: 3420, 1595, 1520

Mass: 357(M^+, 100), 356, 342, 340, 326, 314, 283, 178.5($^{++}$)
PMR: 2.43(3H, s, NCH_3), 3.62(3H, s, 1-OCH_3), 3.79(3H, s, 10-OCH_3), 3.86(3H, s, 2-OCH_3), 6.66(1H, s, H-8), 7.79(1H, s, H-11)

1. Salimov B.T., Abdullaev N.D., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 235.



DELSOLINE (ACOMONINE)

Aconitum barbatum, A.karakolicum, A.monticola, A.turczaninowii, Consolida divarilata, C.orientalis, Delphinium biternatum, D.confusum

$C_{25}H_{41}NO_7$: 467.2883

Mp: 215-218° (meth.)

$[\alpha]_D$+48° (chlf.)

{p-chl. 191°, h-b. 83°, h-chl. 207°}

IR: 3460, 3410-3260, 1455, 1408, 1390, 1338, 1325, 1300, 1270, 1218, 1175, 1130, 1105, 1080, 1040, 1027, 1010, 990, 960, 860, 810, 795, 760, 745, 714

Mass: 467(M^+, 22), 452(100), 450(44), 449(5), 436(61), 434(53), 424(13), 422(15), 406(10), 396(5), 380(5)

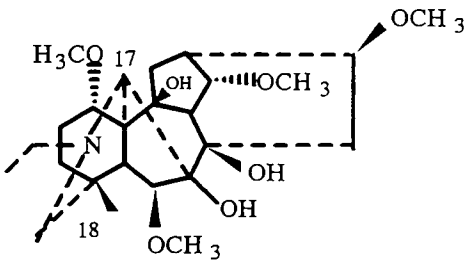
PMR: 1.13(3H, t, J=7, NCH_2CH_3), 3.27, 3.29, 3.35(3H, 3H, 6H, s, 4×OCH_3) [1]

^{13}C NMR: [2]

C-1	72.6	C-9	44.9	C-17	66.0
2	27.2	10	37.7	18	77.3
3	29.3	11	49.3	19	57.2
4	37.4	12	30.5	NCH_2	50.3
5	43.9	13	43.3	CH_3	13.5
6	90.4	14	84.5	C-6′	57.2
7	87.8	15	33.5	14′	57.9
8	78.5	16	82.9	16′	56.3
				18′	59.1

Pharm.: LD_{50} 175, 550 mg/kg (i/v, i/p, mice). Lowers arterial pressure, blocks ganglionic H-cholinoreceptors. Muscle relaxant activity [3].

1. Nezhevenko V.E., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 389; Unpub.
2. Pelletier S.W., Mody N.V., Sawhney R.S., Bhattacharyya J., Heterocycles, 1977, 7, 327.
3. Khamdamov I., Sadritdinov F., Dzhakhangirov F.N., DAN UzSSR, 1975, No. 5, 37.



DELTERINE

Delphinium ternatum

$C_{25}H_{41}NO_7$: 467.2883

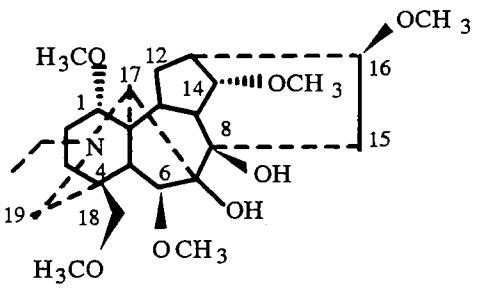
Mp: 73-75° (eth.-hx.)

IR: 3400, 1100

Mass: 467(M^+), 452, 450, 436(100)

PMR: 0.94(3H, s, 18-CH_3), 0.99(3H, t, J=7, NCH_2CH_3), 3.18, 3.24, 3.36, 3.38(3H, s, 4×OCH_3)

1. Narzullaev A.S., Matveev V.M., Sabirov S.S., Yunusov M.S., Khim. Prir. Soedin., 1986, 802.



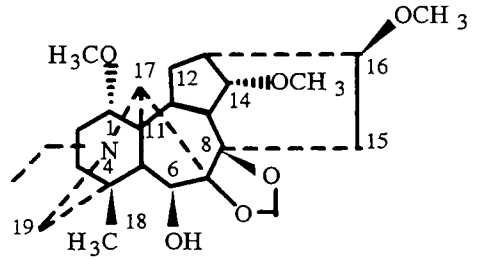
DELPHATINE

Delphinium biternatum, D.corymbosum
$C_{26}H_{43}NO_7$: 481.3040
Mp: 101-106° (petr. eth.-eth.)
$[\alpha]_D$+38° (chlf.)
{p-chl. 221° (dec.), h-i. 199°}
Sol-y.: sol. chlf., bz., ac.
IR: 3580, 3475, 1120

Mass: 481(M^+), 466, 464, 463, 450(100)
PMR: 0.96(3H, t, J=7, NCH_2CH_3), 3.26, 3.29, 3.33, 3.37(3H, 3H, 3H, 6H, s, 5×OCH_3), 3.57(1H, t, J=5, H-14β) [1]
^{13}C NMR: [2]

C-1	83.9	C-10	38.1	C-19	52.8
2	26.2	11	48.9	NCH_2	51.1
3	32.4	12	28.7	CH_3	14.2
4	38.1	13	46.1	C-1′	55.7
5	43.3	14	84.3	6′	57.3
6	90.6	15	33.5	14′	57.8
7	88.4	16	82.6	16′	56.3
8	77.5	17	64.8	18′	59.0
9	49.8	18	78.1		

1. Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 334.
2. Pelletier S.W., Mody N.V., Sawhney R.S., Bhattacharyya J., Heterocycles, 1977, 7, 327.



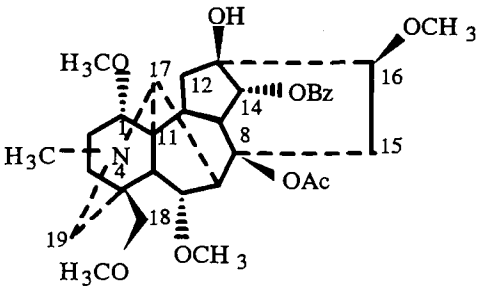
DELPHELINE

Delphinium ternatum
$C_{25}H_{39}NO_6$: 449.2777
Mp: 223-225° (ac.) 215-217° [1]
$[\alpha]_D$–24° (chlf.)
IR: 3475, 1100 [1]
Mass: 449(M^+), 434, 418(100) [1]

PMR: 0.86(3H, s, 18-CH_3), 0.98(3H, t, J=7, NCH_2CH_3), 3.16, 3.25, 3.33(3H, s, 3×OCH_3), 3.59(1H, t, J=5, H-14β), 4.11(1H, s, H-6α), 4.92, 5.02(1H, s, CH_2O_2) [1]
^{13}C NMR: [2]

C-1	82.9	C-10	47.8	C-19	57.3
2	26.9	11	50.4	NCH_3	50.6
3	36.9	12	28.1	CH_3	14.0
4	33.9	13	37.7	OCH_2O	92.9
5	56.7	14	83.0	C-1′	56.3
6	79.2	15	33.4	14′	57.8
7	92.7	16	81.8	16′	55.6
8	84.1	17	63.6		
9	40.4	18	25.4		

1. Matveev V.M., Narzullaev A.S., Sabirov S.S., Khim. Prir. Soedin., 1983, 657; Unpub.
2. Joshi B.S., Pelletier S.W., Zhang X., Snyder J.K., Tetrahedron, 1991, **47**, 4299.



DELPHININE

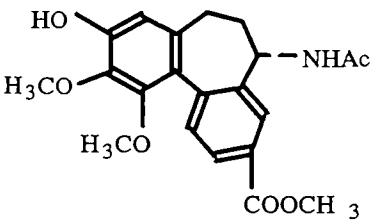
Atragene sibirica
$C_{33}H_{45}NO_9$: 599.3094
Mp: 191-192°
$[\alpha]_D$+25° (alc.)
UV: 262 [1]

IR: 3520, 2980, 2935, 2890, 2820, 2770, 1726, 1605, 1586, 1455, 1393, 1372, 1338, 1318, 1285, 1258, 1179, 1168, 1117, 1095, 1028, 1017, 988, 948, 894, 876, 858 [2]
PMR: 1.31(3H, s, OAs), 2.39(3H, s, NCH_3), 3.26, 3.65(3H, s, 2×OCH_3), 3.40(6H, s, 2×OCH_3), 5.08(1H, d, H-14β), 7.66-8.42(5H, m, H-Ar) [3]
^{13}C NMR: [4]

C-1	84.9	C-12	35.7	C-16′	58.6
2	26.3	13	74.8	18′	58.9
3	34.7	14	78.9	CO	169.4
4	39.3	15	39.3	CH_3	21.4
5	48.8	16	83.7	Ar-C=O	166.0
6	83.0	17	63.3	Ar..C-1	129.6
7	48.2	18	80.2	2	128.4
8	85.4	19	56.1	3	130.4
9	45.1	NCH_3	42.3	4	132.8
10	41.0	1′	56.1	5	130.4
11	50.2	6′	57.6	6	128.4

Pharm.: Neurocardiotoxic. Similar in the nature of its action to aconitine, but inferior to it in toxicity and arrhythmogenic effect [5, 6].

1. Krasnov E.A., Bokova V.S., Khim. Prir. Soedin., 1981, 806.
2. Holubek, No. 87.
3. Birnbaum K.B., Wiesner K., Jay E.W.R., Jay L., Tetrahedron Lett., 1971, 867.
4. Pelletier S.W., Finer-Moore J., Desai R.C., Mody N.V., Desai H.K., J. Org. Chem., 1982, 5290.
5. Keshni R., in: Handbook of Pharmacology [in Russian], Leningrad, 1930, p. 586.
6. Scherf D., Blumenfeld S., Taher D., Gildiz M., Arch. Kreislaufforsch., 1960, 1, 2, 4.

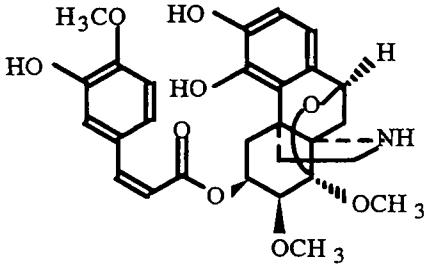


3-DEMETHYLALLOCOLCHICINE

Colchicum kesselringii
$C_{21}H_{23}NO_6$: 385.1525
Mp: 238-240°
{3-demethylcolchicinic acid 261°} [1]

Sol-y.: sol. meth., chlf., ac.; sp. sol. water, eth., petr. eth. [1]
UV: 228, 296 [2]
IR: 3350, 1720, 1650 [2]
Mass: 326 [2]
PMR: 2.00, 3.53, 3.70, 3.80(NAc, 3×OCH_3) [2]

1. Yusupov M.K., Sadykov A.S., Zh. Org. Khim., 1964, **34**, 1672; 1677.
2. Yusupov M.K., in: The Chemistry of Plant Substances [in Russian], Fan, Tashkent, 1972, p. 19.

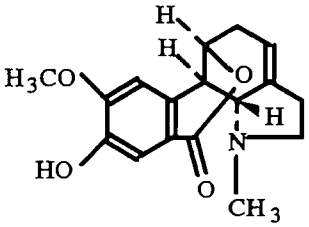


3-O-DEMETHYLHERNANDIFOLINE

Stephania germandifolia
$C_{28}H_{31}NO_9$: 525.1999
Mp: 148-149° (meth.-eth.)
IR: 3560, 3440, 3200-2700, 1695, 1640, 1612, 1588, 1512, 1489

PMR: 1.85(1H, d, J=10.5, H-9), 2.02(1H, q, J=15; 2.3, H-5_a), 2.62(1H, q, J=10.5; 5.8, H-9), 3.17(1H, q, J=15; 4.1, H-5_e), 3.40, 3.41, 3.89(3H, s, 3×OCH_3), 3.74(1H, d, J=4, H-7), 4.88(1H, d, J=5.8, H-10), 5.35, 7.00(1H, d, J=15.6, Ar-CH=CH-C=O), 5.40(1H, m, H-6), 6.50, 6.60(1H, d, J=8, H-1, H-2), 6.89(3H, m, H-Ar)

1. Fadeeva I.I., Perel'son M.E., Tolkachev O.N., Il'inskaya T.N., Fesenko D.A., Khim. Prir. Soedin., 1972, 130.

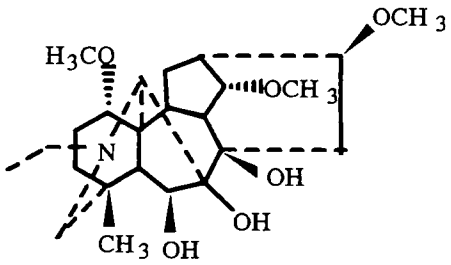


DEMETHYLHOMOLYCORINE

Galanthus caucasicus
$C_{17}H_{19}NO_4$: 301.1314
Mp: 214° (water)
$[\alpha]_D$+94° (meth.)

UV: 228, 269, 310 (4.32, 3.91, 3.73)
IR: 3400-3200, 1700
Mass: 301(M^+), 109(100), 108, 96, 94, 82
PMR: 1.92(3H, s, NCH_3), 3.84(3H, s, OCH_3), 5.46(1H), 7.01, 7.46(1H)

1. Tsakadze D.M., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 331.

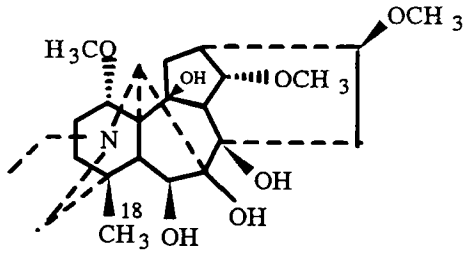


DEMETHYLENEDELPHELINE

Delphinium corymbosum
$C_{24}H_{39}NO_6$: 437.2777
Mp: 78-80° (eth.)
IR: 3600-3400, 1100
Mass: 437(M^+), 406(100)

PMR: 0.85(3H, s, 18-CH_3), 0.96(3H, t, J=7, NCH_2CH_3), 3.18, 3.30, 3.39 (3H, s, 3×OCH_3), 4.24(1H, narrow s, H-6α)

1. Narzullaev A.S., Yunusov M.S., Matveev V.M., Sabirov S.S., Khim. Prir. Soedin., 1989, 50.

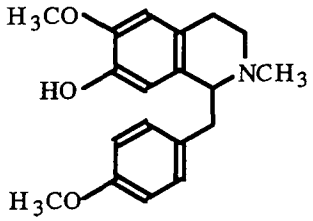


DEMETHYLENELDELIDINE

Delphinium dictyocarpum
$C_{24}H_{39}NO_7$: 453. 2726
Mp: 98-100° (hx.-ac.)
$[\alpha]_D$+30° (chlf.)
IR: 3455, 1104 [1]

Mass: 453($M^{+\cdot}$), 438, 336, 335, 422(100) [1]
PMR: 0.91(3H, s, 18-CH_3), 0.98(3H, t, J=7, NCH_2CH_3), 3.17, 3.25, 3.35(3H, s, 3×OCH_3) [1]
Pharm.: LD_{50} 230 mg/kg (i/v, mice). Weakly hypotensive and H-cholinoblocking and pronounced antiarrhythmic action. In antiarrhythmic activity superior to procainamide [procaine amide hydrochloride] [2].

1. Salimov B.T., Abdullaev N.D., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 235; Salimov B.T., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 128; Unpub.
2. Dzhakhangirov F.N., Unpub.

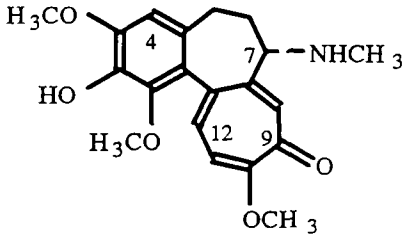


N-DEMETHYLCOLLETINE

Aconitum leucostomum
$C_{19}H_{23}NO_3$: 313.1678
$[\alpha]_D$–80° (meth.) [1]
UV: 223, 284(4.20, 3.69) [2]
Mass: 192(100), 121(25) [2]

PMR: 2.38(3H, s, NCH_3), 3.63, 3.78(3H, s, 2×OCH_3), 6.25, 6.40(1H, s, H-8, H-5), 6.37, 6.91(2H, d, J=8, 4×H-Ar) [2]

1. Nieto M., Sevenet T., Leboeuf M., Cave A., Planta Medica, 1976, **30**, 48.
2. Zhamierashvili M.G., Tel'nov V.A., Yunusov M.S., Yunusov S.Yu., Nigmatullaev A., Taizhanov K., Khim. Prir. Soedin., 1980, 805.

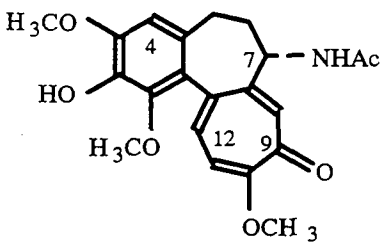


2-DEMETHYLCOLCHAMINE (2-DEMETHYLDEMECOLCINE)

Colchicum luteum, C.speciosum, Merendera jolantae, M.robusta, M.sobolifera
$C_{20}H_{23}NO_5$: 357.1576
Mp: 136-138°

$[\alpha]_D$–120° [1, 2]
UV: 241, 355(4.49, 4.19) [2]
IR: 3260, 1616, 1591, 1568, 1557, 1498, 1315, 1248, 1143, 1080, 1036, 981, 918 [3]
HPLC: [4]

1. Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1978, 3.
2. Potesilova H., Hruban L., Santavy F., Collect., 1976, **10**, 3141.
3. Holubek, No. 94A.
4. Husek A., Sutlupinar N., Sedmera P., Voegelein F., Valka I., Simanek V., Phytochem., 1990, **29**, 3058.

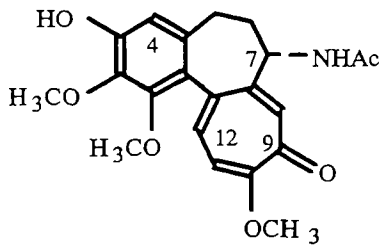


2-DEMETHYLCOLCHICINE

Colchicum kesselringii, C. laetum, C.luteum, C.speciosum, Merendera raddeana, M.robusta, M.sobolifera
$C_{21}H_{23}NO_6$: 385.1525
Mp: 178-180° (chlf.)

$[\alpha]_D$–133° (chlf.) [1, 2]
UV: 243, 253(4.43, 4.17) [3]
IR: 3260, 1683, 1668, 1615, 1589, 1552, 1535, 1498, 1318, 1258, 1178, 1146, 1084 [3]
Mass: 385(M^+) [2]
PMR: 1.99(NAc), 3.66, 3.90, 4.10(3H, s, 3×OCH_3), 6.52(1H, s, H-4), 7.61(1H, s, H-8), 6.77, 7.38(2H, d, J=10, H-11, H-12) [2]
HPLC: [4]
Pharm.: LD_{100} 70 mg/kg [5].

1. Yusupov M.K., Sadykov A.S., DAN UzSSR, 1967, No. 3, 25.
2. Popova O.I., Murav'eva D.A., Tolkachev O.N., Khim. Prir. Soedin., 1991, 731.
3. Holubek, No. 92A.
4. Klein A.E., Davis P.J., J. Chromatogr., 1981, **207**, 247.
5. Kiselev V.V., Khim. Prir. Soedin., 1977, 3.

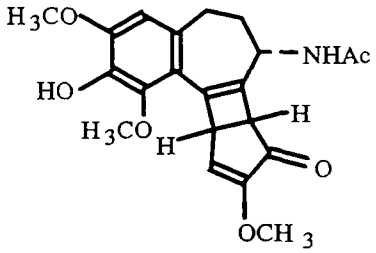


3-DEMETHYLCOLCHICINE

Colchicum kesselringii, C.luteum, C.szovitsii, Merendera raddeana, M.robusta, M.trigyna
$C_{21}H_{23}NO_6$: 385.1525
Mp: 276-278° (e-a.-ac.) [1]; 176-182° [2]
$[\alpha]_D$–263° (meth.) [1]; –130° (chlf.) [2]

{Ac 225°, O-Ac 228°} [1, 2]
UV: 243, 355(4.46, 4.19) [3]
Mass: 385(M^+), 357, 342, 326 [2]
PMR: 2.00(3H, s, NAc), 3.65(s, OCH_3), 4.00(3H, s, OCH_3), 6.55(1H, s, H-4), 6.88(1H, d, J=12, H-11), 7.34(1H, d, J=12, H-12), 7.58(1H, s, H-8), 8.02(1H, m, NH) [2]
HPLC: [4]
Pharm.: LD_{100} 25 mg/kg, LD_{50} 16 mg/kg [5].

1. Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1970, 82.
2. Kupchan S.M., Britton R.W., Chiang C.K., Alpan N.N., Ziegler M.F., J. Natur. Prod., 1973, **36**, 338.
3. Potesilova H., Hruban L., Santavy F., Collect., 1976, **41**, 3146.
4. Klein A.E., Davis P.J., J. Chromatogr., 1981, **207**, 247.
5. Kiselev V.V., Khim. Prir. Soedin., 1977, 3.



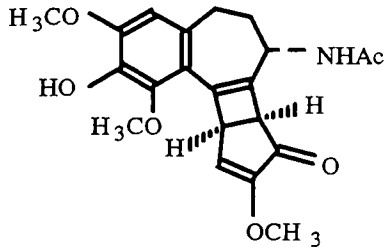
2-DEMETHYL-β-LUMICOLCHICINE

Solchicum kesselringii, C.luteum, C.speciosum, C.szovitsii, Merendera raddeana, M. robusta, M.sobolifera
$C_{21}H_{23}NO_6$: 385.1525
Mp: 234-236° (ac.)

$[\alpha]_D$+288° (meth.) [1]
IR: 1710, 1640 [2]
Pharm.: Anticholinesterase activity [3].

1. Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1990, 147.
2. Potesilova H., Wiedermannova J., Santavy F., Collect., 1969, **34**, 3642.

3. Zuparova K.M., Rozengart E.V., Yusupov M.K., Chommadov B., Khakimov Yu.R., Abduvakhvbov A.A., Israilov D.I., DAN UzSSR, 1991, No. 4, 33.

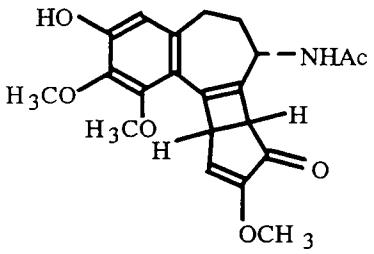


2-DEMETHYL-γ-LUMICOLCHICINE

Colchicum kesselringii, C.luteum, Merendera raddeana, M.robusta
$C_{21}H_{23}NO_6$: 385.1525
Mp: 291-293° (ac.)
$[\alpha]_D$–410° (meth.) [1]

{O-Me 276°, O-Ac 268°}
Sol-y.: r-sol. meth.; sol. chlf.; sp. sol. ac., water; i.s. eth., petr. eth. [2]
UV: 228, 264, 282, 342 [1]
IR: 3543, 1720, 1645, 1613 [3]
Mass: 385($M^{+\cdot}$), 342 [2]
PMR: 1.98, 2.65(4H, H-6, H-5), 1.98(3H, s, NAc), 3.50(1H, NH), 3.60(H-8), 3.62, 3.85, 3.93(3H, s, 3×OCH_3), 4.10(H-12), 6.42(H-4), 6.58(H-11) [2, 3]

1. Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1970, 82; 275.
2. Chommadov B., Yusupov M.K., Kamaev F.G., Sadykov A.S., Izv. AN Turk. SSR, Ser. Fiz.-Tekhn., Khim. Geol. Nauk, 1970, No. 5, 111.
3. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992.

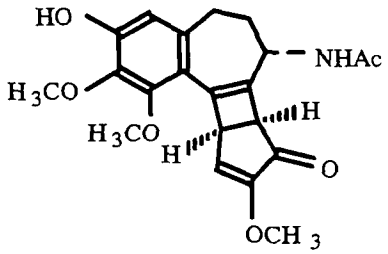


3-DEMETHYL-β-LUMICOLCHICINE

Colchicum kesselringii, C.luteum, Merendera raddeana, M.robusta
$C_{21}H_{23}NO_6$: 385.1525
Mp: 198-200° (e-a.)
$[\alpha]_D$+337° (chlf.)

{O-Ac 224°}
UV: 226, 264, 344 [1]; 276(4.30) [2]
IR: 3600, 3370, 3290, 1702, 1629, 1605, 1572, 1543, 1534, 1335, 1283, 1255, 1231, 1173, 1140, 1120, 1079 [2]
Mass: 385($M^{+\cdot}$) [1]
PMR: 2.05, 2.65(2H, m, H-5, H-6), 2.07(NAc), 3.63(H-8), 3.68, 3.91, 3.94(3H, s, 3×OCH_3), 4.10(H-12), 4.80(H-7), 6.03(NH), 6.52(1H, s, H-4), 6.62(H-11) [3]

1. Turdikulov Kh., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1971, 541.
2. Holubek, No. 818A.
3. Severini Ricca G., Danieli B., Gazz. Chim. Ital., 1969, **99**, 133.

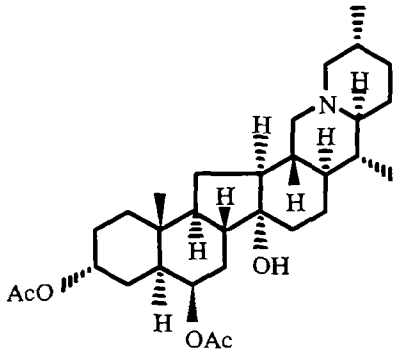


3-DEMETHYL-γ-LUMICOLCHICINE

Colchicum kesselringii, Merendera jolantae
$C_{21}H_{23}NO_6$: 385.1525
Mp: 287-288°
$[\alpha]_D$–420° (chlf.)
{O-Ac 276°}

Sol-y.: sol. chlf.; sp. sol. meth., ac.; i.s. eth., petr. eth.
UV: 226, 266, 340
IR: 3310, 1710, 1635
Mass: 385(M^+), 342
PMR: 2.04(3H, s, NAc), 3.72, 3.92, 3.94(3H, s, 3×OCH_3)

1. Turdikulov Kh., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1972, 502.

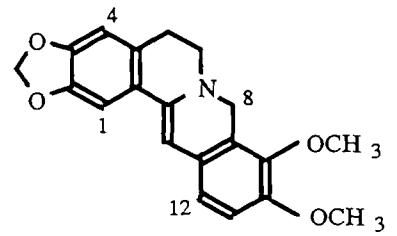


DIACETYLSEVEDINE

Korolkowia sewerzowii
$C_{31}H_{49}NO_5$: 515.3611
Mp: 202-204° (ac.-petr. eth.)
Sol-y.: r-sol. chlf., alc., meth.
IR: 3500, 2770, 1740, 1240
Mass: 515(M^+, 31), 514(6), 500(13), 498(13), 456(8), 432(21), 431(40), 416(38), 178(15), 166(20), 164(23), 125(9), 112(3), 111(100), 98(17)

PMR: 0.81(6H, d, 21-CH_3, 27-CH_3), 0.94(3H, s, 19-CH_3), 1.97(6H, s, OAc), 4.68, 4.95(1H, m, HC-OAc)

1. Kul'kova V.V., Samikov K., Shakirov R., Khim. Prir. Soedin., 1991, 440.



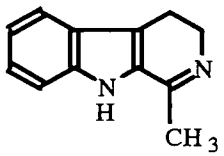
DIHYDROBERBERINE (LAMBERTINE)

Berberis vulgaris
$C_{20}H_{19}NO_4$: 337.1314
Mp: 163-164° [1]
Sol-y.: r-sol. chlf.; sp. sol. eth., bz. [1]
UV: 280, 368(4.21; 4.30) [1]

IR: 3250-3150, 1600, 1570, 1230, 1065, 1040 [2]
PMR(DMSO-d_6): 3.05-3.60(6H, m, 3×CH_2), 4.1, 4.2(3H, s, 2×OCH_3), 6.15(2H, CH_2O_2), 7.05-9.20(H-Ar), 9.50(1H) [2]
^{13}C NMR (DMSO-d_6): [2]

C-1	108.3	C-5	37.0	C-11	121.2
2	143.5	6	57.7	12	120.3
3	145.3	8	57.1	12a	137.3
4	105.3	8a	132.9	9-OCH_3	56.2
4a	126.6	9	149.6	10-OCH_3	61.9
4b	123.4	10	147.5	CH_2O_2	101.5

1. Yusupov M.M., Karimov A., Lutfullin K.L., Khim. Prir. Soedin., 1990, 128.
2. Dobhal M.P., Goel V.K., Joshi B.C., Pharmazie, 1988, **43**, 659.

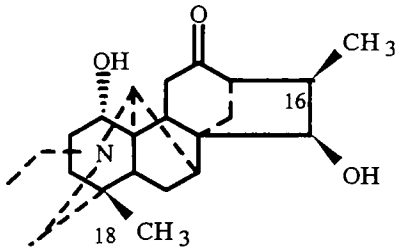


DIHYDROGARMANE

Elaeagnus angustifolia
$C_{12}H_{12}N_2$: 184.1001
{picr. 234°}

UV: 233, 315(4.19, 4.18)
UV(H^+): 246, 350(4.02, 4.35)

1. Nikolaeva A.G., Khim. Prir. Soedin., 1970, 638.

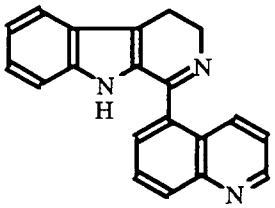


DIHYDROSONGORINE

Aconitum karakolicum
$C_{22}H_{33}NO_3$: 359.2460
Mp: 202-204° (ac.)
IR: 3500-3400, 1700 [1]

Mass: 359(26), 342(5), 301(100), 284(6), 259(7), 242(5) [2]
PMR: 0.68(3H, s, 18-CH_3), 0.74(3H, d, J=7, 16-CH_3), 1.00(3H, t, J=7, NCH_2CH_3) [1]
Pharm.: LD_{50} 120 mg/kg, 450 mg/kg (i/v, i/p, mice). In its antiarrhythmic action superior to quinidine and procainamide [procaine amide hydrochloride]. Psychostimulating and antiinflammatory action [3].

1. Sultankhodzhaev M.N., Yunusov M.S., Khim. Prir. Soedin., 1987, 917.
2. Yunusov M.S., Rashkes Ya.V., Yunusov S.Yu., Samatov A.S., Khim. Prir. Soedin., 1970, 101.
3. Dzhakhangirov F.N., Unpub.



DIHYDROISOKOMAROVINE

Nitraria komarovii
$C_{20}H_{15}N_3$: 297.1266
Mp: 252-253° (chlf.-meth.)
Sol-y.: sp. sol. org. solvent

UV: 220, 246 sh, 293, 320, (4.60, 4.66, 4.10, 3.87)
UV: (H^+): 216, 252, 305, 321.
IR: 3170-3110, 3060, 2960, 2840, 1625, 1575, 1510, 1460, 1285, 1245, 1145, 815, 770.
Mass: 297(M^+)
PMR: 3.20, 4.70(2H, m), 7.00-9.27(11H, m, H-Ar, NH)

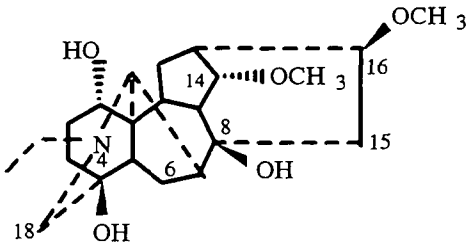
1. Tulyaganov T.S., Yunusov S.Yu., Khim. Prir. Soedin., 1990, 61.

(–)-3α,6β-DIHYDROXYTROPANE

Datura innoxia, D.stramonium, Physochlaina alaica

$C_8H_{15}NO_2$: 157.1103
Mp: 212° (meth.)
$[\alpha]_D$–25°
{picr. 253°, nitr. 197°, h-chl. 295°, h-b. 256°} [1]
IR: 3450-3310
Mass: 157(M^+, 35), 140(14), 124(12), 113(100), 96(92), 82(36), 81(15) [2]

1. Fodor G., Kovges O., Meszaros R., J. Chem. Soc., 1953, 2341.
2. Aripova S.F., Unpub.



DIHYDROMONTICAMINE

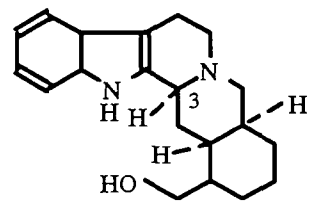
Aconitum monticola
$C_{22}H_{35}NO_5$: 393.2515
Mp: 156-157° (eth.-ac.)
{h-chl. 202°}
IR: 3550-3335 [1]

Mass: 393(M^+, 13), 378(28), 376(100), 360(20), 337(10) [1]
PMR: 0.92(3H, t, J=7, NCH_2CH_3), 3.14, 3.28(3H, s, 2×OCH_3), 3.75(1H, t, J=5, H-14β) [1]
^{13}C NMR: [1]

C-1	72.0	C-9	45.7	C-17	62.7
2	29.9	10	37.1	18	–
3	33.4	11	50.0	19	60.2
4	70.3	12	30.3	NCH_2	48.0
5	48.0	13	43.4	CH_3	13.0
6	24.6	14	84.8	14′	57.6
7	45.3	15	42.9	16′	56.1
8	75.0	16	82.8		

Pharm.: LD_{50} 220 mg/kg (i/v, mice). Weak and brief hypotensive and H-cholinoblocking action [2].

1. Ametova É.F., Yunusov M.S., Bannikova V.E., Abdullaev N.D., Tel'nov V.A., Khim. Prir. Soedin., 1981, 466.
2. Dzhakhangirov F.N., Unpub.

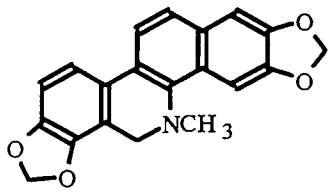


DIHYDRONITRARAINE

Nitraria komarovii, N. schoberi
$C_{20}H_{26}N_2O$: 310.2045
Mp: 286-287°
$[\alpha]_D$ 0° (pyr.)

{O-Ac 95°}
Mass: 310(M^+), 309, 293, 292, 279, 197, 184, 170, 169, 156, 144
PMR(CF_3COOH): 0.99-2.70(14H, m, 7×CH_2), 3.86(3H, m, CH_2OH, H-3), 6.93, (4H, m, H-Ar)

1. Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1985, 544.

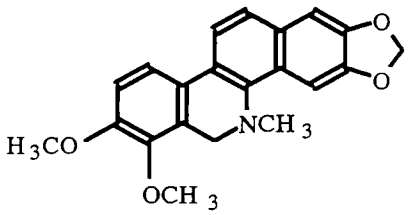


DIHYDROSANGUINARINE

Corydalis gigantea, C.ledebouriana, C.paniculigera, C.remota, C.sewerzowii, C.stricta, C.vaginans, Dicentra peregrina, D.spectabilis, Fumaria parviflora, Glaucium fimbrilligerum

$C_{20}H_{15}NO_4$: 333.1001
Mp: 187-188° (meth.)
UV: 240, 288, 330
Mass: 333(M^+), 332(100), 318
PMR: 2.55(3H, s, NCH_3), 4.13(2H, s), 5.95(4H, s, 2×CH_2O_2), 6.79, 7.23, 7.42, 7.63(1H, d, J=8, 4×o-H-Ar), 7.03, 7.62(1H, s, p-H-Ar)
HPLC: [2]

1. Karimova S.U., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 224.
2. Chang-Qun Niu, Li-Yi He., J. Chromatogr., 1991, **542**, 193.

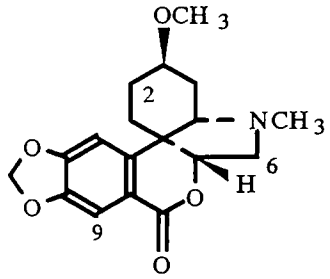


DIHYDROCHELERYTHRINE

Corydalis ledebouriana, Glaucium elegans
$C_{21}H_{19}NO_4$: 349.1314
Mp: 161-162° (meth.-chlf.)
UV: 226, 282, 318, 350 sh [1]

IR($CHCl_3$): 2780, 1270, 1243 [1]
Mass: 349(M^+), 348, 347, 333, 332, 318, 305, 304, 290 [1]
PMR: 2.56(3H, s, NCH_3), 3.84, 3.88(3H, s, 2×OCH_3), 4.28(2H, s), 6.01(2H, s, CH_2O_2), 6.92, 7.50(1H, d, J=8, o-H-Ar), 7.10, 7.71(1H, s, p-H-Ar), 7.47, 7.69(1H, d, J=8, o-H-Ar) [1]
HPLC: [2]

1. Krane B.D., Fagbule M.O., Shamma M., Cozler B., J. Natur. Prod., 1984, **47**, 1.
2. Tanahashi T., Zenk M.H., J. Natur. Prod., 1990, **53**, 579.

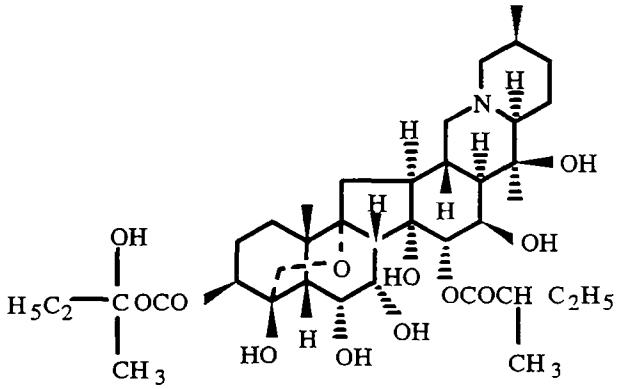


DIHYDROEPIMACRONINE

Ungernia spiralis
$C_{18}H_{21}NO_5$: 331.1420
Mp: 98-99° [1]
$[\alpha]_D$+11° (chlf.) [1]
UV: 227, 272, 314(4.36, 3.85, 3.73) [1]

IR: 1710, 1620, 1510, 1480 [1]
Mass: 331(M^+), 317, 316, 301, 300, 287, 272, 259, 247, 245, 229, 201, 175, 141, 70(100), 57, 56, 53 [1, 2]
PMR: 1.81(6H, m), 2.26(3H, s, NCH_3), 2.79, 2.92(1H, d, H-6), 3.32(3H, s, OCH_3), 3.70(1H, m, H-3), 4.84(1H, m, H-6a), 5.98(2H, s, CH_2O_2), 7.00(1H, s, H-12), 7.48(1H, s, H-9) [1, 2]

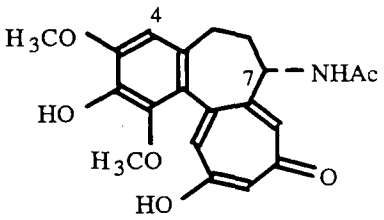
1. Kadyrov Kh.A., Abdusamatov A., Khim. Prir. Soedin., 1977, 426.
2. Kadyrov Kh.A., Author's Abstract of Candidate's Dissertation, Tashkent, 1982.



DIDEACETYLPROTOVERATRINE A

Veratrum lobelianum, V.nigrum, V.oxysepalum
$C_{37}H_{59}NO_{12}$: 709.4037
Mp: 202-204° (bz.)
$[\alpha]_D$–19° (pyr.)
UV(H^+): 250, 291, 370, 540
IR: 1738, 1248 [1, 2]

1. Bondarenko N.V., Khim. Prir. Soedin., 1982, 529.
2. Kupchan S.M., Ayres C.I., J. Am. Chem. Soc., 1959, **81**, 1009.

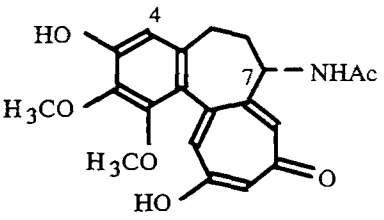


2,10-DIDEMETHYLCOLCHICINE

Colchicum luteum, Merendera raddeana, M.robusta
$C_{20}H_{21}NO_6$: 371.1369
Mp: 259-261° (e-a.)
$[\alpha]_D$–230° (chlf.)

{di Ac 221°}
Sol-y.: r-sol. chlf., meth., ac.; sp. sol. eth., water
UV: 246, 348
IR: 3275, 1675, 1605, 1600
Mass: 371(M^+), 343, 328, 312, 300, 284, 269
PMR: 1.96(3H, s, NAc), 2.26(4H, m, H-5, H-6), 3.65, 3.91(3H, s, 2×OCH_3), 4.60(1H, H-7), 5.86(2H, 2×OH), 6.51(1H, s, H-4), 7.20(1H, NH), 7.26, 7.52(1H, d, J=11, H-11, H-12), 7.55(1H, s, H-8)

1. Chommadov B., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1991, 67.



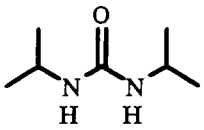
3,10-DIDEMETHYLCOLCHICINE (3-DEMETHYLCOLCHICEINE)

Colchicum kesselringii, C.luteum, C.szovitsii, Merendera jolantae, M.raddeana, M.robusta, M.trigyna

$C_{20}H_{21}NO_6$: 371.1369
Mp: 179-183° (amorph.)
{di Ac 122°, $[\alpha]_D$–170° (chlf.)} [1, 2]
Sol-y.: sol. meth., chlf., ac.; sp. sol. water, eth., petr. eth.
UV: 244, 350(4.30, 4.00) [1]
IR: 3275, 1675, 1615, 1354, 1280 [1]

PMR: 1.98, 2.30(2H, m, H-5, H-6), 2.13(3H, s, NAc), 3.57, 3.96(3H, s, 2×OCH_3), 3.83(10-OH), 4.45-4.85(1H, narrow s, H-7), 6.58(1H, s, H-4) [1]

1. Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1970, 82.
2. Zuparova K.M., Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1972, 487.

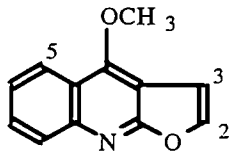


N,N′-DIISOPROPYLUREA

Dipthychocarpus strictus

$C_7H_{16}N_2O$: 144.1263
Mp: 190-192°
IR: 3350, 1630, 1580.
Mass: 144(M^+), 129, 58, 44(100)
PMR: 1.10(12H, d, J=6, 4×CH_3), 3.64(4H, m, CH, NH).

1. Aripova S.F., Akramov S.T., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 762.



DICTAMNINE

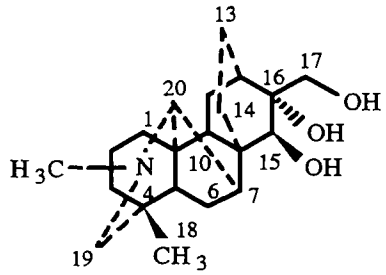
Dictamnus angustifolius, D.caucasicus, Haplophyllum bucharicum, H.bungei, H.dauricum, H.obtusifolium, H.perforatum, H.ramosissimum, H. robustum, Ruta graveolens

$C_{12}H_9NO_2$: 199.0633
Mp: 132-133° (ac.)
{h-chl. 170°, picr. 163°, isodictamnine 188°} [1]
UV: 212 sh, 233, 242 sh, 299 sh, 307, 334, 358(4.42, 4.59, 4.50, 3.34, 3.94, 3.59, 3.57) [2]
IR: 3145, 3120, 1623, 1580, 1510, 1470, 1450, 1370, 1266 [2]
Mass: 199(M^+, 100), 184(70), 156(33), 140(4), 128(26), 101(11), 76(7) [2]
PMR: 4.30(3H, s, OCH_3), 6.90, 7.48(1H, d, J=2.5, H-3, H-2), 7.20-8.00(3H, m, H-Ar), 8.10(1H, dd, J=8.2; 2, H-5) [2]
^{13}C NMR: [3]

C-2	143.6	C-4	122.4	C-7	129.6
2a	–	4a	–	8	127.9
3	104.7	5	122.4	8a	–
3a	–	6	123.7	4-OCH_3	59.0

HPLC: [4]
Pharm.: 0.05-0.055 mg/kg – death of the animal with symptoms of asphyxia; 0.001 mg/ml – raises the tonus of the cardiac musculature [5].

1. Kurbanov D., Sidyakin G.P., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 67.
2. Bessonova I.A., Unpub.
3. Brown N.M.D., Grundom M.F., Harrison D.M., Surgenor S.A., Tetrahedron, 1980, **36**, 3579.
4. Kanamori H., Sakamoto I., Mizuta M., Chem. Pharm. Bull., 1986, **34**, 1826.
5. Sadritdinov, p. 269.



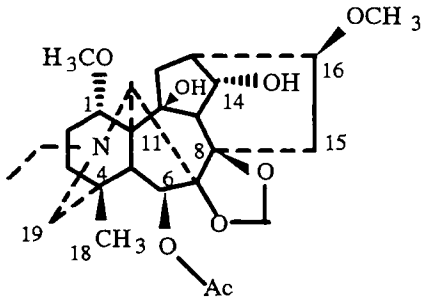
DICTYSINE

Delphinium corymbosum, D.dictyocarpum
$C_{21}H_{33}NO_3$: 347.2460
Mp: 184-186° (meth.)
$[\alpha]_D$–120° (chlf.)
Sol-y.: sol. ac., meth.
IR: 3440 [1]

Mass: 347(M^+, 100), 330(31), 316(20), 312(8), 304(21), 256(8), 172(27) [1].
PMR: 0.62(3H, s, 18-CH_3), 2.23(3H, s, NCH_3), 3.46, 4.18(1H, d, J=12), 3.96(1H, s, H-15α) [1, 2].
X-ray spectral analysis: [2]
Pharm.: LD_{50} 165 mg/kg (i/v, mice). Brief hypotnesive action due to a peripheral gangliolytic and spasmolytic effect [4].
^{13}C NMR: [3]

C-1	27.6	C-8	43.0	C-15	87.1
2	21.8	9	42.5	16	81.1
3	41.2	10	46.9	17	67.9
4	35.2	11	24.7	18	27.0
5	54.0	12	36.5	19	60.8
6	24.0	13	23.0	20	74.7
7	44.0	14	29.0	NCH_3	44.5

1. Salimov B.T., Yunusov M.S., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 812.
2. Salimov B.T., Tashkhodzhaev B., Yunusov M.S., Khim. Prir. Soedin., 1982, 86.
3. Joshi B.S., Pelletier S.W., Zhang X., Snyder J.K., Tetrahedron, 1991, **47**, 4299.
4. Dzhakhangirov F.N., Sadritdinov F.S., DAN UzSSR, 1982, No. 8, 37.



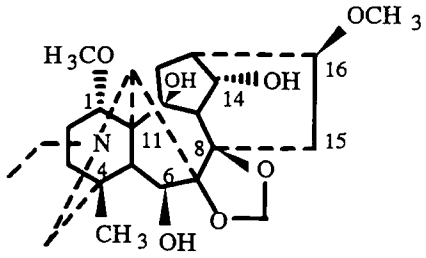
DICTIOCARPINE

Delphinium dictyocarpum, D.ternatum
$C_{26}H_{39}NO_8$: 493.2676
Mp: 210-212° (ac.-hx.)
$[\alpha]_D$–14° (chlf.)
IR: 3490, 1710, 1140 [1]
Mass: 493(M^+), 478, 462(100), 434 [1]

PMR: 0.91(3H, s, 18-CH_3), 1.03(3H, t, J=7, NCH_2CH_3), 2.04(3H, s, Ac), 3.20, 3.32(3H, s, 2×OCH_3), 4.55(1H, t, J=5, H-14β), 5.08, 5.14(1H, s, CH_2O_2), 5.42(1H, s, H-6α) [1]
^{13}C NMR [2]:

C-1	78.7	C-10	79.9	C-19	56.9
2	26.4	11	55.1	NCH_2	50.4
3	37.6	12	36.5	CH_3	14.0
4	34.0	13	36.6	OCH_2O	94.0
5	51.8	14	72.8	1′	55.6
6	77.2	15	32.9	16′	56.3
7	93.0	16	81.2	OC=O	170.2
8	82.9	17	64.4	CH_3	21.8
9	50.4	18	25.5		

1. Narzullaev A.S., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 498.
2. Pelletier S.W., Mody N.V., Jr., Dailey O.D., Can. J. Chem., 1980, **58**, 1875.



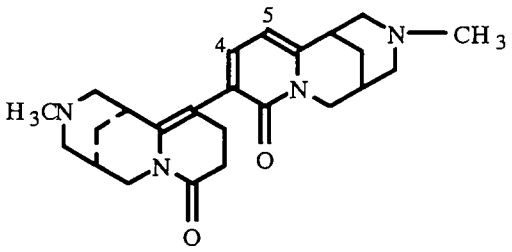
DICTIOCARPININE

Delphinium iliense
$C_{24}H_{37}NO_7$: 451.2570
Mp: 204-205°
$[\alpha]_D$–5.0° (meth.)
IR: 3420, 1100 [1]

Mass: 451(M^+), 436, 420(100) [1]
PMR: 0.93(3H, s, 18-CH_3), 1.06(3H, t, J=7.5, NCH_2CH_3), 3.26, 3.38(3H, s, 2×OCH_3), 4.28(1H, d, J=1, H-6α), 4.72(1H, dd, J=6.5, H-14β), 5.00, 5.12(1H, s, CH_2O_2) [1, 2]
^{13}C NMR: [3]

C-1	79.9	C-9	51.6	C-17	64.0
2	26.4	10	80.5	18	25.4
3	36.9	11	55.4	19	57.2
4	33.9	12	36.7	NCH_2	50.5
5	51.9	13	36.5	CH_3	14.0
6	77.3	14	72.6	1′	55.6
7	93.4	15	33.2	16′	56.3
8	82.8	16	81.2	CH_2O_2	93.4

1. Zhamierashvili M.G., Tel'nov V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 663.
2. Pelletier S.W., Dalley O.D., Jr., Mody N.V., Olsen J.D., J. Org. Chem., 1981, **46**, 3284.
3. Pelletier S.W., Mody N.V., Dalley O.D., Jr., Can. J. Chem., 1980, **58**, 1875.

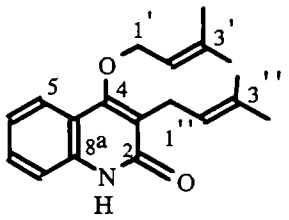


DIMETHAMINE

Termopsis alterniflora
$C_{24}H_{32}N_4O_2$: 408.2525
Mp: 216-217° (dec., meth.-ac.)
$[\alpha]_D$+143° (alc.)

{di h-chl. 212°, di picr. 219° (dec.), m-i. 254° (dec.)}
Sol-y.: r-sol. water, meth., alc., chlf.; sol. ac.; sp. sol. bz., eth., petr. eth.
UV: 280(3.61)
IR: 2920, 2800-2600, 1670, 1645, 1610
Mass: 408(M^+, 10), 204(32), 160(8), 146(12), 58(100)
PMR: 1.93(3H, s, NCH_3), 2.12(3H, s, NCH_3), 5.77(d, J=10, H-4), 6.18(1H, dd, J=10; 3, H-5)

1. Iskandarov S., Vinogradova V.I., Shaimardanov R.A., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 218.



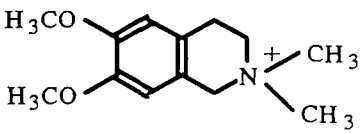
3-DIMETHYLALLYL-4-DIMETHYLALLYLOXYQUINOLIN-2-ONE

Haplophyllum bucharicum
$C_{19}H_{23}NO_2$: 297.1729
Mp: 113-114° (ac.)
Sol-y.: r-sol. chlf.

UV: 227, 272, 282, 313, 324, 338(4.10, 3.50, 3.41, 3.35, 3.46, 3.35)
IR: 3300, 1650
Mass: 297($M^{+\cdot}$, 6), 229(25), 228(100), 214(18), 212(27), 200(16), 186(26), 174(24), 69(36)
PMR: 1.61, 1.75, 1.82(6H, 3H, 3H, s, 4×CH_3), 3.37, 4.44(2H, d, J=7.5, CH_2), 5.25, 5.51(1H, t, J=7.5, =CH), 7.08-7.45(3H, m, H-Ar), 7.65(1H, dd, J=8.5; 2, H-5) [1]
^{13}C NMR: [2]

C-2	161.2	C-8	115.9	C-1″	23.8
3	117.7	8a	139.0	2″	121.7
4	165.8	1′	71.2	3″	132.5
4a	122.8	2′	119.7	3″-CH_3	18.0
5	123.1	3′	137.4	3″-CH_3	25.8
6	122.1	3′-CH_3	18.1		
7	129.8	3′-CH_3	25.9		

1. Nesmelova E.F., Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 532.
2. Sheriha G.M., Abouamer K., Elshtaiwi B.Z., Ashour A.S., Abed F.A., Alhallaq H.H., Phytochem., 1987, **26**, 3339.

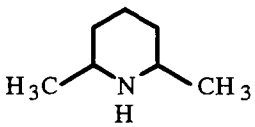


N-DIMETHYLHELIAMINE

Berberis amurensis
$C_{13}H_{20}NO_2$: 172.0187

Mp {iodide}: 242-243°
UV {iodide}: 284(3.78)
Mass {iodide}: 207(43), 206(64), 164(100), 149(14), 58(14)
PMR{iodide} (CD_3OD): 3.19, 3.72(2H, m, H-4, H-3), 3.24, 3.26(3H, s, 2×CH_3), 3.82(6H, s, 2×OCH_3), 4.52(2H, s, H-1), 6.71, 6.79(1H, s, n-H-Ar).

1. Yusupov M.M., Karimov A., Shakirov R., Gorovoi P.G., Dep. VINITI, No. 2917 6.10.1992.



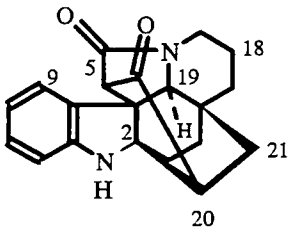
(−)-2,6-DIMETHYLPIPERIDINE

Anabasis salsa, Nanophyton erinaceum
$C_7H_{15}N$: 113.1204

Bp: 133-135°
$[\alpha]_D$−14° (meth.) [1]
{h-chl. 280°, h-b. 276°, oxalate 173°, picr. 163°, N-Bz 109°} [1]
^{13}C NMR: [2]

C-α	53.7	C-β	35.5	C-γ	26.3
				CH_3	23.5

1. Kuzovkov A.D., Men'shikov G.P., Zh. Org. Khim., 1950, **20**, 1524.
2. Shamma, No. 73.



5,22-DIOXOKOPSANE

Vinca erecta
$C_{20}H_{20}N_2O_2$: 320.1525
Mp: 284-285° [1], 309-310° [2], 307-308° [3]
$[\alpha]_D$+99° (chlf.) [1], +156° [4]

UV: 243, 298(3.94, 3.61) [1, 2, 4]; 207, 243, 295-297(3.38, 2.89, 2.54) [3]
IR: 3300, 1740, 1670, 1607, 1280, 1233, 1197, 1082, 906, 754 [1, 2]; 3310, 1735, 1655, 1600, 1440 [3]; 3380, 2950, 1760, 1690, 1605 [4]
Mass: 321(80), 320(M^+, 100), 292(4), 291(1), 265(12), 264(11), 263(13), 251(10), 223(13), 198(24), 180(28), 170(48), 169(83), 154(21) [2]
PMR: 2.88(1H, m, H-3), 3.68(NH), 3.71(1H, s, H-19), 4.25(1H, d, J=13; 4.5, H-3α), 6.70, 6.80, 7.10, 7.16(4H, H-Ar) [2, 3]
^{13}C NMR: [5]

C-2	69.1	C-10	138.5	C-17	19.5
3	40.5	11	122.2	18	33.2
5	165.6	13	150.7	19	65.8
6	62.7	14	33.2	20	52.3
7	55.9	15	23.2	21	28.9
8	130.7	16	32.7	22	205.0
9	119.7				

ORD: [2]

1. Rakhimov D.A., Sharipov M.R., Aripov Kh.N., Malikov V.M., Shakirov T.T., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 713.
2. Filho J.M.F., Gilbert B., Kitagawa M., Leme L.A.P., Durham L.J., J. Chem. Soc., 1966, 1260.
3. Chatterjee A., Ray D.J., Mukhopadhyay R.S., Indian J. Chem., 1979, **17B**, 651.
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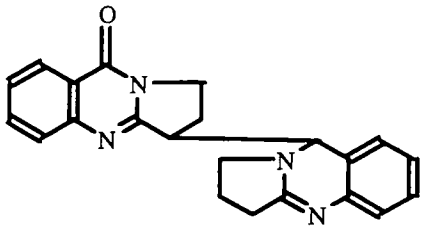
5. Yagudaev M.R., Khim. Prir. Soedin., 1984, 344.

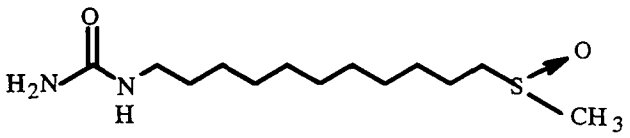


DIPEGINE

Peganum harmala
$C_{22}H_{20}N_4O$: 356.1637
Mp: 221-223° (ac.)
UV: 226, 277, 305, 317 sh (4.48, 4.14, 4.05, 3.89)

IR: 1660, 1620, 1590
Mass: 356(M^+, 0.25), 185(3), 171(100)
PMR: 2.17(4H, m, H-10, H-10′), 7.00, 7.50(7H, m, H-Ar), 8.05(1H, d, J=7, H-5)

1. Zharekeev B.Kh., Khashimov Kh.N., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 264; Faskhutdinov M., Abdullaev N.D., Telezhenetskaya M.V., Unpub.

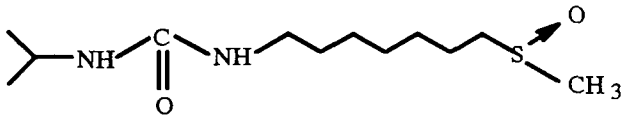


DIPTHALINE

Dipthychocarpus strictus
$C_{13}H_{28}N_2O_2S$: 276.1872

Mp: oil
$[\alpha]_D$–10° (meth.)
Sol-y.: sol. chlf., met., water; sp. sol. eth., bz., ac. [1]
IR: 3380, 3220, 1660, 1030 [2]
Mass: 276(M^+, 5), 261(13), 259(5), 213(24), 188(46), 142(100), 126(33), 114(86), 83(88), 71(33), 64(54) [2]
PMR: 1.10-2.10(18H, m, 9×CH_2), 2.52(3H, s, SCH_3), 2.70(2H, t, J=6, CH_2S), 3.03(2H, t, J=6, CH_2N), 5.49, 6.87(3H, m, NH_2, NH) [2]

1. Abdilalimov O., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 363.
2. Aripova S.F., Abdilalimov O., Khim. Prir. Soedin., 1984, 400.

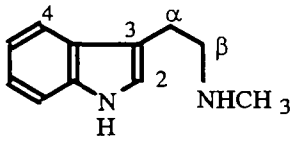


DIPTHAMINE

Dipthychocarpus strictus
$C_{12}H_{26}N_2O_2S$: 262.1715

Mp: 87-89°
$[\alpha]_D$–42° (meth.)
Sol-y.: sol. chlf., alc., meth., water; sp. sol. eth., bz., ac.
IR: 3350, 1630, 1035
Mass: 262(M^+, 5), 247(11), 204(30), 199(25), 161(10), 132(28), 114(16), 101(7), 84(27), 71(60), 69(52), 58(100)
PMR: 1.13(6H, d, J=8, $(CH_3)_2CH$), 1.25-1.75(10H, m, CH_2), 2.52(3H, s, CH_3SO), 2.65(2H, t, J=8, CH_2S), 3.07(2H, t, J=7.5, CH_2N), 3.79(1H, m, CHN), 5.07(1H, d, J=8, NH), 5.26(1H, t, NH)

1. Aripova S.F., Abdilalimov O., Khim. Prir. Soedin., 1983, 660.



DIPTERINE (N-METHYLTRYPTAMINE)

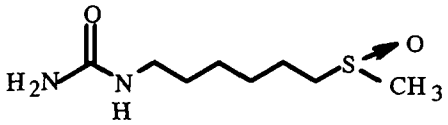
Girgensohnia diptera, Hammada leptoclada
$C_{11}H_{14}N_2$: 174. 1157
Mp: 87-88°

$[\alpha]_D$ 0°
{h-chl. 178°, picr. 191°, picrolonate 243°} [1]
Sol-y.: r-sol. alc., eth., chlf.; sol. bz.; sp. sol. petr. eth., water [1]
^{13}C NMR: [2]

C-2	122.2	C-6	121.7	C-α	25.4
3	113.3	7	111.2	β	51.8
4	118.7	3a	127.3	NCH_3	36.1
5	119.0	6a	136.5		

Pharm.: LD_{50} 550 mg/kg (s/c, mice). Spasmolytic action. Lowers the arterial pressure in cats and retards the pulse [3].

1. Yurashevskii N., Stepanov S., Zh. Org. Khim., 1939, **9**, 2203.
2. Poupat C., Ahoud A., Sevenet T., Phytochem., 1976, **15**, 2019.
3. Sadritdinov, p. 102.

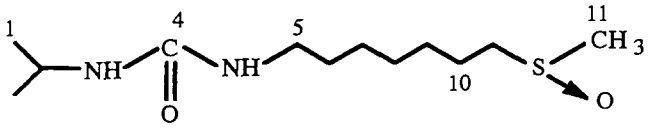


DIPTHOCARPAINE

Dipthychocarpus strictus
$C_8H_{18}N_2O_2S$: 206.1089

Mp: 124-125° (ac.-meth.)
$[\alpha]_D$–80° (alc.)
IR: 3380, 3220, 1660, 1035
Mass: 206(M^+), 162, 143, 129, 119, 100, 73, 61, 44
PMR: 1.10-1.80(8H, m, 4×CH_2), 2.52(3H, s, CH_3SO), 2.73(2H, t, J=6, CH_2S), 3.03(2H, t, J=6, CH_2N), 4.30(2H, m, NH_2), 5.38(1H, m, NH)

1. Aripova S.F., Abdilalimov O., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 556.



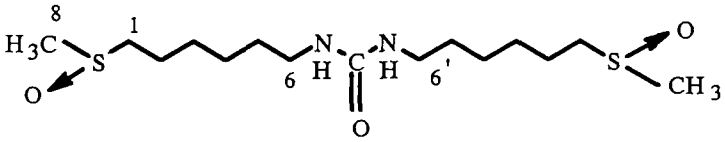
DIPTHOCARPAMINE

Dipthychocarpus strictus
$C_{11}H_{24}N_2O_2S$: 248.1559

Mp: 100-101°
$[\alpha]_D$–58° (meth.)
IR: 3360, 3330, 1630, 1045
Mass: 248(M^+), 233, 218, 190, 185, 171, 162, 61, 58, 44
PMR: 1.10(6H, d, J=7, $C(CH_3)_2$), 1.25-2.00(8H, m, CH_2), 2.54(3H, s, CH_3-S→O), 2.65(2H, t, J=8, CH_2-S), 3.04(2H, t, J=7.5, CH_2-N), 3.78(1H, m, CH-N), 5.45(1H, d, J=8, CH-N), 5.64(1H, t, NH-C) [1]
^{13}C NMR: [2]

C-1	23.5	C-5	39.9	C-9	30.0*
2	23.5	6	22.5*	10	54.5
3	41.8	7	26.4*	11	38.6
4	158.8	8	28.4*		

1. Aripova S.F., Abdilalimov O., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 674.
2. Tolstikova O.V., Tolstikov A.G., Shmakov V.S., Galkin E.G., Vyrapaev E.M., Aripova S.F., Abdrakhmanov I.V., Khim. Prir. Soedin., 1989, 232.



DIPTHOCARPIDINE

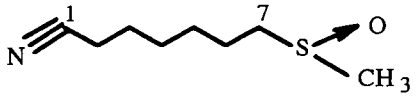
Dipthychocarpus strictus
$C_{15}H_{32}N_2O_3S_2$: 352.1855
Mp: 135-136°

$[\alpha]_D$–70° (meth.)
IR: 3300, 1640, 1040
Mass: 352(M^+), 336, 289, 273, 190, 173, 147, 61
PMR: 1.10-1.90(16H, m, 8×CH_2), 2.52(6H, s, 2×CH_3SO), 2.63(4H, t, J=6, 2×CH_2SO), 3.09(4H, t, J=6, CH_2N), 4.89(2H, m, NHCO) [1]
^{13}C NMR: [2]

C-1,1′	39.9	C-4,4′	30.0	C-7	158.8
2,2′	26.4	5.5′	22.4	8,8′	38.6
3,3′	28.3	6,6′	54.5		

Pharm.: Antihypoxic action [3].

1. Abdilalimov O., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 223.
2. Tolstikova O.V., Tolstikov A.G., Shmakov V.S., Galkin E.G., Abdrakhmanov I.V., Aripova S.F., Khim. Prir. Soedin., 1988, 76.
3. Kurmukov A.G., Aizikov M.I., Nazrullaev S.S., Aripova S.F., Tolstikova O.V., Abdilalimov O., Khim. Farm. Zh., 1991, No. 7, 29.



DIPTHOCARPILIDINE

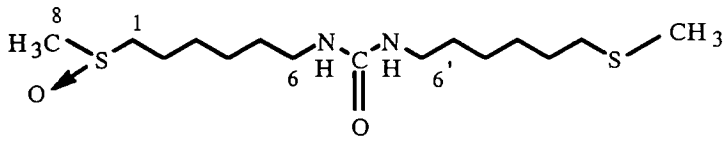
Dipthychocarpus strictus

$C_8H_{15}NOS$: 173.0875
Bp: 193-195° (4 mm Hg)
$[\alpha]_D$–49° (chlf.)
UV: 206(3.15)
IR: 2255, 1030
Mass: 174($(M+1)^+$, 6), 158(77), 156(36), 110(98), 93(40), 81(52), 69(100), 55(64), 41(94) [1]
PMR: 1.20-1.85(8H, m, 4×CH_2), 2.28(2H, t, J=6, N≡C–CH_2), 2.51(3H, s, CH_3SO), 2.65(2H, t, J=6, CH_2S),
^{13}C NMR: [2]

C-1	119.6	C-(3–6)	22.3	C-7	54.3
2	17.0		25.0	8	38.6
			28.1		
			28.1		

Pharm.: Pronounced antihypoxic activity [3].

1. Aripova S.F., Abdilalimov O., Bagdasarova É.S., Aizikov M.I., Yunusov S.Yu., Kurmukov A.G., Khim. Prir. Soedin., 1984, 84.
2. Tolstikov A.G., Biktemirova L.A., Tolstikova O.V., Shmakov V.S., Aripova S.F., Odinokov V.N., Tolstikov G.A., Khim. Prir. Soedin., 1991, 261.
3. Aripova S.F., Abdilalimov O., Bagdasarova É.S., Aizikov M.I., Kurmukov A.G., DAN UzSSR, 1983, No. 6, 34.

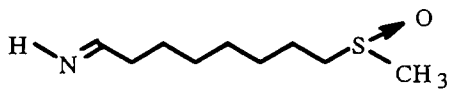


DIPTHOCARPILINE

Dipthychocarpus strictus
$C_{15}H_{32}N_2O_2S_2$: 336.1906

Mp: 95-97°
$[\alpha]_D$–53° (meth.)
IR: 3340, 1620, 1590, 1030
Mass: 336(M^+), 320, 289, 273, 190, 173(100), 147, 61
PMR: 1.10-1.70(16H, m, 8×CH_2), 2.00(3H, s, CH_3S), 2.40(2H, t, J=6, CH_2S), 2.52(3H, s, CH_3SO), 2.63(2H, t, J=6, CH_2SO), 3.04 (4H, t, J=6, CH_2N), 5.27(2H, m, 2×NH)

1. Abdilalimov O., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 223.



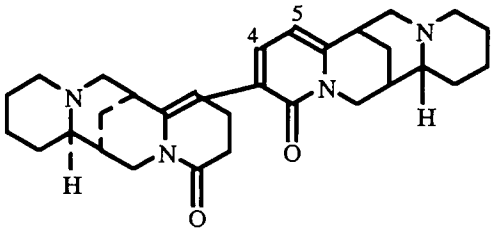
DIPTHOCARPININE

Dipthychocarpus strictus

$C_9H_{19}NOS$: 189.1188
Mp: 91-92° (chlf.)

$[\alpha]_D$–47° (meth.)
IR: 3400, 1680, 1030
Mass: 189(M^+, 16), 174(5), 172(22), 126(61), 112(14), 106(52), 84(19), 70(12), 59(92), 43(100)
PMR: 1.15-2.00(10H, m, 5×CH_2), 2.16(2H, CH_2), 2.53(3H, s, CH_3SO), 2.65(2H, t, J=6, CH_2SO), 6.25(1H, m, N=CH), 6.51(1H, m, NH) [2]

1. Aripova S.F., Abdilalimov O., Khim. Prir. Soedin., 1984, 256.
2. Aripova S.F., Abdilalimov O., Khim. Prir. Soedin., 1987, 464.

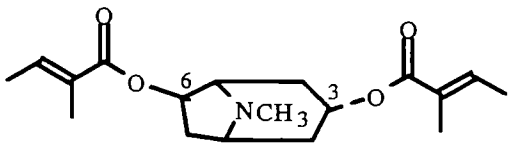


DITHERMAMINE

Thermopsis lanceolata
$C_{30}H_{40}N_4O_2$: 488.3151
Mp: 235° (dec., alc.)
$[\alpha]_D$+122° (chlf.)

{di picr. 204°, di p-chl. 221° (dec.)}
Sol-y.: r-sol. chlf.; sol. meth., alc.; sp. sol. ac., bz., eth., water
UV: 280(3.60)
IR: 2940, 2600-2800, 1670, 1645, 1610, 1450, 810
Mass: 488(M^+, 2), 244(72), 161(20), 160(20), 146(18), 136(22), 98(100)
PMR: 5.75(1H, d, J=10, H-4), 6.12(1H, dd, J=10; 3, H-5)

1. Vinogradova V.I., Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 87.

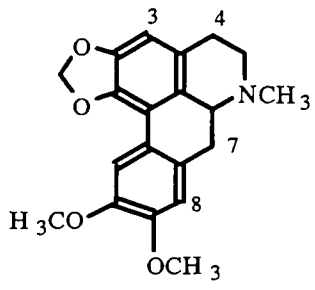


(–)3α,6β-DITHYGLOYLOXYTROPANE

Datura innoxia
$C_{18}H_{27}NO_4$: 321.1940

Mp: amorph.
$[\alpha]_D$–21° (alc.)
{picr. 151°, chl-plat. 230°} [1]
Mass: 321(M^+), 238, 222, 154, 138, 122, 94, 83
PMR: 1.82(6H, s, 2×CH_3), 1.74(6H, d, 2×CH_3), 2.43(3H, s, NCH_3), 3.15(2H, m, H-1, H-5), 5.07(1H, m, H-3β), 5.42(1H, m, H-6α), 6.83(2H, m, 2×CH=C) [2]

1. Evans W.C., Willendorf M., J. Chem. Soc., 1958, 1991.
2. Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1989, 36.



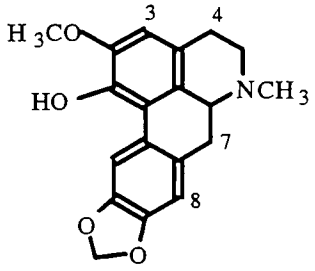
DICENTRINE

Dicentra peregrina
$C_{20}H_{21}NO_4$: 339.1471
Mp: 158-159° (meth.)
$[\alpha]_D$+57° (chlf.)
UV: 220, 282, 303
Mass: 339(M^+), 338(100), 324, 307, 296, 281, 265 [1]

PMR: 2.25-3.25(7H, m), 2.45(3H, s, NCH_3), 3.79(6H, s, 2×OCH_3), 5.82, 5.96(1H, d, J=2, CH_2O_2), 6.42, 6.70, 7.59(1H, s, 3×H-Ar) [1]
^{13}C NMR: [2]

C-1	141.7	C-5	53.6	C-10	147.6
1a	116.6	6a	62.4	11	111.2
1b	126.4	7	34.3	11a	123.4
2	146.6	7a	128.3	NCH_3	44.0
3	106.1	8	110.5	9-OCH_3	55.9
3a	126.6	9	148.2	10-OCH_3	56.1
4	29.2				

1. Israilov I.A., Melikov F.M., Murav'eva D.A., Khim. Prir. Soedin., 1984, 79.
2. Guinaudeau H., Leboeuf M., Cave A., J. Natur. Prod., 1979, **42**, 325.



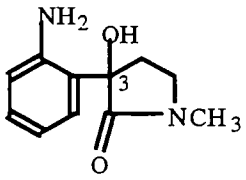
DOMESTICINE

Corydalis gortschakovii, C.marschalliana, Glaucium oxylobum
$C_{19}H_{19}NO_4$: 325.1314
Mp: 155-156° (eth.) [1]
$[\alpha]_D$−56° (chlf.) [1]

UV: 219, 283, 313 [1]
Mass: 325(M^+), 324, 310, 282
PMR: 2.43(3H, s, NCH_3), 3.80(3H, s, OCH_3), 5.86(2H, s, CH_2O_2), 6.45, 6.68, 7.86(1H, s, 3×H-Ar) [1]
^{13}C NMR: [2]

C-1	140.7	C-4	28.8	C-9	145.8
1a	119.5	5	53.3	10	145.8
1b	127.5	6a	62.5	11	108.7
2	145.8	7	34.9	11a	125.8
3	109.7	7a	130.2	NCH_3	43.9
3a	123.6	8	108.2	2-OCH_3	56.0

1. Israilov I.A., Ibragimova M.U., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 612.
2. Kano S., Takahagi Y., Komiyama E., Yokomatsu T., Shibuya S., Heterocycles, 1976, **4**, 1013.



DONAXARIDINE

Arundo donax
$C_{11}H_{14}N_2O_2$: 206.1055
Mp: 175-176°

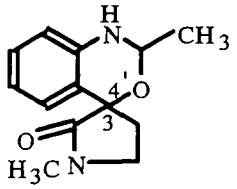
$[\alpha]_D$±0°
{N-Ac 186, O, N-di Ac amorph.} [1]
UV: 204, 241, 290(3.32, 3.67, 4.28)
IR: 3452(ON), 3362, 2995-2919, 1674, 1496, 1452, 1307-1270, 956, 860, 753
Mass: 206(M^+, 80), 188, 146, 135, 132, 120, 100, 92, 77, 58, 44.
PMR: 2.47(2H, m, CH_2), 2.87(3H, s, NCH_3), 3.17(2H, m, CH_2), 6.52-7.16(4H, m, H-Ar)

^{13}C NMR: [2]

C-2	175.5	C-1′	125.1	C-5′	117.7*
3	79.5	2′	145.8	6′	125.7*
4	32.9	3′	117.9*	NCH_3	29.87
5	45.6	4′	128.9*		

X-ray spectral analysis: [2]

1. Ubaidullaev K.A., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 553.
2. Khuzhaev V.U., Tashkhodzhaev B., Aripova S.F., Khim. Prir. Soedin., 1995, 720.

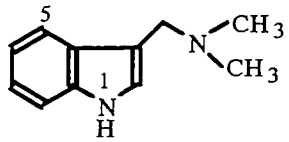


DONAXARINE

Arundo donax
$C_{13}H_{16}N_2O_2$: 232.1212
Mp 218-220°

$[\alpha]_D$ 0° [1]
UV: 206, 250, 292(3.19, 3.43, 4.04) [2]
IR: 3266, 2881, 1497-1458, 1697, 1307, 981, 746, 664 [2]
Mass: 232(M^+, 100), 190, 189, 174, 160, 146, 132, 118, 58, 44.
PMR: 1.29(3H, d, J=6, CH-CH_3), 2.41(2H, t, J=7, CH_2), 2.90(3H, s, NCH_3), 3.45(2H, m, CH_2), 4.66(1H, m, CH), 6.70-7.16(4H, m, H-Ar), 8.12(1H, narrow s, NH) [2]

1. Ubaidullaev K.A. Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 553.
2. Khuzhaev V.U., Tashkhodzhaev B., Aripova S.F., Khim. Prir. Soedin., 1995, 720.



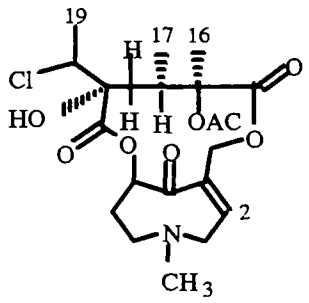
DONAXINE (GRAMINE)

Arundo donax

$C_{11}H_{14}N_2$: 174.1157
Mp: 138-139° (ac.) [1]
{picr. 145°, p-chl. 181°, m-i. 177°} [1]
Mass: 174(M^+, 33), 130(100) [22]
^{13}C NMR[3]

C-2	123.9	C-5	119.0	C-8	111.1
3	112.2	6	121.6	NCH_2	54.3
4	127.8	7	119.2	$N(CH_3)_2$	45.1

1. Orekhov A.P., Norkina S.S., Zh. Org. Khim., 1937, 7, 673.
2. Hesse M., Indolalkaloide (Progress in Mass Spectrometry), Verlag Chemie, 1974, Vol. 1, Part 2, Fig. 1.
3. Shamma, No. 499.

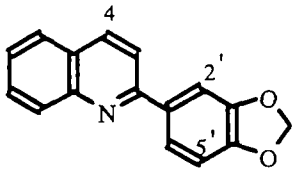


DORONINE

Doronicum macrophyllum, Senecio othonnae
$C_{21}H_{30}NO_8Cl$: 459.1659/461.1630
Mp: 113-114° (dec., bz.-cyclohexane) [1], 125° [2]
$[\alpha]_D$+45° (chlf.) [1]

{picr. 235° (dec.)} [1]
IR: 3500-2800, 1750, 1620 [1]; 3440, 1750, 1735, 1710, 1630 [3]
Mass: 461/459(M^+, 50), 446/444(10), 427(7), 424(30), 423(5), 396(62), 374/372(100), 352(10), 336(12), 238(32), 168(70), 150(40), 122(35), 110(30) [1, 3]
PMR: 1.21(6H, d, J=5, 17-CH_3, 19-CH_3), 1.65(3H, s, 16-CH_3), 2.03(6H, s, NCH_3, 11-OAs), 6.11(1H, m, H-2) [1]
X-ray spectral analysis: [4]
Pharm.: LD_{50} 703 mg/kg (mice). Hypotensive action [5].

1. Alieva Sh.A., Abdullaev U.A., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 194.
2. Roder E., Wiedenfeld H., Knozinger-Fisher P., Planta Medica, 1984, **50**, 203.
3. Cheng D., Roder E., Planta Medica, 1986, 484.
4. Wong R.Y., Roitman J.N., Acta Cryst., 1984, **40C**, 163.
5. Guseinov D.Ya., Yuzbashinskaya P.A., Khalilov D.S., Mamedova K.T., Azerb. Med. Zh., 1979, No. 5, 21.

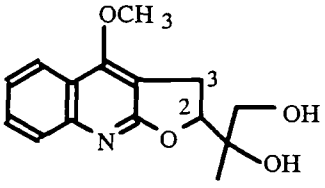


DUBAMINE

Dictamnus angustifolius, Haplophyllum dubium, H.latifolium
$C_{16}H_{11}NO_2$: 249.079

Mp: 96-97° (petr. eth.)
{h-chl. 202°, nitr. 158°, oxalate 187°} [1]
UV: 222 sh, 237 sh, 336, 374 sh (4.55, 4.36, 4.12, 3.64) [2]
IR: 1610, 1500, 1445, 1400, 1360, 1098, 1050, 935 [2]
Mass: 249(M^+, 100), 248(62), 220(10), 192(20), 191(43), 164, 163, 128, 101 [3]
PMR(CF_3COOH): 5.72(2H, s, CH_2O_2), 6.68(1H, d, J=7.5, H-5′), 7.02(1H, d, J=1.5, H-2′), 7.20(1H, dd, J=7.5; 1.5, H-6′), 7.80(5H, m, H-Ar), 8.08(1H, d, J=8. H-4) [2]
Pharm.: 2500 mg/kg does not cause the death of mice. 50 mg/kg briefly and slightly lowers the arterial pressure and increases the rate of respiration in narcotized dogs [4].

1. Sidyakin G.P., Bessonova I.A., Pastukhova V.I., Yunusov S.Yu., Zh. Org. Khim., 1962, **32**, 4091.
2. Bessonova I.A., Unpub.
3. Faizutdinova Z.Sh., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 260.
4. Sultanov M.B., in: The Pharmacology of Plant Substances [in Russian], Fan, Tashkent, 1976, p. 3.



DUBINIDINE

Dictamnus angustifolius, Haplophyllum dubium, H.foliosum, H.perforatum
$C_{15}H_{17}NO_4$: 275.1158
Mp: 132-133° (ac.)

$[\alpha]_D$–63° (cp.)

{h-chl. 196°, $[\alpha]_D$–54° (meth.); h-b. 198°, h-i. 162°, $[\alpha]_D$–47° (meth.); nitr. 177°, $[\alpha]_D$–52° (meth.); m-i. 154°, di Ac 109°, $[\alpha]_D$–48° (alc.); isodubinidine 215°, dubinidinone 83°, $[\alpha]_D$+62° (chlf.); Ac 186.5°, $[\alpha]_D$–57° (alc.)} [1-4]

UV: 230, 274, 284, 308, 320(5.03, 4.31, 4.23, 4.08, 4.09) [1]

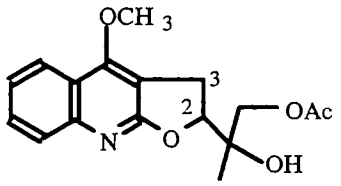
IR: 3400, 1630, 1595, 1540, 1438, 1375, 1180, 1062, 978, 948 [5]

Mass: 275(M^+, 33), 245(4), 244(21), 226(12), 202(23), 201(55), 200(100), 188(4), 186(12), 185(13), 173(12), 172(12), 170(3), 158(8), 156(4), 143(4), 142(4), 130(4), 115(4), 75(5) [2]

PMR (Py-d_5)% 1.45(3H, s, CH_3), 3.75, 5.05(2H, 1H, H-3, H-2), 3.95(3H, s, OCH_3), 3.93, 4.20(1H, d, J=11, CH_2-O), 7.00-8.00(4H, m, H-Ar) [6]

Pharm.: LD_{50} 970, 885 mg/kg (s/c, i/p) Sedative, hypnotic, analgesic, anticonvulsive action [7].

1. Sidyakin G.P., Eskairov M., Yunusov S.Yu., Zh. Org. Khim., 1960, **30**, 338.
2. Bessonova I.A., Faizutdinova Z.Sh., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 446.
3. Bessonova I.A., Sidyakin G.P., Pastukhova V.I., Yunusov S.Yu., Zh. Org. Khim., 1962, **32**, 4091.
4. Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 29.
5. Bessonova I.A., Sidyakin G.P., Yunusov S.Yu., Zh. Org. Khim., 1964, **34**, 347.
6. Bessonova I.A., Unpub.
7. Sadritdinov, p. 270.



DUBININE

Haplophyllum dubium

$C_{17}H_{19}NO_5$: 317.1263

Mp: 185-186° (alc.)

$[\alpha]_D$–59° (alc.)

{h-chl. 171°, nitr. 150°, m-i. 212°, Ac 109°}

Sol-y.: r-sol. ac., pyr., meth.; i.s. water petr. eth. [1]

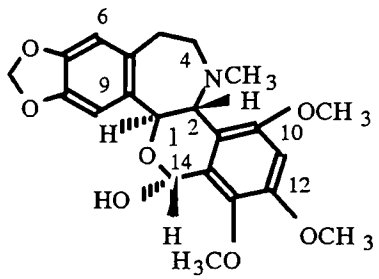
UV: 225, 234 sh, 274, 283, 306(5.26, 4.93, 4.32, 4.30, 4.16) [2]

IR: 3270, 1725, 1630, 1600, 1540, 1465, 1400, 1305, 1270, 1160, 1155, 910 [2]

Mass: 317(M^+, 17), 245(4), 244(21), 226(6), 202(18), 201(35), 200(100), 199(8), 186(8), 185(9), 173(8), 172(7), 158(4), 156(2), 143(3), 142(3), 130(4), 129(3), 117(5), 115(5) [3]

PMR: 1.33(3H, s, CH_3), 2.15(3H, s, OAs), 4.16(3H, s, OCH_3), 4.560(2H, s, CH_2-OCO), 3.51, 3.93, 4.94(1H, q, J=15.5; 9.5; 6.6, CH_2–CH–O), 6.80-7.43(4H, m, H-Ar) [4, 5]

1. Yunusov S.Yu., Sidyakin G.P., Zh. Org. Khim., 1955, **25**, 2009.
2. Bessonova I.A., Sidyakin G.P., Yunusov S.Yu., Zh. Org. Khim., 1964, **34**, 347.
3. Bessonova I.A., Faizutdinova Z.Sh., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 446.
4. Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 29.
5. Seitanidi K.P., Yagudaev M.R., Khim. Prir. Soedin., 1974, 755.



ZANGEZURINE

Papaver zangezuricum

$C_{22}H_{25}NO_7$: 415.1631

Mp: amorph.

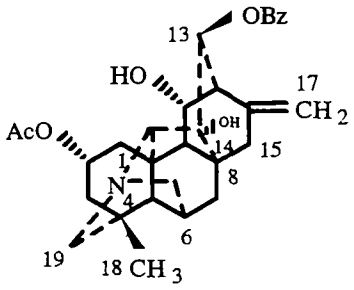
$[\alpha]_D$+208° (meth.)

UV: 234, 293

IR: 3400, 1610, 1050, 950
Mass: 415(M^+), 252, 238, 209
PMR: 2.43(3H, s, NCH_3), 3.76(3H, s, OCH_3), 3.88(6H, s, 2×OCH_3), 4.19, 5.88(1H, d, J=8.5), 5.90(2H, s, CH_2O_2), 6.34, 6.50, 6.55, 7.03(1H, s, 4×H)
^{13}C NMR:

C-1	63.1	C-8	145.6	C-12	152.0
2	61.2	9	104.6	13	150.0
4	55.7	9a	131.9	14	88.2
5	31.7	10	155.5	CH_2O_2	100.8
5a	132.2	10a	132.2	NCH_3	34.6
6	109.9	11	98.8	OCH_3	59.2
7	146.0				57.1
					56.1

1. Israilov I.A., Chelombit'ko V.A., Yagudaev M.R., Khim. Prir. Soedin., 1987, 858.

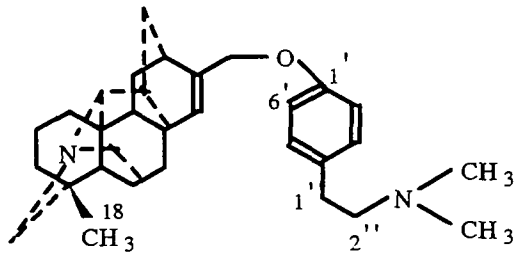


ZERAVSCHANIZINE

Aconitum zeravschanicum
$C_{29}H_{33}NO_6$: 491.2308
Mp: amorph.
{p-chl. 289° (dec.)}
IR: 3620-3400, 3080, 1730, 1660, 1605, 1590, 1280, 890 [1]

Mass: 491(M^+), 476, 474, 448, 432, 386(100), 370, 105 [1]
PMR: 0.90(3H, s, 18-CH_3), 1.13(3H, s, Ac), 2.40(1H, d, J=12, 19-Hb), 2.67(1H, d, J=12, H-19a), 3.23(1H, s, H-20), 4.34(1H, d, J=9, H-11β), 4.70, 4.88(1H, narrow s, 17-H2), 5.15(1H, m, H-2β), 5.46(1H, narrow s, H-13α), 7.35-8.10(H-Ar) [1]
X-ray spectral analysis: [1]
Pharm.: LD_{50} 34.1 mg/kg (i/v, mice). Pronounced antiarrhythmic and local anesthetic activity [2].

1. Salimov B.T., Tashkhodzhaev B., Yusupova I.M., Lindeman S.V., Struchkov Yu.M., Khim. Prir. Soedin., 1992, 375.
2. Dzhakhangirov F.N., Rezhepov Zh., Unpub.



ZERACONINE

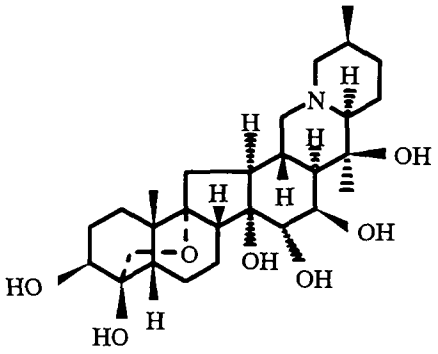
Aconitum zeravschanicum
$C_{30}H_{40}N_2O$: 444.3141
Mp: 130-131° (ac.) [1]
IR: 1615, 1585, 1515, 830, 810 [2]

Mass: 444(M^+, 15), 429(0.4), 401(0.4), 398(0.2), 338(0.5), 280(16), 264(0.4), 252(0.3), 251(0.3), 250(0.2), 238(0.3), 237(0.2), 236(0.3), 224(0.4), 210(0.5), 174(1.4), 160(1.0), 146(1.1), 58(100), [2]
PMR: 0.90(3H, s, 18-CH_3), 2.19(6H, s, $N(CH_3)_2$), 3.10(1H, narrow s), 4.38(2H, narrow s), 5.69(1H, narrow s), 6.68, 6.95(2H, d, J=8.5, O-Ar-H)

^{13}C NMR: [1]

C-1	27.7	C-12	61.9	C-1′	157.4
2	29.8	13	33.5	2′	129.4
3	33.2	14	50.1	3′	128.7
4	37.4	15	114.8	4′	144.2
5	48.6	16	132.5	5′	128.7
6	65.5	17	69.0	6′	129.4
8	50.0	18	28.9	1″	19.6
9	31.2	19	63.1	2″	61.8
10	44.9	20	74.2		

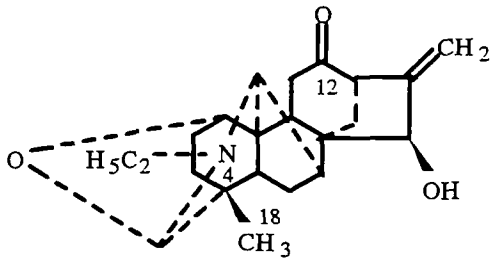
1. Vaisov Z.M., Yunusov M.S., Khim. Prir. Soedin., 1987, 407.
2. Rashkes Ya.V., Yunusov M.S., Sirotenko E.G., Vaisov Z.M., Khim. Prir. Soedin., 1987, 542.



ZYGADENINE

Zigadenus elegans
$C_{27}H_{43}NO_7$: 493.304
Mp: 198-200° (chlf.)
$[\alpha]_D$–37°
{sulf. 220°, h-chl. 241°, chl.-aur. 176°, acetonide di Ac 272°, di Ac 257°} [2]

1. Feofilaktov V.V., Alekseeva L.D., Zh. Prikl. Khim., 1955, **28**, 989.
2. Kupchan S.M., J. Am. Chem. Soc., 1959, **81**, 1925.



SONGORAMINE

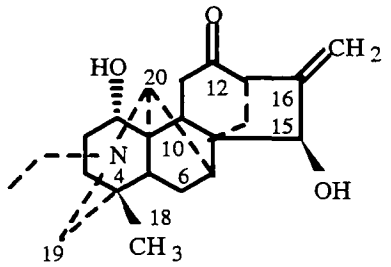
Aconitum karakolicum, A.monticola, A.soongaricum
$C_{22}H_{29}NO_3$: 355.2148
Mp: 211-212° (ac.)
{h-chl. 290° (dec., eth.-meth.), Ac 115°}
UV: 295(2.60) [1]
IR: 3400, 1722, 1660, 1100, 1050, 960 [1]

Mass: 355($M^{+\cdot}$, 100), 327(10), 299(46), 122(29) [1]
PMR: 0.79(3H, s, 18-CH_3), 0.97(3H, t, J=7, NCH_2CH_3), 5.15, 5.23(1H, s, H-17) [1]
^{13}C NMR: [2]

C-1	67.9	C-9	31.6	C-17	111.9
2	29.9	10	51.9	18	19.0
3	24.4	11	31.4	19	93.1
4	37.9	12	209.0	20	66.4
5	48.7	13	37.5	NCH_2	48.5
6	24.1	15	77.1	CH3	48.5
7	46.1	16	149.9		
8	50.4				

Pharm.: LD_{50} 120 mg/kg (i/v, mice). Weak peripheral H-cholinoblocking effect. Increases reflex excitability, exhibits an antiarrhythmic action [3].

1. Yunusov M.S., Rashkes Ya.V., Yunusov S.Yu., Samatov A.S., Khim. Prir. Soedin., 1970, 101.
2. De la Fuente C., Reina M., Valencia E., and Rodriguez-Ojeda A., Heterocycles, 1988, **27**, 1109.
3. Dzhakhangirov F.N., Unpub.



SONGORINE (SHIMABURO BASE I, BULLATINE G, NAPELLONINE)

Aconitum baicalense, A.barbatum, A.czekanovskyi, A.firmum, A.karakolicum, A.monticola, A.septentrionale, A.soongaricum, A.volubile

$C_{22}H_{31}NO_3$: 357.2304

Mp: 201-203° (meth.) [1]

$[\alpha]_D$–140° (abs. alc.) [1]

{h-chl. 257°, h-b. 260°, p-chl. 236°} [1]

IR: 3545-3430, 1710, 1660, 1465, 1425, 1395, 1380, 1362, 1325, 1290, 1270, 1250, 1190, 1120, 1057, 1035, 1018, 960, 910, 885 [3]

Mass: 357(M^+, 100), 340(17), 328(16), 315(5), 314(10), 298(16), 246(13), 180(6) [2]

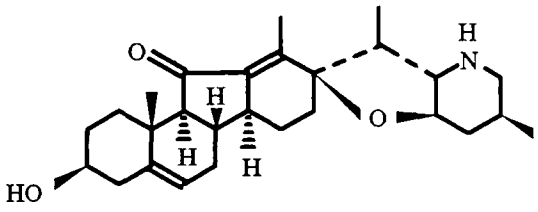
PMR: 0.71(3H, s, 18-CH_3), 1.02(3H, t, J=7, NCH_2CH_3), 5.13, 5.20(1H, narrow s, H-17) [3]

^{13}C NMR: [4]

C-1	70.1	C-9	35.1	C-17	111.1
2	31.5	10	52.1	18	26.0
3	31.9	11	37.3	19	57.2
4	34.0	12	209.6	20	65.8
5	49.0	13	53.6	NCH_2	50.8
6	23.0	14	38.0	CH_3	13.8
7	43.4	15	76.9		
8	49.7	16	150.3		

Pharm.: LD_{50} 142.5 mg/kg (i/v, mice). Pronounced psychotropic activity. High antiarrhythmic activity [6].

1. Yunusov S.Yu., Zh. Org. Khim., 1948, **18**, 515.
2. Yunusov M.S., Rashkes Ya.V., Yunusov S.Yu., Samatov A.S., Khim. Prir. Soedin., 1970, 101.
3. Nezhevenko V.E., Yunusov M.S., Yunusov S.Yu., Unpub.
4. De la Fuente G., Reina M., Valencia E., Rodriguez-Ojeda A., Heterocycles, 1988, **27**, 1109.
5. Dzhakhangirov F.N., Sadritdinov F., DAN UzSSR, 1973, No. 3, 39.
6. Tulyaganov N., Dzhakhangirov F.N., Sadritdinov F.S., Khamdamov V., in: The Pharmacology of Plant Substances [in Russian], Fan, Tashkent, 1976, p. 76.



JERVINE

Veratrum dahuricum, V. lobelianum, V. nigrum

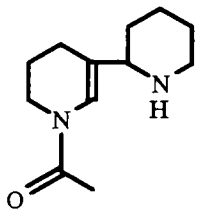
$C_{27}H_{39}NO_3$: 425.293

Mp: 243-245° (meth.)

$[\alpha]_D$–151° [1]

{sulf. 297.5°, h-chl. 334°, nitrozo 247°} [2]
UV: 250, 360(3.50, 1.70) [3]
IR: 3430-3100, 2990-2770, 1715, 1632 [3]
Mass: 425(M^+), 410, 396, 314, 233, 125, 124, 113, 110(100), 97 [4]
PMR: 0.82(6H, d, J=7, 21-CH_3, 27-CH_3), 0.95(3H, s, 19-CH_3), 2.10(3H, s, 18-CH_3), 5.28(1H, m, C=CH) [1, 5]
HPLC: [6]

1. Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 852.
2. Tsulikyan G.A., Musaelyan L.A., Mnatsakanyan V.A., Arm. Khim. Zh., 1971, **24**, 928.
3. Shinkarenko A.L., Bondarenko N.V., Rast. Res., 1966, No. 2, 45.
4. Budzikiewicz H., Tetrahedron, 1964, **20**, 2267.
5. Masamune T., Sato N., Kobayashi K., Yamazaki I., Mori Tetrahedro., 1967, **23**, 1591.
6. Hunter I.R., Walden M.K., Heftmann E., J. Chromatogr., 1980, **198**, 363.

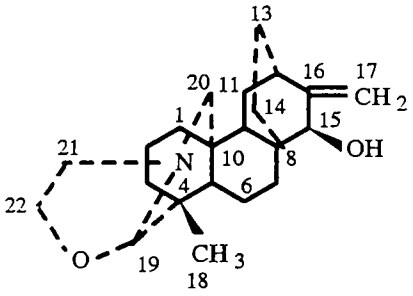


ISOAMMODENDRINE

Ammodendron conollyi, Ammopiptanthus mongolicus
$C_{12}H_{20}N_2O$: 208.1576
Mp: 43-46° [1]

$[\alpha]_D$+15° (alc.) [1]
{h-chl. 194°, p-chl. 203°, h-i. 219°} [1]
UV: 242(4.29) [2, 3]
IR: 3550-3450, 3315, 2935, 2850, 2790, 2719, 1670-1630, 1410, 1265, 1190, 1111, 1070, 1020, 990, 975, 770 [2, 3]
PMR: 1.20-3.20, 2.10, 7.16, 7.54 [3]
X-ray spectral analysis: [4]
Pharm.: In a dose of 5-50 mg/kg lowers the arterial pressure and stimulates the respriation of narcotized animals [5].

1. Proskurnina I.F., Merlis V.M., Zh. Org. Khim., 1949, **19**, 1396.
2. Steinegger E., Wicky K., Pharm. Acta Helv., 1965, **40**, 610.
3. Séléngé D., Telezhenetskaya M.V., Unpub.
4. Tashkhodzhaev B., Séléngé D., Khim. Prir. Soedin., 1982, 661.
5. Sadritdinov, p. 139.



ISOATISINE

Aconitum coreanum, A. rotundifolium, A.zeravschanicum
$C_{22}H_{33}NO_2$: 343.2511
Mp: 152-153° (hx.-ac.) [1, 2]
$[\alpha]_D$–22° (alc.) [1, 2]

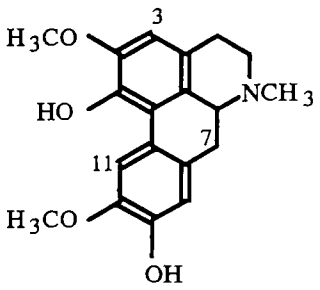
IR: 3455, 3090, 2950, 2875, 1657, 1490, 1470, 1460, 1390, 1350, 1316, 1293, 1252, 1238, 1176, 1114, 1090, 1074, 1055, 1020, 988, 977, 950, 900, 870, 855, 827, 818 [1, 2]
PMR: 1.00, 1.19(3H, s, 18-CH_3), 2.71(2H, narrow s, 20-H2), 3.47(3H, m), 3.86(1H, narrow s), 4.87, 4.98(1H, narrow s, 17-H2) [1, 2]

^{13}C NMR: [3]

C-1	40.6*	C-9	39.6	C-17	109.6
2	22.1	10	35.9	18	24.3
3	40.0*	11	28.1	19	98.4
4	38.1	12	36.4	20	49.8
5	48.6	13	27.6	21	54.9
6	19.2	14	26.4	22	58.6
7	31.9	15	76.8		
8	37.5	16	156.2		

Pharm.: LD_{50} 8 mg/kg (i/v, mice). Possesses a brief curaremimetic action. Blocks the transmission of a nervous impulse from the sciatic nerve to the gastrocnemius muscle of the antidepolarizing type [4].

1. Vaisov Z.M., Salimov B.T., Yunusov M.S., Khim. Prir. Soedin., 1984, 800; Unpub.
2. Pelletier S.W., Oeltmann T.N., Tetrahedron, 1968, **24**, 2019.
3. Mody N.V., Pelletier S.W., Tetrahedron, 1978, **34**, 2421.
4. Dzhakhangirov F.N., Unpub.



ISOBOLDINE

Aconitum karakolicum, A.soongaricum, A.saposhnikovii, A.tokii, Berberis heteropoda, B.integerrima, Cocculus laurifolius, Corydalis alpestris, C.bracteata, C.caucasica, C.emanuelii, C.gortschakovii, C.intermedia, C.marschalliana, C.rosea-purpurea, C.sewerzowii, C.stricta, Dicentra peregrina, Delphinium confusum, D.dictyocarpum, Fumaria parviflora, F.schleicheri, F.vaillantii, Glaucium corniculatum, G.elegans, G.fimbrilligerum, G.flavum, G. grandiflorum, G.oxylobum, G.squamigerum, Hylomecon vernalis, Papaver bracteatum, Thalictrum collinum, Th. foetidum, Th. isopyroides, Zizyphus jujuba

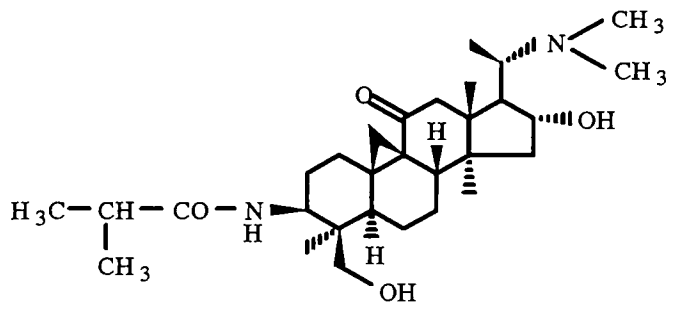
$C_{19}H_{21}NO_4$: 327.1471
Mp: 125-126° (bz.) [1]
$[\alpha]_D$+60° (alc.)
{h-chl. 262° (dec.), picr. 196° (dec.), di Ac 167°}
UV: 219, 268 sh, 280, 304, 313(4.58, 4.08, 4.16, 4.21, 4.18) [2]
IR: 3500-3300, 1608, 1585, 1515, 1415, 1335, 1315, 1280, 1250, 1110, 1080 [3]
Mass: 327(M^+), 326(100), 312, 296, 284, 269, 253, 163.5($^{++}$) [4]
PMR: 2.52(3H, s, NCH_3), 3.86(6H, s, 2×OCH_3), 6.46(1H, s, H-3), 6.72(1H, s, H-8), 7.95(1H, s, H-11) [5]
^{13}C NMR(DMSO): [6]

C-1	140.6	C-5	52.9	C-11	113.6
1a	119.7	6a	62.4	11a	123.0
1b	123.5	7	33.7	NCH_3	43.6
2	146.5	7a	129.1	2-OCH_3	55.8
3	109.2	8	114.9	10-OCH_3	55.8
3a	126.7	9	145.4		
4	28.4	10	145.3		

HPLC: [7]
Pharm.: Antitussive action [8].

1. Yakhontova L.D., Khim. Prir. Soedin., 1967, 285.
2. Johns S.R., Lamberton J.A., Sioumis A.A., Austral. J. Chem., 1966, **19**, 2331.

3. Chan W.W., Maitland P., J. Chem Soc., 1966, 753.
4. Jackson A.H., Martin J.A., J. Chem. Soc., 1966, 2181.
5. Jackson A.H., Martin J.A., J. Chem. Soc., 1966, 2061.
6. Guinaudeau H., Leboeuf M., Cave A., J. Natur. Prod., 1979, **42**, 325.
7. Betts T.J., J. Chromatogr., 1990, **511**, 373.
8. Sadritdinov, p. 209.

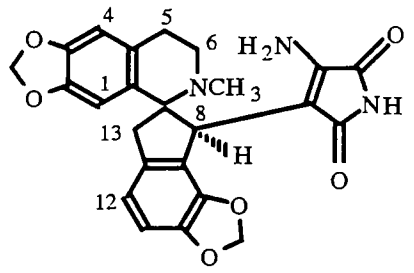


N-3-ISOBUTYRYLCYCLOBUXIDINE F (BALEABUXIDINE)

Buxus balearica
$C_{30}H_{50}N_2O_4$: 502.377
Mp: 236-238° (ac.) [1]
$[\alpha]_D$+76° (chlf.) [1]
UV: 219(3.84) [2]
IR: 3250, 1670, 1650, 1540 [3]

Mass: 502(M^+), 72 [2, 3]
PMR: 0.56(3H, s, CH_3), 0.83(3H, s, CH_3), 0.85(3H, d, J=6, 21-CH_3), 1.16(3H, d, J=7, CH-CH_3), 1.17(3H, d, J=7, CH-CH_3), 1.20(3H, s, CH_3), 2.23(6H, s, $N(CH_3)_2$, 2.90, 3.35(2H, dd, J=12, CH_2OH), 4.00(1H, m, H-16), 5.60(1H, d, J=8, NH) [1, 2]
CD: [2]

1. Kurakina I.O., Proskurnina N.F., Kibal'chich P.N., Khim. Prir. Soedin., 1969, 26.
2. Herlem-Gaulier D., Khuong-Huu-Laine F., Goutarel R., Magdeleine M.-R., Bull. Soc. Chim. France, 1968, **2**, 763.
3. Kurakina I.O., Proskurnina N.F., Stepanyants A.U., Mondeshka D.M., Khim. Prir. Soedin., 1970, 231.

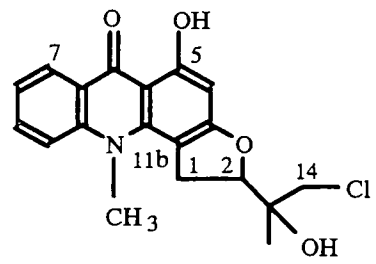


ISOHYPERECTINE

Hypecoum erectum
$C_{24}H_{21}N_3O_6$: 447.1430
Mp 239-240° (dec.)
Mass: 447(M^+), 355, 322, 243, 228, 204, 190, 188

PMR($CDCl_3$–CF_3COOH): 2.97(3H, d, NCH_3), 3.15(2H, m, H-6), 3.40, 3.98(1H, d, J=16, H-13); 4.12, 3.50(2H, m, H-5), 4.55(1H, s, H-8), 5.94, (4H, m, 2×CH_2O_2), 6.28, 6.66(1H, s, n-H-Ar), 6.90(2H, s, o-H-Ar) 8.34, 9.09(3H, NH, NH_2).
Abs. conf.:

1. Yakhontova L.D., Yartseva I.V., Klyuev N.A., Tolkachev O.N., Khim. Prir. Soedin., 1993, 835.



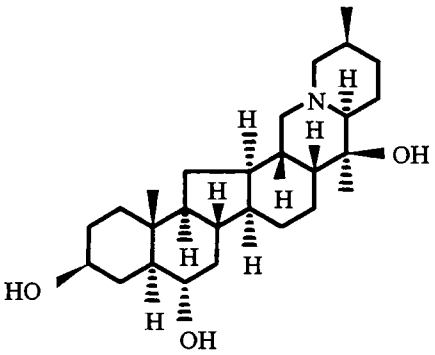
ISOGRAVACRIDONCHLORINE

Boenninghausenia albiflora
$C_{19}H_{18}NO_4Cl$: 359.0924/361.0895
Mp: 224-226° (dec., ac.)
UV: 225, 247, 275, 298, 322, 400(4.40, 4.52, 4.81, 4.17, 4.15, 3.80)

Mass: 359($M^{+\cdot}$, 18), 339(100), 324(30), 308(30), 266(18), 169.5(25), 43(68), 36(75), 18(50) [1]
^{13}C NMR: [2]

C-1	37.7	C-6a	120.0	C-11a	143.1
2	86.0	7	125.0	11b	101.1
3a	167.0	8	121.4	12	72.3
4	91.6	9	134.2	13	20.9
5	165.0	10	115.8	14	49.9
5a	105.1	10a	142.1	NCH_3	31.5
6	180.0				

1. Reisch J., Rosza Z., Szendrei K., Novak I., Minker E., Phytochem., 1977, **16**, 151.
2. Bergenthal D., Mester I., Rosza Z., Reisch J., Phytochem., 1979, **18**, 161.

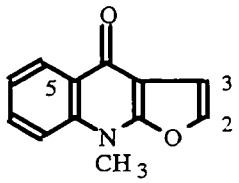


ISODIHYDROIMPERIALINE

Petilium raddeanum
$C_{27}H_{45}NO_3$: 431.3399
Mp: 236-239° (ac.)
$[\alpha]_D$+17° [1]
IR: 3450, 2950, 2750, 1460
Mass: 431($M^{+\cdot}$), 416, 412, 388, 386, 374, 156, 155, 154, 112(100), 111, 98

PMR: 0.72(s, 19-CH_3), 0.99(d, 27-CH_3), 1.00(s, 21-CH_3), 3.43(m, H-3a, H-6e, 20-OH) [2]
PMR{di Ac isodihydro}: 0.79(s, 19-CH_3), 0.99(d, 27-CH_3), 1.00(s, 21-CH_3), 1.95(6H, s, OAs), 3.20(m, 20-OH), 4.60(2H, m, HC-OAc)

1. Nabiev A., Nakhatov I., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 528.
2. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 458.

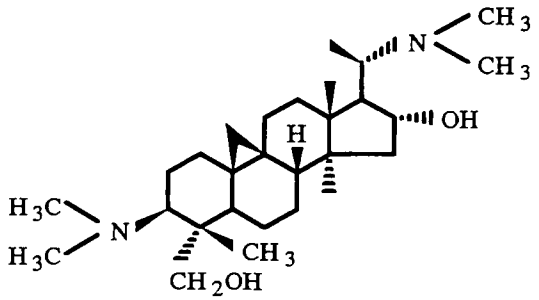


ISODICTAMNINE

Dictamnus angustifolius, D. caucasicus
$C_{12}H_9NO_2$: 199.0633
Mp: 185-186° (water) [1]

IR: 3135, 3115, 1630, 1597, 1555, 1520 [2]
Mass: 199($M^{+\cdot}$, 100), 184(13), 170(11), 156(17), 143(35), 142(8), 130(6), 128(22), 116(6), 115(22), 104(22), 102(8), 101(17), 99(13), 91(5), 89(4), 85(10), 77(19), 76(16), 75(10), 66(10) [3]
PMR: 3.81(3H, s, NCH_3), 7.00, 7.22(1H, d, H-3, H-2), 7.20-7.25(3H, m, H-Ar), 8.55(1H, d, H-5) [4]

1. Asatiani V.S., Kikvidze I.M., Bessonova I.A., Mudzhiri K.S., Yunusov S.Yu., Soobshch. AN GSSR, 1971, No. 1, 85.
2. Bessonova I.A., Unpub.
3. Lahey F.N., Lauder I., McCamisch M., Austral. J. Chem., 1969, **22**, 431.
4. Collins J.F., Grey G.A., Grundon M.F., Harrison D.M., Spyropoulos C.G., J. Chem. Soc. Perkin I, 1973, 94.

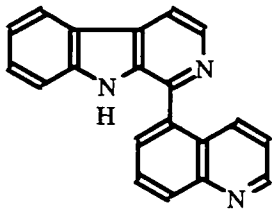


ISODIHYDROCYCLOMICROFILLINE A

Buxus sempervirens
$C_{28}H_{50}N_2O_2$: 446.
Mp: 215-217° (alc.)
$[\alpha]_D$–64° (chlf.) (di. Ac 189°)
Sol-y.: r-sol. chlf; sp. sol. alc.
IR: 3368, 3047, 1452

Mass: 446(M^+), 424, 383, 342, 98, 84, 72(100%), 71, 70, 58, 57.
PMR: 0.92(3H, s, CH_3); 0.97(3H, d, J=7.52, CH_3); 1.06, 1.15(3H, s, 2×CH_3); 2.18, 2.32(6H, s, 2×$N(CH_3)_2$)], 3.02, 3.25(1H, d, CH_2-OH).

1. Khodzhaev B.U., Khodzhaeva M.R., Ubaev Kh., Khim. Prir. Soedin., 1993, 907.

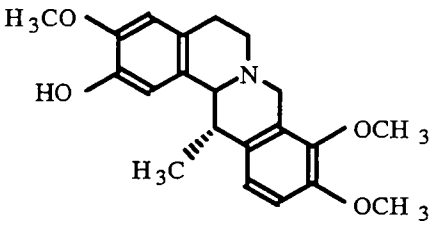


ISOKOMAROVINE

Nitraria komarovii
$C_{20}H_{13}N_3$: 295.1110
Mp: 321-322° (chlf.-meth.)
UV: 220, 292, 358(4.65, 4.18, 3.69)
UV(H^+): 215, 253, 312, 385

Mass: 295(M^+), 147.5($^{++}$)

1. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 635.

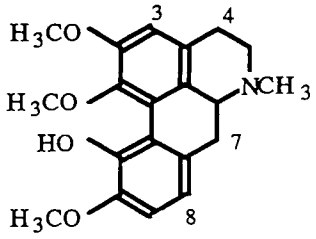


ISOCORYBULBINE

Corydalis marschalliana
$C_{21}H_{25}NO_4$: 355.1783
Mp: 179-180° (alc.) [1]
$[\alpha]_D$+300° (chlf.) [1]

UV: 225, 283 [2, 3]
IR: 3560, 1665, 1615, 1585, 1508, 1300, 1288, 1220, 1185, 1173, 1117, 1068, 1046, 1018, 975, 945, 928, 857, 837, 818, 809, 782, 762 [3]
Mass: 355(M^+), 192, 190, 178(100) [2]
PMR: 1.18(3H), 3.81(3H, s, OCH_3), 3.85(6H, s, 2×OCH_3), 6.56, 6.71(1H, s, 2×H-Ar), 6.65(2H, s, 2×H-Ar) [2]

1. The Alkaloids, 1954, Vol. 4, p. 77.
2. Israilov I.A., Unpub.
3. Holubek, No. 145.



ISOCORIDINE

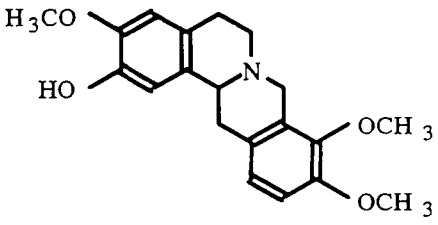
Argemone mexicana, Berberis heteropoda, B.integerrima, B.nummularia, B.oblonga, Corydalis gortschakovii, C.ledebouriana, C.rosea-purpurea, Dicentra peregrina, Dicranostigma franschetianum, D.lactucoides, D.leptopodum, Eschscholtzia californica, Glaucium corniculatum, G.elegans, G.fimbrilligerum, G.flavum, G.oxylobum, Papaver commutatum, P.lisae, P.ocellatum

$C_{20}H_{23}NO_4$: 341.1627
Mp: 183-184° (alc.) [1]
$[\alpha]_D$+181° (chlf.) [1]
UV: 220, 267, 304 [1]
IR: 3400 [1]
Mass: 341(M^+), 340, 326, 324, 310, 298, 283, 267, 170.5($^{++}$) [1]
PMR: 2.50(3H, s, NCH_3), 3.68(3H, s, OCH_3), 3.85(6H, s, 2×OCH_3), 6.67(1H, s), 6.81(2H, s) [1]
^{13}C NMR: [2]

C-1	141.7	C-5	52.4	C-10	149.0
1a	125.4	6a	62.6	11	143.6
1b	129.8	7	35.6	11a	119.8
2	150.8	7a	129.6	NCH_3	43.6
3	110.8	8	118.6	1-OCH_3	61.7
3a	128.8	9	110.7	2-OCH_3	55.5
4	29.1			10-OCH_3	55.8

HPLC: [3]
Pharm.: LD_{50} 52 mg/kg (s/c, mice). In toxic doses causes convulsions. Possesses an adrenolytic action [4].

1. Israilov I.A., Unpub.
2. Wenkert E., Buckwalter B.L., Burfitt I.R., Gasic M.J., Gottlieb H.E., Hagaman E.W., Schell F.M., Wovkulich P.M., Topics in C-13 NMR Spectroscopy, G.C.Levy (ed.), Vol.2, New York, 1976, p. 81.
3. Betts T.J., J. Chromatogr., 1990, **511**, 373.
4. Sadritdinov, p. 209.

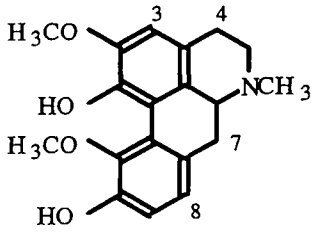


ISOCORYPALMINE

Bocconia frutescens, Corydalis marschalliana, C.stricta, C.vaginans, Dicranostigma leptopodum, Glaucium fimbrilligerum, Liriodendron tulipiferum
$C_{20}H_{23}NO_4$: 341.1627

Mp: 231-232°
$[\alpha]_D$–282° (meth.)
UV: 285
Mass: 341(M^+), 326, 324, 310, 178, 176, 164(100), 149
PMR(CF_3COOH): 3.53(6H, s, 2×OCH_3), 3.60(3H, s, OCH_3), 6.42, 6.61(1H, s, p-H-Ar), 6.72(2H, s, H-11, H-12)

1. Ziyaev R., Arslanova O.N., Abdusamatov A., Khim. Prir. Soedin., 1986, 518.

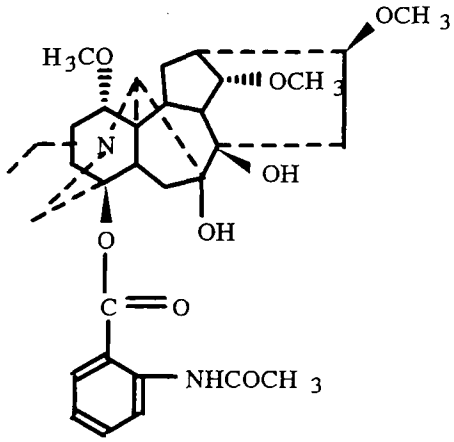


ISOCORYTUBERINE

Glaucium fimbrilligerum, G.oxylobum, G.squamigerum, Papaver pseudo-orientale
$C_{19}H_{21}NO_4$: 327.1471
Mp: amorph.

$[\alpha]_D$+ 181° (meth.)
{h-chl. 221° (alc.)}
UV: 225, 275, 313(44.39, 3.87, 3.67)
Mass: 327($M^{+\cdot}$), 312, 310, 296, 284, 270, 269, 163.5($^{++}$)
PMR: 2.10-3.70(m, 7H), 2.51(3H, s, NCH_3), 3.62(3H, s, OCH_3), 3.84(3H, s, OCH_3), 6.61(1H, s, H-Ar), 6.75, 6.93(1H, d, J=8, o-H-Ar)

1. Karimova S.U., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 224.

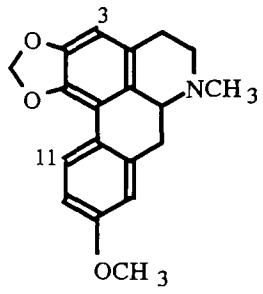


ISOLAPPACONITINE

Aconitum rubicundum
$C_{32}H_{44}N_2O_8$: 584.3098
Mp: 186-188° (eth.)
Sol-y.: sol. chlf., meth.
IR: 3570, 3535, 3270, 1700, 1693, 1610, 1593 [1, 2]
Mass: 584($M^{+\cdot}$, 5), 569(2), 566(3), 554(4), 553(20), 537(2), 535(2), 523(1), 509(1.3), 405(100), 392(25), 390(13), 376(9), 374(8) [1, 2]

PMR: 1.05(3H, t, J=7, NCH_2CH_3), 2.15(3H, s, Ac), 3.19, 3.26, 3.33(3H, s, 3×OCH_3), 6.90, 7.40(1H, t, J=7), 7.81, 8.56(1H, d, J=7) [1, 2, 3]
Pharm.: LD_{50} > 10 mg/kg (i/v, mice). Antiarrhythmic and local anesthetic action [4].

1. Nishanov A.A., Sultankhodzhaev M.N., Yunusov M.S., Kondrat'ev V.G., Khim. Prir. Soedin., 1991, 403.
2. Nishanov A.A., Sultankhodzhaev M.N., Unpub.
3. Shanhao J., Shanhai H., Baozhu S., Yuanlong Z., Bingnan Z., Huaxue Xuebao, 1988, **46**, 26; C.A., 1988, **108**, No. 21, 183673n.
4. Dzhakhangirov F.N., Unpub.

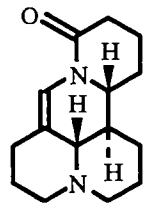


(+)-ISOLAURELINE

Liriodendron tulipiferum
$C_{19}H_{19}NO_3$: 309.1365
{h-chl. 245° (dec.)}
$[\alpha]_D$+35° (water)
UV: 218, 283(4.46, 4.26)
IR: 2850, 1605, 1255, 1060, 940

PMR: 2.46(3H, s, NCH_3), 3.76(3H, s, OCH_3), 5.81, 5.95(2H, d, J=1.5, CH_2O_2), 6.42, 6.72(1H, s, H-3, H-8), 6.80, 7.91(1H, d, J=7.5, H-10, H-11)

1. Ziyaev R., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 685.

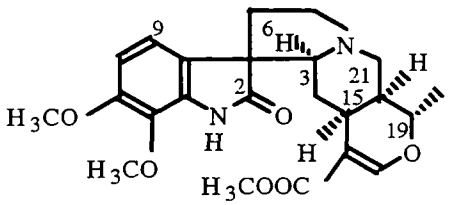


ISOLEONTALBINE

Leontice smirnowii
$C_{15}H_{22}N_2O$: 246.1732
Mp: oil
$[\alpha]_D$–147° (alc.)

{p-chl. 207°}
Sol-y.: r-sol. chlf., meth., alc., ac.
UV: 240(4.20) [1]
IR: 2800-2700, 1670, 1642 [1, 2]
Mass: 246(M^+, 100), 233, 217, 190, 173, 160, 149, 135, 98, 96, 83 [1]

1. Tkeshelashvili É.G., Author's Abstract of Candidate's Dissertation, Tashkent, 1973.
2. Bohlmann F., Weise W., Rahtz D., Arndt C., Chem. Ber., 1958, **91**, 2176.



ISOMAJDINE

Vinca herbacea, V. major, V.minor, V.pubescens
$C_{23}H_{28}N_2O_6$: 428.1947
Mp: 208-210° [1], 206-207° (meth.) [2-5], 201-202° (meth.) [6]

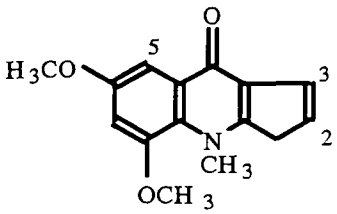
$[\alpha]_D$–111° (pyr.) [1], –95° (chlf.) [2], –69° (chlf.) [3], –102° (chlf.) [4-6]
UV: 225, 248 sh, 285 sh (4.53, 4.16, 3.04) [1, 3, 4]
IR: 3330, 1730, 1710, 885, 875, 830 [2]; 3305, 1725, 1640, 775, 735 [3-6]
Mass: 428(M^+) [1, 3, 4, 6]
PMR: 1.37(19-CH_3), 3.58($COOCH_3$), 3.80(OCH_3), 3.83(OCH_3), 4.30(H-19), 6.50(H-Ar), 6.84(H-Ar), 7.40(H-17) [1]
^{13}C NMR: [7]

C-2	180.8	C-10	106.6	C-17	154.8
3	72.1	11	152.1	19	71.1
5	53.4*	12	132.9	20	38.0
6	35.1	13	133.7	21	53.9*
7	57.1	14	30.2	22	167.4
8	126.9	15	30.4	19-CH_3	18.4
9	119.4	16	109.8	Ar-OCH_3	55.9
					60.7
				OCH_3	50.8

Abs. conf.: 3S, 4R, 7S [7]
Pharm.: LD_{50} 327 mg/kg (i/v, mice). Pronounced but brief hypotensive action [8].

1. Ognyanov I., Pyuskyulev B., Kompis I., Sticzay T., Spiteller G., Shamma M., Shine R.Y., Tetrahedron, 1968, **24**, 4641.
2. Dzhakeli É.Z., Vachnadze V.Yu., Mudzhiri M.M., Mudzhiri K.S., Soobshch. AN GSSR, 1968, **50**, 397.

3. Dzhakeli É.Z., Mudzhiri K.S., Soobshch. AN GSSR, 1970, **57**, 353.
4. Robakidze Z.V., Vachnadze V.Yu., Mudzhiri K.S., Soobshch. AN GSSR, 1978, **89**, 117.
5. Vachndze V.Yu., Zhukovich E.N., Mudzhiri K.S., Soobshch. AN GSSR, 1976, **83**, 593.
6. Chkhikvadze G.V., Vachnadze V.Yu., Mudzhiri K.S., Soobshch. AN GSSR, 1973, **69**, 369.
7. Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 217.
8. Kurmukov A.G., in: The Pharmacology of Alkaloids and Cardiac Glycosides [in Russian], Fan, Tashkent, 1971, p. 43.

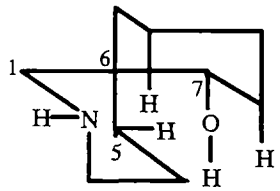


ISOMACULOSIDINE

Dictamnus caucasicus
$C_{14}H_{13}NO_4$: 259.0845
Mp: 168-169° (alc.-ac.)
{tetrahydro 215°, picr. 186°}

Sol-y.: sol. chlf.; i.s. water [1, 2]
UV: 214, 250, 261 sh, 292, 302 sh, 347, 364(4.11, 4.62, 4.28, 3.62, 3.41, 3.97, 4.01) [2]
IR: 3145, 3120, 1636, 1615, 1575, 1525, 1470, 1445, 1430, 1390, 1363, 1295, 1278, 1220, 1188, 1165, 1122, 1100, 988, 950, 840, 785, 760 [3]
Mass: 259(M^+, 100), 258(15), 245(36), 229(13), 216(10), 214(6), 201(17), 173(9) [2]
PMR: 3.84, 3.88, 4.06(3H, s, 2×OCH_3, NCH_3), 6.69, 7.51(1H, d, J=2.5, H-7, H-5), 6.99, 7.23(1H, d, J=2, H-3, H-2) [3]

1. Kikvidze I.M., Bessonova I.A., Mudzhiri K.S., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 675.
2. Asatiani V.S., Kikvidze I.M., Bessonova I.A., Mudzhiri K.S., Yunusov S.Yu., Soobshch. AN GSSR, 1971, No. 1, 85.
3. Bessonova I.A., Unpub.



ISONITRAMINE

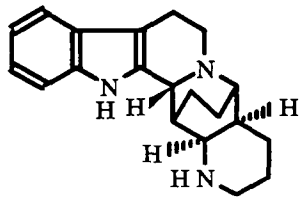
Nitraria sibirica
$C_{10}H_{19}NO$: 169.1467
Mp: 101-103°

$[\alpha]_D$–30° (chlf.)
{h-chl. 198°, m-i. 189° [1]
Sol-y.: r-sol. chlf., alc., meth., ac.; sol. petr. eth. [2]
IR: 3305, 3288 [1]
Mass: 169(M^+, 100), 168, 151, 150, 136, 123, 122, 110, 109, 108, 96, 84 [2]
PMR: 2.14(1H, m, H-5$_e$), 2.44(1H, H-1$_a$), 2.54(1H, td, H-3$_a$), 2.88(1H, d, H-1$_e$), 2.92(1H, m, H-3$_e$), 3.57(1H, dd, H-7), 3.87(2H, narrow s, NH, OH) [3]
^{13}C NMR: [3]

C-1	60.3	C-6	36.2	C-9	24.3
3	47.3	7	79.8	10	20.4
4	23.1	8	29.8	11	36.3
5	28.7				

X-ray spectral analysis: [4]
Abs. conf.: 6S, 7eS [5]

1. Osmanov Z., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 720.
2. Osmanov Z., Author's Abstract of Candidate's Dissertation, Tashkent, 1985.
3. Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1988, 82.
4. Tashkhodzhaev B., Khim. Prir. Soedin., 1982, 75.
5. Ibragimov A.A., Moiseeva G.P., Osmanov Z., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 726.

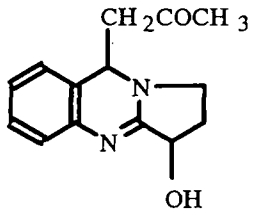


ISONITRARINE

Nitraria komarovii, N.schoberi
$C_{20}H_{25}N_3$: 307.2048
Mp: 208-209° (chlf.)
$[\alpha]_D$ 0°

{di h-chl. 239°, p-chl. 236° (dec.)}
UV: 226, 286(4.46, 3.84).
IR: 3400, 3200, 2950, 2910, 755.
Mass: 307(M^+, 100), 306, 279, 278, 224(85), 223, 197, 196, 195, 184, 183, 182, 171, 170, 169, 156, 144, 83.
PMR(CF_3COOH): 1.45, 1.95, 3.20(m, CH_2), 5.00(1H, H-3), 6.96(4H, m, H-Ar), 7.35, 8.26(1H, 2×NH)

1. Ibragimov A.A., Maekh S.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 276.

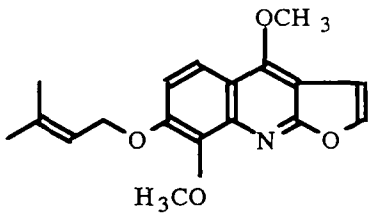


ISOPEGANIDINE

Peganum harmala
$C_{14}H_{16}N_2O_2$: 244.1212
Mp: 169-170°
$[\alpha]_D$ 0°

{picr. 178°}
UV: 227, 295(3.93, 3.85)
IR: 1710, 1640, 1600, 1580
Mass: 244(M^+, 10), 187(100), 169(4), 159(8), 131(7), 57(3), 43(4)
PMR(CF_3COOH): 1.82(3H, s), 2.05, 2.45(1H, m), 2.95(2H, d), 3.47(2H, m), 5.04(1H, d), 6.86(4H, m)

1. Zharekeev B.Kh., Khashimov Kh.N., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 264.

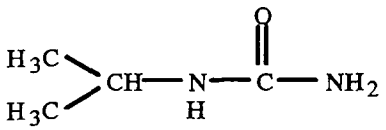


7-ISOPENTENYLOXY-γ-FAGARINE

Haplophyllum ferganicum, H.latifolium, H. perforatum
$C_{18}H_{19}NO_4$: 313.1314
Mp: 105-106° (e-a.)

{hexahydro 234°}
Sol-y.: r-sol. chlf., alc., meth.; sol. ac., eth.; i.s. water
UV: 251, 322, 335(4.90, 3.91, 3.89)
IR: 3160, 3120, 1620, 1580, 1510, 1490, 1370, 1265
Mass: 313(M^+, 14), 245(100), 244(55), 230(41), 227(98), 216(59), 202(30), 199(38), 187(9), 69(43)
PMR: 1.70, 1.74(3H, s, 2×CH_3), 4.01, 4.28(3H, s, 2×OCH_3), 4.62(2H, d, J=6.5, CH_2), 5.46(1H, t, J=6.5, =CH), 6.81, 7.49(1H, d, J=3, H-3, H-2), 6.96, 7.67(1H, d, J=9, H-6, H-5)

1. Bessonova I.A., Akhmedzhanova V.I., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 677.

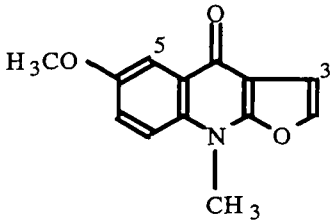


N-ISOPROPYLUREA

Diptychocarpus strictus
$C_4H_{10}N_2O$: 102.0089

Mp: 157-158°
IR: 3360, 3230, 1605, 1600, 1555
Mass: 102(M^+), 87, 58, 44(100)
PMR: 1.08(6H, d, J=6, $-C(CH_3)_2$), 3.32(1H, m, CH), 4.41(3H, m, NH, NH_2)

1. Abdilalimov O., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 535.

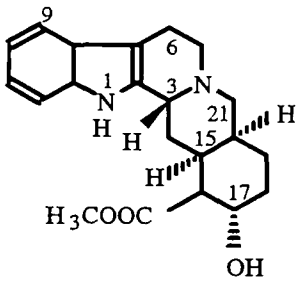


ISOPTELEINE

Dictamnus angustifolius, D.caucasicus
$C_{13}H_{11}NO_3$: 229.0739
Mp: 208-209° (alc.-ac.)
Sol-y.: sp. sol. org. solvent; i.s. water [1, 2]

UV: 217, 243, 256, 264, 292, 302, 329, 345, 362(4.20, 4.47, 4.41, 4.52, 3.23, 3.47, 3.72, 4.03, 4.05) [2]
IR: 3158, 3117, 1642, 1610, 1567, 1525, 1365, 1250, 1155 [3]
Mass: 229(M^+, 100), 228(42), 227(5), 215(5), 214(38), 200(14), 199(33), 186(10), 158(21), 143(4) [2]
PMR: 3.84, 3.90(3H, s, OCH_3, NCH_3), 7.00(1H, d, J=2, H-3), 7.10-7.30(3H, m, H-2, H-7, H-8), 7.86(1H, d, J=2.5, H-5) [1]

1. Kikvidze I.M., Bessonova I.A., Mudzhiri K.S., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 675.
2. Asatiani V.S., Kikvidze I.M., Bessonova I.A., Mudzhiri K.S., Yunusov S.Yu., Soobshch. AN GSSR, 1971, No. 1, 85.
3. Bessonova I.A., Unpub.



ISORAYHIMBINE (3-EPI-α-YOHIMBINE)

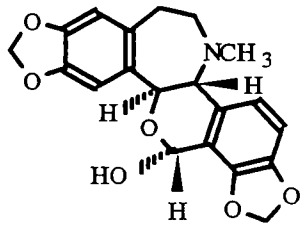
Rauwolfia vomitoria
$C_{21}H_{26}N_2O_3$: 354.1943
Mp: 125-128°, 181-183°, 222-223° [1]
$[\alpha]_D$ –93° [1], –100° (pyr.) [2]
{h-chl. 240°} [2]
UV: 225, 279(4.49, 3.89) [2]

IR: 1720, 1338, 1322, 1313, 1293, 1280, 1260, 1223, 1196, 1188, 1170, 1160, 1140, 1130, 1098, 1064, 1058, 1035, 1024, 1018, 1008, 982, 968, 941, 914, 897, 856, 838, 806, 763, 758, 750, 715 [2]
IR(LIF): 3460, 3290 [2]

^{13}C NMR: [3]

C-2	131.7	C-10	118.9	C-17	65.7
3	53.7	11	121.0	18	33.5
5	50.8	12	110.8	19	23.9
6	16.5	13	135.6	20	35.6
7	107.3	14	23.6	21	49.4
8	127.2	15	32.5	C=O	174.7
9	117.6	16	54.1	OCH_3	51.7

1. The Alkaloids, 1965, Vol. 8, p. 292.
2. Holubek, No. 331.
3. Wenkert E., Chang C.-J., Chawla H.P.S., Cochran W., Hagaman E.W., King J.C., Orito K., J. Am. Chem. Soc., 1976, **98**, 3645.

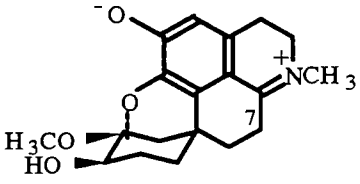


ISORHOEAGENINE

Papaver zangezuricum
$C_{20}H_{19}NO_6$: 369.1212
Mp: 159-160° (meth.) [1]
$[\alpha]_D$+ 307° (chlf.) [1]
UV: 241, 290

Mass: 369($M^{+\cdot}$), 206, 192, 163 [2]
ORD: [3]

1. Israilov I.A., Unpub.
2. Dolejs L., Hanus V., Collect., 1967, **23**, 2997.
3. Santavy F., Hrbek J., Blaha K., Collect., 1967, **32**, 4452.



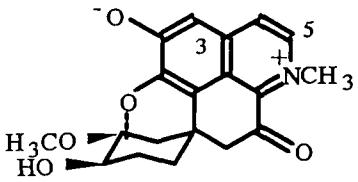
ISOREGECOLINE

Colchicum kesselringii
$C_{19}H_{23}NO_4$: 329.1627
Mp: 284-286°
{dihydro 228°}

IR: 3380, 3250, 2930, 1630, 1595, 1450, 1440
Mass: 329($M^{+\cdot}$, 100), 327, 314(100), 310, 298, 296, 270, 228
PMR(CD_3OD): 3.34, 3.50(3H, s, NCH_3, OCH_3), 3.78-4.23(3H, m, CH_2, CH), 6.65(1H, s, H-3)

1. Chommadov B., Usmanov A.M., Yusupov M.K., Khim. Prir. Soedin., 1985, 808.

ISOREGELINONE

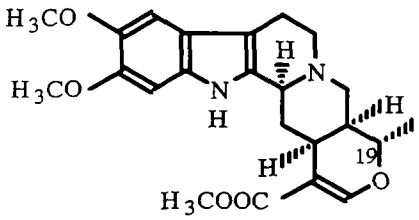


Colchicum kesselringii
$C_{19}H_{19}NO_5$: 341.1263
Mp: 321-323° (ac.-meth.) [1]
{octahydro 226°} [2]

Sol-y.: r-sol. meth., water; sp. sol. chlf., ac.; i.s. eth., petr. eth. [1]
UV: 250, 300, 393 [3]
IR: 3250, 1690
Mass: 341(M^+, 100), 326, 323, 313, 309, 298, 294, 282, 256, 244, 242, 241, 240, 232, 230, 228, 226, 213, 212 [1]
PMR($CF_3COOH+D_2O$): 0.90-1.80(4H, m, H-9, H-10), 1.91(1H, d, J=13.5, H-13_a), 2.41(1H, dd, J=13.5; 2, H-13_e), 2.93, 3.21(1H, d, J=13.5, H-8), 3.34(3H, s, OCH_3), 3.82(1H, dd, J=11.5; 5.0, H-11_a), 4.36(3H, s, NCH_3), 7.38(1H, s, H-3), 8.05, 8.19(1H, d, J=7, H-4, H-5) [1]

1. Usmanov A.M., Yusupov M.K., Khim. Prir. Soedin., 1981, 195.
2. Usmanov A.M., Chommadov B., Yusupov M.K., Khim. Prir. Soedin., 1985, 81.
3. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 24.

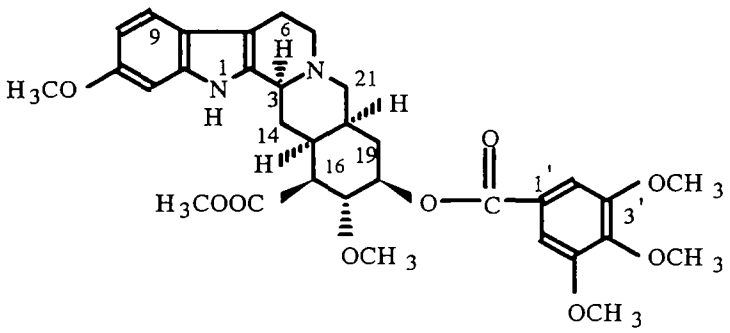
ISORESERPILINE



Rauwolfia cambodiana, Vinca erecta
$C_{23}H_{28}N_2O_5$: 412.1998
Mp: 211-212° [1], 212-213° [2],
$[\alpha]_D$ −88° (alc.), −82° (pyr.) [1], −102° (chlf.) [2]

{h-chl. 254° (dec.), h-b. 272° (dec.), oxalate 246°} [1]
UV: 228, 303(4.55, 4.01) [2]; 228, 250, 300, 304, 311 sh (4.58, 4.16, 4.01, 4.02, 3.98) [3]
IR: 3413, 1698, 1629 [2, 4]
PMR: 1.37(3H, d, J=6, 19-CH_3), 3.72(3H, s, $COOCH_3$), 3.83(3H, s, OCH_3), 3.87(3H, s, OCH_3), 4.44(1H, o, H-19), 4.20-4.70(1H, q, H-15), 6.77(1H, s, H-Ar), 6.90(1H, s, H-Ar), 7.57(1H, s, H-17), 7.95(1H, s, NH) [5]
ORD: [3]; Stereochemistry: [3, 6]
Pharm.: LD_{50} 430 mg/kg (i/p, mice). Sedative action [7].

1. Stoll A., Hofmann A., Brunner R., Helv. Chim. Acta, 1955, **38**, 270.
2. Poisson J., Goutarell R., Bull. Soc. Chim. France, 1956, 1703.
3. Finch N., Taylor W.I., Emerson T.R., Klyne W., Swan R.J., Tetrahedron, 1966, **22**, 1327.
4. Neuss N., Baaz H.E., J. Org. Chem., 1957, **22**, 1001.
5. Gilbert B., Brissoless J.A., Finch N., Taylor W.I., Budzikiewicz H., Wilson J.M., Djerassi C., J. Am. Chem. Soc., 1963, **85**, 1523.
6. Shamma M., Richey J.M., J. Am. Chem. Soc., 1963, **85**, 2507.
7. Sadritdinov, p. 43.



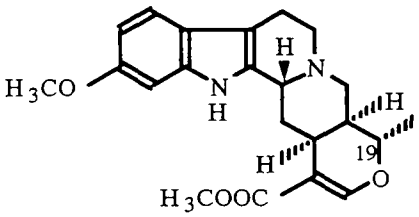
ISORESERPINE

Rauwolfia vomitoria
$C_{33}H_{40}N_2O_9$: 608.2734
Mp: 152-156° [1]
$[\alpha]_D$–164° [1]

^{13}C NMR: [2]

C-2	132.9	C-13	136.5	$COOCH_3$	51.7
3	59.6	14	27.6	11-OCH_3	55.6
5	52.8	15	37.0	17-OCH_3	60.5
6	21.6	16	51.7	C-1′	124.9
7	107.6	17	77.5	2′	106.7
8	121.4	18	77.8	3′	152.5
9	118.2	19	30.3	4′	141.9
10	108.4	20	34.6	3′-OCH_3	56.0
11	155.6	21	59.6	4′-OCH_3	60.6
12	94.8	16-C=O	172.2	1′-C=O	165.0

1. The Alkaloids, 1965, Vol. 8, p. 291.
2. Wenkert E., Chang C.-J., Chawla H.P.S., Cochran W., Hagaman E.W., King J.C., Orito K., J. Am. Chem. Soc., 1976, **98**, 3645.

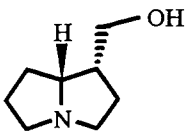


ISORESERPININE

Vinca herbacea
$C_{22}H_{26}N_2O_4$: 382.1893
Mp: 224-226° (dec.) [1, 2]
$[\alpha]_D$–18° (pyr.) [1], –5° (pyr.) [2]

{nitr. 270°, tartrate 216°} [2]
UV: 229, 299(4.69, 3.83) [2]
IR: 1211, 1202, 1123, 1081 [3]
Mass: 382(M^+), 367, 351, 323, 297, 295, 281, 253, 214, 200, 199, 186 [1]
PMR(ac.-d_6): 1.33(3H, d, 19-CH_3), 3.63(3H, s, $COOCH_3$), 3.71(3H, s, OCH_3) [1]
Stereochemistry: [4]

1. Dzhakeli É.Z., Khim. Prir. Soedin., 1978, 420.
2. Stoll A., Hofmann A., Brunner R., Helv. Chim. Acta, 1955, **38**, 270.
3. Neuss N., Boaz H.E., J. Org. Chem., 1957, **22**, 1001.
4. Shamma M., Richey J.M., J. Am. Chem. Soc., 1963, **85**, 2507.

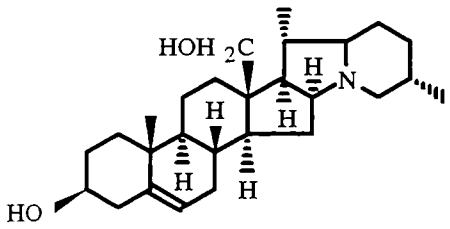


(+)-ISORETRONECANOL (LINDELOFIDINE)

Thesium minkwitzianum
$C_8H_{15}NO$: 141.1154

Mp: 39-40° (petr. eth.)
$[\alpha]_D$+76° (alc.)
{picr. 193°, picrolonate 184°, m-i. 286° (dec.)}
Sol-y.: r-sol. alc., chlf., ac., water; sp. sol. eth., petr. eth.

1. Arendaruk A.P., Proskurnina N.F., Konovalova R.A., Zh. Org. Khim., 1960, **30**, 670.

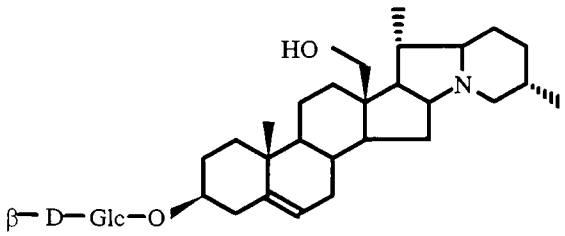


ISORUBIJERVINE

Veratrum dahuricum, V.lobelianum, V.nigrum
$C_{27}H_{43}NO_2$: 413.3294
Mp: 237-238°, $[\alpha]_D$+7° (alc.)
{h-b. 275° [1], tosylate 279°, iodide 309.5°, Ac 267°, isorubijervone 255° [2, 3]}

IR: 3260, 3040, 2960, 2800
PMR: 0.77, 0.99(6H, d, 21-CH_3, 27-CH_3), 0.96(3H, s, 19-CH_3), 5.29(1H, m, H-6) [4]
HPLC: [5]

1. Bondarenko N.V., Shinkarenko A.L., Gerashchenko G.I., Khim. Prir. Soedin., 1971, 854.
2. Pelletier S.W., Jacobs W.A., J. Am. Chem. Soc., 1953, **75**, 4442.
3. Weisenborn F.L., Burn D., J. Am. Chem. Soc., 1953, **75**, 259.
4. Taskhanova É.M., Shakirov R., Khim. Prir. Soedin., 1981, 404.
5. Hunter I.R., Walden M.K., Heftmann E., J. Chromatogr., 1980, **198**, 363.

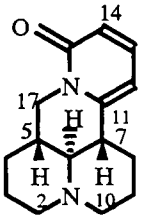


ISORUBIJERVOSINE

Veratrum lobelianum
$C_{33}H_{53}NO_7$: 575.3822
Mp: 270-271° (meth.)
$[\alpha]_D$−18° (chlf.-alc.) [1]
{penta Ac 203°} [2]

IR: 3410, 2960-2880, 1110-1100
Mass: 575(M^+), 560, 559, 545, 544, 413, 396, 383, 382, 380, 366, 204, 150(100) [1]

1. Taskhanova É.M., Shakirov R., Khim. Prir. Soedin., 1981, 404.
2. Klohs M.W., Draper M.D., Keller F., Malesh W., Petracek F.I., J. Am. Chem. Soc., 1953, **75**, 2133.



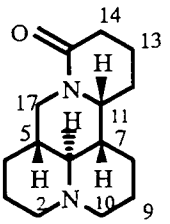
ISOSOPHORAMINE

Sophora pachycarpa
$C_{15}H_{20}N_2O$: 244.1576
Mp: 143-145° (petr. eth.)
$[\alpha]_D$+53° (alc.)
{h-chl. 336°, picr. 187°} [1]

UV: 235, 309(3.80, 3.90) [2]
IR: 3145, 2941, 2717, 2427, 1832, 1712, 1623, 1502, 1471, 1435, 1404, 1323, 1242, 1182, 1155, 1147, 1089, 1048, 1006 [2]
Mass: 244(M^+, 95), 243(100), 215, 150, 149, 136 [3]
PMR: 1.79(1H, H-5), 2.04(2H, J=11, H-2_a, H-10), 2.82(2H, J=11, H-2_e, H-10_e), 3.03(1H, J=15; 11, H-17_a), 4.32(1H, J=15; 5, H-17_e) [4]
^{13}C NMR: [4]

C-2	55.2	C-6	64.0	C-9	24.0
3	24.5	7	41.3	10	54.8
4	28.7	8	28.4	17	48.7
5	36.2				

1. Sadykov A.S., Kushmuradov Yu.K., Zh. Org. Khim., 1962, **32**, 1345.
2. Kushmuradov Yu.K., Sadykov A.S., Zh. Org. Khim., 1962, **32**, 1699.
3. Kushmuradov Yu.K., Ėshbaev F.Sh., Kasymov A.K., Kuchkarov S., Khim. Prir. Soedin., 1979, 353.
4. Sadykov A.S., Izv. AN SSSR, Ser. Khim., 1983, No. 11, 2432.

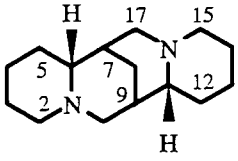


ISOSOPHORIDINE

Sophora alopecuroides
$C_{15}H_{24}N_2O$: 248.1889
Mp: 111-112° (petr. eth.) [1]
$[\alpha]_D$+101° (alc.) [1]

IR: 2907, 2860, 1629, 1458, 1444, 1348, 1319, 1294, 1264, 1228, 1180, 1134, 1111, 999, 941, 844 [1]
Mass: 248(M^+, 66), 247(100), 219(3), 206(3), 205(6), 192(3), 177(11), 162(3), 150(26), 137(5), 136(13) [2]
PMR: 1.72(1H, H-5), 2.30(1H, J=11; 3.5; 3, H-2_e), 2.41(1H, J=13.2; 3.5, H-17_a), 2.55(1H, J=10.6; 4.8, H-6), 2.60(1H, H-10_e), 2.74(1H, H-11), 2.77(1H, J=11; 10.8; 4.2, H-2_a), 2.90(1H, H-10_a), 4.48(1H, J=13.2; 1.8, H-17_e) [3]
X-ray spectral analysis: [4]

1. Rul'ko F., Zh. Org. Khim., 1962, **32**, 1635.
2. Iskandarov S., Rashkes Ya.V., Kamalitdinov D.D., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 331.
3. Sadykov A.S., Izv. AN SSSR, Ser. Khim., 1983, No. 11, 2432.
4. Ibragimov B.T., Talipov S.A., Tishchenko G.M., Kushmuradov Yu.K., Aripov T.F., Khim. Prir. Soedin., 1979, 586; Ibragimov B.T., Tishchenko G.M., Talipov S.A., Kushmuradov Yu.K., Aripov T.F., Khim. Prir. Soedin., 1981, 460.



α-ISOSPARTEINE

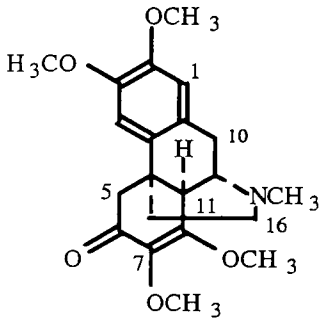
Ammopiptanthus mongolicus
$C_{15}H_{26}N_2$: 234.2096
Mp: 105-106°

$[\alpha]_D$–67° (meth.)
{picr. 219°(dec.), sulf. 258° (dec.), p-chl. 255°}
IR: 3540, 3420, 3250, 1642, 1328, 1318, 1293, 1273, 1252, 1242, 1186, 1175, 1160, 1138, 1120, 1106, 1074, 1068, 1053, 1032, 1025, 1020, 984, 964, 920, 910, 893, 884, 869, 857, 841, 816, 770, 730 [1]
Mass: 234(M^+, 20), 193(22), 150(15), 137(57), 110(28), 98(100), 97(33), 84(29), 55(49), 41(68) [2]
PMR: 1.53(J=8, H-2_a, H-15_a), 1.94(J=11.5; 3.2, H-10_a, H-17_a), 2.56(J=8, H-2_e, H-15_e), 2.77(J=11.5, H-10_e, H-17_e) [3]
^{13}C NMR: [4]

C-2	56.0	C-7	34.4	C-12	28.0
3	24.0	8	35.0	13	23.7
4	23.7	9	34.4	14	24.0
5	28.0	10	54.8	15	56.0
6	63.9	11	63.9	17	54.8

Abs. conf.: 6S, 7R, 9R, 11S [5]

1. Holubek, No. 347.
2. Pelletier, Vol. 2, p. 105.
3. Sadykov, p. 217.
4. Shamma, No. 189; Sadykov A.S., Izv. AN SSSR, Ser. Khim., 1983, 2432.
5. The Alkaloids, 1967, Vol. 9, p. 175.

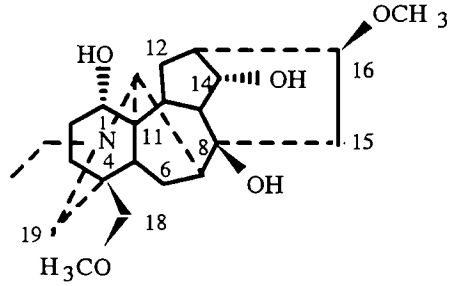


ISOSTEPHODELINE

Stephania delovayi
$C_{21}H_{27}NO_5$: 373.1889
Mp: 184-185° (bz., eth.)
$[\alpha]_D$+160° (alc.)
UV: 226, 275(3.78, 3.79)
IR: 1661, 1615, 1522

PMR: 1.40-2.50(4H, m, H-15, H-16), 2.36(3H, s, NCH_3), 2.56(1H, d, J=3.1, H-11), 2.62, 3.05(1H, d, J=17, H-5_a, H-5_e), 2.78(2H, m, H-10), 3.26(3H, s, 7-OCH_3), 3.58(1H, d, J=3.1), 3.72, 3.74(3H, s, 2-OCH_3, 3-OCH_3), 3.88(3H, s, 8-OCH_3), 6.45(1H, s, H-1), 6.56(1H, s, H-4)

1. Perel'son M.E., Fadeeva I.I., Il'inskaya T.N., Khim. Prir. Soedin., 1975, 188.



ISOTALATIZIDINE

Aconitum chasmanthum, A.nasutum, A.talassicum, A.tranzschelii, Delrhinium confusum
$C_{23}H_{37}NO_5$: 407.2672
Mp: 140-142° (petr. eth.)
$[\alpha]_D$ 0° (meth.)

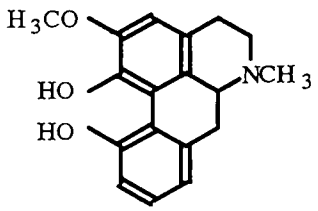
{hydrate 117°, oxalate 198° (dec.), m-i. 200°, tri Ac 134° [1]
UV: 206.5(2.99) [2]
IR: 3565, 3515, 3420, 1460, 1410, 1395, 1380, 1365, 1295, 1280, 1257, 1228, 1205, 1197, 1175, 1163, 1130, 1115, 1090, 1025, 992, 970, 943, 932, 910, 873, 855, 798, 780, 708 [3, 4]

Mass: 407($M^{+\cdot}$, 34), 492(30), 490(100), 489(10), 376(5), 374(16) [4]
PMR: 1.10(3H, t, J=7, NCH_2CH_3), 2.96, 3.16(1H, d, J=9, H-19), 3.30, 3.32(3H, s, OCH_3), 4.18(1H, t, J=4.5, H-14β) [3]
^{13}C NMR: [5]

C-1	72.3	C-9	46.7	C-17	63.7
2	29.2	10	40.4	18	79.0
3	29.7	11	48.7	19	56.6
4	37.3	12	26.8	NCH_2	48.4
5	41.7	13	44.1	CH_3	13.0
6	25.0	14	75.6	16′	56.2
7	45.3	15	42.3	18′	59.3
8	74.3	16	82.4		

Pharm.: LD_{50} 40.1, 170.0 mg/kg (i/v, i/p, mice). Possesses hypotensive, ganglioblocking and curaremimertic action. Action on smooth musculature, ECG, and CNS not pronounced [6].

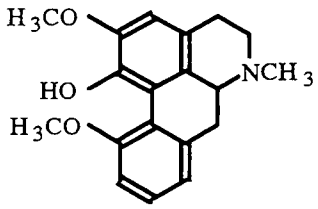
1. Konovalova R.A., Orekhov A.P., Zh. Org. Khim., 1940, **10**, 745.
2. Bando H., Wada K., Amija T., Kobayashi K., Fujimoto Y., Sakurai T., Heterocycles, 1987, **26**, 2623.
3. Pelletier S.W., Kelth L.H. and Parthasarathy P.C., J. Am. Chem. Soc., 1967, **89**, 4146.
4. Sultankhodzhaev M.N., Unpub.
5. Mody N.V., Pelletier S.W., Mollov N.M., Heterocycles, 1980, **14**, 1751.
6. Dzhakhangirov F.N., Unpub.



ISOTHEBAIDINE

Papaver orientale
$C_{18}H_{19}NO_3$: 297.1365
Mp: 236-237° (dec.)
$[\alpha]_D$+321° (meth.)
Mass: 297($M^{+\cdot}$), 296, 282, 280, 266, 254, 236

1. Israilov I.A., Denisenko O.N., Yunusov M.S., Murav'eva D.A., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 474.

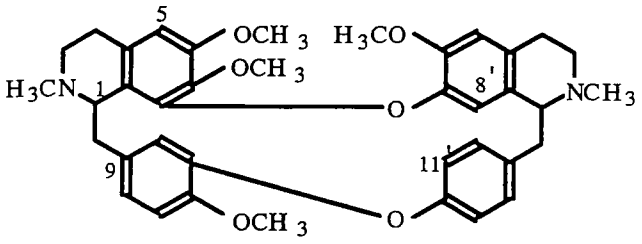


ISOTHEBAINE

Papaver bracteatum, P.orientale, P.pseudo-orientale
$C_{19}H_{21}NO_3$: 311.1521
Mp: 203-204° (alc.) [1]
$[\alpha]_D$+276° (abs. alc.) [1]

{h-chl. 214°} [1]
UV: 207, 273, 287 [1]
Mass: 311($M^{+\cdot}$), 310, 296, 294, 280, 268, 155.5(M^{++}) [1]
PMR: 2.46(3H, s, NCH_3), 3.83, 3.89(3H, s, 2×OCH_3), 6.61(1H, s), 6.70-7.30(3H, m) [1]
HPLC: [2]
Pharm.: LD_{50} 30 mg/kg (s/c, mice). On the administration of 10 mg/kg to mice and rabbits, an acceleration of respiration and pronounced total depression are observed. In experiments on dogs it causes motor excitation, copious salivation, and defecation. On i/v administration to dogs, cats, and rabbits it causes a lowering of the arterial pressure with a change in the frequency and amplitude of cardiac contractions [3].

1. Israilov I.A., Unpub.
2. Milo J., Levy A., Palevitch D., Ladizinsky G., J. Chromatogr., 1988, **452**, 563.
3. Sadritdinov, p. 210.

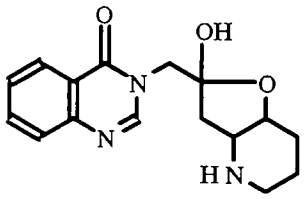


ISOTETRANDRINE

Berberis integerrima, B.nummularia, B.vulgaris, Mahonia aquifolia
$C_{38}H_{42}N_2O_6$: 622.3043
Mp: 181-182° (ac.)
$[\alpha]_D$+142° (chlf.) [1]

{di m-i. 242°}
UV: 206, 238 sh, 282(4.97, 4.38, 3.85) [2]
Mass: 622(M^+), 621, 485, 431, 430, 396, 395, 381, 364, 349, 198($^{++}$), 190, 175($^{++}$), 174 [3]
PMR: 2.26(3H, s, 2-NCH_3), 2.57(3H, s, 2′-NCH_3), 3.13(3H, s, 7-OCH_3), 3.62(3H, s, 6′-OCH_3), 3.76(3H, s, 6-OCH_3), 3.82(H-1), 3.84(H-1′), 3.92(3H, s, 12-OCH_3), 5.99(H-8′), 6.28(H-5), 6.42(H-10, H-10′), 6.54(H-5′), 6.65(H-11′), 6.78(H-14), 6.80(H-13), 7.10(H-13′), 7.27(H-14′) [4]
Pharm.: Antituberculous activity [5].

1. Karimov A., Unpub.
2. Battersby A.R., Bick I.R.C., Klyne W., Jennings J.P., Scopes P.M., Vernengo M.J., J. Chem. Soc., 1965, 2239.
3. Baldas J., Bick I.R.C., Ibuka T., Kapil R.S., Porter Q.N., J. Chem. Soc. Perkin I, 1972, 592.
4. Cuinaudeau H., Freyer A.J., Shamma M., Natur. Prod. Rep., 1986, **5**, 477.
5. Tolkachev O.N., Khim. Prir. Soedin., 1981, 263.

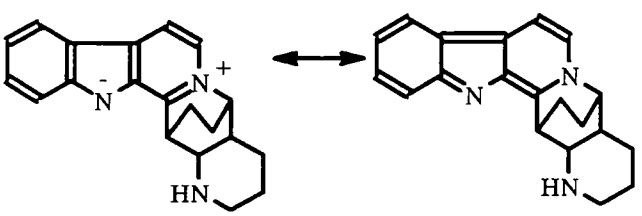


ISOFEBRIFUGINE

Dichroa febrifuga
$C_{16}H_{19}N_3O_3$: 301.1426
Mp: 129-130°
$[\alpha]_D$+120° (chlf.)

{h-chl. 209°, sulf. 218°}
Sol-y.: sol. chlf., meth.; sp. sol. ac., water; i.s. bz., eth. [1]
UV: 225, 266, 275, 302, 312(4.40, 3.84, 3.82, 3.68, 3.45) [2]
IR: [1]

1. Zabolotnaya E.S., Safronich L.N., in: Trudy VILAR [Proceedings of the All-Union Scientific Research Institute of Medicinal and Aromatic Plants]. Medicinal Plants [in Russian], 1969, Vol. 15, p. 356.
2. Sangster A.W., Stuart R.L., Chem. Rev., 1965, **65**, 69.

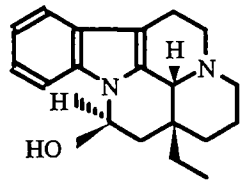


ISOSCHOBERIDINE

Nitraria komarovii, N.schoberi
$C_{20}H_{21}N_3$: 303.1736
Mp: 244-245° (alc.)
$[\alpha]_D$ 0°

Sol-y.: sp. sol. org. solvent
UV: 254, 308, 372(4.21, 4.07, 3.34)
UV(OH^-): 284, 330, 415
Mass: 303(M^+)

1. Tulyaganov T.S., Khim. Prir. Soedin., 1993, 33; Unpub.

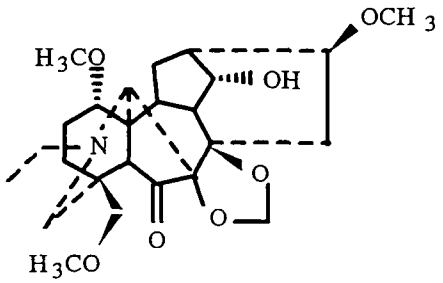


(+)-ISOEBURNAMINE

Amsonia angustifolia, A.illustris, A.tabernaemontana
$C_{19}H_{24}N_2O$: 296.1889
Mp: 217-220° [1]
$[\alpha]_D$+111° (chlf.) [1]

UV: 228, 282(4.49, 3.89) [1]; 229, 282(4.55. 3.95) [2]
IR: 1339, 1326, 1317, 1302, 1285, 1260, 1240, 1206, 1190, 1158, 1140, 1123, 1110, 1090, 1079, 1059, 1045, 1031, 1006, 975, 955, 940, 919, 910, 896, 848, 831, 793, 770, 760, 740 [1]
Abs. conf.: [3]

1. Holubek, No. 743.
2. Zabolotnaya E.S., Belikov A.S., Ivashchenko S.P., Molodozhnikov M.M., Med. Prom. SSSR, 1964, No. 5, 28.
3. Trojanek J., Koblicova Z., Blaha K., Chem. Ind., 1965, 1261.



ILIDINE

Delphinium iliense
$C_{25}H_{37}NO_7$: 463.2570
Mp: 141-143°
IR: 3445, 1745 [1]
Mass: 463(M^+), 448, 432(100) [1]

PMR: 1.02(3H, t, J=7, NCH_2CH_3), 3.25, 3.27, 3.31(3H, s, 3×OCH_3), 5.07, 5.53(1H, d, J=1.5, CH_2O_2) [1]
Pharm.: Toxicity and activity low. In doses of 10-20 mg/kg (i/v, cats) possesses a brief hypotensive and peripheral ganglioblocking action [2].

1. Zhamierashvili M.G., Tel'nov V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 836.
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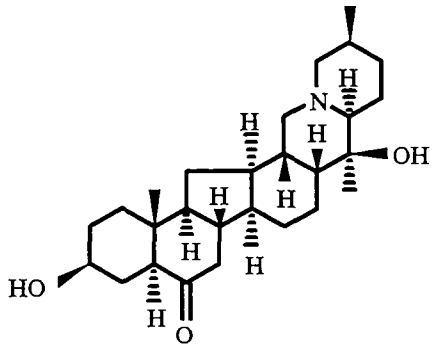
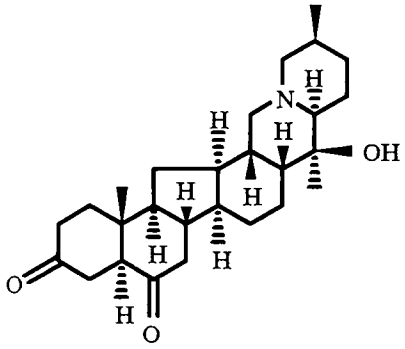


IMPERIALINE (SIPEIMINE)

Petilium eduardii, P.raddeanum, Rhinopetalum buharicum
$C_{27}H_{43}NO_3$: 429.3243
Mp: 265-267° (alc.)
$[\alpha]_D$–35° (chlf.)
{h-chl. 211°, p-chl. 207°, nitr. 184° (dec.), rhodanide 170°, m-i. 255°, oxime 170°, O-Ac 185° [1], dihydro 207°, isodihydro 240° [2]}

UV: 290(1.70)
IR: 3430, 2950, 1710, 1460 [3]
Mass: 429(M^+), 414, 411, 386, 384, 372, 358, 236, 235, 234, 217, 180, 164, 162, 156, 155, 154, 150, 140, 125, 124, 112, 111, 98 [4]
PMR: 0.67(s, 19-CH_3), 0.99(s, 21-CH_3), 0.99(d, 27-CH_3) [5]
X-ray spectral analysis: [6]
Pharm.: Excites the CNS, causing paralysis in high doses. LD_{50} 155 mg/kg (s/c, mice). Is of interest as an agent for the selective blockade of the M-cholinoreceptors of the heart and other organs. The sensitization by imperialine of certain subtypes of M-receptors provides the possibility of developing fundamentally new drugs and bioreactors from it [7-9].

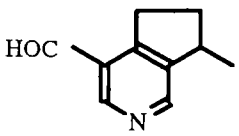
1. Nuriddinov R.N., Yunusov S.Yu., Dokl. AN UzSSR, 1961, No. 4, 33.
2. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 458.
3. Shakirov R., Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 429.
4. Nuriddinov R.N., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 316.
5. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 260.
6. Ito S., Fukasawa Y., Mjyashita M., Tetrahedron Lett., 1976, **36**, 3161.
7. Saidkasymov T.K., Sultanov M.B., in: The Pharmacology of Alkaloids and Glycosides [in Russian], Fan, Tashkent, 1967, p. 138.
8. Mirzaev Yu.R., Dokl. AN UzSSR, 1988, No. 6, 48.
9. Mirzaev Yu.R., Plotnikova I.T., Dokl. AN UzSSR, 1991, No. 7, 49.



IMPERIALONE

Petilium eduardii, P.raddeanum
$C_{27}H_{41}NO_3$: 427.3087
Mp: 228-231° (ac.) [1]
Mass: 427(M^+), 412, 409, 384, 382, 370, 356, 236, 235, 217, 180, 164, 162, 156, 155, 154, 150, 140, 125, 124, 112, 111, 98 [2]
PMR: 0.87(s, 19-CH_3), 1.00(s, 21-CH_3), 1.01(d, 27-CH_3) [3]
X-ray spectral analysis: [4]

1. Shakirov R., Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 384.
2. Nuriddinov R.N., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 316.
3. Nuriddinov R.N., Saidkhodzhaev A.I., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 333.
4. Ito S., Fukasawa Y., Mjyashita M., Tetrahedron Lett., 1976, **36**, 3161.

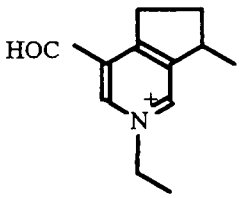


INDICAINE

Incarvillea olgae, Pedicularis ludwigii, P.olgae, P.violascens, Plantago indica, P.ramosa
$C_{10}H_{11}NO$: 161.0841

Bp: 92-105°
$[\alpha]_D$+20° (chlf.), +59° (meth.)
{picr. 153°}
UV: 268(3.13) [1]
IR: 2970, 2940, 1700, 1600, 1580
Mass: 161(M^+), 146, 133, 118, 91, 77 [1]
PMR: 1.32(3H, d, J=7, CH_3), 1.65, 2.35(1H, m, CH_2), 3.32(3H, m, CH, CH_2), 8.70, 8.82(1H, H-Ar), 10.05(1H, s, CHO) [2]

1. Abdusamatov A., Author's Abstract of Doctoral Dissertation, 1972.
2. Abdusamatov A., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 265.

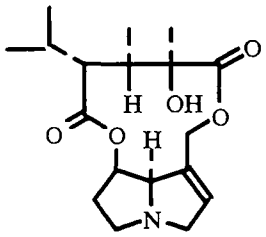


INDICAININE

Pedicularis olgae
$C_{12}H_{16}NO$: 190.1228
Mp: oil
$[\alpha]_D$+14° (chlf.)

{picr. 127°}
UV: 261, 268(3.52, 3.48)
IR: 3600-3200, 2980, 2940, 2750, 1700, 1580, 910, 855
Mass: 190(M^+), 161, 146, 133, 118, 117, 91, 77
PMR: 1.10, 1.40(3H, t, d, 2×CH_3), 1.70, 2.34(1H, m, CH_2), 3.55(2H, q, CH_2N), 8.55, 8.75(1H, s, H-Ar), 10.13(1H, s, CHO)

1. Khakimdzhanov S., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 126.

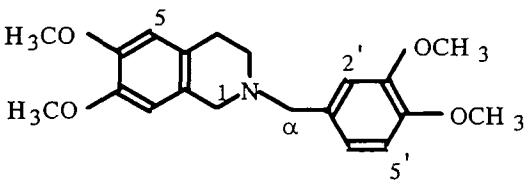


INCANINE

Heliotropium olgae, Trichodesma incanum
$C_{18}H_{27}NO_5$: 337.1889
Mp: 96-97° (ac.) [1]
$[\alpha]_D$–39° (alc.) [1]

{h-b. 208°, h-i. 207°, nitr. 182°, picr. 246° (dec.), h-chl. 199°, m-i. 228°, incaninic acid 163°, $[\alpha]_D$+25°; isoincaninic acid 123°, $[\alpha]_D$–26°; retronecine 120°} [1]
Sol-y.: r-sol. eth., ac., chlf., alc.; sp. sol. water [1]
Mass: 337(M^+, 89), 293(24), 292(22), 266(5), 264(26), 250(59), 248(16), 225(31), 222(100), 213(15), 206(96), 154(15), 136, 120, 119. 93, 80 [2]
X-ray spectral analysis: [3]
Pharm.: LD_{50} 300 mg/kg (i/v, mice). Cholinolytic action. Stimulates respriation, briefly lowers blood pressure. Hepatotoxic [4].

1. Yunusov S.Yu., Plekhanova N.V., Zh. Org. Khim., 1959, **29**, 677; Unpub.
2. Rashkes Ya.V., Abdullaev U.A., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 40.
3. Tashkhodzhaev B., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 363.
4. Mashkovskii M.D., Polezhaeva A.I., Yakovleva A.I., DAN UzSSR, 1953, No. 4, 36.



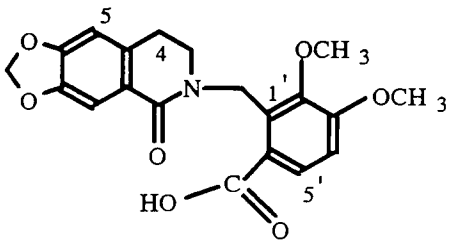
INTEBRIMINE

Berberis integerrima
$C_{20}H_{25}NO_4$: 343.1783
Mp: oil

{h-chl. 170.170°}
Sol-y.: r-sol. org. solvent
UV: 208, 230 sh, 285(4.31, 3.84, 3.69)

IR: 2900, 2540, 1600, 1480, 1440, 1110
Mass: 343(M^+, 25), 342(23), 328(2), 206(3), 192(100), 176(6), 164(63), 151(82)
PMR: 2.82(4H, m, H-3, H-4), 3.56(2H, s, H-α), 3.62(2H, s, H-1), 3.81(6H, s, 2×OCH_3), 3.84(6H, s, 2×OCH_3), 6.49(1H, s, H-5*), 6.60(1H, s, H-8*), 6.78(1H, d, J=8.5, H-5′), 6.90(1H, dd, J=8.5; 1.8, H-6′), 6.98(1H, d, J=1.8, H-2′)

1. Karimov A., Vinogradova V.I., Shakirov R., Khim. Prir. Soedin., 1993, 70.

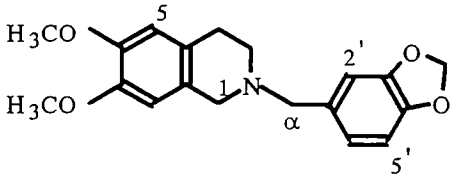


INTEBRINE

Berberis integerrima
$C_{20}H_{19}NO_7$: 385.1161
Mp: 193-194° (meth.)
Sol-y.: sp. sol. org. solvent
UV: 223, 250, 304(4.98, 4.62, 4.45)

IR: 3440, 2430, 1715, 1580, 1490, 1400, 1280
Mass: 385(M^+, 81), 367(20), 356(30), 354(100), 340(22), 338(19), 310(50), 222(5), 206(10), 204(19), 193(67), 192(50), 190(72), 176(64)
PMR(DMSO-d_6): 2.70(2H, t, H-3), 3.24(2H, t, H-4), 3.68(3H, s, OCH_3), 3.85(3H, s, OCH_3), 4.97(2H, s, H-α), 6.00(2H, s, CH_2O_2), 6.72(1H, s, H-5), 7.05(1H, d, J=8.5, H-5′), 7.27(1H, s, H-8), 7.65(1H, d, J=8.5, H-6′)
X-ray spectral analysis

1. Karimov A., Tashkhodzhaev B., Rashkes Ya.V., Makhmudov M.K., Mil'grom E.G., Khim. Prir. Soedin., 1993, 70.

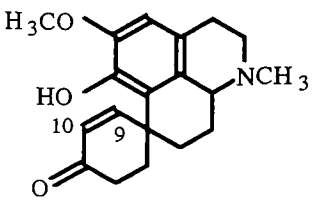


INTEBRININE

Berberis integerrima
$C_{19}H_{21}NO_4$: 327.1471
Mp: oil

{h-chl. 224°}
Sol-y.: r-sol. chlf., meth., bz.
UV: 206, 230 sh, 287(4.21, 3.87, 3.72)
IR: 2920, 2530, 1610, 1500, 1450, 1280, 1120, 1040, 940, 820
Mass: 327(M^+, 26), 326(23), 312(2), 206(3.5), 192(100), 176(5), 164(65), 135(82), 121(10.5)
PMR: 2.50(4H, m, H-3, H-4), 3.51(2H, s, H-α), 3.60(2H, s, H-1), 3.80(3H, s, OCH_3), 3.84(3H, s, OCH_3), 5.96(2H, s, CH_2O_2), 6.45(1H, s, H-5*), 6.58(1H, s, H-8*), 6.76(1H, d, J=8.5, H-5′), 6.87(1H, dd, J=8.5; 1.8, H-6′), 6.94(1H, d, J=1.8. H-2′)

1. Karimov A., Vinogradova V.I., Shakirov R., Khim. Prir. Soedin., 1993, 70.



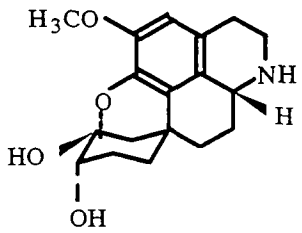
YOLANTAMINE

Colchicum kesselringii, Merendera jolantae
$C_{19}H_{23}NO_3$: 313.1678
Mp: 215-216° (eth.-ac.)
$[\alpha]_D$+112° (chlf.)

{h-chl. 275°, m-i. 258° [1], tetrahydro 175°} [2]
UV: 225 sh, 275 sh, 288 sh [1]

IR: 3350, 1650, 1630, 1600 [3]
Mass: 313(M^+, 65), 312(100), 285, 270, 244, 242, 229, 165 [3]
PMR: 2.38(3H, s, NCH_3), 3.78(3H, s, OCH_3), 5.85(H-9), 6.45(H-3), 6.82(H-10) [4]
Pharm.: Reversible cholinesterase inhibitor [5].

1. Zuparova K.M., Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1972, 487.
2. Timbekov É.Kh., Kasymov A.K., Abdullaeva D.A., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1976, 328.
3. Yusupov M.K., in: The Chemistry of Plant Substances [in Russian], Fan, Tashkent, 1972, p. 19.
4. Yusupov M.K., Abdullaeva D.A., Aslanov Kh.A., Sadykov A.S., DAN SSSR, 1973, **208**, 1123.
5. Zuparova K.M., Rozengart E.V., Yusupov M.K., Abduvakhvbov A.A., Khakimov Yu.R., Chommadov B., Israilov D.I., Uzb. Khim. Zh., 1991, No. 2, 33.

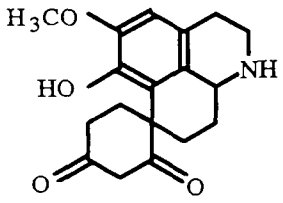


YOLANTIDINE

Merendera jolantae
$C_{18}H_{23}NO_4$: 317.1627
Mp: 275-277° (ac.)
$[\alpha]_D$+102° (meth.)
UV: 216, 290

IR: 3580, 3360, 1600, 1470-1440
Mass: 317(M^+)
PMR: 3.86(3H, s, OCH_3), 6.50(1H, s, H-3)

1. Chommadov B., Usmanov A.M., Yusupov M.K., Khim. Prir. Soedin., 1983, 790; Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992.

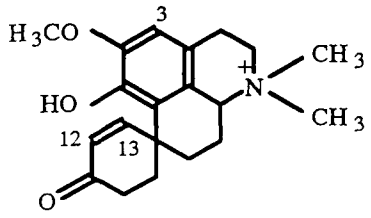


YOLANTIMINE

Colchicum kesselringii, Merendera jolantae
$C_{18}H_{21}NO_4$: 315.1471
Mp: 272-273° (ac.-meth.)
$[\alpha]_D$+98° (meth.)

UV: 215, 287
IR: 3380, 1640, 1600, 1460
Mass: 315(M^+, 20), 314(15), 287(100), 286(36), 245(10), 244(28), 242(42), 230(13)
PMR: 3.88(3H, s, OCH_3), 6.52(1H, s, H-3)

1. Abdullaeva D.A., Yusupov M.K., Kasymov A.K., Nguen Van Dau, Aslanov Kh.A., Khim. Prir. Soedin., 1976, 121.

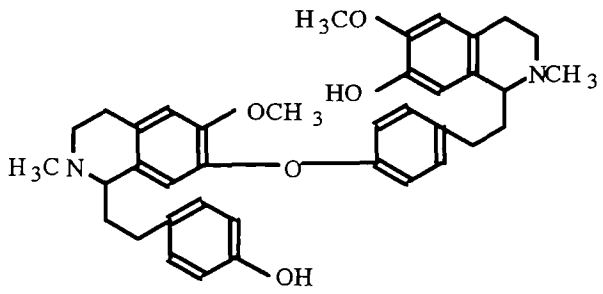


YOLANTINE

Merendera jolantae
$C_{20}H_{26}NO_3$: 328.1913
Mp: 269-270° (ac.-meth.)
{m-i. O-Me 271°}
UV: 210, 285

IR: 3400, 1650, 1630, 1600, 1460
Mass: 313, 312, 298, 285, 270, 244, 214, 205
PMR: 2.56, 2.90(3H, s, $N(CH_3)_2$), 3.47(3H, s, OCH_3), 5.81, 6.82(1H, d, H-12, H-13), 6.31(1H, s, H-3)

1. Turdikulov Kh., Nguen Van Dau, Yusupov M.K., Khim. Prir. Soedin., 1976, 555.



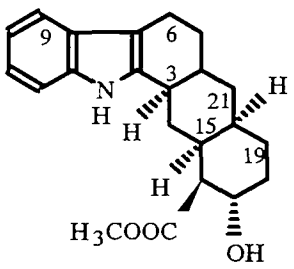
YOLANTININE

Merendera jolantae
$C_{38}H_{44}N_2O_5$: 608.3250
IR: 3450, 1620, 1460, 890
Mass: 608(M^+), 296, 192, 121
PMR: 1.00-4.00(18H, 8×CH_2, 2×CH), 2.22, 2.33(3H, s, 2×NCH_3), 3.72, 3.74(3H, s, 2×OCH_3), 6.38-6.75(12H, H-Ar)

^{13}C NMR:

=C	155.1, 149.2, 2×146.0, 144.6, 144.4, 134.1, 132.8, 130.0, 129.7, 128.7, 124.4
=CH–	2×129.3, 124.4, 119.3, 118.3, 116.6, 3×115.7, 113.6, 112.6, 111.2
N-CH-	62.7, 62.0
$N-CH_2-$	47.8, 47.4
$N-CH_3$	42.1, 41.7
$O-CH_3$	56.1, 55.9
$-CH_2-$	2×36.4, 31.3, 31.0, 25.4, 24.5

1. Usmanov A.M., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1977, 422.



α-YOHIMBINE

Rauwolfia canescens
$C_{21}H_{26}N_2O_3$: 354.1943
Mp: 230° (alc.) [1], 239-241° (dec.) [2], 235-236° [3]
$[\alpha]_D$–26° (alc.), –15° (pyr.) [2], –18° (pyr.) [3]
UV: 227, 281(4.50, 3.93) [4]

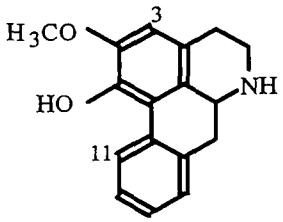
IR(chlf.): 3570, 3480, 2805, 2765, 1730, 1055 [4, 5]
Mass: 354(M^+, 100), 353(88), 339(5), 337(2), 335(2), 323(5), 321(3), 320(2), 295(5), 293(3), 226(8), 224(3), 223(6), 221(6), 184(10), 170(11), 169(12), 156(8) [5]
PMR: 3.15(1H, m, H-3), 3.84(3H, s, $COOCH_3$), 3.99(1H, dt, J=26, H-17), 7.02-7.15(2H, m, H-10, H-11), 7.28(1H, d, H-12), 7.44(1H, d, H-9), 7.75(1H, s, NH) [5]

^{13}C NMR: [6]

C-2	134.3	C-10	119.1	C-17	66.0
3	60.1	11	121.1	18	33.2
5	53.2	12	110.6	19	24.5
6	21.7	13	135.7	20	36.4
7	108.1	14	27.6	21	60.4
8	127.1	15	37.9	OCH_3	51.8
9	117.9	16	54.6	C=O	174.4

X-ray spectral analysis: [7]
HPLC: [8]
Abs. conf.: 3αH, 15αH, 16βCOOCH3, 17αOH, 20αH [9]
Pharm.: LD_{50} 36.5 mg/kg (oral, mice). {H-chl.} is used as a hypotensive and anesthetic agent [10].

1. Belikov A.S., Khim. Prir. Soedin., 1969, 64.
2. Stoll A., Hofmann A., Brunner R., Helv. Chim. Acta, 1955, **38**, 270.
3. Janot M.-M., Goutarel R., Warnhoff E.W., Hir A.L., Bull. Soc. Chim. France, 1961, 637.
4. Hir A.L., Janot M.-M., Goutarel R., Bull. Chim. France, 1953, 1027.
5. Toke L., Gombos Z., Blasko G., Honty K., Szabo L., Tamas J., Szantay C., J. Org. Chem., 1973, **38**, 2501; 2496.
6. Honty K., Baitz-Gacs E., Blasko G., Szantay C., J. Org. Chem., 1982, **47**, 5111; Wenkert E., Chang C.-J., Chawla H.P.S., Cochran D.W., Hagaman E.W., King J.C., Orito K., J. Am. Chem. Soc., 1976, **98**, 3645.
7. Chatterjee A., Bose A.K., Pakrashi S., Chem. Ind., 1954, 491.
8. Le Verge R., Le Corre P., Chevanne F., Maindreville M.D., Royer D., Levy J., J. Chromatogr., 1992, **574**, 283.
9. Morrison G.A., in: Fortschritte der Chemie Organischer Naturstoffe, 1967, Vol. 25, p. 269.
10. Sadritdinov, p. 44.

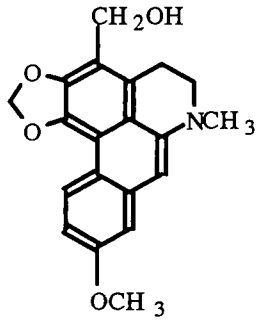


(+)-CAAVERINE

Liriodendron tulipiferum
$C_{17}H_{17}NO_2$: 267.1259
Mp: 207-209° (dec.)
$[\alpha]_D$+95° (meth.)

{O, N-di Ac 238° (ac.)}
UV: 273, 313(4.19, 3.70)
IR: 3310, 2845, 1610, 1505, 1385, 1250, 1130
Mass: 267(M^+), 266(100), 252, 250, 238, 236, 223
PMR: 3.83(3H, s, OCH_3), 6.52(1H, s, H-3), 7.05-7.30(3H, m, H-8, H-9, H-10), 8.30(1H, m, H-11)

1. Ziyaev R., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 760.

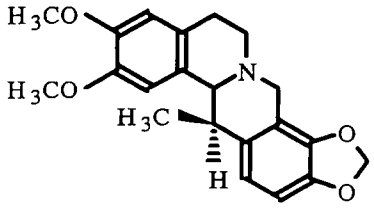


CABUDINE[1]

Thalictrum isopyroides
$C_{20}H_{19}NO_4$: 337.1314
Mp: 184-185° (alc.)
{h-chl. 255° (dec.), m-i. 196°}
Sol-y: r-sol. org. solvent
UV: 220, 280, 291, 320 [1]
IR: 3450, 2885, 2780, 1060, 931 [1]

Mass: 337(M^+, 75), 336(100), 335(22), 294(49) [1]
PMR: 2.53(3H, s, NCH_3), 2.62-3.22(7H, m), 3.85(3H, s, OCH_3), 4.65-4.88(1H, d, J=8), 5.20-5.42(1H, d, J=8), 5.78-5.84(2H, q, CH_2O_2), 6.42, 6.52(1H, s) [1]

1. Kurbanov M., Khusainova Kh.Sh., Khodzhimatov M., Vezen A.E., Khaidarov K.Kh., Burichenko V.K., DAN Tadzh. SSR, 1975, **18**, No. 11, 120.
2. Wu G., Beal G.L., Wu-nan Wu, Doskotch R.W., Lloydia, 1977, **40**, 294.

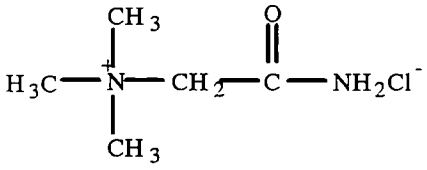


(–)-CAVIDINE

Corydalis ledebouriana
$C_{21}H_{23}NO_4$: 353.1627
Mp: 139-140°
$[\alpha]_D$–105° (meth.)

UV: 288(3.85)
IR: 2760, 1605, 1515, 1050, 935
Mass: 353(M^+), 338, 192, 190, 176.5($^{++}$), 162(100)
PMR: 0.88(3H, d, J=7, CH_3), 2.50-3.50(m, CH_2), 3.42, 4.01(1H, d, J=15), 3.82(6H, s, 2×OCH_3), 5.87(2H, q, CH_2O_2), 6.54(1H, s, H-Ar), 6.62(3H, s, H-Ar)

1. Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 418.



KALIDINE

Kalidium gracile
$C_5H_{13}N_2OCl$: 152.0716/154.0687
Mp: 238-239° (ac.-water)
IR: 1730

PMR: 3.68(3H, narrow s, NCH_3), 4.57(2H, narrow s, N-CH_2-C=O)
^{13}C NMR:

$N(CH_3)_3$	54.0	NCH_2	63.8	C=O	166.8

X-ray spectral analysis

1. Batbayar N., Batsurén D., Tashkhodzhaev B., Akhmedzhanova V.I., Bessonova I.A., Yagudaev M.R., Khim. Prir. Soedin., 1987, 558.

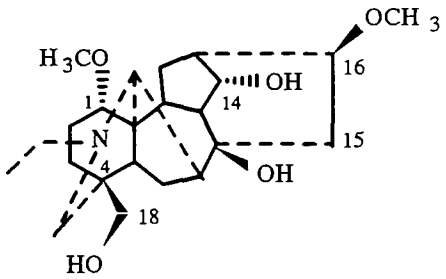
[1] Structure doubtful. Probably identical with N-demethylthalphenine.

CALIFORNIDINE

Eschscholtzia californica
$C_{20}H_{20}NO_4$: 338.1392

{iodide 286° (meth.),
$[\alpha]_D$–214° (chlf.)}
Sol-y: r-sol. chlf., bz.; sp. sol. meth., alc.
UV: 292
PMR(CF_3COOH): 2.92(6H, s, $N(CH_3)_2$), 2.40-3.70(4H, m), 4.32(2H, d, J=6), 5.41(4H, s, $2\times CH_2O_2$), 6.06, 6.31(2H, s)

1. Parfeinikov S.A., Author's Abstract of Candidate's Dissertation, Mosow, 1984.



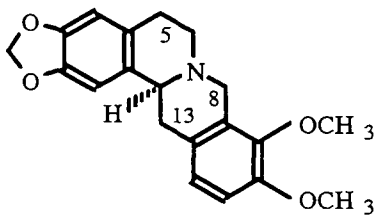
CAMMACONINE

Aconitum nasutum, A. orientale
$C_{23}H_{37}NO_5$: 407.2672
Mp: 135-137°
$[\alpha]_D$–4.48 (meth.)
IR: 3380, 1085 [1]

PMR: 1.06(3H, t, J=7, NCH_2CH_3), 3.21, 3.39 (3H, s, $2\times OCH_3$), 4.08(1H, t, J=4.5, H-14β) [1, 2]
Mass: 407(43), 392(1.6), 376(100) [1]
^{13}C NMR: [3]

C-1	86.3	C-9	47.0	C-17	63.0
2	25.8	10	37.6	18	68.8
3	33.2	11	48.8	19	53.1
4	39.1	12	27.7	NCH_2	49.5
5	46.0	13	45.6	CH_3	13.7
6	24.6	14	75.6	1′	56.5*
7	45.9	15	38.3	16′	56.3*
8	73.7	16	82.3		

1. Wang C.-H., Wang D.-H., and Sung W.-L., Chinese Traditional and Herbal Drugs, 1983, Vol.14, p. 5.
2. Beshitaishvili L.V., Sultankhodzhaev M.N., Izv. Akad. Nauk GSSR, Khim Ser., A Collection of Papers [in Russian], Metsniereba, Tbilisi, 1988, p. 301.
3. Mody N.V., Pelletier S.W., Mollow N.M., Heterocycles, 1980, **14**, 1751.



(–)-CANADINE [(–)-TETRAHYDROBERBERINE]

Berberis heteropoda, Papaver somniferum
$C_{20}H_{21}NO_4$: 339.1471
Mp: 134-135°
$[\alpha]_D$–298° (chlf.) [1, 2]

UV: 230, 284 [3]
IR: 2800-2700, 940 [3]
Mass: 339(M^+, 66), 176(5), 174(26), 164(100), 149(72) [2]

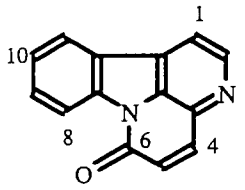
PMR: 2.60(1H, m, H-5$_e$), 2.64(1H, m, H-6$_a$), 2.81(1H, dd, J=15.7; 7.12, H-13$_a$), 3.15(1H, m, H-5$_a$), 3.20(1H, m, H-6$_e$), 3.23(1H, dd, J=15; 7.4, H-13$_e$), 3.40(1H, dd, J=12; 4, H-14), 3.49(1H, d, J=15.5, H-8$_a$), 4.22(1H, d, J=15.5, H-8$_e$), 5.88(2H, s, CH_2O_2), 6.59(1H, s, H-4), 6.73(1H, s, H-1), 6.83(1H, d, J=8.2, H-11), 6.87(1H, d, J=8.2, H-12) [4]

^{13}C NMR: [4]

C-1	105.5	C-8	53.9	C-13	36.0
2	146.4	8a	127.4	14	59.8
3	146.3	9	150.4	14a	130.4
4	108.5	10	145.0	CH_2O_2	101.0
4a	127.5	11	111.3	9-OCH_3	60.2
5	29.1	12	124.2	10-OCH_3	55.9
6	51.5	12a	128.0		

Abs. conf.: [5]

1. Bessonova I.A., Faizutdinova Z.Sh., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 711.
2. Karimov A., Butayarov A.V., Yusupov M.M., Mirzamatov R.T., Shakirov R., Khim. Prir. Soedin., 1992, 596.
3. Israilov I.A., Unpub.
4. Hussain R.A., Kim J., Beecher C.W., Kinghorn A.D., Heterocycles, 1989, **29**, 2257.
5. Snatzke G., Hrbek J., Hruban J., Horeau A., Santavy F., Tetrahedron, 1970, **26**, 5013.

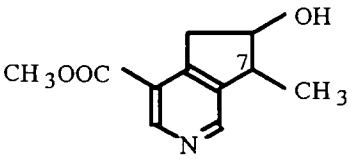


CANTHIN-6-ONE

Aerva lanata
$C_{14}H_8N_2O$: 220.0637
Mp: 155-156° (alc.)

UV: 251, 259, 268, 300, 347, 362, 380(4.10, 4.12, 4.07, 3.92, 3.94, 4.15, 4.13)
IR: 1670, 1630, 1600
Mass: 220(M^+, 100), 192(87), 165(37), 164(43), 139(37), 110(22)
PMR: 6.95(d, J=10, H-5), 7.48(t, J=8.5, H-10), 7.66(t, J=8.5, H-9), 7.88(d, J=5, H-1), 7.96(d, J=10, H-4), 8.06(d, J=8.5, H-11), 8.62(d, J=8.5, H-8), 8.78(d, J=5, H-2)

1. Zapesochnaya G.G., Pervykh L.N., Kurkin V.A., Khim. Prir. Soedin., 1991, 388.

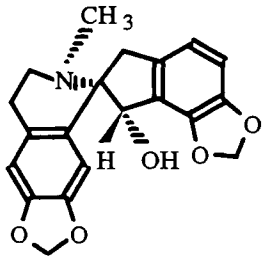


CANTLEYINE

Dipsacus azureus
$C_{11}H_{13}NO_3$: 207.0895
Mp: 130-131° (eth.) [1]
UV: 273(3.25) [1]

IR: 3255, 1735, 1595 [1]
Mass: 207, 179, 175, 160, 147, 118, 91, 77, 65 [1]
PMR: 1.31(3H, d, J=6.8, CH_3), 3.05(1H, m, CH), 3.16(1H, m, H-5β), 3.37(1H, m, H-5α), 3.78(3H, s, $COOCH_3$), 4.42(1H, m, H-6β), 8.29(1H, s, H-1), 8.77(1H, s, H-3) [2]

1. Rakhmatullaev T.U., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 400.
2. Hart H.K., Johns S.R., Lamberton J.A., Austral. J. Chem., 1969, **22**, 1283.

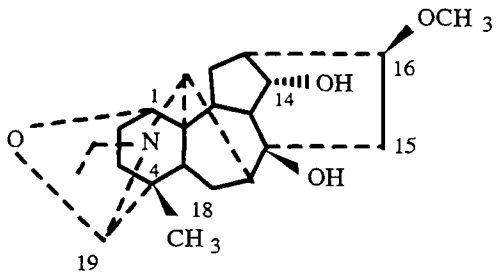


CAPREOLINE

Fumaria capreolata
$C_{20}H_{19}NO_5$: 353.1263
Mp: amorph.
$[\alpha]_D$+106° (chlf.)
UV: 290

IR: 3600-3450, 1605, 1040, 935
Mass: 353(M^+), 338, 322, 190, 188, 176.5($^{++}$)
PMR: 2.45(3H, s, NCH_3), 2.60-3.40(6H, m), 4.88(1H, s), 5.85(2H, s, CH_2O_2), 5.95, 6.00(1H, d, J=2, CH_2O_2), 6.30, 6.60(1H, s, p-H-Ar), 6.80(2H, s, o-H-Ar)

1. Denisenko O.N., Israilov I.A., Yunusov M.S., Unpub.



KARAKANINE

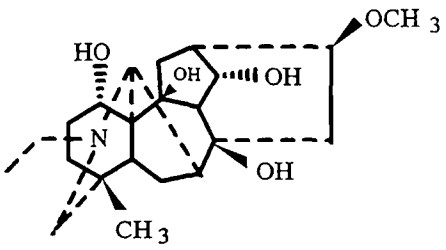
Aconitum karakolicum
$C_{22}H_{33}NO_4$: 375.2410
Mp: 193-195° (ac.)
IR: 3530, 3450, 1090 [1]
Mass: 375(M^+, 6), 360(4), 346(1), 344(1), 319(100), 304(8), 122(8) [1]

PMR: 0.80(3H, s, 18-CH_3), 1.20(3H, t, NCH_2CH_3), 3.29(3H, s, OCH_3) [1]
^{13}C NMR: [1]

C-1	72.6	C-8	74.5	C-15	42.5
2	29.1	9	47.0	16	82.5
3	31.5	10	40.5	17	63.5
4	33.1	11	49.1	18	27.8
5	47.0	12	29.9	19	60.5
6	25.4	13	44.3	NCH_2	48.6
7	45.4	14	75.9	CH_3	13.3
				16′	56.6

Pharm.: Lowers systemic arterial pressure. Possesses a ganglioblocking action. In high doses prevents aconitine arrhythmia [2].

1. Sultankhodzhaev M.N., Khim. Prir. Soedin., 1993, 62.
2. Dzhakhangirov F.N., Unpub.

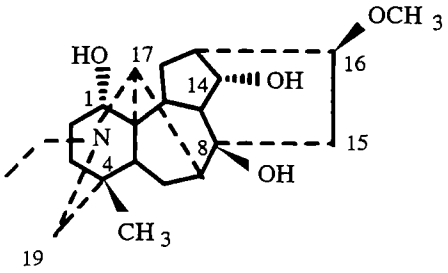


KARACOLIDINE

Aconitum karakolicum
$C_{22}H_{35}NO_5$: 393.2515
Mp: 222-224° (meth.)
{dehydro 181°, pyr. 186°}
IR: 3540, 3480, 3335, 1480, 1460, 1390, 1360, 1300, 1250, 1230, 1110, 1055, 993, 964, 945, 885, 770 [1-3]

Mass: 393($M^{+\cdot}$), 376(100), 360, 337, 322 [1-3]
PMR: 0.87(3H, s, 18-CH_3), 1.07(3H, t, J=7, NCH_2CH_3), 3.28(3H, s, OCH_3), 4.60(1H, t, J=5, H-14β) [1]
Pharm.: LD_{50} 60 mg/kg (i/v, mice). Exhibits a brief hypotensive and gangioblocking and a weak antiarrhythmic action [4].

1. Sultankhodzhaev M.N., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 127.
2. Sultankhodzhaev M.N., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 481.
3. Sultankhodzhaev M.N., Unpub.
4. Dzhakhangirov M.N., Unpub.



KARACOLINE (VILMORRIANINE B)

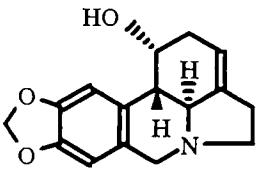
Aconitum karakolicum, A.nasutum, Delphinium elisabethae
$C_{22}H_{35}NO_4$: 377.2566
Mp: 183-184° (ac.)
$[\alpha]_D$–10° (meth.)
{h-b. 216° (alc.-eth.), di Ac 122°, tri Ac 169°, didehydro 181°}

IR: 3550, 3400-3000, 1100 [1, 2]
Mass: 377($M^{+\cdot}$), 360(100), 344, 321, 306 [1, 2]
PMR: 0.84(3H, s, 18-CH_3), 1.07(3H, t, J=7, NCH_2CH_3), 3.29(3H, s, OCH_3), 4.16(1H, t, J=4.5, H-14β) [1, 2]
^{13}C NMR: [3]

C-1	72.6	C-9	47.0	C-17	63.5
2	29.1	10	40.5	18	27.8
3	31.5	11	49.1	19	60.5
4	33.1	12	29.9	N-CH_2	48.6
5	47.0	13	44.3	CH_3	13.3
6	25.4	14	75.9	C-16′	56.6
7	45.4	15	42.5		
8	74.6	16	82.5		

Pharm.: LD_{50} 51.5 mg/kg (i/v, mice). Curaremimetic effect. Stimulates the smooth musculature of the horn of the uterus [3]. Lowers arterial pressure, slows heart rate, depresses conduction, exhibits antiarrhythmic effect [4].

1. Sultankhodzhaev M.N., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 399.
2. Sultankhodzhaev M.N., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 199.
3. Konno C., Shirasaka N. and Hikino N., J. Nat. Prod., 1982, **45**, 128.
4. Dzhakhangirov F.N., Khamdamov I., Sadritdinov F., DAN UzSSR, 1976, No. 1, 32.
5. Dzhakhangirov F.N., Unpub.

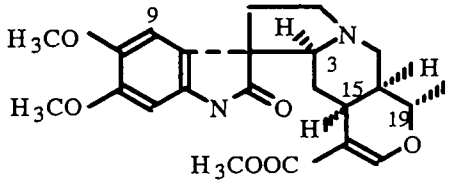


CARANINE

Clivia miniata
$C_{16}H_{17}NO_3$: 271.1208
Mp: 175-177° (ac.) [1]
$[\alpha]_D$–191° (chlf.) [1]

{m-i. 318°, p-chl. 270° (dec.) dihydro 163°, Ac 185°}
UV: 235, 294(3.47, 3.68) [2]
IR{p-chl. Ac}: 3436, 1733, 1029, 992 [3]
Mass: 271($M^{+\cdot}$, 73), 270(43), 253(18), 252(70). 250(13), 227(62), 226(100) [4]

1. Abdusamatov A., Khamidkhodzhaev S.A., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 273.
2. Mason L.H., Ruschett E.R., Wildman W.C., J. Am. Chem. Soc., 1955, 77, 1253.
3. Warnhoff E.W., Wildman W.C., J. Am. Chem. Soc., 1957, **79**, 2192.
4. Razakov R., Bochkarev V.N., Vul'fson N.S., Abduazimov Kh.A., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 19.

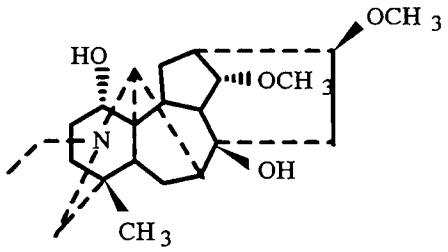


CARAPANAUBINE (VININE)

Vinca herbacea, V.pubescens
$C_{23}H_{28}N_2O_6$: 428.1947
Mp: 216-217° (ac.) [1], 221-223° (alc.) [2], 212-214° (meth.) [3]

$[\alpha]_D$–110° (chlf.) [3], –115° (pyr.) [4]
UV: 215, 244(4.57, 4.23) [2]
UV(H^+): 222, 278(4.56, 3.79) [2]
IR: 3236, 1695, 1669, 1626 [2]
Mass: 428(M^+), 413, 411, 397, 223(100), 219, 208, 206, 204, 190, 69(100) [2, 3]
PMR: 1.40(3H, d, J=6, 19-CH_3), 3.61(3H, s, $COOCH_3$), 3.90(3H, s, OCH_3), 3.92(3H, s, OCH_3), 4.20-4.70(1H, q, H-15), 4.56(1H, o, J=6, H-19), 6.55(1H, s, H-Ar), 6.74(1H, s, H-Ar), 7.44(1H, s, H-17), 8.73(1H, s, NH) [2-4]
Stereochemistry: [5]
Pharm.: Pronounced hypotensive action [6].

1. Abdurakhimova N., Yuldashev P.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 224.
2. Gilbert B., Brissolese J.A., Finch N., Taylor W.I., Budzikiewicz H., Wilson J.M., Djerassi K., J. Am. Chem. Soc., 1963, **85**, 1523.
3. Chkhikvadze G.V., Vachnadze V.Yu., Mudzhiri K.S., Soobshch. AN GSSR, 1973, **69**, 369.
4. Ognyanov I., Pyuskylev B., Kompis I., Sticzag T., Spiteller G., Shamma, Shine K.J., Tetrahedron, 1968, **24**, 4641.
5. Finch N., Gemenden C.W., Hsu I.H.-C., Taylor W.I., J. Am. Chem. Soc., 1963, **85**, 1520.
6. Sadritdinov, p. 29.

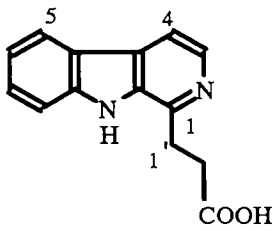


KARASAMINE

Aconitum karakolicum
$C_{23}H_{37}NO_4$: 391.2722
Mp: 112° (ac.)
IR: 3590, 3180, 1100 [1, 2]
Mass: 391(M^+), 374(100), 358(38) [1, 2]

PMR: 0.86(3H, s, 18-CH_3), 1.03(3H, t, J=7, NCH_2CH_3), 3.22, 3.30(3H, s, 2×OCH_3) [1, 2]
Pharm.: Peripheral, brief hypotensive, and ganglioblocking action [3]

1. Sultankhodzhaev M.N., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 660.
2. Sultankhodzhaev M.N., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 207.

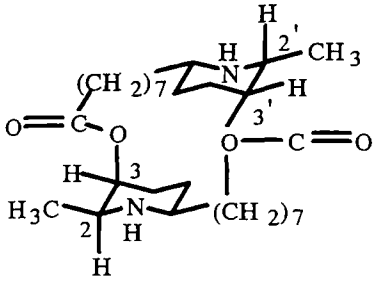


β-CARBOLINE-1-PROPIONIC ACID

Aerva lanata
$C_{14}H_{12}N_2O_2$: 240.0899
Mp: 214-215° (ac.-water)
UV: 236, 280 sh, 290, 300 main peak, 336, 350(4.92, 4.45, 4.50, 4.40, 4.36, 4.36)

UV(alc.+HCl): 251, 303, 370(4.97, 4.80, 4.45)
Mass: 240(M^+, 80), 222(100), 195(45), 194(60), 193(50), 181(30), 168(47), 167(35), 140(49)
PMR(Py-d_5): 3.34(t, J=7.5, 2×H-2′), 3.80(t, J=7.5, 2×H-1′), 7.20-7.60(m, H-6, H-7, H-8), 7.92(d, J=5, H-4), 8.20(d, J=9, H-5), 8.52(d, J=5, H-3)

1. Zapesochnaya G.G., Pervykh L.N., Kurkin V.A., Khim. Prir. Soedin., 1991, 388.

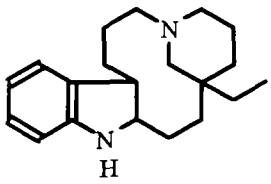


CARPAINE

Carica papaya
$C_{28}H_{50}N_2O_4$: 478.377
Mp: 120-121°
$[\alpha]_D$+22° (alc.)
{h-chl. 225°, chl-aur. 205°} [1]
IR: 3320, 1718, 1236

Mass: 478(M^+), 463, 436, 407, 384, 335, 300, 240, 222, 195, 180, 110, 94, 80, 69, 55, 44
PMR: 1.02(6H, d, J=7, CH_3), 2.83(2H, narrow q, J=7, H-2, H-2′), 4.75(2H, narrow s, H-3, H-3′) [2]

1. Topuriya L.I., Rossinskii V.I., Erkomaishvili G.S., Khim. Prir. Soedin., 1978, 414.
2. Govindachari T.R., Nagarajan K., Viswanathan N., Tetrahedron Lett., 1965, 1907.

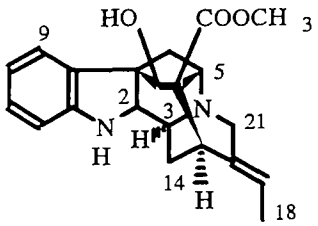


(+)-QUEBRACHAMINE

Vinca erecta
$C_{19}H_{26}N_2$: 282.2096
Mp: 143-144° [1], 147-149° [2, 3]

$[\alpha]_D$+142° (meth.) [1], +154° (alc.) [2], +111° [3]
UV: 230, 287, 294(4.68, 3.92, 3.90) [1, 3]
IR: 3400 [1]
Mass: 282(M^+), 267, 253, 210, 199, 157, 143, 138, 125, 124, 115, 110, 96 [1, 4]

1. Rakhimov D.A., Sharipov M.R., Aripov Kh.N., Malikov V.M., Shakirov T.T., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 713.
2. Bycroft B.W., Schumann D., Patel M.B., Schmid H., Helv. Chim. Acta, 1964, **47**, 1147.
3. Walls F., Colter O., Sandoval A., Tetrahedron, 1958, **2**, 173.
4. Biemann K., Spiteller G., J. Am. Chem. Soc., 1962, **84**, 4578.



QUEBRACHIDINE (VINCARINE)

Vinca erecta, V.herbacea, V.major
$C_{21}H_{24}N_2O_3$: 352.1787
Mp: 263-264° (meth.) [1-3], 276-278° [5]
$[\alpha]_D$+14° (meth.) [1-4], +54° (chlf.) [5]

UV: 242, 292(3.84, 3.50) [1, 2]; 243, 294(3.69, 3.25) [3, 4]
IR: 1733, 1250, 770 [1, 2]; 3350, 3060, 1720, 1245, 750 [3, 4]; 3590, 3370, 1722, 1235 [5]
Mass: 352(M^+), 222, 190, 143, 130 [2, 4, 6]

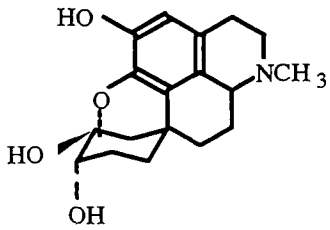
PMR($Py-d_5$): 1.50(1H, dd, J=10; 14, H-14α), 1.72(3H, dt, J=7; 2, 18-CH_3), 2.02(1H, d, J=12, H-6α), 2.91(1H, dd, J=5, H-14β), 3.62(2H, m, 21-CH_2), 3.80(1H, d, J=5, H-15), 3.88(3H, s, $COOCH_3$), 3.99(1H, d, J=6, H-5), 4.17(1H, dd, J=3.5; 4, H-2), 4.84(1H, d, J=6, H-17), 5.32(1H, q, J=7, H-19), 6.10(1H, d, J=4, NH), 6.95-7.55(5H, m, H-9, H-10, H-11, H-12, OH) [4, 7]

^{13}C NMR: [8]

C-2	68.3	C-10	119.3	C-17	74.0
3	54.4	11	128.0	19	115.9
5	61.4	12	110.7	20	137.0
6	35.5	13	151.6	21	55.2
7	57.6	14	22.3	18-CH_3	12.6
8	129.8	15	30.2	CO	173.0
9	124.9	16	58.6	OCH_3	51.3

Pharm.: LD_{50} 520, 330, 179 mg/kg (s/c, i/p, i/v, mice). Hypotensive and sedative action [9].

1. Yuldashev P.Kh., Yunusov S.Yu., DAN SSSR, 1964, **154**, 1412.
2. Yuldashev P.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 110.
3. Zhukovich E.N., Vachnadze V.Yu., Khim. Prir. Soedin., 1984, 533.
4. Vachnadze V.Yu., Malikov V.M., Mudzhiri K.S., Yunusov S.Yu., Soobshch. AN GSSR, 1972, **66**, 97.
5. Gorman M., Burlingame A.L., Biemann K., Tetrahedron Lett., 1963, 39.
6. Yuldashev P.Kh., Yunusov S.Yu., DAN SSSR, 1965, **163**, 123.
7. Aynilian G.H., Bell C.L., Farnsworth J., J. Pharm. Sci., 1975, **64**, 341.
8. Yagudaev M.R., Khim. Prir. Soedin., 1982, 731.
9. Sadritdinov, p. 37.

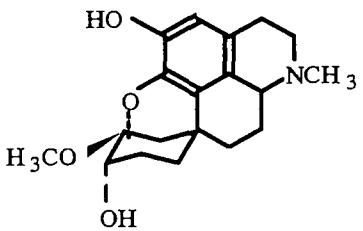


KESSELRIDINE

Colchicum kesselringii
$C_{18}H_{23}NO_4$: 317.1627
Mp: 232-234°
$[\alpha]_D$–50° (pyr.)

{h-chl. 263°, m-i. 250°} [1]
UV: 219, 290 [2]
IR: 3590, 3420-3230, 1595 [2]
Mass: 317(M^+), 316(100), 298, 274, 270, 258, 256, 242, 230, 228 [2]
PMR(D_2O): 3.10(3H, s, NCH_3), 6.68(1H, s, H-3) [2]
Pharm.: Reversible cholinesterase inhibitor [3].

1. Yusupov M.K., Sadykov A.S., Zh. Org. Khim., 1964, **34**, 1672.
2. Kasymov A.K., Yusupov M.K., Timbekov É.Kh., Aslanov Kh.A., Khim. Prir. Soedin., 1975, 194.
3. Zuparova K.M., Rozengart E.V., Yusupov M.K., Abduvakhabov A.A., Khakimov Yu.R., Chommadov B., Israilov D.I., Uzb. Khim. Zh., 1991, No. 2, 33.

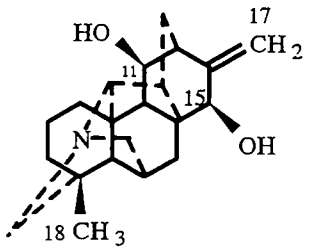


KESSELRINGINE

Solchicum kesselringii, C.luteum
$C_{19}H_{25}NO_4$: 331.1783
Mp: 194-196° (alc.)
$[\alpha]_D$+53° (meth.)

{h-chl. 253°, p-chl. 175°, m-i. 237°, O-Me 200°, O,O-di Ac 142° [1, 2], O-Me 198° [3]}
UV: 218, 290(4.13, 3.48) [4]
IR: 3530, 1600, 1460, 900-800 [2]
Mass: 331(M^+, 42), 330(100), 316, 288, 256, 244, 242, 238, 230, 228, 165 [2]
PMR: 2.32(NCH_3), 3.32(OCH_3), 3.72(H-11), 6.42(H-3) [2]
X-ray spectral analysis{2-methyl-12-demethylkesselringine methosulfate}: [5]
Pharm.: Reversible cholinesterase inhibitor [6]. Sedative and hypnotic action [7]. Lowers arterial pressure, causes retardation of the rhythm of cardiac activity and stimulation of respiration [8].

1. Yusupov M.K., Sadykov A.S., Uzb. Khim. Zh., 1961, No. 5, 49.
2. Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1976, 350.
3. Abdullaeva D.A., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1976, 783.
4. Yusupov M.K., in: The Chemistry of Plant Substances [in Russian], Fan, Tashkent, 1972, p. 19.
5. Nazarov G.B., Ibragimov B.T., Talipov S.A., Chommadov B., Yusupov M.K., Aripov T.F., Khim. Prir. Soedin., 1986, 89.
6. Zuparova K.M., Rozengart E.V., Yusupov M.K., Abduvakhabov A.A., Khakimov Yu.R., Chommadov B., Israilov D.I., Uzb. Khim. Zh., 1991, No. 2, 33.
7. Nasyrov S.Kh., Emel'yanova L.S., in: Modern Problems of Pharmacology. Proceedings of the IIIrd Congress of Pharmacologists of the USSR [in Russian], Kiev, 1971, p. 195.
8. Emel'yanova L.S., in: The Pharmacology of Plant Substances, Scientific Proceedings of Tashkent State University, No. 457, Fan, Tashkent, 1973, p. 69.

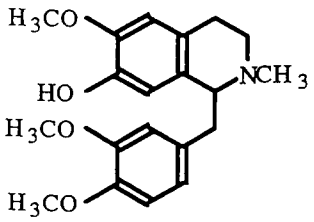


KOBUSINE

Aconitum talassicum
$C_{20}H_{27}NO_2$: 313.2042
Mp: 272-274° (ac.) [1]
$[\alpha]_D$+80° (meth.) [1]

IR: 3470, 3090, 1660, 1475, 1456, 1445, 1415, 1385, 1350, 1317, 1290, 1280, 1230, 1210, 1167, 1140, 1120, 1090, 1055, 1035, 1010, 990, 965, 930, 900, 890, 867, 860, 836, 800, 745 [1]
Mass: 313(M^+, 100), 296(18), 285(11), 202(14), 149(11), 146(13) [1]
PMR: 0.90(3H, s, 18-CH_3), 3.77(1H, narrow s, H-15α), 3.91(1H, d, J=5, H-11α), 4.97, 5.07(1H, narrow s, H2-17) [1, 2]

1. Nishanov A.A., Tashkhodzhaev B., Sultankhodzhaev M.N., Ibragimov B.T., Yunusov M.S., Khim. Prir. Soedin., 1989, 39; Unpub.
2. Okamoto T., Natsume M., Zenda H., Kamota S., Chem. Pharm. Bull., 1962, **10**, 883.

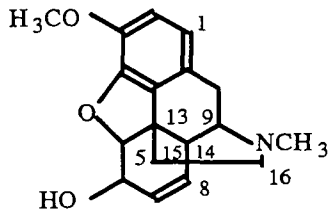


CODAMINE

Papaver somniferum
$C_{20}H_{25}NO_4$: 343.1783
Mp: 126-127° [1]
$[\alpha]_D$+75° (alc.) [1, 2]
{m-i. 217°} [1]

UV: 284 [1]
Mass: 343, 192(100), 190, 177, 175 [2]
PMR: 2.40(3H, s, NCH_3), 3.76(3H, s, OCH_3), 3.82(6H, s, 2×OCH_3), 6.32, 6.46(1H, s), 6.49-6.72(3H, m) [2]

1. Kuhn L., Pfeifer S., Pharmazie, 1963, **18**, 819.
2. The Alkaloids, 1968, Vol.10, p. 401.



CODEINE

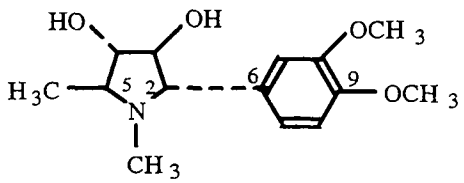
Papaver somniferum
$C_{18}H_{21}NO_3$: 299.1521
Mp: 155-156° (bz.)
$[\alpha]_D$–134° (meth.)
UV: 211, 239 sh, 286 [1]

IR: 3400, 1698, 1641, 1618, 1593, 1496, 1323, 1283, 1247, 1238, 1206, 1173, 1151, 1132, 1114, 1095, 1076, 1028, 1000, 968, 950, 914, 894, 882, 861, 834, 807, 793, 776, 745, 730, 705 [2]
Mass: 299($M^{+\cdot}$), 282, 229, 214, 188, 162 [3]
PMR: 2.41(3H, s, NCH3), 2.48(1H, d, J=6, H-10α), 2.63(1H, dd, J=3; 3.5, H-14), 3.06(1H, d, J=1, H-10β), 3.34(1H, dd, J=6; 1, H-9), 3.82(3H, s, OCH3), 4.16(1H, dd, J=6.4; 2.9, H-6), 4.91(1H, dd, J=6.4; 1.3, H-5), 5.32(1H, dd, J=10; 2.9, H-8), 5.72(1H, dd, J=10; 3, H-7), 6.68(2H, s) [4].
^{13}C NMR: [5]

C-1	119.4	C-7	133.4	C-13	42.9
2	112.8	8	127.8	14	40.3
3	142.1	9	58.8	15	35.4
4	146.9	10	20.4	16	46.3
5	91.1	11	126.7	NCH_3	42.8
6	66.9	12	131.1	3-OCH_3	56.2

Abs. conf.: [6]
X-ray spectral analysis: [7]
HPLC: [8]
Pharm.: Used as an antitiussive. Used in combination with nonnarcotic analgesics for headaches and neuralgias. Supplied in the form of a powder and of 0.015-g tablets. A component of Uspokaivayushchaya mikstura Bekhtereva ["Bekhterev's soothing mixture"], Tabletki ot kashla ["cough tablets"] and Kodterpin [9].

1. Sangster A.W., Stuart K.L., Chem. Rev., 1965, **65**, 69.
2. Holubek, No. 59.
3. The Alkaloids, 1971, Vol. 13, p. 3.
4. Batterham T.J., Bell K.H., Weiss U., Austral. J. Chem., 1965, **18**, 1799.
5. Carroll F.I., Moreland C.G., Brine G.A., Kepler J.A., J. Org. Chem., 1976, **41**, 996.
6. Corrodi H., Hardegger E., Helv. Chim. Acta, 1955, **38**, 2038.
7. Lindsey J.M., Barnes W.H., Acta Cryst., 1955, **8**, 227.
8. Gopal Chari, Anil Gulati, Rama Bhat, Tebbett I.R., J.Chromatogr., 1991, **571**, 263.
9. Mashkovskii, Vol. 1, p. 171.



CODONOPSINE

Codonopsis clematidea
$C_{14}H_{21}NO_4$: 267.1471
Mp: 150-151° (ac.-meth.)
$[\alpha]_D$–16° (meth.)

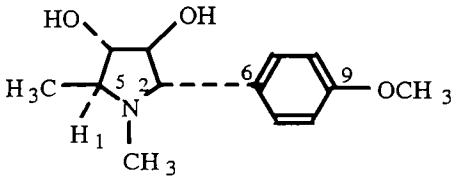
{m-i. 208°}
Sol-y.: sol. ac., chlf., alc., pyr., water
UV: 226, 278(4.10, 3.26)

IR: 3380, 870, 810
Mass: 267(M^+, 50), 207(92), 206(100), 192(60), 177(20)
PMR: 1.16(3H, d, J=8, CH_3), 2.06(3H, s, NCH_3), 3.26(2H, narrow s, 2×OH), 3.52, 3.62(3H, s, 2×OCH_3), 6.82(3H, m, H-Ar) [1, 2]
^{13}C NMR: [3]

C-2	74.5	C-6	135.5	C-10	149.0
3	86.9	7	121.1	11	112.1
4	84.8	8	112.1	C-CH_3	13.7
5	64.9	9	150.1	NCH_3	34.6
				OCH_3	55.6

Pharm.: LD_{50} 720 mg/kg (i/p). Bile-stimulating action [4, 5].

1. Matkhalikova S.F., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 30.
2. Matkhalikova S.F., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 606.
3. Yagudaev M.R., Aripova S.F., Khim. Prir. Soedin., 1989, 536.
4. Khanov M.T., Sultanov M.B., Egorova T.A., in: The Pharmacology of Alkaloids and Cardiac Glycosides [in Russian], Fan, Tashkent, 1971, p. 210.
5. Nabiev A.N., Syrov V.N., Aripova S.F., DAN UzSSR, 1980, No. 12, 34.



CODONOPSININE

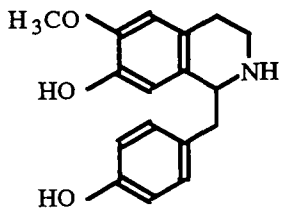
Codonopsis clematidea
$C_{13}H_{19}NO_3$: 237.1365
Mp: 169-170° (meth.)

$[\alpha]_D$–9° (meth.)
Sol-y.: r-sol. alc., meth., pyr.; sol. water
UV: 228, 277, 284 (sh) (4.14, 3.22, 3.14)
IR: 3375, 812, 705
Mass: 237(M^+, 29), 177(81), 176(100), 162(43)
PMR: 1.15(3H, d, J=8.5, CH_3), 2.08(3H, s, NCH_3), 3.54(3H, s, Ar-OCH_3), 3.40-4.50(4H, m, CH), 6.70–7.50(4H, H-Ar) [1]
^{13}C NMR: [2]

C-2	74.1	C-7	129.6	C-11	129.6
3	87.0	8	113.4	CCH_3	13.8
4	84.8	9	159.1	NCH_3	34.6
5	64.9	10	113.9	OCH_3	55.0
6	135.0				

Pharm.: Bile-stimulating action [3].

1. Matkhalikova S.F., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 210.
2. Yagudaev M.R., Aripova S.F., Khim. Prir. Soedin., 1989, 536.
3. Nabiev A.N., Syrov V.N., Aripova S.F., DAN UzSSR, 1990, No. 12, 34.

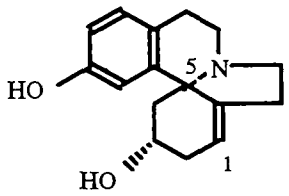


COCLAURINE

Corydalis paniculigera, C.pseudoadunca, C.sewerzowii, Fumaria parviflora, F.vaillantii, Zizyphys jujuba
$C_{17}H_{19}NO_3$: 285.1365

Mp: 218-220° (meth.) [1]
{h-chl. 263° (dec.)} [1]
UV: 230, 285(3.91, 4.08) [2]
IR: 3380, 1590 [2]
Mass: 178(100), 163, 107 [2]
PMR: 2.50-3.50(6H), 3.76(3H, s, OCH_3), 3.94(1H, q, J=2; 7.5), 6.57, 6.62(1H, s, p-H-Ar), 6.68, 7.02(2H, d, J=8, o-H-Ar) [2]

1. Ziyaev R., Irgashev T., Israilov I.A., Abdullaev N.D., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 239.
2. Irgashev T., Author's Abstract of Candidate's Dissertation, Tashkent, 1983.

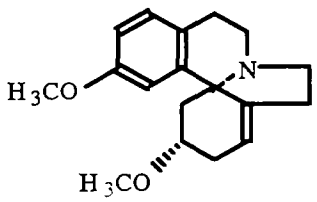


COCLAFINE

Cocculus laurifolius
$C_{16}H_{19}NO_2$: 257.1416
Mp: 264-266° (ac.)
$[\alpha]_D$+255° (meth.)

Sol-y.: sp. sol.. eth., bz.; r-sol. alk.
UV: 208, 230, 285(4.30, 3.71, 3.41)
IR: 3455, 1585, 1510
Mass: 257($M^{+\cdot}$), 240, 213, 212, 196, 150
PMR(CD_3OD): 5.58(1H, narrow s, $W_{1/2}$=7), 6.54(1H, narrow s), 6.58(1H, dd, J=8; 3), 6.92(1H, d, J=8)
Abs. conf.: 3S, 5R

1. Ziyaev R., Abdusamatov A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1991, 84.

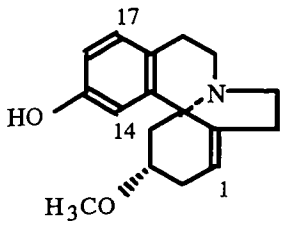


COCCULIDINE

Cocculus laurifolius
$C_{18}H_{23}NO_2$: 285.1729
Mp: 86-87° (petr. eth.) [1]
$[\alpha]_D$+251° (chlf.)

{h-i. 175°, nitr. 138°, m-i. 239°} [1]
Mass: 285($M^{+\cdot}$), 270, 254, 227(100), 220, 196 [2]
Pharm.: LD_{50} 93, 7.3 mg/kg (s/c, i/v, mice). Pronounced influence on conditioned reflex activity [3].

1. Yunusov S.Yu., Zh. Org. Khim., 1950, **20**, 368.
2. Yunusov S.Yu., Razzakov R., Khim. Prir. Soedin., 1970, 74.
3. Zakirov U.B., Kamilov I.K., in: The Pharmacology of Alkaloids and Glycosides [in Russian], Fan, Tashkent, 1967, p. 190.

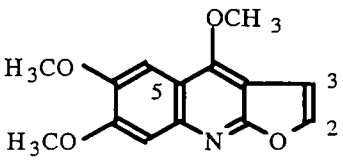


COCCULINE

Cocculus laurifolius
$C_{17}H_{21}NO_2$: 271.1572
Mp: 217-218° (ac.)
$[\alpha]_D$+271° (meth.)

{h-chl., nitr. 197° [1], O,N-di Ac 122° [3]}
Sol-y.: r-sol. alc., ac., eth. [1]
IR{O, N-di Ac}: 1755, 1635
Mass: 271(M^+), 256, 240, 213(100), 212, 198 [2]
PMR: 1.40-3.80(12H, m, 6×CH_2), 3.20(3H, s, 3-OCH_3), 5.55(1H, m, H-1), 6.53(1H, s, H-14), 6.65(1H, q, J=8; 3, H-16), 6.92(1H, d, J=8, H-17), 8.50(1H, m, OH) [3]
X-ray spectral analysis: [3, 4]
Abs. conf.: 3R, 5S [3]
Pharm.: LD_{50} 10.2, 1.33 mg/kg (s/c, i/v, mice). Pronounced influence on conditioned reflex activity. Hypotensive and spasmolytic action [5].

1. Yunusov S.Yu., Zh. Org. Khim., 1950, **20**, 368.
2. Yunusov S.Yu., Razzakov R., Khim. Prir. Soedin., 1970, 74.
3. Razzakov R., Yunusov S.Yu., Nasyrov S.M.. Andrianov V.G., Struchkov Yu.T., Izv. AN SSSR, Ser. Khim., 1974, No. 1, 218.
4. Nasyrov S.M., Andrianov V.G., Struchkov Yu.T., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 395.
5. Sadritdinov, p. 190.

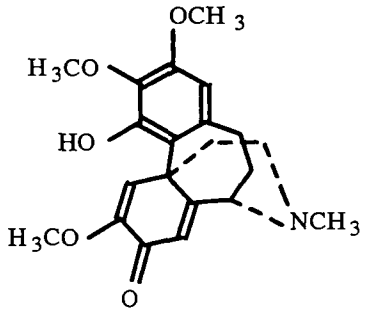


KOKUSAGININE

Ruta graveolens, Ptelea trifoliata
$C_{14}H_{13}NO_4$: 259.0845
Mp: 170-171°

{picr. 218°, h-chl. 223° (dec.), isobase 249° (meth.)} [1]
UV: 243, 273, 307, 317, 333 [2]
IR: 3140, 1624 [2]
Mass: 259(M^+, 100), 244(50), 216(23), 201, 184, 173, 158 [3]
PMR: 4.02, 4.04, 4.46(3H, s, OCH_3), 7.00, 7.55(1H, d, J=2.5, H-3, H-2), 7.33, 7.42(1H, s, H-8, H-5) [4]
HPLC: [5]

1. Frolova V.I., Kuzovkov A.D., Kibal'chik P.N., Zh. Org. Khim., 1964, **34**, 3499.
2. Werny F., Scheuer P.J., Tetrahedron, 1963, **19**, 1293.
3. Clugston D.M., McLean D.B., Canad. J. Chem., 1965, **43**, 2516.
4. Robertson A.V., Austral. J. Chem., 1963, **16**, 451.
5. Montagu M., Levillain P., Chenieux J.C., Rideau M., J. Chromatogr., 1985, **331**, 437.

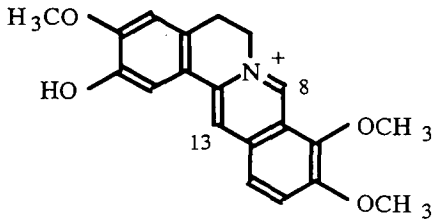


COLLUTINE

Colchicum luteum
$C_{21}H_{25}NO_5$: 371.1733
Mp: 192-194°
$[\alpha]_D$–182° (chlf.)
{m-i. 234°, m-i. O-Me 214°}
Sol-y.: r-sol. chlf., meth.; sol. ac., eth.; sp. sol. alk.
UV: 238, 275 sh (4.30, 3.81)

IR: 3450, 1660, 1630, 1600, 1560, 1455
Mass: 371(M^+, 100), 356(16), 340(10), 328(10), 210(22)
PMR: 2.35(3H, s, NCH_3), 3.59, 3.80, 3.98(3H, s, 3×OCH_3), 6.22(2H, s, H-4, H-8), 6.77(1H, s, H-11)

1. Mukhamed'yarova N.L., Yusupov M.K., Aslanov Kh.A., Sadykov A.S., Khim. Prir. Soedin., 1975, 758.

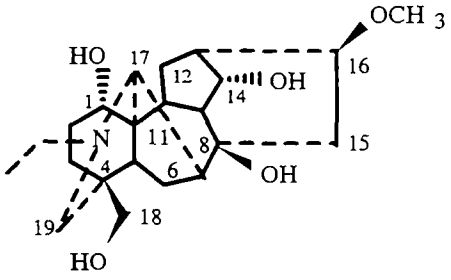


COLUMBAMINE

Berberis heteropoda, B.nummularia, B.oblonga, B.vulgaris, Glaucium fimbrilligerum, Thalictrum longipedunculatum
$C_{20}H_{20}NO_4$: 338.1392
Mp{iodide}: 227° [1]

PMR(CF_3COOH): 4.07(3H, s, OCH_3), 4.18(3H, s, OCH_3), 4.30(3H, s, OCH_3), 7.03(1H), 7.06(1H), 7.70(1H), 8.07(1H), 8.47(1H), 9.56(1H) [2]

1. Karimova S.U., Israilov I.A., Vezhnik F., Yunusov M.S., Slavik Yu., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 493.
2. Jewers K., Manchanda A.N., Jenkins P.N., J. Chem. Soc., Perkin Trans., 1972, 1393.
3. Bonora A., Tosi B., Dall'Olio G., Bruni A., Phytochem., 1990, **29**, 2389.



COLUMBIANINE

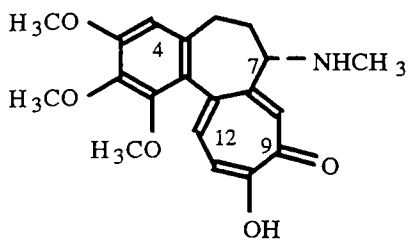
Aconitum nasutum
$C_{22}H_{35}NO_5$: 393.2515
Mp: 202-205°
$[\alpha]_D$–6° (alc.)
Mass: 393(M^+), 376(100) [2]

PMR: 1.12(3H, t, J=7, NCH_2CH_3), 2.81(1H, s), 3.34(3H, s, OCH_3), 3.73(1H, narrow s), 4.22(1H, t, J=4.5, H-14β) [2]
^{13}C NMR: [2]

C-1	72.4	C-9	46.8	C-17	64.1
2	26.5	10	44.2	18	68.3
3	29.9	11	48.8	19	56.4
4	38.1	12	28.5	NCH_2	48.6
5	41.4	13	40.3	CH_3	13.1
6	24.8	14	75.9	16′	56.5
7	45.3	15	42.3		
8	74.2	16	82.0		

Pharm.: Toxicity low, lowers arterial pressure, exerts peripheral H-cholinolytic action [3].

1. Beshitaishvili L.V., Sultankhodzhaev M.N., Izv. Akad. Nauk GSSR, Khim. Ser., A Collection of Papers [in Russian], Metsniereba, Tbilisi, 1988, p. 301.
2. Boido V., Edwards O.E., Handa K.L., Kolt R.J., Purushothaman K.K., Canad. J. Chem., 1984, **62**, 778.
3. Dzhakhangirov F.N., Unpub.



COLCHAMEINE (DEMECOLCEINE)

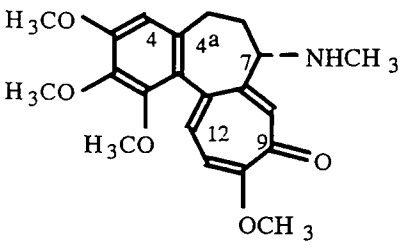
Colchicum luteum, C.speciosum, Merendera jolantae, M.robusta, M.sobolifera
$C_{20}H_{23}NO_5$: 357.1576
Mp: 132-134° (ac.-meth.)
$[\alpha]_D$–206° (chlf.)

{h-i. 245° (dec.), N-Me 134°} [1, 2]
Sol-y.: r-sol. chlf.; sol.ac., e-a.; sp. sol. eth., meth., alc.; i.s. water [2]
UV: 244, 350 [3]
IR: 3645, 3480, 1617, 1601, 1545, 1488, 1475, 1453, 1407, 1348, 1323, 1309, 1277, 1141, 1123, 1094, 1064, 1039, 1016, 979, 945, 922, 861, 844 [3]
Mass: 357(M^+, 39), 342(24), 326(20), 207(100) [3]
PMR: 1.82, 2.00-2.60(1H, 3H, m, H-5, H-6), 2.25(NCH_3), 3.32(1H, m, H-7), 3.61, 3.92(3H, 6H, s, 3×OCH_3), 4.10-4.80(NH, OH), 6.54(1H, s, H-4), 7.28, 7.54(1H, d, J=11, H-11, H-12), 8.03(1H, s, H-8) [3]
^{13}C NMR: [4]

C-1	150.6	C-7	59.8	C-12a	136.5
2	141.6	7a	151.3	1a	126.3
3	153.7	8	118.3	1-OCH_3	61.0
4	107.7	9	173.0	2-OCH_3	61.2
4a	135.5	10	168.2	3-OCH_3	56.2
5	30.3	11	124.5	NCH_3	35.0
6	39.8	12	141.8		

Pharm.: LD_{100} > 100 mg/kg.

1. Zuparova K.M., Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1972, 487.
2. Kiselev V.V., Men'shikov G.P., DAN SSSR, 1953, **88**, 825.
3. Capraro H.-G., Brossi A., Helv. Chim. Acta, 1979, **62**, 965.
4. Hufford C.D., Capraro H.-G., Brossi A., Helv. Chim. Acta, 1980, **63**, 50.
5. Kiselev V.V., Khim. Prir. Soedin., 1977, 3.



COLCHAMINE (DEMECOLCINE)

Colchicum kesselringii, C.laetum, C.luteum, C.speciosum, Merendera jolantae, M.raddeana, M.robusta, M.sobolifera
$C_{21}H_{25}NO_5$: 371.1733
Mp: 185-186° (e-a.)
$[\alpha]_D$–127° (chlf.)

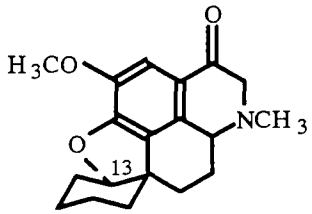
{h-chl. 217°, h-i. 197°, p-chl. 264°, N-Ac. 228°, N-Me 202°, N-benzoyl 210°}
Sol-y.: r-sol. chlf., alc., meth.; sol. ac.; sp. sol.. e-a.; i.s. eth. [1, 2]
UV: 243, 350 [3]

IR: 3690, 3450, 1619, 1595, 1565, 1489, 1467, 1451, 1435, 1400, 1351, 1324, 1288, 1143, 1099, 1045, 1024, 1010, 925, 911, 844 [3]
Mass: 371(M^+, 89), 356(20), 342(38), 340(30), 328(27), 314(28), 312(62), 299(22), 297(25), 282(21), 207(100) [3]
PMR: 1.38(NH), 1.60, 1.90-2.70(1H and 3H, m, H-5, H-6), 2.24(3H, s, NCH_3), 3.26(1H, m, H-7), 3.62, 3.90, 3.92, 4.00(3H, s, 4×OCH_3), 6.52(1H, s, H-4), 6.77, 7.22(1H, d, H-11, H-12), 7.68(1H, s, H-8) [3]
^{13}C NMR: [4]

C-1	150.6	C-7	62.8	12a	137.2
2	141.6	7a	150.9	1a	126.0
3	153.5	8	132.3	1-OCH_3	60.8
4	107.5	9	179.8	2-OCH_3	61.2
4a	135.3	10	164.1	3-OCH_3	56.2
5	30.4	11	111.9	10-OCH_3	56.2
6	38.7	12	134.6	NCH_3	34.5

HPLC: [5]
GLC: [6]
Pharm.: LD_{100} 35 mg/kg. Used in the chemotherapy of malignant tumors [7] – in particular, cancer of the esophagus and the skin. Supplied in the form of tablets and salve [8].

1. Kiselev V.V., Men'shikov T.P., Beér A.A., DAN SSSR, 1952, **87**, 227.
2. Zuparova K.M., Chommadov B., Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1972, 487.
3. Capraro H.-G., Brossi A., Helv. Chim. Acta, 1979, **62**, 965.
4. Hufford C.D., Capraro H.-G., Brossi A., Helv. Chim. Acta, 1980, **63**, 50.
5. Ko R.J., Wen Yen Li, Koda R.T., J. Chromatogr., 1990, **525**, 411.
6. Popova O.I., Kudrin S.A., Khim. Pharm. Zh., 1991, No. 3, 59.
7. Kiselev V.V., Khim. Prir. Soedin., 1977, 3.
8. Mashkovskii, Vol. 2, p. 466.

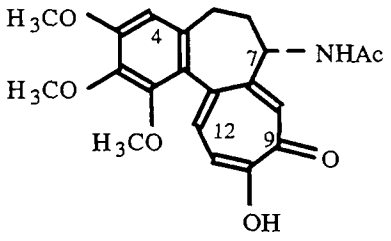


COLCHILUTINE

Colchicum luteum
$C_{19}H_{23}NO_5$: 313.1678
Mp: 190-191°
$[\alpha]_D$–83° (chlf.)

Sol-y.: r-sol. meth., chlf.; sp. sol.. water, ac.; i.s. eth., hx.
UV: 230 sh, 286
IR: 2930, 1660, 1470, 1370
Mass: 313(M^+, 46), 312(93), 286, 285(100), 284, 270, 257(16), 256(14), 244(10), 242(46), 230, 229(28), 214
PMR: 2.35(3H, s, NCH_3), 3.73(3H, s, OCH_3), 4.76(1H, t, H-13), 6.46(1H, s, H-Ar)

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 13.



COLCHICEINE

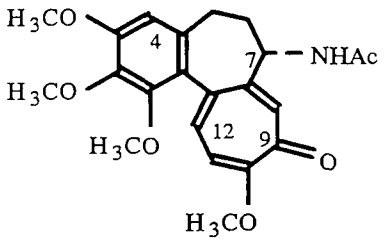
Colchicum kesselringii, C.luteum, C.speciosum, C.szovitsii, Merendera jolantae, M.raddeana, M.robusta, M.trigyna
$C_{21}H_{23}NO_6$: 385.1525
Mp: 175-177° (e-a.)

$[\alpha]_D$–256° [1]
UV: 243, 348(4.49, 4.29) [2]
IR: 3445, 3300, 3015, 2940, 2870, 1688, 1615, 1573, 1559, 1493, 1471, 1460, 1411, 1371, 1357, 1328, 1281, 1245, 1144, 1098, 1048, 1009 [2]
PMR: 2.00(NAc), 3.65, 3.92, 3.93(3H, s, 3×OCH_3), 6.59(H-4), 7.65(H-8) [3]
^{13}C NMR: [4]

C-1	150.3	C-7	51.7	C-12a	134.4
2	140.9	7a	150.1	1a	125.8
3	153.2	8	118.3	1-OCH_3	60.8
4	108.0	9	168.7	2-OCH_3	60.8
4a	134.8	10	171.9	3-OCH_3	56.0
5	29.3	11	124.3	N-CO	168.9
6	36.9	12	140.3	CH_3	22.5

HPLC: [5]
Pharm.: LD_{50} > 100 mg/kg. Antitumoral activity [6].

1. Yusupov M.K., Sadykov A.S., Khim. Prir. Soedin., 1978, 3.
2. Holubek, No. 61V.
3. Cross A.D., El-Hamidi A., Pijewska L., Santavy F., Collect., 1966, **31**, 374.
4. Elguero J., Muller R.N., Blade-Font A., Faure R., Vincent E.J., Bull. Soc. Chim. Belg., 1980, **89**, 193.
5. Klein A.E., Davis P.J., J. Chromatogr., 1981, **207**, 247.
6. Kiselev V.V., Khim. Prir. Soedin., 1977, 3.



COLCHICINE

Colchicum kesselringii, C.laetum, C.luteum, C.speciosum, C.szovitsii, Merendera jolantae, M.raddeana, M.robusta, M. sobolifera, M.trigyna
$C_{22}H_{25}NO_6$: 399.1682
Mp: 155-157° (e-a.)

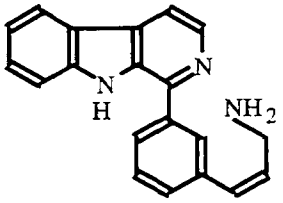
$[\alpha]_D$–121° (chlf.); –219° (meth.)
{h-chl. 209°}
Sol-y.: sol. water, alc., chlf.; sp. sol. bz. [1]
UV: 245, 350(4.48, 4.22)
IR: 3320, 3240, 1686, 1648, 1620, 1597, 1570, 1558, 1491, 1326, 1254, 1176, 1141, 1097 [2]
Mass: 399(M^+), 371, 356, 340, 328, 312, 297, 281 [3]
PMR: 1.95(NAc), 3.65, 3.93, 4.00(3H, 6H, 3H, s, 4×OCH_3), 6.54(H-4), 6.90, 7.36(1H, d, J=11, H-11, H-12), 7.65(H-8) [4]
^{13}C NMR: [5]

C-1	150.7	C-7a	151.2	C-1a	125.7
2	141.1	8	130.7	1-OCH_3	60.9
3	153.2	9	178.4	2-OCH_3	60.7
4	108.0	10	163.8	3-OCH_3	55.9
4a	134.3	11	112.3	10-OCH_3	56.0
5	29.4	12	134.7	C=O	168.9
6	36.0	12a	135.6	CH_3	22.4
7	51.7				

HPLC: [6]
GLC: [7]

Pharm.: LD_{100} 5 mg/kg, LD_{50} 2 mg/kg. Antitumoral activity [8].

1. Orekhov A.P., The Chemistry of Alkaloids [in Russian], Moscow, 1955, p. 689.
2. Holubek, No. 62.
3. Wilson J.M., Ohashi M., Budzikiewicz H., Santavy F., Djerassi C., Tetrahedron, 1963, **19**, 2225.
4. Cross A.D., El-Hamidi A., Pijewska L., Santavy F., Collect., 1966, **31**, 374.
5. Elguero J., Muller R.N., Blade-Font A., Faure R., Vincent E.J., Bull. Soc. Chim. Belg., 1980, **89**, 193.
6. Lhermitte M., Bernier J.L., Mathieu D., Mathieu-Nolf M., Erb F., Roussel P., J. Chromatogr., 1985, **342**, 416.
7. Popova O.I., Kudrin S.A., Khim. Pharm. Zh., 1991, No. 3, 59.
8. Kiselev V.V., Khim. Prir. Soedin., 1977, 3.

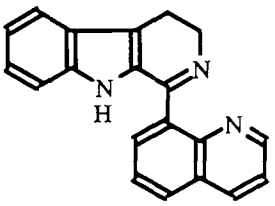


KOMAVICINE

Nitraria komarovii
$C_{20}H_{17}N_3$: 299.1422
Mp: amorph.
{N-Ac 205°}

UV: 215, 233, 272, 290, 355(4.47, 4.45, 4.15, 4.18, 3.83)
UV(H^+): 254, 307, 375
IR: 3410, 3060, 2940, 2860, 1620, 1570, 760.
Mass: 299($M^{+\cdot}$), 271, 270, 196, 195.

1. Tulyaganov T.S., Khim. Prir. Soedin., 1993, 33.

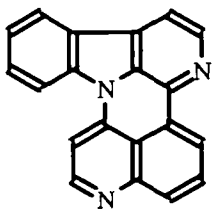


KOMAROVIDINE

Nitraria komarovii
$C_{20}H_{15}N_3$: 297.1266
Mp: 219-220° (meth.-chlf.)
UV: 218, 242 sh, 317(4.58, 4.25, 4.18)

UV(H^+): 212, 240 sh, 362
IR: 2940, 2830, 1630, 1560, 1505, 1450, 760.
Mass: 297($M^{+\cdot}$), 296(100), 282, 269, 151, 148.5($^{++}$, 5)
PMR: 3.01, 4.04(2H, t)

1. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 732.

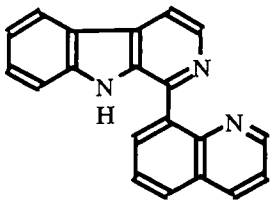


KOMAROVIDININE

Nitraria komarovii
$C_{20}H_{11}N_3$: 293.0953
Mp: 254-255° (meth.-chlf.)
UV: 242, 267, 295-308, 390, 406, 480(4.70, 4.36, 4.02, 3.04, 3.30, 3.56)

UV(H^+): 246 sh, 267, 396 sh, 417, 440
Mass: 293($M^{+\cdot}$), 146($^{++}$)

1. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 635.

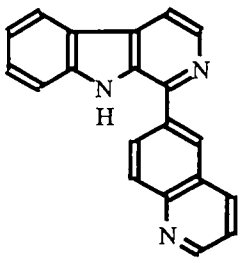


KOMAROVINE

Nitraria komarovii
$C_{20}H_{13}N_3$: 295.1110
Mp: 229-230° (meth.-chlf.)
UV: 220, 292, 358(4.65, 4.18, 3.69) [1]

UV(H^+): 215, 253, 312, 385
IR: 1630, 1570, 1505, 1460, 740 [1]
Mass: 295(M^+), 147.5($^{++}$) [1]
Pharm.: LD_{50} 171 mg/kg (i/v, mice). Hypotensive action [2].

1. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 732.
2. Kurmukov A.G., Zakirov U.B., Alkaloids and Preparations of Medicinal Herbs for the Treatment of Hypertensive States [in Russian], Ibn Sina, Tashkent, 1992, p. 106.

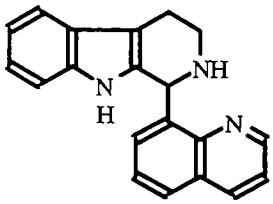


KOMAROVININE

Nitraria komarovii
$C_{20}H_{13}N_3$: 295.1110
Mp: 239-240° (meth.-chlf.)
UV: 225, 272, 296, 370(4.60, 4.31, 4.19, 4.00)
UV: (H^+): 225, 254, 284, 316, 400 [1]
IR: 3210, 3150, 1630, 1575, 1505, 1460, 750 [2]

PMR: 7.43-8.75(H-Ar) [2]
Pharm.: LD_{50} 146.5 mg/kg (i/v, rats). Hypertensive action [2].

1. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 638.
2. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Vakhabov A.A., Aminov S.D., Khim. Pharm. Zh., 1987, No. 3, 295.

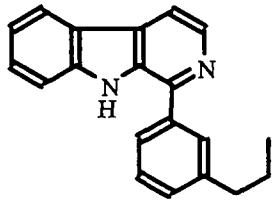


KOMAROVICINE

Nitraria komarovii
$C_{20}H_{17}N_3$: 299.1422
Mp: 209-210° (meth.-chlf.)
$[\alpha]_D$ 0°

Sol-y.: sp. sol. org. solvent
UV: 220, 275-286, 294, 318(4.75, 4.14, 4.13, 3.68) [1]
UV(H^+): 225, 272, 283, 316
IR: 2940, 2860, 1620, 1580, 1505, 1460
Mass: 299(M^+., 100), 283(20), 282(52), 281(44), 271(30), 270(28), 269(54), 149.5($^{++}$) [1]
PMR($CDCl_3$–CD_3OD): 2.81, 2.99(2H, m, H-3, H-4), 3.21(1H, 2×NH), 6.28(1H, H-1) [1]
Pharm.: LD_{50} 33.7 mg/kg (i/v, mice). Hypotensive action [2].

1. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 633.
2. Kurmukov A.G., Zakirov U.B., Alkaloids and Preparations of Medicinal Herbs for the Treatment of Hypertensive States [in Russian], Ibn Sina, Tashkent, 1992, p. 106.

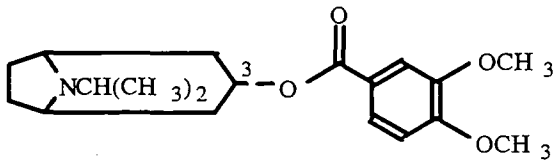


KOMAROINE

Nitraria komarovii
$C_{20}H_{18}N_2$:286.1470
Mp: 144-145° (meth.-chlf.)
UV: 215, 235, 280, 290, 350, (4.44, 4.42, 4.12, 4.12, 3.81)

UV(H^+): 216, 255, 265, 310-318, 382.
IR: 2965, 2930, 2870, 2860, 1630, 1570, 1505, 1460, 750.
Mass: 286(M^+), 271, 257, 243,
PMR: 0.85(3H, t, CH_2CH_3), 2.58(2H, t, Ar-CH_2), 1.58(2H, m, CH_2CH_3)

1. Tulyaganov T.S., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 398.

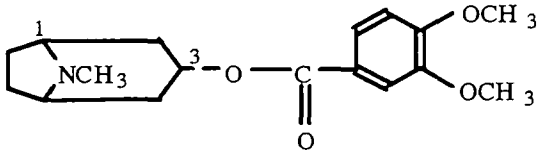


CONVOSINE

Convolvulus subhirsutus
$C_{19}H_{27}NO_4$:333.1940
Mp: 103-104° (ac.)

IR: 1710, 1605, 1520, 885, 830
Mass: 333(M^+), 318, 290, 182, 165, 98, 83
PMR: 1.10(6H, d, J=7, 2×CH_3), 3.80(6H, s, 2×OCH_3), 3.05, 3.47(3H, m, CH), 5.22(1H, t, H-3β), 6.89, 7.50(3H, m, H-Ar)

1. Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 618.



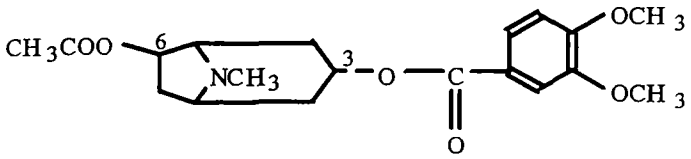
CONVOLAMINE

Convolvulus krauseanus, C.lineatus, C.pseudocantabrica, C.subhirsutus
$C_{17}H_{23}NO_4$: 305.1627

Mp: 114-115° (petr. eth.)
{h-chl. 237°, picr. 264°, chl-plat. 217°, chl-aur. 202°, m-i. 275°} [1]
IR: 1710, 1600, 1520, 885, 815
Mass: 305(M^+), 290, 182, 165, 140, 124, 95, 83, 82
PMR: 2.20(3H, s, NCH_3), 3.15(2H, m, H-1, H-5), 3.80(6H, s, 2×OCH_3), 5.10(1H, t, H-3β), 6.80-7.40(3H, m, H-Ar) [2]
^{13}C NMR: [3]

C-1	59.1	C-7	25.1	C-5′	148.0
2	35.9	C=O	167.3	6′	109.6
3	67.0	1′	122.8	OCH_3	55.1
4	35.9	2′	122.4	OCH_3	55.1
5	59.1	3′	111.4	NCH_3	39.6
6	25.1	4′	152.3		

1. Orekhov A.P., Konovalova R.A., Chem. Ber., 1934, **67**, 1153.
2. Aripova S.F., Unpub.
3. Yagudaev M.R., Aripova S.F., Khim. Prir. Soedin., 1986, 80.

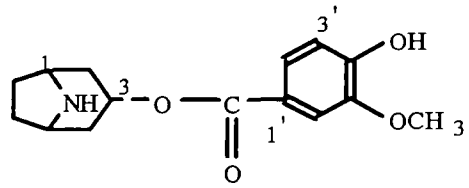


CONVOLACINE

Sonvolvulus subhirsutus
$C_{19}H_{25}NO_6$: 363.1675
Sol-y.: sol. ac., alc.

IR: 1730, 1700, 885, 820 [1]
Mass: 363(M^+), 348, 304, 290, 182, 165, 140, 124 [1]
PMR: 2.03(3H, s, CH_3), 2.23(3H, s, NCH_3); 3.25(1H, H-1, H-5); 3.89(6H, s, 2×OCH_3), 5.00(1H, m, H-3β); 5.15(1H, m, H-6α), 6.87(1H, d, J=7, H-Ar), 7.55(1H, d, J=7; J=2, H-Ar), 7.67(1H, d, J=2, H-Ar) [2]

1. Aripova S., Abdilalimov O., Khim. Prir. Soedin., 1993, 88.
2. Aripova S., Author's Abstract of Doctoral Dissertation, 1991.



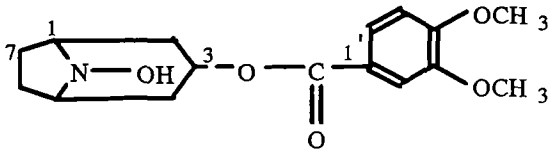
CONVOLIDINE

Convolvulus krauseanus, C.subhirsutus
$C_{15}H_{19}NO_4$: 277.1314
Mp: 214-215° (meth.)

$[\alpha]_D$ 0°
Sol-y.: sol. chlf.
IR: 3600, 3200, 1680, 880, 825, 805
Mass: 277(M^+), 167, 154, 151, 126, 123, 110(100), 108, 97
PMR: 3.57(3H, s, OCH_3), 5.08(1H, t, H-3β), 6.65, 7.12-7.35(3H, m, H-Ar) [1]
^{13}C NMR: [2]

C-1	52.5	6	28.8	C-3′	115.3
2	36.8	7	28.9	4′	151.6
3	68.0	C=O	164.8	5′	147.4
4	36.8	1′	121.0	6′	112.5
5	52.5	2′	123.1	Ar-OCH_3	55.5

1. Aripova S.F., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 290.
2. Yagudaev M.R., Aripova S.F., Khim. Prir. Soedin., 1986, 80.



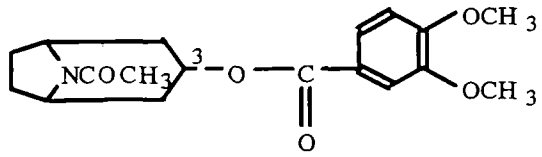
CONVOLINE

Convolvulus krauseanus, C.subhirsutus
$C_{16}H_{21}NO_5$: 307.1420
Mp: 184-185°

$[\alpha]_D$ 0°
IR: 3245, 1705, 1600, 885, 830
Mass: 307(M^+), 290, 182, 165, 142, 125
PMR: 3.89(6H, s, 2×OCH_3), 5.06(1H, t, H-3β), 6.92, 7.50-7.70(3H, m, H-Ar) [1]
^{13}C NMR: [2]

C-1	64.3	C-7	25.9	4′	153.1
2	37.4	C=O	164.4	5′	148.8
3	66.3	1′	123.1	6′	110.5
4	37.4	2′	124.2	OCH_3	55.9
5	64.3	3′	112.0	OCH_3	55.9
6	25.9				

1. Aripova S.F., Sharova E.G., Abdullaev U.A., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 749.
2. Yagudaev M.R., Aripova S.F., Khim. Prir. Soedin., 1986, 80.

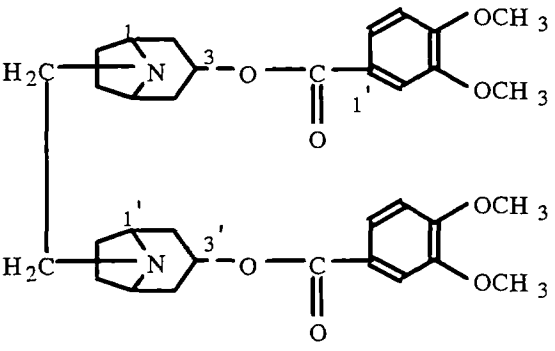


CONVOLICINE

Convolvulus krauseanus, C.subhirsutus
$C_{18}H_{23}NO_5$: 333.1576
Mp: 144-145°

Sol-y.: sol. meth., alc.
IR: 1700, 1640, 880, 810
Mass: 333(M^+), 290, 182, 165, 151, 126, 123, 110, 97, 95
PMR: 2.05(3H, s, CH_3CO), 3.88(6H, s, 2×OCH_3), 5.32(1H, t, H-3β), 6.86, 7.45-7.65(3H, m, H-Ar)

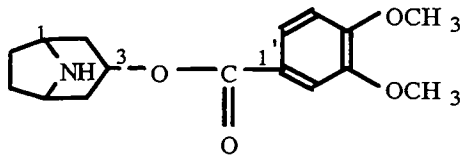
1. Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 527.



CONVOLVIDINE

Convolvulus krauseanus, C.subhirsutus
$C_{34}H_{44}N_2O_8$: 608.3098
Mp: 189-190°
Sol-y.: sol. ac., chlf., meth., alc.
IR: 1716, 1605, 880, 830
Mass: 608(M^+), 426, 304, 138, 122, 110, 83
PMR: 2.50(4H, s, 2×CH_2), 3.41(4H, m, H-1, H-1′, H-5, H-5′), 3.82(12H, s, 4×OCH_3), 5.15(2H, m, H-3β), 6.77-7.42(6H, m, H-Ar)

1. Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 657.



CONVOLVINE

Convolvulus krauseanus, C.lineatus, C.pseudocantabrica, C.subhirsutus

$C_{16}H_{21}NO_4$: 291.1471

Mp: 114-115° (petr. eth.)

{h-chl. 261° (dec.), oxalate 266° (dec.), picr. 263°, chl-plat. 241° (dec.), chl-aur. 217° (dec.), m-i. 231°} [1]

IR: 3390, 1720, 1600, 1520, 880, 820

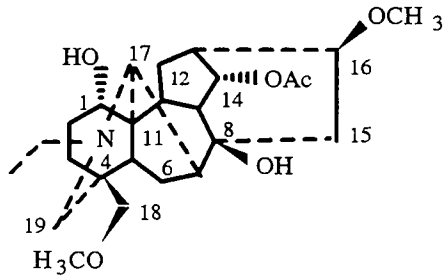
Mass: 291(M^+), 181, 165, 126, 110

PMR: 1.80-2.35(8H, m, H-2, H-4, H-6, H-7), 3.45-3.65(2H, m, H-1, H-5), 3.90(6H, s, 2×OCH_3), 5.30(1H, t, H-3β), 6.94-7.45(3H, m, H-Ar) [2]

^{13}C NMR: [3]

C-1	52.8	C-7	28.8	C-4′	152.3
2	36.9	C=O	164.7	5′	148.1
3	67.9	1′	122.8	6′	109.9
4	36.9	2′	122.5	OCH_3	55.2
5	52.8	3′	111.4	OCH_3	55.2
6	28.8				

1. Orekhov A.P., Konovalova R.A., Zh. Org. Khim., 1937, 7, 646.
2. Aripova S.F., Unpub.
3. Yagudaev M.R., Aripova S.F., Khim. Prir. Soedin., 1986, 80.



CONDELPHINE

Aconitum anthoroideum, A.talassicum, Delphinium confusum

$C_{25}H_{39}NO_6$: 449.2777

Mp: 156-158° (eth.-alc.)

$[\alpha]_D$+27° (chlf.)

{p-chl. 210° (dec.), oxalate 162° (dec.)}

Sol-y.: sol. chlf., meth.

IR: 3485, 3165, 1745, 1515, 1495, 1470, 1380, 1360, 1318, 1305, 1287, 1245, 1220, 1190, 1172, 1155, 1120, 1105, 1080, 1050, 984, 963, 927, 900, 883, 867, 828, 805, 775, 750 [2]

Mass: 449(M^+, 29), 434(28.5), 432(100), 431(25), 418(4), 416(24) [2]

PMR: 1.09(3H, t, J=7, NCH_2CH_3), 2.00(3H, s, Ac), 3.19, 3.26(3H, s, OCH_3), 4.78(1H, t, J=4.5, H-14β) [1, 2]

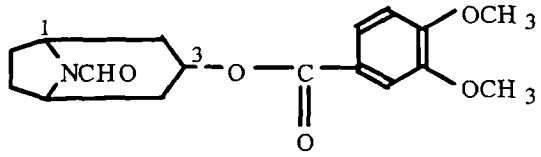
^{13}C NMR: [3]

C-1	72.1	C-10	37.0	C-18	79.0
2	29.1	11	49.0	19	56.6
3	29.7	12	26.7	NCH_2	48.4
4	37.3	13	43.5	CH_3	13.0
5	41.4	14	76.9	16′	55.9
6	25.1	15	42.4	18′	59.3
7	45.8	16	82.2	CO	170.3
8	74.5	17	63.5	CH_3	21.2
9	44.6				

Pharm.: LD_{50} 18.5 mg/kg (i/v, mice). Hypotensive, ganglioblocking, curaremimetic effect [4, 5].

1. Pelletier S.W., Keith L.H., Parthasarathy P.C., J. Am. Chem. Soc., 1967, **89**, 4146.
2. Tel'nov V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 383; Unpub.
3. Pelletier S.W., Djarmati Z., J. Am. Chem. Soc., 1976, **98**, 2626.
4. Kovalenkov K.M. Author's Abstract of Doctoral Dissertation (Medical Sciences), Moscow, 1958.
5. Dzhakhangirov F.N., Unpub.

CONFOLINE

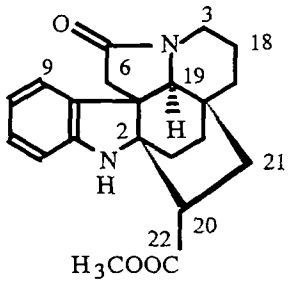


Convolvulus subhirsutus
$C_{17}H_{21}NO_5$: 319.1420
Mp: 140-141° (ac.)
IR: 1710, 1660, 875, 825

Mass: 319(M^+), 290, 182, 165, 137
PMR: 3.86(6H, s, 2×OCH_3), 4.08, 4.58(1H, m, H-1, H-5), 5.28(1H, t, H-3β), 6.78, 7.45-7.60(3H, m, H-Ar)

1. Sharova E.G., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 672.

KOPSINILAM



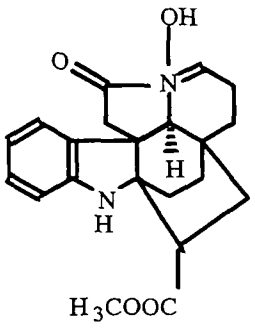
Vinca erecta
$C_{21}H_{24}N_2O_3$: 352.1787
Mp: 248-249° [1], 254-254.5° [2]
$[\alpha]_D$–13° (chlf.) [1, 2]
UV: 246, 295(3.59, 3.50) [1, 2]
IR: 3260, 1742, 1690, 1612 [1, 2]

^{13}C NMR(Py-d_5): [3]

C-2	66.5	C-10	127.9	C-17	21.0
3	41.9	11	121.1	18	35.4
5	172.3	12	111.0	19	65.7
6	40.1	13	150.7	20	44.4
7	50.0	14	31.6	21	31.8
8	138.6	15	28.5	22	174.2
9	119.5	16	33.3	OCH_3	51.8

1. Rakhimov D.A., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 354.
2. Kump C., Schmid H., Helv. Chim. Acta, 1962, **45**, 1090.
3. Yagudaev M.R., Khim. Prir. Soedin., 1984, 344.

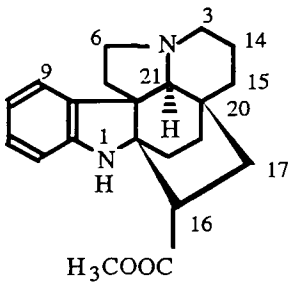
KOPSINILAMINE



Vinca erecta
$C_{21}H_{24}N_2O_4$: 368.1736
Mp: 243-244° (ac.)
$[\alpha]_D$–65° (ac.)
UV: 246, 296(3.75, 3.34)
IR: 3420-3400, 3220, 1720, 1680, 1220, 760
Mass: 351(28), 350(100), 214(55)

PMR: 3.69(3H, s, $COOCH_3$), 6.50-7.00(4H, H-Ar)

1. Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 793.



KOPSININE (ERECTINE)

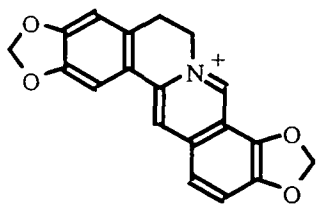
Vinca erecta
$C_{21}H_{26}N_2O_2$: 338.1994
Mp: 105° [1, 2]
$[\alpha]_D$–69° [1]
{picr. 215°, m-i. 265°} [1]
UV: 205, 246, 295(4.43, 3.83, 3.45) [1]

IR: 3333, 1730 [1]
Mass: 338(M^+), 310, 124, 109 [3]
PMR: [4]
^{13}C NMR: [5]

C-2	66.7	C-10	119.7	C-17	31.8
3	47.6	11	126.6	18	33.9
5	50.7	12	110.8	19	33.9
6	36.5	13	149.0	20	31.2
7	57.9	14	17.1	21	68.4
8	140.6	15	34.8	C=O	174.3
9	121.6	19	43.8	OCH_3	51.9

Pharm.: CNS analeptic [6].

1. Kump H.G., Schmid H., Helv. Chim. Acta, 1961, **44**, 1503.
2. Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 142.
3. The Alkaloids, 1965, Vol. 8, p. 378.
4. Linde H.H.A., Helv. Chim. Acta, 1965, **48**, 1822.
5. Feng X.Z., Kan C., Husson H.-P., Potier P., Kan S.-K., Lounasmaa M., J. Natur. Prod., 1984, **47**, 117.
6. Sadritdinov, p. 47.



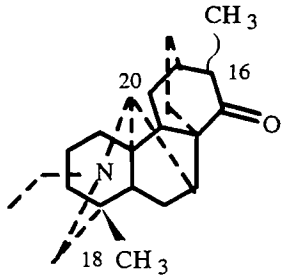
COPTISINE

Dicranostigma lactucoides, D.franschetianum, Hypecoum erectum, Macleaya cordata
$C_{19}H_{14}NO_4$: 320.0923
{iodide 280°, tetrahydro 219° (alc.)} [1]
UV{chloride}: 229, 241, 268, 354, 363, 467 [2]

IR{chloride}: 3630, 3450, 3010, 2940, 2880, 2860, 2750, 1469, 1460, 1450, 1358, 1317, 1268, 1161, 1138, 1116, 1094, 1003, 968, 920, 894, 854 [3]
PMR(CF_3COOH): 6.10, 6.44(2H, s, 2×CH_2O_2), 6.91, 7.46, 8.44, 9.41(1H, s, 4×H-Ar), 7.81(2H, s, 2×H-Ar) [4]
HPLC: [5]

1. Kuhn L., Pfeifer S., Pharmazie, 1963, **18**, 819.
2. Pavelka S., Smekal E., Collect., 1976, **41**, 3157.
3. Holubek, No. 66.

4. Jewers K., Manchanda A.H., Jenkins P.N., J. Chem. Soc. Perkin Trans. II, 1972, 1393.
5. Shang-Qun Niu, Li-Yi He, J. Chromatogr., 1991, **542**, 193.

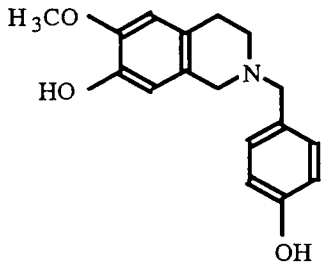


CORDIZINE

Delphinium corymbosum
$C_{22}H_{33}NO$: 327.2554
Mp: 122-124° (meth.)
IR: 1719
Mass: 327(M^+), 299(100%), 284, 270, 256, 186

PMR: 0.64(3H, s, 18-CH_3), 0.97(3H, t, J~7.0, NCH_2CH_3), 1.16(3H, d, J~8.0, 16-CH_3), 3.21(1H, narrow s, H-20).

1. Salimov B.T., Unpub.

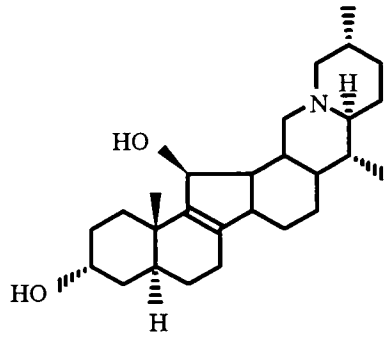


CORGOINE

Corydalis gortschakovii
$C_{17}H_{19}NO_3$: 285.1365
Mp: 190-191° (meth.)
Sol-y.: sp. sol. org. solvent
UV: 226, 284
IR: 3500, 3400, 1610, 1520

Mass: 285(M^+), 178, 163, 150, 107 [1, 2]
PMR(CF_3COOH): 3.48(3H, s, OCH_3), 6.28, 6.38(1H, s, p-H-Ar), 6.65, 6.98(2H, d, J=8, o-H-Ar) [2]

1. Ibragimova M.U., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 639; 1971, 211.
2. Ibragimova M.U., Author's Abstract of Candidate's Dissertation, Tashkent, 1974.

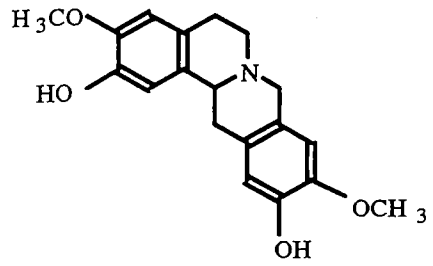


KORDILINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 286-288° (ac.)
{di Ac amorph., dihydro 226°}
IR: 3400, 2985-2835, 2775, 1470, 1440, 1030

Mass: 413(M^+), 398, 396, 395, 385, 384, 357, 356, 343, 342, 216, 180, 178, 164, 162, 150, 149, 125, 124, 112(100), 111, 98
PMR: 0.78(3H, d, 21-CH_3), 0.85(3H, d, 27-CH_3), 1.20(3H, s, 19-CH_3)
PMR{di Ac}: 0.78(3H, d, 21-CH_3), 0.84(3H, d, 27-CH_3), 0.96(3H, s, 19-CH_3), 1.97, 1.99(3H, s, OAs), 4.86, 5.00(1H, m, HC–OAc)
PMR{dihydro}: 0.78(3H, d, 21-CH_3), 0.84(3H, d, 27-CH_3), 1.18(3H, s, 19-CH_3)

1. Kul'kova V.V., Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1985, 253.

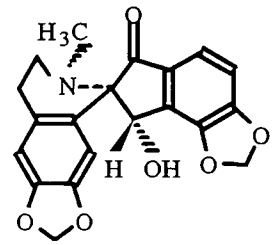


COREXIMINE (CORAMINE)

Corydalis pseudoadunca, C.sewerzowii, C.stricta
$C_{19}H_{21}NO_4$: 327.1471
Mp: 247-252° (alc.)
$[\alpha]_D$–391° (meth.)
{diethyl ether 166° (alc.), h-chl. 219°, h-b. 226°}

UV: 288 [1]
IR: 3470, 2800, 2750 [2]
Mass: 327(M^+), 178(100), 176, 150, 135 [2]
PMR: 3.85(3H, s, OCH_3), 3.87(3H, s, OCH_3), 6.54, 6.58, 6.69, 6.81(1H, 4×H-Ar) [3]

1. Yunusov M.S., Akramov S.T., Yunusov S.Yu., DAN SSSR, 1965, **162**, 607.
2. Yunusov M.S., Akramov S.T., Yunusov S.Yu., Khim. Prir. Soedin., 1966, 340.
3. Brochmann-Hanssen E., Chiang H.-C., J. Org. Chem., 1977, **42**, 3588.



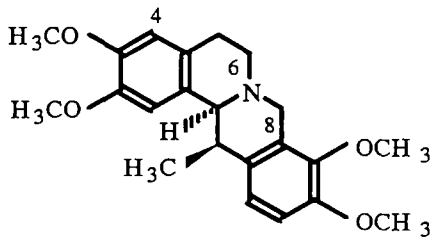
CORYDAINE

Corydalis paczoskii, C.vaginans
$C_{20}H_{17}NO_6$: 367.1056
Mp: 184° (abs. alc.) [1]; 189-189.5° (eth.) [2]
$[\alpha]_D$+145° (chlf.) [2]
UV: 236, 290, 314 [1]

IR: 3200, 3050, 1710, 1638, 1610 [1]
Mass: 367(M^+), 352, 338, 336, 322, 190 [1]
PMR: 2.28(3H, s, NCH_3), 5.02(1H, s), 5.82(2H, s, CH_2O_2), 6.16, 6.19(1H, d, J=1.2, CH_2O_2), 6.06. 6.55(1H, s, p-H-Ar), 6.99, 7.45(1H, d, J=8, o-H-Ar) [1]
^{13}C NMR: [3]

C-1	105.8	C-8	75.0	C-13	202.2
2	146.9	8a	134.3	14	72.0
3	146.9	9	144.4	14a	129.8
4	108.2	10	154.5	NCH_3	41.7
4a	129.3	11	110.6	2,3-OCH_2O	101.1
5	29.5	12	119.6	9,10-OCH_2O	103.1
6	50.2	12a	131.2		

1. Baisheva Kh.Sh., Fesenko D.A., Rostotskii B.K., Perel'son M.E., Khim. Prir. Soedin., 1970, 456.; Fesenko D.A., Perel'son M.E., Khim. Prir. Soedin., 1971, 166.
2. Margvelashvili N.N., Lasskaya O.E., Kir'yanova A.T., Tolkachev O.N., Khim. Prir. Soedin., 1976, 123.
3. Hughes D.W., Nalliah B.C., Holland H.L., McLean D.B., Canad. J. Chem., 1977, **55**, 3304.



CORYDALINE

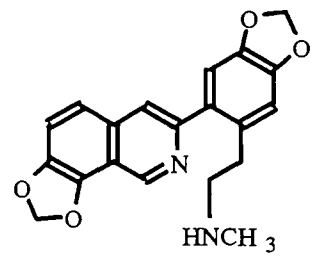
Corydalis glaucescens, C.ledebouriana, C.marschalliana, C.popovii
$C_{22}H_{27}NO_4$: 369.1940
Mp: 134-135° (meth.) [1]
$[\alpha]_D$+300° (chlf.) [1]

UV: 227, 282 [2]
IR: 3010, 2980, 2950, 2900, 2850, 2800, 1665, 1648, 1623, 1509, 1488, 1468, 1421, 1398, 1368, 1337, 1319, 1295, 1281, 1258, 1241, 1159, 1130, 1086, 1078, 1047, 1016, 973, 962, 942, 921, 873, 858, 838, 825, 814 [3]
Mass: 369(M^+), 192, 190, 178(100) [4]
PMR: 0.98(3H, d, J=7), 3.83(3H, s, OCH_3), 3.89(9H, s, 3×OCH_3), 6.61, 6.84(1H, s, 2×H-Ar), 6.72(2H, s, H-Ar) [4, 5]
^{13}C NMR: [5]

C-1	109.0	C-8a	128.6	C-14	63.1
2	147.3	9	150.2	14a	128.6
3	147.8	10	145.1	15	18.4
4	111.3	11	111.7	2-OCH_3	55.8
4a	128.5	12	124.1	3-OCH_3	55.9
5	29.4	12a	135.1	9-OCH_3	60.1
6	51.5	13	38.4	10-OCH_3	56.2
8	54.5				

Abs. conf.: [6]
HPLC: [7]

1. Manske R.H.F., Canad. J. Chem., 1956, **34**, 1.
2. Pavelka S., Smekal E., Collect., 1976, **41**, 3157.
3. Holubek, No. 73V.
4. Israilov I.A., Unpub.
5. Hughes D.W., Holland H.L., McLean D.B., Canad. J. Chem., 1976, **54**, 2252.
6. Snatzke G., Hrbek J., Hruban J. and L., Horeau A., Santavy F., Tetrahedron, 1970, **26**, 5013.
7. Sagara K., Ito Y., Ojima M., Oshima T., Suto K., Misaki T., Itokawa H., Chem. Pharm. Bull., 1985, **33**, 5369.

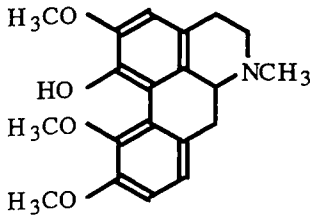


CORYDAMINE

Hypecoum erectum
$C_{20}H_{18}N_2O_4$: 350.1266
Mp {h-chl.}: 235-239° (dec., meth.) [1]
UV{h-chl.}: 245, 312, 380
IR{h-chl.}: 3420, 2440, 1580, 1570 [1]
Mass{h-chl.}: 350(M-HCl), 306(100) [1]

PMR{h-chl., CF_3COOH}: 2.88(3H, m, J=6), 2.70-3.80(4H, m), 6.10, 6.48(2H, s, 2×CH_2O_2), 6.95, 6.97(1H, s, p-H-Ar), 7.78, 7.95(1H, d, J=9, o-H-Ar), 8.18(1H, narrow s), 9.51(1H) [1]
Pharm.: Antimicrobial activity [2].

1. Nonaka G., Nishioka I., Chem. Pharm. Bull., 1973, **21**, 1410.
2. Tolkachev O.N., Yakhontova L.D., Vichkanova S.A., Fateeva T.V., in: Abstracts of Lectures at an All-Union Conference on the Results and Prospects of Scientific Investigations in the Field of Creating Drugs from Plant Raw Material [in Russian], Moscow, 1985, p. 56.

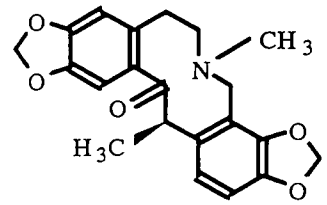


CORYDINE

Aconitum leucostomum, A.orientale, Argemone hybrida, Corydalis gortschakovii, C.marschalliana, C.rosea-purpurea, Dicentra spectabilis, Dicranostigma franschetianum, Glaucium corniculatum, G.elegans, G.fimbrilligerum, G.oxylobum, G.squamigerum, Papaver croceum

$C_{20}H_{23}NO_4$: 341.1627
Mp: 149-150° [1]
$[\alpha]_D$+ 204° (alc.) [1]
UV: 218, 262, 270, 302 [1]
Mass: 341(M^+), 340, 326, 324, 310, 298, 283, 267, 170.5($^{++}$) [1]
PMR: 2.54(3H, s, NCH_3), 3.73(3H, s, OCH_3), 3.85(6H, s, 2×OCH_3), 6.70(1H, s), 6.83, 7.07(1H, d, J=8) [1]
Pharm.: LD_{50} 80-115 mg/kg (mice). Causes catalepsy [2].

1. Israilov I.A., Unpub.
2. Sadritdinov, p. 212.

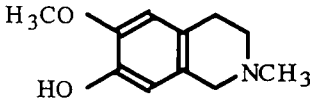


CORYCAVINE

Corydalis marschalliana
$C_{21}H_{21}NO_5$: 367.1420
Mp: 218-219° (alc.)
UV: 240 sh, 288
IR: 1660, 1030, 940

Mass: 367(M^+), 352, 204, 163, 162, 148
PMR: 2.04(3H, s, NCH_3), 2.50-2.95(4H, m), 3.45(2H, m), 5.90, 6.05(2H, s, 2×CH_2O_2), 6.50, 6.95(1H, s, p-H-Ar), 6.65(2H, s)

1. Israilov I.A., Unpub.

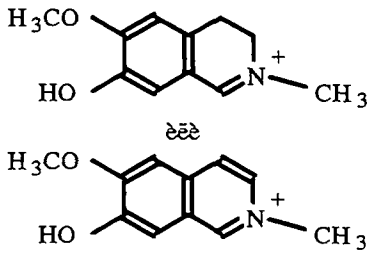


CORYPALLINE

Berberis oblonga, Corydalis ledebouriana, C.stricta

$C_{11}H_{15}NO_2$: 193.1103
Mp: 167-168° (meth.)
UV: 202, 225, 285
Mass: 193(M^+), 192, 176, 151, 150, 148, 135, 107
PMR: 2.29(3H, s, NCH_3), 2.60(4H, m), 3.31(2H, s), 3.73(3H, s, OCH_3), 6.44, 6.73(1H, s, 2×H-Ar), 8.65(1H, narrow s)

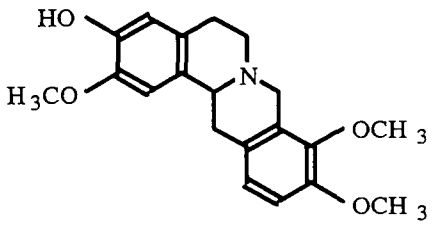
1. Israilov I.A., Unpub.



CORYPALLINIUM OR 3,4-DEHYDROCORYPALLINIUM

Berberis oblonga
$C_{11}H_{14}NO_2$: 192.1024 ili $C_{11}H_{12}NO_2$: 190.0868
{reduced product – corypalline}

1. Karimov A., Telezhenetskaya M.V., Lutfullin K.M., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 530; 1977, 80.

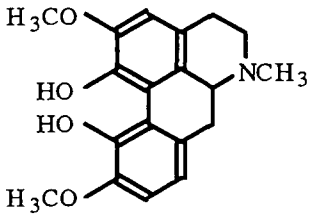


CORYPALMINE (DISCRETININE)

Corydalis rosea-purpurea
$C_{20}H_{23}NO_4$: 341.1627
Mp: 185-186° (alc.)
$[\alpha]_D$–260° (chlf.)
UV: 230, 287

IR: 3500, 1605
Mass: 341(M^+), 326, 310, 178, 164(100), 149, 134, 104
PMR: 3.85(6H, s, 2×OCH_3), 3.89(3H, s, OCH_3), 6.68, 6.70(1H, s, p-H-Ar), 6.81(2H, s, o-H-Ar)

1. Israilov I.A., Unpub.

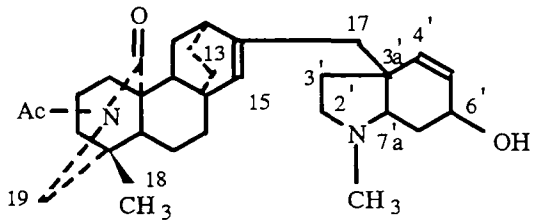


CORYTUBERINE

Corydalis gortschakovii, Dicranostigma franschetianum, Glaucium fimbrilligerum
$C_{19}H_{21}NO_4$: 327.1471
Mp: 232-234°

$[\alpha]_D$+276° (chlf.)
UV: 225, 272, 311
Mass: 327(M^+), 312, 310, 296, 284, 269, 253
PMR(CF_3COOH): 3.40(3H, d, J=6, NCH_3), 4.07(6H, s, 2×OCH_3), 6.96(1H, s), 7.11(2H, s)

1. Israilov I.A., Unpub.



CORIPHIDINE

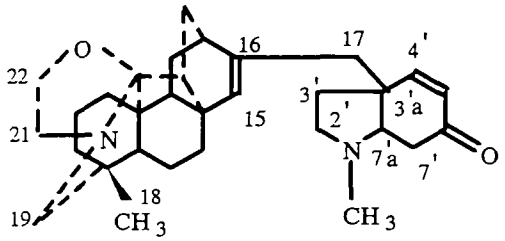
Aconitum coreanum
$C_{31}H_{44}N_2O_3$: 492.3352
Mp: 247-249° (meth.)
UV: 205(3.95)

IR: 3300, 1710, 1650, 1568
Mass: 492(M^+, 10), 475(12), 464(5), 449(4), 422(18), 341(5), 152(47), 151(100), 150(22), 134(24), 121(19), 70(12), 44(10)

PMR: 0.87(3H, s, 18-CH_3), 1.92(3H, s, NAc), 2.31(3H, s, NCH_3), 2.95(1H, ddd, J=9.2; 7.0; 1., H-7′α), 3.14, 3.45(1H, d, J=13.2, H-19β, H-19α), 4.17(1H, tdd, J=10.8; 5.5; 1.8, H-6′), 5.53-5.60(3H, m, H-4′, H-5′, H-15)
^{13}C NMR (Py-d_5):

C-1	46.3	C-12	36.6	C-2′	54.8
2	22.4	13	32.9	3′	38.0
3	40.5	14	31.5	3′a	43.1
4	38.9	15	135.7	4′	131.2
5	55.3	16	147.8	5′	130.7
6	20.2	17	36.5	6′	63.9
7	37.4	18	27.6	7′	35.1
8	40.6	19	55.4	7′a	70.5
9	52.8	20	171.4	NCH_3	40.8
10	55.3	21	171.5		
11	28.7	22	23.2		

1. Bessonova I.A., Yagudaev M.R., Yunusov M.S., Khim. Prir. Soedin., 1992, 243.



CORIPHINE

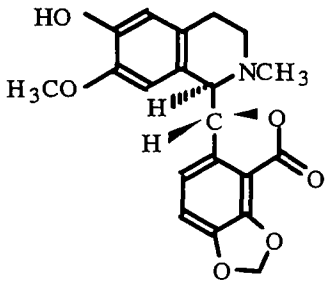
Aconitum coreanum
$C_{31}H_{42}N_2O_2$: 474.3246
Mp: 200°
$[\alpha]_D$+150° (meth.)
{p-chl. 226°}

Sol-y.: sol. chlf.
UV: 212(4.04)
IR: 1690, 1460, 1250, 1215, 1127, 1080, 1040, 1013, 889, 878, 780
Mass: 474(M^+, 3.4), 459(1.1), 446(1.6), 445(1.0), 431(1.3), 324(100), 150(3.4), 149(6.9), 148(3.1)
PMR: 1.00(3H, s, 18-CH_3), 2.26(3H, s, NCH_3), 2.42, 2.61(1H, d, J=11, H-19β, H-19α), 2.60(2H, m), 2.84(1H, ddd, J=12.3; 7.0; 2.0, H-7a), 3.02, 3.10(1H, dt, J=9.0; 3.0, 2×H-21), 3.55, 3.78(1H, m, 2×H-11), 5.38(1H, s, H-15), 5.87(1H, d, J=10, H-5′), 6.60(1H, dd, J=10; 1.8, H-4′)
^{13}C NMR:

C-1	44.4	C-12	35.6	C-2′	54.6
2	23.1	13	31.4	3′	36.0
3	41.5	14	54.4	3′a	47.4
4	35.0	15	136.3	4′	156.1
5	53.3	16	146.5	5′	125.9
6	19.9	17	34.7	6′	197.6
7	34.4	18	28.5	7′	37.3
8	43.8	19	57.8	7′a	70.1
9	48.3	20	105.7	NCH_3	40.0
10	47.1	21	51.7		
11	27.9	22	61.4		

X-ray spectral analysis.

1. Yusupova I.M., Bessonova I.A., Tashkhodzhaev B., Yunusov M.S., Yagudaev M.R., Vaisov Z.M., Khim. Prir. Soedin., 1991, 396.

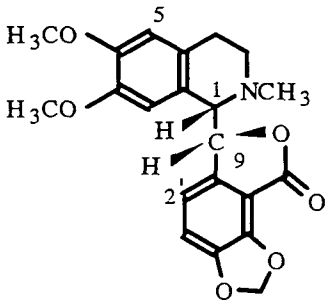


CORLEDINE

Corydalis ledebouriana
$C_{20}H_{19}NO_6$: 369.1212
Mp: 210-212° (meth.)
$[\alpha]_D$–100° (meth.)
Sol-y.: sp. sol. ac., bz., eth., chlf.; r-sol. alk.
UV: 221, 290, 326

IR: 3350, 1750, 1610, 1040, 920
Mass: 192(100), 177, 149, 135
PMR: 2.22-3.04(4H, m), 2.60(3H, s, NCH_3), 3.74(3H, s, OCH_3), 4.02, 5.61(1H, d, J=3.8), 4.90(1H, OH), 5.98(2H, s, CH_2O_2), 6.35, 6.63(1H, s, p-H-Ar), 6.80, 7.14(1H, d, J=8, o-H-Ar) [1]
Abs. conf.: 1R, 9R [2]

1. Israilov I.A., Yunusov M.S., Abdullaev N.D., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 536.
2. Moiseeva G.P., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 103.



CORLUMINE

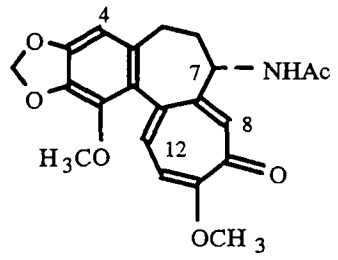
Corydalis sewerzowii
$C_{21}H_{21}NO_6$: 383.1369
Mp: 158-159° (meth.) [1]
$[\alpha]_D$+77° (chlf.) [1]
UV: 290 [1]
IR: 1760 [1]

Mass: 206 [1]
PMR: 2.60(3H, s, NCH_3), 3.74, 3.89(3H, s, 2×OCH_3), 4.09, 5.66(1H, d, J=4), 6.15(2H, s, CH_2O_2), 6.22, 6.93(1H, d, J=8, o-H-Ar), 6.40, 6.61(1H, s, p-H-Ar) [2]
^{13}C NMR: [3]

C-1	65.7	C-8	110.7	C-4′	149.1
3	49.5	8a	129.5	5′	144.5
4	26.5	9	84.9	6′	110.3
4a	123.4	10	167.2	NCH_3	45.1
5	111.3	1′	140.8	6-OCH_3	55.9
6	148.2	2′	115.5	7-OCH_3	55.9
7	147.2	3′	113.1	4′,5′-OCH_2O	103.3

Abs. conf.: 1S, 9R [4]
Pharm.: Is a specific antagonist of GABA receptors [5].

1. Israilov I.A., Unpub.
2. Seitanidi K.L., Yagudaev M.R., Israilov I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 465.
3. Hughes D.W., Holland H.L., McLean D.B., Canad. J. Chem., 1976, **54**, 2252.
4. Moiseeva G.P., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 103.
5. Valeev A.E., Chernyavskaya N.I., Dzhakhangirov F.N., Yunusov M.S., Israilov I.A., Neirofiziologiya, 1988, No. 6, 820.

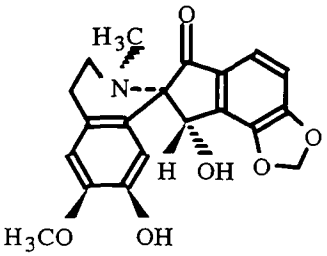


CORNIGERINE

Colchicum laetum, Merendera raddeana
$C_{21}H_{21}NO_6$: 383.1369
Mp: 268-270° (e-a.-eth.)
$[\alpha]_D$–150° (chlf.)
UV: 243, 350(4.50, 4.20) [1]

IR: 3240, 2870, 1665, 1612, 1590, 1480, 1450, 1440, 1400, 1360, 1275, 1250, 1170, 1140, 1075, 1048 [2]
Mass: 383(M^+, 41), 355(15), 340(12), 296(100) [2]
PMR: 1.96(3H, s, NAc), 1.80-2.80(4H, m, H-5, H-6), 3.77, 3.97(3H, s, 2×OCH_3), 4.60(1H, m, H-7), 5.96(2H, s, CH_2O_2), 6.41(1H, s, H-4), 6.80, 7.20(1H, d, J=11, H-11, H-12), 7.48(1H, s, H-8), 7.58(1H, d, J=6, NH [2]
HPLC: [3]

1. El-Hamidi A., Santavy F., Collect., 1962, **27**, 2111.
2. Rosner M., Hsu F.-L., Brossi A., J. Org. Chem., 1981, **46**, 3686.
3. Husek A., Sutlupinar N., Sedmera P., Voegelein F., Valka I., Simanek V., Phytochem., 1990, **29**, 3058.

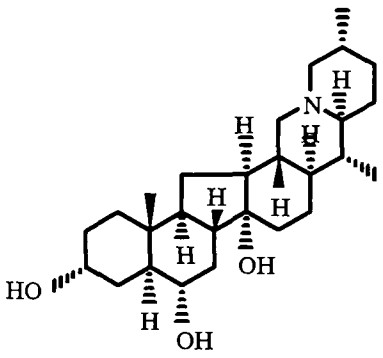


CORPAINE

Corydalis paczoskii
$C_{20}H_{19}NO_6$: 369.1212
Mp: 204° (abs. alc.)
IR: 3260, 1707, 1633, 1601, 1516
Mass: 369(M^+)

PMR: 2.35(3H, s, NCH_3), 3.87(3H, s, OCH_3), 5.09(1H, s), 6.16, 6.20(1H, q, J=1.2, CH_2O_2), 6.19, 6.58(1H, s, p-H-Ar), 6.98, 7.45(1H, d, J=8, o-H-Ar)

1. Baisheva Kh.Sh., Fesenko D.A., Perel'son M.E., Rostotskii B.K., Khim. Prir. Soedin., 1970, 574; Fesenko D.A., Perel'son M.E., Khim. Prir. Soedin., 1971, 166.

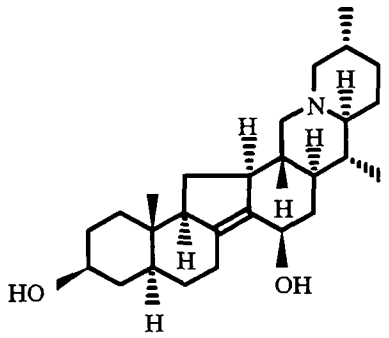


KORSEVERAMINE

Korolkowia sewerzowii
$C_{27}H_{45}NO_3$: 431.3399
Mp: 304-305° (meth.)
$[\alpha]_D$–15° (10% AcOH)
{di Ac 175°, korseveramindione 217°}
Sol-y.: sp. sol. petr. eth., eth., bz., chlf., pyr.
IR: 3610, 3430, 2960-2885, 2780, 1460-1440, 1053, 1000

Mass: 431, 416, 413, 398, 395, 164, 162, 150, 149, 125, 124, 112, 111, 98
PMR{di Ac}: 0.79(s, 19-CH_3, 21-CH_3, 27-CH_3), 1.97(3H, s, OAc), 2.01(3H, s, OAc), 2.77(2H, t, H-18$_e$, H-26$_e$), 4.57(m, HC-OAc), 5.03(m, HC-OAc)
PMR{korseveramindione}: 0.80(3H, d, 21-CH_3), 0.80(3H, d, 27-CH_3), 0.86(3H, s, 19-CH_3)

1. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 773.

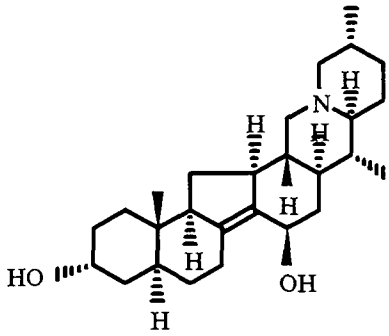


KORSEVERIDINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 290-292° (meth.)
$[\alpha]_D$–49° (10% AcOH)
{h-chl. 326°, h-b. 315°, h-i. 306°, m-i. 312°, di Ac 201°, korseveridinone 124°}
IR: 3370-3310, 2960-2820, 2745, 1470-1430

Mass: 413(M^+), 398, 395, 357, 356, 179, 164, 149, 112, 111, 98
PMR{di Ac}: 0.61(3H, s, 19-CH_3), 0.76(3H, d, 21-CH_3), 0.81(3H, d, 27-CH_3), 1.96(3H, s, OAc), 2.00(3H, d, OAc), 4.50(1H, m, HC-OAc), 5.02(1H, m, HC-OAc)
PMR{korseveridinone}: 0.76(3H, s, 19-CH_3), 0.78(3H, d, 21-CH_3), 0.83(3H, d, 27-CH_3) [1-3]

1. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 101.
2. Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 367.
3. Abdullaeva D.U., Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 796.

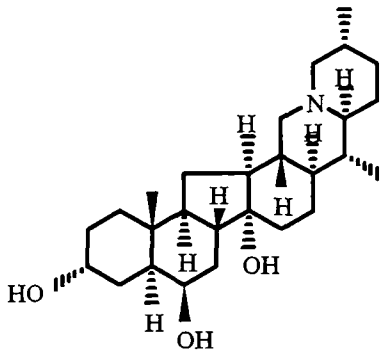


KORSEVERIDININE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 282-284° (meth.)
$[\alpha]_D$–40° (chlf.-meth.)
{di-Ac amorph., ketone 124°}
IR: 3380, 3150, 2990-2820, 2778
Mass: 413(M^+), 398, 395, 384, 357, 356, 203, 195, 179, 178, 164, 162, 150, 149, 124, 112, 111(100)

PMR{di Ac}: 0.74(3H, s, 19-CH_3), 0.79, 0.84(3H, d, 21-CH_3, 27-CH_3), 1.93, 2.01(6H, s, OAc), 4.80, 5.05(1H, m, HC-OAc)

1. Abdullaeva D.U., Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 796.



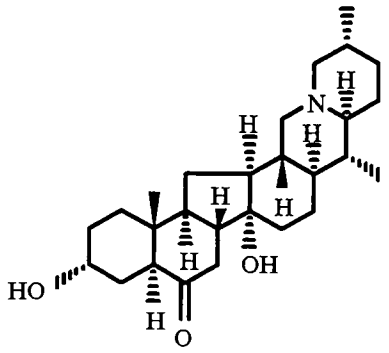
KORSEVERILINE

Korolkowia sewerzowii
$C_{27}H_{45}NO_3$: 431.3399
Mp: 240-242° (meth.)
$[\alpha]_D$–15° (alc.)
{m-i. 301°, thiocyanate 178°, di Ac 173°, dione 218°, dideoxotetrahydrodione 167°}

IR: 3375, 2915, 2860, 2773, 1465, 1443, 1130, 1100-990, 1055, 1028
Mass: 431(M^+), 430, 413, 178, 164, 162, 112, 111(100), 98

PMR{di Ac}: 0.79(3H, d, 21-CH_3), 0.79(3H, d, 27-CH_3), 0.89(3H, s, 19-CH_3), 1.95(3H, s, OAc), 1.97(3H, s, OAc), 4.86(1H, m, HC-OAc), 5.03(1H, m, HC-OAc)
PMR{dione}: 0.79(3H, d, 21-CH_3), 0.79(3H, d, 27-CH_3), 0.85(3H, s, 19-CH_3)
PMR{dideoxotetrahydrodione}: 0.66(3H, s, 19-CH_3), 0.78(3H, d, 21-CH_3), 0.81(3H, d, 27-CH_3)

1. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 258.

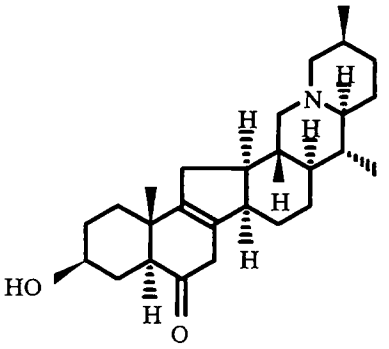


KORSEVERILINONE

Korolkowia sewerzowii
$C_{27}H_{43}NO_3$: 429.3243
Mp: 222-223° (ac.)
$[\alpha]_D$−19° (chlf.)
{Ac amorph., dihydro 241°}
IR: 3450, 2955-2860, 2775, 1710, 1465
Mass: 429(M^+), 414, 412, 411, 400, 396, 373, 166, 164, 149, 125, 124, 112, 111(100), 98

PMR: 0.66(3H, s, 19-CH_3), 0.83(6H, d, 21-CH_3, 27-CH_3), 4.08(1H, m, H-3)

1. Kul'kova V.V., Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 72.

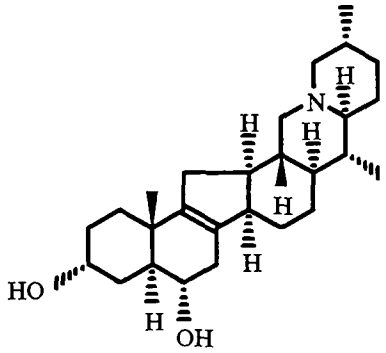


KORSEVERINE

Korolkowia severzowii
$C_{27}H_{41}NO_2$: 411.3027
Mp: 167-168° (ac.)
$[\alpha]_D$+83° (meth.)
{h-b. 292°, h-i. 295°, m-i. 270°, Ac 186°, ketone 224°, deoxodihydro 174°, dihydro 165°}
UV: 300(2.07)

IR: 3510, 3390, 2920-2870, 2760, 1703, 1650, 1440, 1060
Mass: 411(M^+), 396, 393, 112, 111, 98
PMR: 0.73(3H, s, 19-CH_3), 0.87(3H, d, 21-CH_3), 1.04(3H, d, 27-CH_3)
PMR{Ac}: 0.75(3H, s, 19-CH_3), 0.87(3H, d, 21-CH3), 1.02(3H, d, 27-CH_3), 1.96(3H, s, OAc), 4.62(1H, m, HC-OAc)
PMR{ketone}: 0.87(3H, d, 21-CH_3), 0.92(3H, s, 19-CH_3), 1.04(3H, d, 27-CH_3) [1-3]

1. Nuriddinov R.N., Yunusov S.Yu., Dokl. AN UzSSR, 1962, No. 5, 47.
2. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 390.
3. Nuriddinov R.N., Saidkhodzhaev A.I., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 61.

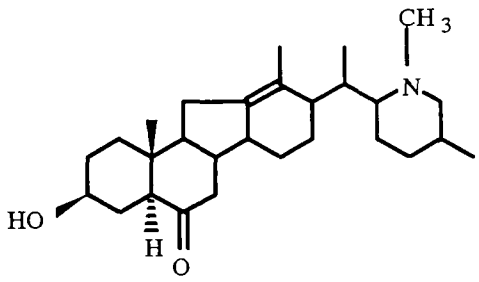


KORSEVERININE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 320-322° (ac.)
$[\alpha]_D$+23° (10% AcON)
{h-chl. 312°, h-b. 287°, h-i. 220°, m-i. 296°, di Ac 140°, ketone 265°, dione 229°}
Sol-y.: sp. sol. eth., bz., chlf., pyr.
IR: 3420, 3180, 2980-2830, 2790, 1620, 1470, 1430, 1085, 1060, 1030, 990

Mass: 413(M^+), 398, 384, 164, 162, 139, 125, 112, 111, 98
PMR{di Ac}: 0.80(3H, d, 27-CH_3), 0.85(3H, s, 19-CH_3), 0.85(3H, d, 21-CH_3), 1.98(3H, s, OAc), 2.00(3H, s, OAc), 4.62(1H, m, HC-OAc), 5.04(1H, m, HC-OAc)
PMR{ketone}: 0.80(3H, d, 27-CH_3), 0.85(3H, d, 21-CH_3), 0.99(3H, s, 19-CH_3), 3.46(1H, m, HC-OH)
PMR{dione}: 0.80(3H, d, 27-CH_3), 0.85(3H, d, 21-CH_3), 0.93(3H, s, 19-CH_3) [1-3].

1. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 767.
2. Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 367.
3. Abdullaeva D.U., Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 817.

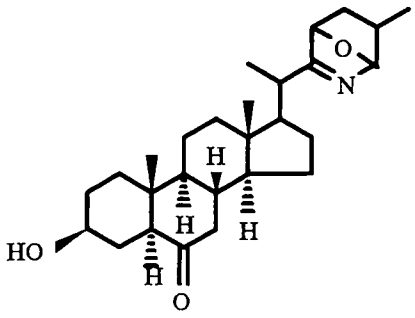


KORSEVINE

Korolkowia sewerzowii
$C_{28}H_{45}NO_2$: 427.3450
Mp: 170° (meth.)
$[\alpha]_D$–84° (meth.)

{h-b. 290°, p-chl. 245°, thiocyanate 265°, m-i. 245°, oxime 201°, semicarbazone 190°, dihydro 219°, di Ac dihydro 134°, korsevinine amorph.}
UV: 289(1.86)
IR: 3250, 2940-2830, 1715, 1630, 1460, 1080
Mass: 427(M^+), 426, 412, 409, 398. 316, 314, 287, 139, 114, 113, 112, 111, 98, 96
PMR: 0.60(3H, s, 19-CH_3), 0.68(3H, d, 21-CH_3), 0.93(3H, d, 27-CH_3), 1.55(3H, s, 18-CH_3), 2.22(3H, s, NCH_3)
PMR{di Ac dihydro}: 0.68(3H, d, 21-CH_3), 0.85(3H, s, 19-CH_3), 0.93(3H, d, 27-CH_3), 1.55(3H, s, 18-CH_3), 1.95(6H, s, 2×OAc), 2.24(3H, s, NCH_3)
PMR{ketone}: 0.68(3H, d, 21-CH_3), 0.80(3H, s, 19-CH_3), 0.93(3H, d, 27-CH_3), 1.55(3H, s, 18-CH_3), 2.24(3H, s, NCH_3)

1. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 398.

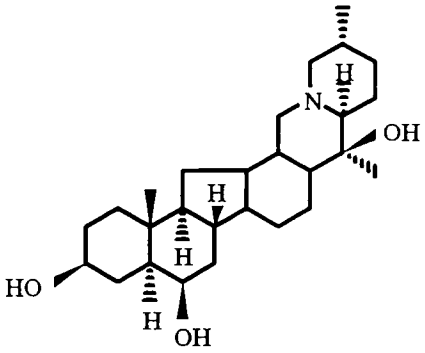


KORSEVININE

Korolkowia sewerzowii
$C_{27}H_{41}NO_3$: 427.3087
Mp: 224-225° (ac.)
$[\alpha]_D$–16°
{Ac 155°, hexahydro 221°, tri Ac hexahydro amorph.}
IR: 3400, 2940, 1700, 1620, 1460-1440, 1070

Mass: 427(M^+), 412, 409, 399, 384, 139(100), 111(81), 110(27)
PMR: 0.69(3H, s, 19-CH_3), 0.69(3H, s, 18-CH_3), 0.98(3H, d, 21-CH_3), 1.00(3H, d, 27-CH_3)
PMR{Ac}: 0.69(3H, s, 18-CH_3), 0.71(3H, s, 19-CH_3), 0.99(3H, d, 21-CH_3), 1.00(3H, d, 27-CH_3), 1.96(3H, s, OAc), 4.60(1H, m, HC-OAc)
PMR{hexahydro}: 0.67(3H, s, 18-CH_3), 0.79(3H, d, 21-CH_3), 0.83(3H, d, 27-CH_3), 0.97(3H, s, 19-CH_3)
PMR{tri Ac hexahydro}: 0.68(3H, s, 18-CH_3), 0.88(3H, d, 21-CH_3), 0.92(3H, d, 27-CH_3), 0.96(3H, s, 19-CH_3), 1.96(3H, s, OAc), 1.97(3H, s, OAc), 2.07(3H, s, NAc), 4.60(1H, m, HC-OAc), 4.88(1H, m, HC-OAc)

1. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 600.

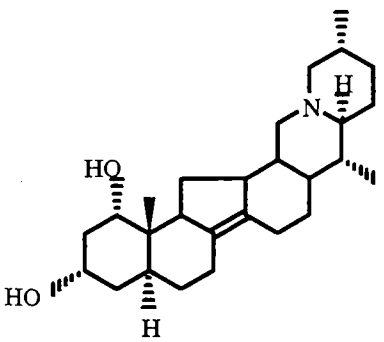


KORSELIDINE

Korolkowia sewerzowii
$C_{27}H_{45}NO_3$: 431.3399
Mp: 276-278° (ac.)
$[\alpha]_D$–53° (alc.)
{di Ac amorph., dione amorph.}
IR: 3450, 3000-2810, 2765, 1450
Mass: 431(M^+), 430, 416, 414, 412, 387, 386, 154, 150, 149, 125, 124, 113, 112(100), 111, 98

PMR: 0.80(3H, d, 27-CH_3), 0.95(3H, s, 19-CH_3), 1.02(3H, s, 21-CH_3), 3.41, 3.71(1H, m, 2×HC-OH)
PMR{di Ac}: 0.78(3H, d, 27-CH_3), 0.93(3H, s, 19-CH_3), 1.05(3H, s, 21-CH_3), 1.95(6H, s, 2×OAc), 4.68, 4.93(1H, 2×HC-OAc)
PMR{dione}: 0.79(3H, d, 27-CH_3), 0.88(3H, s, 19-CH_3), 1.01(3H, s, 21-CH_3)

1. Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1989, 34.

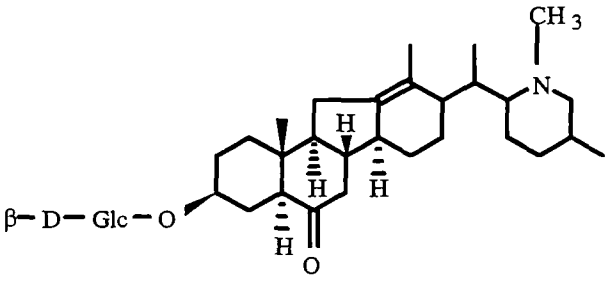


KORSELIMINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 272-274° (meth.)
$[\alpha]_D$–75° (alc.)
{di Ac amorph., dione amorph.}
IR: 3350, 2960-2830, 2750, 1450
Mass: 413(M^+, 100), 412, 398, 396, 384, 357, 356, 300, 272, 179, 178, 164, 150, 149, 124, 112, 111, 98

PMR: 0.58(3H, s, 19-CH_3), 0.80(3H, d, 21-CH_3), 0.84(3H, d, 27-CH_3)
PMR{di Ac}: 0.66(3H, s, 19-CH3), 0.82(3H, d, 21-CH3), 0.86(3H, d, 27-CH_3), 1.97, 2.00(3H, s, 2×OAc), 4.50, 5.02(1H, m, HC-OAc)
PMR{dione}: 0.82(6H, 21-CH_3, 27-CH_3), 1.19(3H, s, 19-CH_3)

1. Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1989, 44.

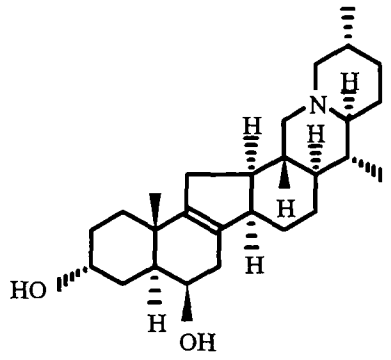


KORSEMINE

Korolkowia sewerzowii
$C_{34}H_{55}NO_7$: 589.3978
Mp: amorph.
$[\alpha]_D$–47° (meth.)
{tetra Ac amorph.}
IR: 3400, 3057, 1710, 1635, 1100-1000

PMR{tetra Ac}: 0.60(3H, s, 19-CH_3), 0.70(3H, d, 21-CH_3), 0.95(3H, d, 27-CH_3), 1.58(3H, s, 18-CH_3), 1.95, 1.97(3H, s, 2×OAc), 2.02(6H, s, 2×OAc), 2.24(3H, s, NCH_3)

1. Samilov K., Abdullaeva D.U., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 823.

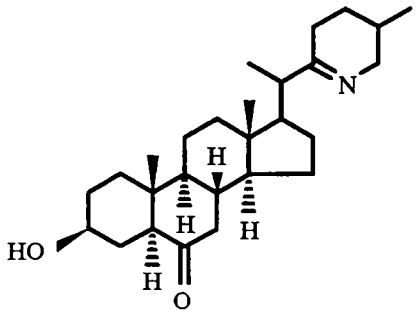


KORSIDINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 316-318° (meth.)
$[\alpha]_D$ 0° (10% AcOH)
{di Ac korsidine amorph., korsidindione 217°, dihydro 256°}
IR: 3400-3200, 2975-2830, 2776

Mass: 413(M^+, 100), 398, 395, 384, 244, 202, 201, 183, 179, 165, 149, 122, 112, 111, 98, 97
PMR{di Ac}: 0.80(6H, d, 21-CH_3, 27-CH_3), 0.98(3H, s, 19-CH_3), 1.99(6H, s, 2×OAc), 4.90(1H, m, HC-OAc), 5.05(1H, m, HC-OAc)
PMR{korsidindione}: 0.81(3H, d, 21-CH_3), 0.81(3H, d, 27-CH_3), 0.95(3H, s, 19-CH_3)
PMR{dihydro}: 0.80(3H, d, 21-CH_3), 0.80(3H, d, 27-CH_3), 0.93(3H, s, 19-CH_3) [1, 2].

1. Samilov K., Shakirov R., Safaeva D.N., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 780.
2. Abdullaeva D.U., Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 817.

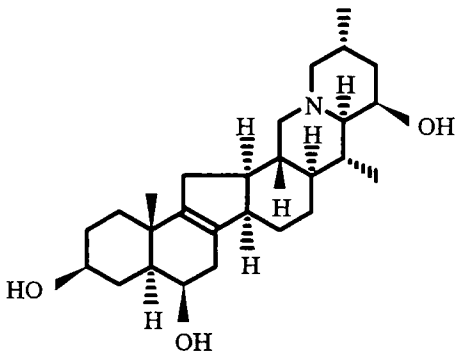


KORSILINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 194-196° (ac.)
$[\alpha]_D$ 0° (alc.)
{O,N-di Ac amorph.}
IR: 3350, 2980-2840, 1715, 1663, 1467, 1082

Mass: 413(M^+, 31), 398(24), 166(5), 165(17), 164(19), 152(8), 151(16), 150(21), 139(3), 138(7), 126(14), 125(100), 124(21), 112(8.5), 111(54), 110(8), 97(4), 96(6)
PMR: 0.63(3H, s, 18-CH_3), 0.68(3H, s, 19-CH_3), 0.86(3H, d, 21-CH_3), 1.03(3H, d, 27-CH_3)
PMR{O,N-di Ac}: 0.60(3H, s, 18-CH_3), 0.70(3H, s, 19-CH_3), 0.91(3H, d, 21-CH_3), 1.04(3H, d, 27-CH_3), 2.00(3H, s, OAc). 2.11(3H, s, NAc), 4.60(1H, m, HC-OAc), 5.12(1H, m, C=CH)

1. Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976. 1976, 827.

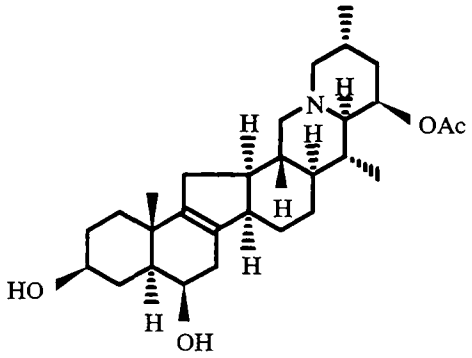


KORSINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_3$: 429.3243
Mp: 236-238° (meth.), 257-259° (alc.)
$[\alpha]_D$+88° (alc.)
{h-chl. 303°, h-b. 326°, h-i. 294°, m-i. 275°, tri Ac amorph., dihydro 276°, ketone 278°, dione 260°}
Sol-y.: sol. alc.; sp. sol. chlf., pyr.; i.s. water
IR: 3490, 3420, 2930-2830, 2780, 1670, 1485-1465, 1056, 1010

Mass: 429(M^+, 100), 414, 411, 400, 393, 384, 372, 358, 194, 180, 178, 155, 141, 128, 127, 114 [1]
PMR: 0.79(3H, d, 21-CH_3), 0.80(3H, d, 27-CH_3), 0.96(3H, s, 19-CH_3)
PMR{tri Ac}:0.81(3H, d, 21-CH_3), 0.83(3H, d, 27-CH_3), 0.99(3H, s, 19-CH_3), 1.94(6H, s, OAc), 1.98(3H, s, OAc), 4.65(1H, m, HC-OAc), 4.94(2H, m, 2×HC-OAc)
PMR{ketone}: 0.74(3H, s, 19-CH_3), 0.82(3H, d, 21-CH_3), 0.85(3H, d, 27-CH_3) [1, 2]
Pharm.: LD_{50} 100 mg/kg (s/c, mice) [3, 4]. Antiinflammatory, spasmolytic, hypothermal, and hypotensive properties.

1. Nuriddinov R.N., Saidkhodzhaev A.I., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 161.
2. Nuriddinov R.N., Author's Abstract of Doctoral Dissertation, Tashkent, 1970, p. 24.
3. Sultanov M.B., Kurmukov A.G., Vakhabov A.A., Zakirov U.B., Aliev Kh.U., Polievtsev N.P., Akhmedkhodzhaeva Kh.S., Fakhrutdinov S.F., Sadritdinov F.S., Tulyaganov N.T., Saidkasymov T.K., in: Soviet-Indian Symposium on the Chemistry of Natural Compounds, Abstracts of Lectures [in Russian], Fan, Tashkent, 1968, p. 66.
4. Saidkasymov T.K., Umarova Sh., in: The Pharmacology of Alkaloids and Cardiac Glycosides [in Russian], Fan, Tashkent, 1971, p. 190.

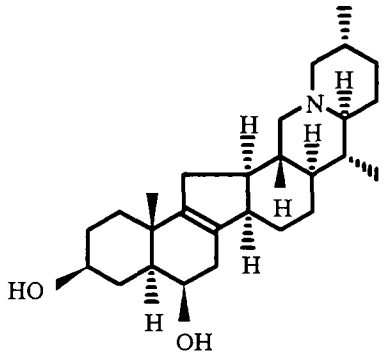


KORSINAMINE

Korolkowia sewerzowii
$C_{29}H_{45}NO_4$: 471. 3349
Mp: 155-158° (ac.-hx.)
$[\alpha]_D$+68° (chlf.)
{di Ac amorph.}
IR: 3440, 2960-2860, 2790, 1738, 1650, 1470, 1446, 1248

Mass: 471(M^+, 100), 456, 442, 429, 428, 411, 400, 234, 222, 220, 181, 178, 170, 167, 149, 137, 111, 110
PMR: 0.80(6H, d, 21-CH_3, 27-CH_3), 1.02(3H, s, 19-CH_3), 2.01(3H, s, OAc), 4.94(1H, H-23)
PMR{di Ac}: 0.82(3H, d, 21-CH_3), 0.82(3H, d, 27-CH_3), 1.02(3H, s, 19-CH_3), 1.95(3H, s, OAc), 1.98(3H, s, OAc), 2.01(3H, s, OAc), 4.70(1H, m, HC-OAc), 4.98(2H, m, HC-OAc)

1. Samilov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 233.

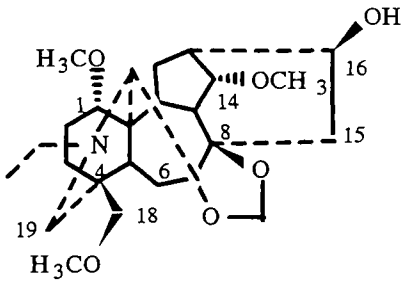


KORSININE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 164-165° (ac.)
$[\alpha]_D$+105° (meth.)
{h-chl. 239°, di Ac dihydro 228°}
IR: 3410, 2920-2870, 2780, 1650, 1450, 1070-1015
Mass: 413(M^+), 398, 395, 112, 111, 98, 97

PMR: 0.86(3H, d, 21-CH_3), 0.99(3H, s, 19-CH_3), 1.04(3H, d, 27-CH_3)
PMR{di Ac}: 0.88(3H, d, 21-CH_3), 0.99(3H, s, 19-CH_3), 1.03(3H, d, 27-CH_3), 1.96(6H, s, 2×OAc), 4.62(1H, m, HC-OAc), 4.95(1H, m, HC-OAc)
PMR{dihydro}: 0.86(3H, d, 21-CH_3), 0.96(3H, s, 19-CH_3), 1.03(3H, d, 27-CH_3)

1. Nuriddinov R.N., Saidkhodzhaev A.I., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 61.



CORUMDEPHINE

Delphinium corymbosum
$C_{25}H_{39}NO_6$: 449.2777
Mp: amorph.
IR: 3500, 1100 [1]
Mass: 449(M^+), 434, 419, 418(100) [1]

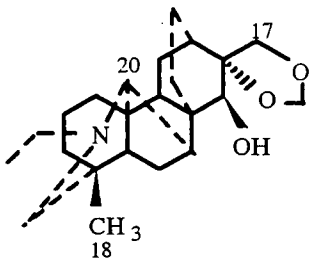
PMR: 1.00(3H, t, J=7, NCH_2CH_3), 3.14, 3.18, 3.39(3H, s, 3×OCH_3), 4.80, 4.90(1H, s, CH_2O_2) [1]

^{13}C NMR: [1]

C-1	83.8*	C-10	42.3	C-19	52.6
2	26.2	11	50.3	NCH_2	50.7
3	31.9	12	26.9	CH_3	14.0
4	38.4	13	39.9	CH_2O_2	93.4
5	44.0	14	84.7*	C-1′	55.9
6	32.5	15	36.2	14′	58.1
7	92.1	16	72.0	18′	59.4
8	79.7	17	62.3		
9	47.8	18	78.9		

Pharm.: Toxicity low. Possesses brief hypotensive action that is connected with a peripheral H-cholinoblocking effect [2].

1. Salimov B.T., Yunusov M.S., Abdullaev N.D., Vaisov Z.M., Khim. Prir. Soedin., 1985, 95.
2. Dzhakhangirov F.N., Unpub.

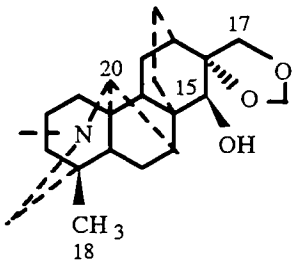


CORUMDIZINE

Delphinium corymbosum
$C_{23}H_{35}NO_3$: 373.2608
Mp: amorph.
IR: 3450, 1091

Mass: 373(M^+), 372, 358, 343, 330, 326(100%), 314, 270, 186.
PMR: 0.64(3H, s, 18-CH_3), 0.96(3H, t, J=7.0, NCH_2CH_3), 3.26(1H, narrow s, H-20), 3.40, 4.35(1H, d, J=8.0, H2-17), 3.92(1H, s, H-15α), 4.51; 4.93(1H, s, CH_2O_2)

1. Salimov B.T., Unpub.

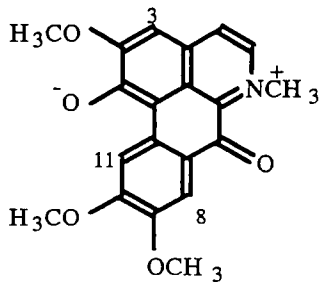


CORUMDIZININE

Delphinium corymbosum
$C_{22}H_{33}NO_3$: 359.2552
Mp: 104-105° (hx.)
IR: 3445, 1095
Mass: 359(M^+), 358, 316, 312(100%), 300, 256, 172.

PMR: 0.61(3H, s, 18-CH_3), 2.13(3H, s, N-CH_3), 3.17(1H, narrow s, H-20), 3.37; 4.32(1H, d, J=8.0, H2-17), 3.91(1H, s, H-15α), 4.49; 4.88(1H, s, CH_2O_2).

1. Salimov B.T., Unpub.

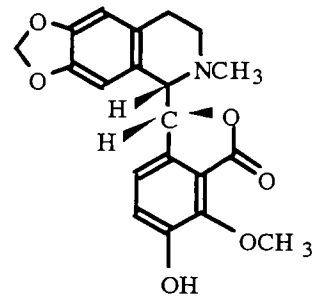


CORUNNINE (GLAUVINE)

Corydalis gortschakovii, C.paniculigera, Eschscholtzia californica, Glaucium elegans, G.flavum, G.grandiflorum, G.serpieri, Thalictrum foetidum, T.minus
$C_{20}H_{17}NO_5$: 351.1107
Mp: 235-240° [1]; 255-257° [2]; 210-212 (meth.) [3]

UV: 260, 326, 396, 440 sh, 614(4.25, 4.41, 3.79, 3.69, 3.70) [1]
UV(H^+): 257, 295, 384, 550(4.33, 4.85. 3.93, 3.43) [1]
IR: 1620, 1567 [2]
Mass: 351(M^+, 100), 337, 320, 306, 292, 278, 264 [4]
PMR(CF_3COOH): 3.62, 3.75, 3.97(3H, s, 3×OCH_3), 4.55(3H, s, NCH_3), 7.21, 7.59, 8.59(1H, s, H-3, H-8, H-11), 8.05, 8.18(1H, d, J=6.5, H-4, H-5)

1. Mukhamedova S., Maekh S.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 251.
2. Ribas I., Sueiras J., Castedo L., Tetrahedron Lett., 1971, 3093.
3. Yakhontova L.D., Sheichenko V.I., Tolkachev O.N., Khim. Prir. Soedin., 1972, 214.
4. Israilov I.A., Unpub.

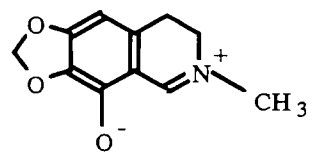


CORFTALINE

Corydalis pseudoadunca
$C_{20}H_{19}NO_6$: 369.1212
Mp: 173-174° (meth.)
$[\alpha]_D$+33° (meth.)
UV: 298
IR: 3400, 1775, 1510, 1490, 1035, 935

Mass: 190(100)
PMR: 2.10-2.90(4H, m), 2.49(3H, s, NCH_3), 4.10(3H, s, OCH_3), 3.92, 5.42(1H, d, J=4), 5.82(2H, s, CH_2O_2), 6.23, 6.47(1H, s, p-H-Ar), 6.38, 7.04(1H, d, J=8, o-H-Ar)

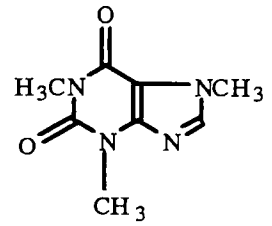
1. Israilov I.A., Irgashev T., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 851.



COTARNOLINE

Papaver somniferum
$C_{11}H_{11}NO_3$: 205.0739

1. Yunusov S.Yu., The Alkaloids [in Russian], Fan, Tashkent, 1981, p. 207.



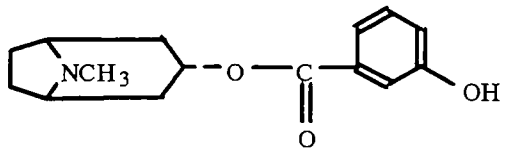
CAFFEINE

Thea sinensis
$C_8H_{10}N_4O_2$: 194.0804
Mp: 232-235° (ac.) [1]
UV: 273(3.99) [1]

IR: 3130-3120, 1715, 1700, 1668, 1560, 1487, 980, 761, 750 [1, 2]
PMR: 3.44, 3.50. 3.92(3H, s, 3×NCH_3), 7.44(1H, s) [1]
GLC: [2]
HPLC: [3]
Pharm.: Causes a permanent increase in mental activity and total working capacity [4]. Weakens the action of hypnotics and narcotics, stimulates respiration, lowers thrombocyte aggregation. Used in infectious and other diseases accompanied by depression of the CNS and the cardiovascular system, spasms of the vessels of the brain, etc. Supplied in the form of a powder. In combination with analgesics is a component of the tablets Askofen, Tsitramin, Kafetamin, etc. [5].

1. Sokol'skii I.N., Ban'kovskii A.I., Molodozhnikov M.M., Khim. Prir. Soedin., 1973, 678.
2. Skhiladze I.S., Vachnadze V.Yu., Khim. Prir. Soedin., 1984, 670.
3. Mazzafera P., Crozier A., Magalhaes A.C., Phytochem., 1991, **30**, 3913.
4. Bokuchava M.A., The Biochemistry of Tea and Tea Production [in Russian], Akad. Nauk SSSR, Moscow, 1958, p. 52.
5. Mashkovskii, Vol. 1, p. 107.

COCHLEARIN

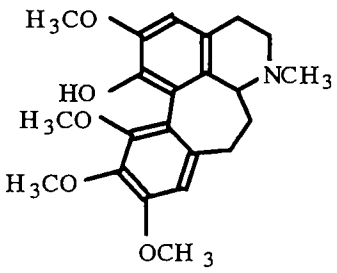


Cochlearia arctica
$C_{15}H_{19}NO_3$: 261.1365
Mp: 235-236° (abs. alc.)
{h-chl. 307° (dec.), p-chl. 205° (dec.), picr. 276°} [1]

UV: 239, 300 [2]
IR: 1713, 1602, 1572 [2]

1. Platonova T.F., Kuzovkov A.D., Med. Prom., 1963, No. 10, 19.
2. Murav'eva V.I., Mamedova A.G., Ban'kovskii A.I., Zh. Org. Khim., 1963, **33**, 1690.

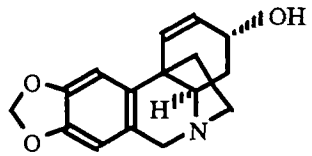
KREIZIGINE



Merendera raddeana
$C_{22}H_{27}NO_5$: 385.1889
Mp: 188° (alc.)
$[\alpha]_D$ 0°
{m-i. 266°} [1]
UV: 221, 260, 293 [1]

IR: 1608, 1577 [1]
Mass: 385(M^+), 368(100) [2]
PMR: 1.90-3.50(9H), 3.59, 3.83, 3.86(3H, 3H, 6H, s, 4×OCH_3), 6.54, 6.59(1H, s, H-Ar) [2]

1. Badger G.M., Bradbery R.B., J. Chem. Soc., 1960, 445.
2. Battersby A.R., Bradbery R.B., Herbert R.B., Munro M.N., Ramage R., Chem. Commun., 1967, 450.

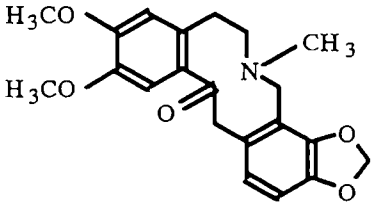


CRININE (CRINIDINE)

Crinum amabile, C.giganteum
$C_{16}H_{17}NO_3$: 271.1208
Mp: 206-207° [1]
$[\alpha]_D$–38° (chlf.) [1]

{picr. 239°, dihydro 221° [2]}
UV: 237, 294 [3]
IR: 3610, 3010, 2955, 2930, 2890, 1622, 1509, 1488, 1442, 1405, 1369, 1335, 1043, 1005, 997, 976, 940, 903, 879, 854, 848, 831 [3]
Mass: 271(M^+), 254, 199, 187 [1]
HPLC: [4]

1. Murav'eva D.A., Popova O.I., Khim. Prir. Soedin., 1982, 263.
2. Wildman W.C., J. Am. Chem. Soc., 1958, **80**, 2567.
3. Holubek, No. 79.
4. Ghosal S., Datta K., Singh S.H., Kumar Y., Indian J. Chem., 1991, **30**, 260.



CRYPTOPINE

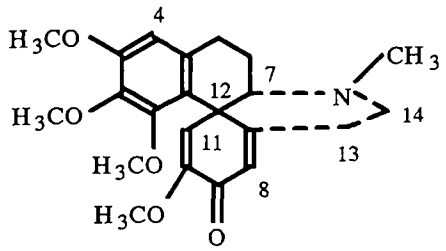
Corydalis gortschakovii, C.ledebouriana, C.sewerzowii, Fumaria officinalis, F.parviflora, Glaucium squamigerum, Macleaya cordata, M.microcarpa, Papaver somniferum, Thalictrum flavum, Th.isopyroides
$C_{21}H_{23}NO_5$: 369.1576

Mp: 216-217°
Mass: 369(M^+), 354, 338, 148(100) [1]
PMR: 1.85(3H, s, NCH_3), 2.30-3.10(4H, m), 3.53, 3.68(2H, s, 2×CH_2), 3.81(6H, s, 2×OCH_3), 5.89(2H, s, CH_2O_2), 6.64, 6.97(1H, s, p-H-Ar), 6.66(2H, s, o-H-Ar) [1]
^{13}C NMR: [2]

C-1	111.8	C-8	49.9	C-13	45.7
2	146.7	8a	117.1	14	194.7
3	149.0	9	145.9	14a	130.8
4	112.2	10	145.6	9,10-OCH_2O	100.3
4a	134.3	11	106.2	2-OCH_3	55.4
5	31.8	12	124.5	3-OCH_3	55.4
6	57.2	12a	128.9	NCH_3	40.8

X-ray spectral analysis: [3]
HPLC: [4]

1. Israilov I.A., Unpub.
2. The Alkaloids, 1981, Vol. 18, p. 217.
3. Hall S.R. Ahmed F.R., Acta Cryst., 1968, **24B**, 337.
4. Valka I., Simanek V., J. Chromatogr., 1988, **445**, 258



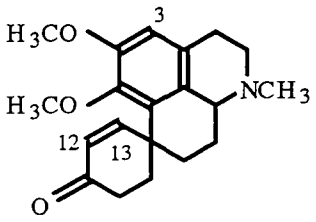
KROKIFLORININE

Colchicum kesselringii
$C_{22}H_{27}NO_5$: 385.1889
Mp: 209-210°
$[\alpha]_D$–205°
{m-i. 230°}

UV: 212, 235, 270 sh, 282
IR: 1685, 1655, 1625, 1605
Mass: 385(M^+, 100), 384, 370, 357, 356, 354, 342, 224
PMR: 2.87(3H, s, NCH_3), 3.58, 3.86, 4.00(3H, 6H, 3H, s, 4×OCH_3), 4.60 (H-7), 6.32, 6.57, 6.74(1H, s, H-4, H-8, H-11)
^{13}C NMR:

C-1	153.4	C-8	131.6	C-1a	141.2
2	152.4	9	179.4	4a	136.5
3	152.4	10	150.1	8a	119.8
4	109.8	11	120.9	NCH_3	39.2
5	33.0	12	47.5	OCH_3	60.6
6	31.7	13	25.8		60.1
7	64.9	14	45.4		55.4
					54.4

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 29.

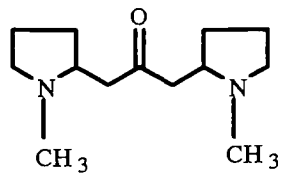


KROKIFLORINONE

Colchicum kesselringii
$C_{20}H_{25}NO_3$: 327.1834
Mp: 246-248° (ac.-eth.)
{m-i. 272°}

UV: 227 sh, 276 sh, 288 sh
IR: 2940, 1695, 1600, 1470, 900-800
Mass: 327(M^+), 326, 284
PMR{m-i., CF_3COOH}: 2.65, 3.02(3H, s, $N(CH_3)_2$), 3.52(6H, s, 2×OCH_3), 5.89, 6.89(1H, d, H-12, H-13), 6.48(s, H-3)

1. Turdikulov Kh., Yusupov M.K., Aslanov Kh.A., Sadykov A.S., Khim. Prir. Soedin., 1974, 810.



CUSCOHYGRINE

Anisodus luridus, Convolvulus erinaceus, C.hamadae,
Scopolia stramonifolia, S.tangutica
$C_{13}H_{24}N_2O$: 224.1889
Bp.: 118-121° (2 mm Hg)

$[\alpha]_D$ 0°; D_n^{17}: 0.9782; n_D: 1.4845
{nitr. 209°, picr. 215°, m-i. 244°, h-chl. 228°, h-b. 234°} [1]
UV: 307(2.36)
IR: 3000-2800, 2680, 1707
Mass: 224M^+), 140, 126, 98, 84

PMR: 1.20-1.80(8H, m, CH_2), 1.80-2.70(8H, m, CH_2CO, CH_2N), 2.87(2H, m, CHN) [2]

1. Lazur'evskii G.V., Trudy UzGU, 1939, **15**, 43.
2. Aripova S.F., Unpub.