Chemistry of Natural Compounds, Vol. 32, No. 5, 1996

ALKALOIDS. PLANTS, STRUCTURES, PROPERTIES*

Chapter 2, continued

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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

*For the beginning of the review, see Chemistry of Natural Compounds, No. 1, 102; No. 2, 216; No. 3, 386; No. 4, 596 (1996).

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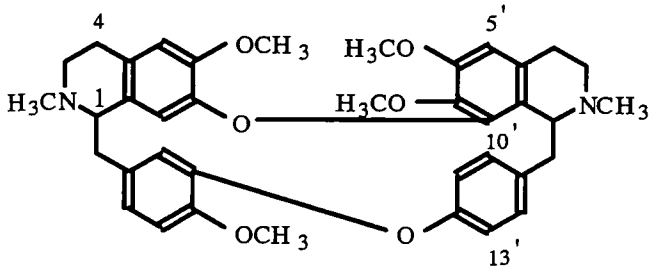
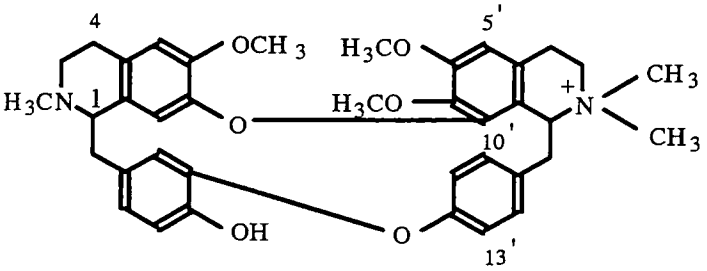


OBABERINE

Berberis iliensis
$C_{38}H_{42}N_2O_6$: 622.3043
Mp: 139-140° [1]
$[\alpha]_D$+144° (alc.) [1]
{picr. 180°} [1]
Mass: 622($M^{+\cdot}$), 621, 515, 431, 430, 396, 395, 381, 361, 349, 335, 311($^{++}$), 198($^{++}$), 175($^{++}$), 174 [2]

PMR: 2.58(3H, s, 2-NCH_3), 2.67(3H, s, 2′-NCH_3), 3.19(3H, s, 7′-OCH_3), 3.63(3H, s, 6-OCH_3), 3.64(H-1), 3.78(3H, s, 6′-OCH_3), 3.89(3H, s, 12-OCH_3), 4.21(H-1′), 5.45(H-10), 6.32(H-5′), 6.36(H-5), 6.37(H-11′), 6.64(H-8), 6.76(H-13), 6.79(H-14), 6.94(H-10′, H-13′) [3]
Pharm.: Antiinflammatory action [4].

1. Karimov A., Shakirov R., Khim. Prir. Soedin., 1993, 83.
2. Baldas J., Bick I.R.C., Ibuka T., Kapil R.S., Porter Q.N., J. Chem. Soc. Perkin I, 1972, 592.
3. Guinaudeau H., Freyer A.J., Shamma M., Natur. Prod. Rep., 1986, **3**, 477.
4. Sadritdinov F.S., Med. Zh. Uzb., 1980, No. 2, 54.

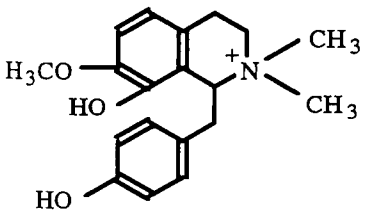


OBLONGAMINE

Berberis oblonga
$C_{38}H_{43}N_2O_6$: 623.3121
Mp: {iodide}: 200°
$[\alpha]_D$+54° (meth.)
UV{iodide}: 284(3.97)

Mass{iodide}: 622, 607, 577, 564, 550, 501, 411, 396, 395, 381, 220, 206, 198, 175, 174, 58(100)
PMR{iodide, Py-d_5}: 3.10, 3.15, 3.31, 3.61(NCH_3, $N(CH_3)_2$, 3×OCH_3), 6.39-7.00(10H, H-Ar)

1. Karimov A., Telezhenetskaya M.V., Lutfullin K.L., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 80.

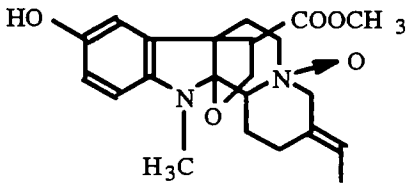


OBLONGINE

Berberis oblonga
$C_{19}H_{24}NO_3$: 314.1756
Mp: {iodide}: 160°
$[\alpha]_D${iodide}: +9° (meth.)
UV{iodide}: 224 sh, 284(4.47, 3.78)

IR{iodide}: 3260, 810, 765
Mass{iodide}: 313(M-HI), 206, 192(100), 142, 127, 107, 58
PMR{iodide, Py-d_5}: 2.92(2H, m, H-4), 3.31(3H, s, NCH_3), 3.46(3H, s, NCH_3), 3.64(3H, s, OCH_3), 4.09(2H, m, H-3), 5.38(1H, dd, H-1), 6.55(1H, d, J=8.4, H-5), 6.85(1H, d, J=8.4, H-6), 6.98(2H, d, J=8.5), 7.35(2H, d, J=8.5)

1. Karimov A., Abdullaev N.D.,Telezhenetskaya M.V., Lutfullin K.L., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 117.

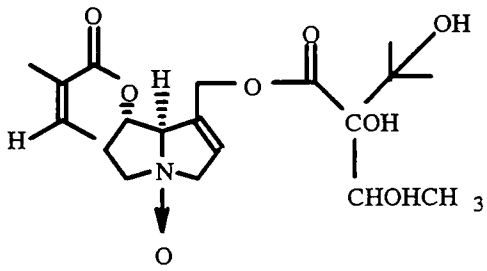


AKUAMMINE N-OXIDE

Vinca major
$C_{22}H_{26}N_2O_5$: 398.1842
Mp: 178-180° (alc.)
UV: 243, 312(2.91, 3.21)

IR(Vaseline oil): 3400-3200, 1735, 820, 750, 725
Mass: 398($M^{+\cdot}$ 30), 383(32), 382(100), 381(45), 352(50), 337(30), 174(60), 121(70)

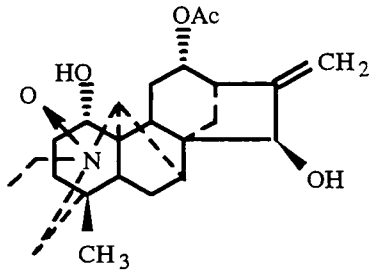
1. Zhukovich E.N., Kikoladze V.S., Tskitishvili N.Z., Tsitsishvili V.G., Vachnalze V.Yu., Khim. Prir. Soedin., 1989, 434.



ASPERUMINE N-OXIDE

Echium vulgare
$C_{20}H_{31}NO_8$: 413.2050
Mp: 151-153° (dec.)
$[\alpha]_D$ 0°
{picr. 145° (water)}

1. Karimov A., Telezhenetskaya M.V., Lutfullin K.L., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 433.

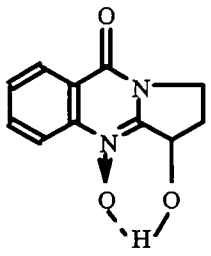


12-ACETYLNAPELLINE N-OXIDE

Aconitum soongaricum
$C_{24}H_{35}NO_5$: 417.2515
Mp: 235° (ac.)
Sol-y.: r-sol. water, meth.; sol. chlf.

IR: 3440, 3150, 3060, 3000, 2960, 2930, 2900, 2860, 2810, 1730, 1660, 1470, 1450, 1380, 1315, 1265, 1240, 1200, 1170, 1135, 1115, 1075, 1050, 1040, 1020, 970, 930, 920, 905, 885, 860, 820, 800, 775, 730 [1]
Mass: 417($M^{+\cdot}$), 411, 410, 409 [1]
PMR: 0.80(3H, s, 18-CH_3), 1.37(3H, t, J=7, NCH_2CH_3), 1.91(3H, s, OAc), 4.86, 5.11(1H, narrow s, H-17) [1]
Pharm.: Weak antiarrhythmic and H-cholinolytic action [2].

1. Sultankhodzhaev M.N., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 265; Unpub.
2. Dzhakhangirov F.N., Unpub.

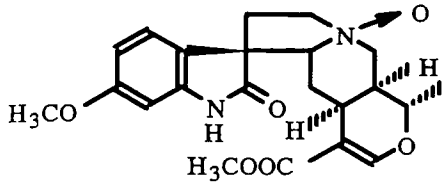


VASICINONE N-OXIDE

Nitraria komarovii
$C_{11}H_{10}N_2O_3$
Mp: 203-204°
$[\alpha]_D \pm 0°$
Sol-y.: r-sol.water, meth. alc. chlf. sp. sol. ac., bz. eth.

UV: 209, 226, 270, 305, 316(4.51; 4.63; 4.06; 3.76; 3.67).
IR: 3160, 2960, 2930, 2860, 1690. 1630, 1610, 1570, 1470, 1330, 1280, 1110, 775.
Mass: 218(M^+, 4), 202(100), 201(20), 186(18), 185(23), 174(12), 155(6), 146(60), 130(19), 119(35).
PMR: 2.25, 2.54(1H, m, H-10), 3.98, 4.24(1H, m, H-11), 5.17(1H, t, J=6Hz, H-9), 5.62(1H, narrow s, OH), 7.38(1H, m, H-6), 7.62(2H, m, H-7, H-8), 8.20(1H, d, J=8 Hz, H-5)

1. Tulyaganov T.S., Atadzhanov R.Sh., Abdullaev N.D., Kristallovich É.L., Osmanov Z., Khim. Prir. Soedin., 1993. 580; Tulyaganov T.S., Unpub.

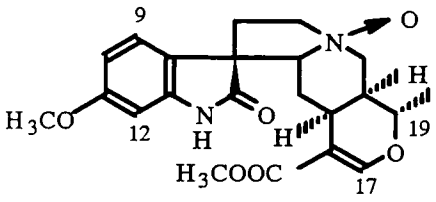


VINERIDINE N-OXIDE

Vinca erecta
$C_{22}H_{26}N_2O_6$: 414.1791
Mp: 193-195° (chlf.)
$[\alpha]_D$+20° (meth.)
Sol-y.: r-sol. water, meth.; sol. chlf., ac.

IR: 1720
Mass: 414(M^+, 7), 398(100), 243(9), 223(40), 208(9), 189(12), 69(26)
PMR(CD_3OD): 1.25(d, 19-CH_3), 3.30(s, $COOCH_3$), 3.75(s, OCH_3), 4.20(q, H-19), 6.50-7.15(3H, H-Ar)

1. Khalmirzaev M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 806.

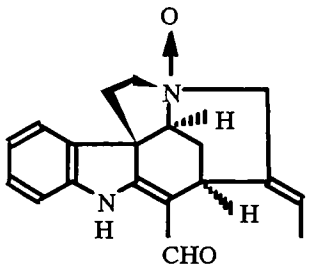


VINERINE N-OXIDE

Vinca erecta
$C_{22}H_{26}N_2O_6$: 414.1791
Mp: 246-247° (meth.)
UV: 218(4.59)
IR: 3600-3300, 1705, 1630, 830, 810

PMR: 1.24(3H, d, CH_3), 3.53(3H, s, $COOCH_3$), 3.74(3H, s, OCH_3), 4.15(1H, q, H-19), 6.43-6.55(2H, H-10, H-12), 7.53(1H, s, H-17), 7.66(1H, d, H-9)

1. Sharipov M.R., Khalmirzaev M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 401.

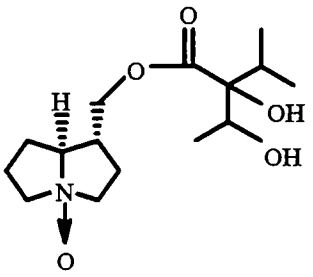


VINCANINE N-OXIDE

Vinca erecta
$C_{19}H_{20}N_2O_2$: 308.1525
Mp: amorph.
{h-b. 205°}
UV: 244, 300, 365(3.50, 3.84, 4.25)
IR: 3340, 1652, 1560, 770

Mass: 308(M^+, 6), 292(12), 290(4), 121(13), 107(71), 92(100)

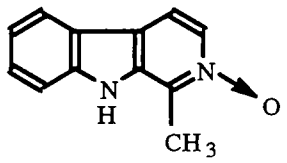
1. Sharipov M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 263.



VIRIDIFLORINE N-OXIDE

Cynoglossum viridiflorum, Lindefolia olgae, L.pterocarpa, L.stylosa, Paracaryum himalayense, Trachelanthus hissaricus
$C_{15}H_{27}NO_5$: 301.1889
Mp: 197-198° (alc.) [1], 170-173° [3]
$[\alpha]_D$–9° (alc.) [2]
Sol-y.: r-sol. water, alc., meth.; sp. sol. chlf.; i.s. ac. [1]

1. Akramov S.T., Kiyamitdinova F., Yunusov S.Yu., DAN UzSSR, 1961, No. 6, 35.
2. Kiyamitdinova F., Author's Abstract of Candidate's Dissertation, Tashkent, 1965.
3. Telezhenetskaya M.V., Matkarimov A.D., Khadzhibaev S.N., Yunusov S.Yu., Khim. Prir. Soedin., 1987, 463.

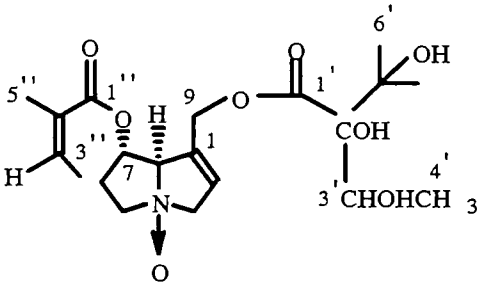


HARMAN N-OXIDE (HARMANINE)

Calligonum alatum, C.minimum
$C_{12}H_{10}N_2O$: 198.0793
Mp: oil

{picr. 240°}
Sol-y.: r-sol. alc., water; i.s. eth. [1]
UV: 255, 315 [2]

1. Abdusalamov B., Sadykov A.S., Aslanov Kh.A., Nauch. Trudy TashGU, 1964, Issue 263, 3.
2. Mudzhiri L.A., Author's Abstract of Candidate's Dissertation, Tbilisi, 1975.



HELIOSUPINE N-OXIDE

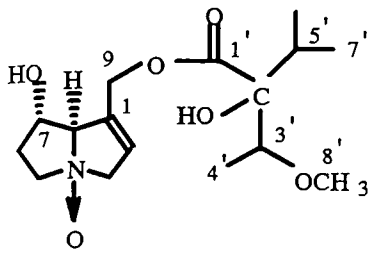
Cynoglossum pictum, C.viridiflorum, Paracynoglossum imeretinum, Symphytum asperum, S.officinale
$C_{20}H_{31}NO_8$: 413.2050
Mp: 152-153° [1]
Mass: 220(41), 136(34), 121(30), 120(65), 119(52), 94(33), 93(27), 83(22), 80(38), 70(56), 59(84), 56(37), 55(74); Mass-spectra chem. ionization: 399(100) [2]

PMR: 1.10(3H, s), 1.13(3H, d, J=7), 1.20(3H, s), 1.81(3H, s), 1.91(3H, dd, J=7.2), 2.15(1H, m), 2.41(1H, m), 3.71(1H, m), 3.80(1H, m), 4.07(1H, q, J=7), 4.38(2H, q, J=16), 4.57(1H, m), 4.71, 5.06(1H, d, J=14), 4.99(1H, m), 5.91(1H, narrow s), 6.10(1H, dq, J=7.1) [2]

^{13}C NMR: [2]

C-1	132.6	C-9	60.7	C-7′	24.7
2	122.8	1′	174.0	1″	167.1
3	76.8	2′	84.6	2″	126.4
5	67.5	3′	69.5	3″	140.6
6	30.5	4′	18.5	4″	16.0
7	73.1	5′	72.8	5″	20.3
8	94.4	6′	24.4		

1. Man'ko I.V., Rast. Res., 1972, **8**, 243.
2. Asibal C.F., Glinski J.A., Gelbaum L.T., Zalkow L.H., J. Natur. Prod., 1989, **52**, 109.



HELIOTRINE N-OXIDE

Heliotropium acutiflorum, H.dasycarpum, H.eichwaldi, H.lasiocarpum, H.olgae, H.transoxanum
$C_{16}H_{27}NO_6$: 329.1838
Mp: 160-161° (bz.) [1], 170-172° (alc.) 174° (dec.) [2]

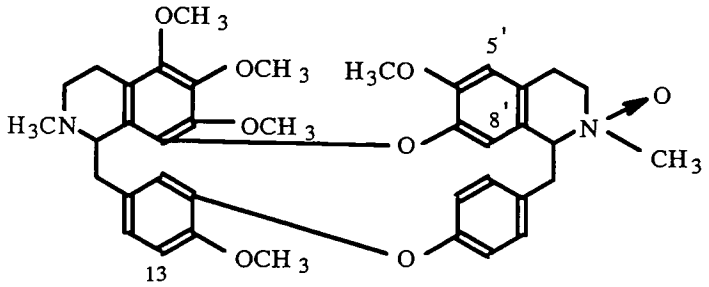
Sol-y.: r-sol. water, alc., chlf., ac.; sp. sol. bz., petr. eth. [1]
IR: 3439, 1730 [2]
Mass: 313, 295, 270, 254, 214, 197, 136, 120, 119, 93, 80 [2]
PMR: 0.80(3H, d, 7′-CH_3), 0.83(3H, d, 6′-CH_3), 1.03(3H, d, 4′-CH_3), 1.85(1H, s, H-5′), 1.96, 2.30(1H, m, H-6), 3.17(3H, s, OCH_3), 3.56(1H, m, H-5), 3.59(1H, q, H-3′), 3.96(1H, m, H-5), 4.20(1H, m, H-7), 4.28, 4.42(1H, d, H-3), 4.70(1H, s, H-8), 4.68, 4.78(1H, d, H-9), 5.61(1H, s, H-2) [3]

^{13}C NMR: [3]

C-1	134.1	C-8	96.2	C-4′	11.6
2	120.2	9	60.8	5′	33.0
3	77.3	1′	173.9	6′	17.1
5	68.3	2′	83.1	7′	17.1
6	33.2	3′	78.8	8′	56.6
7	71.8				

Pharm.: LD_{50} 5000 mg/kg (i/p, rats) [4].

1. Yunusov S.Yu., Sidyakin G.P., DAN UzSSR, 1950, No. 1, 3.
2. Khan M.A., Khan A.S., Planta Medica, 1980, **40**, 383.
3. Asibal C.F., Gelbaum L.T., Zalkow L.H., J. Natur. Prod., 1989, **52**, 726.
4. Sadritdinov F.S., in: The Pharmacology of Natural Compounds [in Russian], Fan, Tashkent, 1979, p. 29.

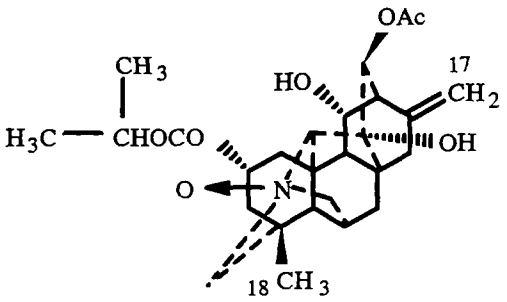


HERNANDEZINE N-OXIDE

Thalictrum sultanabadense
$C_{39}H_{44}N_2O_8$: 668.3098
Mp: 179-180° (chlf.)
UV: 285
Mass: 668(M^+, 15), 652(100), 461(25), 460(21), 425(34), 424(31), 411(62)

PMR: 2.31(3H, s, 2-NCH_3), 3.15(3H, s, 7-OCH_3), 3.27(3H, s, 6′-OCH_3), 3.65(3H, s, 2′-NCH_3), 3.71(6H, s, 5-OCH_3, 6-OCH_3), 3.81(3H, s, 12-OCH_3), 5.97-7.15(9H, m, H-Ar)

1. Mukhamedova S., Maekh S.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1981, 250.

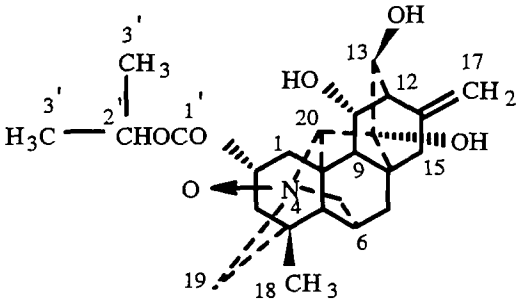


GUAN-FU BASE F N-OXIDE

Aconitum coreanum
$C_{26}H_{35}NO_7$: 473.2414
Mp: 240-242°
{p-chl. 286°}
IR{p-chl.}: 3500, 3400, 1740, 1720, 1660, 890

Mass: 473(M^+), 457(28), 456(14), 455(15), 430(91), 414(100), 398(41), 384(18), 326(20)
PMR: 1.20(3H, s, 18-CH_3), 1.15, 1.24(3H, d, J=4, $HC(CH_3)_2$), 2.04(3H, s, OAc), 4.90, 4.99(1H, narrow s, H_2-17)
X-ray spectral analysis{p-chl.}

1. Yusupova I.M., Tashkhodzhaev B., Bessonova I.A., Yunusov M.S., Yagudaev M.R., Kondrat'ev V.G., Shreter A.I., Khim. Prir. Soedin., 1990, 378.



GUAN-FU BASE Z N-OXIDE

Aconitum coreanum
$C_{24}H_{33}NO_6$: 431.2308
Mp: 317-319°
$[\alpha]_D$+25° (alc.)
IR: 3600-3200, 1730, 1680 [1]

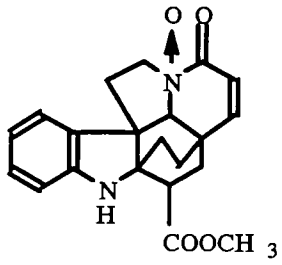
Mass: 431(M^+, 64), 415(50), 414(100), 413(10), 403(36), 398(23), 387(25), 386(43), 375(10), 370(19), 359(14), 358(16), 344(44), 328(20), 326(54) [1]
PMR: 1.15(3H, s, 18-CH_3), 1.16(6H, d, J=6, $HC(CH_3)_2$), 2.91(1H, d, J=12, H-19β), 3.73(2H, m, H-6, H-13), 3.93(1H, narrow s, H-20), 4.02(1H, d, J=12, H-19α), 4.14(1H, narrow d, J=9, H-11), 4.65, 4.75(1H, narrow s, H-17), 5.10(1H, m, H-2) [1]

^{13}C NMR: [1]

C-1	30.2	C-9	52.9	C-17	108.9
2	68.2	10	–	18	29.5
3	36.6	11	71.4	19	76.2
4	–	12	51.5	20	82.2
5	55.0	13	73.4	C-1′	179.6
6	75.2	14	85.5	2′	34.2
7	28.5	15	31.8	3′	19.1
8	44.5	16	143.6		

Pharm.: LD_{50} 230 mg/kg (i/v, rats). Weak hypotensive and H-cholinoblocking effect [2].

1. Bessonova I.A., Samusenko L.N., Yunusov M.S., Kondrat'ev V.G., Khim. Prir. Soedin., 1990, 383.
2. Rezhepov Zh., Dzhakhangirov F.N., Unpub.

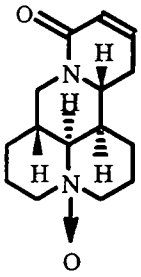


14,15-DEHYDRO-3-OXOKOPSININE N-OXIDE

Vinca erecta
$C_{21}H_{22}N_2O_4$: 366.1580
Mp: 245-248° [1, 2]
$[\alpha]_D$–48° [1], –55° [2]
UV: 244, 292 [2]

IR: 3600, 3400, 1728, 1665, 1600 [2]
Mass: 366(M^+), 350, 335, 307 [2]
PMR: [2]

1. Sharipov M.R.., Khalmirzaev M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 401.
2. Linde H.H., Helv. Chim. Acta, 1965, **48**, 1822.

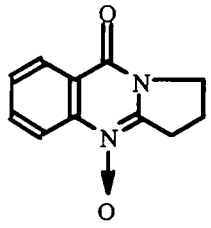


13,14-DEHYDROSOPHORIDINE N-OXIDE

Sophora alopecuroides
$C_{15}H_{22}N_2O_2$: 262.1681
Mp: 68-70° (eth.)
$[\alpha]_D$+27° (water)
UV: 253(3.00)
IR: 1658, 1602, 970, 950, 925

Mass: 262(M^+), 246(86), 245(100), 217(8), 203(12), 177(90), 150(72), 138(42), 122(19), 96(68)
PMR: 1.30-3.40, 3.60-4.45, 5.88, 6.42

1. Kuchkarov S., Kushmuradov Yu.K., Aslanov Kh.A., Sadykov A.S., Khim. Prir. Soedin., 1977, 541.

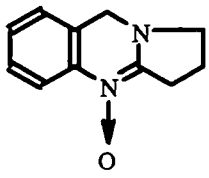


DEOXYVASICINONE N-OXIDE

Nitraria komarovii
$C_{11}H_{10}N_2O_2$
Mp: 152-153°
Sol-y.: r-sol. water, alc. meth. sp. sol. petr. eth.
UV: 229, 270, 304, 315(4.42; 4.10; 3.94; 3.88)

IR: 3050, 2965, 2930, 1685, 1630, 1610, 1570, 1470, 1380, 1335, 1285, 1270, 1025, 880, 840, 770
Mass: 202(M^+, 13), 186(100), 185(100), 184(17), 169(8), 160(26), 157(25), 130(42), 129(39), 119(19), 116(16), 103(58), 90(23)
PMR: 2.22(2H, m, H-10), 3.08(2H, t, H-9), 4.10(2H, t, H-11), 7.32(1H, m, H-6(, 7.35(2H, m, H-7, H-8), 8.12(1H, d, H-5)

1. Tulyaganov T.S., Atadzhanov R.Sh., Abdullaev N.D., Kristallovich É.L., Osmanov Z., Khim. Prir. Soedin., 1993, 580.

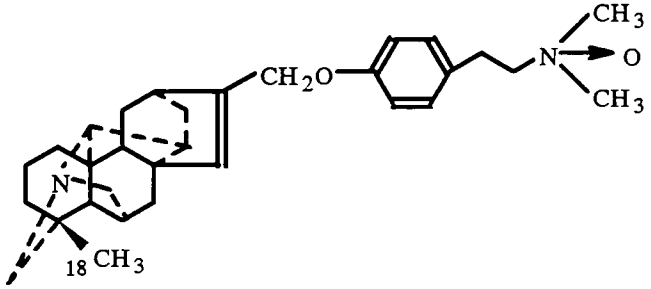


DEOXYPEGANINE N-OXIDE

Nitraria komarovii
$C_{11}H_{12}N_2O$
Mp: 243-244° (alc.-ac.)
Sol-y.: r-sol. alc., meth. water chlf. sp. sol. ac. eth. bz.

UV: 214, 217, 223, 285(4.04; 4.10; 3.98; 3.51)
IR: 3500-3350, 3030, 2840, 2770, 1680, 1630, 1585, 1505, 1465, 1430, 1360, 1315, 1255, 1195, 790
Mass: 188, 187, 172, 171, 155, 144, 143, 131, 129, 116, 104, 102, 89, 85
PMR: 2.22(2H, m, H-10), 3.17(2H, t, J=7.5 Hz, H-9), 3.66(2H, t, J=6.5 Hz, H-11), 4.71(2H, s, H-4), 6.88-7.28(4H, m, H-Ar)

1. Tulyaganov T.S., Khim. Prir. Soedin., 1993, 87; Unpub.

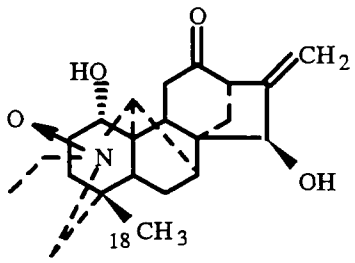


ERACONINE N-OXIDE

Aconitum zeravchanicum
$C_{30}H_{40}N_2O_2$: 460.3090
Mp: 94-95° [1]

Mass: 460(M^+, 0.01), 459(0.02), 458(0.04), 457(0.02), 444(1.8), 429(0.1), 402(0.7), 399(11), 387(0.1), 339(0.1), 338(0.1), 296(0.1), 280(100), 264(0.4), 252(0.3), 251(0.3), 250(0.2), 239(0.3), 238(0.3), 237(0.2), 236(0.3), 224(0.3), 210(0.4), 174(0.6), 160(0.6), 146(0.9), 61(75), 60(57), 58(1), 42(50) [2]
PMR: 0.93(3H, s, 18-CH_3), 3.14(6H, s, $N(CH_3)_2$), 3.44(2H, narrow s), 4.42(2H, narrow s), 5.72(1H, narrow s), 6.73, 7.03(2H, d, J=8.5, o-Ar-H) [1]

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.

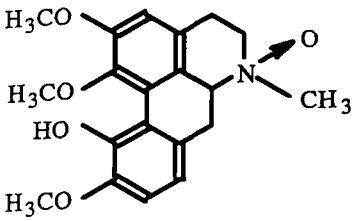


SONGORINE N-OXIDE

Aconitum monticola
$C_{22}H_{31}NO_4$: 373.2253
Mp: 253-255° (meth.)
Sol-y.: sol. water
UV: 292(2.44) [1]
IR: 1710, 1658 [1]

Mass: 373(M^+), 357, 356, 355 [1]
PMR: 0.84(3H, s, 18-CH_3), 1.36(3H, t, J=7, NCH_2CH_3) [1]
Pharm.: LD_{50} 550 mg/kg (i/v, mice). Feebly active. Weak antiarrhythmic and H-cholinoblocking action [2].

1. Amethova É.F., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 867.
2. Dzhakhangirov F.N., Unpub.

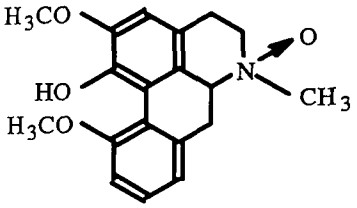


ISOCORIDINE N-OXIDE

Berberis integerrima
$C_{20}H_{23}NO_5$: 357.1576
Mp: amorph.
{h-chl. 229°}
UV: 223, 271, 306(4.39, 3.95, 3.96)

Mass: 341, 340, 326, 298, 267
PMR: 3.41(3H, s, NCH_3), 3.65(3H, s, OCH_3), 3.84(6H, s, 2×OCH_3), 6.75(1H), 6.77(1H), 6.80(1H)

1. Karimov A., Telezhenetskaya M.V., Lutfullin K.L., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 419.

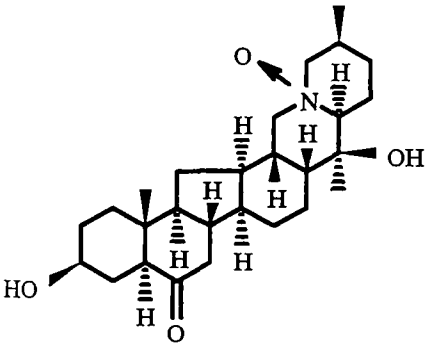


ISOTHEBAINE N-OXIDE

Papaver pseudo-orientale
$C_{19}H_{21}NO_4$: 327.1471
Mp: amorph.
$[\alpha]_D$+260° (chlf.)
UV: 226, 271, 305

Mass: 327(M^+), 311, 310, 309, 296, 294, 268
PMR: 3.40(3H, s, NCH_3), 3.78, 3.86(3H, s, 2×OCH_3), 6.61-7.10(4H, m, H-Ar)

1. Israilov I.A., Unpub.

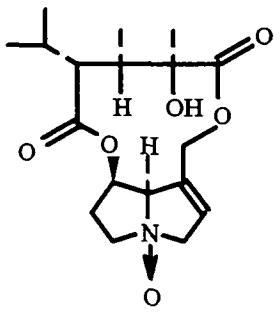


IMPERIALINE N-OXIDE

Petilium eduardii, P.raddeanum
$C_{27}H_{43}NO_4$: 445.3192
Mp: 266-268° (ac.)
$[\alpha]_D$–48° (meth.)
IR: 3540-3200, 2937-2878, 1705, 1462, 970, 935, 928
Mass: 445(M^+), 429, 413, 411, 410, 386, 384, 372, 230, 164, 162, 156, 155, 154, 150, 140, 138, 125, 114, 112(100), 111, 98

PMR: 0.71(s, 19-CH_3), 0.88(d, 27-CH_3), 1.04(s, 21-CH_3) [1, 2]

1. Nabiev A., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 676.
2. Nabiev A., Shakirov R., Shakirova U.T., Khim. Prir. Soedin., 1981, 405.

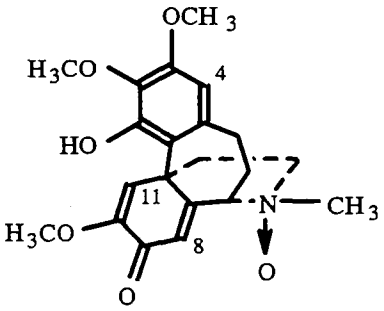


INCANINE N-OXIDE

Heliotropium olgae, Trichodesma incanum
$C_{18}H_{27}NO_6$: 353.1838
Mp: 168-169° (dec., alc.)
Sol-y.: sol. water, alc., bz., chlf.; sp. sol. ac., pyr. [1]
Mass: 337(0.7), 336, 335, 292, 250, 222, 204, 155. 135, 119(100), 117 [2]

Pharm.: LD_{50} 600 mg/kg (i/v, mice). Cholinolytic action. Lowers blood pressure briefly; stimulates respiration [3].

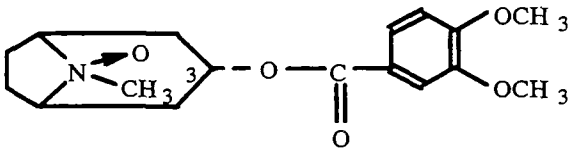
1. Yunusov S.Yu., Plekhanova N.V., Zh. Org. Khim., 1959, **29**, 677.
2. Abdullaev U.A., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 620.
3. Mashkovskii M.D., Polezhaeva A.I., Yakovleva A.I., DAN UzSSR, 1953, No. 4, 36.



COLLUTINE N-OXIDE

Colchicum luteum
$C_{21}H_{25}NO_6$: 387.1682
Mp: 217-219° (dec.)
$[\alpha]_D$–204°
UV: 240, 277
IR: 3300, 1680, 1656, 1618, 1600
PMR: 3.24(3H, s, NCH_3), 3.57, 3.71, 4.00(3H, s, 3×OCH_3), 6.26, 6.32, 6.72(1H, s, H-4, H-8, H-11)

1. Chommadov B., Yusupov M.K., Khim. Prir. Soedin., 1985, 810.

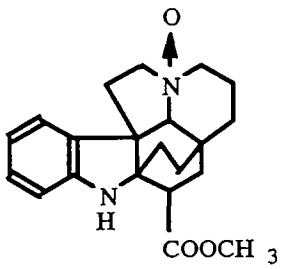


CONVOLAMINE N-OXIDE

Convolvulus krauseanus
$C_{17}H_{23}NO_5$: 321.1586
Mp: 118-119°
Sol-y.: sol. water, alc., meth.

IR: 1700, 885, 825
Mass: 321(M^+), 305, 304, 182, 165, 151, 140, 124, 97, 95, 83, 82, 57
PMR: 3.27(3H, s, NCH_3), 3.84, 3.86(3H, s, 2×OCH_3), 4.27(2H, m, H-1, H-5), 5.18(1H, t, H-3β), 6.82-7.50(3H, m, H-Ar)

1. Aripova S.F., Khim. Prir. Soedin., 1985, 275.

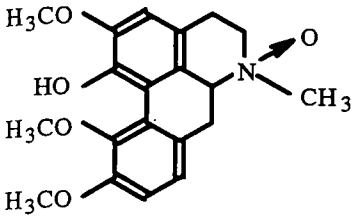


KOPSINININE N-OXIDE

Vinca erecta
$C_{21}H_{26}N_2O_3$: 354.1943
Mp: 159-161° (e-a.)
UV: 245, 297(3.87, 3.47)
IR: 3370, 1730, 755
Mass: 354(M^+), 338, 337, 336, 124, 109

PMR: 3.72(s, $COOCH_3$), 6.50-7.05(4H, H-Ar), 8.11(d)

1. Sharipov M.R., Khalmirzaev M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 413.



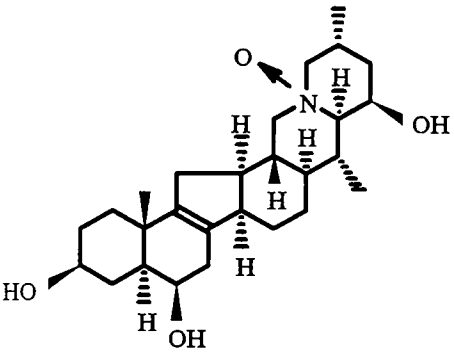
CORYDINE N-OXIDE

Glaucium fimbrilligerum
$C_{20}H_{23}NO_5$: 357.1576
Mp: amorph.
$[\alpha]_D$+154° (meth.)
UV: 225, 270, 313(4.43, 3.89. 3.70)

Mass: 357(M^+), 341, 340, 339, 326, 324, 298, 283, 267
PMR: 2.00-4.00(m), 3.43(3H, s, NCH_3), 3.67(3H, s, OCH_3), 3.85(6H, s, 2×OCH_3), 6.67(1H, s, H-Ar), 6.84, 7.10(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.

KORSINE N-OXIDE

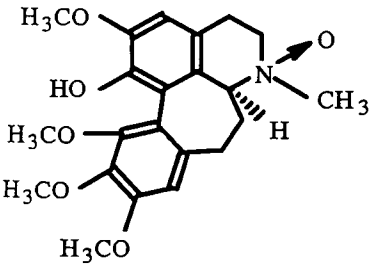


Korolkowia sewerzowii
$C_{27}H_{43}NO_4$: 445.3192
Mp: 257-259° (ac.)
$[\alpha]_D$–8° (alc.)
Sol-y.: sol. water
IR: 3400, 1655
Mass: 445(M^+), 430, 429(100), 428, 426, 425, 414, 412, 410, 400, 358, 288, 286, 256, 180, 178, 149, 141, 129, 128(100), 127, 121, 114, 110

PMR: 0.87(3H, d, 21-CH_3), 0.98(3H, s, 19-CH_3), 1.04(3H, d, 27-CH_3)

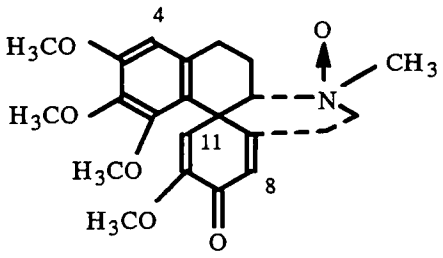
1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 251.

KREIZIGINE N-OXIDE



Merendera raddeana
$C_{22}H_{27}NO_6$: 401.1838
Mp: 143-145°

1. Yusupov M.K., Chommadov B., Aslanov Kh.A., Khim. Prir. Soedin., 1991, 86.
2. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 27.



KROKIFLORININE N-OXIDE (KROKIFLORINE)

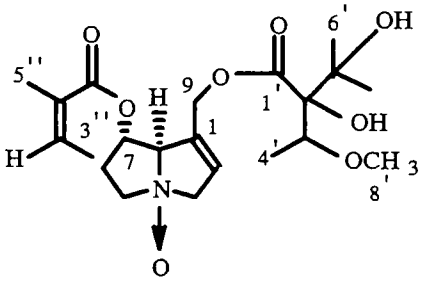
Colchicum kesselringii
$C_{22}H_{27}NO_6$: 401.1838
Mp: 229-230°
$[\alpha]_D$–255° (chlf.)
Sol-y.: r-sol. water, meth.; sp. sol. chlf., ac.

IR: 1680, 1655, 1630, 1610, 1470
Mass: (M^+, 3), 385(100), 384, 370, 356, 342, 224
PMR: 3.52(3H, s, NCH_3), 3.56, 3.75, 3.98(3H, 6H, 3H, s, 4×OCH_3), 6.27, 6.68, 6.70(1H, s, H-4, H-8, H-11)

^{13}C NMR:

C=	154.0, 152.8, 151.6, 150.4, 141.4, 136.7, 119.8
=CH	134.0, 120.9, 109.9
CH_2	30.3, 32.1, 26.8
CH-N	73.1
CH_2-N	54.3
CH_3-N	50.5
>C<	47.1
OCH_3	61.0, 60.3, 55.7, 54.7
C=O	179.2

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 30; Unpub.



LASIOCARPINE N-OXIDE

Heliotropium eichwaldi, H.lasiocarpum, H.olgae
$C_{21}H_{33}NO_8$: 427.2206
Mp: 133° (dec.)
IR: 3300, 1680, 1180 [1]

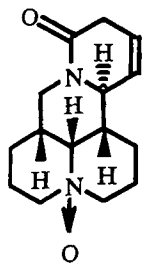
PMR: 1.18(3H, s, 7′-CH_3), 1.22(3H, d, 4′-CH_3), 1.25(3H, s, 6′-CH_3), 1.88(3H, s, 5″-CH_3), 1.99(3H, dd, 4″-CH_3), 2.20(1H, m, H-6), 2.52(1H, m, H-6), 3.25(3H, s, 8′-OCH_3), 3.79(1H, m, H-5), 3.79(1H, q, H-3′), 3.92(1H, m, H-5), 4.42(1H, d, H-3), 4.58(1H, d, H-3), 4.67(1H, narrow s, H-8), 4.95(2H, q, H-9), 5.14(1H, m, H-7), 5.91(1H, narrow s, H-2), 6.17(1H, H-3″) [2]

^{13}C NMR: [3]

C-1	132.9	C-9	61.2	C-7′	24.8
2	123.1	1′	173.5	8′	56.3
3	77.3	2′	83.9	1″	167.3
5	68.0	3′	78.8	2″	126.5
6	30.7	4′	12.9	3″	140.8
7	73.2	5′	71.0	4″	16.2
8	94.9	6′	26.4	5″	20.5

Pharm.: LD_{50} 547 mg/kg (i/p, rats) [3]. Antimicrobial action [2].

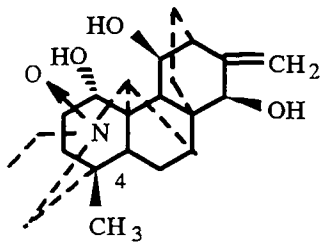
1. Jain S.C., Sharma R., Chem. Pharm. Bull., 1987, **35**, 3487.
2. Asibal C.F., Gelbaum L.T., Zalkow L.H., J. Natur. Prod., 1989, **52**, 726.
3. Sadritdinov F.S., in: The Pharmacology of Natural Compounds [in Russian], Fan, Tashkent, 1979, p. 29.



LEHMANINE N-OXIDE

Ammothamnus lehmannii
$C_{15}H_{22}N_2O_2$: 262.1681
Mp: 136° (ac.)
X-ray spectral analysis

1. Ibragimov B.T., Talipov S.A., Kushmuradov Yu.K., Aripov T.F., Kuchkarov S., Khim. Prir. Soedin., 1981, 757.



LEPENINE N-OXIDE

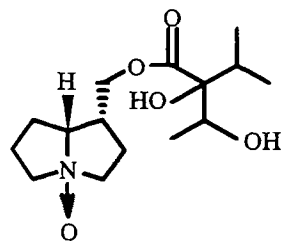
Aconitum kirinense
$C_{22}H_{33}NO_4$: 375.2410
Mp: amorph.
Sol-y.: r-sol. water, meth., alc., sp. sol. chlf.
IR: 3390-3340, 3080, 1695, 1650, 1597, 1280, 900

Mass: 375(M^+, 17), 359(50), 358(50), 357(33), 342(25), 341(67), 340(17), 331(33), 330(25), 329(42), 313(67), 312(100), 311(33), 300(30), 294(33), 284(33), 256(33)
PMR: 0.77(3H, s, 18-CH_3), 1.32(3H, t, J=7, NCH_2CH_3), 3.95(1H, s, H-20), 4.14(1H, s, H-15), 5.15 i 4.91(1H, narrow s).

^{13}C NMR(CD_3OD):

C-1	67.4	C-9	55.3	C-17	110.7
2	30.6	10	53.6	18	26.4
3	36.5	11	73.1	19	67.8
4	35.4	12	45.6	20	83.9
5	50.7	13	23.0	NCH_2	74.6
6	28.7	14	25.2	CH_3	8.0
7	48.0	15	77.8		
8	44.1	16	153.6		

1. Nishanov A.A., Sultankhodzhaev M.N., Kondrat'ev V.G., Khim. Prir. Soedin., 1993, 734.

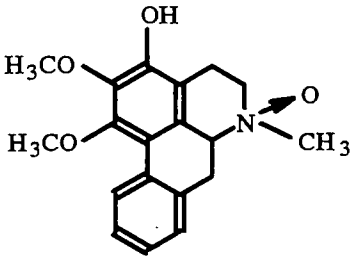


LINDELOFINE N-OXIDE

Lindelofia anchusoides, L. stylosa, Rindera cyclodonta
$C_{15}H_{27}NO_5$: 301.1889
Mp: 186.5° [1]; 196.5° [2]
$[\alpha]_D$+21° (meth.) [2]

Sol-y.: r-sol. alc., water, chlf.; sp. sol. ac., eth., dioxane, bz. [1, 2]

1. Yunusov S.Yu., Plekhanova N.V., DAN UzSSR, 1958, No. 12, 27.
2. Tsirul'nikova L.T., Labenskii A.S., Utkin L.M., Zh. Org. Khim., 1962, **32**, 2705.

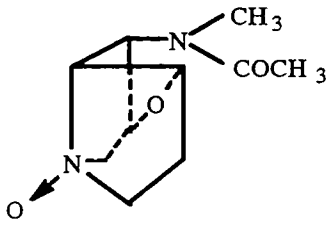


LIRININE N-OXIDE

Liriodendron tulipiferum
$C_{19}H_{21}NO_4$: 327.1470
Mp: 162-164° (dec.)
$[\alpha]_D$–50° (meth.)
Sol-y.: sp. sol. org. solvent; r-sol. water
UV: 218, 284(4.40, 4.03)

IR: 3500-3200, 2855, 1590, 1245
Mass: 327(M^+), 311, 310, 309, 296, 294, 280, 268(100), 253.

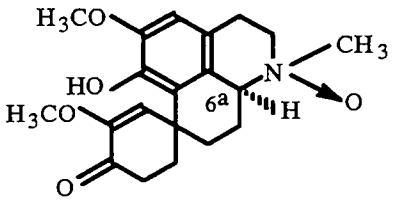
1. Ziyaev R., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 505; Zarga M.H.A., Shamma M., J. Natur. Prod., 1982, **45**, 471.



LOLININE N-OXIDE

Lolium cuneatum
$C_{10}H_{16}N_2O_3$: 212.1161
Mp: oil
$[\alpha]_D$+22° (meth.)
Sol-y.: r-sol. water, alc.; i.s. eth., chlf., ac.
PMR(D_2O): 2.45(3H, s, $COCH_3$), 3.43(3H, s, NCH_3)

1. Batirov É.Kh., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 120.

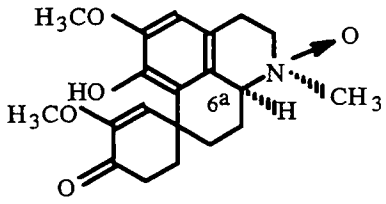


LUTEIDINE CIS-N-OXIDE

Colchicum luteum
$C_{20}H_{25}NO_5$: 359.1732
Sol-y.: r-sol. water
UV: 226-228 sh, 268-270

IR: 3400, 1685-1680
Mass: 359(M^+), 343, 342, 341, 328, 326, 300
PMR: 3.52(3H, s, NCH_3), 4.38-4.66(1H, m, H-6_a)

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 17.

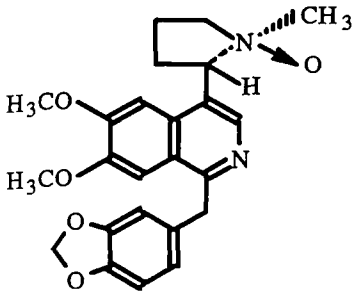


LUTEIDINE TRANS-N-OXIDE

Colchicum luteum
$C_{20}H_{25}NO_5$: 359.1732
Mp: 179-180°
Sol-y.: r-sol. water
UV: 226-228 sh, 268-270

IR: 3400, 1685-1680
Mass: 359(M^+), 343, 342, 341, 328, 326, 300
PMR: 3.14(3H, s, NCH_3), 4.38-4.66(1H, m, H-6_a)

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 17.

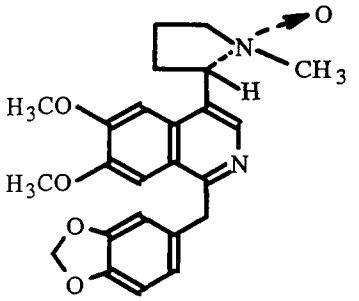


MACROSTOMINE CIS-N-OXIDE

Papaver arenarium
$C_{24}H_{26}N_2O_5$: 422.1842
Mp: amorph.
$[\alpha]_D$+35° (meth.)
UV: 248, 292, 320, 335(4.49, 3.78, 3.57, 3.57)
IR: 1620, 1570, 1520, 1040, 930
Mass: 422(M^+), 406, 405, 404, 363(100), 348, 84, 60, 43

PMR: 2.25-3.70(6H, m), 2.79(3H, s, NCH_3), 3.86, 4.06(3H, s, 2×OCH_3), 4.45(2H, s, CH_2), 5.54(1H, t, J=7), 5.82(2H, s, CH_2O_2), 6.65(1H, H-Ar), 6.70(2H, H-Ar), 7.33, 8.00, 8.33(1H, s, H-Ar) [1, 2]

1. Israilov I.A., Manushakyan M.A., Mnatsakanyan V.A., Yunusov M.S., Khim. Prir. Soedin., 1984, 76.
2. Israilov I.A., Unpub.

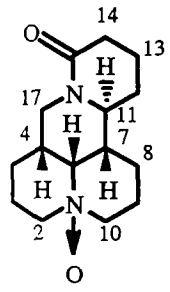


MACROSTOMINE TRANS-N-OXIDE

Papaver arenarium
$C_{24}H_{26}N_2O_5$: 422.1842
Mp: 141-142° (ac.)
$[\alpha]_D$+68° (meth.)
UV: 243, 290, 320, 333(4.52, 3.43, 3.69, 3.48)
IR: 1620, 1570, 1525, 1045, 930
Mass: 422(M^+), 406, 405, 404, 363(100), 348, 84, 60, 43

PMR: 2.10-3.90(m, CH_2), 3.02(3H, s, NCH_3), 3.85, 3.97(3H, s, 2×OCH_3), 4.37(2H, s, CH_2), 4.76(1H, m), 5.81(2H, s, CH_2O_2), 6.66-7.22(5H, m, H-Ar), 8.63(1H, narrow s, H-Ar)
PMR(CD_3OD): 6.61(3H, m, H-Ar), 7.37, 7.47, 8.65(1H, s, H-Ar)

1. Israilov I.A., Manushakyan M.A., Mnatsakanyan V.A., Yunusov M.S., Khim. Prir. Soedin., 1984, 76.



MATRINE N-OXIDE

Ammothamnus lehmannii, A.songoricus, Sophora alopecuroides, S.flavescens, S.pachycarpa
$C_{15}H_{24}N_2O_2$: 264.1836
Mp: 208° (ac.) [1]
$[\alpha]_D$+30° [1]
{picr. 216°, p-chl. 240° (dec.), m-i. 285° (dec.), hydrate 163°, $[\alpha]_D$+48° (alc.)} [1]

Mass: 264(M^+), 248, 247, 245, 231, 218, 205, 190, 176, 162, 150, 148(100), 138, 122, 110, 98, 96, 84, 80, 67, 55 [2]

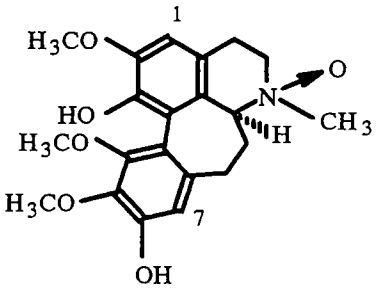
^{13}C NMR: [3]

C-2	68.8	C-7	43.3	C-12	26.8
3	19.4	8	29.2	13	17.9
4	25.3	9	17.9	14	33.7
5	35.2	10	68.4	15	169.5
6	66.3	11	53.8	17	43.5

X-ray spectral analysis: [3]

GLC: [4]

1. Yunusov S.Yu., Alkaloids [in Russian], Fan, Tashkent, 1981, p. 220.
2. Zaikin V.G., Ziyavidinova Z.S., Vul'fson N.S., Izv. AN SSSR, 1974, No. 8, 1734.
3. Sadykov A.S., Izv. AN SSSR, Ser. Khim., 1983, No. 11, 2432.
4. Ueno A., Morinaga K., Fukushima S., Okuda S., Chem. Pharm. Bull., 1978, **26**, 1832.

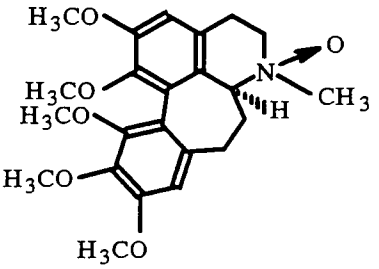


MERENDERINE N-OXIDE

Merendera raddeana
$C_{21}H_{25}NO_6$: 387.1682
Mp: 251-252° (ac.)
$[\alpha]_D$+125° (meth.)
Sol-y.: r-sol. water; sp. sol. nonpolar solvent
UV: 260, 290(4.16, 3.77)
IR: 1600, 1465, 900-800

Mass: 387(M^+, 11), 371(53), 370(17), 369(11), 354(89), 340(42), 328(100)
PMR(CF_3COOH): 3.18(3H, s, NCH_3), 3.46, 3.59, 3.65(3H, s, 3×OCH_3), 6.47, 6.52(1H, s, H-1, H-7)

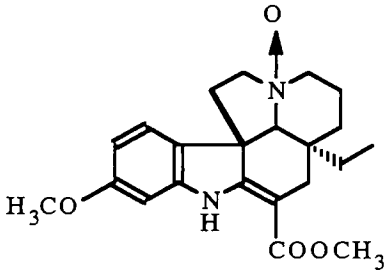
1. Yusupov M.K., Chommadov B., Aslanov Kh.A., Khim. Prir. Soedin., 1991, 86.



O-METHYLKREIZIGINE N-OXIDE

Merendera raddeana
$C_{23}H_{29}NO_6$: 415.1995
Mp: 161-163°

1. Yusupov M.K., Chommadov B., Aslanov Kh.A., Khim. Prir. Soedin., 1991, 86.
2. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 27.

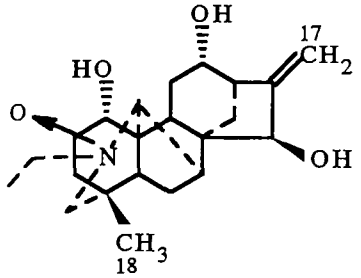


11-METHOXYVINCADIFFORMINE N-OXIDE

Vinca erecta
$C_{22}H_{28}N_2O_4$: 384.2049
Mp: 150-152° (ac.)
Sol-y.: r-sol. water, meth.
IR: 1680, 1650

Mass: 384(M^+, 4), 368(26), 366(15), 338(12), 125(13), 124(100), 69(8).
PMR: 0.62(3H, t, CH_3), 3.72(6H, s, $COOCH_3$, Ar-OCH_3)

1. Khalmirzaev M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 806.

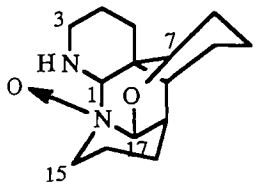


NAPELLINE N-OXIDE (FLAVAMINE)

Aconitum soongaricum
$C_{22}H_{33}NO_4$: 375.2410
Mp: 197-199°
IR: 3500-3400 [1]
Mass: 375(M^+), 359, 358, 357 [1]

PMR: 0.80(3H, s, 18-CH_3), 1.32(3H, t, J=7, NCH_2CH_3), 5.09, 5.25(1H, d, J=1.5, H_2-17) [1]
Pharm.: LD_{50} 725 mg/kg (i/v, mice). Feebly toxic, feebly active. Weak antiarrhythmic and H-cholinoblocking action [2].

1. Sultankhodzhaev M.N., Beshitaishvili L.V., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 826.
2. Dzhakhangirov F.N., Unpub.

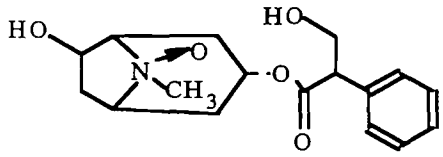


NITRARAMINE N-OXIDE

Nitraria komarovii
$C_{15}H_{24}N_2O_2$
Mp 251-252°
$[\alpha]_D \pm 0°$

IR: 3550-3350, 2940, 1460, 1420, 1305, 1155, 1110, 1085, 1075, 965, 955, 935, 910, 875
Mass: 264(M^+), 248, 247, 231, 219, 204, 190, 176, 162, 150, 136, 122, 109, 98, 96, 83, 70, 55
PMR: 0.90-2.25(17H, m), 2.75(2H, m, H_a-3, H_a-15), 3.57(2H, m, H_e-3, H_e-15), 3.77(1H, s, H-1), 4.01(1H, narrow s, H-7), 4.58(1H, narrow s, H-17)

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

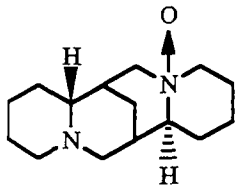


6-HYDROXYHYOSCYAMINE N-OXIDE

Physochalaina alaica
$C_{17}H_{23}NO_5$: 321.1576
Mp: 105-106° (meth.)
Sol-y.: sol. water, meth.

IR: 3420-3280, 1730, 750, 705
Mass: 321(M^+), 305, 304, 261, 156, 138, 96, 95, 94, 82, 81

1. Mirzamatov R.T., Lutfullin K.L., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 540.



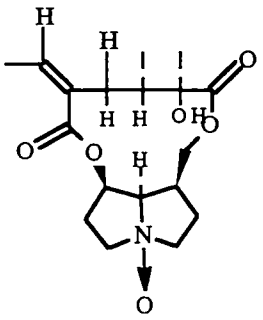
PACHYCARPINE N-OXIDE

Ammodendron karelinii
$C_{15}H_{26}N_2O$: 250.2045
Mp: 140° (ac.) [1]
IR: 2800-2600, 950 [1, 2]

PMR: [3]
X-ray spectral analysis: [4]

1. Kushmuradov Yu.K., Aslanov Kh.A., Kuchkarov S., Khim. Prir. Soedin., 1977, 717.

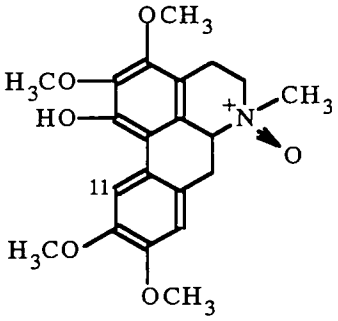
2. Baranowski P., Skolik J., Wiewiorowski M., Tetrahedron, 1964, **20**, 2383.
3. Skolik J., Langowska K., Wiewiorowski M., Bull. Acad. Pol. Sci., Ser. Sci. Chim., 1972, **20**, 383; C.A., 1972, **77**, 126906h.
4. Srivastava S.N., Przybylska M., Acta Cryst., 1969, 1651; Kaluski Z., Maluszynska H., Acta Cryst., 1978, 3131.



PLATYPHILLINE N-OXIDE

Senecio platyphylloides
$C_{18}H_{27}NO_6$: 353.1838
Mp: 180-181°
$[\alpha]_D$–45° (alc.)
{h-chl. 184°, nitr. 166° (dec.), platynecine N-oxide 149°}
Sol-y.: r-sol. water; sp. sol. org. solvent

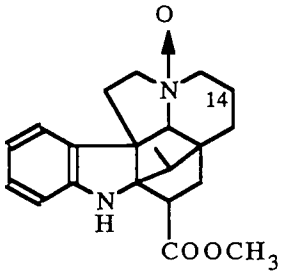
1. Konovalova R.A., DAN SSSR, 1951, **78**, 905.



PREOCOTEINE N-OXIDE

Thalictrum minus
$C_{21}H_{25}NO_6$: 387.1682
Mp: 199-200° (dec.)
UV: 226, 282, 306(4.52, 4.01, 4.11)
IR: 3400, 2855
Mass: 387($M^{+\cdot}$, 4), 371(100), 370(59), 356(17), 328(43)
PMR(CF_3COOH): 3.10(3H, s, NCH_3), 3.55, 3.63(3H, 9H, s, 4×OCH_3), 6.56(1H, s, H-8), 7.74(1H, s, H-11)

1. Khodzhaev V.G., Maekh S.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 631.

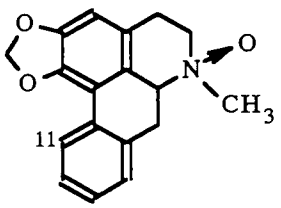


PSEUDOKOPSININE N-OXIDE

Vinca erecta
$C_{21}H_{26}N_2O_3$: 354.1943
Mp: 186-188° (eth.)
UV: 247, 301(3.77, 3.43)
IR: 1730, 760
Mass: 338, 324, 279, 229, 170, 135

PMR: 0.86(d, J=8, CH_3), 3.61(s, $COOCH_3$), 6.55-7.00(4H, H-Ar), 7.67(d, J=8, H-14)

1. Sharipov M.R., Khalmirzaev M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 413.

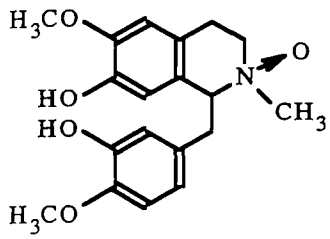


ROEMERINE N-OXIDE

Liriodendron tulipiferum
$C_{18}H_{17}NO_3$: 295.1208
Mp: 168-170° (meth.)
Sol-y.: r-sol. water, chlf.; sp. sol. alc., eth., ac., bz.

UV: 235, 272, 316(4.19, 4.21, 3.62)
Mass: 295(M^+), 279, 278, 277, 236(100), 176, 151
PMR: 3.03(3H, s, NCH_3), 5.89, 6.09(1H, d, J=1.5, CH_2O_2), 6.48(1H, s, H-3), 7.05-7.35(3H, m, 3×H-Ar), 8.00(1H, m, H-11)

1. Ziyaev R., Arslanova O.N., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 428.

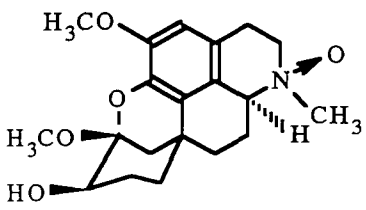


RETICULINE N-OXIDE

Corydalis pseudoadunca
$C_{19}H_{23}NO_5$: 345.1576
Mp: amorph.
$[\alpha]_D$+27° (meth.)
Mass: 345(M^+), 329, 328, 327, 192(100), 137

PMR(Py-d_5): 2.59-4.90(7H, m), 3.03(3H, s, NCH_3), 3.59, 3.64(3H, s, 2×OCH_3), 6.50-7.70(5H, m, H-Ar)

1. Israilov I.A., Irgashev T., Yunusov M.S., Khim. Prir. Soedin., 1985, 842.

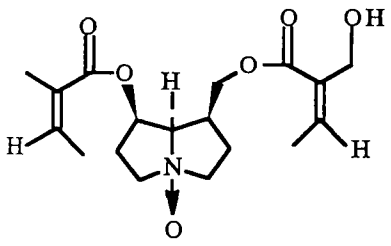


ROBUSTAMINE N-OXIDE

Merendera robusta
$C_{20}H_{27}NO_5$: 361.1889
Mp: 140-142°
$[\alpha]_D$–24°
UV: 216, 295

IR: 3450, 2930, 2855
Mass: 361(M^+), 345, 344(100), 343, 328, 312, 302, 284
PMR: 3.24(3H, s, NCH_3), 3.31, 3.78(3H, s, 2×OCH_3), 6.52(1H, s, H-3)

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 10.

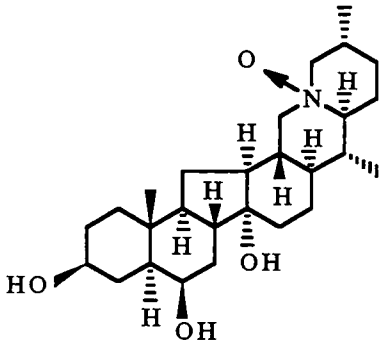


SARRACINE N-OXIDE

Senecio francheti, S.rhombifolius, S.sarracenicus
$C_{18}H_{27}NO_6$: 353.1838
Mp: 123-124° (ac.) [1], 140-141° (no water) [2]
$[\alpha]_D$–82° [1], –94° (alc.) [2], –73° (water) [2]
{picr. 108°, chl-aur. 155°} [1]
Mass: 337, 336, 335, 253 [3]

PMR: 1.93, 2.05(3H, s, 6H, d, 3×CH_3), 5.63(1H, OH), 6.16(2H) [2]
HPLC: [4]

1. Danilova A.V., Kuzovkov A.D., DAN SSSR, 1953, **89**, 865.
2. Culvenor C.C.J., Geissman T.A., J. Org. Chem., 1961, **26**, 3045.
3. Abdullaev U.A., Author's Abstract of Candidate's Dissertation, Tashkent, 1974.
4. Stelljes M.E., Seiber J.N., J. Chem. Ecol., 1990, **16**, 1459.

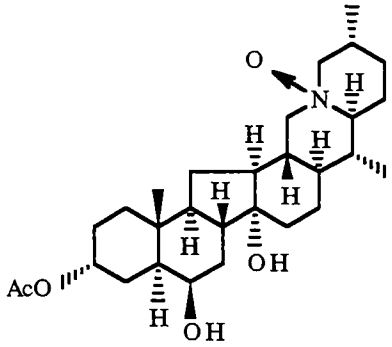


SEVEDINE N-OXIDE

Korolkowia sewerzowii
$C_{27}H_{45}NO_4$: 447.3349
Mp: 241-243° (meth.-ac.)
$[\alpha]_D$–14° (alc.)
Sol-y.: sol. alc., meth., water
IR: 3440, 2950-2886, 1470, 1050, 960
Mass: 447(M^+), 432, 431, 430, 429, 412, 411, 402, 375, 178, 166, 164, 162, 149, 124, 112, 111(100), 98

PMR: 0.87(6H, d, J=7, 21-CH_3, 27-CH_3), 0.98(3H, s, 19-CH_3)

1. Samikov K., Kul'kova V.V., Shakirov R., Khim. Prir. Soedin., 1981, 529.

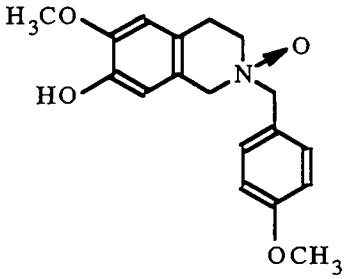


SEVERINE N-OXIDE

Korokowia sewerzowii
$C_{29}H_{47}NO_5$: 489.3454
Mp: 255-257° (meth.)
$[\alpha]_D$ 0°
IR: 3380, 2980-2855, 1725, 1455, 1255, 970, 954, 935
Mass: 489(M^+), 473, 472, 471, 458, 454, 453, 444, 440, 430, 417, 412, 178, 166, 162, 149, 124, 112, 111(100), 98

PMR: 0.84(6H, d, 21-CH_3, 27-CH_3), 0.94(3H, s, 19-CH_3), 1.97(3H, s, OAc), 5.07(1H, m, H-3)

1. Samikov K., Abdullaeva D.U., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 823.

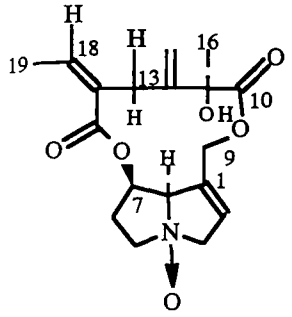


SENDAVERINE N-OXIDE

Corydalis gortschakovii
$C_{18}H_{21}NO_4$: 315.1471
Mp: 215-216°
Sol-y.: sp. sol. org. solvent
UV: 232, 284(4.28, 4.04)
Mass: 315(M^+), 299, 298, 297, 178, 150, 135, 121(100), 107

PMR: 3.50, 3.55(3H, s, 2×OCH_3), 3.61, 3.93(2H, m), 4.15, 4.35(1H, d, J=14), 4.41(2H, s, CH_2), 6.29. 6.43(1H, s, H-Ar), 6.70, 7.09(2H, d, J=8, o-H-Ar)

1. Israilov I.A., Irgashev T., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 834.

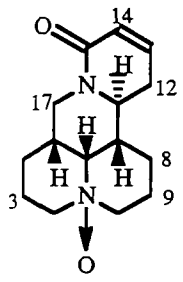


SENECIPHYLLINE N-OXIDE

Senecio platyphylloides
$C_{18}H_{23}NO_6$: 349.1525
Mp: 120° (abs. alc.-eth.) [1]

PMR: 1.23(3H, s, 16-CH_3), 1.89(3H, d, J=7, 19-CH_3), 2.47(1H, m, H-6), 2.72(1H, m, H-13), 2.90(1H, d, J=16.1, H-13), 2.97(1H, d, J=17, H-6), 3.63(1H, m, H-5), 3.93(1H, m, H-5), 4.12(1H, m, H-9), 4.55(2H, m, H-3), 4.79(1H, m, H-8), 5.01(1H, d, J=1.5, H-17), 5.23(1H, d, J=1.5, H-19), 5.42(1H, m, H-9), 5.44(1H, m, H-7), 5.94(1H, d, J=6.9, H-18), 6.28(1H, m, H-2) [2]

1. Konovalova R.A., DAN SSSR, 1951, **78**, 905.
2. Segall H.J., Dallas J.L., Phytochem., 1983, **22**, 1271.

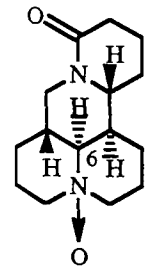


SOPHORCARPINE N-OXIDE

Ammothamnus lehmannii, Sophora alopecuroides, S.pachycarpa
$C_{15}H_{22}N_2O_2$: 262.1681
Mp: 208-210°
$[\alpha]_D$+37° (alc.) [1]
UV: 260(3.40) [1, 2]

IR: 950 [1]
Mass: 262(M^+), 244, 245(100), 217, 215, 202, 191, 177, 160, 150, 138, 136, 134, 122, 110, 96, 80, 68, 55 [1, 2]
PMR: 2.02(J=8; 10.8; 3.1, H-12_a), 2.57(J=18; 6.1; 5.2, H-12_e). 3.97(J=12; 5.4, H-17_e), 4.17(J=12; 12, H-17_a), 5.04(J=10.8; 6.1; 10.8, H-11), 5.83(J=9.5; 2.4; 1.2, H-14), 6.43(J=9.5; 5.2; 3.1, H-13) [1]
GLC: [3]
Pharm.: In large doses possesses a stimulating action [4].

1. Monakhova T.E., Tolkachev O.N., Kabanov V.S., Proskurnina N.F., Khim. Prir. Soedin., 1974, 259.
2. Zaikin V.G., Ziyavidinova Z.S., Vul'fson N.S., Izv. AN SSSR, 1974, No. 8, 1734.
3. Ueno A., Morinaga K., Fukushima S., Okuda S., Chem. Pharm. Bull., 1978, **26**, 1832.
4. Monakhova T.E., Author's Abstract of Candidate's Dissertation, Moscow, 1975.

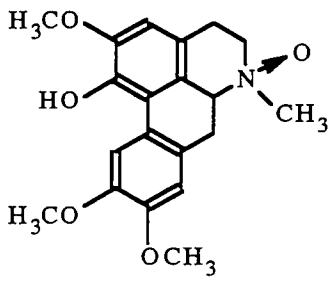


SOPHORIDINE N-OXIDE

Sophora alopecuroides
$C_{15}H_{24}N_2O_2$: 264.1838
Mp: 164-165°
$[\alpha]_D$+15° (alc.)
IR: 1670-1630, 970-950 [1]
Mass: 264(M^+), 248, 247, 246, 231, 218, 205, 192, 177, 161, 150, 148, 136, 134, 122, 120, 105, 96(100), 80, 68, 55 [2]

PMR: 4.15(1H, q, J=12; 12, H-6) [3]
X-ray spectral analysis: [4]

1. Kuchkarov S., Kushmuradov Yu.K., Aslanov Kh.A., Khim. Prir. Soedin., 1977, 288.
2. Zaikin V.G., Ziyavidinova Z.S., Vul'fson N.S., Izv. AN SSSR, 1974, No. 8, 1734.
3. Iskandarov S., Kamalitdinov D.D., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 174.
4. Ibragimov B.T., Tishchenko G.N., Talipov S.A., Kushmuradov Yu.K., Aripov T.F., Kuchkarov S., Khim. Prir. Soedin., 1981, 588.

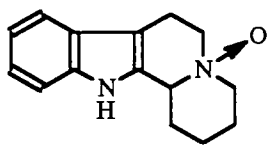


THALICMIDINE N-OXIDE

Berberis integerrima, Thalictrum minus
$C_{20}H_{23}NO_5$: 357.1576
Mp: 192-193° (dec.)
$[\alpha]_D$+90° (chlf.)
{h-chl. 220°, h-b. 205°}
Sol-y.: r-sol. meth., alc., sol. ac., chlf.
UV: 227, 282, 308(4.42, 4.10, 4.07)

IR: 3400, 2855
Mass: 357(M^+, 6), 341(100), 340(97). 326(11), 298(69)
PMR(CF_3COOH): 3.08(3H, s, NCH_3), 3.55(9H, s, 3×OCH_3), 6.42, 6.54, 7.77(1H, s, H-Ar)

1. Khodzhaev V.G., Maekh S.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 631.

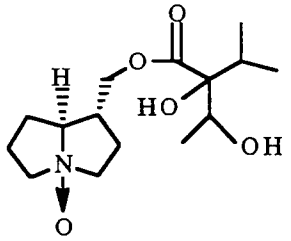


TETRAMETHYLENETETRAHYDRO-β-CARBOLINE N-OXIDE

Nitraria komarovii
$C_{15}H_{18}N_2O$: 242.1419
Mp: 214°

$[\alpha]_D$ 0°
Sol-y.: r-sol. alc., meth., water
UV: 223, 270-276, 290(4.86, 3.87, 3.57)
UV: (OH^-): 228, 270-275, 292
IR: 3150, 2940, 2860, 2760-2400, 1680, 1630, 1455, 1325, 745
Mass: 242(M^+, 2), 226(80), 225(100), 224(5), 197(22), 185(15), 184(10), 174(16), 170(13), 169(17), 156(9)
PMR: 1.75-2.12, 2.12-2.75, 3.00-3.60, 4.00, 5.00(1H, t). 7.00, 7.25-7.50, 7.62, 8.12

1. Tulyaganov T.S., Shorakhimov N.N., Khim. Prir. Soedin., 1990, 560.

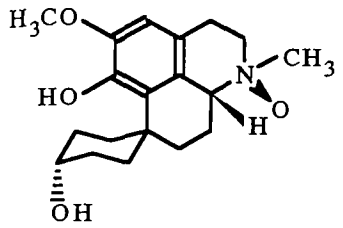


TRACHELANTHAMINE N-OXIDE

Rindera echinata, Trachelanthus hissaricus, T.korolkowii
$C_{15}H_{29}NO_5$: 303.2046
Mp: 166-167° (ac.) [1]; 125° [2]
$[\alpha]_D$–22° (water) [1]

{trachelanthic acid 95°} [1]
Pharm.: LD_{50} 3900 mg/kg (i/v, mice) [3].

1. Men'shikov G.P., Borodina G.M., Zh. Org. Khim., 1945, **15**, 225; 1941, **11**, 209.
2. Telezhenetskaya M.V., Matkarimov A.D., Khodzhibekov S.N., Yunusov S.Yu., Khim. Prir. Soedin., 1987, 463.
3. Sadritdinov, p. 90.

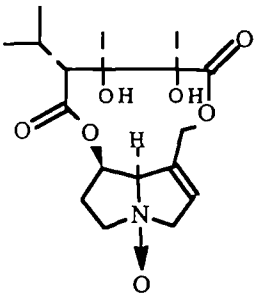


TRIGAMINE N-OXIDE

Merendera jolantae
$C_{19}H_{27}NO_4$: 333.1940
Mp: 201-202° (ac.-meth.)
$[\alpha]_D$+10° (meth.) [1]
UV: 216, 290 [2]

IR: 3390-3210, 1600, 1475
Mass: 333(M^+), 317, 316(100), 315, 300, 289, 275, 259, 248, 246(100), 218, 217 [2]
PMR: 3.40(3H, s, NCH_3), 3.80(3H, s, OCH_3), 6.50(1H, s, H-3) [2]

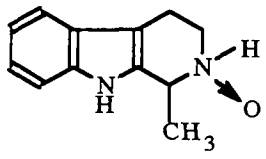
1. Chommadov B., Usmanov A.M., Yusupov M.K., Khim. Prir. Soedin., 1983, 790.
2. Chommadov B., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1985, 418.



TRICHODESMINE N-OXIDE

Heliotropium argusioides, Trichodesma incanum
$C_{18}H_{27}NO_7$: 369.1787
Mp: 169-170° (dec., alc.-ac.) [1]
Sol-y.: r-sol. alc., water; i.s. ac., chlf.
Mass: 353(1), 352, 351, 281, 264, 262, 171, 154(57), 139, 136, 135, 126, 119, 117, 111(100) [2]

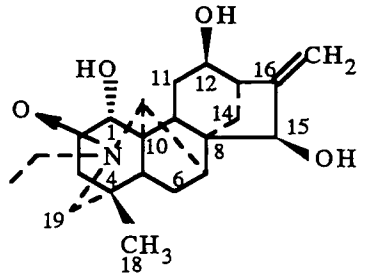
1. Yunusov S.Yu., Plekhanova N.V., Zh. Org. Khim., 1959, **29**, 677.
2. Abdullaev U.A., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 620.



ELEAGNINE N-OXIDE (CALLIGONIDINE)

Calligonum caput-medusae, C.microcarpum, C.minimum
$C_{12}H_{14}N_2O$: 202.1106
Mp: 132-133° (ac.)
{h-chl. 215°, picr. 121°}

1. Abdusalamov B., Sadykov A.S., Uzb. Khim. Zh., 1962, No. 4, 79.



12-EPINAPELLINE N-OXIDE

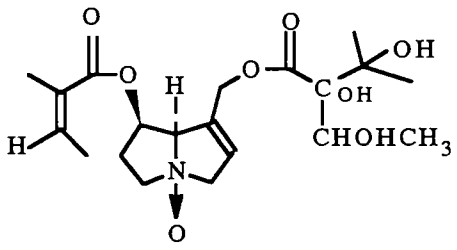
Aconitum baicalense (A.Czekanovshyi)
$C_{22}H_{33}NO_4$: 375.2410
Mp: amorph.
{p-chl. 225°}
Sol-y.: sol. water meth., alc., chlf.
IR: 3500-3350, 3000-2800, 1650, 1070, 1040, 905-920

Mass: 375(M^+)
PMR: 0.82(3H, s, 18-CH_3), 1.13(1H, dd, J=12.0, 4.1, H-14$_\alpha$), 1.30(2H, m, H-3$_\alpha$, H-6$_\alpha$), 1.39(3H, t, J=7.1, NCH_2CH_3), 1.50(1H, narrow d, J=7.9, H-5), 1.70(1H, dd, J=15.0, 6.5, H-11$_a$), 1.72(1H, d, J=12.0, H-14$_e$), 1.95(2H, m, H-2$_a$ i H-3$_e$), 2.02(1H, d, J=5.3, H-7), 2.08(1H, dd, J=6.5, 13.0, H-9), 2.25(1H, ddd, J=15.0, 12.9, 6.0, H-11$_e$), 2.45(1H, m, H-2$_e$), 2.71(1H, dd, J=7.9, 14.0, H-6$_e$), 2.80(1H, dd, J=8.7, 4.1, H-13), 3.10(2H, d, J=13.8, H-19β, m, NCH_2CH_3), 3.24(1H, m, NCH_2CH_3), 3.28(1H, d, J=13.8, H-19$_\alpha$), 3.75(1H, narrow s, H-20), 3.86(1H, t, J=7.1, H-1), 4.18(1H, dd, J=8.7, 6.0, H-12$_\alpha$).

^{13}C NMR:

C-1	67.2	C-9	39.0	C-17	112.7
2	30.5	10	54.2	18	26.5
3	32.6	11	28.9	19	74.8
4	35.2	12	66.6	20	80.3
5	46.6	13	43.8	NCH_2	67.2
6	22.8	14	34.9	CH_3	7.8
7	46.3	15	76.4		
8	49.8	16	153.6		

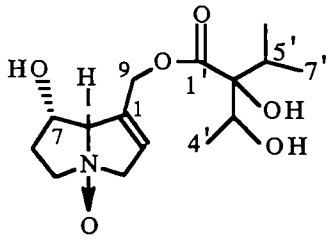
1. Zhapova Ts., Semenov A.A., Khim. Prir. Soedin., 1993, 888.



ECHIMIDINE N-OXIDE

Symphytum caucasicum
$C_{20}H_{31}NO_8$: 413.2050
Mp: 165°

1. Man'ko I.V., Mel'kumova Z.V., Malysheva V.F., Rast. Res., 1972, **8**, 538.



ECHINATINE N-OXIDE

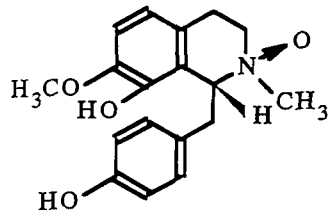
Cynoglossum pictum, Lindelofia stylosa, Paracynoglossum imeretinum, Rindera austroechinata
$C_{15}H_{25}NO_6$: 315.1682
Mp: 196-197° (alc.) [1]

Sol-y.: r-sol. water, alc.; sp. sol. chlf.; i.s. ac., eth. [1]
Mass: 299(0.91), 138(100), 136(32), 118(34), 95(22), 93(60), 80(19) [2]
PMR: 0.85, 0.90(3H, d, J=7), 1.27(3H, d, J=7), 1.94(1H, m), 2.16(1H, m), 2.31(1H, m), 3.63(1H, m), 3.90(1H, q, J=7), 4.04(1H, m). 4.32(1H, d, J=16), 4.61(1H, d, J=16), 4.62, 5.07(1H, d, J=14), 5.19(2H, narrow s), 5.65(1H, narrow s) [2].

^{13}C NMR: [2]

C-1	133.4	C-7	71.2	C-3′	71.7
2	121.4	8	96.1	4′	16.7
3	77.1	9	60.1	5′	32.0
5	68.0	1′	173.3	6′	17.5
6	32.5	2′	84.0	7′	15.4

1. Akramov S.T., Kiyamitdinova F., Yunusov S.Yu., DAN UzSSR, 1965, No. 4, 35.
2. Asibal C.F., Glinski J.A., L., Gelbaum L.T., Zalkow L.H., J. Natur. Prod., 1989, **52**, 109.

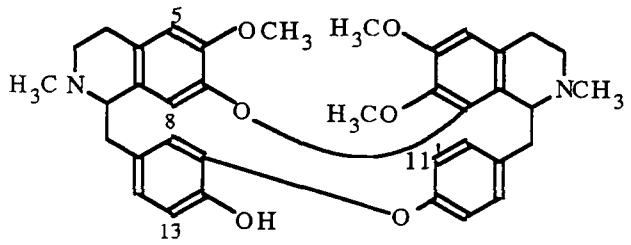


YUZIFINE N-OXIDE

Corydalis gortschakovii
$C_{18}H_{21}NO_4$: 315.1471
Mp: 197-198° (meth.) [1]
$[\alpha]_D$–29° (meth.) [1]
UV: 228, 281(4.36, 3.73)

Mass: 315(M^+), 299, 298, 297, 192(100), 178, 150, 135, 121, 107 [2]
PMR (CF_3COOH): 2.35-3.75 (6H, m), 3.15 (3H, d, NCH_3), 3.53 (3H, s, OCH_3), 5.04 (1H, m, H-1), 6.30-6.80 (6H, m, H-Ar) [1, 2]

1. Irgashev T., Author's Abstract of Candidate's Dissertation, Tashkent, 1983.
2. Israilov I.A., Irgashev T., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 834.

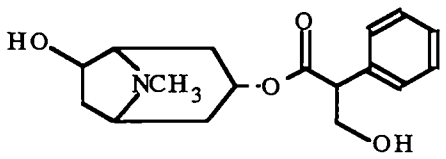


OXYACANTHINE

Berberis heteropoda, B.iliensis, B.integerrima, B.nummularia, B.oblonga, B.vulgaris, Mahonia aquifolia
$C_{37}H_{40}N_2O_6$: 608.2886
Mp: 206-208° (alc.) [1], 216-217° (eth.) [1]
$[\alpha]_D$+279° (chlf.) [1]

UV: 206, 238 sh, 282(4.94, 5.45, 3.92) [2]
Mass: 608(M^+), 607, 501, 417, 416, 396, 395, 381, 364, 349, 335, 304($^{++}$), 198($^{++}$, 100), 192, 175($^{++}$), 174 [3]
PMR: 2.56(2-NCH_3), 2.66(2′-NCH_3), 3.18(7′-OCH_3), 3.63(H-1, 6-OCH_3), 3.79(6′-OCH_3), 4.19(H-1′), 5.43(H-10), 6.31(H-5′), 6.34(H-11′), 6.35(H-5), 6.63(H-8), 6.76(H-14), 6.78(H-13), 6.94(H-13′), 6.98(H-10′) [4]
Pharm.: LD_{50} 43.5 mg/kg (i/v, mice). Hypotensive [6], antimycotic [5], depressive [7] action.

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. Guinaudeau H., Freyer A.J., Shamma M., Natur. Prod. Rep., 1986, **3**, 477.
5. Sadritdinov, p. 82.
6. Naidovich L.P., Trutneva E.A., Tolkachev O.N., Vasil'eva V.D., Farmatsiya, 1976, **25**, No. 4, 33.
7. Tolkachev O.N., Nakova E.P., Evstigneeva R.P., Khim. Prir. Soedin., 1977, 451.

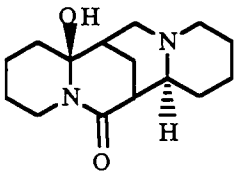


6-HYDROXYATROPINE

Physochalaina alaica
$C_{17}H_{23}NO_4$: 305.1627
Mp: 68-69°
$[\alpha]_D$ 0°

UV: 240, 262
IR: 3480-3320, 1730, 745, 710
PMR: 2.73(3H, s, NCH_3), 6.99(5H, m, H-Ar)

1. Mirzamatov R.T., Lutfullin K.L., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 416.

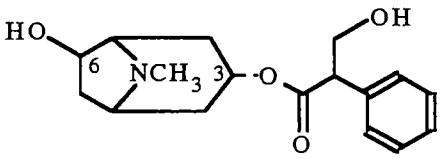


HYDROXYAPHYLLINE

Anabasis aphylla
$C_{15}H_{24}N_2O_2$: 264.1838
Mp: 165-167° (ac.)
$[\alpha]_D$+39° (meth.)

{h-chl. 255°, p-chl. 211°, m-i. 255°}
Sol-y.: r-sol. bz., alc., chlf.; sp. sol. water, ac., petr. eth.
IR: 3390, 1620

1. Sadykov A.S., Nuriddinov R.N., Zh. Org. Khim., 1960, **30**, 1736.

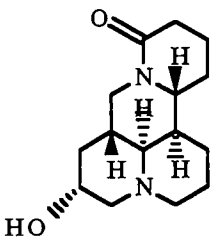


6-HYDROXYHYOSCYAMINE

Physochlaina alaica, Scopolia tangutica
$C_{17}H_{23}NO_4$: 305.1627
Mp: 61-62° (bz.)
$[\alpha]_D$–14° [1]

{h-b. 157°, di Ac 75°}
Sol-y.: sol. chlf., ac., meth., alc.
UV: 243, 262 [2]
IR: 3380-3420, 1722, 760, 710 [2]
Mass: 305(M^+), 261, 224, 140, 96, 95, 94 [2]
PMR: 2.32(3H, s, NCH_3), 2.88(3H, m, H-1, H-5, OH), 3.78(2H, m, CH_2), 4.37(1H, q, J=7.5; 2.5, H-6α), 4.93(1H, t, H-3β), 7.25(5H, m, H-Ar) [2].
Pharm.: Pronounced m-cholinolytic properties. More toxic than atropine; relatively brief action [3].

1. Fodor G., Koczor J., Janzso G., Arch. Pharm., 1962, **295**, 91.
2. Mirzamatov R.T., Malikov V.M., Lutfullin K.L., Yunusov S.Yu., Khim. Prir. Soedin., 1972, 493.
3. Vakhabov A.A., Mirzamatov R.T., Sultanov M.B., DAN UzSSR, 1975, No. 11, 26.

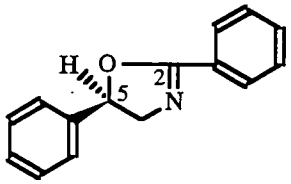


3-α-HYDROXYSOPHORIDINE

Sophora alopecuroides
$C_{15}H_{24}N_2O_2$: 264.1838
Mp: 162-164° (ac.)
$[\alpha]_D$–51° (alc.)
{O-Ac 147°}

IR: 3620, 2800-2600, 1620
Mass: 264($M^{+\cdot}$, 78), 263(100), 247(10), 205(31), 193(26), 166(37), 112(26)
PMR{O-Ac}

1. Monakhova T.E., Proskurnina N.F., Tolkachev O.N., Kabanov V.S., Perl'son M.E., Khim. Prir. Soedin., 1973, 59.



OXITRIFINE

Oxytropis trichophysa
$C_{15}H_{13}NO$: 223.0996
Mp: 38-40° [1]
$[\alpha]_D$+162° (chlf.) [1] +116° (chlf.) [2]

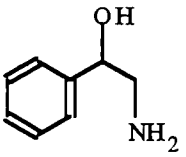
IR(film): 1655, 1500, 1455, 1340, 1260, 700 [1-3]
Mass: 223($M^{+\cdot}$, 2.4), 118(12), 117(100), 105(16), 97(7), 90(4), 89(4), 78(3), 77(27) [2, 3].
PMR: 3.91(1H, dd, J=8; 13, H-4), 4.40(1H, dd, J=10; 13, H-4), 5.60(1H, dd, J=8; 10, H-5), 7.32, 7.98(8H, 2H, m, H-Ar) [1-3].

^{13}C NMR: [1, 3]:

C-2	163.1	C-6	125.7	C-9	128.6
4	63.1	7	128.2	10	129.1
5	80.8	8	128.3	11	131.3

Abs. conf.: 5S [1]

1. Meyers A.I., Hanagan M.A., Trefonas L.M., Baker R.J., Tetrahedron, 1983, **39**, 1991.
2. Akhmedzhanova V.I., Batsurén D., Shakirov R.Sh., Khim. Prir. Soedin., 1993, 873.
3. Tsuge O., Kanemasa S., Matsuda K., J. Org. Chem., 1986, **51**, 1997.

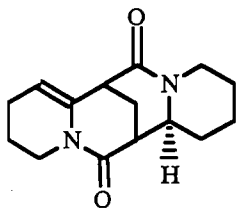


β-HYDROXYPHENYLETHYLAMINE

Reseda luteola
$C_8H_{11}NO$: 137.0841
Mp: 112-114° (chlf.)
$[\alpha]_D$ 0°

IR: 3390, 760, 710
Mass: 137($M^{+\cdot}$), 107(70), 79(90), 77(97), 30(100)

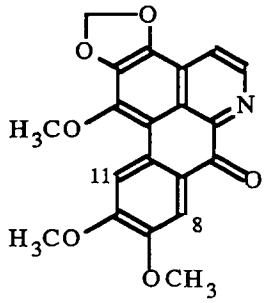
1. Lutfullin K.L., Tadzhibaev M.M., Malikov V.M., Abdullaev U.A., Rakhmankulov U., Khim. Prir. Soedin., 1977, 826.



OXOAPHYLLIDINE

Anabasis aphylla
$C_{15}H_{20}N_2O_2$: 260.1525
Mp: 182-184° (eth.)
$[\alpha]_D$–22° (meth.)
Sol-y.: r-sol. bz., chlf., alc.; sp. sol. eth.

1. Nuriddinov R.N., Sadykov A.S., Zh. Org. Khim., 1960, **30**, 1739.

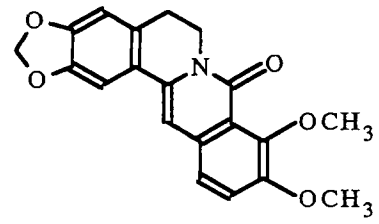


7-OXOBAICALINE

Thalictrum baikalense
$C_{20}H_{15}NO_6$: 365.0899
Mp: 240° (dec., meth.)
UV: 250, 289, 380, 500
IR: 1650
Mass: 365(M^+, 100), 350, 349, 336, 320, 307, 279, 223, 185.5($^{++}$)

PMR(CF_3COOH): 3.73, 3.80(6H, 3H, s, 3×OCH_3), 6.18(2H, s, CH_2O_2), 7.60(1H, s, H-8), 8.20-8.40(2H, m, H-4, H-5), 8.45(1H, s, H-11)

1. Maekh S.Kh., Boiko É.V., Starchenko V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 251.

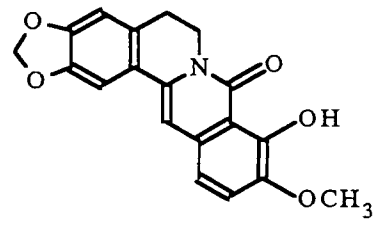


8-OXOBERBERINE

Berberis ottawensis, B.vulgaris
$C_{20}H_{17}NO_5$: 351.1107
Mp: 200-201° [1]
Sol-y.: r-sol. chlf.; sp. sol. meth. [2]
UV: 279, 362(3.87, 3.81) [2]

IR: 2980, 2940, 2910, 2840, 1650, 1620, 1600, 1500, 1380, 1270, 1220 [1, 2]
Mass: 351(M^+), 337, 336, 322, 308, 306, 292 [2]
PMR: 2.80(2H, t), 3.85(3H, s), 3.92(3H, s), 4.18(2H, t), 5.88(2H, s), 6.58(2H, s), 7.08(1H, s), 7.17(2H, s) [2]

1. Yusupov M.M., Karimov A., Lutfullin K.L., Khim. Prir. Soedin., 1990, 128.
2. Karimov A., Unpub.

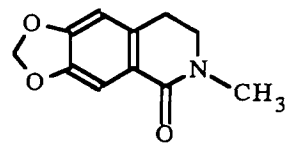


8-OXOBERBERRUBINE

Berberis heteropoda
$C_{19}H_{15}NO_5$: 337.0950
Mp: 251-252°
Sol-y.: r-sol. chlf.; sp. sol. alc., meth., bz.
UV: 280, 364(3.97, 3.94)
IR: 3450, 1650, 1490

Mass: 337(M^+, 100), 323(22), 322(50), 308(13), 294(63), 279(27)
PMR: 2.83(2H, t), 3.88(3H, s, OCH_3), 4.17(2H, t), 5.92(2H, s, CH_2O_2), 6.60(1H, s), 6.71(1H, s), 6.86(1H, d, J=8.5), 7.08(1H, s), 7.19(1H, d, J=8.5), 12.75(1H, s, OH)

1. Yusupov M.M., Karimov A., Levkovich M.G., Abdullaev N.D., Shakirov R., Khim. Prir. Soedin., 1993, 53.

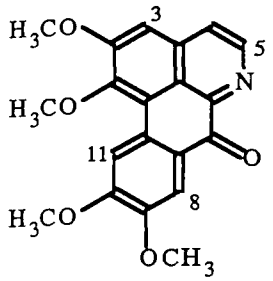


OXOHYDRASTININE

Fumaria schleicheri
$C_{11}H_{11}NO_3$: 205.0739
Mp: 96-97° (petr. eth.)
IR: 1645, 1600, 1510

Mass: 205($M^{+\cdot}$, 100), 162, 134, 104, 76
PMR: 2.80, 3.50(2H, m), 3.05(3H, s, NCH_3), 5.96(2H, s, CH_2O_2), 6.51, 7.40(1H, s, p-H-Ar)

1. Markosyan S.S., Tsulikyan T.A., Mnatsakanyan V.A., Arm. Khim. Zh., 1976, **29**, 1053.



7-OXOGLAUCINE (O-METHYLATEROLINE)

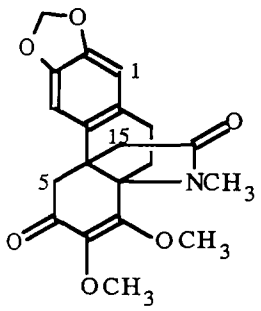
Glaucium elegans, G.flavum, G.grandiflorum, G.serpieri, Liriodendron tulipiferum, Thalictrum foetidum
$C_{20}H_{17}NO_5$: 351.1107
Mp: 219-221° (dec.) [1]
UV: 243, 272, 290 sh, 355, 433 [1]
UV(H^+): 254, 285, 383, 495 [1]

IR: 1655 [2]
Mass: 351($M^{+\cdot}$, 100), 353, 352, 350, 336, 321, 320, 308, 306, 293, 292, 175.5($^{++}$) [3]
PMR: 3.89, 3.97(3H, 9H, s, 4×OCH_3), 6.96, 7.82, 8.54(1H, s, H-3, H-8, H-11), 7.57, 8.67(1H, d, J=5.5, H-4, H-5) [1]

^{13}C NMR: [4]

C-1	155.9	C-5	133.1	C-11	111.3
1a	120.1	6a	141.7	11a	130.4
1b	123.4	7	174.8	1-OCH_3	61.6
2	162.9	7a	133.1	OCH_3	57.3
3	106.5	8	110.1	OCH_3	56.3
3a	135.3	9	150.2	OCH_3	56.3
4	126.2	10	156.7		

1. Mukhamedova S., Maekh S.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 394.
2. Kiryakov K.G., Panov P., Dokl. Bolg. AN, 1970, **22**, 1019.
3. Bick I.R.C., Bowie J.H., Douglas G.K., Austral. J. Chem., 1967, **20**, 1403.
4. Marsaioli A.J., Magalhaes A.F., Ruveda E.A., Ries F.A.M., Phytochem., 1980, **19**, 995.

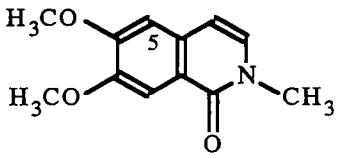


16-OXODELAVAYINE

Stephania delavayi
$C_{20}H_{21}NO_6$: 371.1369
Mp: 221-222° (meth.)
$[\alpha]_D$–180° (chlf.)
UV: 242, 268(3.79, 4.05)
IR: 1686, 1670, 1605, 1510, 1490

PMR: 2.10-2.35(2H, m, H-9), 2.50-2.80(4H, m, H-10, H-15), 2.66, 2.90(1H, d, J=16, H-5), 2.96(3H, s, NCH_3), 3.66(3H, s, 7-OCH_3), 4.10(3H, s, 8-OCH_3), 5.88(2H, s, CH_2O_2), 6.46, 6.64(1H, s, H-1, H-4)

1. Il'inskaya T.N., Perel'son M.E., Fadeeva I.I., Fesenko D.A., Tolkachev O.N., Khim. Prir. Soedin., 1972, 129.

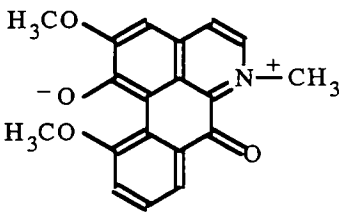


1-OXO-6,7-DIMETHOXY-2-METHYL-1,2-DIHYDROISOQUINOLINE

Thalictrum isopyroides
$C_{12}H_{13}NO_3$: 219.0895

Mp: 104-105° (eth.)
UV: 249, 268 sh, 271, 283, 294, 324, 330 sh
IR: 1658
Mass: 219(M^+), 204, 190, 176, 109.5($^{++}$)
PMR: 3.67(3H, s, NCH_3), 3.93(6H, s, 2×OCH_3), 6.68, 7.06(1H, d, J=7, H-4, H-3), 6.88(1H, s, H-5), 7.65(1H, s, H-8)

1. Abdizhabbarova S., Maekh S.Kh., Yunusov S.Yu., Yagudaev M.R., Kurbanov D., Khim. Prir. Soedin., 1978, 472.

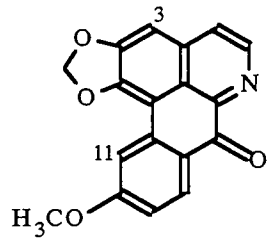


7-OXOISOTHEBAINE

Papaver pseudo-orientale
$C_{19}H_{15}NO_4$: 321.1001
Mp: amorph.
UV: 293, 297, 505
IR: 1620, 1580
Mass: 321(M^+)

PMR(DMSO): 3.85, 3.95(3H, s, 2×OCH_3), 4.65(3H, s, NCH_3), 7.15(1H, s), 7.20-7.90(4H, m), 8.40(1H, d, J=5)

1. Israilov I.A., Unpub.

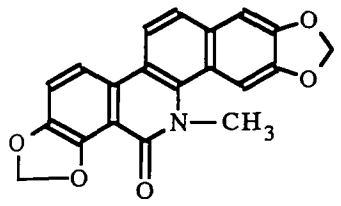


OXOLAURELINE

Magnolia soulangeana
$C_{18}H_{11}NO_4$: 305.0688
Mp: 265-267° (meth.)
Sol-y.: sol. acids; sp. sol. chlf., alc., meth.; i.s. alk.

UV: 249, 270, 309, 349(4.21. 4.08, 3.72, 3.84)
UV(H^+): 259, 280, 379(4.07, 3.99, 3.73)
IR: 2850, 1650, 1605, 1265, 1060, 970
Mass: 305(M^+, 100), 290, 275, 262, 234, 206, 204, 176, 175, 152.5($^{++}$), 149
PMR(CF_3COOH): 3.68(3H, s, OCH_3), 6.22(2H, s, CH_2O_2), 7.02(1H, dd, J=8.5; 2.5, H-9), 7.16(1H, s, H-3), 8.05(1H, d, J=8.5, H-8), 8.17, 8.35(1H, d, J=7, H-4, H-5), 8.45(1H, H-11)

1. Ziyaev R., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 528

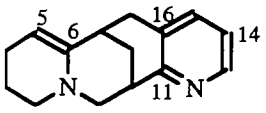


OXOSANGUINARINE

Bocconia frutescens, Corydalis ledebouriana, C.paniculigera, Fumaria capreolata, F.parviflora, Hylomecon vernalis, Macleaya cordata, M.microcarpa, Papaver croceum, P.rhoeas
$C_{20}H_{13}NO_5$: 347.0794

Mp: 365-366° (chlf.-meth.)
UV: 248, 280 sh, 289, 331, 348, 370, 382
IR: 1655
Mass: 347(M^+, 100), 346. 318, 289, 203, 159, 69, 44
PMR: 3.90(3H, s, NCH_3), 6.11, 6.28(2H, s, $2\times CH_2O_2$), 7.17-8.15(6H, m)

1. Krane B.D., Fagbule M.O., Shamma M., Gozler B., J. Natur. Prod., 1984, **47**, 1.

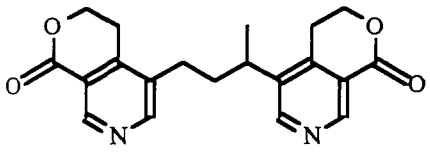


5,6,11,12,13,14,15,16-OCTADEHYDROALOPERANE

Sophora alopecuroides
$C_{15}H_{18}N_2$: 226.147

Mp: oil
Mass: 226(M^+), 197, 169, 119, 111

1. Monakhova T.E., Author's Abstract of Candidate's Dissertation, Moscow, 1975.

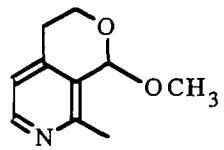


OLIVERAMINE

Gentiana olivieri
$C_{20}H_{20}N_2O_4$: 352.1423
Mp: 144-145°
Sol-y.: sol.chlf.

UV: 273(3.48)
IR: 1720, 1585
Mass: 352(M^+), 324, 296, 190, 176, 162
PMR: 1.44(3H, d, J=7, CH_3), 1.98, 2.67(2H, m, $-CH_2-CH_2-$), 2.97, 4.46(2H, m, CH_2-CH_2-O), 8.43, 8.66, 8.94, 9.00(1H, s, H-Ar)

1. Rakhmatullaev T.U., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 64.

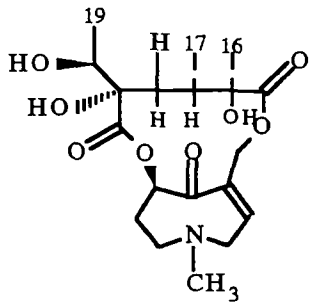


OLIVERIDINE

Gentiana olivieri
$C_{10}H_{13}NO_2$: 179.0946
Mp: 260° (dec., ac.)
UV: 261, 268(3.42, 3.41)

IR: 1630, 1480, 1375
Mass: 179(M^+), 178, 148(100), 120, 97

1. Rakhmatullaev T.U., Akramov S.T., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 608.

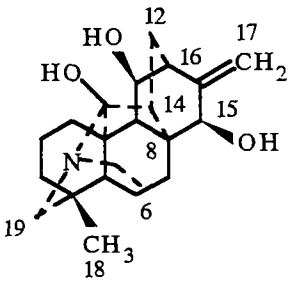


ONETINE

Senecio othonnae
$C_{19}H_{29}NO_8$: 399.1893
Mp: 192-193° (abs. alc.) [1]; 203-204°; 112-113° (chlf.) [2]
$[\alpha]_D$+73° (chlf.) [1], +48° (chlf.); +52° (ac.) [2]
{flavianate 240°} [1]

Sol-y.: sol.ac., alc., water; sp. sol. chlf., eth., bz. [3]
IR: 3580, 3500, 3340, 3250, 2970, 2930, 1730, 1650, 1460, 1420, 1380, 1300, 1290, 1210, 1200, 1170, 1150, 1110, 1040, 1000, 960, 940, 910, 890, 850, 820, 760 [2, 3]
Mass: 399(M^+, 20), 384(3), 382, 371(10), 355(30), 354, 338(12), 326(5), 310(7), 294(5), 285(7), 284(8), 283(7), 266(7), 257(10), 254, 238(20), 186(21), 170(21), 168(100), 151(100), 122(28), 110(35), 94(25) [2, 3]
PMR(Ru-d_5): 1.21(3H, d, J=4.5, 17-CH_3), 1.32(3H, s, 16-CH_3), 1.43(3H, d, J=4, 19-CH_3), 1.82(3H, s, NCH_3) [2]
CD: [4]

1. Danilova A.V., Koretskaya N.I., Utkin L.M., Zh. Org. Khim., 1962, **32**, 647.
2. Khalilov D.S., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 262.
3. Khalilov D.S., Telezhenetskaya M.V., Unpub.
4. Hrbek J., Hruban L., Klasek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.



ORGETINE

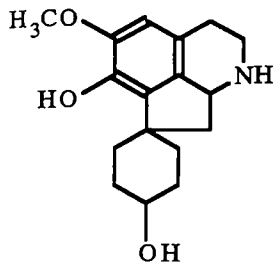
Aconitum orientale
$C_{20}H_{27}NO_3$: 329.1991
Mp: 280-282°
$[\alpha]_D$+40° (alc.)
IR: 3500-3300
Mass: 329(M^+, 100)

PMR: 1.28(3H, s, 18-CH_3), 3.00(1H, d, J=12), 3.82(1H, s, H-15), 3.97(1H, d, J=5, H-11α), 5.02, 5.05(1H, narrow s, H-17β, H-17α)

^{13}C NMR:

C-1	30.6	C-8	47.2	C-15	73.2
2	19.6	9	54.5	16	149.8
3	35.9	10	50.2	17	114.8
4	37.9	11	70.6	18	27.7
5	61.9	12	41.2	19	60.5
6	67.8	13	41.4	20	97.4
7	29.5	14	40.7		

1. Beshitaishvili L.V., Sultankhodzhaev M.N., Khim. Prir. Soedin., 1992, 240.

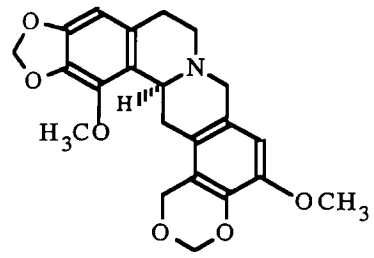


ORIDINE (OREOLINE)

Papaver lisae
$C_{17}H_{23}NO_3$: 289.1678
Mp: 234-235° (ac.)
$[\alpha]_D$–83° (alc.)
UV: 205, 231, 286
IR: 3380, 3200

Mass: 289(M^+), 288(100), 260, 242, 191
PMR: 2.60-3.84(14H, m), 3.75(3H, s, OCH_3), 4.05(1H, m), 6.48(1H, s)

1. Israilov I.A., Unpub.

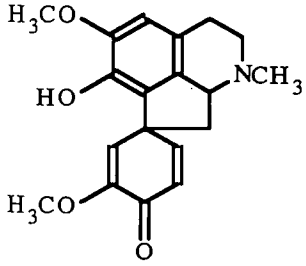


ORIENTALIDINE

Papaver bracteatum, P.orientale, P.pseudo-orientale
$C_{22}H_{23}NO_6$: 397.1525
Mp: 193-194° (alc.) [1]
$[\alpha]_D$–236° (chlf.) [1]
UV: 231 sh, 286 [2]
Mass: 397(M^+), 367, 366, 198.5($^{++}$), 192, 162(100) [1, 2]

PMR: 3.80, 4.13(1H, d, J=16), 3.83, 3.95(3H, s, 2×OCH_3), 4.61, 4.86(1H, d, J=15), 5.22(2H, s), 5.86(2H, s, CH_2O_2), 6.32, 6.49(1H, s, 2×H-Ar) [2]
ORD: [2]
HPLC: [3]

1. Israilov I.A., Unpub.
2. Preininger V., Cross A.D., Murphy J.W., Santavy F., Toube T., Collect., 1969, **34**, 875.
3. Milo J., Levy A., Palevitch D., Ladizinsky G., J. Chromatogr., 1988, **452**, 563.

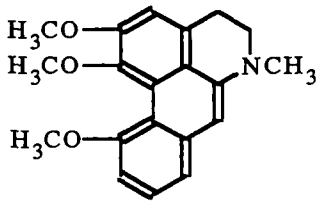


ORIENTALINONE (BRACTEINE)

Papaver bracteatum, P.pseudo-orientale
$C_{19}H_{21}NO_4$: 327.1471
Mp: 227-229°
$[\alpha]_D$+120° (chlf.)
UV: 230, 242, 284

Mass: 327(M^+), 326, 298, 284
PMR: 2.38(3H, s, NCH_3), 3.70, 3.77(3H, s, 2×OCH_3), 5.92(1H, d, J=2.5), 6.33(1H, d, J=9), 6.54(1H, s), 6.54(1H, q)

1. Israilov I.A., Unpub.

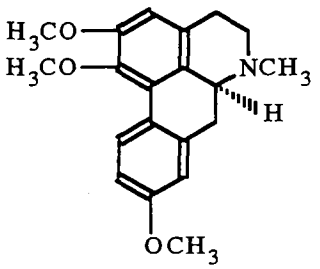


ORIENTIDINE

Papaver orientale
$C_{20}H_{21}NO_3$: 323.1521
Mp: amorph.

UV: 215, 271, 340(4.45, 4.39, 3.98)
IR: 1640, 1595, 1570, 1535
Mass: 323(M^+, 100), 308
PMR: 2.94(3H, s, NCH_3), 3.05-3.25(4H, m), 3.44(3H, s, OCH_3), 3.85(6H, s, 2×OCH_3), 6.35(1H, s, H-Ar), 6.60-7.29(4H, m, H-Ar)

1. Israilov I.A., Manushakyan M.A., Mnatsakanyan V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 81.

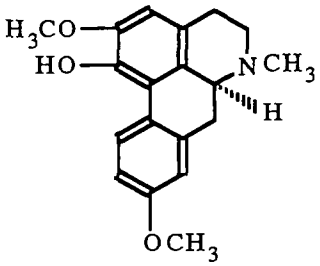


ORIENTINE

Papaver orientale
$C_{20}H_{23}NO_3$: 325.1678
Mp: amorph.
$[\alpha]_D$+70° (meth.)
UV: 278, 310 sh (4.25, 3.21)
Mass: 325(M^+), 324(100), 310, 294, 282, 162.5($^{++}$)

PMR: 2.46(3H, s, NCH_3), 2.50-3.70(m, CH_2), 3.55, 3.74, 3.77(3H, s, 3×OCH_3), 6.45, 6.65(1H, s, H-Ar), 6.70(1H, m, H-Ar), 8.17(1H, d, J=9.5, H-Ar)

1. Israilov I.A., Manushakyan M.A., Mnatsakanyan V.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 81.

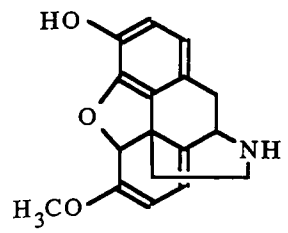


ORIENTININE

Papaver orientale
$C_{19}H_{21}NO_3$: 311.1521
Mp: amorph.
$[\alpha]_D$+62° (meth.)
UV: 277, 315 sh [1]
IR: 3450-3150, 1600, 1500, 1470 [2]

Mass: 311(M^+), 310(100), 296, 294, 281, 280, 268, 155.5($^{++}$)
PMR: 2.50(3H, s, NCH_3), 2.60-3.70(7H, m), 3.76, 3.82(3H, 2×OCH_3), 6.53(1H, s, H-Ar), 6.70–6.95(2H, m, H-Ar), 8.36(1H, d, J=10, o-H-Ar)

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.

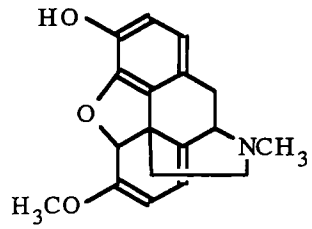


ORIPAVIDINE

Papaver orientale
$C_{17}H_{17}NO_3$: 283.1208
Mp: 215° (dec.)
$[\alpha]_D$–90° (meth.)
Sol-y.: r-sol. meth., alc., alk.; sp. sol. eth., bz., chlf., pyr., hx.

UV: 207, 228, 286
IR: 3430, 1605
PMR(CD_3OD): 1.50-3.50(7H, m), 3.53(3H, s, OCH_3), 5.10, 5.68(1H, d, J=8), 5.29(1H, s), 6.45, 6.56(1H, d, J=8, o-H-Ar)

1. Israilov I.A., Denisenko O.N., Yunusov M.S., Yunusov S.Yu., Murav'eva D.A., Khim. Prir. Soedin., 1977, 714.

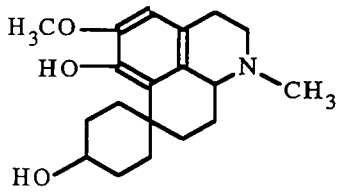


ORIPAVINE

Papaver bracteatum, P.orientale
$C_{18}H_{19}NO_3$: 297.1365
Mp: 201-202° (alc.) [1]
$[\alpha]_D$–232° (chlf.) [1]
{m-i. 208° (meth.)} [1]

UV: 285 [2]
Mass: 297(M^+), 296, 282, 266, 254. 241 [2]
PMR: 2.38(3H, s, NCH_3), 3.52(3H, s, OCH_3), 4.98, 5.52(1H, d, J=8), 5.20(1H, s), 6.45, 6.60(1H, d, J=9, o-H-Ar) [2]

1. Kiselev V.V., Konovalova R.A., Zh. Org. Khim., 1948, **18**, 855.
2. Israilov I.A., Unpub.
3. Milo J., Levy A., Palevitch D., Ladizinsky G., J. Chromatogr., 1988, **452**, 563.

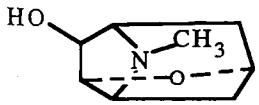


ORNITHOGALLINE

Ornithogalum platyphyllum
$C_{19}H_{27}NO_3$: 317.1991
Mp: 169-170°

IR: 3400-3200, 1600, 1480
Mass: 317(M^+)
PMR: 2.38(3H, s, NCH_3), 3.77(3H, s, OCH_3), 6.40(1H, s, H-3)

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 19.



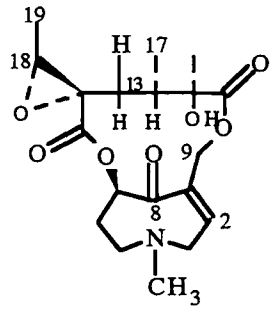
OSCINE

Datura innoxia
$C_8H_{13}NO_2$: 155.0946
Mp: 110°

$[\alpha]_D$ 0°
{h-b. 282°, picr. 238°, h-chl. 257°, Ac 57°} [1, 2]

IR: 3300-3200
Mass: 155($M^{+\cdot}$), 138, 126, 100, 96(100) [3]

1. Fodor G., Kovacs D., J. Chem. Soc., 1953, 2341.
2. Hess, Wahe, Chem. Ber., 1922, **55**, 1979
3. Aripova S.F., Unpub.

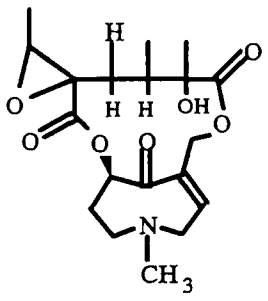


(+)-OTHOSENINE

Doronicum macrophyllum, Senecio erraticus, S.othonnae, S.renardii
$C_{19}H_{27}NO_7$: 381.1787
Mp: 221-222° (alc.) [1], 231° [2]
$[\alpha]_D$+21° (chlf.) [1]
{picr. 232° (dec.) [1], 245° (dec.) [2]; h-chl. otonecine 148° [1]}

Sol-y.: r-sol. chlf., meth., water; sol. alc., ac.; sp. sol. eth., bz. [1]
UV: 214 sh (3.46) [2]
IR: 3400, 2980, 2890, 2820, 1750, 1580, 1440, 1390, 1360, 1350, 1270, 1230, 1150, 1080, 1030, 980, 950, 860, 830, 800, 780, 760, 710 [4]
Mass: 381($M^{+\cdot}$, 32), 353(68), 337(42), 310(8), 294(18), 292(18), 282(9), 266(33), 254(3), 250(30), 239(8), 238(8), 168(90), 151(100), 150(30), 123(95), 122(60), 110(80), 94(55) [5]
PMR: 1.15(3H, d, J=6, 17-CH_3), 1.21(3H, d, J=5.5, 19-CH_3), 1.31(3H, s, 16-CH_3), 1.87(1H, m, H-12), 2.13(3H, s, NCH_3), 2.19, 2.56(1H, d, J=4, H-13), 2.26, 2.81(1H, m, H-6), 2.66, 2.90(1H, m, H-5), 2.91(1H, m, OH), 2.96(1H, q, J=5.5, H-18), 3.40(2H, m, H-3), 4.34, 5.48(1H, dd, J=11; 11, H-9), 5.10(1H, m, H-7), 6.14(1H, m, H-2) [6]
CD: [7]
HPLC: [8]
Pharm.: LD_{50} 630 mg/kg (i/p, mice) [9]. Spasmolytic action on the smooth musculature of the intestine [10].

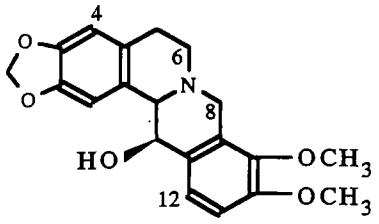
1. Zhdanovich E.S., Men'shikov G.P., Zh. Org. Khim., 1941, **11**, 835.
2. Khalilov D.S., Telezhenetskaya M.V., Khim. Prir. Soedin., 1973, 685.
3. Simanek V., Klasek A., Santavy F., Collect., 1969, **34**, 1832.
4. Khalilov D.S., Telezhenetskaya M.V., Unpub.
5. Abdullaev U.A., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 66.
6. Roder E., Wiedenfeld H., Hoening A., Planta Medica, 1983, **49**, 57.
7. Hrbek J., Hruban L., Klasek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.
8. Niwa H., Ishiwata H., Yamada K., J. Chromatogr., 1983, **257**, 146.
9. Sadritdinov, p. 114.
10. Litvinchuk M.D., Gaiduk R.I., Kit V.I., Farmakol. Toksikol., 1979, **42**, 509.



(–)-OTHOSENINE

Senecio jacobaea
$C_{19}H_{27}NO_7$: 381.1787
Mp: 232-235° (meth.)
$[\alpha]_D$–14° (chlf.)
{picr. 235°}

1. Akramov S.T., Shadmanov Z., Samatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 258.



OPHIOCARPINE

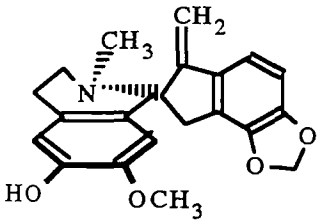
Corydalis gigantea
$C_{20}H_{21}NO_5$: 355.1420
Mp: 188-189° [1], 248-252° [2]
$[\alpha]_D$–285° (chlf.) [1]
UV: 230, 290 [1]

IR: 2850-2750 [3]
Mass: 355($M^{+\cdot}$), 176, 174 [1]
PMR: 3.52(1H, d, J=16), 3.85(6H, s, 2×OCH_3), 4.23(1H, d, J=16), 4.67(1H, d, J=1.5), 5.80(2H, s, CH_2O_2), 6.55, 6.77(1H, s, p-H-Ar), 6.83, 7.18(1H, d, J=8, o-H-Ar) [3]

^{13}C NMR: [2]

C-1	105.7	C-8	53.9	C-13	70.1
2	146.3	8a	128.7	14	64.8
3	146.6	9	151.8	14a	129.5
4	108.5	10	144.9	9-OCH_3	55.8
4a	127.4	11	111.4	10-OCH_3	60.1
5	29.5	12	125.5	2,3-OCH_2O	100.9
6	60.0	12a	131.9		

1. Margelashvili N.N., Author's Abstract of Candidate's Dissertation, Moscow, 1979.
2. Iwasa K., Sugiura M., Takao N., J. Org. Chem., 1982, **47**, 4275.
3. Kametani T., Matsumoto H., Satoh Y., Nemoto H., Fukumoto K., J. Chem. Soc. Perkin Trans.I., 1977, 376.

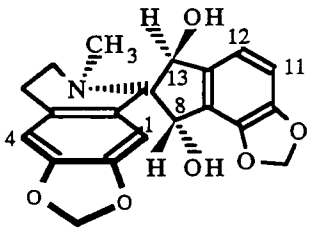


OCHOTENSINE

Corydalis vaginans
$C_{21}H_{21}NO_4$: 351.1471
Mp: 241-242° [1]
$[\alpha]_D$+51°
UV: 284 [4]

IR: 1650, 1600 [2]
Mass: 351($M^{+\cdot}$), 350, 349, 348, 336, 334, 323, 322, 321, 320, 308, 306, 305, 191, 190, 189, 176, 148, 103, 102, 99, 94, 83, 78, 77, 76, 65, 63 [2]
X-ray spectral analysis: [3]
Abs. conf.: [4]

1. Margvelashvili N.N., Author's Abstract of Candidate's Dissertation, Moscow, 1979.
2. McLean S., Lin M.-S., Manske R.H.F., Canad. J. Chem., 1966, **44**, 2449.
3. McLean S., Lin M.-S., McDonald A.C., Trotter J., Tetrahedron Lett., 1966, 185.
4. Shamma M., Moniot J.L., Manske R.H.F., Chan W.K., Nakanishi K., J. Chem. Soc. Commun., 1972, 310.



OCHROBIRINE

Corydalis vaginans
$C_{20}H_{19}NO_6$: 369.1212
Mp: 204° [1]
$[\alpha]_D$+36° (chlf.) [1]
UV: 205, 240, 291 [2]

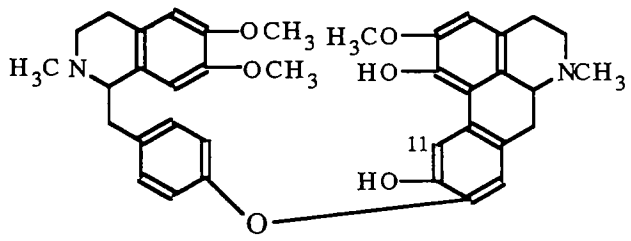
IR: 3585, 3300 [2]
Mass: 369(M^+), 351, 322, 190 [2]
PMR: 2.67(3H, s, NCH_3), 2.50-3.50(4H, m), 4.88, 5.42(1H, s), 5.81, 6.00(2H, s, 2×CH_2O_2), 6.04, 6.62(1H, s, p-H-Ar), 6.85(2H, s, o-H-Ar) [2]

^{13}C NMR: [3]

C-1	109.7	C-8	73.4	C-13	79.5
2	146.2	8a	121.5	14	75.2
3	146.8	9	144.7	14a	129.5
4	110.0	10	148.6	NCH_3	37.7
4a	126.0	11	107.1	2,3-OCH_2O	101.0
5	22.8	12	116.1	9,10-OCH_2O	101.9
6	47.6	12a	140.0		

X-ray spectral analysis: [4]
Abs. conf.: [5]

1. Margvelashvili N.N., Author's Abstract of Candidate's Dissertation, Moscow, 1979.
2. Manske R.H.F., Rodrigo R.G.A., McLean D.B., Gracey D.E.F., Saunders J.K., Canad. J. Chem., 1969, **47**, 3589.
3. Hughes D.W., Nalliah B.C., Holland H.L., McLean D.B., Canad. J. Chem., 1977, **55**, 3304.
4. Mathew M., Palenik G., Acta Cryst., 1975, **31**, 2899.
5. Shamma M., Moniot J.L., Manske R.H.F., Chan W.K., Nakanishi K., J. Chem. Soc. Chem. Commun., 1972, 310.

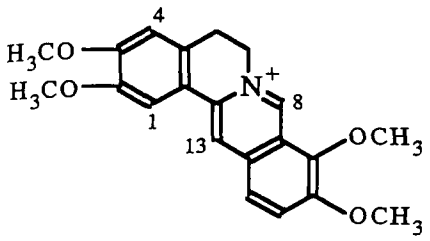


PAKISTANINE

Berberis sibirica
$C_{37}H_{40}N_2O_6$: 608.2876
Mp: 154-156°
$[\alpha]_D$−102° (meth.)
UV: 275, 305 (4.12, 2.02)
IR: 3400

Mass: 608(M^+), 402, 401, 206(100), 107
PMR($CDCl_3$+CD_3OD): 2.1-3.5(7H, m), 2.47, 2.50(3H, s, 2×NCH_3), 3.44, 3.71, 3.85(3H, s, 3×OCH_3), 5.85(1H, s, H-8′), 6.62(2H, s, H-3, H-5′), 6.74(1H, s, H-8), 6.83, 6.96(2H, d, J=8.5, o-H-Ar), 8.08(1H, s, H-11).

1. Karimov A., Levkovich M.G., Abdullaev N.D., Shakirov R., Khim. Prir. Soedin., 1993, 424.



PALMATINE

Berberis amurensis, B.heterobotrys, B.heteropoda, B.integerrima, B.nummularia, B.oblonga, B.ottawensis, B.vulgaris, Corydalis ledebouriana, Mahonia aquifolia, Thalictrum minus

$C_{21}H_{22}NO_4$: 352.1549

{iodide 241°, chloride 205°, p-chl. 262°} [1]

Sol-y.: r-sol. meth., alc.; sp. sol. chlf. [2]

UV: 226, 265(4.35, 4.37) [3]

IR: 3392, 1638, 1605 [3]

PMR(D_2O): 3.06(4H, narrow s, H-5, H-6), 3.74(3H, s, 2-OCH_3), 3.79(3H, s, 3-OCH_3), 3.91(3H, s, 10-OCH_3), 4.00(3H, s, 9-OCH_3), 6.76(1H, s, H-4), 7.04(1H, s, H-1), 7.56(1H, d, J=9.1, H-12), 7.80(1H, d, J=9.1, H-11), 8.04(1H, s, H-13), 9.39(1H, s, H-8) [4]

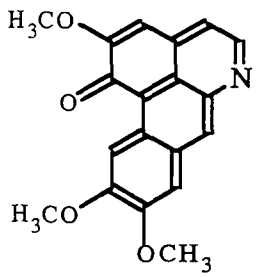
^{13}C NMR: [5]

C-1	108.7	C-8	145.0	C-13	120.5
2	149.6	8a	119.0	13a	138.3
3	150.6	9	152.4	13b	122.1
4	111.1	10	144.5	2-OCH_3	57.2
4a	134.0	11	123.6	3-OCH_3	57.2
5	27.2	12	126.8	9-OCH_3	62.5
6	56.8	12a	128.3	10-OCH_3	56.4

HPLC: [6]

Pharm.: Depressive influence on cholinesterase [7]. Antimalarial activity [5].

1. Yunusov S.Yu., Alkaloids [in Russian], Fan, Tashkent, 1981, p. 135.
2. Karimov A., Unpub.
3. Khusainova Kh.Sh., Sadykov Yu.D., DAN Tadzh. SSR, 1981, **24**, 489.
4. Patra A., Ghosh A., Mitra A.K., Planta Medica, 1980, **40**, 333.
5. Hussain R.A., Kim J., Beecher C.W.W., Kinghorn A.D., Heterocycles, 1989, **29**, 2257.
6. Bonora A., Tosi B., Dall'Olio G., Bruni A., Phytochem., 1990, **29**, 2389.
7. Sadritdinov, p. 82.



PANCORIDINE

Corydalis paniculigera, C.stricta

$C_{19}H_{15}NO_4$: 321.1001

Mp: 218-219° (chlf.-meth.)

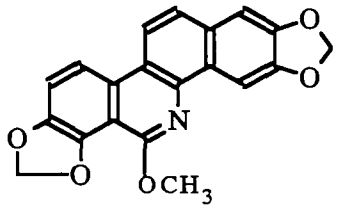
UV: 218, 236, 259, 277, 298, 312, 340, 402, 466

IR: 1635, 1580, 1505

Mass: 321($M^{+\cdot}$), 306, 290(100), 160.5($^{++}$)

PMR(CF_3COOH): 3.75(6H, s, 2×OCH_3), 3.82(3H, s, OCH_3), 6.77, 7.08, 8.51, 9.07(1H, s, H-Ar), 7.68, 8.53(1H, d, J=5.5, o-H-Ar)

1. Alimova M., Israilov I.A., Yunusov M.S., Abdullaev N.D., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 727.

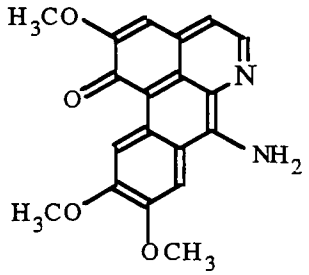


PANCORINE

Corydalis paniculigera
$C_{20}H_{13}NO_5$: 347.0794
Mp: 254-256° (dec.)
UV: 245, 270, 288, 297 (inflection), 325
IR: 1640, 1610, 1580, 1505, 1045, 940

Mass: 347(M^+)
PMR(CF_3COOH): 3.78(3H, s, OCH_3), 5.74, 6.02(2H, s, $2\times CH_2O_2$), 6.82-7.76(6H, m, H-Ar)

1. Alimova M., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1981, 671.

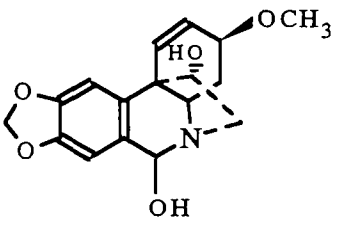


PANCORININE

Corydalis paniculigera, C.stricta
$C_{19}H_{16}N_2O_4$: 336.1108
Mp: 289-290° (chlf.-meth.)
UV: 232, 247, 265, 276, 287, 296, 376, 412, 440, 526, 566
IR: 1650, 1545, 1510, 1250

Mass: 336(M^+), 305(100), 292
PMR: 3.74, 3.83, 3.95(3H, s, $3\times OCH_3$), 7.24, 7.45, 8.63(1H, s, H-Ar), 8.20, 8.54(1H, d, J=5.5, o-H-Ar)

1. Alimova M., Israilov I.A., Yunusov M.S., Abdullaev N.D., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 727.

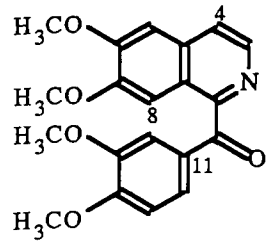


PANCRATINE (HEMANTIDINE, LYUTEINE)

Hymenocallis littoralis, Narcissus tazetta, Pancratium maritimum, P.trianthum, Sternbergia lutea, Ungernia ferganica, U. sewerzowii, U.tadshicorum, U.trisphaera, U.victoris, U.vvedenskyi

$C_{17}H_{19}NO_5$: 317.1263
Mp: 190-191° [1]
$[\alpha]_D$–34° (chlf.) [1] {h-chl. 206° [1], p-chl. 119°, picr. 205° [2], m-i. 214° (dec.), dihydro. 203° [3]}
UV: 242, 293 [4]
IR: 3390, 1509, 1489, 1304, 1248, 1195, 1168, 1127, 1110, 1063, 1038, 983, 942, 936, 910, 870, 858, 817, 773, 740, 708 [4]
Pharm.: LD_{50} 280 mg/kg (i/v, mice) [5]. Supresses conditioned reflex activity; prolongs the action of narcotics and hypnotics [6]. Pronounced and prolonged hypotensive action [5].

1. Proskurnina N.F., DAN SSSR, 1955, **103**, 851.
2. Abduazimov Kh.A., Yunusov S.Yu., DAN UzSSR, 1965, No. 1, 35.
3. Aliev Kh.U., In: The Pharmacology of Plant Substances [in Russian], Fan, Tashkent, 1976, p. 116.
4. Holubek, No. 131.
5. Bazhenova E.D., Aliev Kh.U., Zakirov U.B., Kamilov I.K., DAN UzSSR, 1966, No. 1, 38.
6. Bazhenova E.D., Zakirov U.B., Kamilov I.K., In: The Pharmacology of Alkaloids and Glycosides [in Russian], Fan, Tashkent, 1967, p. 117.



PAPAVERALDINE (CSANTALINE)

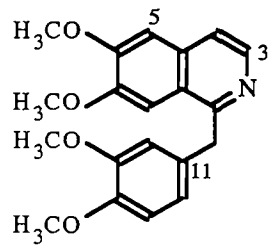
Papaver somniferum
$C_{20}H_{19}NO_5$: 353.1263
Mp: 210° [1]
{m-i. 135°} [1]

^{13}C NMR: [2]

C-1	153.5	C-8	103.8	C-6′	126.6
3	139.7	8a	122.5	OCH_3	55.9
4	120.9	1′	129.6		55.9
4a	133.6	2′	111.7		55.9
5	104.6	3′	148.7		55.9
6	152.9	4′	153.5	C=O	186.4
7	150.7	5′	109.7		

HPLC: [3]

1. Guthrie D.A., Frank A.W., Purves C.B., Canad. J. Chem., 1955, **33**, 729.
2. Marsaioli A.J., Magalhaes A.F., Ruveda E.A., Reis F.A.M., Phytochem., 1980, **19**, 995.
3. Colautti A., Fontani F., Mauricii V., J. Pharm. Biochem. Anal., 1987, **5**, 493.



PAPAVERINE

Papaver commutatum, P.somniferum
$C_{20}H_{21}NO_4$: 339.1471
Mp: 145-147° [1]
{oxalate 196° (dec.), picr. 186° (dec.), h-chl. 226°} [1]

UV: 239, 280 [2]
IR: 1649, 1600, 1534, 1485, 1317, 1288, 1259, 1203, 1188, 1168, 1142, 1128, 1102, 1039, 1013, 978, 938, 925, 890, 869, 862, 853 [3]
Mass: 339(M^+), 338, 324(100), 308 [4]

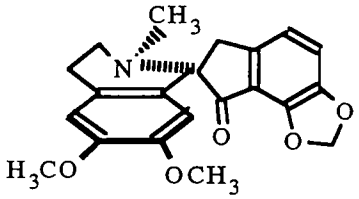
^{13}C NMR: [5]

C-1	157.4	C-7	149.7	C-3′	148.6
3	140.6	8	103.8	4′	147.0
4	118.3	8a	122.5	5′	110.5
4a	133.0	9	42.0	6′	120.1
5	104.9	1′	131.9	OCH_3	55.5
6	152.0	2′	111.5		

X-ray spectral analysis: [6]
HPLC: [7]
Pharm.: Vasodilating and spasmolytic action. Used in spasms of the smooth musculature, the peripheral vessels, and the vessels of the brain [8]. Supplied in the form of tablets, ampuls, suppositories, and combined tablets: "Mopaverin," "Pafillin," "Kellatrin," "Kelliverin," and "Nikoverin."

1. Mnatsakanyan V.A., Yunusov S.Yu., DAN UzSSR, 1961, No. 3, 34.
2. Sangster A.W., Stuart K.L., Chem. Rev., 1965, **65**, 69.

3. Holubek, No. 205.
4. Ohashi M., Wilson J.M., Budzikiewicz H., Shamma M., Slusarchyk W.A., Djerassi C., J. Amer. Chem. Soc., 1963, **85**, 2807.
5. Marsaioli A.J., Ruveda E.A., Reis F.A.M., Phytochem., 1978, **17**, 1655.
6. Barnes W.H., Canad. J. Chem., 1954, **32**, 994.
7. Ayyangar N.R., Bhide S.R., J. Chromatogr., 1986, **366**, 435.
8. Mashkovskii, Vol. 1, p. 447.

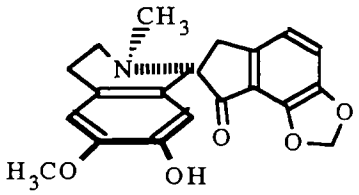


PARFUMIDINE

Fumaria parviflora
$C_{21}H_{21}NO_5$: 367.1420
Mp: 170-171°
$[\alpha]_D$+33° (chlf.)
UV: 235, 263, 290, 360

IR: 1720, 1620, 1520, 1020, 915
Mass: 367(M^+), 352, 338, 324, 308, 183.5($^{++}$).
PMR: 2.28(3H, s, NCH_3), 2.60-3.60(6H, m), 3.52. 3.77(3H, s, 2×OCH_3), 6.07(2H, s, CH_2O_2), 6.13, 6.52(1H, s, p-H-Ar), 6.83, 7.03(1H, d, J=8, o-H-Ar)

1. Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 493.



PARFUMINE

Fumaria parviflora, F.vaillantii
$C_{20}H_{19}NO_5$: 353.1263
Mp: 111-112° (dec.)
$[\alpha]_D$+18° (chlf.)

Sol-y.: sp. sol. ac., eth.; r-sol. alk., chlf.
UV: 235, 260, 290, 358
IR: 3420, 3100, 1710, 1610, 1505, 1030, 920
Mass: 353(M^+), 338, 324, 308
PMR: 2.27(3H, s, NCH_3), 2.60-3.60(6H, m), 3.71(3H, s, OCH_3), 6.03(2H, s, CH_2O_2), 6.18, 6.48(1H, s, p-H-Ar), 6.77, 6.99(1H, d, J=8, o-H-Ar) [1]
X-ray spectral analysis: [2]
HPLC: [3]

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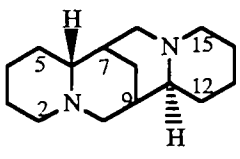
2. Nasirov S.M., Kuz'mina L.G., Struchkov Yu.T., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1980, 66.
3. Valka I., Simanek V., J. Chromatogr., 1988, **445**, 258.



PACHYCARPINE [(+)-SPARTEINE]

Ammodendron argenteum, A.conollyi, A.eichwaldii, A.karelinii, A.longiracemosum, Ammothamnus lehmanii, Cytisus caucasicus, C.laburnum, Genista abchasica, Leontice ewersmannii, Leptorhabdos parviflora, Sophora griffithii, S.pachycarpa, Thermopsis alpina, T.alterniflora, T.dolichocarpa, T.fabacea, T.lanceolata, Vexibia pachycarpa $C_{15}H_{26}N_2$: 234.2096
$[\alpha]_D$+17° (alc.)
{h-i. 235°, di h-i. 258°, p-chl. 173°, m-i. 240°, picr. 97°, di picr. 208°} [1]

IR: 2780, 2730 [2]
Mass: 234(M^+), 193, 137, 136, 98(100), 97, 84, 55, 41 [3]
PMR: 1.30(1H, H-9). 1.65(1H, H-7), 1.87(2H, H-2_a, H-15_a), 1.90(1H, J=10; 2, H-10_a), 2.02(1H, J=11, H-8_e), 2.22(1H, J=10; 2, H-17_a), 2.42(1H, J=10; 2, H-10_e), 2.50(1H, J=10, H-17_e), 2.56(2H, H-2_e, H-15_e) [4].

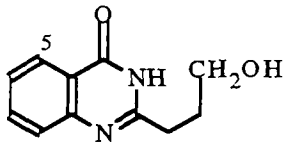
^{13}C NMR: [5]

C-2	55.9	C-7	32.8	C-12	27.3
3	25.2	8	29.1	13	24.4
4	24.5	9	35.7	14	25.5
5	33.8	10	61.5	15	55.0
6	64.0	11	66.1	17	52.9

Pharm.: LD_{50}\{h-i.\} 90.26 mg/kg (s/c, i/v). Blocker of n-choline receptors. Enhances the activity of enzymes. Used for the treatment of obliterating endarteritis, ganglionitis and myopathy and as an obstetric agent. Supplied in the form of powder, tablets, and ampuls with 2 ml of a 3% soln. [7].

1. Boit, p. 184.
2. Bohlmann F., Chem. Ber., 1958, **91**, 2157; 1957, **90**, 653.
3. Neuner-Jehle N., Nesvadba H., Spiteller G., Mh. Chem., 1964, **95**, 687.
4. Sadykov, p. 217.
5. Sadykov A.S., Izv. AN SSSR, Ser. Khim., 1983, No. 11, 2432.
6. Sadritdinov, p. 141.
7. Mashkovskii, Vol. 1, p. 255.

PEGAMINE

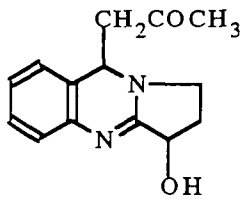


Peganum harmala
$C_{11}H_{12}N_2O_2$: 204.0899
Mp: 160-161°
{p-chl. 193°, Ac 174°}

Sol-y.: sp. sol. org. solvent
UV: 226, 266, 306, 318.
IR: 3500-2700, 1695, 1618, 1510, 1440.
Mass: 204(M^+), 187, 186, 185, 174, 173, 160(100), 119, 92, 90, 77, 76.
PMR(CF_3COOH): 2.14, 3.00, 4.20(2H, m), 7.75(3H, m), 8.15(1H, d, J=5, H-5).

1. Khashimov Kh.N., Telezhenetskaya M.V., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 453.

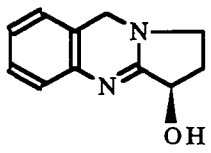
PEGANIDINE



Peganum harmala
$C_{14}H_{16}N_2O_2$: 244.1212
Mp: 189-190°
$[\alpha]_D$ 0° [1]

{h-chl. 192° (dec.), p-chl. 152°, picr. 183°, oxime 86°, semicarbazone 206°}
Sol-y.: sp. sol. bz., ac., alc., chlf. [2]
UV: 226, 297(4.04. 3.96) [1]
IR: 2870, 1700, 1350 [1]
Mass: 244(M^+, 8), 188(6), 187(100), 169(4), 159(8), 131(10), 57(3), 43(4) [1, 2]
PMR(CF_3COOH): 1.86(3H, s, CH_3), 2.02, 2.38, 3.35, 3.73(1H, m), 3.07(2H, d), 5.02 (1H, t), 6.86(4H, m) [2]
Pharm.: LD_{50} 143, 254, 380 mg/kg (i/v, i/p, s/c, mice). Causes salivation, vomiting, defecation [3].

1. Khashimov Kh.N., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 599.
2. Khashimov Kh.N., Author's Abstract of Candidate's Dissertation, Tashkent, 1978.
3. Sadritdinov, p. 303.

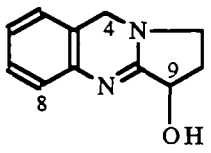


(–)-PEGANINE

Nitraria komarovii, Peganum harmala
$C_{11}H_{12}N_2O$: 188.0950
Mp: 211-212° (dec.) [1]

$[\alpha]_D$–61° (alc.); –189° (chlf.) [1]
{picr. 211°, h-chl. 207°, nitr. 130° (dec.)} [1]
X-ray spectral analysis: [2]

1. Khashimov Kh.N., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 456; Khashimov Kh.N., Author's Abstract of Candidate's Dissertation, Tashkent, 1973.
2. Szulzewsky K., Hohne E., Johne S., Groger D., J. Prakt. Chem., 1976, **318**, 463.



(±)-PEGANINE

Galega officinalis, Linaria popovii, L.transiliensis, L.vulgariformis, L.vulgaris, Peganum harmala, P.nigellastrum

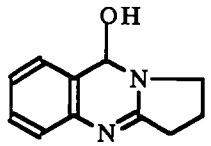
$C_{11}H_{12}N_2O$: 188.0950
Mp: 209-210° (dec., alc.) [1]
{nitr. 169° (dec.), picr. 194°, h-chl. 204°, h-i. 192°, m-i. 187°} [1]
Sol-y.: r-sol. chlf.; sol. alc., meth. [1]
UV: 226, 303(4.10, 3.95) [2]
IR: 3100, 2850, 1640, 1590, 1505, 1485, 1460 [3]
Mass: 188(M^+), 187(100), 169, 159, 131, 104, 77 [4]
PMR: 2.80, 3.50(2H, m, H-10, H-11), 4.62(2H, s, H-4), 4.80(1H, t, J=7, H-9), 7.05(4H, m, H-Ar) [2]

^{13}C NMR: [5]

C-2	163.9	C-6	124.0*	C-9	69.9
4	47.1	7	128.3	10	28.9
4a	118.9	8	123.6*	11	48.3
5	125.7	8a	142.4		

HPLC: [6]
Pharm.: LD_{50} 78.7, 220 mg/kg (i/v, s/c, mice). Anticholinesterase properties [7].

1. Khashimov Kh.N., Author's Abstract of Candidate's Dissertation, Tashkent, 1973.
2. Arndt R.R., Eggers S.H., Jordaan A., Tetrahedron, 1967, **23**, 3521.
3. Khashimov Kh.N., Unpub.
4. Bhatnagar A.K., Popi S.P., Indian J. Chem., 1966, **4**, 291.
5. Johne S., Jung B., Groger D., J. Pract Chem., 1977, **319**, 919.
6. Parikh K.M., Doshi V.J., Salunkhe J.B., Kamath R.P., Indian Drugs, 1989, **27**, 64.
7. Sadritdinov, p. 304.

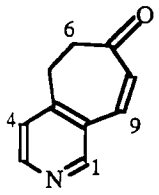


PEGANOL

Peganum harmala
$C_{11}H_{12}N_2O$: 188.0950
Mp: 178-180° (dec.) [1]

{nitr. 138°} [1]
Sol-y.: r-sol. meth., alc., chlf.; sp. sol. bz., ac.; i.s. eth. [2]
UV: 275(3.96) [1]
IR: 3200, 2700, 1620, 1568, 1480, 1420 [2]
Mass: 188(M^+, 9), 187(6), 171(100) [3]
PMR: 0.75(1H, m), 1.70(3H, m), 3.25(1H, m), 3.88(1H, m), 5.75(1H, s), 7.00(4H, m) [3]
HPLC: [4]
Pharm.: LD_{50} 130 mg/kg (i/v, mice) [5]. Causes reversible suppression of cholinesterase activity and gross disturbances of conditioned reflex activity and behavioral reactions [6].

1. Khashimov Kh.N., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 849.
2. Khashimov Kh.N., Author's Abstract of Candidate's Dissertation, Tashkent, 1978.
3. Telezhenetskaya M.V., Unpub.
4. D'yakonov A.L., Kabulov B.D., Khim. Prir. Soedin., 1991, 297.
5. Sadritdinov, p. 305.
6. Tulyaganov N., Abstracts of the IVth All-Union Congress of Pharmacologists, Leningrad, 1976, p. 204.

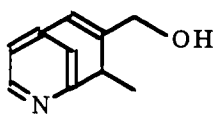


PEDICULIDINE

Pedicularis olgae
$C_{10}H_9NO$: 159.0684
Mp: 74-75°
{picr. 212°}

UV: 268, 273, 293(3.97, 3.96, 3.36)
IR: 1695-1640, 1620, 1595, 1590, 855, 810
Mass: 159(M^+, 100), 158, 132, 131, 130, 118, 117, 104, 103, 102, 91, 89, 77
PMR: 2.45-3.15(4H, m, H-5,6,10,11), 6.34, 7.12(1H, d, J=12.5, H-9, H-8), 7.15, 8.41(1H, d, J=5.2, H-4, H-3), 8.51(1H, s, H-1)

1. Abdusamatov A., Rashidov M.U., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 304.

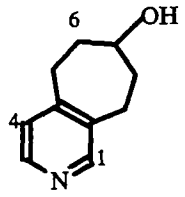


PEDICULINE

Pedicularis olgae
$C_{10}H_{11}NO$: 161.0841
Mp: 188-189° (alc.)

$[\alpha]_D$+61.5° (alc.)
UV: 265
IR: 3200, 2960, 1590, 880, 810
Mass: 161(100), 146, 117, 91

1. Abdusamatov A., Ubaev Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 136.

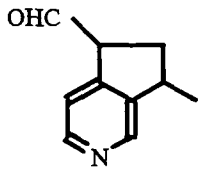


PEDICULININE

Pedicularis olgae, Verbascum nobile
$C_{10}H_{13}NO$: 163.0997
Mp: 133-134° (ac.)
$[\alpha]_D$ 0° (alc.)

{picr. 161°}
UV: 262, 269(3.33, 3.23)
IR: 3400-3200, 1595
Mass: 163($M^{+\cdot}$), 161, 146, 145, 131, 130, 119, 118, 117, 91, 77
PMR: 1.57, 1.98(2H, t, H-6,8,10), 2.40-3.05(4H, m, H-5,9,11), 4.01(2H, m, H-7, OH), 6.93(1H, d, J=5, H-4), 8.19(2H, m, H-1, H-3)

1. Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 306.

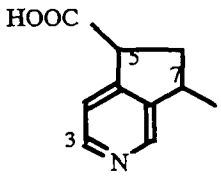


PEDICULARIDINE

Pedicularis olgae
$C_{10}H_{11}NO$: 161.0841
Mp: 211-212° (alc.)
$[\alpha]_D$+68° (meth.)

UV: 263, 270(3.36, 3.32)
IR: 2960, 1700, 1600
Mass: 161($M^{+\cdot}$, 100), 160(16), 133(4), 132(15), 118(16), 117(19), 91(10), 77(6)

1. Khakimdzhanov S., Abdusamatov A., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 132.

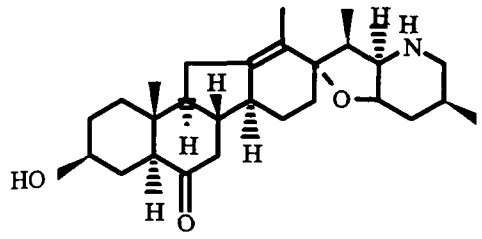


PEDICULARINE

Catalpa speciosa, Pedicularis olgae
$C_{10}H_{11}NO_2$: 177.0790
Mp: 208-209° (dec., meth.)
$[\alpha]_D$−15° (meth.)

{nitr. 184° (dec.)}
UV: 265, 272(2.87, 2.89)
IR: 2960, 1710, 1600
Mass: 177($M^{+\cdot}$, 52), 162(100), 133(40), 118(68), 117(52), 91(34), 77(14)
PMR: 1.07(3H, d, J=6, CH_3), 1.66, 2.18(1H, m, H-6), 3.08(2H, m, H-5, H-7), 8.07, 8.47(1H, d, J=5.5, H-4, H-3), 8.92(1H, s, H-1)

1. Abdusamatov A., Khakimdzhanov S., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 457.

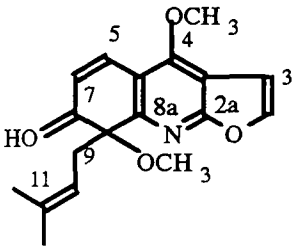


PEIMISINE

Petilium eduardii, P.raddeanum
$C_{27}H_{41}NO_3$: 427.3087
Mp: 267-269° (meth.)
$[\alpha]_D$–45° (alc.)
{h-chl. 252°, h-b. 259°, h-i. 256°, nitr. 232°, oxime 191°, O.N-di Ac 240°, N-Me 240°} [1, 2].

IR: 3520, 3260, 2930, 1700, 1665
Mass: 427(M^+), 125(100), 125(100), 124, 111(46)
PMR: 0.62(3H, s, 19-CH_3), 0.85(3H, d, 21-CH_3), 0.90(3H, d, 27-CH_3), 1.56(3H, s, 18-CH_3)
PMR{O.N-di Ac}: 0.64(3H, s, 19-CH_3), 0.79(3H, d, 21-CH_3), 0.97(3H, d, 27-CH_3), 1.65(3H, s, 18-CH_3), 1.96(3H, s, OAc), 2.04(3H, s, NAc), 4.64(1H, m, HC-OAc) [3]

1. Shakirov R., Nuriddinov R.N., Yunusov S.Yu., Dokl. AN UzSSR, 1963, No. 9, 23.
2. Nakhatov I., Nabiev A., Shakirov R., Khim. Prir. Soedin., 1981, 616.
3. Nuriddinov R.N., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 413.



PERFAMINE

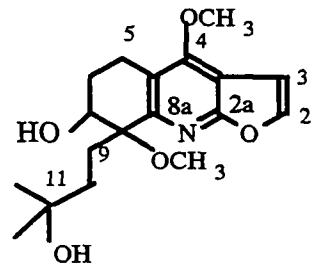
Haplophyllum acutifolium, H.perforatum
$C_{18}H_{19}NO_4$: 313.1314
Mp: 164-165° (eth.-ac.)
$[\alpha]_D$+53° (chlf.) [1]
{semicarbazone 212° [2], hydrogenation product 225° [1, 3]}

Sol-y.: r-sol. chlf.; sol. alc., meth., ac., eth.; i.s. water
UV: 215, 264, 272, 345(4.30, 4.43, 4.43, 3.91) [1]
IR: 3145, 3115, 1670 [1]
Mass: 313(M^+, 4), 298(2), 283(6), 266(14), 252(8), 245(100), 240(15), 230(18), 228(12), 227(92), 216(24) [1]
PMR: 1.28, 1.43(3H, s, 2×CH_3), 2.73, 4.76(2H, d; 1H, t, J=6.5, H-9, H-10), 3.04, 4.37(3H, s, 2×OCH_3), 6.12, 8.03(1H, d, J=10, H-6, H-5), 7.10, 7.66(1H, d, J=3, H-3, H-2) [1]

^{13}C NMR: [4]

C-2	143.5	C-5	137.2	C-10	113.6
2a	162.1	6	124.4	11	136.2
3	105.3	7	201.4	12	17.6
3a	115.5	8	86.3	13	25.7
4	158.0	8a	157.6	4-OCH_3	59.0
4a	105.6	9	42.3	8-OCH_3	53.9

1. Razakova D.M., Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 812; 1976, 791.
2. Bessonova I.A., Unpub.
3. Razakova D.M., Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 246.
4. Rosza Z., Rabik M., Szendrei K., Kalman A., Argay G., Pelczer I., Aynechi M., Mester I., Reisch J., Phytochem., 1986, **25**, 2005.



PERFORINE

Haplophyllum perforatum
$C_{18}H_{25}NO_5$: 335.1733
Mp: 182-183° (meth.) [1]
$[\alpha]_D$+15° (meth.) [1]
{chlor. Ac 158°, anhydro. 144° (alc.), tetrahydro. 107°, dihydro. 169°}

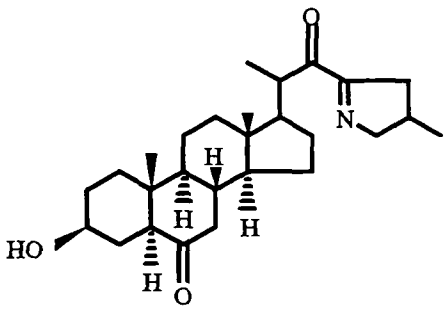
Sol-y.: sol. DMSO.; sp. sol. chlf., meth., ac.; i.s. eth., petr. eth., water [1]
UV: 256(4.00) [1]
IR: 3420, 3148, 3118, 1605, 1585, 1545, 1475, 1267, 1100 [2]
Mass: 335(M^+, 62), 302(74), 288(31), 270(10), 248(34), 228(26), 216(100), 202(31), 201(30), 188(87), 173(8) [2]
PMR: 1.20, 1.24(3H, s, 2×CH_3), 3.09, 4.19(3H, c, 2×OCH_3), 4.20(1H, m, H-7), 6.87, 7.47(1H, J=3, H-3, H-2) [2]

^{13}C NMR(DMSO-d_6): [3]

C-2	142.7	C-5	18.0	C-10	23.2
2a	161.9	6	23.9	11	69.2
3	104.6	7	67.2	12	29.4
3a	116.5	8	78.0	13	29.4
4	157.9	8a	151.2	4-OCH_3	58.6
4a	104.9	9	35.9	8-OCH_3	49.6

Pharm.: LD_{50} 709 mg/kg (oral, mice). Sedative, anticonvulsive, soporific, analgesic, central muscle-relaxing [4], and estrogenic action [5].

1. Faizutdinova Z.Sh., Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 360.
2. Bessonova I.A., Faizutdinova Z.Sh., Rashkes Ya.V., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 273; Unpub.
3. Yagudaev M.R., Bessonova I.A., Khim. Prir. Soedin., 1989, 25.
4. Sadritdinov, p. 275.
5. Akhmedkhodzhaeva Kh.S., in: The Pharmacology of Natural Substances [in Russian], Fan, Tashkent, 1978, p. 51.

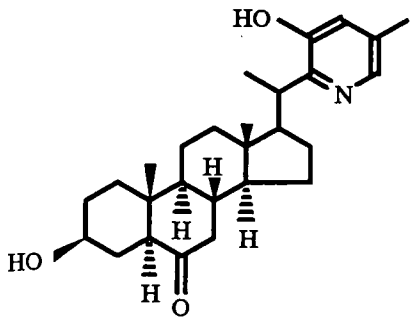


PETISIDINE

Petilium raddeanum, Korolkowia sewerzowii
$C_{27}H_{41}NO_3$: 427.3087
Mp: 150-152° (ac.-hx.)
$[\alpha]_D$–20° (meth.)
Sol-y.: r-sol. chlf. [1-3]
UV: 285(2.65)
IR: 3380, 1691, 1615, 1065

Mass: 427(M^+, 33), 412(7), 256(7), 164(9), 150(9), 149(14), 140(100), 139(33), 129(9), 124(9), 121(7), 111(28), 110(19), 97(28)
PMR: 0.57(3H, s, 19-CH_3), 0.66(3H, s, 18-CH_3), 0.99(3H, d, J=6, 21-CH_3), 1.06(3H, d, J=7, 27-CH_3) [2]

1. Nabiev A., Shakirov R., Shakirova U.T., Khim. Prir. Soedin., 1981, 405.
2. Nabiev A., Nakhatov I., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 528.
3. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1985, 128.

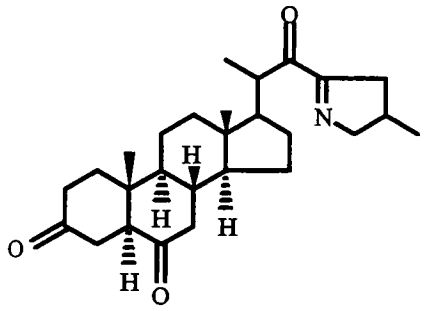


PETISIDININE

Petilium raddeanum
$C_{27}H_{39}NO_3$: 425.2930
Mp: 290-292° (meth.)
{dihydro. 330°, octahydro. 154°}
IR: 3400, 3030, 2950, 2875, 1710, 1610, 1585, 765
Mass: 425(M^+), 410, 408, 394, 356, 285, 177, 176, 162, 150, 149, 137(100), 136, 123, 119, 111, 110, 97

PMR: 0.60(6H, s, 18-CH_3, 19-CH_3), 1.07(3H, d, 21-CH_3), 2.16(Ar-CH_3), 6.81, 7.64(2H, H-Ar)

1. Nakhatov I., Nabiev A., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 747.

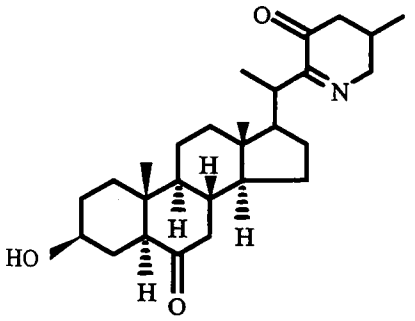


PETISIDINONE

Petilium raddeanum
$C_{27}H_{39}NO_3$: 425.2930
Mp: 217-219° (hx.-ac.)
$[\alpha]_D$ 0°
Sol-y.: sol. chlf., alc., meth.
IR: 1710, 1690, 1610
Mass: 425(M^+), 410, 397, 149, 140(100), 139, 110, 97

PMR: 0.60(3H, s, 18-CH_3), 0.86(3H, s, 19-CH_3), 0.99(3H, d, J=5, 21-CH_3), 1.00(3H, d, J=6, 27-CH_3)

1. Nabiev A., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 620.

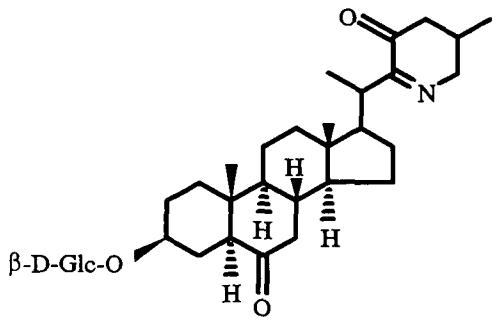


PETISINE

Petilium raddeanum
$C_{27}H_{41}NO_3$: 427.3087
Mp: 221-222° (meth.)
$[\alpha]_D$–34° (meth.) [1]
UV: 270, 277(2.74, 2.66)
IR: 3400, 1710, 1628
Mass: 427(M^+, 100), 412, 399, 394, 150, 149, 140, 139, 121, 119, 111, 97

PMR: 0.71(3H, s, 19-CH_3), 0.71(3H, s, 18-CH_3), 1.00(3H, d, 21-CH_3), 1.06(3H, d, 27-CH_3) [2]
CD: [3]

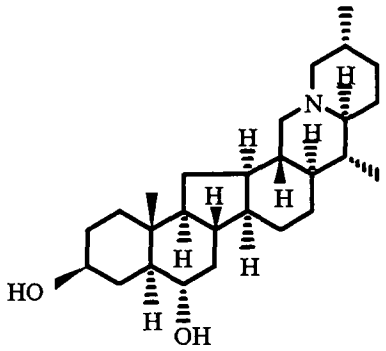
1. Nabiev A., Shakirov R., Shakirova U.T., Khim. Prir. Soedin., 1981, 405.
2. Nakhatov I., Nabiev A., Shakirov R., Khim. Prir. Soedin., 1981, 616.
3. Moiseeva G.P., Nabiev A., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 345.



PETISININE

Petilium raddeanum
$C_{33}H_{51}NO_8$: 589.3615
Mp: 232-234° (meth.)
$[\alpha]_D$–35°
Sol-y.: sol. chlf., meth.
IR: 3430, 1715, 1630, 1100-1000
Mass: 589(M^+)

1. Nakhatov I., Nabiev A., Shakirov R., Khim. Prir. Soedin., 1981, 616.

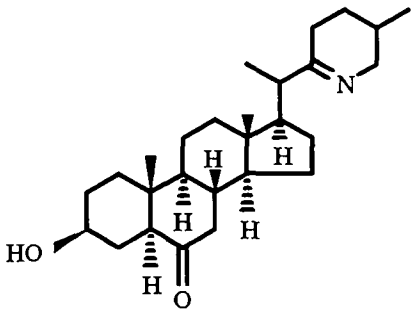


PETILIDINE

Petilium raddeanum
$C_{27}H_{45}NO_2$: 415.2450
Mp: 265-266° (ac.-meth.)
$[\alpha]_D$–15.5° (meth.)
{h-chl. 274°, h-b. 312°, diketone 228°, di Ac amorph.}
IR: 3300, 2950-2850, 2750, 1450, 1055
Mass: 415(M^+), 400, 397, 112, 111, 98, 97

PMR: 0.71(3H, s, 19-CH_3), 0.77(3H, d, 21-CH_3), 0.77(3H, d, 27-CH_3)
PMR{di Ac}: 0.79(3H, s, 19-CH_3), 0.77(3H, d, 21-CH_3), 0.77(3H, d, 27-CH_3), 1.96(6H, s, OAc), 4.58(2H, m, H-3, H-6)
PMR{diketone}: 0.78(3H, d, 21-CH_3), 0.78(3H, d, 27-CH_3), 0.87(3H, s, 19-CH_3) [1]
Pharm.: Weak antimicrobial activity [2].

1. Nuriddinov R.N., Babaev B., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 332.
2. Isamukhamedov I., in: The Pharmacology of Alkaloids and Their Derivatives [in Russian], Fan, Tashkent, 1972, p. 185.



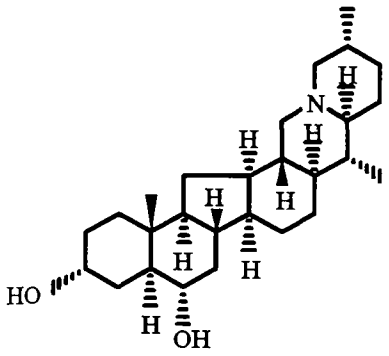
PETILINE

Petilium raddeanum
$C_{27}H_{43}NO_2$: 413.3294
Mp: 206° (ac.)
$[\alpha]_D$–51°
{h-chl. 289°, h-b. 316°, oxime 220°, N,O-di Ac 189°, N-Me. 221°, tetrahydro. 210°} [1]
Sol-y.: r-sol. meth., alc., chlf.; sp. sol. petr. eth.

IR: 3400, 3310, 2940-2840, 1718, 1675, 1470
Mass: 413(M^+, 54), 398, 395, 165(18), 164(12), 151(16), 150(7), 125(100), 112(17), 111(84), 110(8) [1, 2]
PMR: 0.63(3H, s, 18-CH_3), 0.68(3H, s, 19-CH_3), 0.83(3H, d, 21-CH_3), 1.01(3H, d, 27-CH_3) [2]
CD: [3]
Pharm.: Antiinflammatory, hypotensive [4, 5], and antimicrobial action [6].

1. Nuriddinov R.N., Babaev B., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 168.

2. Nuriddinov R.N., Babaev B., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 604.
3. Moiseeva G.P., Nabiev A., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 345.
4. Saidkasymov T., Sultanov M.B., Umarova Sh., in: The Pharmacology of Alkaloids and Cardiac Glycosides [in Russian], Fan, Tashkent, 1971, p. 187.
5. Saidkasymov T., in: The Pharmacology of Plant Substances [in Russian], Fan, Tashkent, 1976, p. 60.
6. Isamukhamedov I., in: The Pharmacology of Alkaloids and Their Derivatives [in Russian], Fan, Tashkent, 1972, p. 185.

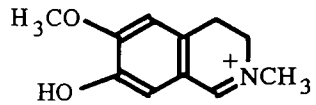


PETILININE

Petilium raddeanum
$C_{27}H_{45}NO_2$: 415.3450
Mp: 277-278° (meth.)
$[\alpha]_D$–10°
{h-chl. 297°, h-b. 283°, di Ac 194°, petilinindione 228°}
Sol-y.: sp. sol. chlf., ac., meth.
IR: 3410, 3140, 2980-2860, 2785, 1455, 1435, 1053

Mass: 415(M^+, 32), 112(33), 111(100), 98(10), 97(24)
PMR{di Ac}: 0.76(3H, s, 19-CH_3), 0.77(3H, d, 21-CH_3), 0.77(3H, d, 27-CH_3), 1.95(3H, s, OAc), 1.98(3H, s, OAc), 4.58(1H, m, HC-OAc), 5.03(1H, m, HC-OAc)
PMR{petilinindione}: 0.79(3H, d, 21-CH_3), 0.79(3H, d, 27-CH_3), 0.87(3H, s, 19-CH_3) [1]
Pharm.: Does not exhibit antimicrobial activity [2].

1. Nuriddinov R.N., Babaev B., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 261.
2. Isamukhamedov I., in: The Pharmacology of Alkaloids and Their Derivatives [in Russian], Fan, Tashkent, 1972, p. 185.

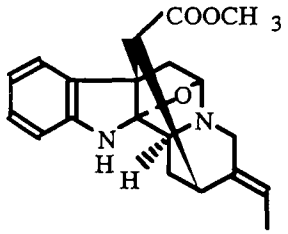


PICNORRINE

Corydalis stricta
$C_{11}H_{14}NO_2$: 192.1024
{iodide 206° (meth.-chlf.)}

Sol-y.: sp. sol. chlf., meth., alc.
UV: 217, 252, 313, 370
IR: 3320, 3225, 1675, 1610, 1580
Mass: 192, 178, 175, 160, 142, 127
PMR(CF_3COOH): 3.31(3H, s, NCH_3), 3.40-4.00(4H, m), 3.62(3H, s, OCH_3), 6.50, 6.86, 8.04(1H, s, 3×H-Ar)

1. Israilov I.A., unpub.

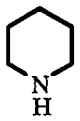


PICRININE (VINCARIDINE)

Vinca erecta
$C_{20}H_{22}N_2O_3$: 338.1631
Mp: 217-218° (meth.) [1, 2]
$[\alpha]_D$–58° (chlf.) [1, 2]
{h-chl. 187°, N-Me. 209°} [2]
UV: 238, 289(3.87, 3.52)

UV(alc.+$HClO_4$): 240, 244, 300(3.77, 3.75, 3.79) [2]
IR: 3390, 1730, 760 [1, 3]
Mass: 338($M^{+\cdot}$), 320. 307, 279. 261, 239, 182, 168 [2]
PMR: 1.46(d, CH_3), 3.62(s, $COOCH_3$), 4.79(H-C-O), 6.60-6.80(H-Ar) [2]

1. Kuchenkova M.A., Yuldashev P.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 65.
2. Rakhimov D.A., Il'yasova Kh.T., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 521.
3. Chatterjee A., Mukerjee B., Ray A.B., Tetrahedron Lett., 1965, 3633.



PIPERIDINE

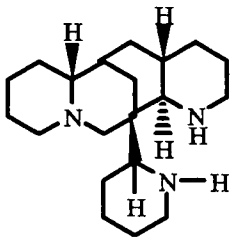
Petrosimonia monandra
$C_5H_{11}N$: 85.08915

Bp: 106.5°
$[\alpha]_D$ 0°
{h-chl. 246°, picr. 152°, chl-plat. 201°} [1]
IR: 3270, 3080, 2930, 2845, 2800, 2730, 2670, 2625, 1468, 1442, 1385, 1365, 1345, 1330, 1319, 1286, 1259, 1191, 1168, 1148, 1118, 1051, 1037, 1009, 965, 940, 860, 825, 745 [2]

^{13}C NMR: [3]

C-α	47.3	C-β	27.2	C-γ	25.4

1. Yurashevskii N.K., Stepanov S.I., Zh. Org. Khim., 1939, **9**, 1687.
2. Holubek, No. 879.
3. Shamma, No. 65.

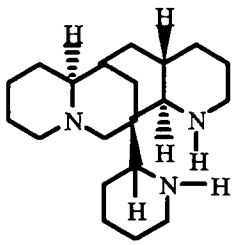


PIPTAMINE

Piptanthus mongolicus, P.nanus
$C_{20}H_{35}N_3$: 317.2831
Mp: 173-174° (ac.)
$[\alpha]_D$+3°
{h-chl. 335° (dec.), h-b. 294° (dec.), N-Ac 96° (dec.)} [1]

Sol-y.: r-sol. eth., alc.; sol. ac.; sp. sol. water [1]
UV: 211(2.05) [2]
Mass: 317($M^{+\cdot}$) [2]

1. Konovalova R.A., Diskina B.S., Rabinovich M.S., Zh. Org. Khim., 1951, **21**, 773.
2. Hassall C.H., Wilson E.M., Chem. Ind., 1961, **34**, 1358.

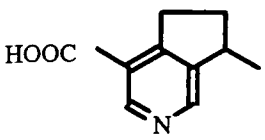


PIPTANTHINE

Piptanthus mongolicus, P.nanus
$C_{20}H_{35}N_3$: 317.2831
Mp: 144-145° (ac.)
$[\alpha]_D$–24° (alc.)
{nitr. 206°, h-chl. 256° (dec.), h-b. 286° (dec.)} [1]

IR: 3286 [2]
Pharm.: LD_{50} 173 mg/kg (s/c, mice). Lowers arterial pressure, strengthens respiration. Ganglioblocking action [3].

1. Konovalova R.A., Diskina B.S., Rabinovich M.S., Zh. Org. Khim., 1951, **21**, 773.
2. Eisner U., Sorm F., Collect., 1959, **24**, 2348.
3. Sadritdinov, p. 143.

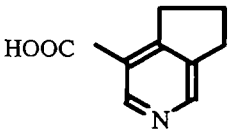


(+)-PLANTAGONINE

Catalpa speciosa, Pedicularis dolichorhiza, P.ludwigii, P.macrochilla, P.plgae, P.rhinanthoides, P.violascens, Plantago indica, Verbascum songoricum

$C_{10}H_{11}NO_2$: 177.0790
Mp: 218-220° (dec. ac.)
$[\alpha]_D$+40° (meth.)
{nitr. 169° (dec.)} [1]
UV: 270(3.12)
IR: 1715, 1595
Mass: 177(M^+), 162, 133, 118, 91, 77
PMR: 1.15(3H, d, CH_3)
PMR{O-Me eth.}: 1.26(3H, d, J=7, CH_3), 1.57, 2.29(1H, m, CH_2), 3.12(3H, m, CH, CH_2), 3.84(3H, s, OCH_3), 8.44, 8.88(1H, s, H-Ar) [2]

1. Lutfullin K.L., Yuldashev P.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 365.
2. Abdusamatov A., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 265.

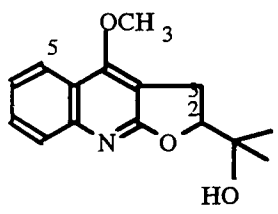


(–)-PLANTAGONINE

Incarvillea olgae
$C_{10}H_{11}NO_2$: 177.0790
Mp: 218-220° (dec.)

$[\alpha]_D$–33° (alc.) [1]
UV: 270(3.12) [2]
IR: 1715 [2]
Mass: 177(M^+), 162, 133, 118, 91, 77 [2]
PMR{O-Me. eth.}: 1.26(3H, d, J=7, CH_3), 1.57, 2.29(1H, m, CH_2), 3.12(3H, m, CH, CH_2), 3.84(3H, s, $COOCH_3$), 8.44, 8.88(1H, s H-Ar) [3]

1. Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1966, 219.
2. Lutfullin K.L., Yuldashev P.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 365.
3. Abdusamatov A., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 265.

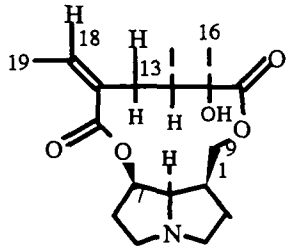


PLATYDESMINE

Haplophyllum perforatum
$C_{15}H_{17}NO_3$: 259.1208
Mp: 138-139° (eth.-ac.) [1, 2]
{picr. 109°} [3]
Sol-y.: r-sol. chlf., alc., meth.

UV: 229, 238, 253, 262, 272, 283, 294, 307, 320(4.57, 4.43, 3.50, 3.65, 3.73, 3.65, 3.24, 3.49, 3.55) [3]
IR(chlf.): 3584, 2976, 1637, 1590, 1517, 1471, 1429, 1397, 1368, 1335, 1309, 1295, 1238–1203, 1181, 1166, 1147, 1122, 1101, 1018, 996, 952 [3]
Mass: 259(M^+, 31), 241(10), 226(15), 200(100), 186(18), 185(20), 173(24), 172(22), 158(23), 156(9) [4]
PMR: 1.20, 1.25(3H, s, 2×CH_3), 3.52(2H, d, J=8, H-3), 4.12(3H, s, OCH_3), 4.50(1H, q, J=7; 9, H-2), 7.00-7.60(3H, m, H-Ar), 7.88(1H, dd, J=8.5; 2, H-5 [2]

1. Razakova D.M., Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 682.
2. Akhmedzhanova V.I., Bessonova I.A., Khim. Prir. Soedin., 1981, 613.
3. Werny F., Scheuer P.J., Tetrahedron, 1963, **19**, 1293.
4. Johns S.R., Lamberton J.A., Sioumis A.A., Austral. J. Chem., 1967, **20**, 1975.



PLATYPHILLINE

Adenostyles alliariae, Nardosmia laevigata, Senecio platyphylloides, S.rhombifolius, S.vernalis
$C_{18}H_{27}NO_5$: 337.1890
Mp: 124-125° (ac.) [1]

$[\alpha]_D$–45° (chlf.) [1], –74° (alc.) [2]
{picr. 200°, p-chl. 223° (dec.), chl-aur. 201°, picrolonate 206°, m-i. 217°, bitartrate 193°, platynecine 148°, $[\alpha]_D$–57°; senecionic acid 155°, $[\alpha]_D$+38°} [1]
UV: 217(3.90) [3]
IR: 3600, 3403, 2940, 1746, 1719, 1650, 1464, 1392, 1253, 1220, 1195, 1160, 1123, 1097, 1054, 1036, 1024, 986, 953, 938, 882, 838, 807, 787, 764, 740 [4]
Mass: 337(27), 322(3), 320(3), 266(5), 252(3), 239(3), 238(3), 226(12), 222(7), 220(3), 212(10), 211(60), 180(8), 156(5), 141(12), 140(100), 139(15), 138(64), 125(12), 124(10), 123(55), 122(63), 121(10), 120(10), 110(5), 109(9), 108(14), 97(5), 96(29), 95(15), 94(5), 83(12), 82(98), 81(11), 80(10) [5]
PMR: 0.98(3H, d), 1.29(3H, s), 1.86(3H, d), 3.40(1H, dd), 3.95(1H, dd), 4.59(1H, dd), 5.37(1H, q), 5.84(1H, q) [6]

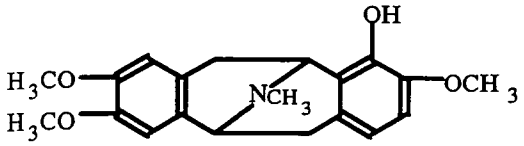
^{13}C NMR: [2]

C-1	39.6	C-8	69.5	C-14	131.9
2	31.8	9	66.7	15	167.7
3	51.9	10	178.8	16	26.2
5	53.6	11	75.8	17	13.5
6	35.8	12	37.7	18	136.0
7	74.2	13	39.2	19	15.6

CD: [7]
X-ray spectral analysis: [8]
Pharm.: {Hydrogen tartrate} possesses cholinolytic, tranquilizing, spasmolytic actions. Is used in spasms of the smooth musculature of the organs of the abdominal cavity, gastric ulcers of the stomach and the duodenum, bronchial asthma, hypertension, stenocardia, spasms of the vessels of the brain, and in ophthalmic practice of dilating the pupil. Supplied in the form of tablets, powders (0.05 g), and ampuls containing 1 ml of 0.2% soln. [9].

1. Konovalova R.I., Orekhov A.P., Zh. Org. Khim., 1938, **8**, 273.
2. Roder R., Wiedenfeld H., Jost E.J., Planta Medica, 1982, **44**, 182.
3. Topuriya L.I., Chumburidze B.I., Mshvidovadze A.E., Khim. Prir. Soedin., 1982, 399.
4. Danilova A.V., Utkin L.M., Kozyreva G.V., Syrneva Yu.I., Zh. Org. Khim., 1959, **29**, 2432.
5. Culvenor C.C.J., Koretskaya N.I., Smith L.W., Utkin L.M., Austral. J. Chem., 1968, **21**, 1671; Abdullaev U.A., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 538.
6. Asada Y., Furuya T., Murakami N., Planta Medica, 1981, **42**, 202.

7. Hrbek J., Hruban L., Klasek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.
8. Wiedenfeld H., Roder E., Kirfel A., Will G., Arch. Pharm., 1982, **315**, 165; Jones A.J., Culvenor C.C.J., Smith L.W., Austral. J. Chem., 1982, **35**, 1173.
9. Mashkovskii, p. 242.

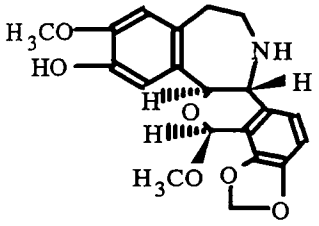


PLATYCERINE

Argemone hybrida, A.platyceras
$C_{20}H_{23}NO_4$: 341.1627
Mp: amorph.

$[\alpha]_D$–260° (chlf.)
UV: 283
Mass: 341(M^+), 340, 204(100), 190
PMR: 2.51(3H, s, NCH_3), 3.71(3H, s, OCH_3), 3.78(6H, s, 2×OCH_3), 3.91, 4.39(1H, d, J=6), 6.40, 6.63(1H, s, p-H-Ar), 6.51, 6.61(1H, d, J=8, o-H-Ar)

1. Israilov I.A., unpub.

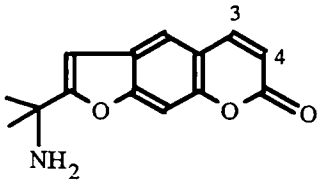


PORFIROCSINE

Papaver somniferum
$C_{19}H_{25}NO_6$: 363.1682
Mp: 187-190°
$[\alpha]_D$–140° (chlf.)

IR: 3460, 2925, 2835, 1600, 1518, 1468, 1375, 1330, 1290, 1255, 1220, 1200
Mass: 363(M^+), 348(100), 179

1. Bessonova I.A., Faizutdinova Z.Sh., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 711.

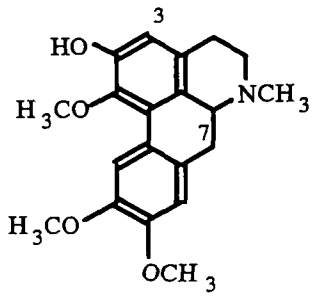


PRANGOSINE

Prangos pabularia
$C_{14}H_{13}NO_3$: 243.0895
Mp: 131-132° (ac.)

{h-chl. 280°, h-b. 272°, h-i. 208°, sulf. 235°, nitr. 224°, picr. 229°, m-i. 194°} [1]
Sol-y.: sol. ac., meth., chlf., CSl_4
UV: 250, 292, 332(4.46, 4.02. 3.84)
IR: 3350, 3290, 1715, 1600, 1382, 1365
Mass: 243(M^+), 228, 226, 198, 183, 155, 127
PMR: 1.50(6H, s, C-CH_3), 1.86(2H, s, NH_2), 6.22, 7.45(1H, d, J=10; 7.25, H-3, H-4), 6.44(1H, s, H-furan), 7.25, 7.45(1H, s, H-Ar) [2, 3].

1. Yunusov S.Yu., Akramov S.T., Sidyakin G.P., DAN UzSSR, 1957, No. 7, 23.
2. Mukhamedova Kh.S., Akramov S.T., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 357.
3. Akramov S.T., Mukhamedova Kh.S., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 287.



PREDICENTRINE

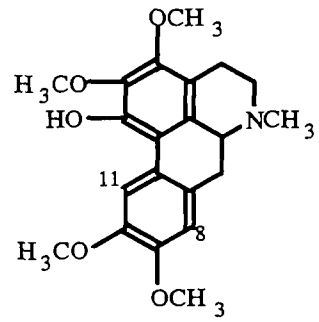
Corydalis emanuelii, Dicentra peregrina, Glaucium corniculatum, Liriodendron tulipiferum
$C_{20}H_{23}NO_4$: 341.1627
Mp: oil
$[\alpha]_D$+97° (alc.) [1]
{h-chl. 214° (dec.) [2], h-b. 205° (dec.) [3]}
UV: 282, 303(4.19, 4.20) [1]

Mass: 341($M^{+\cdot}$), 340(100), 326, 325, 310, 283, 266, 170.5($^{++}$) [1]
PMR: 2.49(3H, s, NCH_3), 2.50-3.30(7H, m), 3.48(3H, s, 1-OCH_3), 3.79, 3.82(3H, s, 2×OCH_3), 6.52(1H, s, H-3), 6.72(1H, s, H-8), 7.86(1H, s, H-11) [1]

^{13}C NMR: [4]

C-1	142.3	C-5	53.3	C-11	110.0
1a	126.3	6a	62.5	11a	124.1
1b	125.9	7	34.2	NCH_3	43.8
2	148.2	7a	129.2	1-OCH_3	60.3
3	113.5	8	110.7	9-OCH_3	55.8
3a	129.6	9	148.1	10-OCH_3	56.0
4	28.7	10	147.6		

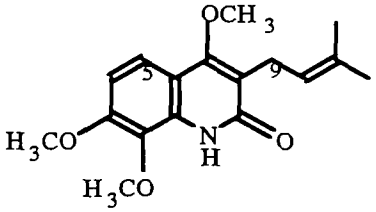
1. Israilov I.A., Melikov F.M., Murav'eva D.A., Khim. Prir. Soedin., 1984, 79.
2. Chen C.L., Chang H.M., Cowling E.B., Hsu C.H., Gates R.P., Phytochem., 1976, **15**, 1161.
3. Johns S.R., Lamberton J.A., Sioumis A.A., Tweeddale H.J., Austral. J. Chem., 1969, **22**, 1277.
4. Shamma M., Moniot J.L., Isoquinoline Alkaloids Research, Plenum Press, New York–London, 1978.



PREOCOTEINE

Thalictrum strictum
$C_{21}H_{25}NO_5$: 371.1733
Mp: oil
UV: 280, 305, 315
Mass: 371($M^{+\cdot}$), 370, 356, 340, 328
PMR: 2.49(3H, s, NCH_3), 3.80, 3.85, 3.89(3H, s, 4×OCH_3), 6.76(1H, s, H-8), 7.91(1H, s, H-11)

1. Maekh S.Kh., Gorovoi P.G., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 560.



PRESKIMMIANINE

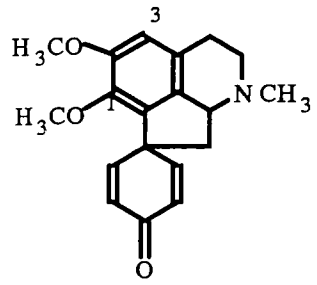
Dictamnus angustifolius
$C_{17}H_{21}NO_4$: 303.1471
Mp: 154-155° (ac.)
{N-Me. 81°}

UV: 219, 232 sh, 250, 258, 310 sh, 322, 335(4.53, 4.31. 4.07, 4.08, 3.82, 3.98, 3.83) [1]
IR: 3160-3100, 1635, 1600, 1580, 1515, 1450 [2]
Mass: 303($M^{+\cdot}$, 100), 288(99), 272(20), 260(78), 258(26). 248(52), 234(38) [1]
PMR: 1.65, 1.75(3H, s, 2×CH_3), 3.31(2H, d, J=6.5, H-9), 3.85, 3.88(3H, 6H, 3×OCH_3), 5.25(1H, t, J=6.5, H-10), 6.77. 7.40(1H, J=9, H-6, H-5) [1]

^{13}C NMR: [3]

C-2	164.4	C-7	–	C-12	18.0
3	120.8	8	–	13	25.7
4	162.0	9	23.5	OCH_3	61.7
4a	112.2	10	121.8		61.0
5	118.5	11	132.3		56.3
6	107.6				

1. Akhmedzhanova V.I., Bessonova I.A., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 476.
2. Bessonova I.A., unpub.
3. Brown N.M.D., Grundon M.F., Harrison D.M., Surgenor S.A., Tetrahedron, 1980, **36**, 3579.

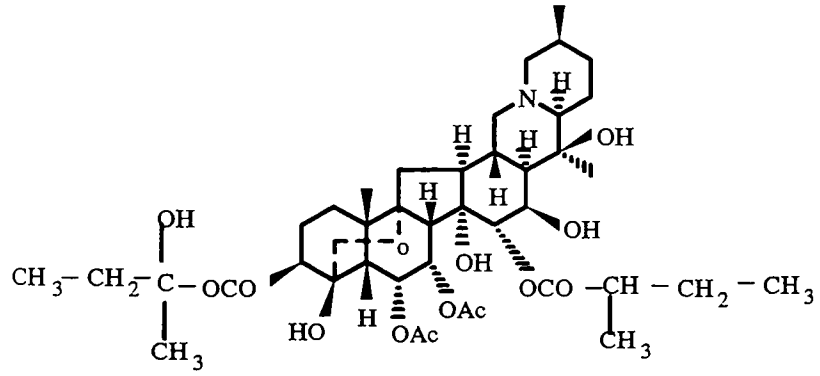


PRONUCIFERINE

Berberis sibirica
$C_{19}H_{21}NO_3$: 311.1521
Mp: 162-163°
{h-chl. 223°}
UV: 236 sh, 287(4.87, 4.30)
Mass: 311(M^+, 100), 310, 282(5), 268(50), 253, 237, 225

PMR: 2.32(3H, s, NCH_3), 3.52(3H, s, 1-OCH_3), 3.72(3H, s, 2-OCH_3), 6.22(1H, dd, J=10.2; 2), 6.37(1H, dd, J=10.2; 2), 6.55(1H, H-3), 6.74(1H, dd, J=9.5; 3), 6.87(1H, dd, J=9.5; 3)

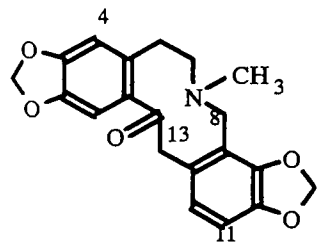
1. Karimov A., unpub.



PROTOVERATRINE A

Veratrum lobelianum,
V.nigrum,
V.oxysepalum
$C_{41}H_{63}NO_{14}$: 793.4249
Mp: 260-262° (alc.)
$[\alpha]_D$–44° (pyr.)
UV(H^+): 250, 330, 370, 530
IR: 1740, 1245 [1, 2]

1. Bondarenko N.V., Khim. Prir. Soedin., 1982, 529.
2. Kupchan S.M., Ayres C.I., J. Amer. Chem. Soc., 1960, **82**, 2252.



PROTOPINE

Argemone alba, A.albiflora, A.hybrida, A.mexicana, A.ochroleuca, A.platyceras, Bocconia frutescens, Chelidonium majus, Corydalis caucasica, C.emanuelii, C.fedtschenkoana, C.fimbrillifera, C.gigantea, C.glaucescens, C.gortschakovii, C.intermedia, C.ledebouriana, C.marschalliana, C.paczoskii,

C.paniculigera, C.persica, C.pseudoadunca, C.remota, C.rosea, C.rosea-purpurea, C.sewerzowii, C.stricta, C.vaginans, Dicentra peregrina, D.spectabilis, Dicranostigma franschetianum, D. lactucoides, D.leptopodum, Eschscholtzia californica, Fumaria capreolata, F.micrantha, F.officinalis, F.parviflora, F.schleicheri, F.vaillantii, Glaucium corniculatum, G.elegans, G.fimbrilligerum, G.flavum, G.grandiflorum, G.oxylobum, G.squamigerum, Hylomecon vernalis, Hypecoum erectum, H.lactiflorum, H.pendulum, H.trilobum, Macleaya cordata, M.microcarpa, Papaver croceum, P.hydridum, P.lisae, P.oreophilum, P.orientale, P.pavoninum, P.persicum, P.somniferum, Roemeria hybrida, Thalictrum amurense

$C_{20}H_{19}NO_5$: 353.1263

Mp: 205-206° (chlf.-alc.)

UV: 239, 291 [1]

IR: 1660 [1]

Mass: 353(M^+), 206, 148(100) [1]

PMR: 1.97(3H, s, NCH_3), 2.80-3.80(8H, m), 5.92, 5.98(2H, s, 2×CH_2O_2), 6.63, 6.95(1H, s, H-1, H-4), 6.69(2H, s, H-11, H-12) [1]

^{13}C NMR: [2]

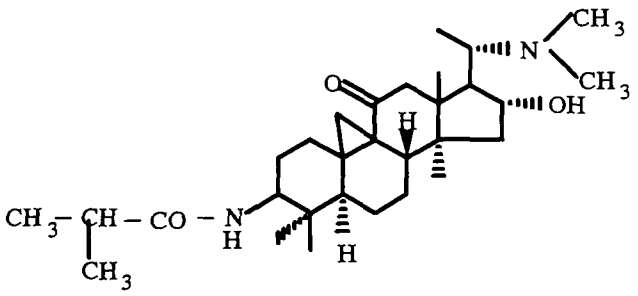
C-1	107.5	C-8	50.4	C-13	46.0
2	145.9	8a	117.5	14	194.1
3	147.5	9	145.5	14a	132.2
4	109.9	10	145.5	NCH_3	40.9
4a	135.8	11	106.1	2,3-CH_2O_2	100.6
5	31.2	12	124.6	9,10-CH_2O_2	100.3
6	57.4	12a	128.5		

X-ray spectral analysis: [3]

HPLC: [4]

Pharm.: Hypotensive [5], bile-stimulating [6], spasmolytic [7], and pronounced antiarrhythmic action [5]. Superior to novocainamid and quinidine.

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. Liang-Feng Han, Nowicky W., Gutmann V., J. Chromatogr., 1991, **543**, 123.
5. Sadritdinov, p. 221.
6. Nabiev A., unpub.
7. Aliev Kh.U., in: The Pharmacology of Alkaloids and Their Derivatives [in Russian], Fan, Tashkent, 1972, p. 126.



PSEUDOBALEABUXINE F

Buxus balearica

$C_{30}H_{50}N_2O_2$: 470.3872

Mp: 236-240° (ac.) [1]

$[\alpha]_D$+121° (chlf.) [1]

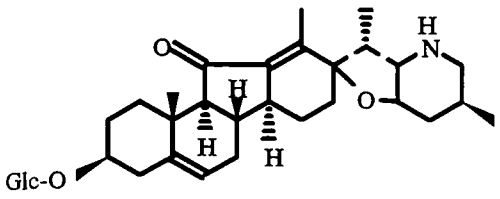
UV: 219(3.86) [2]

IR: 3600, 3400, 1685, 1660 [1]

Mass: 470(M^+), 469, 72(100) [2]

PMR: 0.70(3H, s, CH_3), 0.78(3H, s, CH_3), 0.79(3H, d, J=6, HC-CH_3), 0.83(3H, s, CH_3), 0.96(3H, s, CH_3), 1.08(3H, d, HC-CH_3), 1.10(3H, d, J=6.8, HC-CH_3), 2.11(6H, s, $N(CH_3)_2$), 2.34(2H, H-12), 5.32(1H, NH) [3]

1. Kurakina I.O., Proskurina N.F., Kibal'chik P.N., Khim. Prir. Soedin., 1969, 26.
2. Kurakina I.O., Proskurina N.F., Stepanyants A.U., Khim. Prir. Soedin., 1969, 406.
3. Kurakina I.O., Proskurina N.F., Stepanyants A.U., Mondeshka D.M., Khim. Prir. Soedin., 1970, 231.

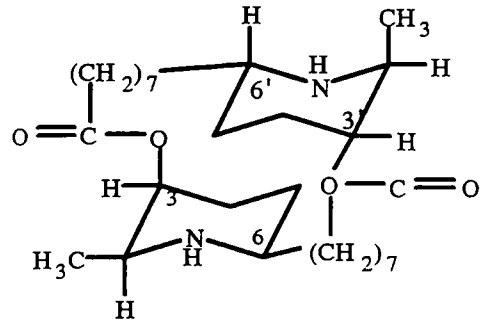


PSEUDOJERVINE

Veratrum dahuricum, V. lobelianum
$C_{33}H_{49}NO_8$: 587.3458
Mp: 278-280° (meth.)
$[\alpha]_D$–101° (alc.-chlf.)
UV: 253, 361

IR: 3535, 3300, 2930, 1700, 1635, 1450, 1145-1000
Mass: 587(M^+), 110(100) [1, 2]

1. Shakirov R., Yunusov S.Yu., 1971, p. 852.
2. Kupchan S.M., Suffness M.I., J. Amer. Chem. Soc., 1968, 2730.

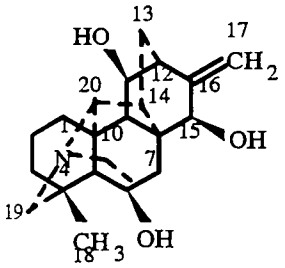


PSEUDOCARPAINE

Carica papaya
$C_{28}H_{50}N_2O_4$: 478.3770
Mp: 65-68°
$[\alpha]_D$+5° (alc.) [1]
IR: 2990, 1720, 1470, 1380, 1230
Mass: 478(M^+), 463, 436, 407, 384, 335, 300, 240, 222, 195, 180, 110, 96, 80, 69, 55, 44

PMR: 1.02, 1.07(3H, d, J=7, CH_3), 2.85, 3.15(1H, m, narrow q, H-2, H-2′), 4.83(1H, narrow s, H-3, H-3′) [2]

1. Topuriya L.I., Rossinskii V.I., Erkomaishvili G.S., Khim. Prir. Soedin., 1983, 243.
2. Govindachari T.R., Nagarajan K., Viswanathan N., Tetrahedron Lett., 1965, 1907.

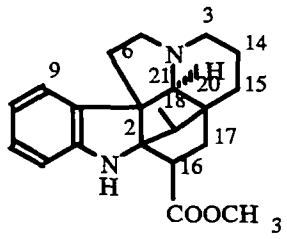


PSEUDOKOBUSINE

Aconitum talassicum
$C_{20}H_{27}NO_3$: 329.1991
Mp: 268-270° (ac.)
{h-chl. 307°, di Ac 146°}
IR: 3400-3300, 1390, 1170, 1135, 1100, 1033, 1006, 975, 960, 920, 864, 840 [1]

Mass: 329(M^+, 100), 314(15), 313(12), 312(32), 311(18), 301(42) [1, 3]
PMR: 1.34(3H, s, 18-CH_3), 3.87(1H, s, H-15α), 4.01(1H, d, J=5, H-11α), 5.07, 5.17(1H, narrow s, H-17) [1-3]

1. Nishanov A.A., Tashkhodzhaev B., Sultankhodzhaev M.N., Ibragimov B.T., Yunusov M.S., Khim. Prir. Soedin., 1989, 39; unpub.
2. Natsume M., Chem. Pharm. Bull., 1962, **10**, 879.
3. Takayama H., Tokita A., Ito M., Sakai S.-I., Kurosaki F., Okomoto T., Yakugaku Zasshi, 1982, **102**, 245.



PSEUDOKOPSININE

Vinca erecta
$C_{21}H_{26}N_2O_2$: 338.1994
Mp: 136-138° (bz.) [1]
{di h-chl. 268° (dec.), di h-b. 262° (dec.), di nitr. 207° (dec.), m-i. 277° (dec.), N-Ac 142°} [1]

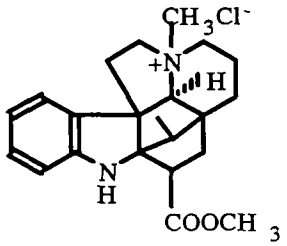
UV: 248, 298(3.89, 3.47) [1]
IR: 3350, 1735, 755 [1]
Mass: 338(M^+), 279, 251, 229, 170, 135, 124, 123, 122, 109 [2]
PMR: 0.82(3H, d, CH_3), 3.64(3H, s, $COOCH_3$), 6.60-7.30(4H, H-Ar) [1]

^{13}C NMR: [3]

C-2	79.9	C-10	121.8	C-17	24.8
3	55.5	11	128.1	19	51.6
5	47.3	12	112.0	20	42.6
6	34.6	13	148.3	21	72.0
7	60.0	14	19.1	18-CH_3	6.8
8	135.0	15	33.2	C=O	173.4
9	125.3	16	40.0	OCH_3	52.1

X-ray spectral analysis: [4]
Abs. conf.: 2R,3R,N4(R),7S,19R,21S [4]
Pharm.: LD_{50} 125.76 mg/kg (s/c, i/p, mice). Spasmodic analeptic [5].

1. Abdurakhimova N., Yuldashev P.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1967, 310.
2. Abdurakhimova N., Yuldashev P.Kh., Yunusov S.Yu., DAN SSSR, 1967, **173**, 87.
3. Yagudaev M.R., Khim. Prir. Soedin., 1984, 334.
4. Nasirov S.M., Andrianov V.G., Struchkov Yu.T., Yagudaev M.R., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 811.
5. Sadritdinov, p. 52.

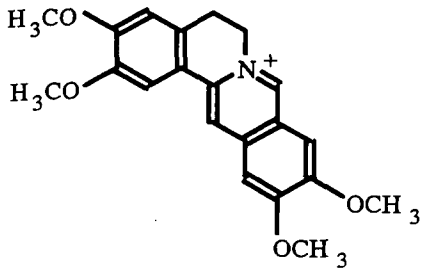


PSEUDOKOPSININE CHLORMETHYLATE

Vinca erecta
$C_{22}H_{29}N_2O_2Cl$: 388.1917/390.1888
Mp: 285-287° (dec., meth.) [1]
Sol-y.: r-sol. water [1]
IR: 3410, 1720, 1610, 770 [1]

Mass: 352, 338(100), 279, 251, 229, 170, 135, 124, 123, 122, 109 [1, 2]
PMR: 3.57(3H, NCH_3) [1]

1. Khalmirzaev M.M., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 264.
2. Abdurakhimova N., Yuldashev P.Kh., Yunusov S.Yu., DAN SSSR, 1967, **173**, 87.

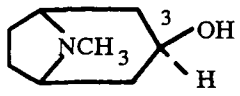


PSEUDOPALMATINE

Berberis heteropoda
$C_{21}H_{22}NO_4$: 352.1549
[chloride 213°}
Sol-y.: r-sol. chlf., meth.; i.s. bz., eth.
UV: 263, 288, 307 sh, 330, 379(4.14, 4.45, 4.32, 4.10. 3.66)

PMR: 3.25(2H, t, H-5), 3.97(3H, s, OCH_3), 3.99(3H, s, OCH_3), 4.03(3H, s, OCH_3), 4.14(3H, s, OCH_3), 4.97(2H, t, H-6), 6.85(1H, s), 7.48(1H, s), 7.90(2H, s), 8.65(1H, s), 9.75(1H, s)

1. Yusupov M.M., Karimov A., Levkovich M.G., Abdullaev N.D. Shakirov R., Khim. Prir. Soedin., 1993, 53.

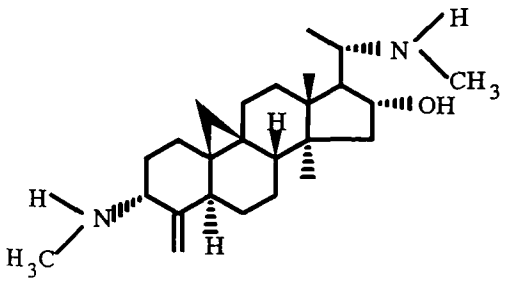


PSEUDOTROPINE

Datura innoxia
$C_8H_{15}NO$: 141.1154

Mp: 108°
$[\alpha]_D$ 0°
{picr. 259°, h-chl. 282°} [1]
IR: 3330
Mass: 141(M^+), 124, 113, 96, 83, 82, 77, 55, 42, 28 [2]
PMR: 1.50-2.00(8H, m, CH_2), 2.22(3H, s, NCH_3), 3.07(2H, m, H-1, H-5), 3.51(1H, narrow s, OH), 3.70(1H, t, H-3) [3]

1. Willstatter R., Chem. Ber., 1896, **29**, 936.
2. Aripova S.F., unpub.
3. Bishop R.J., Fodor G., Katritzky A.R., Soti F., Sutton L.E., Swinboume F.J., J. Chem. Soc., 1966, 74.

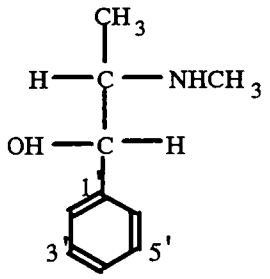


PSEUDOCYCLOBUXINE D

Buxus colchica, B.sempervirens
$C_{25}H_{42}N_2O$: 386.3297
Mp: 229-231° (alc.)
$[\alpha]_D$+90° (chlf.)
{di Me 200°, tri Ac 240°}
IR: 3312, 3155, 3048, 2935, 1648, 1452, 910

Mass: 386(M^+, 4). 372(3), 371(11), 370(28), 357(3), 356(10), 355(25), 340(22), 330(5), 328(4), 312(9). 70(2), 58(1), 57(1), 56(5), 55(4), 45(6), 44(100), 43(8), 41(5)
PMR: 0.94(3H, s, CH_3), 1.05(3H, d, J=7, CH_3), 1.09(3H, s, CH_3), 2.38(3H, s, NCH_3), 2.44(3H, s, NCH_3), 3.97(1H, m, HC-OH), 4.54, 4.77(2H, d, J<1, $=CH_2$)

1. Khodzhaev B.U., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1973, 755.



(+)-PSEUDOEPHEDRINE

Ephedra ciliata, E.distachya, E.equisetina, E.fedtschenkoae, E.intermedia, E.lomatolepis, E.monosperma, E.procera, E.strobilacea, Roemeria refracta

$C_{10}H_{15}NO$: 165.1154

Mp: 118-119° (petr. eth.) [1]

$[\alpha]_D$+55° (alc.) [1]

{h-chl. 183°}

UV: 252, 257, 264(2.19, 2.27,2.14) [2]

IR: 252, 257, 264(2.19, 2.27, 2.14) [2]

IR: 1600, 1340, 1322, 1306, 1288, 1240, 1203, 1164, 1136, 1093, 1070, 1060, 1028, 980, 924, 911, 858, 829, 815, 760, 704 [2]

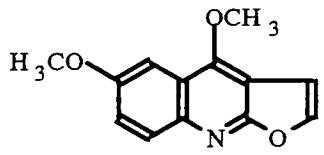
^{13}C NMR{h-chl., D_2O}: [3]

C-1	12.8	1′	140.5	C-4′	129.8
2	60.5	2′,6′	127.8	NCH_3	30.9
3	75.5	3′,5′	129.8		

HPLC: [4]

Pharm.: LD_{50} 100 mg/kg (i/v, mice). Sympathomimetic of indirect action [5]. Used in large doses as a broncholytic agent [6].

1. Konovalova R.A., Yunusov S.Yu., Orekhov A.P., Zh. Org. Khim., 1939, **9**, 1359.
2. Holubek, No. 73.
3. Broadbent T.A., Paul E.C., Heterocycles, 1983, **20**, 863.
4. Zhang Jian, Tian Zhen, Lou Zhi-cen, Planta Medica, 1988, **54**, 69.
5. Sadritdinov, p. 129.
6. Sokolov S.I., Glazova N.G., Belova L.F., Pokrovskaya G.V., Sokovich G.S., Alibekov S.D., Abstracts of Lectures at an All-Union Conference on the Results and Prospects of Scientific Investigations in the Field of the Creation of Drugs from Plant Raw Material [in Russian], Moscow, 1985, p. 168.



PTELEINE

Ptelea trifoliata

$C_{13}H_{11}NO_3$: 229.0739

Mp: 137-138° (alc.) [1]; 141-143° (hx.) [2]

{h-chl. 185° (dec.), picr. 196°, picrolonate 202° (dec.), isopteleine 211° (bz.)}

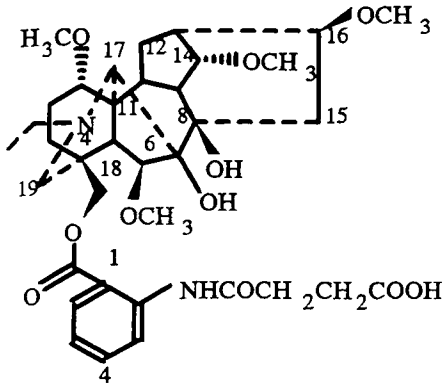
Sol-y.: sol. meth., alc., ac., eth., e-a.; i.s. water [1]

UV: 249, 261, 284 sh, 296, 307, 333, 350(6.10, 4.91, 4.81, 4.99, 5.04, 4.75, 4.68 [1, 3]

IR: 2941, 1618, 1580, 1541, 1506, 1464, 1414, 1364, 1304, 1264, 1233, 1215, 1153, 1110, 1093, 1033, 980, 848, 829, 699 [3]

PMR: 3.90. 4.40(3H, s, 2×OCH_3), 7.10(1H, d, J=3.5), 7.50(3H, d, J=3.5), 7.90(1H, d, J=9.5,H-Ar) [2]

1. Frolova V.I., Kuzovkov A.D., Kibal'chik P.N., Zh. Org. Khim., 1964, **34**, 3499.
2. Mitscher L.A., Bathala M.S., Clark G.W., Beal J.L., J. Natur. Prod., 1975, **38**, 117.
3. Werny F., Scheuer P.J., Tetrahedron, 1963, **19**, 1293.



PUBERACONITINE

Aconitum rubicundum
$C_{36}H_{50}N_2O_{11}$: 686.3415
Mp: amorph. [1]
$[\alpha]_D$+34° (chlf.) [2]
Sol-y.: sol. chlf., meth., ac.
UV: 310, 253 [1]
IR: 3450, 3300, 1680, 1080 [1]
Mass: 668, 653(4), 650(6), 637(30), 619(2), 555(6), 467(8), 452(36), 436(100), 418(6), 404(5), 202(5), 174(4), 146(2) [1, 2]

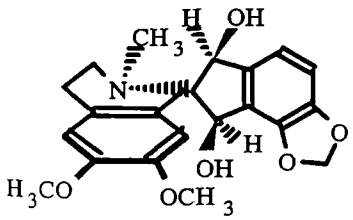
PMR: 1.10(3H, t, J=7, NCH_2CH_3), 2.80(4H, s, $-CH_2CH_2-$), 3.00(1H, m, H-17), 3.30, 3.38, 3.40, 3.42(3H, s, 4×OCH_3), 3.20(1H, m, H-16α), 3.65(1H, d, H-14β), 3.95(1H, s, H-6α), 4.20, 4.22(1H, d, J=11), 7.30(1H, t, J=7, H_5-Ar), 7.58(1H, t, J=7, H_4-Ar), 8.00(1H, d, J=7, H_3-Ar), 8.72(1H, t, J=7, H_6-Ar) [1]

^{13}C NMR: [1, 3]

C-1	83.8	C-13	45.9	C-16′	56.1
2	25.7	14	83.8	Ar-CO	168.0
3	31.7	15	33.6	Ar C-1	114.7
4	37.5	16	82.5	2	141.6
5	43.2	17	64.5	3	120.7
6	90.9	18	69.2	4	134.8
7	88.3	19	52.5	5	122.5
8	77.7	NCH_2	50.9	6	130.3
9	50.3	CH_3	13.7	NHCO	170.7
10	37.9	C-1′	55.7	CH_2	29.5
11	49.0	6′	57.6	CH_2	29.8
12	28.7	14′	58.0	COOH	170.7

Pharm.: LD_{50} 22.5 mg/kg (i/v, mice). Hypotensive, H-cholinoblocker, curare-like action [4].

1. Yu D.Q., Das B.C., Planta Medica, 1983, **49**, 85.
2. Nishanov A.A., Sultankhodzhaev M.N., Yunusov M.S., Kondrat'ev V.G., Khim. Prir. Soedin., 1991, 403; unpub.
3. Joshi B.S., Pelletier S.W., J. Nat. Prod., 1990, **53**, No. 4, 1028.
4. Rezhepov Zh., Dzhakhangirov F.N., unpub.

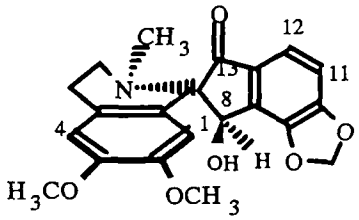


(±)-RADDEANINE

Corydalis ledebouriana
$C_{21}H_{23}NO_6$: 385.1525
Mp: 219-220° (meth.-chlf.)
$[\alpha]_D$ 0°

IR: 3540, 3520, 1515, 1040, 930, 920
Mass: 385(M^+), 370, 367, 352, 338, 324, 308, 206
PMR: 2.56(3H, s, NCH_3), 3.35. 3.78(3H, s, 2×OCH_3), 5.19, 5.39(1H, s), 5.94(2H, s, CH_2O_2), 6.11, 6.61(1H, s, p-H-Ar), 6.76, 6.88(1H, d, J=8, o-H-Ar)

1. Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 428.



RADDEANONE

Corydalis ledebouriana
$C_{21}H_{21}NO_6$: 383.1369
Mp: 168-170°
UV: 238, 289, 313 [2]

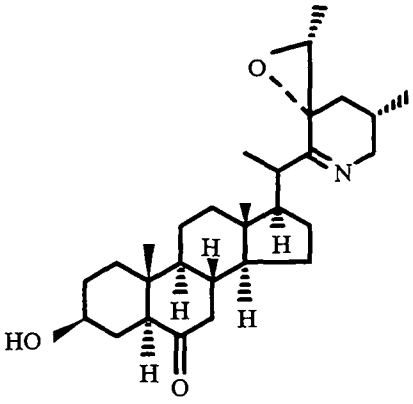
IR: 3570, 1720 [2]
Mass: 383($M^{+\cdot}$), 368, 338, 220. 206, 191.5($^{++}$)
PMR: 2.31(3H, s, NCH_3), 3.45, 3.77(3H, s, 2×OCH_3), 5.55(1H, s), 6.18(2H, s, CH_2O_2), 6.03, 6.66(1H, s, p-H-Ar), 7.01, 7.53(1H, d, J=8, o-H-Ar) [1, 2]

^{13}C NMR: [3]

C-1	110.7	C-8	70.1	C-13	201.7
2	147.2	8a	132.9	14	76.9
3	148.9	9	145.0	14a	129.7
4	112.5	10	154.5	NCH_3	39.6
4a	124.0	11	110.4	9,10-OCH_2O	103.1
5	28.5	12	119.5	2-OCH_3	56.1
6	48.9	12a	132.5	3-OCH_3	56.0

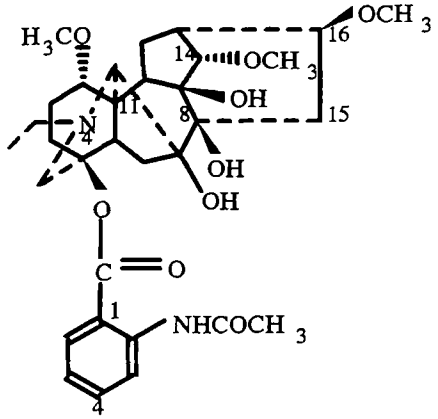
1. Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 268; 1977, 428.
2. Kametani T., Takemura M., Ihara M., Fukumoto K., J. Chem. Soc. Perkin. Trans. I, 1977, 390.
3. Hughes D.W., Nalliah B.C., Holland H.L., McLean D.B., Canad. J. Chem., 1977, 55, 3304.

RADPETINE



Petilium raddeanum
$C_{29}H_{45}NO_3$: 455.3399
Mp: 229-231° (ac.-petr. eth.)
{Ac 103°}
IR: 3380, 1712, 1645
Mass: 455, 440, 437, 424, 412, 398, 384, 206, 192, 178, 167(100), 152, 112
PMR: 0.65(3H, s, 18-CH_3), 0.71(3H, s, 19-CH_3), 0.95(3H, d, J=6, 27-CH_3), 1.01(3H, d, J=6, 21-CH_3), 1.29(3H, d, J=6, 29-CH_3), 3.52(1H, m, H-3)
X-ray spectral analysis

1. Tashkhodzhaev B., Nasirov S., Nabiev A., Shakirov R., Samikov K., Yagudaev M.R., Khim. Prir. Soedin., 1991, 384.



RANACONITINE

Aconitum orientale, A. rubicundum, A.septentrionale
$C_{32}H_{44}N_2O_9$: 600.3047
Mp: 132-134° (ac.)
$[\alpha]_D$+33° (chlf.)
Sol-y.: sol. chlf., meth.
UV: 308, 253 [1]
IR: 3500, 3150, 1685, 1600, 1585, 1087 [1]
Mass: 600(M^+, 4), 585(5), 582(4), 569(20), 557(5), 438, 421(100), 406(80), 392(37), 390(29), 361, 292, 287, 162, 120 [1, 2]

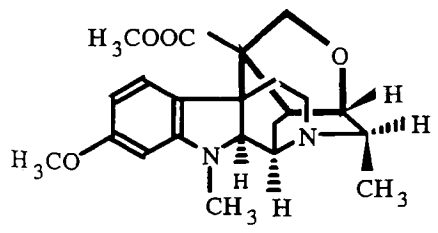
PMR: 1.13(3H, t, J=7, NCH_2CH_3), 2.24(3H, s, Ac), 3.28, 3.33, 3.43(3H, s, 3×OCH_3), 7.13-8.68(H-Ar), 11.07(1H, narrow s, NHAc) [3]

^{13}C NMR: [3]

C-1	83.5	C-12	25.9	C-14′	58.0
2	26.5	13	49.8	16′	56.3
3	31.6	14	90.0	Ar-C=O	167.7
4	84.4	15	37.8	Ar C-1	115.9
5	51.1	16	82.9	2	141.8
6	32.5	17	63.1	3	120.4
7	85.7	18	–	4	134.6
8	77.9	19	55.2	5	122.6
9	78.4	NCH_2	48.7	6	131.3
10	36.6	CH_3	14.4	NHCO	169.5
11	51.4	C-1′	56.3	CH_3	25.6

HPLC: [3]
Pharm.: LD_{50} 6.2 mg/kg (i/v, mice). Powerful antiarrhythmic, local anesthetic, analgesic, and antiinflammatory action [5]. Metabolite of lappaconitine [6].

1. Yu D.Q., Das B.C., Planta Med., 1983, **49**, 85.
2. Beshitaishvili L.V., Sultankhodzhaev M.N., Khim. Prir. Soedin., 1989, 435; unpub.
3. Pelletier S.W., Mody N.V., Venkov A.P., Mollov N.M., Tetrahedron Lett., 1978, 5045.
4. Fuming Xie, Hong-cheng Wang, Henling Shu, Jianhua Li, Jirong Jiang, Jenpin Chang, Yuyuan Hsieh, J. Chromatogr., 1990, **526**, 109.
5. Dzhakhangirov F.N., unpub.
6. Dzhakhangirov F.N., Sokolov S.F., Verkhratskii A.N., Allapinine—a New Antiarrhythmic Drug of Plant Origin [in Russian], Fan, Tashkent, 1993, p. 12.

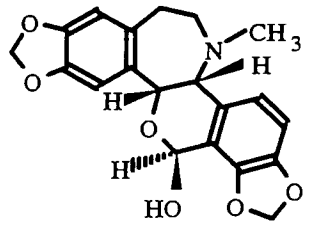


RAUCANINE

Rauwolfia canescens
$C_{22}H_{28}N_2O_4$: 384.2049
Mp: 183-185° [1, 2]
$[\alpha]_D$–27° (chlf.) [1, 2]
UV: 251, 295 [1]

IR(chlf.): 1740, 1595 [1]
Mass: 384(M^+)
PMR: 2.71(NCH_3), 3.76(3H, s, OCH_3), 3.80(3H, s, $COOCH_3$), 6.21-7.01(H-Ar)

1. Belikov A.S., Monakhova T.G., The Chemistry and Pharmacology of Indole Compounds, Abstracts of Lectures at the IIIrd All-Union Colloquium [in Russian], Kishinev, 1971, p. 10.
2. Belikov A.S., Perel'son M.E., IIIrd Soviet-Indian Symposium on the Chemistry of Natural Compounds, Abstracts of Lectures [in Russian], Tashkent, 1973, p. 35.

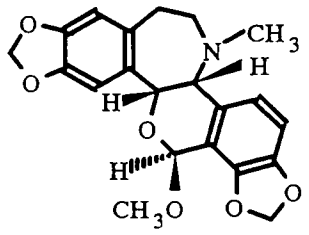


RHOEAGENINE

Papaver zangezuricum
$C_{20}H_{19}NO_6$: 369.1212
Mp: 231-232° (alc.) [1]
$[\alpha]_D$+130° (chlf.) [1]
UV: 243, 290
Mass: 369(M^+), 206, 192, 163 [2]

PMR: 2.25(3H, s, NCH_3), 3.54, 5.00(1H, d, J=2), 5.80(1H, s), 5.88, 6.01(2H, s, $2\times CH_2O_2$), 6.05, 6.58(1H, s, p-H-Ar), 6.73(2H, s, o-H-Ar) [1]
Abs. conf.: [3]

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

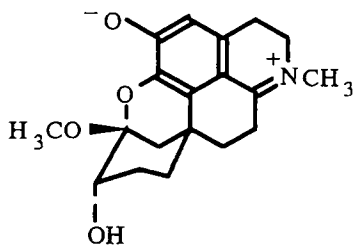


RHOEADINE

Papaver rhoeas
$C_{21}H_{21}NO_6$: 383.1369
Mp:252-254° (meth.) [1]
$[\alpha]_D$+306° (chlf.) [1]
UV: 204, 236, 286

Mass: 383, 368, 353, 220, 177(100) [2]
Abs. conf.: [3]

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

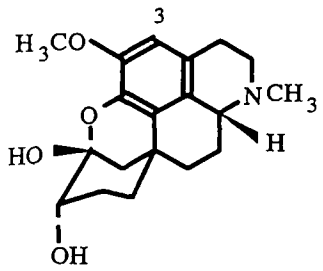


REGECOLINE

Colchicum kesselringii
$C_{19}H_{23}NO_4$: 329.1627
Mp: 312-314° (dec.)
{dihydro. 196°}
Sol-y.: r-sol. water; sol. meth.; sp. sol. chlf., ac.; i.s. eth.

UV: 253, 312, 355
IR: 3500, 2890, 1638, 1600, 1470, 1450
Mass: 329(M^+), 328, 314(100), 310, 298, 296, 270, 228
PMR (CF_3COOH): 1.80-3.40 ($-CH_2-$), 3.43 (3H, s, OCH_3), 3.59 (3H, s, NCH_3), 3.78-4.29 (3H, m, $-CH_2$, CH), 6.84 (1H, s, H-3)
^{13}C NMR

1. Usmanov A.M., Chommadov B., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1985, 248.

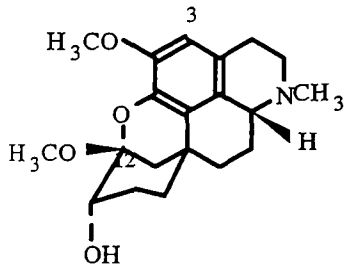


REGELAMINE

Colchicum kesselringii
$C_{19}H_{25}NO_4$: 331.1783
Mp: 225-226° (ac.)
$[\alpha]_D$+33° (meth.)
{O-Me. 200°, m-i. O-Me. 250°, O,O-di Ac 169°, O,O, N-tri Ac 142° [1], dihydro. 187° [2], 1,12-desoxa-12-desoxy-1-oxy 177° [2]

Sol-y.: sol. meth., chlf.; sp. sol. ac., water; i.s. eth., petr. eth. [1]
UV: 218, 290(4.34, 3.59) [1]
IR: 3560, 1600, 1480 [1]
Mass: 331(M^+, 43), 330(100), 312, 284, 272, 270, 256, 244, 242, 228, 205 [1, 2]
PMR: 2.32(3H, s, NCH_3), 3.73(3H, s, OCH_3), 6.40(1H, s, H-3) [1]
Pharm.: Reversible cholinesterase inhibitor [4].

1. Yusupov M.K., Abdullaeva D.A., Aslanov Kh.A., Sadykov A.S., Khim. Prir. Soedin., 1975, 386.
2. Timbekov É.Kh., Kasymrv A.K., Abdullaeva D.A., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1976, 328.
3. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 12.
4. Zuparova K.M., Rozengart E.V., Yusupov M.K., Abduvakhvbov A.A., Khakimov Yu.R., Chommadov B., Israilov D.N., Uzb. Khim. Zh., 1991, No. 2, 33.



REGELINE

Solchicum kesselringii
$C_{20}H_{27}NO_4$: 345.1940
Mp: 198-200° (ac.)
$[\alpha]_D$+93° (meth.)
{h-chl. 238°, m-i. 250°, norregeline 234°}

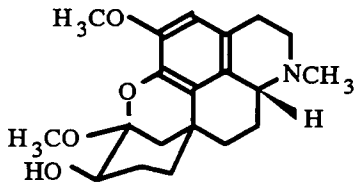
Sol-y.: r-sol. chlf., meth.; sol.ac., water; i.s. eth. [1]
UV: 216, 225, 290(4.04, 3.96, 3.37) [1]
IR: 3200, 1600, 1460 [1]
Mass: 345(M^+, 65), 344(100), 330, 326, 302, 286, 258, 244, 242, 205, 202 [1]
PMR: 2.36(3H, s, NCH_3), 3.34, 3.74(3H, s, 2×OCH_3), 6.42(1H, s, H-3) [1]

^{13}C NMR: [1]

C-1	142.1	C-6a	60.0	NCH_3	48.9
2	145.0	11	70.5	2-OCH_3	48.9
3	110.2	12	101.9	12-OCH_3	56.0
3a	124.6	14	34.6		
CH_2	34.2, 34.2	1a	124.4		
	33.0, 28.8	3b	123.8		
	27.0, 26.4	NCH_2	53.6		

Pharm.: Highly specific butyrylcholinesterase inhibitor [2].

1. Abdullaeva D.A., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1976, 783.
2. 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.

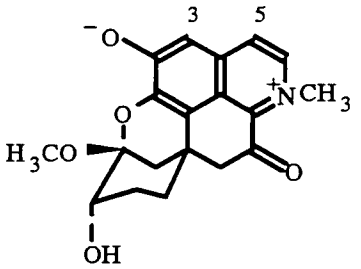


REGELININE

Colchicum kesselringii
$C_{20}H_{27}NO_4$: 345.1940
Mp: 253-254° [1]
$[\alpha]_D$+46° [2]
UV: 243, 293 [1]

IR:3370, 1600, 1470 [1]
Mass: 345(M^+), 344(100), 302, 298, 284, 244, 242, 229 [1]
PMR: 2.36(3H, s, NCH_3), 3.32, 3.74(3H, s, 2×OCH_3), 6.44(H-3) [1]

1. Yusupov M.K., Chommadov B., Aslanov Kh.A., Khim. Prir. Soedin., 1985, 419.
2. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, pp. 7, 18.

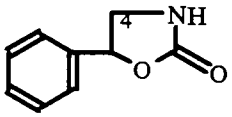


REGELINONE

Colchicum kesselringii
$C_{19}H_{19}NO_5$: 341.1263
Mp: 316-317° [1]
{oxime 248° [2], hexahydro 134°, octahydro 198° [2]}
UV: 248, 300, 395 [1]

IR: 3240, 1690, 1620, 1585 [1, 3]
Mass: 341(M^+, 100), 326, 298, 242, 241, 240, 228, 227, 213, 212 [1]
PMR(D_2O): 3.58, 4.27(3H, s, OCH_3, NCH_3), 6.74(1H, s, H-3), 7.53, 7.82(1H, d, H-4, H-5) [3]

1. Yusupov M.K., Usmanov A.M., Kasymov A.K., Turdikulov Kh., Khim. Prir. Soedin., 1977, 867.
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. 22.

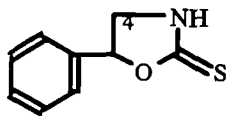


RESEDINE

Reseda luteola
$C_9H_9NO_2$: 163.0633
Mp: 88-89° (bz.)

$[\alpha]_D$ 0°
UV: 253, 258(2.23, 2.33)
IR: 3400-3200, 1720, 760, 710
Mass: 163(M^+), 119, 118, 107(100), 106, 91, 79, 77
PMR: 3.40, 3.90, 5.52(1H, t, H-4, H-5), 6.85(1H, narrow s, NH), 7.70(5H, s, H-Ar) [1]
Pharm.: Growth-stimulating, fungicidal, and tranquilizing action. Enhances the action of soporifics [2].

1. Lutfullin K.L., Tadzhibaev M.M., Abdullaev U.A., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 625.
2. Tadzhibaev M.M., Author's Abstract of Candidate's Dissertation, Tashkent, 1978.

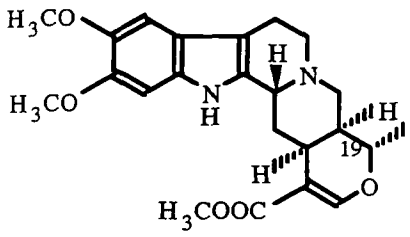


RESEDININE

Reseda luteola
C_9H_9NOS: 179.0405
Mp: 119-121° (bz.)

$[\alpha]_D$+70° (meth.)
Sol-y.: sol. chlf., alc.
UV: 246(4.29)
IR: 3260-3170, 1535, 1480, 773, 710
Mass: 179(M^+), 136, 123, 119, 107, 104, 91, 77, 51
PMR: 3.65, 4.10, 5.80(1H, t, H-4, H-5), 7.34(5H, m, H-Ar), 8.52(1H, narrow s, NH)

1. Tadzhibaev M.M., Lutfullin K.L., Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 271.

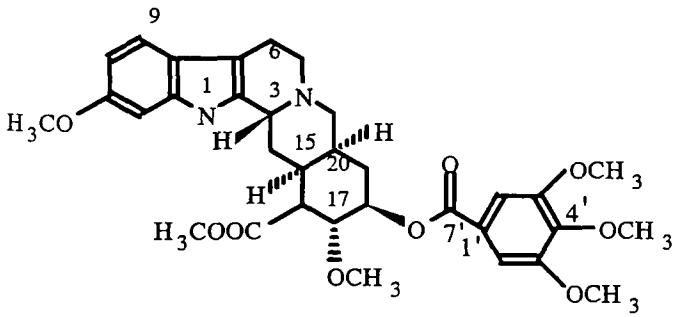


RESERPILINE

Rauwolfia canescens
$C_{23}H_{28}N_2O_5$: 412.1998
Mp: amorph. [1, 2]
$[\alpha]_D$–69° (meth.) [1], –19° (pyr.), –12° (chlf.) [2]
{oxalate 245° [2], 240° (dec.) [3]; tartrate 192° (dec.) [2]}

UV: 229, 300(4.57, 4.03) [2]; 229, 250, 300, 304, 307 sh (4.57, 4.07, 4.03, 4.03, 4.00) [4]
IR: [5]
PMR: 1.32(J=6.3, 19-CH_3) [6]
Pharm.: LD_{50} 68.3 mg/kg (mice). Negative inotropic action [7].

1. Dastoor N., Schmid H., Experientia, 1963, **19**, 297.
2. Stoll A., Hofmann A., Brunner R., Helv. Chim. Acta, 1955, **38**, 270.
3. Belikov A.S., Khim. Prir. Soedin., 1969, 64.
4. Finch N., Taylor W.I., Emerson T.R., Klyne W., Swan R.J., Tetrahedron, 1966, **22**, 1327.
5. Neuss N., Boaz H.E., J. Org. Chem., 1957, **22**, 1001.
6. Shamma M., Richey J.M., J. Amer. Chem. Soc., 1963, **85**, 2507.
7. Sadritdinov, p. 53.



RESERPINE

Rauwolfia cambodiana, R.canescens, R.littoralis, R.serpentina, R.verticillata, R.vomitoria, Vinca minor
$C_{33}H_{40}N_2O_9$: 608.2734
Mp: 256-257° (dec., alc.) [1], 264-265° [2]
$[\alpha]_D$–115° (chlf.) [2]
UV: 217, 267(4.75, 4.23) [2]

IR($CHCl_3$): 3475, 2900, 1729, 1594, 1507, 1466, 1333, 1131, 881, 820 [2]
Mass: 608(M^+, 100). 607, 593, 577, 413, 397, 395, 381, 365 [3]
PMR: [4]

^{13}C NMR: [5]

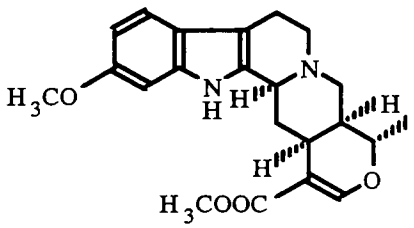
C-2	130.2	C-13	136.1	22-C=O	172.5
3	53.6	14	24.1	11-OCH_3	51.6
5	51.1	15	32.2	C-1′	124.9
6	16.7	16	51.6	2′	106.7
7	107.7	17	77.8*	3′	152.5
8	121.9	18	77.7*	4′	141.9
9	119.2	19	29.6	3′-OCH_3	56.0
10	108.7	20	33.8	4′-OCH_3	60.6
11	155.8	21	48.8	7′-C=O	165.0
12	95.0				

HPLC: [6]

Stereochemistry: [7, 8]

Pharm.: LD_{50} 28 mg/kg (i/v, rats). Hypotensive action. Used in the treatment of hypertonic disease and sympathomimetic hypertension [9].

1. Belikov A.S., Khim. Prir. Soedin., 1969, 64.
2. Holubek, No. 227.
3. Hesse M., Indolalkaloide (Progress in Mass Spectrometry), Verlag Chemie, 1974, Vol. 1, Teil. 2, Abb. 147.
4. Rosen W.E., Shoolery J.N., J. Amer. Chem. Soc., 1961, **83**, 4816.
5. Wenkert E., Chang C.-J., Chawla H.P.S., Cochran D.W., Hagaman E.W., King J.C., Orito K., J. Amer. Chem. Soc., 1976, **98**, 3645.
6. Dargel E., Mielck J.B., J. Liq. Chromatogr., 1990, **13**, 3973.
7. Aldrich P.E., Diassi P.A., Dickel D.F., Dylion C.M., Hance P.D., Huebner C.F., Korzun B., Kuehne M.E., Liu L.H., McPhillamy H.B., Rolb E.W., Rouchaudhuri D.K., Schlitter E., Andre A.F.S., Tamelen E.E., Weisenborn F.L., Wenkert E., Wintersteiner O., J. Amer. Chem. Soc., 1959, **81**, 2481.
8. Ban Y., Yonemitsu O., Chem. Ind., 1961, 948.
9. Sadritdinov, p. 53.



RESERPININE (PUBESCINE)

Vinca erecta, V.herbacea, V.major, V. pubescens

$C_{22}H_{26}N_2O_4$: 382.1893

Mp: 236-237° [1, 2]

$[\alpha]_D$ −134° (ac.) [1], −160° (chlf.) [3, 4]

{nitr. 270°} [1]

UV: 228, 250 sh, 296(4.65, 4.12, 3.81) [4, 5]

IR: 3390, 1710, 1620, 1280, 1215, 790, 780, 760, 710 [4, 6]

Mass: 382(M^+, 100), 381(50), 367(11), 351(3), 255(4), 223(1), 200(10), 199(11), 186(20) [7]

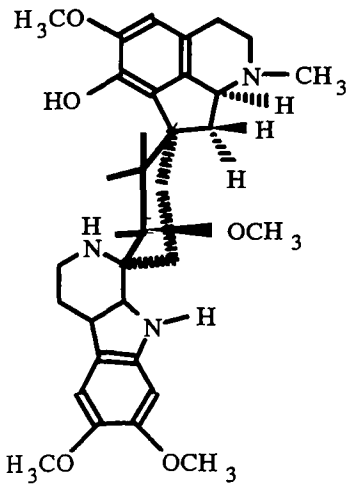
PMR: 1.38(J=6.1, CH_3) [8]

ORD: [5]; stereochemistry: [5, 8]

Pharm.: LD_{50} 148 mg/kg (i/v, mice). Hypotensive action [9].

1. Yunusov S.Yu., Yuldashev P.Kh., DAN UzSSR, 1956, No. 9, 23.
2. Abdurakhimova N., Yuldashev P.Kh., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 224.
3. Chkhikvadze G.V., Asatiani V.S., Vachnadze V.Yu., Mudzhiri K.S., Soobshch. AN GSSR, 1971, **64**, 345.
4. Vachnadze V.Yu., Zhukovich E.N., Mudzhiri K.S., Soobshch. AN GSSR, 1976, **83**, 393.
5. Finch N., Taylor W.I., Emerson T.R., Klyne W., Swan F.J., Tetrahedron, 1966, **22**, 1327.
6. Neuss N., Baaz H.E., J. Org. Chem., 1957, **22**, 1001.
7. Malikov V.M., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 346.
8. Shamma M., Richey J.M., J. Amer. Chem. Soc., 1963, **85**, 2507.

9. Sadritdinov, p. 58.

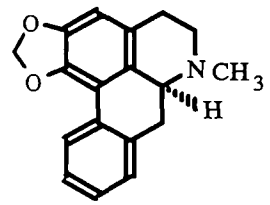


ROEMERIDINE

Roemeria hybrida
$C_{31}H_{39}N_3O_5$: 533.2890
Mp: 228-230° (ac.) [1], 241-243° (meth.-ac., dec.) [2, 3]
$[\alpha]_D$–37° (meth.) [2] –21° (meth.) [3]
UV: 220, 273, 291 [2]
IR: 3350, 3290, 1608-1565 [2]
Mass: 533(M^+), 518, 257, 244(100), 230, 229, 216, 215 [2]
PMR: 1.65(1H, m, J=11.2, 1.92(2H), 1.93(2H), 2.09(1H, dd, J=14; 3.7), 2.20(1H, dd, J=14; 7.4), 2.38(3H, s, NCH_3), 2.45(1H, ddd, J=11.7; 11.6; 5.2), 3.46(3H, s, OCH_3), 3.76(1H, dd, J=7.4; 3.7), 3.92(3H, s, OCH_3), 3.93(6H, s, 2×OCH_3), 6.56(1H, s), 6.91 (1H, s), 6.95(1H, s) [2]

^{13}C NMR: quartet: 43.5(NCH_3), 56.5(3×OCH_3), 57.3(OCH_3); triplet: 23.0, 27.4, 31.5, 32.2, 34.0, 39.0, 55.9; doublet: 65.3, 80.3, 95.1, 100.5; singlet: 47.0, 55.9, 109.7, 120.0, 123.0, 129.6, 132.3, 134.8, 136.8, 139.4, 144.8, 146.5, 146.9 [2]
X-ray spectral analysis: [2]

1. Platonova T.F., Massagetov P.S., Kuzovkov A.D., Utkin L.M., Zh. Org. Khim., 1956, **26**, 173.
2. Podlaha J., Podlahova J., Symersky J., Turecek F., Hanus V., Koblicova L., Trojanek J., Slavik J., Phytochem., 1989, **28**, 1779.
3. Gozler B., Freyer A.J., Shamma M., Tetrahedron Lett., 1989, 1165.

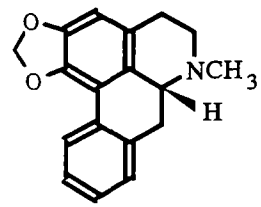


(+)-ROEMERINE

Liriodendron tulipiferum, Papaver commutatum, P.fugax, P.maeoticum, P.ocellatum, P.persicum
$C_{18}H_{17}NO_2$: 279.1259
Mp: 87-88° (petr. eth.) [1], 102-103° [2]

$[\alpha]_D$+69° (alc.) [1]

1. Yunusov S.Yu., Mnatsakanyan V.A., Akramov S.T., DAN UzSSR, 1961, No. 8, 43.
2. Chelombit'ko V.A., Israilov I.A., Khim. Prir. Soedin., 1988, 559.



(–)-ROEMERINE

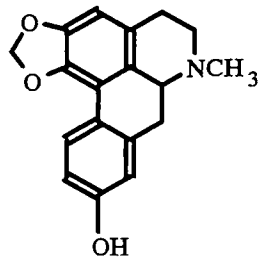
Roemeria refracta
$C_{18}H_{17}NO_2$: 279.1259
Mp: 102-103° (eth.) [1], 87-88° (eth.) [2]
$[\alpha]_D$–77° (alc.) [1], –71° (alc.) [2]

UV: 234, 264 sh, 273, 285 sh, 293 sh, 318 [3]
IR: 1400, 1360, 1053, 940 [3]
Mass: 279(M^+), 278, 264, 249, 139.5(M^{++}) [3]
PMR: 2.46(3H, s, NCH_3), 5.80, 5.95(1H, d, J=1.5, CH_2O_2), 6.45(1H, s), 7.08-7.66(3H, m), 8.00(1H, m) [3]

HPLC: [4]

Pharm.: LD_{50} 79.5, 38.8 mg/kg (s/c, i/v, mice); 26.4 mg/kg (i/v, rabbits); 114 mg/kg (s/c, frogs). Causes an increase in excitability, convulsions, vomiting. In dogs in a dose of 20 mg/kg causes a cessation of respiration and of the heart. Accelerates the motor-defense reflex in rats. Potentiates the soporific action of hexenal and the action of the analeptics caffeine and strychnine [5].

1. Konovalova R.A., Yunusov S.Yu., Orekhov A.P., Zh. Org. Khim., 1939, 9, 1356; 1507.
2. Yunusov S.Yu., Mnatsakanyan V.A., Akramov S.T., DAN UzSSR, 1961, No. 8, 43.
3. Israilov I.A., unpub.
4. Hutin M., Oztekin A., Cave A., Foucher J.P., J. Chromatogr., 1983, **265**, 139.
5. Sadritdinov, p. 223.

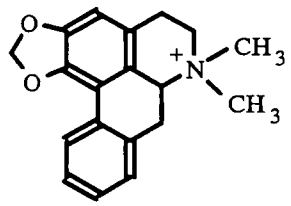


ROEMEROLINE

Papaver fugax
$C_{18}H_{17}NO_3$: 195.1208
Mp: 226-227°
$[\alpha]_D$+48° (alc.)
UV: 222, 280, 315(4.25, 4.01, 3.85)
Mass: 295(M^+). 280, 278, 252

PMR: 2.45(3H, s, NCH_3), 6.02, 6.06(1H, d, J=1.5, CH_2O_2), 6.61(1H, s, H-Ar), 6.75-6.88(2H, m), 7.98(1H, d, J=9)

1. Chelombit'ko V.A., Israilov I.A., Khim. Prir. Soedin., 1988, 559.

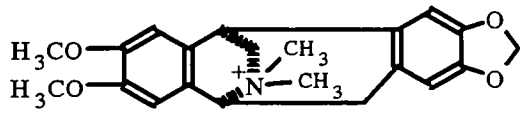


ROEMREFIDINE

Roemeria refracta, Papaver fugax
$C_{19}H_{20}NO_2$: 294.1494
$[\alpha]_D$+79° (meth.)
{iodide 224° (aq. meth.)} 221-222° [2]
UV: 270, 315(4.26, 3.73) [1]

Mass: 293, 287, 277, 235, 205, 178, 176, 151, 142, 128, 127, 58 [2]

1. Akramov S.T., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 199.
2. Manushakyan M.A., Mnatsakanyan V.A., Khim. Prir. Soedin., 1977, 713.

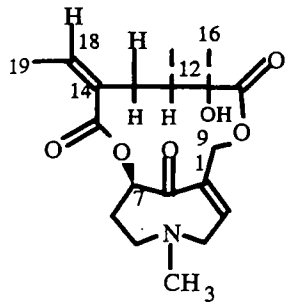


ROEMREFINE

Roemeria refracta
$C_{21}H_{24}NO_4$: 354.1705

$[\alpha]_D$–147° (water)
{chloride 242° (ac.-alc.), iodide 245° water-meth.}.
UV: 294
PMR: 2.90, 3.38(3H, s, $N(CH_3)_2$), 3.83, 3.88(3H, s, 2×OCH_3), 5.72, 5.84(1H, s, CH_2O_2), 6.28, 6.67, 7.05, 7.17(1H, s, 4×H-Ar)

1. Yunusov M.S., Akramov S.T., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 225.



RENARDINE (SENCIRCINE)

Nardosmia laevigata, Senecio jacobaea, S.renardii, S.subdentatus
$C_{19}H_{27}NO_6$: 365.1838
Mp: 192-193° (ac.) [1]
$[\alpha]_D$–2° [1]
{picr. 220°, bitartrate 197°, m-i. 196° (dec.), h-chl. otonecine 143°, senecionic acid 149°, $[\alpha]_D$–8°} [1]

Sol-y.: r-sol. e-a.; sol. ac., eth., water [1]
UV: 227 [2]; 214(3.95) [3]
IR: 3400, 3030, 3000, 2860, 2805, 1708, 1655, 1165, 1145, 1120, 1110 [2]
Mass: 365(M^+, 8), 337(20), 321(28), 294(38), 278(6), 276(2), 266(47), 254(6), 250(9), 238(9), 168(73), 151(100), 150(23), 123(90), 122(55), 110(93), 94(38) [2, 4]
PMR: 0.84(3H, d, J=6.37, 17-CH_3), 1.27(3H, s, 16-CH_3), 1.84(dd, J=1.7; 7.3, 19-CH_3), 2.00(1H, m, H-13), 2.02(3H, s, 4-CH_3), 2.33(1H, m, H-13), 2.45(2H, m, H-6), 2.68(1H, ddd, J=3.91; 12.2; 12.2, H-5), 2.81(1H, ddd, J=2.9; 5.86; 12.2, H-5), 3.17(1H, ddd, J=18.55; 1.9; 2.9, H-3), 3.39(1H, dd, J=18.55; 1.9, H-3), 4.28(1H, d, J=11.2, H-9), 4.91(1H, t, J=2.3, H-7), 5.35(1H, d, J=11.2, H-9), 5.79(1H, dq, J=1.5; 7.3, H-18), 6.07(1H, t, J=2.4, H-2) [5]

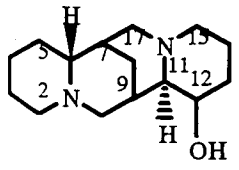
^{13}C NMR: [5]

C-1	134.4	9	64.4	C-15	166.4
2	137.4	10	178.0	18	137.0
3	58.5	11	77.8	4-CH_3	40.5
5	53.2	12	38.6	16-CH_3	24.6
6	36.3	13	37.7	17-CH_3	10.1
7	78.1	14	131.9	19-CH_3	15.2
8	192.4				

CD: [6]
X-ray spectral analysis: [7]
HPLC: [8]
GLC: [9]

1. Danilova A.V., Konovalova R.A., Zh. Org. Khim., 1950, **20**, 1921; Danilova A.V., Koretskaya N.I., Utkin L.M., Zh. Org. Khim., 1961, **31**, 3815.
2. Sadykov Yu.D., Khodzhimatov M., Khafizov Kh., Begovatov Yu.M., Chervin I.I., DAN Tadzh. SSR, 1976, **19**, No. 10, 29.
3. Simanek V., Klasek A., Santavy F., Collect., 1969, **34**, 1832.
4. Abdullaev U.A., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 66.
5. Urones J.G., Barcala P.B., Marcos I.S., Moro R.F., Esteban M.L., Rodriguez A.F., Phytochem., 1988, **27**, 1507.
6. Hrbek J., Hruban L., Klasek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.
7. Birnbaum G.I., J. Amer. Chem. Soc., 1974, **96**, 6165.
8. Sener B., Temizer H., Temizer A., Karakaya A.E., J. Pharm. Belg., 1986, **41**, 115.
9. Roder E., Wiedenfeld H., Pastewka U., Planta Medica, 1979, **37**, 131.

RETAMINE



Genista aethnensis
$C_{15}H_{26}N_2O$: 250.2045
Mp: 167-168° (alc.)

$[\alpha]_D$+45° (alc.) [1]

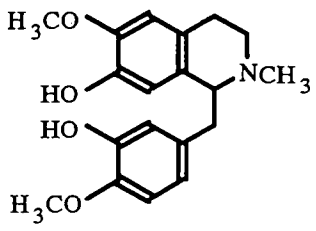
{h-chl. 278° (dec.), m-i. 217° (dec.), di picr. 175°} [1]
Sol-y.: r-sol. alc., eth., chlf., bz.; sp. sol. water [1]
UV: [1]
IR: 3510, 3010, 2940, 2855, 2810, 2770, 2760, 1473, 1450, 1378, 1360, 1350, 1324, 1304, 1270, 1188, 1155, 1148, 1125, 1115, 1079, 1066, 1034, 1028, 1011, 994, 961, 935, 911, 896, 879, 854, 840, 829, 824 [2]
Mass: 250(M^+), 232, 207(15), 175(10), 150, 135(18), 134(24), 98(100), 97(28), 96(21), 84(17), [3]

^{13}C NMR: [4]

C-2	56.2	C-7	33.0	C-12	70.7
3	25.8	8	28.4	13	31.4
4	24.6	9	32.7	14	19.8
5	29.3	10	62.3	15	55.0
6	66.3	11	67.7	17	52.9

Pharm.: LD_{50} 1185 mg/kg (s/c, mice). Diuretic action. Excites adrenoreactive systems, stimulates the contractile activity of the uterus and raises its tonus [1. 5].

1. Ban'kovskii A.I., Frolova V.I., Zheleznova E.S., Trudy VILAR, 1959, **11**, 99.
2. Bohlmann F., Overwien H., Schumann D., Chem. Ber., 1965, **98**, 659.
3. Neuer-Jehle N., Schumann D., Spiteller G., Mh. Chem., 1967, 836.
4. Shamma, No. 201.
5. Sadritdinov, p. 144.

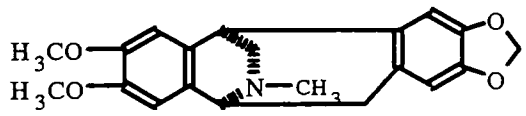


RETICULINE

Aconitum zeravschanicum, Argemone alba, A.albiflora, A.hybrida, A.mexicana, A.ochroleuca, A.platyceras, Berberis heteropoda, B.integerrima, B.nummularia, Corydalis gortschakovii, C.marschalliana, C.pseudoadunca, C.stricta,

Dicentra peregrina, Fumaria vaillantii, Glaucium corniculatum, G.fimbrilligerum, G.squamigerum, Hylomecon vernalis, Papaver alberti, P.hybridum, P.paczoskii, P.somniferum $C_{19}H_{23}NO_4$: 329.1627
$[\alpha]_D$+47° (meth.)
UV: 286(4.10)
Mass: 329(M^+), 192(100), 178, 137
PMR: 2.43(3H, s, NCH_3), 2.45-3.90(7H, m), 3.78(6H, s, 2×OCH_3), 5.35(2H, 2×OH), 6.23, 6.47(1H, s), 6.48-6.77(3H, m)

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



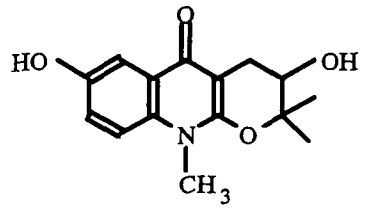
REFRAMINE

Roemeria refracta
$C_{20}H_{21}NO_4$: 339.1471
Mp: oil

$[\alpha]_D$–162° (chlf.)
UV: 228, 290
Mass: 339(M^+), 338, 324, 308, 296, 253, 204, 188
PMR: 2.45(3H, s, NCH_3), 3.76(6H, s, 2×OCH_3), 5.78(2H, s, CH_2O_2), 6.45, 6.65, 6.75, 6.80(1H, s, 4×H-Ar)

1. Israilov I.A., Unpub.

RIBALINIDINE

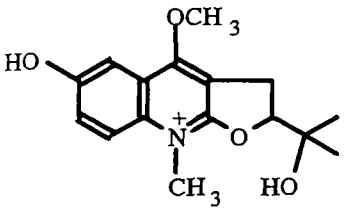


Ruta graveolens
$C_{15}H_{17}NO_4$: 275.1153
Mp: 257-258° (dec., abs. alc.)
$[\alpha]_D$−15° (meth.)
{O-Me. 233°, O-Ac 242°, O,O-di Ac 204°} [1]

UV: 220 sh, 235, 245 sh, 301, 331, 346(4.31, 4.48, 4.43, 3.88, 3.87, 3.81) [1]
IR: 3340, 3200, 1610, 1578, 1558, 1520, 1470 [1, 2]
PMR(CF_3COOH): 1.66, 1.83(3H, s, 2×CH_3), 3.38(2H, d, CH_2), 4.18(3H, s, NCH_3), 4.48(1H, t, -CH-O), 7.86-8.06(3H, m, H-Ar) [2]

1. Corral R.A., Orazi O.O., Benages I.A., Tetrahedron Lett., 1968, 545.
2. Corral R.A., Orazi O.O., Benages I.A., Tetrahedron, 1973, **29**, 205.

RIBALINIUM

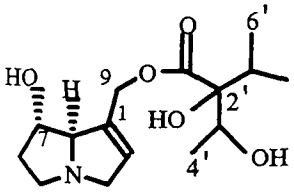


Ruta graveolens
$C_{16}H_{20}NO_4$: 290.1392
{chloride 190° (meth.-e-a.),
$[\alpha]_D$+40° (meth.), picr. 193°, p-chl. 220°} [1]

UV{chloride}: 221, 247, 293 sh, 299, 334(4.42, 4.35, 3.83, 3.88, 3.65) [1]
IR{chloride}: 3324, 1636, 1596, 1544, 1232, 976 [1]
Mass: 289, 275, 258, 246, 230, 218, 204, 188, 174, 160, 148, 120, 59 [2]
PMR: [2, 3]
HPLC: [4]

1. Corral R.A., Orazi O.O., Tetrahedron, 1965, **21**, 909.
2. Szendrei K., Reisch J., Novak I., Simon L., Rozsa Z., Minker E., Koltai M., Herba Hungarica, 1971, **10**, Nos. 2-3, 131.
3. Szendrei K., Minker E., Koltai M., Reisch J., Novak I., Benezas G., Acta Pharmaceutica Hungarica, 1969, **39**, No. 2, 60.
4. Montagu M., Levillain P., Chenieux J.C., Rideau M., J. Chromatogr., 1985, **331**, 437.

RINDERINE



Rindera baldshuanica, Solenanthus turkestanicus
$C_{15}H_{25}NO_5$: 299.1733
Mp: 100-101° (ac.) [1]

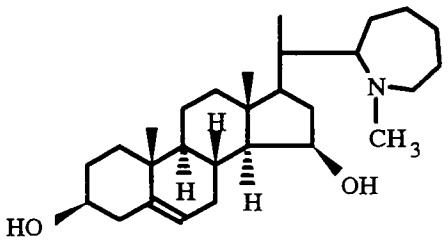
$[\alpha]_D$+25° (alc.) [1]
{h-chl. 153°, h-b. 124°, h-i. 119°} [1]
Sol-y.: r-sol. chlf., alc., water; sol. ac.; sp. sol. eth. [1]
IR: 3525, 3440, 3410, 3250, 3070, 1735, 1340, 1315 [1]
PMR: 0.89(3H, d, 7′-CH_3), 0.90(3H, d, 6′-CH_3), 1.16(3H, d, 4′-CH_3), 1.79(1H, m, H-6), 1.91(1H, m, H-6), 1.98(1H, m, H-5′), 2.57(1H, m, H-5), 3.23(1H, m, H-5), 3.29(1H, dd, H-3), 3.86(1H, d, H-3), 3.88(1H, narrow s, H-8), 4.06(1H, q, H-3′), 4.11(1H, m, H-7), 4.83-4.85(1H, q, H-9), 5.66(1H, narrow s, H-2) [2]

^{13}C NMR: [2]

C-1	135.9	C-7	74.7	C-3′	69.4
2	126.9	8	80.0	4′	17.0
3	61.7	9	62.1	5′	33.1
5	54.1	1′	175.1	6′	17.1
6	33.1	2′	83.4	7′	17.0

Pharm.: LD_{50} 562 mg/kg (i/p, mice). In a dose of 100 mg/kg causes complete block in nerve-muscle synapses [3].

1. Akramov S.T., Kiyamitdinova F., Yunusov S.Yu., Uzb. Khim. Zh., 1961, No. 6, 36; DAN UzSSR, 1961, No. 11, 18.
2. Asibal C.F., Glinski J.A., Gelbaum L.T., Zalkow L.H., J. Natur. Prod., 1989, **52**, 109.
3. Sadritdinov, p. 89.

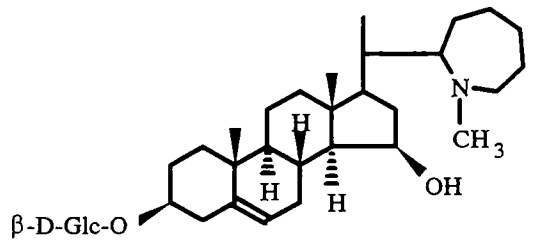


RINOLIDINE

Fritillaria walujewii
$C_{28}H_{47}NO_2$: 429.3607
Mp: 199-201° (ac.)
$[\alpha]_D$–53° (alc.) [1, 2]
IR: 3450-3140, 2797, 1050

Mass: 429(M^+), 414, 402, 401, 400, 386, 179, 168, 164, 154, 149, 137, 125, 124, 113, 112(100)
PMR: 0.90(3H, s, 18-CH_3), 0.97(3H, s, 19-CH_3), 1.03(3H, d, CH-CH_3), 2.22(3H, s, NCH_3), 4.43(1H, m, CH-OH), 5.30(1H, m, C=CH) [1]

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 815.
2. Samikov K., Shakirov R., Khim. Prir. Soedin., 1981, 530.

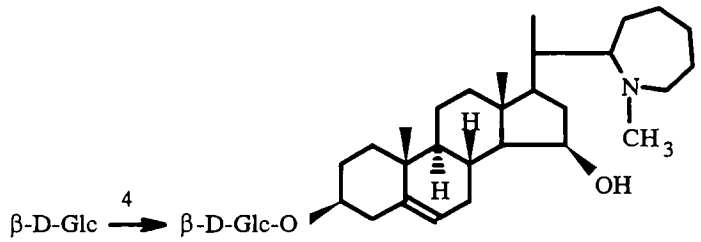


RINOLINE

Rhinopetalum bucharicum, Rh.karelinii, Fritillaria walujewii
$C_{34}H_{57}NO_7$: 591.4135
Mp: 255-257 (meth.)
$[\alpha]_D$–53° (alc.)

IR: 3500-3120, 2965-2830, 2800, 1650, 1470-1450, 1100-1000
PMR: 0.90(3H, s, 18-CH_3), 0.98(3H, s, 19-CH_3), 1.02(3H, d, CH-CH_3), 2.25(3H, s, NCH_3), 5.32(1H, m, C=CH)

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 815.

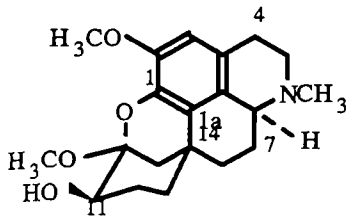


RINOLININE

Rhinopetalum bucharicum, Rh.karelinii, Fritillaria walujewii
$C_{40}H_{67}NO_{12}$: 753.463
Mp: 301-302° (meth.)
$[\alpha]_D$–36.5° (alc.)

IR: 3400, 2963-2855, 2795, 1460, 1447, 1110-1020
PMR: 0.90(3H, s, 18-CH_3), 0.98(3H, s, 19-CH_3), 1.03(3H, d, CH-CH_3), 2.20(3H, s, NCH_3), 5.30(1H, m, C=CH)

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 350.



ROBUSTAMINE

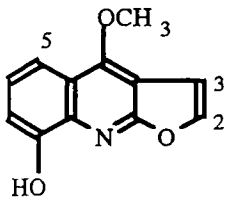
Merendera robusta
$C_{20}H_{27}NO_4$: 345.1940
Mp: 251-252°
$[\alpha]_D$–40°
{O-Ac 207°}

UV: 216, 296
IR: 3470-3340, 1600
Mass: 345(M^+, 50), 344(100), 312, 302, 244, 242
PMR: 2.34(3H, s, NCH_3), 3.32, 3.75(3H, s, 2×OCH_3), 4.97(1H, m, H-11), 6.45(1H, s, H-3)

^{13}C NMR:

C-1	142.3	C-12	100.6	2-OCH_3	55.7
2	145.1	14	34.7	12-OCH_3	49.0
3	110.2	1a	125.9	CH_2	37.4, 37.2
3a	124.3	3b	123.4		33.7, 28.5
6a	59.9	NCH_3	43.3		28.1, 26.8
11	75.1	NCH_2	53.8		

1. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 7.; Unpub.

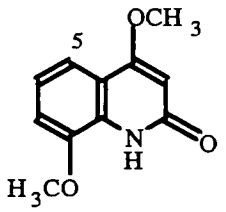


ROBUSTINE

Dictamnus caucasicus, Haplophyllum bucharicum, H.dauricum, H.dubium, H.obtusifolium, H.pedicellatum, H.perforatum, H.ramosissimum, H.robustum
$C_{12}H_9NO_3$: 215.0582

Mp: 147-149° (alc.)
{h-chl. 200°, picr. 180°, Ac 175°, tetrahydro. 202°, O-Me 141°}
Sol-y.: r-sol. ac., chlf.; sp. sol. alc.; i.s. water
UV: 246, 314, 330, 342(4.86, 3.94, 3.94, 3.92) [1]
IR: 3300, 3130, 1622, 1590, 1528, 1368, 1310, 1190, 1108, 1060, 1000 [1, 2]
Mass: 215(M^+, 100), 200(44), 186(26), 172(26), 144(14), 116(14), 83(12), 63(5) [3]
PMR: 4.30(3H, s, OCH_3), 6.91, 7.47(1H, d, J=3, H-3, H-2), 7.10(2H, m, H-6, H-7), 7.59(1H, dd, J=9; 2.5, H-5) [2]
Pharm.: LD_{50} 300 mg/kg (oral, mice) [4, 5].

1. Fakhrutdinova I.M., Sidyakin G.P., Yunusov S.Yu., Khim. Prir. Soedin., 1965, 107.
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.
5. Sadritdinov, p. 272.

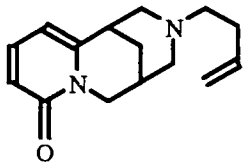


ROBUSTININE (EDULITINE)

Haplophyllum bungei, H.dauricum, H.foliosum, H.robustum
$C_{11}H_{11}NO_3$: 205. 0739
Mp: 232-233° (ac.)
{norrobustinine 246°, nitroso derivative of norrobustinine 227°}

Sol-y.: r-sol. alc., meth., chlf.
UV: 225, 270, 282, 320, 332(4.34, 4.42, 3.85, 3.78, 3.44) [1]
IR: 3165, 1650, 1580, 1488, 1460, 1395, 1270, 1230, 1080, 980 [2]
Mass: 205(M^+, 100), 204(80), 202(3), 190(19), 176(34), 175(32), 162(13) [2]
PMR: 3.93, 3.94(3H, s, 2×OCH_3), 7.45(1H, H-5) [3]

1. Saitbaeva I.M., Sidyakin G.P., Yunusov S.Yu., Khim. Prir. Soedin., 1966, 443.
2. Bessonova I.A., Unpub.
3. Toube T.P., Murphy J.W., Cross A.D., Tetrahedron, 1967, **23**, 2061.

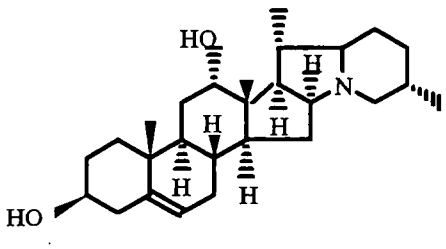


RHOMBIFOLINE

Ammodendron longiracemosum, Thermopsis lanceolata
$C_{15}H_{20}N_2O$: 244.1576
Bp: 120 (2 mm Hg) [1]

$[\alpha]_D$–232° (alc.) [2], –151° (chlf.) [1]
{p-chl. 245°, h-chl. 258°, picr. 226°} [2]
IR: 3060, 1651, 1565, 1552, 982, 911 [2]; 1660, 1554, 1468, 978 [1]
Mass: 244(M^+, 5), 203(100), 160, 146, 98, 58(70) [1]; 204(8), 203, 160(12), 146(14), 136(8), 122(8), 98(15), 58(100), 55(20), 41(34), [3]

1. Vinogradova V.I., Iskandarov S., Yunusov M.S., Khim. Prir. Soedin., 1971, 463.
2. Cockburn W.F., Marion L., Canad. J. Chem., 1952, **30**, 92.
3. Pelletier, Vol. 2, p. 105.

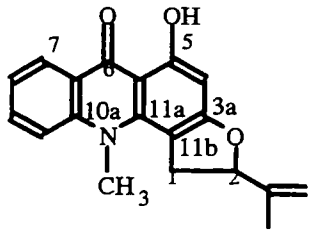


RUBIJERVINE

Veratrum dahuricum, V.lobelianum, V.nigrum, V.oxysepalum
$C_{27}H_{43}NO_2$: 413.3294
Mp: 239-241° (alc.)
$[\alpha]_D$–18° (alc.)
{h-b. 269°}

UV: 250, 323, 444, 504 [1]
IR: 3500, 3000, 1670, 1420 [2]
HPLC: [3]

1. Bondarenko N.V., Shinkarenko A.L., Gerashchenko G.I., Khim. Prir. Soedin., 1971, 854.
2. Pelletier S.W., Locke D.M., J. Amer. Chem. Soc., 1957, **79**, 4531.
3. Hunter I.R., Walden M.K., Heftmann E., J. Chromatogr., 1980, **198**, 363.



RUTACRIDONE

Boenninghausenia albiflora, Ruta graveolens
$C_{19}H_{17}NO_3$: 307.1208
Mp: 162-164° (ac.-petr. eth.)
$[\alpha]_D$–43° [1]
UV: 228, 249, 264, 270, 330, 332, 390 [2]

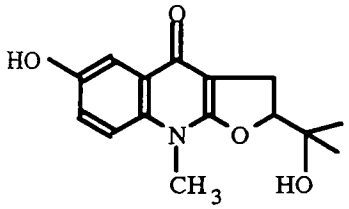
Mass: 307(M^+, 100), 292(30), 278(29), 264(27), 250(16), 239(16), 236(15), 222(6), 208(12), 183(4), 180(6.5), 167(5), 154(5), 146(2), 140(5), 127(1), 115(1.2), 107(9), 89(3.5), 77(13) [1]

^{13}C NMR: [3]

C-1	37.6	C-6	180.0	C-10a	142.2
2	85.8	6a	120.0	11a	143.1
3a	166.8	7	125.3	11b	100.7
4	91.6	8	121.6	12	143.4
5	165.3	9	134.3	13	16.9
5a	105.3	10	115.8	14	112.4
				NCH_3	35.9

HPLC: [4]

1. Rozsa Z., Szendrei K., Kovacs Z., Novak I., Minker E., Reisch J., Phytochem., 1978, **17**, 169.
2. Kuzovkina I.N., Rozha Zh., Sendrei K., Smirnov A.M., Rast. Res., 1983, **19**, Issue 3, 374.
3. Bergenthal D., Mester I., Rozsa Z., Reisch J., Phytochem., 1979, **18**, 161.
4. Reisch J., Probst W., Groger D., Pharmazie, 1990, **45**, 500.

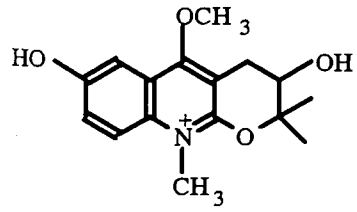


RUTALINIDINE (RIBALINE)

Ruta graveolens
$C_{15}H_{17}NO_4$: 275.1158
Mp: 259-260° (meth.) [1]
{picr. 224° (dec.), O-Me. 227°, p-chl. 225°} [1]
Sol-y.: sp. sol. org. solvent

UV: 235, 245, 304, 325, 339(4.37, 4.34, 3.90, 3.80, 3.71) [1]
IR: 1618, 1580, 1558, 1545, 1519, 1470 [1],
Mass{O-Me.}: 289(M^+, 2), 230(44), 218(100), 217(85), 200(32), 71(25) [2]
PMR{O-Me.}: [2]

1. Corral R.A., Orazi O.O., Benages I.A., Tetrahedron, 1973, 29, 205.
2. Corral R.A., Orazi O.O., Tetrahedron, 1965, **21**, 909.



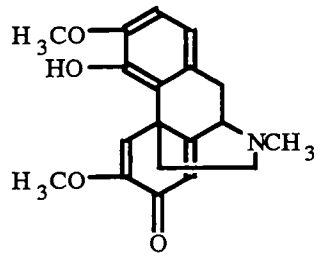
RUTALINIUM

Ruta graveolens
$C_{16}H_{20}NO_4$: 290.1392
{chloride 248°, picr. 180°}
UV{chloride}: 248, 294, 304, 346(4.52, 3.93, 3.99, 3.78) [1]

Mass{chloride}: 289, 275, 204, 150, 120, 107, 82, 77, 72, 65 [1]
PMR{chloride}: [1]

HPLC: [2]

1. Szendrei K., Reisch J., Novak I., Simon L., Rozsa Z., Minker E., Koltai M., Herba Hungarica, 1971, **10**, Nos. 2-3, 131.
2. Montagu M., Levillain P., Chenieux J.C., Rideau M., J. Chromatogr., 1985, **331**, 437.

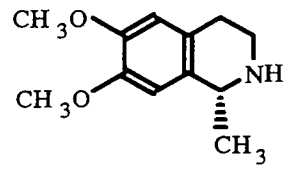


SALUTARIDINE (FLORIPAVINE)

Papaver bracteatum, P.floribundum, P.fugax, P.pseudo-orientale, P.urbanianum
$C_{19}H_{21}NO_4$: 327.1471
Mp: 200-201° (alc.) [1]
$[\alpha]_D$+90° (chlf.) [1]
UV: 241, 276 [1]

IR: 3550, 1675, 1647, 1618 [1]
Mass: 327(M^+, 100), 326, 312, 299, 283 [1]
PMR: 1.90-3.50(7H, m), 2.37(3H, s, NCH_3), 3.74, 3.83(3H, s, 2×OCH_3), 6.22, 7.45(1H, s), 6.77(2H, s) [1]
ORD: [2]
CD: [2]
HPLC: [3]

1. Israilov I.A., Unpub.
2. Kametani T., Ihara M., Fukumoto K., Yagi H., J. Chem. Soc., 1969, 2030.
3. Milo J., Levy A., Palevitch D., Ladizinsky G., J. Chromatogr., 1988, **452**, 563.

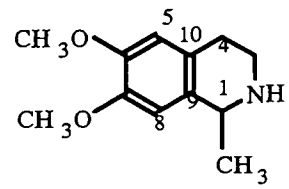


(–)-SALSOLIDINE

Salsola pestifer, S.richteri
$C_{12}H_{17}NO_2$: 207.1255
Mp: 71-72° (eth.), 60-61° (water)

$[\alpha]_D$–53° (alc.)
{h-chl. 231°, picr. 195°, picrolonate 221°} [1]
Sol-y.: r-sol. alc., ac., chlf.; sol. eth., water [1]
X-ray spectral analysis{h-chl. $2H_2O$} [2]

1. Orekhov A.P., Proskurnina N.F., Zh. Org. Khim., 1939, **9**, 415.
2. Ammon H.L., Prasad S.M., Barnhart D.M., Syal V.K., El-Sayed K., Wassel G.M., Acta Cryst. Sect. C. Cryst. Struct. Commun., 1987, 43, 567; C.A., 1988, **108**, 94819.



(±)-SALSOLIDINE

Salsola richteri
$C_{12}H_{17}NO_2$: 207.1259
Mp: 52-53° [1]
{h-chl. 195°}

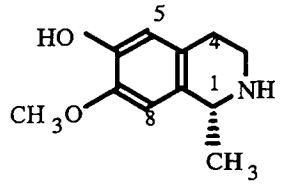
UV: 212, 232, 285(4.08, 3.99. 3.84) [2]
IR: 3540, 3320, 1625, 1535, 1040 [3]
Mass: 207(M^+, 2), 206(14), 192(100), 163(7), 162(3), 154(6), 153(17), 151(5), 149(8), 133(4), 43(21) [2]
PMR: 1.35(1-CH_3), 3.92(6H, 2-OCH_3), 6.30(2H, H-5, H-8) [2]

^{13}C NMR: [4]

C-1	51.2	C-6	147.4	C-10	127.1
3	41.9	7	147.5	CH_3	22.8
4	29.6	8	109.6	OCH_3	55.8
5	112.2	9	132.8	OCH_3	56.0

Pharm.: LD_{50} 170 mg/kg (i/v, mice). In a dose of 1 mg/kg raises arterial pressure, and in a dose of 10-30 mg/kg lowers it. Spasmolytic action. {Polymeric derivatives} possess the same properties [5].

1. Orekhov A.P., Proskurnina N.F., Zh. Org. Khim., 1939, **9**, 415.
2. Ghosal S., Srivastava R.S., Phytochem., 1973, **12**, 193.
3. Menachery M.D., Lavamer G.L., Wetherly M.L., Guinaudeau H., Shamma M., J. Natur. Prod., 1986, **49**, 745.
4. Verchere C., Rousselle D., Viel C., Org. Magn. Reson., 1978, **11**, 395.
5. Sadritdinov, p. 107.

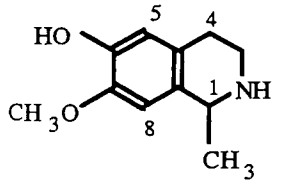


(+)-SALSOLINE

Salsola pestifer, S.richteri
$C_{11}H_{15}NO_2$: 1931103
Mp: 215-216° [1]

$[\alpha]_D$+40° (water);
{h-chl. 172°, tartrate 196°} [1]
UV(HCl, i-PrOH): 204, 227, 284, 286(4.60, 3.77, 3.55, 3.55) [2]
PMR: 1.59(3H, d, J=7, 1-CH_3), 2.88(2H, m, H-4), 3.28(2H, s, H-3), 3.77(3H, s, OCH_3), 6.61. 6.78(1H, s, H-5, H-8) [2]
X-ray spectral analysis{h-chl. H_2O} [3]

1. Proskurnina N., Orekhov A., Bull. Soc. Chim. France, 1937, 1265.
2. Menachery M.D., Lavanier G.L., Wetherly M.L., Guinaudeau H., Shamma M., J. Natur. Prod., 1986, **49**, 745.
3. Ammon H.L., Prasad S.M., Barnhart D.M., Syal V.K., El-Sayed K., Wassel G.M., Acta Cryst., Sect. C: Cryst. Struct. Commun., 1987, **C43**, 567; C.A., 1988, **108**, 94819.



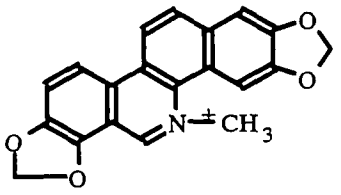
(±)-SALSOLINE

Salsola richteri
$C_{11}H_{15}NO_2$: 193.1099
Mp: 217-219° [1]

[α] 0°
{h-chl. 203°, picr. 195°, picrolonate 233°} [1]
UV: 226, 285(3.79, 3.55) [2]
IR: 3280, 1608, 1535, 1323, 1302, 1263, 1254, 1220, 1181, 1137, 1118, 1099, 1067, 1042, 1030, 1012, 923, 867, 841, 811, 798, 743, 732, 720 [2]
Mass: 193(M^+, 3), 192(12), 178(100), 164(5), 163(17), 149(11), 134(7), 122(6), 43(25) [3]
PMR: 1.38(3H, d, 1-CH_3), 3.88(3H, s, OCH_3), 4.16(1H, d, H-1), 6.22(2H, s, H-5, H-8)
Pharm.: LD_{50} {h-chl.} 370 mg/kg. Small doses cause transitory hypertension. High doses lower pressure, stimulate respiration, and reduce diuresis with retention of chlorides. {The hydrochloride} is used in the treatment of hypertonic disease and spasms of the vessels of the brain [4].

1. Orechoff A., Spath E., Kuffner F., Chem. Ber., 1934, **67**, 1214.
2. Holubek, No. 239.
3. Menachery M.D., Lavanier G.L., Wetherly M.L., Guinaudeau H., Shamma M., J. Natur. Prod., 1986, **49**, 745.

4. Sadritdinov, p. 105.



SANGUINARINE

Argemone alba, A.hybrida, A.mexicana, A.ochroleuca, A.platyceras, Bocconia cordata, B.frutescens, Chelidonium majus, Corydalis caucasica, C.fedtschenkoana, C.gigantea, C.ledebouriana, C.marschalliana, C.paniculigera, C.persica, C.vaginans, Dicentra peregrina, D.spectabilis, Dicranostigma franschetianum, D.lactucoides, D.leptopodum, Eschscholtzia C.pseudoadunca, C.remota, C.sewerzowii, C.stricta, californica, Fumaria officinalis, F.parviflora, Glaucium corniculatum, G.elegans, G.fimbrilligerum, G.grandiflorum, G.squamigerum, Hypecoum trilobum, Macleaya cordata, M.microcarpa, Papaver bipinnatum, P.bracteatum, P.ocellatum, P.paczoskii

$C_{20}H_{14}NO_4$: 332.0923

Mp: 242-243° (meth.)

UV: 240, 285, 330 [1]

UV{chloride}: 236, 285, 328, 352 sh, 400, 476 [2]

IR{chloride}: 3560, 3360, 1662, 1647, 1617, 1595, 1537, 1524, 1499, 1331, 1307, 1278, 1251, 1234, 1220, 1205, 1176, 1160, 1126, 1105, 1030, 1008, 978, 965, 915, 868, 843, 834, 804, 789 [2]

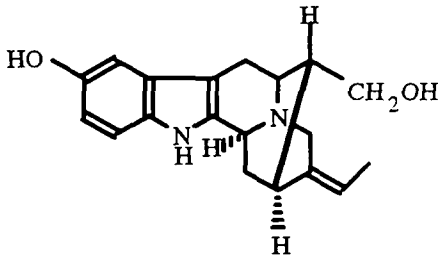
Mass: 332(M^+), 317(100) [1]

PMR(CF_3COOH): 4.55(3H, s, NCH_3), 5.78, 6.04(2H, s, $2\times CH_2O_2$), 7.00, 7.53(1H, s, p-H-Ar), 7.41, 7.68, 7.94, 8.05(1H, d, J=9, 4×oH-Ar) [1]

HPLC: [3]

Pharm.: Is an effective agent in the treatment of inflammatory diseases of the external and middle ear [4], the mucous lining of the oral cavity [5], and infected wounds and ulcers [6]. As an anticholinesterase drug is desirably used in infantile neurological practice in the treatment of patients with infantile cerebral paralyses in combination with various amino acids [7]. The drug Sangvenitrin—a mixture of {the bisulfates} of sanguinarine and chelerythrine—possess antimicrobial and anticholinesterae activity. Is used in the treatment of lesions of the skin and mucous membranes and in myopathies. Supplied in the form of a 1% liniment, 1% aqueous and 0.2% alcoholic solns, and 0.005-g tablets [8].

1. Israilov I.A., Unpub.
2. Holubek, No. 241.
3. Chauret N., Rho D., Archambault J., J. Chromatogr., 1990, **519**, 99.
4. Kunel'skaya V.Ya., In: Trudy VILR [Proceedings of the All-Union Scientific Research Institute of Drugs], Drugs [in Russian], 1971, Vol. 14, p. 266.
5. Lemetskaya T.I., Pogozhina A.G., Rudneva V.E., ibid., 269.
6. Ostrovskii N.N., Maksimova R.G., ibid., 275.
7. Édel'shtein É.A., ibid., 294.
8. Mashkovskii, Vol. 2, p. 420.



SARPAGINE

Rauwolfia canescens

$C_{19}H_{22}N_2O_2$: 310.1631

Mp: 304-306° (dec., meth.) [1]

$[\alpha]_D$+55° (pyr.) [2]

UV: 230, 278(4.30, 3.92) [2]

UV(OH^-): 276, 322(3.88, 3.59) [2]

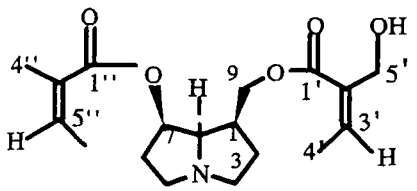
IR: 3401, 1621, 1595 [2]

Mass: 310(M^+, 100), 295, 293, 279, 265, 185, 172 [3]

Abs. conf.: [4]

Pharm.: Hypotensive action [5].

1. Belikov A.S., Khim. Prir. Soedin., 1969, 64.
2. Poisson J., Goutarel R., Bull. Soc. Chim. France, 1956, 1703.
3. Hesse M., Indolalkaloode (Progress in Mass Spectrometry), Verlag Chemie, 1974, Vol. 1, Teil. 2, Abb. 112.
4. Bartlet M.F., Sklar R., Taylor W.I., Schlitter E., Amai R.L.S., Beak P., Bringi N.D., Wenkert E., J. Amer. Chem. Soc., 1962, **84**, 622.
5. Sadritdinov, p. 59.

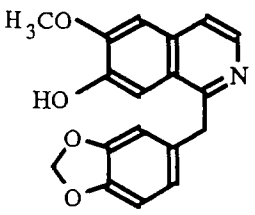


SARRACINE

Senecio platyphylloides, S.rhombifolius, S.sarracenicus
$C_{18}H_{27}NO_5$: 337.1889
Mp: 151-152° (water) [1], 45-46° [2]
$[\alpha]_D$–130° (alc.) [1]

{bitartrate 179°, picr. 171°, platynecine 152°, $[\alpha]_D$–57° (chlf.), angelic acid 44°, sarracinic acid {58°}
Sol-y.: r-sol. alc., eth., chlf.; sp. sol. water [1]
Mass: 337(3), 254(3), 237(40), 222(20), 211(3), 138(97), 122(34), 106(33), 95(47), 82(100) [3]
PMR: 1.80-1.98(2H, m, H-2, H-6), 1.91(3H, dq, J=1.5; 1.4, 5''-CH_3), 2.02(3H, dq, J=7.3; 1.5, 4''-CH_3), 2.00-2.14(2H, m, H-2, H-6), 2.05(3H, d, J=7.3, 4'-CH_3), 2.76(1H, m, H-5), 2.80(1H, m, H-3), 2.85(1H, m, H-1), 3.25(1H, m, H-3), 3.40(1H, narrow t, H-5), 3.69(1H, dd, J=3.7; 8, H-8), 4.24(2H, s, H-5'), 4.25(1H, dd, J=7; 11, H-9), 4.43(1H, dd, J=7.6; 11, H-9), 5.36(1H, narrow t, H-7), 6.13(1H, dd, J=7.3; 1.4, H-3''), 6.38(1H, q, J=7.2, H-3') [4]
CD: [5]
HPLC: [6] Pharm.: LD_{50} 1250 mg/kg (s/c, mice). Pronounced spasmolytic action. {Hydrogen tartrate} used in spasms of the smooth musculature of the abdominal cavity, ulcers, gastritises, cholecystitises, bronchial asthma, migraine. Supplied in 0.01-g tablets [7].

1. Danilova A.V., Kuzovkov A.D., DAN SSSR, 1953, **89**, 865.
2. Culvenor C.C.J., Geissman T.A., J. Org. Chem., 1961, **26**, 3045.
3. Rashkes Ya.V., Author's Abstract of Doctoral Dissertation, Tashkent, 1974.
4. Roby M.R., Stermitz F.R., J. Natur. Prod., 1984, **47**, 846.
5. Hrbek J., Hruban L., Klasek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.
6. Stelljes M.E., Seiber J.N., J. Chem. Ecol., 1990, **16**, 1459.
7. Ban'kovskii A.I., in: Trudy VILAR, 1969, Vol. 15, p. 5.



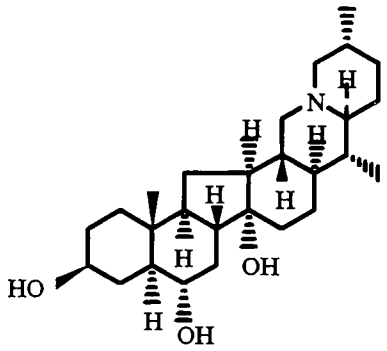
SEVANINE

Papaver arenarium, P.macrostomum
$C_{18}H_{15}NO_4$: 309.1001
Mp: 213-215° (meth.)
UV: 241, 277 sh, 285, 291 sh, 321, 332

Mass: 309(M^+), 308(100), 307, 293, 292, 280, 278, 265, 264, 250, 248, 236, 235, 220, 208, 207, 191, 178, 167, 151, 150, 135, 123, 121
PMR($CDCl_3$-CD_3OD): 4.03(3H, s, OCH_3), 4.45(2H, s, Ar-CH_2-Ar), 5.87(2H, s, CH_2O_2), 6.72(3H, s), 7.10, 7.48(1H, s), 7.45, 8.23(1H, d, J=6)

1. Mnatsakanyan V.A., Preininger V., Simanek V., Jurina J., Klasek A., Dolejs L., Santavy F., Collect., 1977, **42**, 1421.

SEVEDAMINE

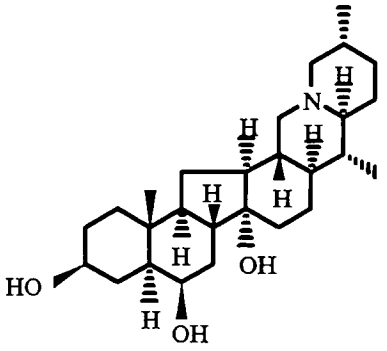


Korolkowia sewerzowii
$C_{27}H_{45}NO_3$: 431.3399
Mp: 256-258° (ac.)
$[\alpha]_D$+4° (alc.)
{di Ac amorph.}
IR: 3390, 2950-2850, 2770, 1460, 1060, 1040
Mass: 431(M^+), 416, 414, 413, 402, 400, 373, 232, 218, 179, 178, 164, 162, 149, 138, 125, 124, 112, 111(100), 98

PMR: 0.73(3H, s, 19-CH_3), 0.84(6H, 21-CH_3, 27-CH_3)
PMR{di Ac}: 0.79(3H, s, 19-CH_3), 0.84(6H, 21-CH_3, 27-CH_3), 2.00(6H, s, 2×OAc), 4.63(2H, m, H-3, H-6)

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1986, 622.

SEVEDINE

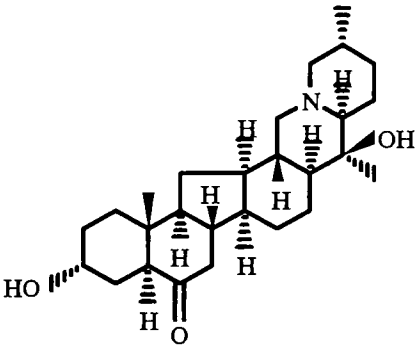


Korolkowia sewerzowii
$C_{27}H_{45}NO_3$: 431.3399
Mp: 212-214° (ac.)
$[\alpha]_D$−17° (chlf.)
{di Ac 204°, dione 217°}
IR: 3375, 2983-2865, 2775, 1470, 1450, 1035
Mass: 431(M^+), 416, 413, 402, 398, 375, 360, 179, 178, 166, 164, 162, 150, 139, 138, 125, 124, 112, 111(100), 98

PMR: 0.94(3H, s, 19-CH_3)
PMR{di Ac}: 0.81(6H, d, 21-CH_3, 27-CH_3), 0.94(3H, s, 19-CH_3), 2.00(6H, s, 2×OAc), 4.68(1H, m, HC-OAc), 4.97(1H, HC-OAc)
PMR{dione}: 0.81(6H, d, 21-CH_3, 27-CH_3), 0.87(3H, s, 19-CH_3)

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 673.

SEVELINE

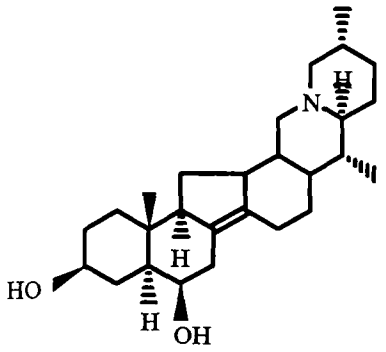


Korolkowia sewerzowii
$C_{27}H_{43}NO_3$: 429.3243
Mp: 267-269° (ac.)
$[\alpha]_D$+49° (alc.-chlf.)
{Ac amorph., ketone 236°, dihydro. 261°, di Ac dihydro. amorph.}
UV: 290(2.31)
IR: 3470-3340, 2970-2860, 2750, 1690

Mass: 429(M^+), 414, 412, 411, 400, 396, 373, 358, 290, 271, 260, 235, 234, 223, 180, 178, 166, 150, 149, 140, 138, 125, 124, 112(100), 111, 98
PMR: 0.71(3H, s, 19-CH_3), 0.85(3H, d, 27-CH_3),0.88(3H, s, 21-CH_3)
PMR{Ac}: 0.72(3H, s, 19-CH_3), 0.84(3H, d, 27-CH_3), 0.87(3H, s, 21-CH_3), 1.98(3H, s, OAc), 5.09(1H, m, HC-OAc)

PMR{ketone}: 0.83(3H, d, 27-CH_3), 0.86(3H, s, 21-CH_3), 0.92(3H, s, 19-CH_3)
PMR{dihydro}: 0.84(3H, d, 27-CH_3), 0.87(3H, s, 21-CH_3), 0.95(3H, s, 19-CH_3)
PMR{di Ac dihydro}: 0.83(3H, d, 27-CH_3), 0.86(3H, s, 21-CH_3), 1.00(3H, s, 19-CH_3), 1.96, 1.98(3H, s, 2×OAc), 4.89, 5.05(1H, 2×HC-OAc)

1. Samikov K., Abdullaeva D.U., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 529.

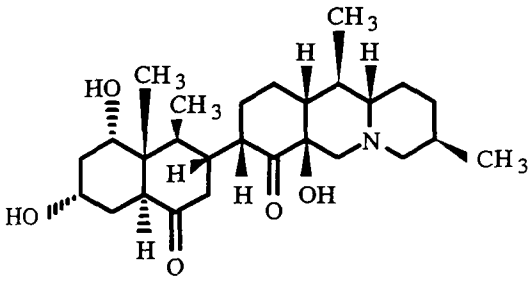


SEVERZINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_2$: 413.3294
Mp: 202-204°
$[\alpha]_D$–45°
{di Ac amorph., dione amorph.}
IR: 3420, 3100, 3018, 2960-2827, 2778, 1663

Mass: 413(M^+, 398, 396, 384, 357, 356, 300, 282, 190, 178, 164, 162, 150, 124 112, 111(100), 98
PMR: 0.77(3H, s, 19-CH_3), 0.80(3H, d, 21-CH_3), 0.86(3H, d, 27-CH_3)
PMR{di Ac}: 0.77(3H, s, 19-CH_3), 0.80(3H, d, 21-CH_3), 0.86(3H, d, 27-CH_3), 1.95, 2.00(3H, s, OAc), 4.68, 4.88(1H, 2×HC-OAc)
PMR{dione}: 0.86(9H, 19-CH_3, 21-CH_3, 27-CH_3)

1. Samikov K., Shakirov R., Khim. Prir. Soedin., 1981, 252.

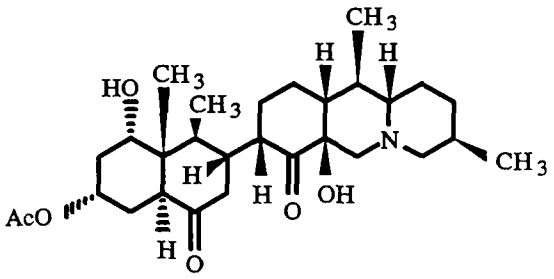


SEVERIDINE

Korolkowia sewerzowii
$C_{27}H_{43}NO_5$: 461.3141
Mp: 200-202° (ac.)
$[\alpha]_D$–98° (alc.) [1, 2]
{h-chl. 237°, di Ac amorph., tri Ac amorph., tetrahydro. 245°, penta Ac tetrahydro. amorph.}

IR: 3400, 2990-2817, 2780, 2760, 1710, 1700, 1482-1400
Mass: 461(M^+), 446, 444, 430, 413, 251, 250(100), 234, 233, 196, 180, 178, 164, 162, 139, 125, 124, 112, 111, 98, 97
PMR: 0.59(3H, s, 19-CH_3), 0.81(9H, d, 3×CH-CH_3)
PMR{tri Ac}: 0.65(3H, d, Cn-CH3), 0.68(3H, s, 19-CH3), 0.75(3H, d, CH-CH_3), 0.81(3H, d, CH-CH_3), 1.96, 2.01, 2.05(3H, s, OAc), 4.85, 5.05(2H, m, HC-OAc)
PMR{di Ac}: 0.67(3H, d, HC-CH_3), 0.70(3H, s, 19-CH_3), 0.74(3H, d, HC-CH_3), 0.80(3H, d, HC-CH_3), 1.96, 2.06(6H, s, OAc), 4.83, 5.04(1H, HC-OAc)
PMR{tetrahydro}: 0.82(3H, s, 19-CH_3), 0.82(9H, d, 3×HC-CH_3)
PMR{penta Ac tetrahydro}: 0.74(3H, d, HC-CH_3), 0.77(3H, s, 19-CH_3), 0.86(6H, d, 2×HC-CH_3), 1.95, 1.97, 2.02(15H, s, 5×OAc), 4.78, 4.88, 4.99(4H, m, 4×HC-OAc)
X-ray spectral analysis: [2]

1. Samikov K., Abdullaeva D.U., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1979, 529.
2. Nasirov S.M., Kuz'mina L.G., Samikov K., Shakirov R., Abdullaeva D.U., Struchkov Yu.T., Yunusov S.Yu., Khim. Prir. Soedin., 1981, 342.

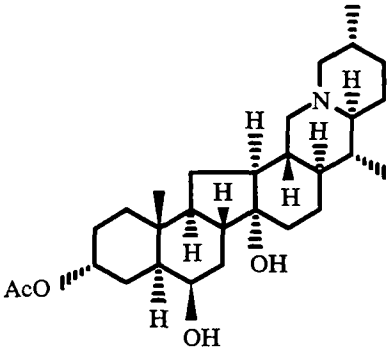


SEVERIDINE

Korolkowia sewerzowii
$C_{29}H_{45}NO_6$: 503.3247
Mp: 145-147° (ac.-petr. eth.)
$[\alpha]_D$–50° (chlf.)
{h-chl. 200°, ketone 150°, Ac ketone amorph.}
IR: 3460, 2960-2815, 2780, 1730, 1710, 1260

Mass: 503(M^+), 486, 470, 460, 444, 442, 420, 411, 400, 276, 251, 250(100), 238, 233, 196, 180, 178, 166, 164, 162, 140, 139, 138, 125, 124, 112, 111, 98
PMR: 0.60(3H, s, 19-CH_3), 0.77, 0.80(9H, d, 3×HC-CH_3), 2.01(3H, s, OAc), 5.18(1H, m, H-3)
PMR{ketone}: 0.75, 0.80, 0.91(3H, d, HC-CH_3), 1.08(3H, s, 19-CH_3), 1.97(3H, s, OAc), 5.36(1H, m, H-3)
PMR{Ac ketone}: 0.79, 0.87(9H, d, 3×HC-CH_3), 1.04(3H, s, 19-CH_3), 1.96, 2.01(3H, s, OAc), 5.34(1H, m, H-3)

1. Abdullaeva D.U., Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1983, 488.

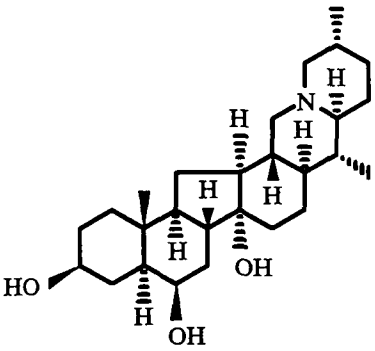


SEVERINE

Korolkowia sewerzowii
$C_{29}H_{47}NO_4$: 473.3505
Mp: 144-146° (bz.)
$[\alpha]_D$–21° (chlf.)
{Ac amorph.}
IR: 3460, 2947-2860, 2770, 1734, 1463, 1440, 1250

Mass: 473(M^+), 458, 455, 444, 431, 430, 418, 417, 412, 179, 178, 166, 165, 164, 150, 149, 138, 125, 124, 112, 111(100), 98
PMR: 0.93(3H, s, 19-CH_3), 2.00(3H, OAc), 5.07(1H, H-3)
PMR{Ac}: 0.80(3H, d, 21-CH_3), 0.80(3H, d, 27-CH_3), 0.90(3H, s, 19-CH_3), 1.97(3H, s, OAc), 2.00(3H, s, OAc), 4.88(1H, HC-OAc), 5.05(1H, s, HC-OAc)

1. Abdullaeva D.U., Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1977, 671.



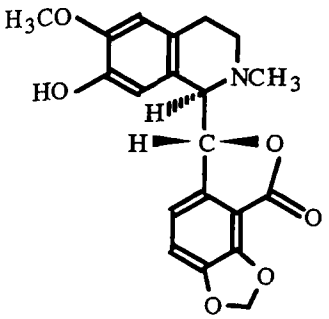
SEVERTCIDINE

Korolkowia sewerzowii
$C_{27}H_{45}NO_3$: 431.3399
Mp: 244-245° (ac.)
$[\alpha]_D$–46° (chlf.)
{h-chl. 226°, di Ac amorph., dione 139°}
IR: 3450, 2960-2860, 2785
Mass: 431(M^+), 416, 413, 402, 398, 376, 375, 360, 274, 272, 258, 234, 180, 178, 164, 162, 159, 150, 140, 139, 138, 128, 126, 125, 124, 112, 111(100), 98

PMR: 0.76(3H, d, J=7, 21-CH_3), 0.97(3H, s, 19-CH_3), 1.05(3H, d, J=7, 27-CH_3)
PMR{di Ac}: 0.76(3H, d, J=7, 21-CH_3), 0.99(3H, s, 19-CH_3), 1.04(3H, d, J=7, 27-CH_3), 1.99(3H, s, OAc), 2.01(3H, s, OAc), 3.77(1H, m, HC-OH), 4.65(1H, m, HC-OAc), 4.98(1H, m, HC-OAc)

PMR{dione}: 0.78(3H, d, J=7, 21-CH_3), 0.91(3H, s, 19-CH_3), 1.04(3H, d, J=7, 27-CH_3)

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 367.

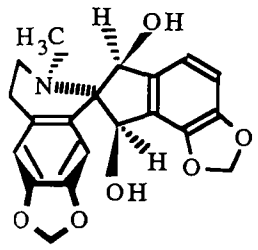


SEVERTZINE

Corydalis ledebouriana, C.sewerzowii
$C_{20}H_{19}NO_6$: 369.1212
Mp: 94-95° (dec., meth.) [1]
$[\alpha]_D$–52° (chlf.) [1]
UV: 221, 291, 326(4.45, 3.64, 3.76)
IR: 3500, 1760, 1600, 1050, 920
Mass: 369(M^+), 192(100), 177, 149

PMR: 2.38(3H, s, NCH_3), 3.72(3H, s, OCH_3), 3.92, 5.54(1H, d, J=3.8), 6.00(2H, s, CH_2O_2), 6.37, 6.67(1H, s, p-H-Ar), 6.86, 7.02(1H, d, J=8, o-H-Ar)
Abs. conf.: 1R,9R [2]

1. Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 811.
2. Moiseeva G.P., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 103.

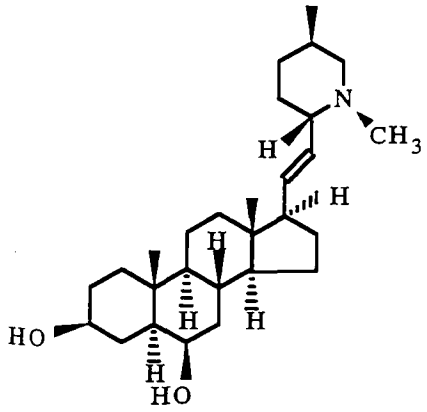


SEVERTZININE

Corydalis sewerzowii
$C_{20}H_{19}NO_6$: 369.1212
Mp: 90-91° (dec., alc.)
$[\alpha]_D$+109° (chlf.)
Sol-y.: r-sol. chlf., ac., bz.; sp. sol. meth.
UV: 290

IR: 3400, 1510, 1490, 1050, 930
Mass: 369(M^+), 336, 322(100), 292, 190
PMR: 2.47(3H, s, NCH_3), 2.50-3.50(4H, m), 5.10, 5.33(1H, s), 5.76(2H, s, CH_2O_2), 5.92(2H, k, CH_2O_2), 6.14, 6.56(1H, s, p-H-Ar), 6.76(2H, s, o-H-Ar)

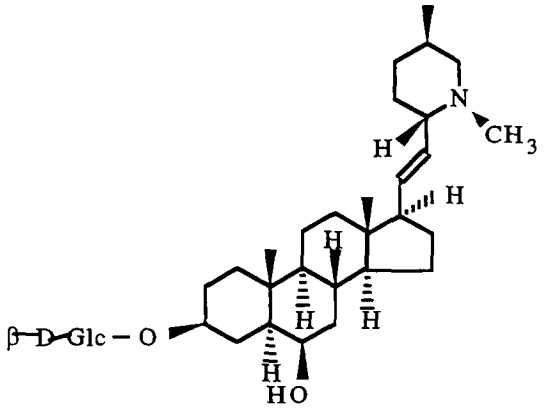
1. Irgashev T., Israilov I.A., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 536.



SEVCORIDININE

Korolkowia sewerzowii
$C_{28}H_{47}NO_2$: 429.3607
Mp: 241-243° (ac.)
IR: 3400, 3125, 2795, 1670
Mass: 429(M^+), 414, 411, 400, 358, 178, 164, 150, 138, 125, 112(100) [1]
PMR: 0.54(3H, s, 18-CH_3), 0.81(3H, d, 27-CH_3), 0.98(3H, s, 19-CH_3), 2.12(3H, s, NCH_3), 5.35(2H, HC=CH) [2]

1. Abdullaeva D.U., Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 817.
2. Samikov K., Shakirov R., Abdullaeva D.U., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 269.
3. Nasirov S.M., Tashkhodzhaev B., Samikov K., Shakirov R., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1987, 864.

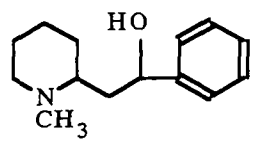


SEVCORINE

Korolkowia sewerzowii
$C_{34}H_{57}O_7$: 591.4135
Mp: 236-238° (meth.)
$[\alpha]_D$–41° (meth.) [1]
{h-b. 223°, h-chl. 216° [2], sevcoridinine 243°, O,O'-di Ac sevcoridinine 181° [1]}
IR: 3430-3350, 2860-2840, 2790, 1450, 1100-1030 [2]
Mass{sevcoridinine}: 429(M^+), 414, 411, 400, 358, 178, 164, 149, 138, 125, 112(100)

PMR{sevcoridinine}: 0.54(3H, s, 18-CH_3), 0.81(3H, d, 27-CH_3), 0.98(3H, s, 19-CH_3), 2.12(3H, s, NCH_3), 5.35(2H, m, CH=CH)
PMR{O,O'-di Ac sevcoridinine}: 1.99, 2.01(6H, s, OAc), 4.62, 4.89(2H, m, H-3, H-6) [1]
X-ray spectral analysis: [3]

1. Samikov K., Shakirov R., Abdullaeva D.U., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 269.
2. Nuriddinov R.N., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 60.
3. Nasirov S.M., Tashkhodzhaev B., Samikov K., Shakirov R., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1987, 864.

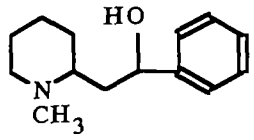


(–)-SEDAMINE

Sedum acre
$C_{14}H_{21}NO$: 219.1623
Mp: 86-87°

$[\alpha]_D$–75° (meth.) [1]
{h-chl. 207°}
Sol-y.: sol. alc., chlf., ac.
UV: 210, 253, 258, 264
IR: 3010, 2890, 1445, 1369, 1335, 1193, 1055, 1015, 909, 868, 695 [2]

1. Kolesnikov D.G., Shvartsman A.G., Zh. Org. Khim., 1939, **9**, 2156.
2. Franck B., Chem. Ber., 1958, **91**, 2803; 1959 **92**, 1001.

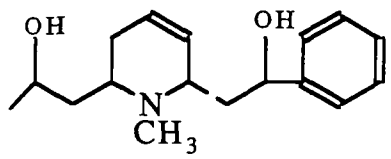


(±)-SEDAMINE

Sedum aizoon, S.ewersii, S.hybridum, S.purpureum
$C_{14}H_{21}NO$: 219.1623
Mp: 89-90°

{h-chl. 188°} [1]
UV: 210, 253, 258, 264 [2]
IR: 3280, 2955, 1570, 1485

1. Krasnov E.A., Petrova L.V., Bekker E.F., Khim. Prir. Soedin., 1977, 585.
2. Franck B., Chem. Ber., 1958, **91**, 2803.

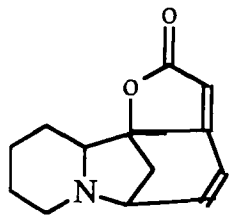


(–)-SEDININE

Sedum aizoon, S.hybridum, S.purpureum
$C_{17}H_{25}NO_2$: 275.1885
Mp: 119-121°

$[\alpha]_D$–140° (meth.)
{h-chl. 170°} [1]
UV: 212, 253, 258, 264 [2]
IR: 3385, 2935, 1590, 1137, 1064, 760, 745

1. Krasnov E.A., Petrova L.V., Bekker E.F., Khim. Prir. Soedin., 1977, 585.
2. Franck B., Chem. Ber., 1959, **92**, 1001; 1958, **91**, 2803.

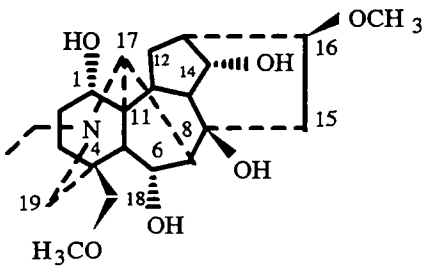


SECURININE

Securinega suffruticosa
$C_{13}H_{15}NO_2$: 217.1103
Mp: 142-143° [1, 2]
$[\alpha]_D$+1042° (alc.), +1106° (chlf.) [1]

{h-chl. 230°, $[\alpha]_D$–259°, nitr. 205°, picr. 218°, p-chl. 208°, picrolonate 194°, sulf. 128°, chl-aur. 168°, chl-plat. 210°} [1, 2]
Sol-y.: r-sol. alc., chlf., dichloretan; sol. eth., petr. eth., ac.; sp. sol. water
UV: 256(4.26) [2]
IR: 1840, 1760 [2]
Mass: 217(M^+), 134, 106, 84, 78, 56 [2]
PMR: 1.00-1.80(6H, m), 1.77(1H, d), 2.05(1H, q), 2.40(1H, q), 2.50(1H, q), 2.99(1H, dt), 3.84(1H, narrow t), 5.54(1H, s), 6.30-6.75(2H, octet) [2]
Pharm.: Its action is close to that of strychnine but it is 8-10 times less toxic. Is used in asthenic states, pareses, and paralyses. Supplied in the form of 0.002-g tablets, 4% soln in bottles, and 0.2% soln in 1-ml ampuls [3].

1. Murav'eva V.I., Ban'kovskii A.I., DAN SSSR, 1956, **110**, 998.
2. The Alkaloids, 1973, Vol. 14, p. 425.
3. Mashkovskii, Vol. 1, p. 138.



SENBUSINE A (BATACONINE)

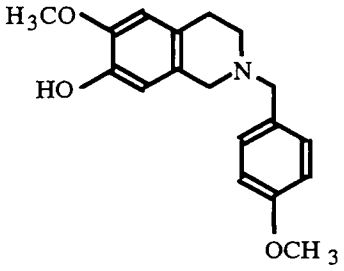
Aconitum barbatum, A.firmum, A.tauricum
$C_{23}H_{37}NO_6$: 423.2621
Mp: 96-99° (ac.)
Sol-y.: sol. chlf., meth.
IR: 3525, 3480, 3365, 1120, 1090 [1]

Mass: 423(M^+, 6.7), 408(26), 406(100), 367(4.5), 336(7) [1]
PMR: 1.06(3H, t, J=7, NCH_2CH_3), 3.25(6H, s, OCH_3), 4.10(1H, t, J=5, H-14β), 4.66(1H, d, J=7, H-6β) [1, 2]

^{13}C NMR: [2]

C-1	72.1	C-9	45.6	C-17	63.5
2	29.2*	10	40.6	18	80.3
3	29.8*	11	48.2	19	57.1
4	37.9	12	29.9	C-16′	56.3
5	48.2	13	44.2	18′	59.2
6	72.6	14	75.8	NCH_2	49.7
7	55.4	15	42.2	CH_3	12.9
8	75.4	16	82.0		

1. Batbayar N., Batsurén D., Sultankhodzhaev M.N., Khim. Prir. Soedin., 1988, 237.
2. Konno C., Shirasaka M., Hikino H., J. Nat. Prod., 1982, **45**, 128.

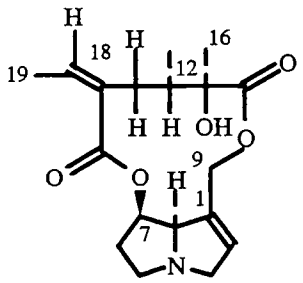


SENDAVERINE

Corydalis gortschakovii
$C_{18}H_{21}NO_3$: 299.1521
Mp: 136-138° (meth.)
UV: 226, 285(3.59, 4.15)
IR: 3546, 2849, 2799
Mass: 299(M^+), 192, 178, 163, 150, 135, 121(100), 107

PMR: 3.72(6H, s, 2×OCH_3), 6.39, 6.46, 6.78. 7.20(6×H-Ar) [1]
PMR(CF_3COOH): 3.52, 3.57(3H, s, 2×OCH_3), 6.29, 6.38(1H, s, p-H-Ar), 6.70, 7.04(2H, d, J=8, o-H-Ar) [2]

1. Ibragimova M.U., Yunusov M.S., Yunusov S.Yu., Khim. Prir. Soedin., 1970, 438.
2. Ibragimova M.U., Author's Abstract of Candidate's Dissertation, Tashkent, 1974.



SENECIONINE

Nardosmia laevigata, Senecio erraticus, S.vulgaris
$C_{18}H_{25}NO_5$: 335.1733
Mp: 232-233° (meth.) [1], 242° [2]
$[\alpha]_D$–57° (chlf.) [1], –71° (alc.) [2]
{picr. 191°, nitr. 214°, retronecine 121°} [1]
Sol-y.: i.s. ac., water [3]

UV: 218(3.86) [3]
IR: 3400, 1740, 1710, 1660 [3, 4]

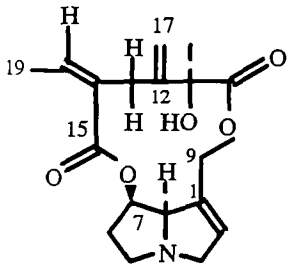
Mass: 335(M^+, 6), 291, 248, 220, 139, 138, 137, 136, 121, 120(100), 119, 95, 94, 93, 80 [3, 4]
PMR: 0.90(3H, d, J=6.5, 17-CH_3), 1.31(3H, s, 16-CH_3), 1.64(1H, m, H-12), 1.75(1H, m, H-13), 1.82(3H, dd, J=7.2; 1.8, 19-CH_3), 2.13(1H, m, H-6), 2.16(1H, dd, J=12, H-13), 2.37(1H, dd, J=14.1; 5.8, H-6), 2.53(1H, m, H-5), 3.25(1H, t, J=1.9, H-5), 3.38(1H, m, H-3), 3.93(1H, m, H-3), 4.03(1H, d, J=11.9, H-9), 4.27(1H, m, H-8), 5.00(1H, m, H-7), 5.48(1H, d, J=11.9, H-9), 5.71(1H, m, H-18), 6.18(1H, d, J=1.8, H-2) [4–6]

^{13}C NMR: [4, 6]

C-1	131.7	C-8	74.7	C-14	133.2
2	135.9	9	62.7	15	167.4
3	59.9	10	177.3	16	24.9
5	52.9	11	76.6	17	10.9
6	34.6	12	37.3	18	133.7
7	77.5	13	38.3	19	14.9

CD: [7]
X-ray spectral analysis: [8]
HPLC: [9]
GLC: [4, 10]
Pharm.: LD_{50} 64.1 mg/kg (i/v, mice). Hypotensive and spasmolytic action on the smooth musculature of the intestine [11, 12]. 25-50 times less active than platyphylline [13].

1. Konovalova R.A., Orekhov A.P., Zh. Org. Khim., 1938, **8**, 391.
2. Roder E., Wiedenfeld H., Jost E.J., Planta Medica, 1982, **44**, 182.
3. Gaiduk R.I., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 414; Unpub.
4. Wiedenfeld H., Roder E., Phytochem., 1979, **18**, 1083.
5. Segall H.J., Dallas J.L., Phytochem., 1983, **22**, 1271.
6. Liang X.T., Roder E., Planta Medica, 1984, **51**, 362.
7. Hrbek J., Hruban L., Klassek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.
8. Mackay M.F., Culvenor C.C.J., Acta Cryst., 1982, **38B**, 275.
9. Sener B., Temizer H., Temizer A., Karakaya A.E., J. Pharm. Belg., 1986, **41**, 115.
10. Ray A.C., Williams H.J., Reagor J.C., Phytochem., 1987, **26**, 2431.
11. Sadritdinov F.S., in: The Pharmacology of Natural Compounds [in Russian], Fan, Tashkent, 1979, p. 29.
12. Litvinchuk M.D., Gaiduk R.I., Kit V.I., Farmakol. Toksikol., 1979, **42**, 509.
13. Sadritdinov, p. 118.



SENECIPHYLLINE

Adenostyles alliaria, Senecio borysthenicus, S.cannabifolius, S.cineraria, S.erraticus, S.krylowii, S.lapsanoides, S.othonnae, S.palmatus, S.paludosus, S.platyphylloides, S.propinquus, S.renardii, S.rhombifolius, S.stenocephalus, S.subdentatus, S.taraxacifolius, S.vernalis

$C_{18}H_{23}NO_5$: 333.1576

Mp: 217-218° (alc.) [1]
$[\alpha]_D$–128° (chlf.) [1]
{picr. 183°, chl-aur. 163°, p-chl. 245° (dec.), m-i. 232° (dec.), retronecine 120° [2]}
Sol-y.: r-sol. chlf.; sp. sol. eth., petr. eth. [1], bz., alc., ac. [2]
UV: 218(3.90) [3]
IR: 1741, 1718, 1665, 1648, 1245, 1206, 1188, 1155, 1104, 1071, 1033, 963, 944, 902, 823 [4]
Mass: 333(M^+, 76), 289(73), 288(35), 262(4), 260(6), 246(100), 244(25), 218(42), 209(21) [5]

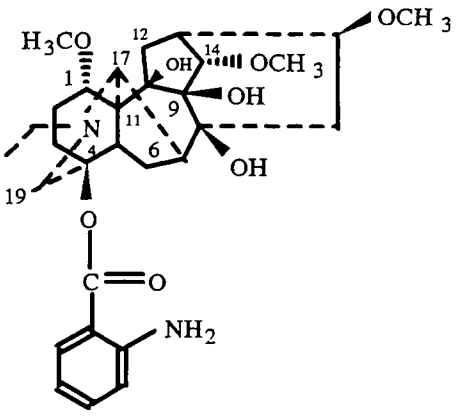
PMR: 1.53(3H, s, 16-CH_3), 1.87(3H, dd, J=6.8; 1.2, 19-CH_3), 2.09(1H, m, H-6), 2.34(1H, dd, J=13.7; 5.6, H-6), 2.53(1H, m, H-5), 2.74(1H, d, J=16.9, H-13), 2.94(1H, d, J=16.9, H-13), 3.26(1H, t, J=8, H-5), 3.38(1H, d, J=2, H-3), 3.93(1H, d, J=15.7, H-3), 4.01(1H, d, J=11.2, H-9), 4.24(1H, m, H-8), 4.95(1H, t, J=3, H-7), 5.04(1H, d, J=2, H-17), 5.23(1H, d, J=2, H-17), 5.39(1H, d, J=11.2, H-9), 5.83(1H, q, J=7.2; 1.0, H-18), 6.18(1H, d, J=1.5, H-2) [6]

^{13}C NMR: [7]

C-1	131.4	C-8	77.7	C-14	131.6
2	136.4	9	61.0	15	167.1
3	62.7	10	176.9	16	24.8
5	53.2	11	76.3	17	114.3
6	37.4	12	146.3	18	136.0
7	74.8	13	34.8	19	15.1

X-ray spectral analysis: [8]
CD: [9]
HPLC: [10]
Pharm.: Parasympatholytic action. Similar to platyphylline (action on the intestine) but weaker [11].

1. Konovalova R.A., Orekhov A.P., Zh. Org. Khim., 1938, **8**, 273.
2. Danilova A.V., Konovalova R.A., Zh. Org. Khim., 1950, **20**, 1921.
3. Topuriya L.I., Chumburidze B.I., Mshvidobadze A.E., Khim. Prir. Soedin., 1982, 399.
4. Holubek, No. 248A.
5. Abdullaev U.A., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 538.
6. Segall H.J., Dallas J.L., Phytochem., 1983, **22**, 1271.
7. Jones A.J., Culvenor C.C.J., Smith L.W., Austral. J. Chem., 1982, **35**, 1173.
8. Wiedenfeld H., Knoch F., Roder E., Appel R., Arch. Pharm., 1984, **317**, 97.
9. Hrbek J., Hruban L., Klasek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.
10. Sener B., Temizer H., Temizer A., Karakaya A.E., J. Pharm. Belg., 1986, **41**, 115.
11. Sadritdinov, p. 119.



SEPACONITINE

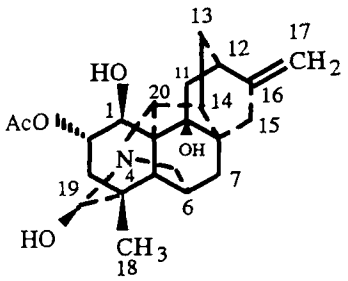
Aconitum leucostomum, A.septenrtionale
$C_{30}H_{42}N_2O_8$: 558.2941
Mp: 250-253° (meth.-chlf.)
$[\alpha]_D$+25° (chlf.)
Sol-y.: sol. chlf., pyr.
IR: 3547, 3468, 3360, 1690, 1596, 1260, 1247, 1170, 760 [1]
Mass: 558(M^+), 509, 497, 489, 421(100), 406, 390 [1]
PMR: 1.08(3H, t, J=7, NCH_2CH_3), 3.27, 3.28, 3.38(3H, s, 3×OCH_3), 3.73(1H, d, J=5, H-14β), 6.55-7.68(H-Ar) [1]

^{13}C NMR: [1]

C-1	78.1	C-12	37.6	NCH_2	48.9
2	26.7	13	34.8	CH_3	13.5
3	31.9	14	88.0	Ar-C=O	167.4
4	83.1	15	44.9	ArC-1	112.1
5	44.7	16	83.0	2	150.6
6	24.5	17	61.6	3	116.3
7	47.1	18	–	4	133.9
8	74.8	19	55.9	5	116.9
9	79.8	C-1′	56.2	6	131.9
10	79.1	14′	58.1		
11	56.4	16′	56.2		

Pharm.: LD_{50} 16.5 mg/kg (i/v, mice). Powerful antiarrhythmic, local anesthetic, and antiinflammatory action. Superior in activity to quinidine and ajmaline [2].

1. Usmanova S.K., Tel'nov V.A., Yunusov S.Yu., Abdullaev N.D., Shreter A.I., Filippova G.B., Khim. Prir. Soedin., 1987, 879.
2. Dzhakhangirov F.N., Kalinov G.D., DAN UzSSR, 1989, No. 5, 49.



SEPTENINE

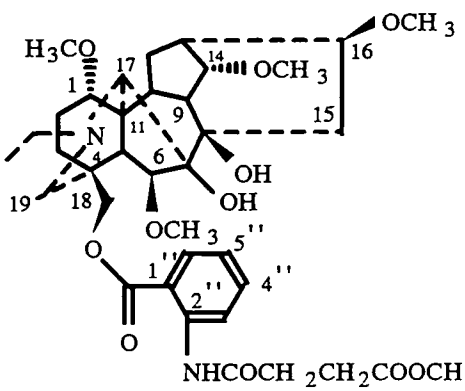
Aconitum septentrionale
$C_{22}H_{29}NO_5$: 387.2046
Mp: 190-192° (ac.-hx.)
Sol-y.: sol. pyr., chlf.

IR: 3570, 3450, 3345-3080, 1740, 1660, 1445, 1375, 1340, 1287, 1250, 1195, 1170, 1150, 1120, 1080, 1060, 1030, 985, 970, 925, 910, 885, 845, 810
Mass: 387(M^+), 370, 327(100), 310, 309
PMR: 1.00(3H, s, 18-CH_3), 1.99(3H, s, Ac), 3.55(1H, narrow s), 4.47(1H, s, H-19α), 4.54, 4.68(1H, narrow s, H-17), 4.95(1H, narrow s, H-2β)

^{13}C NMR:

C-1	67.9	C-9	79.6	C-17	104.7
2	73.1	10	53.7	18	22.2
3	33.0	11	39.2	19	91.2
4	42.2	12	36.2	20	67.9
5	50.8	13	33.9	CO	170.2
6	60.7	14	43.9	CH_3	21.6
7	30.8	15	31.1		
8	41.7	16	150.6		

1. Usmanova S.K., Tel'nov V.A., Abdullaev N.D., Khim. Prir. Soedin., 1993, 412.



SEPTENTRIODINE (CASHMIRADELPHINE)

Aconitum rubicundum
$C_{37}H_{52}N_2O_{11}$: 700.3571
Mp: 130-135°
$[\alpha]_D$+56° (alc.)
IR: 3500-3225, 1710, 1595
Mass: 700(M^+), 669(100), 251, 233, 202, 174, 146

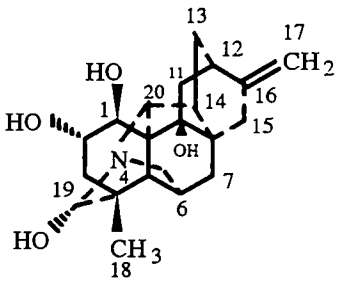
PMR: 1.06(3H, t, J=7, NCH_2CH_3), 2.72(4H, s, $-CH_2CH_2-$), 3.20, 3.28, 3.35(3H, 3H, 6H, s, $4\times OCH_3$), 3.82(3H, s, OAc), 6.80-8.46(H-Ar), 10.75(1H, narrow s, NHCO) [1, 2]

^{13}C NMR: [3]

C-1	84.0	C-13	46.1	C-16′	56.4
2	26.1	14	84.0	Ar-CO	168.3
3	31.6	15	33.7	1″	114.7
4	37.6	16	82.7	2″	141.9
5	43.3	17	64.6	3″	120.8
6	91.1	18	69.9	4″	135.2
7	88.7	19	52.4	5″	122.8
8	77.6	NCH_2	51.0	6″	130.5
9	50.4	CH_3	14.1	NHCO	170.6
10	38.1	C-1′	55.9	CH_2	28.9
11	49.1	6′	57.9	CH_2	32.7
12	28.7	14′	58.1	CO	173.3
				OCH_3	51.9

Pharm.: Hypotensive, H-cholinoblocking, curaremimetic action. Less active than lycaconitine [4].

1. Nishanov A.A., Sultankhodzhaev M.N., Yunusov M.S., Kondrat'ev V.G., Khim. Prir. Soedin., 1991, 403; Unpub.
2. Shamma M., Chinnasamy P., Miana G.A., Khan A., Basir M., Salazar M., Patil P., Beal J.L., J. Nat. Prod., 1979, **42**, 615.
3. Pelletier S.W., Sawhney R.S., Aasen A.J., Heterocycles., 1979, **12**, 377.
4. Dzhakhangirov F.N., Unpub.



SEPTENTRIOSINE

Aconitum septentrionale
$C_{20}H_{27}NO_4$: 345.1940
Mp: 260-262°
$[\alpha]_D$+21° (meth.)

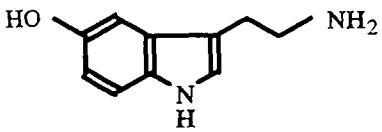
IR: 3540, 3460, 3360, 3280, 1660, 1450, 1430, 1415, 1370, 1345, 1320, 1300, 1275, 1240, 1210, 1200, 1170, 1155, 1140, 1120, 1100, 1070, 1030, 980, 925, 905, 890, 870
Mass: 345(M^+, 45), 328(100). 310(18), 299(12), 280(15), 264(18), 218(50)
PMR: 1.02(3H, s, 18-CH_3), 3.30(1H, narrow s, H-6), 3.60(1H, narrow s, H-20). 4.08(1H, s, H-19), 4.48, 4.65(1H, s, H-17)

^{13}C NMR:

C-1	69.0	C-8	42.1	C-15	30.7
2	70.4	9	79.8	16	150.3
3	39.1	10	53.0	17	104.8
4	39.7	11	33.5	18	28.4
5	58.8	12	36.2	19	95.2
6	60.5	13	33.1	20	60.5
7	31.1	14	43.3		

X-ray spectral analysis

1. Joshi B.S., Desai H.K., Pelletier S.W., Holt E.M., Aasen A.J., J. Nat. Prod., 1988, **51**, 265.



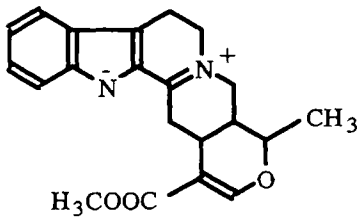
SEROTONINE

Hippophae rhamnoides
$C_{10}H_{12}N_2O$: 176.0950

{h-chl. 165°, picrolonate 223°, picr. 197°, creatinine-sulf. 216°} [1]

Pharm.: In the CNS plays the role of mediator, contracts smooth musculature, constricts blood vessels, increases the aggregation of thrombocytes. Used {serotonon adipate} for treating a hemorrhagic syndrome in various pathological states. Supplied in the form of a powder and 1-ml ampuls of a 1% soln. [2].

1. Petrova M.F., Men'shikov G.P., Zh. Org. Khim., 1961, **31**, 2413.
2. Mashkovskii, Vol. 1, p. 321.



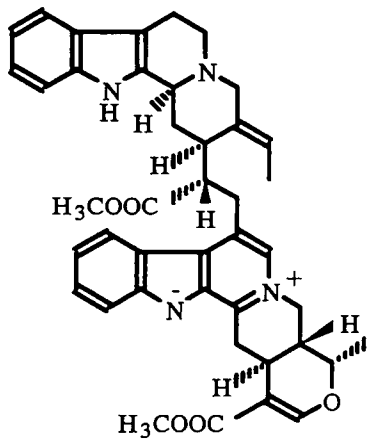
SERPENTINE

Rauwolfia littoralis, R.serpentina,
R.verticillata
$C_{21}H_{22}N_2O_3$: 350.1631
Mp: 170-175° [1], 158-159° [2]
$[\alpha]_D$+292° (meth.), +267° (alc.) [3]

UV: 253, 307, 368 [1]; 251, 309, 370 [2]; 251, 307, 361 [3-5]
IR: 1710, 1690, 1625, 1580, 1305, 1250, 1205, 1120, 1090, 780 [2]; 2950, 1710, 1625, 1301, 1220, 1120, 1095, 775 [4]
Mass: 351(23), 350(100), 349(17), 262(16), 222(20), 208(35), 207(26), 206(26) [4]

1. Nguen Kim Kan, Khim. Prir. Soedin., 1990, 282.
2. Nguen Kim Kan, Nikolaeva L.A., Khim. Prir. Soedin., 1991, 813.
3. Holubek, No. 249.
4. Habib M.S., Court W.E., Planta Medica, 1974, **25**, 331.
5. Bader F., Schwarz H., Helv. Chim. Acta, 1952, **35**, 1594.

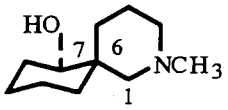
SERPENTININE



Rauwolfia littoralis
$C_{42}H_{44}N_4O_5$: 684.3312
Mp: 260-265° [1], 265-266° [2], 270° [3]
$[\alpha]_D$+117° [2], +52° (meth.), +72° (alc.) [4]
{h-chl. 250°, nitr. 226°, p-chl. 259°, picr. 273°, m-i. 234°} [4]
UV: 225, 258, 292, 307, 370 [1]; 225, 258, 292-295 [4]
IR: [4]
X-ray spectral analysis: [5]

1. Nguen Kim Kan, Khim. Prir. Soedin., 1990, 282.
2. The Alkaloids, 1965, Vol. 292, p. 714.
3. Djerassi C., Fishman J., Chem. Ind., 1955, 627.
4. Schlittler E., Huber H.U., Bader F.E., Zahid H., Helv. Chim. Acta, 1954, **37**, 1912.
5. Irie H., Ishizuka K., Kawashima S., Masaki N., Osaki K., Shingu T., Uyeo S., Kaneko H., Naruto S., J. Chem. Soc. Chem. Commun., 1972, 871.

SIBIRINE

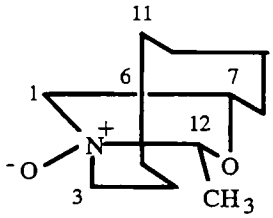


Nitraria sibirica
$C_{11}H_{21}NO$: 183.1623
Mp: oil

$[\alpha]_D$–22° (chlf.)
{m-i. 210°} [1]
Sol-y.: r-sol. chlf., meth., alc.; sol. petr. eth., hx. [2]
IR: 3320, 2935, 2865, 1110, 1082 [2]
Mass: 183(M^+, 100), 182, 169, 168, 166, 155, 140, 122, 112, 110, 98, 96, 84, 57 [1]
PMR: 2.19(3H, s, NCH_3), 2.52(1H, H-1_e), 2.73(1H, H-3_e), 3.54(1H, m, H-7_a), 4.94(OH) [1]

1. Osmanov Z., Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 225.
2. Osmanov Z., Author's Abstract of Candidate's Dissertation, Tashkent, 1985.

SIBIRININE



Nitraria sibirica
$C_{12}H_{21}NO_2$: 211.1572
Mp: 40°
$[\alpha]_D$–9° (chlf.)

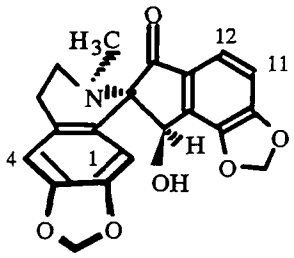
Mass: 211(M^+, 24), 195(67), 180(81), 167(57), 166(27), 152(46), 150(80), 138(29), 124(98), 122(32), 111(43), 110(100), 99(62) [1]
PMR: 1.65(3H, d, CH_3), 3.17(1H, dt, H-1_e), 3.31(1H, d, H-1_a), 3.58(1H, dd, H-7), 3.70(2H, m, H-3_a, H-3_e), 4.58(1H, q, H-12) [2]

^{13}C NMR: [2]

C-1	77.1	C-6	38.1	C-10	21.0
3	62.0	7	84.3	11	34.5
4	19.0	8	26.8	12	101.9
5	26.1	9	24.6	13	14.4

Abs. conf.: 6S,7S,2S,12R [1]

1. Ibragimov A.A., Abdullaev N.D., Osmanov Z., Yunusov S.Yu., Khim. Prir. Soedin., 1987, 685.
2. Ibragimov A.A., Yunusov S.Yu., Khim. Prir. Soedin., 1988, 82.



SIBIRICINE

Corydalis ledebouriana, C.paniculigera, C.pseudoadunca, C.sewerzowii
$C_{20}H_{17}NO_6$: 367.1056
Mp: 224-225° (alc.)
UV: 205, 240, 291, 313 [1]
IR: 3560, 1710 [1]

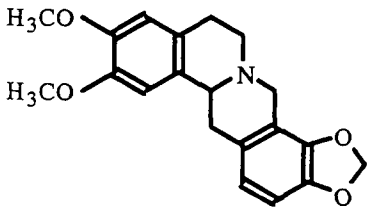
Mass: 367(M^+), 352, 338, 322, 190, 183.5($^{++}$) [1]
PMR: 2.43(3H, s, NCH_3), 2.50-4.00(4H, m), 5.57(1H, s), 5.84, 6.18(2H, s, 2×CH_2O_2), 6.04, 6.54(1H, s, p-H-Ar), 7.01, 7.51(1H, d, J=8, o-H-Ar) [1]

^{13}C NMR: [2]

C-1	106.9	C-8	70.3	C-13	201.5
2	147.4	8a	132.7	14	77.2
3	147.4	9	146.1	14a	130.6
4	109.6	10	154.8	NCH_3	39.7
4a	125.0	11	110.9	2,3-OCH_2O	101.3
5	29.2	12	119.9	9,10-OCH_2O	103.2
6	48.9	12a	132.5		

X-ray spectral analysis: [3]

1. Manske R.H.F., Rodrigo R., McLean D.B., Gracey D.E.F., Saunders J.K., Canad. J. Chem., 1969, **47**, 3585.
2. Hughes D.W., Nalliah B.C., Holland H.L., McLean D.B., Canad. J. Chem., 1977, **55**, 3304.
3. Nasirov S.M., Israilov I.A., Kuz'mina L.G., Yunusov M.S., Struchkov Yu.T., Yunusov S.Yu., Khim. Prir. Soedin., 1978, 752.

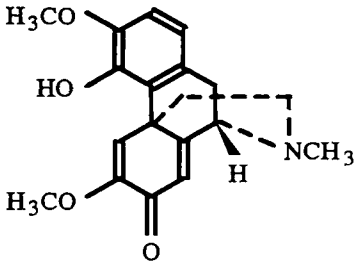


SINACTINE

Fumaria officinalis
$C_{20}H_{21}NO_4$: 339.1471
Mp: 170-171° [1]
$[\alpha]_D$–310° (chlf.) [1]
UV: 232, 287 [2]

Mass: 339(M^+), 176, 174, 148(100) [1]
PMR: 3.78, 3.86(3H, s, 2×OCH_3), 5.90(2H, s, CH_2O_2), 6.55, 6.75(1H, s, 2×H-Ar), 6.65(2H, s) [1]

1. Israilov I.A., Unpub.
2. Pavelka S., Smekal E. Collect., 1976, **41**, 3157.

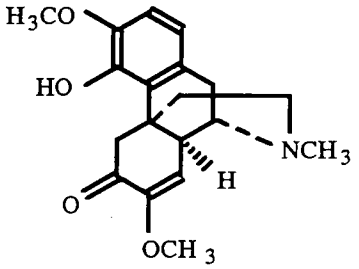


SINOACUTINE

Stephania glabra, S.rotunda
$C_{19}H_{21}NO_4$: 327.1471
Mp: 205-206° [1]
$[\alpha]_D$–70° (chlf.), –116° (alc.) [2]
{h-chl. 180°, picr. 226°, Ac 175°, $[\alpha]_D$–125° (alc.)}

UV: 242, 282(4.18, 3.60) [1]
IR: 3300, 1670 [1]
Pharm.: LD_{50} 115 mg/kg (i/p, mice). Possesses weak ganglioblocking properties [3].

1. Shchelchkova I.I., Il'inskaya T.N., Kuzovkov A.D., Khim. Prir. Soedin., 1965, 271.
2. Hsu J.S., Lo S.Y., Chu J.H., Sci. Sinia, 1964, **13**, 2016; C.A., 1965, **62**, 9183.
3. Berezhinskaya V.V., Nikitina S.S., Trutneva S.A., Trudy VILR, 1971, **14**, 58.



SINOMENINE

Menispermum dayricum
$C_{19}H_{23}NO_4$: 329.1627
Mp: 161-162° (eth.), 180-181° (alc.) [1]
$[\alpha]_D$–79° (alc.)
{h-chl. 231°, h-b. 231°, nitr. 218°, h-i. 233°, p-chl. 217°, picr. 162°} [1]

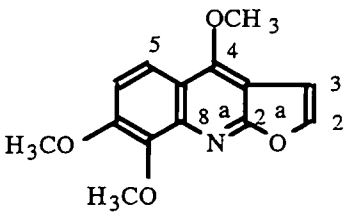
Sol-y.: r-sol. chlf., meth.; sp. sol. water, petr. eth. [1]
UV{h-chl.}: 262(3.69) [2]
IR{h-chl.}: 3370, 1700, 1642, 1496, 1283, 1205, 1150, 1056, 1000, 893, 792 [2]

^{13}C NMR: [3]

C-1	117.9	C-7	152.3	C-13	40.5
2	109.1	8	115.3	14	45.7
3	145.2*	9	56.6	15	35.8
4	144.8*	10	24.4	16	47.1
5	49.1	11	130.3	NCH_3	42.5
6	193.4	12	122.7	3-OCH_3	55.8
				7-OCH_3	54.6

Pharm.: Hypotensive and weak ganglioblocking action [1].

1. Il'inskaya T.N., Trudy VILAR, 1959, **11**, 51.
2. Holubek, No. 251.
3. Terui V., Tori K., Maeda S., Sawa K., Tetrahedron Lett., 1975, 2853.



SKIMMIANINE

Choisya ternata, Dictamnus angustifolius, D.caucasicus, Haplophyllum acutifolium, H.alberti-regelii, H.bucharicum, H.bungei, H.dauricum, H.dubium, H.foliosum, H.kowalenskyi, H.latifolium, H.leptomerum,

H.obtusifolium, H.pedicellatum, H.perforatum, H.popovii, H.ramosissimum, H.robustum, H.schelkovnikovii, H.tenue, Ptelea trifoliata, Ruta graveolens, Vinca erecta, V.herbacea $C_{14}H_{13}NO_4$: 259.0845

Mp: 176-177° (ac.)

{picr. 197° (dec.), h-chl. 154°} [1]

UV: 250, 300 sh, 320, 338(4.90, 3.50, 3.86, 3.85) [2]

IR: 3145, 3114, 1624, 1584, 1510, 1450, 1395, 1370, 1270, 1094 [2]

Mass: 259(M^+, 72), 244(100), 230(60), 216(32), 213(28), 201(32), 184(10), 173(18), 158(10), 130(23) [3]

PMR: 4.07, 4.16, 4.46(3H, s, 3×OCH_3), 7.05, 7.58 and 7.23, 8.03(1H, d, J=2.5, H-3, H-2 and J=9, H-6, H-5) [4]

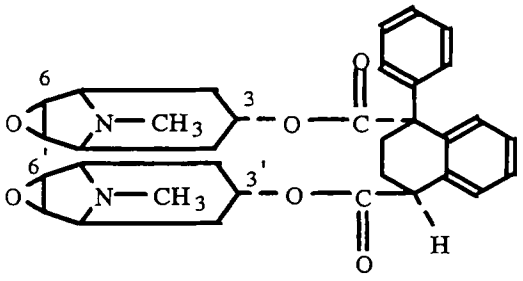
^{13}C NMR: [5]

C-2	142.8	C-4a	101.8	C-8a	152.0
2a	164.3	5	118.1	4-OCH_3	58.8
3	104.6	6	111.8	7-OCH_3	56.7
3a	114.8	7	141.9	8-OCH_3	61.6
4	157.1	8	141.1		

HPLC: [6]

Pharm.: LD_{50} 160, >100 mg/kg (i/p, oral, mice). Sedative, analgesic, soporific, anticonvulsive, and hypothermal action [7].

1. Sidyakin G.P., Yunusov S.Yu., Zh. Org. Khim., 1952, **22**, 1055.
2. Bessonova I.A., Unpub.
3. Clugston D.M., McLean D.B., Canad. J. Chem., 1965, **43**, 2516.
4. Robertson A.V., Austral. J. Chem., 1963, **16**, 451.
5. Ahond A., Picot F., Potier P., Poupat C., Sevenet T., Phytochem., 1978, **17**, 166.
6. Kanamori H., Sakamoto I., Mizuta M., Chem. Pharm. Bull., 1986, **34**, 1826.
7. Sadritdinov, p. 272; Sultanov M.B., in: The Pharmacology of Plant Substances [in Russian], Fan, Tashkent, 1976, p. 3.



α-SCOPODONNINE

Datura innoxia

$C_{34}H_{38}N_2O_6$: 570.2730

Mp: 178-179°

$[\alpha]_D$ 0°

Sol-y.: sol. meth., alc.

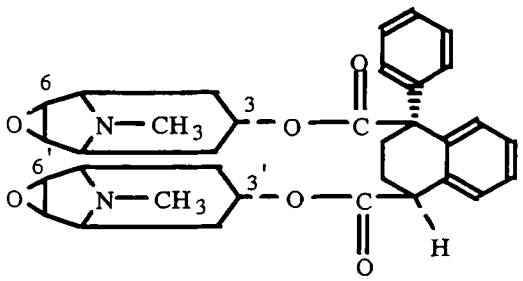
UV: 254, 259, 263(2.63, 2.67, 2.66)

IR: 1730, 775-770, 760-710

Mass: 570(M^+, 33), 389(7), 154(20), 138(100), 108(20), 97(14), 94(40), 81(10), 57(48), 55(36)

PMR: 1.20-2.25(8H, m, H-2, H-2′; H-4, H-4′; H-6, H-6′; H-7, H-7′), 2.41, 2.45(3H, s, 2×NCH_3), 3.00(4H, m, H-1, H-1′; H-5, H-5′), 3.76(1H, t, CH), 4.97, 5.09(1H, t, H-3β, H-3′β′), 7.28(9H, narrow s, H-Ar)

1. Aripova S.F., Tashkhodzhaev B., Khim. Prir. Soedin., 1991, 532.



β-SCOPODONNINE

Datura innoxia

$C_{34}H_{38}N_2O_6$: 570.2730

Mp: 190-191°

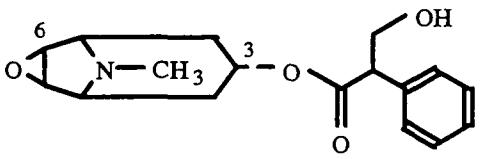
$[\alpha]_D$ 0°

{di m-i. 222°}

UV: 254, 259, 263(2.63, 2.67, 2.66)

IR: 1730, 775-770, 710-700
Mass: 570(M^+, 82), 389(27), 154(30), 138(100), 108(79), 97(19), 94(66), 81(12), 57(6), 55(5)
PMR: 130-1.35(8H, m, H-2, H-2′; H-4, H-4′; H-6, H-6′; H-7, H-7′), 2.44, 2.49(3H, s, 2×NCH_3), 3.08(4H, m, H-1, H-1′; H-5, H-5′), 3.75(1H, t, CH), 5.07, 5.14(1H, t, H-3β, H-3β), 7.26(9H, narrow s, H-Ar)
X-ray spectral analysis: {di m-i.}

1. Aripova S.F., Tashkhodzhaev B., Khim. Prir. Soedin., 1991, 532.

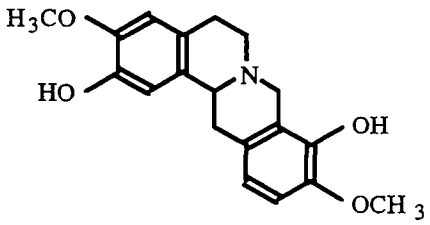


(–)-SCOPOLAMINE (HYOSCYNE)

Datura innoxia, D.metel, D.stramonium, Hyoscyamus niger, H.pusillus, Physochlaina alaica, Ph.orientalis, Scopolia carniolica, S. stramonifolia, S.tangutica

$C_{17}H_{21}NO_4$: 303.1471
Mp: 59° (water) [1], oil [2]
$[\alpha]_D$–18° (alc.), –28° (water) [1]
{picr. 188°, h-b. 194°, h-chl. 200°, p-chl. 210° (dec.), chl-aur. 209° (dec.), b-aur.} [1]
Sol-y.: r-sol. alc., chlf., eth., ac.; sp. sol. bz., petr. eth. [1]
UV: 253, 262, 275 [2]
IR: 3430-3370, 3020-2980, 1727, 755, 695 [2]
Mass: 303(M^+, 100), 154(62), 138(62), 124(37), 96(25), 95(27), 94(75), 83(27), 82(37), 81(39) [2]
PMR: 1.15-2.30(4H, m, H-2, H-4), 2.35(3H, s, NCH_3), 2.74, 3.33(1H, d, J=4, H-6, H-7), 2.85, 3.03(1H, m, H-1, H-5), 4.91(1H, t, H-3β), 7.22(5H, m, H-Ar) [2]
HPLC: [3]
Pharm.: {h-b.} causes dilatation of the pupil and an increase in the frequency of cardiac contractions, relaxes the smooth musculature, exhibits a sedative and soporific action. Is used in psychiatry as a tranquilizing agent; in neurological practice for treating parkinsonism; and in surgery together with analgesics. Is a component of Aéron tablets, which are used as antiemetic agents in sea and air sickness. Supplied in the form of powder, 1-ml ampuls of a 0.05% soln., eye drops, and a salve [4].

1. Libizov N.I., Trudy VILR, 1950, **10**, 79.
2. Mirzamatov R.T., Unpub.
3. Whelpton R., Hurst P.R., Metodol. Surv. Biochem. Anal., 1990, **20**, 279.
4. Mashkovskii, Vol. 1, p. 239.



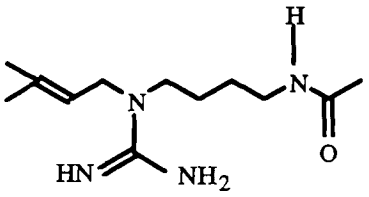
SCOULERINE

Argemone alba, A.albiflora, A.hybrida, A.mexicana, A.ochroleuca, Bocconia frutescens, Corydalis alpestris, C.bracteata, C.caucasica, C.emanuelii, C.gigantea, C.gortschakovii, C.ledebouriana, C.marschalliana, C.pseudoadunca, C.sewerzowii, C.stricta, C.vaginans, Dicentra peregrina, D.spectabilis, Fumaria parviflora, F.vaillantii, Glaucium fimbrilligerum,G.squamigerum, Hylomecon vernalis, Papaver alberti, P.arenarium, P.bracteatum, P.commutatum, P.fugax, P.hybridum, P.ocellatum, P.orientale, P.paczoskii, P.zangezuricum

$C_{19}H_{21}NO_4$: 327.1471
Mp: 192-193° (alc.)
$[\alpha]_D$–260°(chlf.)
UV: 287
IR: 3455, 1590, 1500

Mass: 327(M^+), 326, 178(100), 176, 150, 135 [1, 2]
PMR: 3.68(6H, s, 2×OCH_3), 3.97, 4.23(1H, d, J=16), 6.43, 6.65(1H, s, H-Ar), 6.53 (2H, s) [1]
Pharm.: Pronounced sedative-tranquilizing action [3].

1. Israilov I.A. Unpub.
2. Yunusov M.S., Rashkes Ya.V., Ibragimova M.U., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 380.
3. Sadritdinov F.S., Rezhepov Zh., Dokl. AN UzSSR, 1982, No. 10, 34.

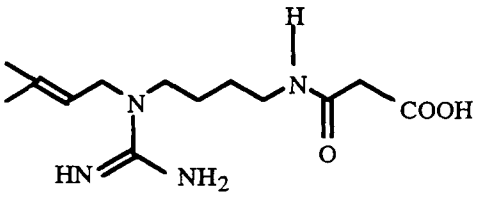


SMIRNOVINE

Astragalus tibetanus, Eremosparton aphyllum, E.flaccidum, Smirnowia turkestana
$C_{12}H_{24}N_4O$: 240.1950
{picr. 154°, h-chl. 163°} [1]

Pharm.: Briefly lowers arterial pressure, stimulates respiration, exhibits a ganglioblocking action [2].

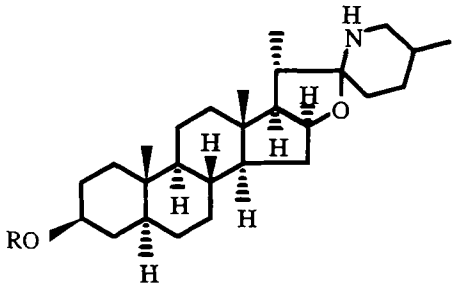
1. Ryabinin A.A., DAN SSSR, 1948, **61**, 317; Heesing A., Eckard R., Chem. Ber., 1970, **103**, 534.
2. Sadritdinov, p. 144.



SMIRNOVININE

Eremosparton aphyllum, Smirnowia turkestana
$C_{13}H_{24}N_4O_3$: 284.1848
{picr. 145°} [1, 2]

1. Ryabinin A.A., Il'ina E.M., DAN SSSR, 1951, **76**, 851.
2. Heesing A., Eckard R., Chem. Ber., 1970, **103**, 534.

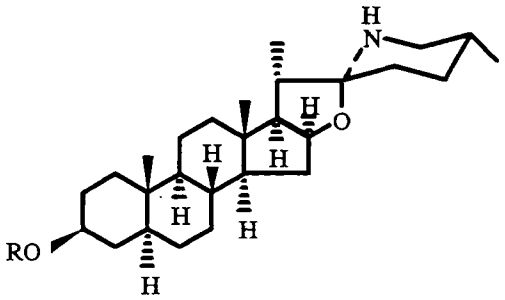


α-SOLADULCINE

Solanum dulcamara, S.pseudopersicum
$C_{50}H_{83}NO_{21}$: 1033.546
Mp: 268-270°(dec., meth.) [1-3]
$[\alpha]_D$–58° (meth.) [1]
UV(H^+): 255, 318, 400(4.14, 4.58, 3.87) [1]
IR: 3400, 1140, 1050 [1]
Pharm.: Specifically inhibits the growth of fungal cultures [4].

1. Tukalo E.A., Ivanchenko B.T., Khim. Prir. Soedin., 1971, 207.
2. Schreiber K., Planta Medica, 1958, **6**, 94.
3. Alkemeyer M., Sander H., Chemie und Biochemie der Solanum-Alkaloide, Tagungsberichte, Berlin, 1961, No. 27, 23.
4. Tukalo E.A., Leplya E.S., Ivanchenko B.T., Nauch. Dokl. Vysshei Shkoly, Biol. Nauki, 1972, No. 12, 99.

β-SOLADULCINE

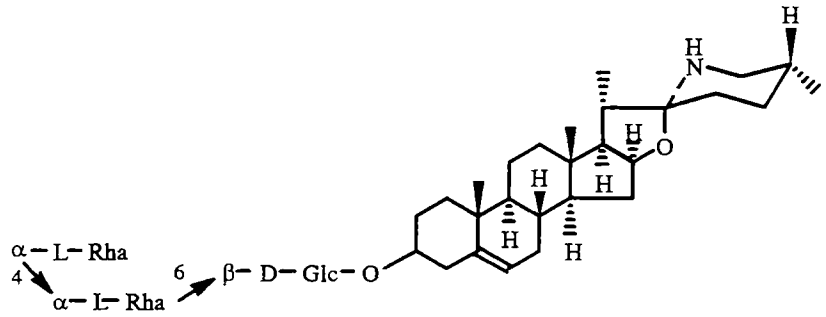


R=D– Glc, D – Gal, L– Rha

Solanum dulcamara, S.pseudopersicum
$C_{45}H_{75}NO_{16}$: 885.5086
Mp: 246-248° (dec., meth.) [1, 2]
$[\alpha]_D$–39° (meth.) [1]
UV(H^+): 267, 325, 410(4.01, 4.31, 3.66) [1]
IR: 3400, 1140, 1050 [1]

1. Tukalo E.A., Ivanchenko B.T., Khim. Prir. Soedin., 1971, 207.
2. Schreiber K., Planta Medica, 1958, **6**, 94.

SOLAMARGINE

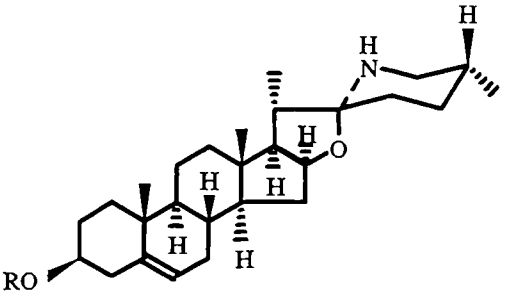


Solanum kieseritzkii, S.nigrum, S.persicum, S.pseudopersicum, S.rostratum, S.transcaucasicum
$C_{45}H_{73}NO_{15}$: 867.498
Mp: 300-304° (meth.) [1-3]
$[\alpha]_D$–96° (meth.) [4]
{picr. 189°, picrolonate 205°, benzoate 120°} [2]

UV(H^+): 268, 320, 408(4.24, 4.49, 3.94)
IR: 3550-3180, 1640, 1620, 1460, 1380, 1140, 1060, 980 [4]
HPLC: [6]

1. Novruzov É.N., Aslanov S.M., Khim. Prir. Soedin., 1974, 109.
2. Briggs L.H., Brooker E.G., Harvey W.E., Odell A.L., J. Chem. Soc., 1952, 3587.
3. Aslanov S.M., Khim. Prir. Soedin., 1971, 674.
4. Aslanov S.M., Khim. Prir. Soedin., 1972, 132.
5. Novruzov É.N., Aslanov S.M., Ismailov N.M., Khim. Prir. Soedin., 1973, 682.
6. Cham B.E., Wilson L., Planta Medica, 1987, **53**, 59.

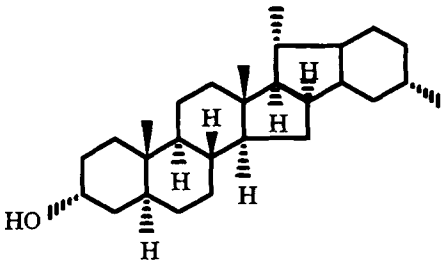
β-SOLAMARGINE



R=L– Rha, D – Glc

Solanum nigrum, S.pseudopersicum, S.transcaucasicum
$C_{39}H_{63}NO_{11}$: 721.4401
Mp: 240-245° [1]; 246-249° [2]
$[\alpha]_D$–92° (meth.) [2]; –100° (meth.) [1].
IR: 3550-3180, 1640, 1610, 1460, 1390, 1140, 1060, 980 [2]
HPLC: [3]

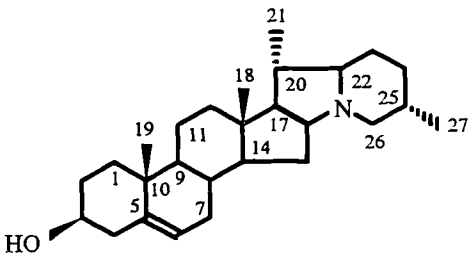
1. Tomova M., Planta Medica, 1964, **12**, 541.
2. Aslanov S.M., Khim. Prir. Soedin., 1972, 132.
3. Cham B.E., Wilson L., Planta Medica, 1987, **53**, 59.



SOLANIDANOL-3α

Solanum tuberosum
$C_{27}H_{45}NO$: 399.3390
Mp: 210-211° [1, 2]
$[\alpha]_D$+31° (chlf.) [2]
{Ac 173°} [2]

1. Orekhov A.P., The Chemistry of Alkaloids [in Russian], Moscow, 1955, p. 701; Rochelmayer H., Chem. Ber., 1938, **71**, 226.
2. Aslanov Kh.A., Kasymov T.K., Sadykov A.S., Uzb. Khim. Zh., 1963, No. 2, 35.



SOLANIDINE

Capsicum annuum, Fritillaria walujewii, Korolkowia sewerzowii, Rhinopetalum bucharicum, Rh.karelinii, Rh.stenantherum, Solanum tuberosum, Veratrum lobelianum
$C_{27}H_{43}NO$: 397.3345

Mp: 215-217° (alc.)
$[\alpha]_D$–25° [1]
{h-chl. 333°}
IR: 3250, 3035, 2960-2830, 1665 [2]
Mass: 397(M^+, 57), 396(43), 383(12), 382(37), 341(5), 340(5), 204(83), 178(13), 164(8), 162(7), 151(33), 150(100), 112(10), 111(7), 98(20), 97(10) [1, 3]

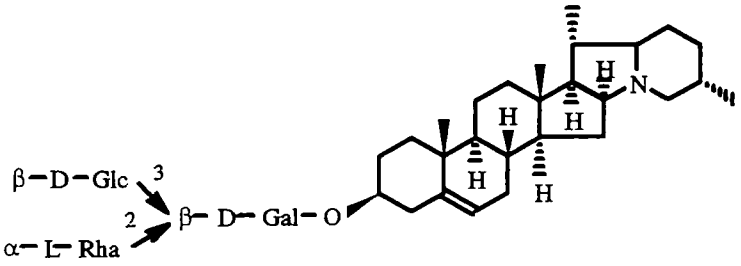
^{13}C NMR: [4]

C-1	37.9	C-10	36.9	C-19	19.7
2	32.4	11	21.3	20	36.9
3	71.2	12	40.1	21	18.6
4	43.5	13	40.6	22	74.7
5	141.9	14	57.8	23	29.6
6	121.2	15	33.6	24	31.6
7	32.6	16	69.2	25	31.3
8	32.0	17	63.4	26	60.2
9	50.6	18	17.0	27	19.7

HPLC: [5]

1. Kul'kova V.V., Samikov K., Shakirov R., Khim. Prir. Soedin., 1991, 440.
2. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 537.
3. Rosen W.E., Rosen D.B., Chem. Ind., 1954, 1581.
4. Kaneko K., Tanaka M., Nakaoka U., Tanaka Y., Yoshida N., Mitsuhashi H., Phytochem., 1981, 327.
5. Osman F., Sinden S.L., J. Chromatogr., 1989, **479**, 189.

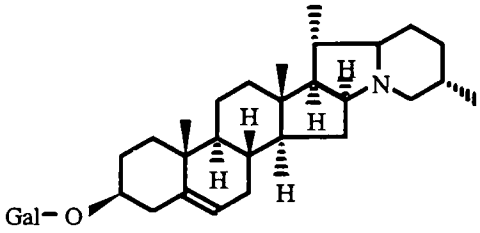
α-SOLANINE



Solanum tuberosum
$C_{45}H_{73}NO_{15}$: 867.498
Mp: 285-286° (alc.) [1, 2]
$[\alpha]_D$–57° (pyr.) [1]
IR: 3420, 1650, 1150-1000 [3]
Mass: 397, 204, 150(100) [3]
HPLC: [4]

1. Aslanov Kh.A., Kasymov T.K., Sadykov A.S., Uzb. Khim. Zh., 1963, No. 2, 35.
2. Kunh R., Low I., Trischmann H., Chem. Ber., 1955, **88**, 1492; Kunh R., Low I., Angew. Chem., 1954, **66**, 639.
3. Nabiev A., Shakirov R., Khim. Prir. Soedin., 1974, 116.
4. Hellenas K.-E., Nyman A., Slanina P., Loof L., Gabrielsson J., J. Chromatogr., 1992, **573**, 69.

γ-SOLANINE

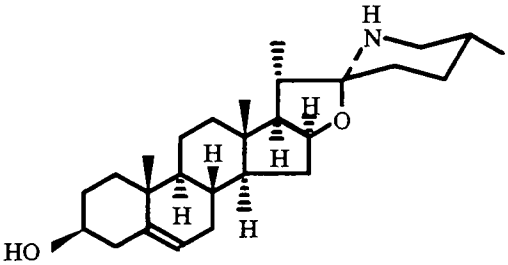


Veratrum lobelianum
$C_{33}H_{53}NO_6$: 559.3873
Mp: 237-239° (chlf.)
$[\alpha]_D$–23°
IR: 3400, 1660, 1110-1010

Mass: 559(M^+), 544, 397, 380, 204, 150(100) [1-3]
HPLC: [4]

1. Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1975, 265.
2. Kuhn R., Low I., Angew. Chem., 1954, **66**, 639.
3. Rosen W.E., Rosen D.B., Chem. Ind., 1954, 1581.
4. Hellenas K.-E., Nyman A., Slanina P., Loof L., Gabrielsson J., J. Chromatogr., 1992, **573**, 69.

SOLASODINE

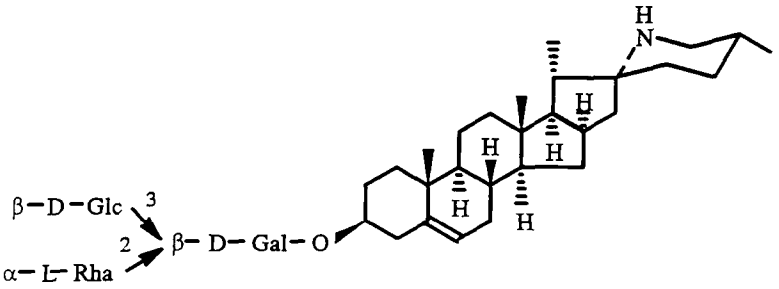


Solanum aviculare, S.khasianum, S.laciniatum, S.persicum
$C_{27}H_{43}NO_2$: 413.3294
Mp: 200-202° (alc.-water) [1, 2]
$[\alpha]_D$–97° (meth.) [1]

IR: 3600, 2940, 2910, 2870, 2860, 1465, 1455, 1438, 1380, 1344, 1305, 1290, 1275, 1138, 1087, 1074, 1048, 1020, 1010, 1000, 975, 962, 912, 896, 879, 838, 810 [3]
Mass: 413(M^+), 398, 385, 370, 357, 342, 314, 282, 271, 253, 138, 133, 125, 119, 114(100), 105, 98, 79 [4]
PMR: 0.82(3H, s, 18-CH_3), 0.85(3H, d, 27-CH_3), 0.94(3H, d, 21-CH_3), 1.02(3H, s, 19-CH_3), 2.62(2H, 26-CH_2), 3.50(1H, m, HC-OH), 4.28(1H, 16-CH), 5.34(1H, C=CH) [5]
HPLC: [6]
Pharm.: LD_{50} 27.5 mg/kg (oral, mice). Cardiotonic, antiinflammatory and desensitizing antidematous and antishock action. Improves the conditioned reflex activity of animals. Raises the resistance of the organism under extreme stresses. Embryotoxic. Has been used for the treatment of various forms of rheumatism [7, 8].

1. Orekhov A.P., The Chemistry of Alkaloids [in Russian], Moscow, 1955, p. 705.

2. Briggs L.H., Harvey W.E., Locker R.H., McGillivray W.A., Seelyl R.N., J. Chem. Soc., 1950, 3013.
3. Holubek, No. 389.
4. Shakirov R., Rashkes Ya.V., Unpub.
5. Boll M., Philipsborn W., Acta Chem. Scand., 1965, **19**, 1365.
6. Sadykova G.D., Yarmolinskaya E.V., Akhanov A.U., Khim. Prir. Soedin., 1991, 538.
7. Turova A.D., Seifullf Kh.I., Nelykh M.S., Farmakol. Toksikol., 1961, No. 4, 469.
8. Sadritdinov, p. 292.

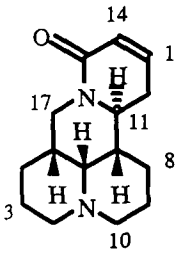


SOLASONINE

Solanum kieseritzkii, S.nigrum, S.persicum, S.pseudopersicum, S.rostratum, S.transcaucasicum
$C_{45}H_{73}NO_{16}$: 883.4929 [1, 2]
Mp: 276-279° [3]
$[\alpha]_D$−57° (pyr.) [3]

UV(H^+): 260, 325, 412(4.10, 4.34, 3.86) [4]
IR: 3600-3200, 1640, 1610, 1450, 1410, 1370, 1140, 1050, 980 [3]
HPLC: [5]

1. Briggs L.H., Cambie R.C., Hoare J.L., J. Chem. Soc., 1963, 2848.
2. Novruzov É.N., Aslanov S.M., Khim. Prir. Soedin., 1974, 109.
3. Aslanov S.M., Khim. Prir. Soedin., 1972, 132.
4. Novruzov É.N., Aslanov S.M., Ismailov N.M., Khim. Prir. Soedin., 1973, 682.
5. Cham B.E., Wilson L., Planta Medica, 1987, **53**, 59.



SOPHORCARPINE

Ammothamnus lehmannii, A.songoricus, Leontice smirnowii, Leptorhabdos parviflora, Sophora alopecuroides, S.flavescens, S.griffithii, S.japonica, S.pachycarpa, Vexibia pachycarpa
$C_{15}H_{22}N_2O$: 246.1732
Mp: 53-55° (eth.) [1]

$[\alpha]_D$−29° (alc.) [1]
{picr. 157°, m-i. 202°, hydrate 82°} [2]
UV: 260 [2]
IR: 2800-2700, 1670, 1645 [2]
Mass: 246(M^+, 73), 245(100), 231(3), 203(20), 192(5), 188(6), 177(14), 160(12), 150(44), 137(23), 122(20), 110(13), 98(28), 97(9), 96(47), 83(28), 55(19) [3]
PMR: 1.64(H-5), 1.80(2H, J=11.2, H-2_a, H-10_a), 2.67(2H, J=11.2, H-2_e, H-10_e), 2.92(1H, J=12.8; 12.2, H-17_a), 3.85(H-11), 3.90(1H, J=12.8; 4.7, H-17_e), 5.70(1H, dd, J=10; 2, H-14), 6.40(1H, m, J=10; 3; 3.5, H-13) [4]

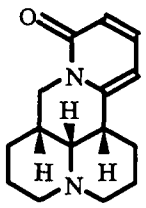
^{13}C NMR: [4]

C-2	56.9	C-7	41.1	C-12	27.6
3	20.7	8	27.7	13	124.0
4	28.6	9	20.3	14	137.1
5	34.3	10	56.8	15	167.9
6	63.1	11	51.1	17	41.6

GLC: [5]

Pharm.: LD_{50} 39.43 mg/kg (i/v, mice). In a dose of 10 mg/kg tonic contraction of the uterus is observed. In the duration of the uterine action it is inferior to pachycarpine [6]. Stimulating action. Raises arterial pressure in urethanized cats [7].

1. Orechoff A., Proskurnina N., Chem. Ber., 1934, **67**, 77.
2. Proskurnina N.F., Kuzovkov A.D., DAN SSSR, 1953, **91**, 1145.
3. Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1968, 106.
4. Aslanov Kh.A., Kushmuradov Yu.K., Zainutdinov I.N., Sadykov A.S., DAN UzSSR, 1969, No. 9, 24; Sadykov A.S., Izv. AN SSR, Ser. Khim., 1983, No. 11, 2432.
5. Ueno A., Morinaga K., Fukushima S., Okuda S., Chem. Pharm. Bull., 1978, **26**, 1832.
6. Sadritdinov, p. 144.
7. Bichikhanov M.P., Badyaraev B.-D.V., Monakhova T.E., Trutneva E.A., Tolkachev O.N., Rast. Res., 1990, **26**, 387.



SOPHORAMINE

Leptorhabdos parviflora, Sophora alopecuroides, S.griffithii, S.pachycarpa

$C_{15}H_{20}N_2O$: 244.1576

Mp: 164-165° (petr. eth.)

$[\alpha]_D$–91° (alc.)

{picr. 231°, h-chl. 248° (dec.), picrolonate 175°, chl-plat. 247°, h-i. 296°} [1]

Sol-y.: r-sol. alc., bz., chlf.; sol. eth., petr. eth.; sp. sol. water [1]

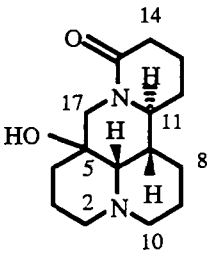
UV: 234, 310(3.80, 3.90) [2]

IR: 2800-2700, 1645, 1580, 1560 [2]

Mass: 244(M^+, 94), 243(100), 229(3), 215(14), 201(13), 186(12), 159(8), 149(8), 136(21), 122(5), 110(8), 98(3), 97(4), 96(8), 82(7), 55(11) [3, 4]

Pharm.: Tranquilizing action. Prolongs sleep induced by hexenal and barbital sodium [5].

1. Orekhov A.P., Khim. Farm. Prom., 1934, No. 5, 10.
2. Comin W., Deulofeu V., Aust. J. Chem., 1959, **12**, 462.
3. Monakhova T.E., Tolkachev O.N., Kabanov V.S., Perel'son M.E., Proskurnina N.F., Khim. Prir. Soedin., 1974, 472.
4. Kushmuradov Yu.K., Éshbaev F.Sh., Kasymov A.K., Kuchkarov S., Khim. Prir. Soedin., 1979, 353.
5. Bichikhanov M.P., Badyaraev B.-D.V., Monakhova T.E., Trutneva E.A., Tolkachev O.N., Rast. Res., 1990, **26**, 387.



SOPHORANOL

Sophora flavescens

$C_{15}H_{24}N_2O_2$: 264.1838

Mp: 172° (ac.)

$[\alpha]_D$+60° (water) [1]

{h-chl. 232°} [2]

UV: 220 [3]

IR: 3340, 2800-2700, 1645 [2, 4]

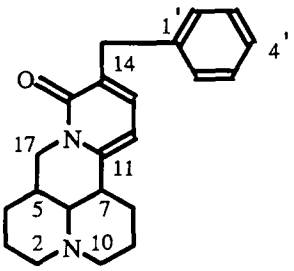
^{13}C NMR: [5]

C-2	56.8	C-7	37.1	C-12	26.6
3	22.4	8	25.8	13	18.7
4	37.1	9	20.4	14	32.6
5	65.5	10	56.4	15	170.8
6	68.2	11	53.1	17	46.4

GLC: [6]

1. Abdel'-Baki A.M., Blinova K.F., Khim. Prir. Soedin., 1980, 427.
2. Bohlmann F., Rahtz D., Arndt C., Chem. Ber., 1958, **91**, 2189.
3. Wiewiorowski F., Galinovsky F., Brateck M.D., Mh. Chem., 1957, **88**, 663.
4. Sadykov, p. 132.
5. Sadykov A.S., Izv. AN SSSR, Ser. Khim., 1983, 2432.
6. Ueno A., Morinaga K., Fukushima S., Okuda S., Chem. Pharm. Bull., 1978, **26**, 1832.

SOPHORBENZAMINE



Sophora pachycarpa
$C_{22}H_{26}N_2O$: 334.2045
Mp: 118-119° (hx.)
$[\alpha]_D$+90° (chlf.)
{picr. 123°}
UV: 238, 310(4.10, 4.16)

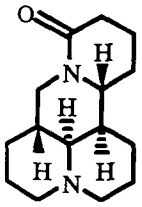
IR: 2700, 2630, 2580, 1645, 1600, 1550, 810
Mass: 334(M^+), 333, 305, 291, 149, 91

^{13}C NMR:

C-2	54.7	C-7	41.1	C-17	48.7
3	24.6	8	28.3	1'	139.4
4	28.7	9	24.0	2',6'	128.5
5	36.1	10	54.7	3',5'	125.5
6	35.5	15	64.0	4'	127.8

1. Abdusamatov B.A., Khoroshkova O.A., Aslanov Kh.A., Khim. Prir. Soedin., 1976, 71.

(+)-SOPHORIDINE

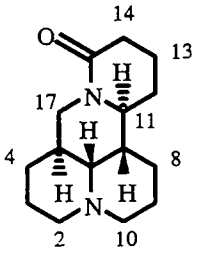


Leontice alberti, L.darwasica
$C_{15}H_{24}N_2O$: 248.1889
Mp: 108-109° (petr. eth.)
$[\alpha]_D$+59° (water)
{m-i. 250°}

Sol-y.: r-sol. chlf., ac., alc., meth.; sol. eth., water; sp. sol. petr. eth. [1]
IR: 2800-2700 [1]
Mass: 248(M^+, 77), 247(100), 219(9), 206(9), 205(23), 192(9), 177(20), 162(9), 150(40), 138(8), 137(11), 136(16), 96(33) [2]
PMR: [3]
ORD: [3]
X-ray spectral analysis: [4]

HPLC: [5]

1. Kamalitdinov D.D., Iskandarov S., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 409.
2. Iskandarov S., Rashkes Ya.V., Kamalitdinov D.D., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 331.
3. Iskandarov S., Kamalitdinov D.D., Yagudaev M.R., Yunusov S.Yu., Khim. Prir. Soedin., 1971, 174.
4. Ibragimov B.T., Tishchenko G.N., Kushmuradov Yu.K., Aripov T.F., Sadykov A.S., Khim. Prir. Soedin., 1979, 355.
5. Saito K., Kobayashi K., Ohmiya S., Otomasu H., Murakoshi I., J. Chromatogr., 1989, **462**, 333.



(–)-SOPHORIDINE

Leptorhabdos parviflora, Sophora alopecuroides
$C_{15}H_{24}N_2O$: 248.1889
Mp: 109° (petr. eth.) [1]
$[\alpha]_D$–64° (water)
{m-i. 236°} [2]

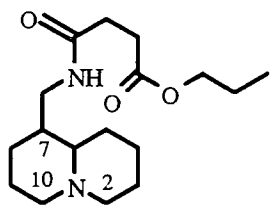
Sol-y.: r-sol. org. solvent, water
IR: 2903, 2820, 1658, 1629, 1458, 1444, 1315, 1180, 1124, 1027, 989, 900 [2]
Mass: 248(M^+, 86), 2479100), 205(25), 177(19), 150(37), 96(37) [3]
PMR: 1.89(1H, J=11.4; 2.7, H-2_a), 1.98(1H, J=11; 7.4, H-10_a), 2.51(1H, J=11; 9; 3.8, H-10_e), 2.61(1H, J=11.4, H-2_e), 2.92(1H, H-11), 3.33(1H, J=13.6; 11.2, H-17_a), 3.37(1H, J=13.3; 4.9, H-17_e) [4, 5]

^{13}C NMR: [5]

C-2	55.7	C-7	41.2	C-12	21.7
3	28.5	8	23.9	13	19.2
4	32.6	9	22.0	14	30.6
5	30.8	10	50.4	15	171.2
6	63.2	11	56.2	17	47.4

X-ray spectral analysis: [6]
Pharm.: Stimulating action. In doses of 5-25 mg/kg shortens by a factor of 1.5-2 the duration of sleep in mice induced by hexenal or barbital sodium. Stimulates respiration [7].

1. Orekhov A.P., Khim. Farm. Prom., 1934, No. 5, 10.
2. Rul'ko F., Proskurnina N.F., Zh. Org. Khim., 1961, **31**, 308; 1962, **32**, 1695.
3. Iskandarov S., Rashkes Ya.V., Kamalitdinov D.D., Yunusov S.Yu., Khim. Prir. Soedin., 1969, 331.
4. Kamaev F.G., Leont'ev V.B., Aslanov Kh.A., Ustynyuk Yu.A., Sadykov A.S., Khim. Prir. Soedin., 1974, 744.
5. Sadykov A.S., Izv. AN SSSR, Ser. Khim., 1983, No. 11, 2432.
6. Ibragimov B.T., Tishchenko G.N., Kushmuradov Yu.K., Aripov T.F., Sadykov A.S., Khim. Prir. Soedin., 1979, 355.
7. Bichikhanov M.P., Badyaraev B.-D.V., Monakhova T.E., Trutneva E.L., Tolkachev O.N., Rast. Res., 1990, **26**, 387.



SOPHORINE

Sophora alopecuroides
$C_{19}H_{34}N_2O_3$: 338.257
Mp: 59-60°
$[\alpha]_D$–19° (alc.)

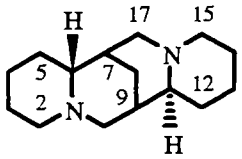
IR: 3300, 3080, 2800-2700, 1683, 1605, 1524, 1170, 1150 [1]
Mass: 338(M^+), 323(4), 296(7), 265(7), 168(21), 167(3), 152(30), 151(40), 150(24), 149(6), 138(100), 136(20), 124(10), 111(38), 110(42), 109(15), 98(19), 84(19), 83(50) [1]

PMR: 0.89(3H, t, CH_3), 2.90-3.40(2H, m), 3.62(2H, m, H-2_e, H-10_e), 3.95(2H, t, J=6), 6.08(1H, t) [1]

^{13}C NMR: [2]

172.7	41.0	25.2
171.8	34.9	24.6
64.9	33.0	24.1
63.7	30.2	20.6
56.4	29.4	18.7
56.1	28.8	13.2
41.4		

1. Kuchkarov S., Kushmuradov Yu.K., Khim. Prir. Soedin., 1979, 413.
2. Kamaev F.G., Kuchkarov S., Kushmuradov Yu.K., Aslanov Kh.A., Khim. Prir. Soedin., 1981, 604.



SPARTEINE

Ammopiptanthus mongolicus, Cytisus ratisbonensis, C.ruthenicus, Piptanthus nanus

$C_{15}H_{26}N_2$: 234.2096

Bp: 188° (18 mm Hg) [1]

$[\alpha]_D$ −17° (alc.), −13° (alc.)

{p-chl. 173°, di picr. 208°, h-i. 235°, di h-i. 258°} [1, 2]

UV: 214(3.70) [3]

IR: 1471, 1449, 1398, 1378, 1355, 1341, 1328, 1307, 1294, 1271, 1258, 1249, 1234, 1196, 1184, 1149, 1129, 1116, 1084, 1076, 1060, 1049, 1039, 1018, 976, 948, 939, 922, 905, 883, 870, 853, 846, 839, 828, 786, 736 [3]

Mass: 234(M^+, 17), 193(24), 150(12), 137(87), 110(23), 98(100), 97(41), 84(22), 55(23), 41(39), [4]

PMR: 0.90(1H, J=11; 2; 2, H-8_a), 1.30(1H, H-9), 1.65(1H, H-7), 1.87(2H, J=10, H-2_a, H-15_a), 1.90(1H, J=10.5; 2.5, H-10_a), 2.02(1H, J=11, H-8_e), 2.22(1H, J=10.6; 2, H-17_a), 2.42(1H, J=10, H-10_e), 2.50(1H, J=10.6; 10, H-17_e), 2.56(2H, J=10, H-2_e, H-15_e) [2]

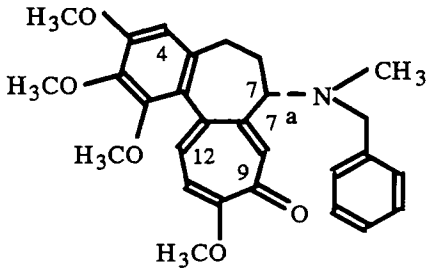
^{13}C NMR: [5]

C-2	56.2	C-7	36.2	C-12	34.7
3	25.9	8	27.6	13	24.7
4	24.9	9	33.0	14	25.9
5	29.4	10	62.0	15	55.4
6	66.5	11	64.4	17	53.6

HPLC: [6]

Pharm.: LD_{50} 30 mg/kg (i/v, rabbits); 120, 100, 375 mg/kg (s/c, guinea pigs, rabbits, frogs). Curaremimetic and central suppressive action. Causes a hypotensive effect in narcotized rabbits. {Sulf.} recommended for use in sinusal tachycardia, ventricular extrasystole, diseases of the gall bladder, weakness of labor activity [7]. Enhances the antiarrhythmic action of ajmaline [8].

1. Sélénge D., Telezhenetskaya M.V., Yunusov S.Yu., Khim. Prir. Soedin., 1976, 559.
2. Sadykov, p. 217.
3. Holubek, No. 391.
4. Pelletier, Vol. 2, p. 105.
5. Shamma, No. 197.
6. Moncrieff J., J. Chromatogr., 1990, **529**, 194.
7. Sadritdinov., p. 145.
8. Mashkovskii, Vol. 1, p. 408.



SPECIOSAMINE

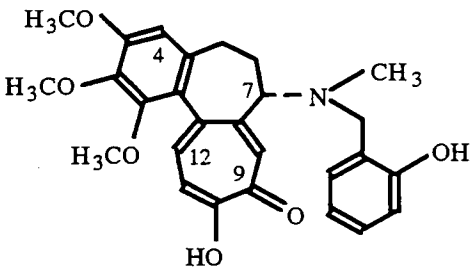
Colchicum speciosum
$C_{28}H_{31}NO_5$: 461.2202
Mp: 192-194° (ac.-e-a.)
$[\alpha]_D$–42° (chlf.) [1]
Sol-y.: r-sol. meth., chlf.; sol. e-a., ac.; sp. sol. water, eth. [3]
UV: 248, 350 [1]

IR: 1616, 1588 [1]
Mass: 461(M^+)
PMR: 2.00(3H, s, NCH_3), 3.54, 3.76, 3.80, 3.83(3H, s, 4×OCH_3), 6.37(1H, s, H-4), 6.52, 6.95(1H, d, J=11, H-11, H-12), 7.14(5H, s, H-Ar), 7.90(1H, s, H-8) [1, 2]

^{13}C NMR: [1, 3]

C-1	149.0	C-9	178.2	NCH_3	38.4
2	140.0	10	162.5	NCH_2	59.4
3	151.9	11	110.8	C-1′	127.6
4	106.3	12	132.8	2′	127.0
4a	136.1	12a	137.6	3′	125.7
5	30.0	1a	124.3	4′	127.0
6	35.5	1-OCH_3	60.9	5′	127.6
7	66.3	2-OCH_3	60.2	6′	133.4
7a	151.3	3-OCH_3	55.5		
8	132.4	10-OCH_3	55.3		

1. Chommadov B., Yusupov M.K., Aslanov Kh.A., Khim. Prir. Soedin., 1985, 417.
2. Chommadov B., Author's Abstract of Doctoral Dissertation, Tashkent, 1992, p. 34.
3. Chommadov B., Unpub.

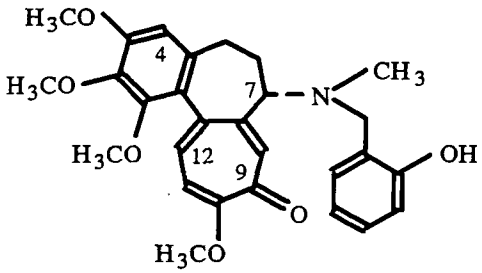


SPECIOSEINE

Colchicum speciosum
$C_{27}H_{29}NO_6$: 463.1995
Mp: 169-171°
$[\alpha]_D$–78° (chlf.)
{di Ac $[\alpha]_D$–106° (chlf.)}
UV: 247, 348(4.51, 4.39)

IR: 3530-3380, 3000, 2950, 2840, 1612, 1590, 1495, 1450
Mass: 463(M^+), 448, 357, 342, 207, 107, 106
PMR: 2.15(3H, s, NCH_3), 3.08(1H, m, H-7), 3.57, 3.87(3H, 6H, s, 3×OCH_3), 6.50(1H, s, H-4), 6.65-7.30(4H, H-Ar), 6.70, 7.50(1H, d, J=12, H-11, H-12), 7.70(1H, s, H-8)

1. Chommadov B., Khim. Prir. Soedin., 1991, 253.

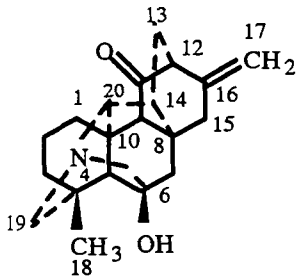


SPECIOSINE

Colchicum speciosum
$C_{28}H_{31}NO_6$: 477.2151
Mp: 209-211° (bz.-ac.)
$[\alpha]_D$–21° (chlf.)
Sol-y.: r-sol. chlf.; sol. alc., ac.; sp. sol. eth., bz.; i.s. water, alk. [1]

UV: 245, 352(4.50, 4.23) [2]
IR: 3200, 1606, 1589, 1537, 1488, 1347, 1258, 1098, 1047, 1023 [2]
Mass: 477(M^+), 462, 371, 356, 342, 312, 208, 207, 107, 106 [3, 4]
PMR: 2.16(3H, s, NCH_3), 3.08(1H, m, H-7), 3.50, 3.87, 3.91(3H, 6H, 3H, s, 4×OCH_3), 6.46(1H, s, H-4), 6.63-7.00(4H, H-Ar), 6.68, 7.18(1H, d, J=10, H-11, H-12), 7.53(1H, s, H-8) [5]
Pharm.: Highly specific butyrylcholinesterase inhibitor [6].

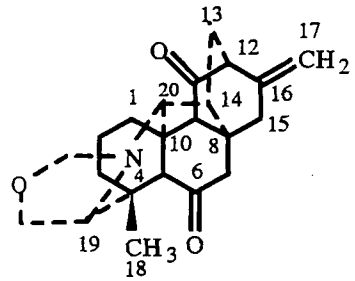
1. Kiselev V.V., Zh. Org. Khim., 1956, **26**, 3218.
2. Holubek, No. 258.
3. Wilson J.M., Ohashi M., Budzikiewicz H., Santavy F., Djerassi C., Tetrahedron, 1963, **19**, 2225.
4. Kiselev V.V., Rashkes Ya.V., Yunusov S.Yu., Khim. Prir. Soedin., 1974, 536.
5. Chommadov B., Khim. Prir. Soedin., 1991, 253.
6. Zuparova K.M., Rozengart E.V., Yusupov M.K., Chommadov B., Khakimov Yu.R., Abduvakhabov A.A., Israilov D.I., DAN UzSSR, 1991, No. 4, 33.



SPIRADINE A

Spiraea japonica
$C_{20}H_{25}NO_2$: 311.1885
Mp: 281-282°
IR: 3100, 1710, 1655
Mass: 311(M^+)
PMR: 1.33(3H, s, C-CH_3), 4.73, 4.87(1H, s, H-17, H_2) [1, 2]

1. Gorbunov V.D., Sheichenko V.I., Ban'kovskii A.I., Khim. Prir. Soedin., 1976, 124.
2. Goto G., Sasaki K., Sakabe N., Hirata Y., Tetrahedron Lett., 1968, 1369.



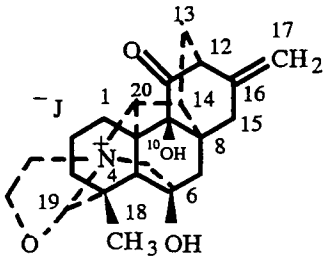
SPIREDINE

Spiraea japonica
$C_{22}H_{27}NO_3$: 353.1991
Mp: 163°
IR: 1720, 1690
Mass: 353(M^+)

PMR: 1.43, 1.47(3H, s, 18-CH_3), 4.12(1H, s, H-19), 3.00-3.50(2H, m, NCH_2), 3.50-4.00(2H, m, OCH_2), 4.73, 4.91(1H, s, H-17)

1. Gorbunov V.D., Sheichenko V.I., Ban'kovskii A.I., Khim. Prir. Soedin., 1976, 124.

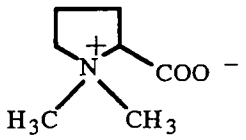
SPIREINE*



Spiraea japonica
$C_{22}H_{27}NO_4$: 369.1940
Mp: 230 (alc.)
IR: 3425, 1727, 1683 [1]
Mass: 369(M^+) [1]

PMR: 1.44, 1.47(3H, s, 2×CH_3), 2.05, 2.47(1H, d, J=9), 4.81, 4.97(1H, s, H_2-17) [1]
X-ray spectral analysis{benzene solvate of spireine hydriodide}: [2]

1. Gorbunov V.D., Ban'kovskii A.I., Perel'son M.E., Chizhov O.S., Khim. Prir. Soedin., 1969, 454.
2. Shadyro L.D., Gorbunov V.D., IIIrd All-Union Conference on Organic Crystal Chemistry. Abstracts of Lectures [in Russian] Gorkii, 1981, p. 139.

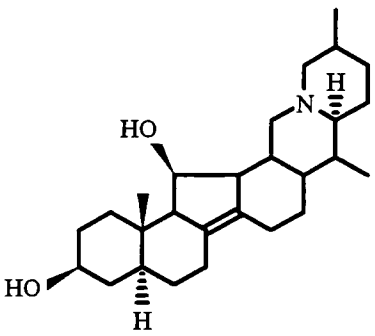


(±)-STACHYDRINE

Capparis spinosa, Eremostachys speciosa, Lagochilus hirtus, L.inebrians, L.platicalyx, L.pubescens, Lamium album,

Leonurus quinquelobatus, L.turkestanicus, Marrubium alternidens, Panzeria lanata, Phlomis tuberosa, Sideritis montana, Stachys balansae, S.betonicaeflora, S.hissarica, S.lanata
$C_7H_{13}NO_2$: 143.0946
Mp: 235-236° (alc.)
{h-chl. 228°, picr. 196° (alc.), oxalate 107°}
Sol-y.: sol. water, alc., meth.
IR: 2940, 2870, 1725, 1680, 1630, 1425

1. Kozlova L.M., Farmatsiya, 1967, No. 6, 23.



STENANZAMINE

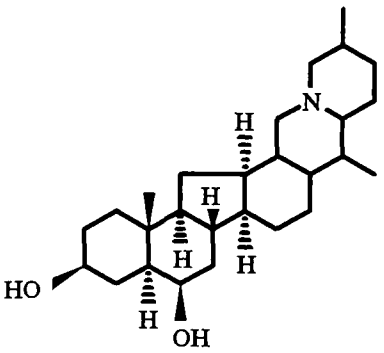
Rhinopetalum stenantherum
$C_{27}H_{43}NO_2$: 413.3294
Mp: amorph.
$[\alpha]_D$–22° (chlf.) [1]
{di Ac amorph.}
IR: 3400, 2940-2860, 2775, 1660, 1430, 1070
Mass: 413(M^+, 100), 398, 396, 395, 386, 385, 384, 359, 358, 190, 178, 166, 164, 150, 149, 139, 138, 137, 125, 112, 111, 98

PMR: 0.93(3H, s, 19-CH_3), 0.82, 1.00(6H, d, 27-CH_3, 21-CH_3), 3.58, 3.78(2H, HC-OH)
PMR{di Ac}: 0.82, 0.93(6H, d, 21-CH_3, 27-CH_3), 0.88(3H, s, 19-CH_3), 1.95(6H, s, 2×OAc), 4.65, 4.92(2H, m, 2×HC-OAc) [2]

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 341.
2. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 399.

*Structure given for the hydriodide [2].

STENANZIDINE

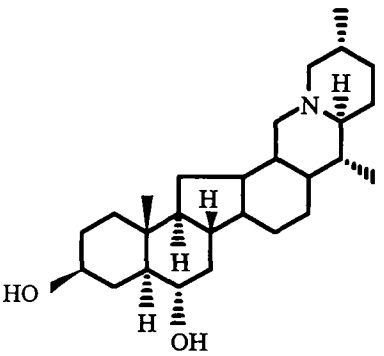


Rhinopetalum stenantherum
$C_{27}H_{45}NO_2$: 415.3450
Mp: 277° (meth.-ac.)
$[\alpha]_D$–17° (alc.)
{di Ac amorph., dione 176°}
IR: 3410, 2975-2865, 1447, 1075, 1047
Mass: 415(M^+), 400, 398, 397, 388, 386, 372, 360, 358, 344, 179, 178, 166, 164, 150, 149, 140, 139, 138, 125, 124, 112, 111(100), 98

PMR: 1.00(3H, s, 19-CH_3), 1.13, 1.19(6H, d, 21-CH_3, 27-CH_3), 3.30, 3.77(2H, m, HC-OH)
PMR{di Ac}: 0.94(3H, s, 19-CH_3), 1.10, 1.16(6H, d, 21-CH_3, 27-CH_3), 1.95, 1.96(6H, s, 2×OAc), 4.65, 4.90(2H, m, 2×HC-OAc)
PMR{dione}: 0.90(3H, s, 19-CH_3), (6H, d, 21-CH_3, 27-CH_3)

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 341.

STENANZIDININE

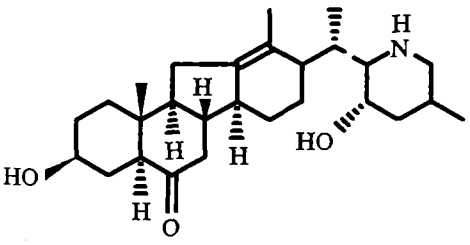


Rhinopetalum stenantherum
$C_{27}H_{45}NO_2$: 415.3450
Mp: 215-217° (ac.)
$[\alpha]_D$+5° (chlf.) [1]
{di Ac amorph., dione 174°}
IR: 3450, 2980-2818, 1777, 1470, 1454
Mass: 415(M^+), 400, 398, 387, 386, 359, 358, 164, 149, 139, 125, 124, 112, 111, 98

PMR: 0.73(3H, s, 19-CH_3), 0.83(3H, d, 21-CH_3), 0.83(3H, d, 27-CH_3)
PMR{di Ac}: 0.82(3H, s, 19-CH_3), 0.82(3H, d, 21-CH_3), 0.82(3H, d, 27-CH_3), 1.95(6H, s, 2×OAc), 4.59(2H, m, H-3, H-6) [2]

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 341.
2. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1984, 498.

STENANZINE

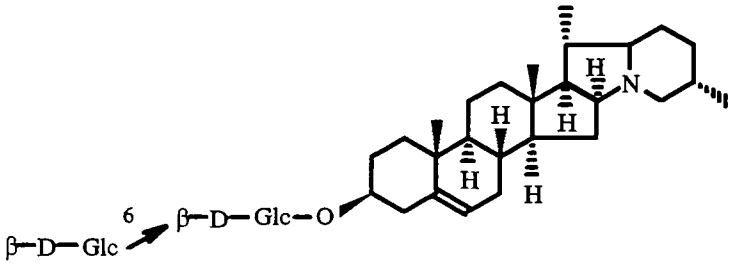


Rhinopetalum stenantherum
$C_{27}H_{43}NO_3$: 429.3243
Mp: 203-205° (ac.)
$[\alpha]_D$–44° (chlf.)
{O,O′, N-Ac amorph., NAc 236°, dihydro. 257°}

IR: 3425-3125, 2930-2830, 1713, 1475, 1455, 1420
Mass: 429(M^+), 428, 315, 256, 141. 115, 114, 96
PMR: 0.63(3H, s, 19-CH_3), 0.87(3H, d, J=7, 21-CH_3), 0.93(3H, d, J=7, 27-CH_3), 1.56(3H, s, 18-CH_3), 3.65, 3.76(2H, HC-OH)

PMR{O,O', N-Ac}: 0.66(3H, s, 19-CH_3), 0.79(3H, d, J=7, 21-CH_3), 0.95(3H, d, J=7, 27-CH_3), 1.66(3H, s, 18-CH_3), 1.96(6H, s, 2×OAc), 2.04(3H, s, NAc), 4.61, 5.04(2H, m, 2×HC-OAc)
PMR{NAc}: 0.62(3H, s, 19-CH_3), 0.85(3H, d, 21-CH_3), 0.90(3H, d, 27-CH_3), 1.56(3H, s, 18-CH_3), 2.04(3H, s, NAc)
PMR{dihydro}: 0.64(3H, s, 19-CH_3), 0.79(3H, d, 21-CH_3), 0.97(3H, d, 27-CH_3), 1.65(3H, s, 18-CH_3)

1. Samikov K., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 340.

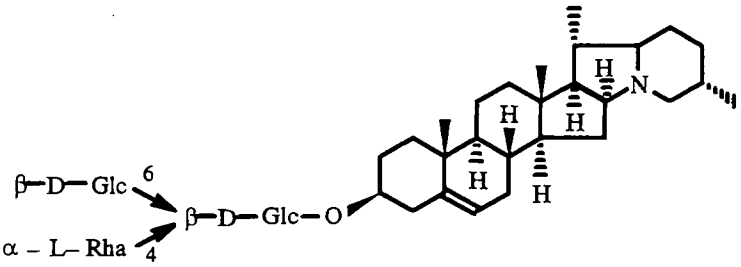


STENANTIDINE

Rhinopetalum stenantherum
$C_{39}H_{63}NO_{11}$: 721.4401
Mp: 269-271° (meth.)
$[\alpha]_D$–48° (pyr.)
Sol-y.: sp. sol.: ac., alc., chlf.
IR: 3420, 1640, 1150-1000

Mass: 721(M^+, 4.5), 706(2), 577(68), 544(19), 397(11), 396(11), 380(26), 204(56), 150(100).
GLC: Glucose–glucose (1:1).

1. Samikov K., Rashkes Ya.V., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1981, 349.

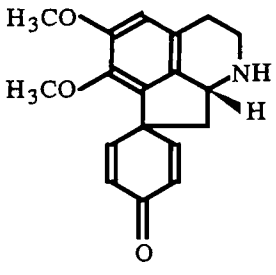


STENANTINE

Rhinopetalum stenantherum
$C_{45}H_{73}NO_{15}$: 867.498
Mp: 262-264° (meth.)
$[\alpha]_D$–47° (pyr.)
Sol-y.: sp. sol. ac., alc., chlf.
IR: 3420, 1640, 1150-1000

Mass: 867(M^+, 0.1), 721(1.3), 705(15), 690(2.2), 671(5.5), 656(1.8), 559(31), 544(9), 397(11), 396(10), 380(31), 204(16), 150(100)
GLC: glucose–rhamnose (2:1)

1. Samikov K., Rashkes Ya.V., Shakirov R., Yunusov S.Yu., Khim. Prir. Soedin., 1981, 349.

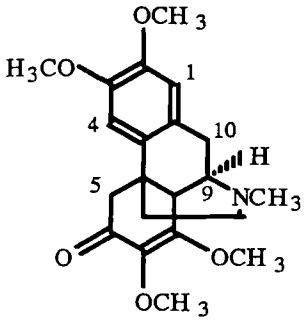


STEPHARINE (STEFAGLABRINE)

Stephania glabra
$C_{18}H_{19}NO_3$: 297.1365
Mp: 179-180°
$[\alpha]_D$+143° (chlf.) [1]
{N-Ac 235°, $[\alpha]_D$–80° (chlf.)} [2]
UV: 209, 232, 284(4.53, 4.35, 3.35) [3]

IR: 3250, 1660, 1620 [3]
Mass: 297(M^+, 100), 296(43), 282(4), 268(63), 266(5) [3]; 297(M^+, 100), 296(43), 268(65), 253(15), 237(15), 225(13) [4]
Pharm.: LD_{50} 245 mg/kg (i/v, mice). Hypotensive action, anticholinesterase activity [5]. {Sulf.} is used in diseases of the peripheral nervous system. Supplied in 1-ml ampuls of 0.25% soln. [6].

1. Gurova T.F., Popov Yu.G., Fadeeva I.I., Shain S.S., Tolkachev O.N., Rast. Res., 1980, **16**, 421.
2. Cava M.P., Nomura K., Schlessinger R.H., Buck K.T., Douglas B., Raffauf R.F., Weisbach J.A., Chem. Ind., 1964, 282.
3. Tackie A.N., Dwuma-Badu D., Lartey P.A., Schiff P.L., Knapp J.E., Slatkin D.J., J. Natur. Prod., 1974, **37**, 6.
4. Flor S.C., Doorenbos N.J., Svoboda G.H., Knapp J.E., Schiff P.L., J. Pharm. Sci., 1974, **63**, 618.
5. Berezhinskaya V.V., Trutneva E.A., Trudy VILR, 1971, **14**, 66.
6. Mashkovskii, Vol. 1, p. 229.

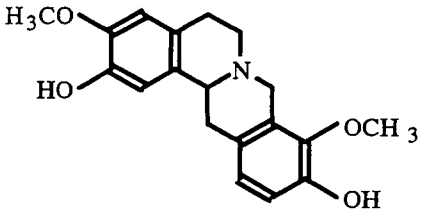


STEPHODELINE

Stephania delavayi
$C_{21}H_{27}NO_5$: 373.1889
Mp: amorph.
{h-chl. 200°}
UV: 230, 275(3.90, 4.06)
IR: 3040, 1665, 1610, 1516

PMR: 2.38(3H, s, NCH_3), 2.55, 2.96(1H, d, J=16, H-5α, H-5β), 2.66, 2.87(1H, d, J=18, H-10α, H-10β), 3.64(3H, s, 7-OCH_3), 3.66(1H, d, H-9), 3.75. 3.77(3H, s, 2×Ar-OCH_3), 4.09(3H, s, 8-OCH_3), 6.53, 6.55(1H, s, H-1, H-4)

1. Il'inskaya T.N., Perel'son M.E., Fadeeva I.I., Tolkachev O.N., Khim. Prir. Soedin., 1973, 650.

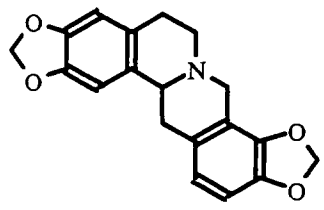


STEPHOLIDINE

Liriodendron tulipiferum
$C_{19}H_{21}NO_4$: 327.1471
Mp: 156-158° (ac.)
UV: 286(3.70)
Mass: 327(M^+), 326, 296, 178(100), 176, 150, 135

PMR(CF_3COOH): 3.52, 3.55(3H, s, 2×OCH_3), 6.50(1H, s), 6.56(1H, s), 6.66(2H, s)

1. Ziyaev R., Ikramov K., Kadyrov Kh.A., Abdusamatov A., Khim. Prir. Soedin., 1991, 587.



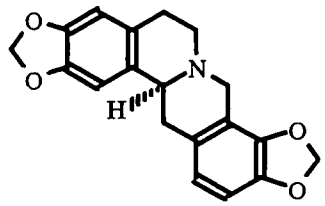
(+)-STYLOPINE

Corydalis bractea, C.caucasica, C.emanuelii, C.gortschakovii, C.marschalliana, C.paniculigera, C.pseudoadunca, C.rosea-purpurea, C.stricta, Fumaria capreolata, F.officinalis, F.parviflora, F.schleicheri, F.vaillantii, Papaver rhoeas

$C_{19}H_{17}NO_4$: 323.1158
Mp: 202-203° (alc.) [1]
$[\alpha]_D$+308° (chlf.) [1]
UV: 230, 285 [1]
IR: 1500, 1050, 920 [1]
Mass: 323(M^+), 322, 174, 148(100) [1]
PMR: 3.42, 4.02(1H, d, J=16), 5.81(4H, s, 2×CH_2O_2), 6.49, 6.62(1H, s, H-Ar), 6.55(2H, s, H-Ar) [1]
HPLC: [2]

1. Israilov I.A., Unpub.
2. Liang-Feng Han, Nowicky W., Gutmann V., J. Chromatogr., 1991, **543**, 123.

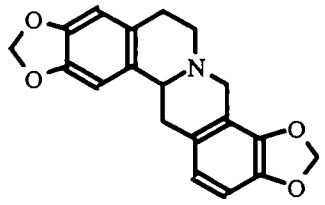
(–)-STYLOPINE (CHELIDAMINE)



Chelidonium majus
$C_{19}H_{17}NO_4$: 323.1158
Mp: 204-205° [1]
$[\alpha]_D$–317° (chlf.)
{h-chl. 256°, m-i. 275°}
Abs. conf.: [2]

1. Platonova T.F., Massagetov P.S., Kuzovkov A.D., Utkin L.M., Zh. Org. Khim., 1956, **26**, 173.
2. Snatzke G., Hrbek J., Hruban J., Horeau A., Santavy F., Tetrahedron, 1970, **26**, 5013.

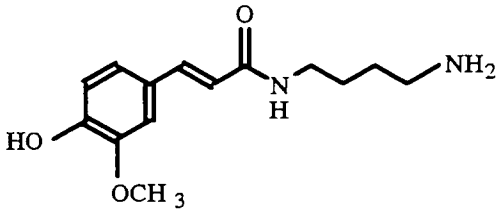
(±)-STYLOPINE



Fumaria schleicheri
$C_{19}H_{17}NO_4$: 323.1158
Mp: 205-206°
$[\alpha]_D$ 0°

1. Markosyan S.S., Tsulikyan T.A., Mnatsakanyan V.A., Arm. Khim. Zh., 1976, **29**, 1053.

SUBAPHYLLINE

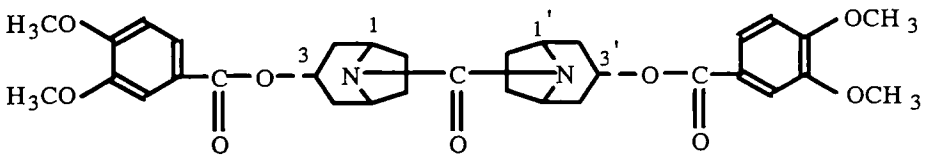


Salsola subaphylla
$C_{14}H_{20}N_2O_3$: 264.1474
{picr. 218° (dec.), O,N-dibenzoyl. 198°, h-chl. 151°} [1-3]

UV: 230, 292, 314 [4]
IR: [4]
Mass: 264($M^{+\cdot}$), 192, 177, 124, 109, 59, 30 [4]
Pharm.: LD_{50} 225 mg/kg. Lowers arterial pressure [5].

1. Ryabinin A.A., Il'ina E.M., DAN SSSR, 1949, **67**, 513.
2. Ryabinin A.A., Il'ina E.M., DAN SSSR, 1951, **76**, 689.
3. Mizusaki S., Tanabe Y., Noguchi M., Tamaki E., Phytochem., 1971, **10**, 1347.
4. Wheaton T.A., Stewart J., Natur., 1965, **206**, 1620.
5. Sadritdinov, p. 225.

SUBHIRSINE



Convolvulus subhirsutus
$C_{33}H_{40}N_2O_9$: 608.2734

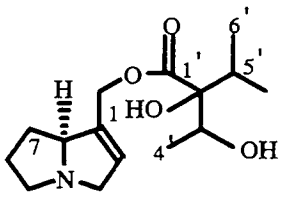
Mp: 190-191° (ac.)
Sol-y.: sol. chlf., meth., alc.

IR: 1710, 1645, 1600, 880, 827
Mass: 608(M^+), 443, 426, 320, 304($^{++}$), 290, 261, 182, 165
PMR: 3.84(12H, s, 4×OCH_3), 4.13(4H, m, H-1, H-1′, H-5, H-5′), 5.25(2H, t, H-3β), 6.82, 7.42-7.62(6H, m, H-Ar) [1]

^{13}C NMR: [2]

C-1,1′	54.6	C-7,7′	27.6	C-4″	152.9
2,2′	35.8	NCO	160.8	5″	148.5
3,3′	68.0	C=O	165.2	6″	110.3
4,4′	35.8	C-1″	122.9	Ar-OCH_3	55.7
5,5′	54.6	2″	123.0		55.7
6,6′	27.6	3″	111.8		

1. Sharova E.G., Aripova S.F., Yunusov S.Yu., Khim. Prir. Soedin., 1982, 640.
2. Yagudaev M.R., Aripova S.F., Khim. Prir. Soedin., 1980, 80.



SUPININE

Heliotropium supinum, Tournefortia sogdiana
$C_{15}H_{25}NO_4$: 283.1783
Mp: 145-147° (ac.) [1]
$[\alpha]_D$−16° (alc.) [1]
Sol-y.: r-sol. alc.; sp. sol. ac., water [2]

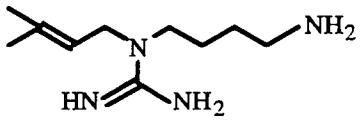
UV: 212(3.27) [3]
IR: 3340, 1750, 1228, 1179, 1140, 1110, 1087, 1022, 978, 900, 832, 799 [4]
Mass: 283(M^+), 268, 240, 239, 238, 140, 138, 120, 94, 93, 80 [1]
PMR: 0.90(3H, d, J=8), 0.98(3H, d, J=8), 1.19(3H, d, J=8) [1]

^{13}C NMR: [5]

C-1	137.9	C-7	30.2	C-3′	71.5
2	125.6	8	69.3	4′	17.3*
3	61.9	9	62.4	5′	33.1
5	56.9	1′	175.2	6′	17.1*
6	25.9	2′	83.1	7′	17.0*

CD: [6]
X-ray spectral analysis: [7]
Pharm.: LD_{50} 222.5 mg/kg (i/v, mice). Antagonist of acetylcholine, carbachol, and eserine (physostigmine) [8]. Hepatotoxic [9].

1. Telezhenetskaya M.V., Matkarimov A.D., Khadzhibekov S.N., Yunusov S.Yu., Khim. Prir. Soedin., 1987, 463.
2. Men'shikov G.P., Gurevich E.L., Zh. Org. Khim., 1949, **19**, 1382.
3. Simanek V., Klasek A., Santavy F., Collect., 1969, **34**, 1832.
4. Holubek, No. 261A.
5. Mody N.V., Sawhney S., Pelletier S.W., J. Natur. Prod., 1979, **42**, 417.
6. Hrbek J., Hruban L., Klasek A., Kochetkov N.K., Likhosherstov A.M., Santavy F., Snatzke G., Collect., 1972, **37**, 3918.
7. Mackay M.F., Mitrprachachon P., Oliver P.J., Culvenor C.C.J., Acta Cryst., 1985, **41C**, 722.
8. Sadritdinov, p. 89.
9. Sadritdinov F.S., in: The Pharmacology of Natural Compounds [in Russian], Fan, Tashkent, 1979, p. 29.



SPHAEROPHYSINE

Eremosparton flaccidum, Sphaerophysa salsula, Smirnowia turkestana

$C_{10}H_{22}N_4$: 198.1844
{carbonate 193°, di picr. 155°} [1]
Mass: 198($M^{+\cdot}$, 35), 126(54), 84(100) [2]
PMR: 1.64(3H, s), 1.70(3H, s), 5.18(1H, t, J=7) [2]
Pharm.: Used as hypotensive and obstetric agent. Supplied in the form of a powder [3].

1. Rubinshtein M.M., Men'shikov G.P., Zh. Org. Khim., 1944, **14**, 161, 172.
2. Heesing A., Eckard R., Chem. Ber., 1970, **103**, 534.
3. Sadritdinov, p. 147; Mashkovskii, Vol. 1, p. 528.