

APORPHINOID ALKALOIDS, III¹

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Considerable progress has been made since 1979 in the field of aporphinoids, including aporphines *sensu stricto* and biogenetically related aporphinoids. About 130 new alkaloids, some with novel substitution patterns, have been found, more than twice as many as were discovered between 1975 and 1979. Among the 249 compounds previously known, the structures of two alkaloids have been revised; additional physical and spectral data have become available for several others, while a number of already described alkaloids have been isolated from new sources.

This review supplements our earlier ones¹ by including data published since 1979, as well as several related aporphinoids unlisted in 1975 and 1979, along the following plan; (a) Additional data on previously reported aporphine alkaloids (structures **1-248**); revised structures, additional physical and spectral data, and known natural aporphines reisolated from new sources; and (b) Completely new aporphines and previously unlisted aporphinoids (structures **249-395**).

The organization, intent, and content of the present review are essentially the same as in the previous ones.¹ Included in this listing are the aporphines (noraporphines, aporphines, aporphine *N*-oxides, quaternary aporphines, natural *N*-acylated noraporphines), 7-hydroxy-7-methyl aporphines, 7,7-dimethyl aporphines, oxoaporphines, 4,5-dioxoaporphines, 7- and/or 4-oxygenated aporphines, dehydroaporphines, phenanthrenes, and miscellaneous aporphinoids.² Included among the miscellaneous aporphinoids (duguenaine-type aporphinoids, telazoline, oxoisoaporphines, taspine, azafluoranthenes, diazafluoranthenes, tropoloisoquinolines) are *sensu* Shamma³, except those which have been recently or will be shortly reviewed (proaporphines,⁴ dimeric aporphines,⁵ aristolochic acids, and aristolactams⁶).

The numbering of the skeleton is according to the accepted ruling. Unless stated otherwise, uv (nm, log ϵ) and cd ($\Delta\epsilon$, nm) spectra were obtained in ethanol or methanol, and nmr spectra in deuteriochloroform (at 60 MHz for ¹H-nmr); chemical shifts are in ppm on the δ scale, and the coupling constants are given in Hz. Values with identical superscripts may be reversed; ir frequencies are in cm⁻¹, and melting points are in degrees centigrade.

¹For "Aporphine Alkaloids I" and "Aporphine Alkaloids II," see *Lloydia*, **38**, 275 (1975) and *J. Nat. Prod.*, **42**, 325 (1979), respectively.

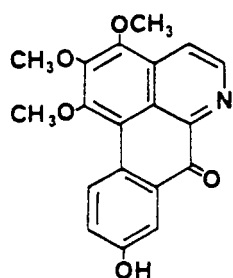
²For the new alkaloids: aporphines=structures **249-306**; 7-hydroxy-7-methyl aporphines=**307-316**; 7,7-dimethyl aporphines=**317-331**; oxoaporphines=**332-347**; 4,5-dioxoaporphines=**348-354**; 7- and/or 4-oxygenated aporphines=**355-367**; dehydroaporphines=**368-377**; phenanthrenes=**378-379**; miscellaneous aporphinoids=**380-395**.

³M. Shamma, Aporphinoid Alkaloids, in: "Alkaloids, A Specialist Periodical Report." Ed. by M.F. Grudon, The Royal Society of Chemistry, London (1976-1983).

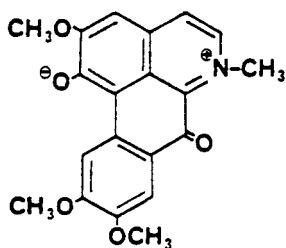
⁴H. Guinaudeau and M. Shamma, to be published.

⁵H. Guinaudeau, M. Leboeuf, and A. Cavé, *J. Nat. Prod.*, in press

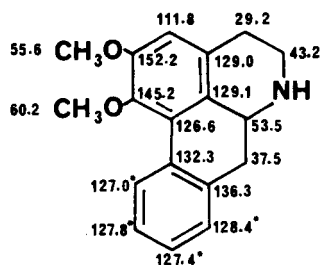
⁶D.B. Mix, H. Guinaudeau, and M. Shamma, *J. Nat. Prod.*, **45**, 657 (1982).

TABLE 1. Revised Structures of Previously Reported Aporphinoid Alkaloids¹

122 SUBSESSILINE
 $C_{19}H_{15}O_5N$ 337.0949
 Synthesis (193)

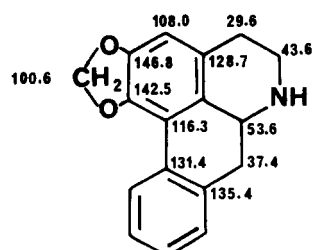


178 GLAUVINE
 $C_{20}H_{17}O_5N$ 351.1105
 Glauvine is identical to corunnine **134** (28)

TABLE 2. Additional Physical and Spectral Data on Previously Reported Aporphinoid Alkaloids¹Aporphines *sensu stricto*

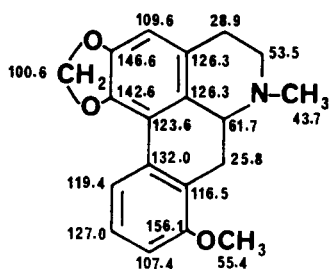
5 NORNUCIFERINE
 $C_{18}H_{19}O_2N$ 281.1415
¹³C-NMR:(4)

6 NUCIFERINE
 $C_{19}H_{21}O_2N$ 295.1571
 $[\alpha]_D$: -215° (EtOH) (172)
 CD: -1.9 (308), +1.1 (272), -89.6 (233), +44.8 (213)
 (172)

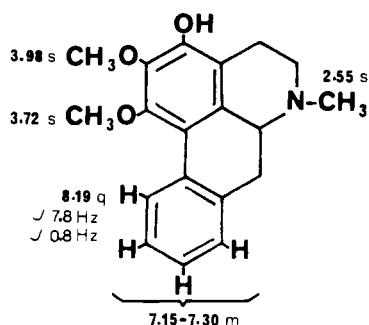


7 ANONAININE
 $C_{17}H_{15}O_2N$ 265.1102
¹³C-NMR: (4)

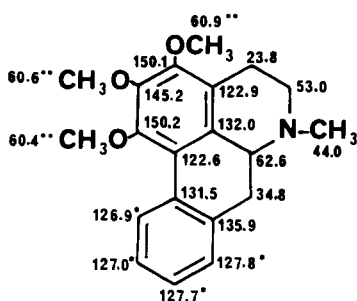
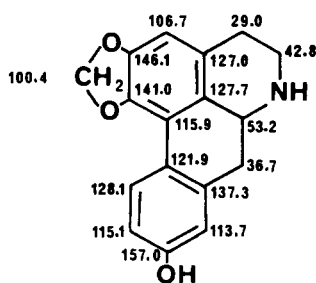
5 C at 127.0, 127.1, 127.5, 128.1

**12 STEPHANINE**C₁₉H₁₉O₃N 309.1364¹³C-NMR: (88)

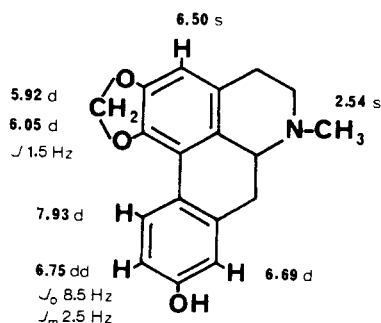
CD: +12.6 (270), -55.8 (233), +19.5 (215) (113)

**13 LIRININE***(3-Hydroxynuciferine **187**)C₁₉H₂₁O₃N 311.1520¹H-NMR: (360 MHz) (236)MS: 311 (M⁺, 75), 310 (100), 296 (70), 294 (58), 280 (42), 268 (38), 264 (31), 253 (15), 237 (46), 165 (10), 152 (7), 149 (7) (236)

*Confirmation of the structure (236)

**15 O-METHYLLIRININE**(3-Methoxynuciferine **189**)C₂₀H₂₃O₃N 325.1677¹³C-NMR: (4)**16 ANOLOBINE**

(Analobine)

C₁₇H₁₅O₃N 281.1051¹H-NMR: in pyridine (175)¹³C-NMR: (DMSO) (175)**17 ROEMEROLINE**

(N-Methylanolobine)

C₁₈H₁₇O₃N 295.1207

MP: 218-220° (111)

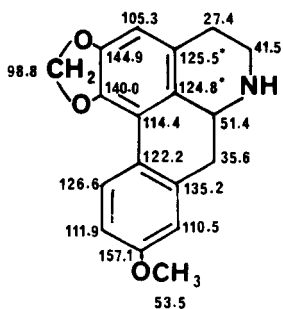
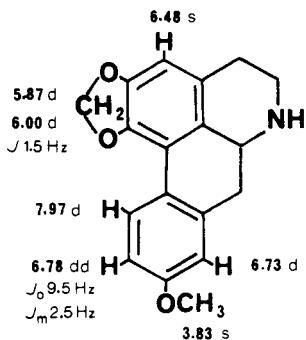
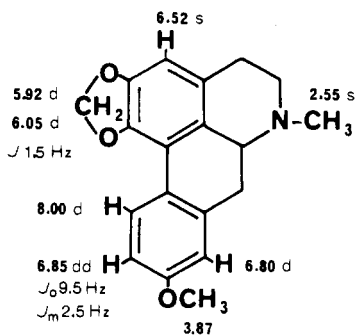
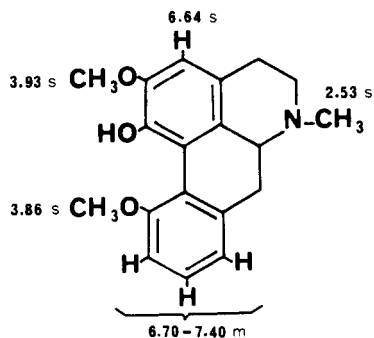
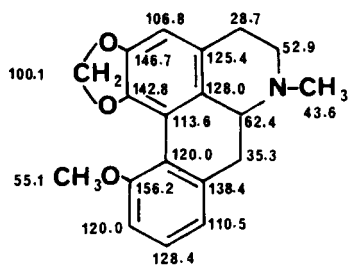
[α]_D: -32° (c=0.44, CHCl₃) (111)

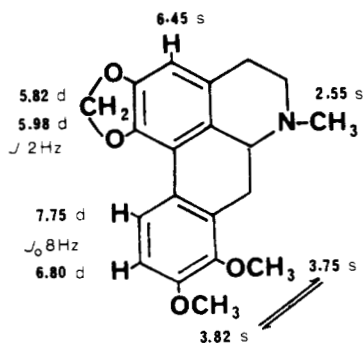
UV: 240sh (3.78), 281 (3.95), 320sh (3.31) (111)

IR: (KBr) 3500 (111)

¹H-NMR: (111)MS: 295 (M⁺, 17), 294 (22), 252 (12) (111)

CD: +8.4 (277), -43.7 (233), +27.3 (215) (111); ORD also given (111)

**18 XYLOPINE**C₁₈H₁₇O₃N 295.1207¹H-NMR: (175)¹³C-NMR: (74)**19 ISOLAURELINE**C₁₉H₁₉O₃N 309.1364¹H-NMR: (175)**31 ISOTHEBAINE**C₁₉H₂₁O₃N 311.1520IR: (CHCl₃) 3250 (65)¹H-NMR: (100 MHz) (65)MS: 311 (M⁺, 100), 310 (62), 296 (33), 294 (55), 280 (42) (131)**36 O-METHYLPUKATEINE**C₁₉H₁₉O₃N 309.1364¹³C-NMR: (174)

**38 CREBANINE** $C_{20}H_{21}O_4N$ 339.1469

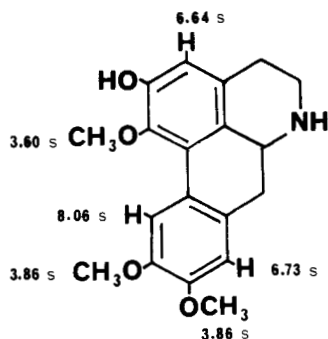
UV: 218 (4.48), 245sh (4.02), 280 (4.29), 290sh (4.25), 320sh (3.63) (110)

 1H -NMR: (154)MS: 339 (M^+ , 79), 338 (100), 324 (10), 308 (22), 296 (36) (110)

CD: +14.5 (275), -56 (237), +29.0 (216) (154)

50 BOLDINE $C_{19}H_{21}O_4N$ 327.1469

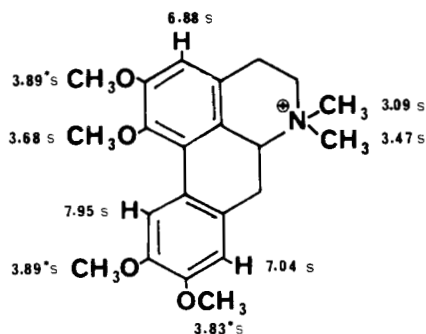
CD: -5.5 (3.16), -4.4sh (303), -6.1 (280), +78.5 (240), -42.2 (214) (172)

51 NORPREDICENTRINE $C_{19}H_{21}O_4N$ 327.1469 1H -NMR: ($CDCl_3/C_5D_5N$) (75)MS: 327 (M^+ , 66), 326 (100), 312 (32), 311 (18), 310 (17), 297 (11), 296 (26), 266 (19), 192 (48) (75)**54 LAUROTETANINE** $C_{19}H_{21}O_4N$ 327.1469[α]_D: +125° ($CHCl_3$) (172)

CD: -4.5 (315), -5.1 (301), -6.2 (281), +64.8 (242), -43.7 (218) (172)

55 N-METHYLLAUROTETANINE $C_{20}H_{23}O_4N$ 341.1626

CD: -7.9 (314), -8.3 (303), -6.8 (283), +64.0 (242), -45.2 (219) (172)

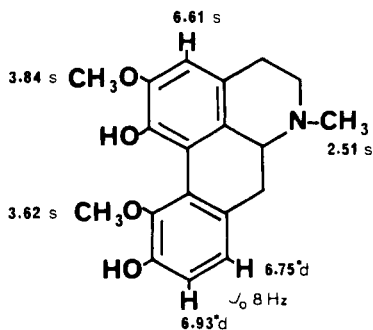
**60 N-METHYLGLAUCINE** $C_{22}H_{28}O_4N^+ X^-$ 370.2018[α]_D: +81° ($c=0.53$, MeOH) (I^-) (50)

UV: 223 (4.61), 283 (4.12), 304 (4.14) (50)

IR: (KBr) 3000, 1518, 1480, 1460, 1432, 1421, 1398, 1390, 1358, 1342, 1325, 1272, 1250, 1235, 1225, 1122, 1105, 1033, 1007, 973, 955, 923, 877, 770 (50)

 1H -NMR: (MeOD) (50)MS: 370 (M^+ , 1), 369 (3), 355 (1), 142 (4), 128 (6), 127 (4), 59 (3), 58 (100) (50)**67 DICENTRINE** $C_{20}H_{21}O_4N$ 339.1469

CD: -5.6 (310), -2.8 (280), +45.21 (237), -20.3 (216) (172)

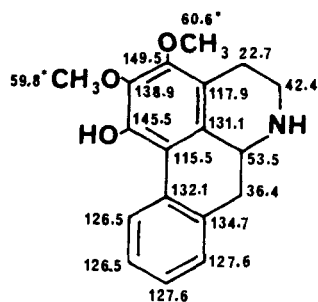
69 NEOLITSINEC₁₉H₁₇O₄N 323.1156CD: -5.0 (320), +3.8 (307), -2.6 (282), +46.4 (234),
-28.4 (215) (172)**70 ISOCORYTUBERINE**C₁₉H₂₁O₄N 327.1469

MP: 220-221° (HCl) (93)

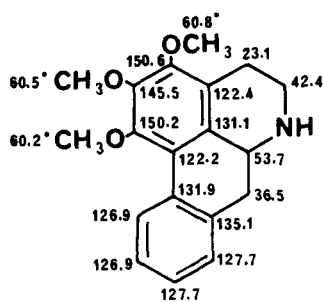
[α]_D: +181° (c=0.5, MeOH) (93)

UV: 225 (4.39), 275 (3.87), 313 (3.67) (93)

¹H-NMR: (93)MS: 327 (M⁺), 312, 310, 296, 284, 270, 269, 163.5
(M⁺⁺) (93)**72 MAGNOFLORINE**C₂₀H₂₄O₄N⁺ X⁻ 342.1704CD: +3.2 (315), -1.8 (297), -17.1 (272), +74.2
(236), -5.8 (218) (172)**76 HERNOVINE**C₁₈H₁₉O₄N 313.1313[α]_D: +266° (EtOH) (172)CD: +0.5 (322), -5.5 (299), -5.9 (274), +10.0 (234),
-21.0 (212)**85 ISOCORYDINE**C₂₀H₂₃O₄N 341.1626CD: +0.6 (322), -1.4sh (302), -12.7 (272), +95.2
(234), -7.1 (215) (172)**87 CATALPIFOLINE**C₂₀H₂₃O₄N 341.1626CD: +4.7 (314), -3.5sh (294), -7.9 (270), +121.0
(235), -17.1 (216) (172)**89 NANDIGERINE**C₁₈H₁₇O₄N 311.1156CD: +3.2 (323), -2.7 (293), -9.8 (270), +71.7 (234),
-9.1 (214) (172)**92 BULBOCAPNINE**C₁₉H₁₉O₄N 325.1313CD: +8.5 (322), -4.4 (295), -11.7 (272), +77.4
(235), -14.5 (216) (172)**94 OVIGERINE**C₁₈H₁₅O₄N 309.1000CD: +9.9 (327), -4.4 (299), -13.6 (272), +72.4
(234), -33.3 (203) (172)

106 CASSYTHINEC₁₉H₁₉O₃N 341.1262CD: -7.9 (312), -6.4 (301), -6.7 (282), +36.6 (241),
-35.1 (218) (172)**109** OCOTEINEC₂₁H₂₃O₃N 369.1575[α]: +43° (CHCl₃) (172)CD: -8.3 (313), -9.5 (301), -6.4 (283), +34.9 (242),
-28.6 (218) (172)**184** ISOPILINEC₁₈H₁₉O₃N 297.1364¹³C-NMR: (125)**186** LIRIDININE*C₁₉H₂₁O₃N 311.1520¹H-NMR: (360 MHz) (236)

*Confirmation of the structure (236)

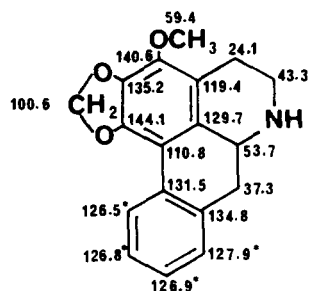
188 O-METHYLISOPILINEC₁₉H₂₁O₃N 311.1520¹³C-NMR: (125)**191** NORSTEPHALAGINEC₁₈H₁₇O₃N 295.1207

MP: 94-95° (5)

[α]_D: -35° (c=0.98, EtOH) (5)

UV: 241 (4.45), 278 (4.49) (5)

IR: (KBr) 1420, 1050, 940 (5)

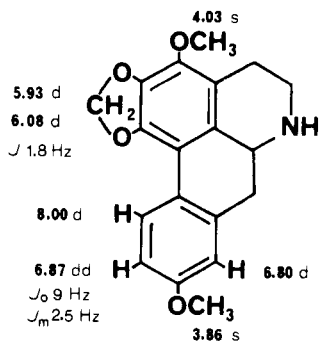
¹³C-NMR: (4)MS: 295 (M⁺), 294 (100), 280, 266, 236, 165 (5)**193** PULCHINE

(N-Methylzenkerine)

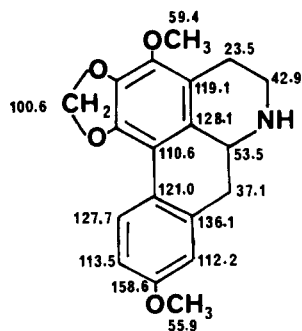
C₁₉H₂₁O₃N 311.1520

MP: 178-179° (65)

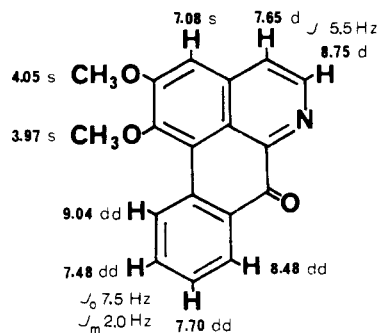
IR: (CHCl₃) 3520 (65)

**197 BUXIFOLINE**C₁₉H₁₉O₄N 325.1313¹H-NMR: * (70)¹³C-NMR: (175)

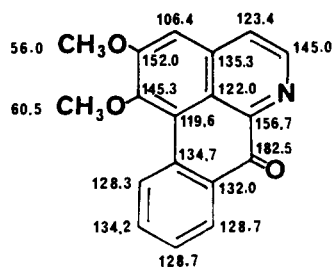
*Correction of some data previously reported in "Aporphine Alkaloids II"

**210 LEUCOXINE**C₂₀H₂₁O₅N 355.1418

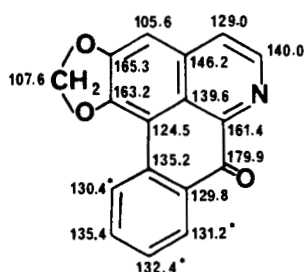
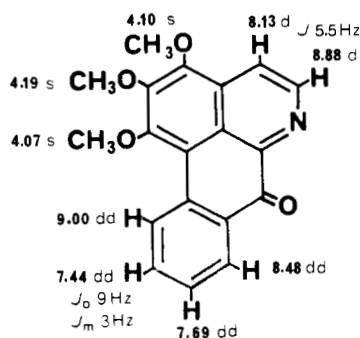
CD: +1.6 (323), -5.2 (299), -7.4 (270), +108.7 (238), -41.8 (218) (172)

**115 LYXICAMINE**

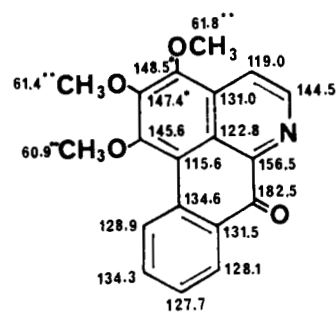
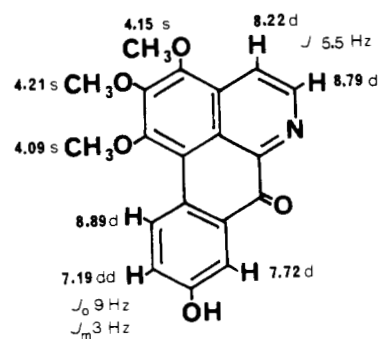
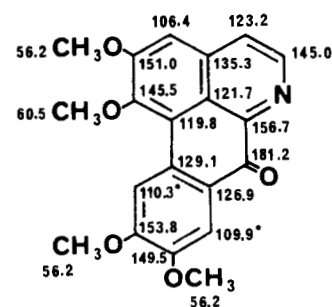
(Oxonuciferine)

C₁₈H₁₃O₃N 291.0895¹H-NMR: (revised assignments) (125); also in C₅D₅N (125)¹³C-NMR: (26)MS: 291 (M⁺, 100), 276 (5), 248 (73), 233, 220 (106)

Oxoaporphines

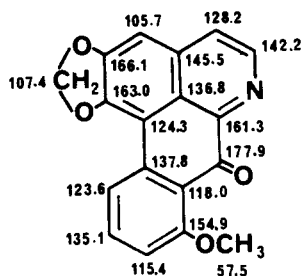
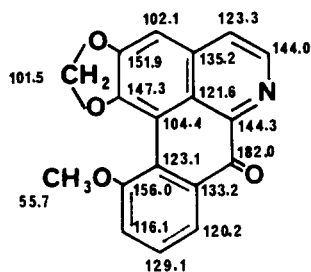
**116** LIRIODENINEC₁₇H₉O₃N 275.0582¹³C-NMR: (TFA) (88)**118** *O*-METHYLMOSCHATOLINE

(Homomoschatoline, Liridine)

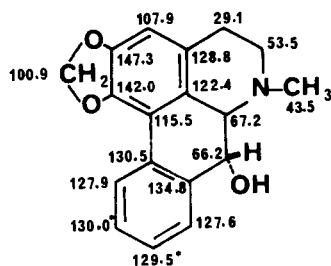
C₁₉H₁₅O₄N 321.1000¹H-NMR: (revised assignments) (125); also in C₅D₅N (125)¹³C-NMR: (26); also in CDCl₃/MeOD (139); values for C-1, C-3, C-6a, C-9 and C-11 are different between (26) and (139)**122** SUBSESSILINEC₁₉H₁₅O₅N 337.0949¹H-NMR: (revised assignments) (125); also in TFA and in C₅D₅N (125)**124** OXOGLAUCINE*O*-Methylatheroline)C₂₀H₁₇O₅N 351.1105¹³C-NMR: (26); also in CDCl₃/MeOD (139); values for C-1, C-2 and C-6a are different between (26) and (139)

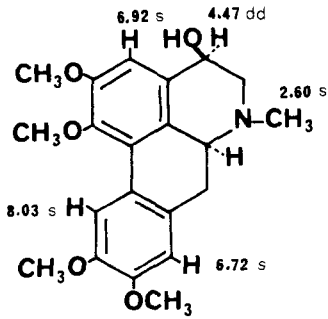
125 OXONANTENINEC₁₉H₁₃O₅N 335.0793

MP: 213-215° (106)

UV: 243 (4.44), 264sh (4.38), 272 (4.46), 288sh (4.22),
318 (3.90), 357 (3.96), 378sh (3.90), 426
(3.56) (106)**126 DICENTRINONE**C₁₉H₁₃O₅N 335.0793MS: 335 (M⁺, 100), 334 (33), 320 (21), 304 (18), 292
(15), 276 (11), 264 (13), 249 (13) (75)**216 OXOSTEPHANINE**C₁₈H₁₁O₄N 305.0867¹³C-NMR: (TFA) (88)**218 OXOPUTERINE**C₁₈H₁₁O₄N 305.0687¹³C-NMR: (CDCl₃/MeOD) (139)

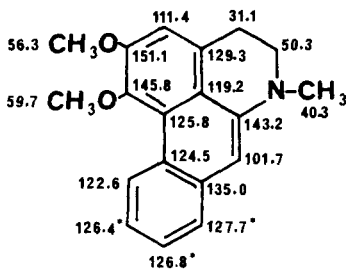
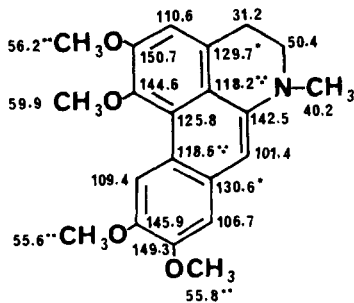
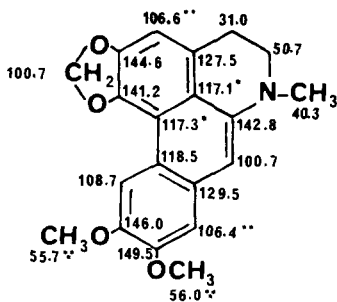
C-7 and/or C-4 Substituted Aporphines

**139 USHINSUNINE**C₁₈H₁₇O₃N 295.1207¹³C-NMR: (74)**140 GUATTERINE**C₁₉H₁₉O₄N 325.1313¹H-NMR: signals for 1,2-OCH₂O are at 5.73 d and 5.89
d rather than 6.73 and 6.89, as previously
reported in "Aporphine Alkaloids I"

**148 CATALINE** $C_{21}H_{25}O_5N$ 371.1731 1H -NMR: (66)**237 4-HYDROXYNORNANTENINE*** $C_{19}H_{19}O_5N$ 341.1262X/RAY: (*N,O*-diacetyl derivative) (235)

*This alkaloid has been erroneously named "4-Hydroxynantene" in "Aporphine Alkaloids II"

Dehydroaporphines

**149 DEHYDRONUCIFERINE** $C_{19}H_{19}O_2N$ 293.1415 ^{13}C -NMR: (26)**154 DEHYDROGLAUCINE** $C_{21}H_{23}O_4N$ 353.1626 ^{13}C -NMR: (26)**157 DEHYDRODICENTRINE** $C_{20}H_{19}O_4N$ 337.1313 ^{13}C -NMR: (26)

Miscellaneous Aporphinoids

176 CEPHARADIONE B

C₁₉H₁₅O₄N 321.1000

MP: 265-267° (106)

TABLE 3. Known Natural Aporphinoids Reisolated from New Sources¹Aporphines *sensu stricto*

| | |
|---|--|
| 1 CAAVERINE | Menispermaceae: <i>Chasmanthera</i> |
| C ₁₇ H ₁₇ O ₂ N 267.1258 | (148) |
| SOURCES: Annonaceae: <i>Polyalthia</i> (236) | Monimiaceae: <i>Laurelia</i> (212) (216) |
| 2 LIRINIDINE | |
| C ₁₈ H ₁₉ O ₂ N 281.1415 | |
| SOURCES: Papaveraceae: <i>Papaver</i> (159) | |
| 3 ASIMILOBINE | |
| C ₁₇ H ₁₇ O ₂ N 267.1258 | |
| SOURCES: Annonaceae: <i>Anaxagorea</i> (76), <i>Annona</i> (69) (120), <i>Desmos</i> (119), <i>Guatteria</i> (75), <i>Hexalobus</i> (4), <i>Mitrella</i> (51), <i>Monanbotaxis</i> (225), <i>Polyalthia</i> (236), <i>Uvaria</i> (118), <i>Xylophia</i> (122) | |
| Monimiaceae: <i>Laurelia</i> (215) (216) | |
| Rhamnaceae: <i>Ziziphus</i> (94) | |
| 4 N-METHYLASIMILOBINE | |
| C ₁₈ H ₁₉ O ₂ N 281.1415 | |
| SOURCES: Annonaceae: <i>Xylophia</i> (70) | |
| Menispermaceae: <i>Stephania</i> (110) | |
| Papaveraceae: <i>Papaver</i> (52) (135) (157) (177) (179) | |
| 5 NORNUCIFERINE | |
| C ₁₈ H ₁₉ O ₂ N 281.1415 | |
| SOURCES: Annonaceae: <i>Guatteria</i> (125), <i>Hexalobus</i> (4), <i>Polyalthia</i> (236), <i>Xylophia</i> (70) (122) | |
| Menispermaceae: <i>Chasmanthera</i> (148) | |
| Monimiaceae: <i>Laurelia</i> (212) | |
| Rhamnaceae: <i>Ziziphus</i> (94) | |
| 6 NUCIFERINE | |
| C ₁₉ H ₂₁ O ₂ N 295.1571 | |
| SOURCES: Annonaceae: <i>Monanbotaxis</i> (225) | |
| Papaveraceae: <i>Papaver</i> (159) (224) | |
| 7 ANONAIN | |
| C ₁₇ H ₁₅ O ₂ N 265.1102 | |
| SOURCES: Annonaceae: <i>Annona</i> (69) (120) (165) (233), <i>Desmos</i> (119), <i>Hexalobus</i> (4), <i>Mitrella</i> (51), <i>Monodora</i> (201), <i>Polyalthia</i> (236), <i>Xylophia</i> (70) (122) | |
| Magnoliaceae: <i>Magnolia</i> (164) | |
| 8 ROEMERINE | |
| C ₁₈ H ₁₇ O ₂ N 279.1258 | |
| SOURCES: Annonaceae: <i>Guatteria</i> (8) | |
| Menispermaceae: <i>Stephania</i> (145) | |
| Papaveraceae: <i>Papaver</i> (73) (157) (159) (178) (179) (198) (199) | |
| 9 ROEMEREFIDINE | |
| C ₁₉ H ₂₀ O ₂ N ⁺ X ⁻ 294.1493 | |
| SOURCES: Papaveraceae: <i>Papaver</i> (136) (196) (198) (199) | |
| 12 STEPHANINE | |
| C ₁₉ H ₁₉ O ₃ N 309.1364 | |
| SOURCES: Menispermaceae: <i>Stephania</i> (36) (110) (144) | |
| 15 O-METHYLLIRININE | |
| C ₂₀ H ₂₃ O ₃ N 325.1677 | |
| see 3-methoxynuciferine 189 | |
| 16 ANOLOBINE | |
| C ₁₇ H ₁₅ O ₃ N 281.1051 | |
| SOURCES: Annonaceae: <i>Duguetia</i> (175), <i>Guatteria</i> (75), <i>Monodora</i> (201), <i>Polyalthia</i> (236) | |
| 17 ROEMEROLINE | |
| C ₁₈ H ₁₇ O ₃ N 295.1207 | |
| SOURCES: Menispermaceae: <i>Stephania</i> (111) | |
| 18 XYLOPINE | |
| C ₁₈ H ₁₇ O ₃ N 295.1207 | |
| SOURCES: Annonaceae: <i>Annona</i> (13) (120), <i>Duguetia</i> (175), <i>Guatteria</i> (75), <i>Xylophia</i> (70) (122) | |
| 19 ISOLAURELINE | |
| C ₁₉ H ₁₉ O ₃ N 309.1364 | |
| SOURCES: Annonaceae: <i>Duguetia</i> (175) | |
| 20 SPARSIFLORINE | |
| C ₁₇ H ₁₇ O ₃ N 283.1207 | |
| SOURCES: Annonaceae: <i>Monodora</i> (201) | |

25 TUDURANINEC₁₈H₁₉O₃N 297.1364SOURCES: Annonaceae: *Polyalthia* (236)**31 ISOTHEBAINE**C₁₉H₂₁O₃N 311.1520SOURCES: Papaveraceae: *Papaver* (21) (84)
(131) (158)
Synthesis (65)**33 OBOVANINE**C₁₇H₁₅O₃N 281.1051SOURCES: Monimiaceae: *Laurelia* (215) (216)**34 PUKATEINE**C₁₈H₁₇O₃N 295.1207SOURCES: Monimiaceae: *Laurelia* (216)**36 O-METHYLPUKATEINE**C₁₉H₁₉O₃N 309.1364SOURCES: Annonaceae: *Guatteria* (72)**38 CREBANINE**C₂₀H₂₁O₄N 339.1469SOURCES: Menispermaceae: *Stephania* (62)
(110) (154)**39 LAURELLIPTINE**C₁₈H₁₉O₄N 313.1313SOURCES: Annonaceae: *Monanthotaxis* (225),
Monodora (43) (201)
Lauraceae: *Litsea* (29) (121), *Nec-*
tandra (130)**40 ISOBOLDINE**C₁₉H₂₁O₄N 327.1469SOURCES: Annonaceae: *Annona* (120), *Desmos*
(119), *Guatteria* (234), *Polyalthia*
(236), *Uvaria* (118),
Xylophia (70)
Berberidaceae: *Berberis* (91),
Mahonia (173)
Fumariaceae: *Corydalis* (96) (99)
(100) (197), *Fumaria* (7) (82)
Hernandiaceae: *Hernandia* (115)
Lauraceae: *Cryptocarya* (15), *Litsea*
(29) (121), *Machilus* (81), *Neo-*
litsea (64)
Menispermaceae: *Stephania* (35)
Papaveraceae: *Glaucium* (93)
Ranunculaceae: *Aconitum* (16)
(206) (207), *Thalictrum* (146)
(228)**41 LAURIFOLINE**C₂₀H₂₄O₄N⁺ X⁻ 342.1704SOURCES: Menispermaceae: *Cocculus* (180)
Rutaceae: *Zanthoxylum* (202)**42 BRACTEOLINE**C₁₉H₂₁O₄N 327.1469SOURCES: Papaveraceae: *Papaver* (84)**44 THALIPORPHINE**C₂₀H₂₃O₄N 341.1626SOURCES: Annonaceae: *Uvaria* (118)
Berberidaceae: *Mahonia* (204)
Euphorbiaceae: *Croton* (138)
Fumariaceae: *Corydalis* (100)
Lauraceae: *Ocotea* (219)
Papaveraceae: *Glaucium* (183)
Ranunculaceae: *Thalictrum* (146)
(228)**45 THALICMIDINE N-OXIDE**C₂₀H₂₃O₅N 357.1575SOURCES: Berberidaceae: *Berberis* (91)**48 DOMESTICINE**C₁₉H₁₉O₄N 325.1313SOURCES: Fumariaceae: *Corydalis* (96) (98)
(99) (100)**49 LAUROLITSINE**C₁₈H₁₉O₄N 313.1313SOURCES: Lauraceae: *Litsea* (29) (121) (132),
Machilus (81)
Monimiaceae: *Monimia* (56)
(123)**50 BOLDINE**C₁₉H₂₁O₄N 327.1469SOURCES: Annonaceae: *Desmos* (119), *Polyalthia*
(88)
Lauraceae: *Laurus* (152), *Litsea*
(121), *Machilus* (81)
Monimiaceae: *Monimia* (56) (123)**51 NORPREDICENTRINE**C₁₉H₂₁O₄N 327.1469SOURCES: Annonaceae: *Guatteria* (75)**52 PREDICENTRINE**C₂₀H₂₃O₄N 341.1626SOURCES: Fumariaceae: *Corydalis* (98) (100)
(197)
Lauraceae: *Litsea* (29), *Ocotea* (219)**53 ISODOMESTICINE**C₁₉H₁₉O₄N 325.1313SOURCES: Lauraceae: *Laurus* (152)**54 LAUROTETANINE**C₁₉H₂₁O₄N 327.1469SOURCES: Annonaceae: *Desmos* (119), *Guatteria*
(75), *Xylophia* (70) (122)
Hernandiaceae: *Hernandia* (22)
(114) (115) (116) (232)
Lauraceae: *Cryptocarya* (15), *Litsea*
(121), *Machilus* (81)
Monimiaceae: *Laurelia* (217),
Monimia (56) (123)

55 N-METHYLLAUROTETANINE $C_{20}H_{23}O_4N$ 341.1626

SOURCES: Annonaceae: *Desmos* (119), *Guatteria* (75), *Xylopia* (122)
 Hernandiaceae: *Hernandia* (114) (115) (232)
 Lauraceae: *Cryptocarya* (15), *Litsea* (29) (121)
 Menispermaceae: *Stephania* (35)
 Monimiaceae: *Monimia* (56) (123)
 Papaveraceae: *Glaucium* (182) (183), *Papaver* (178)
 Ranunculaceae: *Thalictrum* (229)

56 XANTHOPLANINE $C_{21}H_{26}O_4N^+ X^-$ 356.1861

SOURCES: Ranunculaceae: *Thalictrum* (167)

57 COCSARMINE $C_{21}H_{26}O_4N^+ X^-$ 356.1861

SOURCES: Rutaceae: *Zanthoxylum* (202)

58 NORGLAUCINE $C_{20}H_{23}O_4N$ 341.1326

SOURCES: Menispermaceae: *Chasmanthera* (148)
 Monimiaceae: *Monimia* (56) (123)

59 GLAUCINE $C_{21}H_{25}O_4N$ 355.1782

SOURCES: Annonaceae: *Annona* (165), *Uvaria* (118)
 Berberidaceae: *Mahonia* (204)
 Euphorbiaceae: *Croton* (138)
 Fumariaceae: *Corydalis* (100) (197) (238)
 Lauraceae: *Litsea* (29) (166)
 Menispermaceae: *Chasmanthera* (148)
 Papaveraceae: *Glaucium* (42) (58) (60) (182) (183) (186), *Papaver* (73) (178)
 Ranunculaceae: *Aconitum* (209), *Thalictrum* (46) (47) (146) (211)

60 N-METHYLGLAUCINE $C_{22}H_{28}O_4N^+ X^-$ 370.2018

SOURCES: Menispermaceae: *Stephania* (50)

61 NORNANTENINE $C_{19}H_{19}O_4N$ 325.1313

SOURCES: Annonaceae: *Xylopia* (70) (122)
 Berberidaceae: *Nandina* (105)
 Hernandiaceae: *Hernandia* (22) (114) (115) (116) (232)
 Monimiaceae: *Laurelia* (212) (216) (217)

62 NANTENINE $C_{20}H_{21}O_4N$ 339.1469

SOURCES: Berberidaceae: *Nandina* (105)
 Fumariaceae: *Corydalis* (98) (99)

(100) (197)

Papaveraceae: *Papaver* (159)

64 ACTINODAPHNINE $C_{18}H_{17}O_4N$ 311.1156

SOURCES: Annonaceae: *Guatteria* (75)
 Hernandiaceae: *Hernandia* (115)
 Lauraceae: *Laurus* (152), *Litsea* (29) (121)

65 N-METHYLACTINODAPHNINE $C_{19}H_{19}O_4N$ 325.1313

SOURCES: Hernandiaceae: *Hernandia* (115)
 Lauraceae: *Laurus* (152), *Litsea* (121) (132)

67 DICENTRINE $C_{20}H_{21}O_4N$ 339.1469

SOURCES: Lauraceae: *Ocotea* (219)
 Menispermaceae: *Stephania* (35)
 Papaveraceae: *Glaucium* (182) (183)

68 CRYPTODORINE $C_{18}H_{15}O_4N$ 309.1000

SOURCES: Lauraceae: *Laurus* (152)

69 NEOLITSINE $C_{19}H_{17}O_4N$ 323.1156

SOURCES: Hernandiaceae: *Hernandia* (115)
 Lauraceae: *Laurus* (152)
 Papaveraceae: *Glaucium* (182)

70 ISOCORYTUBERINE $C_{19}H_{21}O_4N$ 327.1469

SOURCES: Papaveraceae: *Glaucium* (93)

71 CORYTUBERINE $C_{19}H_{21}O_4N$ 327.1469

SOURCES: Fumariaceae: *Corydalis* (197)
 Lauraceae: *Mezilaurus* (187)
 Menispermaceae: *Stephania* (35)
 Papaveraceae: *Papaver* (195) (198) (199) (200)

72 MAGNOFLORINE $C_{20}H_{24}O_4N^+ X^-$ 342.1704

SOURCES: Annonaceae: *Monodora* (201)
 Aristolochiaceae: *Aristolochia* (53) (163) (210)
 Berberidaceae: *Berberis* (103), *Mahonia* (104) (204)
 Euphorbiaceae: *Croton* (23)
 Fumariaceae: *Corydalis* (197)
 Magnoliaceae: *Magnolia* (164)
 Menispermaceae: *Anamirta* (222), *Chasmanthera* (148), *Cocculus* (180), *Cosciniium* (221), *Cyclea* (102) (223), *Fibraurea* (190), *Heptacyclum* (45), *Kolobopetalum* (49), *Pachygone* (12) (169), *Pyc-*

narrhena (191) (223), *Rhigiocarya* (50), *Stephania* (140) (168) (189), *Tiliacora* (181), *Tinospora* (150)

Papaveraceae: *Meconopsis* (68), *Papaver* (196) (197) (200) (224)

Ranunculaceae: *Aconitum* (16), *Caltha* (203), *Coptis* (149), *Delphinium* (6), *Thalictrum* (9) (10) (11) (34) (83) (134) (146) (167) (211) (228)

Rutaceae: *Zanthoxylum* (19) (61) (202) (208) (218)

73 NORCORYDINE

$C_{19}H_{21}O_4N$ 327.1469

SOURCES: Annonaceae: *Xylopi*a (70)
Monimiaceae: *Laurelia* (215) (216)
Papaveraceae: *Glaucium* (93)

74 CORYDINE

$C_{20}H_{23}O_4N$ 341.1626

SOURCES: Annonaceae: *Annona* (165), *Guateria* (41), *Xylopi*a (70)

Berberidaceae: *Mahonia* (173) (204)

Fumariaceae: *Corydalis* (96) (98) (99) (100) (197), *Dicentra* (147)

Lauraceae: *Litsea* (29)

Papaveraceae: *Dicranostigma* (32), *Glaucium* (58) (59) (60) (93) (157) (182) (183), *Papaver* (157) (198) (199) (224)

Ranunculaceae: *Aconitum* (16) (162) (237)

75 N-METHYLCORYDINE

$C_{21}H_{26}O_4N^+ X^-$ 356.1861

SOURCES: Menispermaceae: *Kolobopetalum* (49), *Stephania* (50)

76 HERNOVINE

$C_{18}H_{19}O_4N$ 313.1313

SOURCES: Hernandiaceae: *Hernandia* (114)

77 N-METHYLHERNOVINE

$C_{19}H_{21}O_4N$ 327.1469

SOURCES: Hernandiaceae: *Hernandia* (114)

79 N-METHYLLINDCARPINE*

$C_{19}H_{21}O_4N$ 327.1469

SOURCES: Papaveraceae: *Glaucium* (92) (93) (182) (183)

*N-Methylindcarpine has been erroneously reported instead of magnoflorine in *Caltha leptosepala* (203)

80 N,N-DIMETHYLLINDCARPINE

$C_{20}H_{24}O_4N^+ X^-$ 342.1704

SOURCES: Menispermaceae: *Coscinium* (192),

Fibraurea (221), *Pycnarrhena* (221)

82 N,O-DIMETHYLHERNOVINE

$C_{20}H_{23}O_4N$ 341.1626

SOURCES: Lauraceae: *Litsea* (166)

84 NORISOCORYDINE

$C_{19}H_{21}O_4N$ 327.1469

SOURCES: Annonaceae: *Xylopi*a (70)
Hernandiaceae: *Hernandia* (22) (114) (115) (116)

Lauraceae: *Cryptocarya* (15)

Papaveraceae: *Glaucium* (93)

85 ISOCORYDINE

$C_{20}H_{23}O_4N$ 341.1626

SOURCES: Annonaceae: *Annona* (165)
Berberidaceae: *Mahonia* (173) (204), *Nandina* (105)

Fumariaceae: *Corydalis* (98) (95a,b)

Hernandiaceae: *Hernandia* (22) (114) (116)

Lauraceae: *Debaasia* (133), *Litsea* (29)

Menispermaceae: *Stephania* (35) (77) (107) (144) (145)

Monimiaceae: *Doryphora* (14)

Papaveraceae: *Dicranostigma* (32) (33), *Glaucium* (58) (59) (60) (93) (157) (182) (183), *Papaver* (52) (157) (159) (198) (199) (224)

86 MENISPERINE

$C_{21}H_{26}O_4N^+ X^-$ 356.1861

SOURCES: Canellaceae: *Cinnamosma* (220)
Magnoliaceae: *Magnolia* (164)
Menispermaceae: *Cocculus* (180), *Rhigiocarya* (50)

Papaveraceae: *Papaver* (224)

Rutaceae: *Zanthoxylum* (208)

88 O,O-DIMETHYLCORYTUBERINE

$C_{21}H_{25}O_4N$ 355.1782

SOURCES: Menispermaceae: *Chasmanthera* (148), *Cocculus* (180)

89 NANDIGERINE

$C_{18}H_{17}O_4N$ 311.1156

SOURCES: Hernandiaceae: *Hernandia* (22) (114) (116)

Lauraceae: *Laurus* (152), *Litsea* (121)

90 N-METHYLHERNANGERINE

$C_{19}H_{21}O_4N$ 325.1313

SOURCES: Hernandiaceae: *Hernandia* (114)
Lauraceae: *Litsea* (121)

- 91 LAUNOBINE**
 $C_{18}H_{17}O_4N$ 311.1156
 SOURCES: Lauraceae: *Laurus* (152)
- 92 BULBOCAPNINE**
 $C_{19}H_{19}O_4N$ 325.1313
 SOURCES: Fumariaceae: *Corydalis* (95a,b) (96) (98) (99) (100) (137) (197)
 Papaveraceae: *Glaucium* (182) (183)
- 94 OVIGERINE**
 $C_{18}H_{15}O_4N$ 309.1000
 SOURCES: Hernandiaceae: *Hernandia* (22) (114) (116)
- 109 OCOTEINE**
 $C_{21}H_{23}O_5N$ 369.1575
 SOURCES: Lauraceae: *Ocotea* (219)
 Ranunculaceae: *Thalictrum* (46)
- 112 OCOPODINE**
 $C_{21}H_{23}O_5N$ 369.1575
 SOURCES: Lauraceae: *Ocotea* (219)
- 183 N-ACETILANONAININE**
 $C_{19}H_{17}O_3N$ 307.1207
 SOURCES: Rutaceae: *Zanthoxylum* (61) (171)
- 184 ISOPILINE**
 $C_{18}H_{19}O_3N$ 297.1364
 SOURCES: Annonaceae: *Gutteria* (125),
Polyalthia (236)
- 188 O-METHYLISOPILINE**
 $C_{19}H_{21}O_3N$ 311.1520
 SOURCES: Annonaceae: *Gutteria* (75) (125),
Polyalthia (236)
- 189 3-METHOXYNUCIFERINE**
 $C_{20}H_{23}O_3N$ 325.1677
- SOURCES: Annonaceae: *Polyalthia* (236)**
 Synthesis (4)
- 191 NORSTEPHALAGINE**
 $C_{18}H_{17}O_3N$ 295.1207
 SOURCES: Annonaceae: *Hexalobus* (4) (5),
Xylopia (70)
- 193 PULCHINE**
 $C_{19}H_{21}O_3N$ 311.1520
 SOURCES: Synthesis (65)
- 196 PUTERINE**
 $C_{18}H_{17}O_3N$ 295.1207
 SOURCES: Annonaceae: *Gutteria* (72)
- 197 BUXIFOLINE**
 $C_{19}H_{19}O_4N$ 325.1313
 SOURCES: Annonaceae: *Duguetia* (175),
Xylopia (70)
- 200 NORISODOMESTICINE**
 $C_{18}H_{17}O_4N$ 311.1156
 SOURCES: Annonaceae: *Xylopia* (70)
 Lauraceae: *Laurus* (152)
- 202 N-METHYLNANTENINE**
 $C_{21}H_{24}O_4N^+ X^-$ 354.1704
 SOURCES: Ranunculaceae: *Thalictrum* (211)
- 204 NORDICENTRINE**
 $C_{19}H_{19}O_4N$ 325.1313
 SOURCES: Annonaceae: *Gutteria* (75)
 Lauraceae: *Litsea* (166)
- 210 LEUCOXINE**
 $C_{20}H_{21}O_3N$ 355.1418
 SOURCES: Lauraceae: *Ocotea* (219)
- 212 LEUCOXYLONINE**
 $C_{22}H_{25}O_6N$ 399.1680
 SOURCES: Lauraceae: *Ocotea* (219)

Oxoaporphines

- 115 LYSICAMINE**
 $C_{18}H_{13}O_3N$ 291.0895
 SOURCES: Annonaceae: *Annona* (18), *Gutteria* (125)
 Menispermaceae: *Abuta* (194),
Chasmanthera (148), *Stephania* (108), *Telitoxicum* (142)
 Synthesis (106)
- 116 LIRIODENINE**
 $C_{17}H_9O_3N$ 275.0582
 SOURCES: Annonaceae: *Annona* (18) (55) (69) (120) (233), *Cleistopholis* (1),
Gutteria (1) (8) (41) (75),
Hexalobus (4), *Mitrella* (51),
Monodora (201), *Polyalthia* (88) (89) (236), *Xylopia* (70) (122)
 Eupomatiaceae: *Eupomatia* (170)
 Menispermaceae: *Chasmanthera* (148), *Pachygone* (40) (169),
Rhigiocarya (50), *Stephania* (107)
 Monimiaceae: *Laurelia* (212) (217), *Siparuna* (39)
 Papaveraceae: *Papaver* (157)
- 118 O-METHYLMOSCHATOLINE**
 $C_{19}H_{15}O_4N$ 321.1000
 SOURCES: Annonaceae: *Annona* (18), *Gutteria* (125), *Polyalthia* (236)
 Menispermaceae: *Abuta* (194)

- 120 LANUGINOSINE**
 $C_{18}H_{11}O_4N$ 305.0687
 SOURCES: Annonaceae: *Annona* (13), *Guatteria* (75), *Xylopia* (70) (122)
 Menispermaceae: *Stephania* (107)
- 122 SUBSESSILINE**
 $C_{19}H_{15}O_5N$ 337.0949
 SOURCES: Annonaceae: *Guatteria* (125)
 Menispermaceae: *Telitoxicum* (142)
- 123 ATHEROLINE**
 $C_{19}H_{15}O_5N$ 337.0949
 SOURCES: Annonaceae: *Guatteria* (75)
 Monimiaceae: *Laurelia* (217), *Monimia* (56) (123)
- 124 OXOGLAUCINE**
 $C_{20}H_{17}O_5N$ 351.1105
 SOURCES: Menispermaceae: *Chasmanthera* (148)
- 125 OXONANTENINE**
 $C_{19}H_{13}O_5N$ 335.0793
 SOURCES: Berberidaceae: *Nandina* (105)
 Fumariaceae: *Corydalis* (99) (100)
 Hernandiaceae: *Hernandia* (232)
 Monimiaceae: *Laurelia* (212) (217), *Siparuna* (39)
- 126 DICENTRINONE**
 $C_{19}H_{13}O_5N$ 335.0793
 SOURCES: Annonaceae: *Guatteria* (75)
- 127 CASSAMERIDINE**
 $C_{18}H_9O_5N$ 319.0480
 SOURCES: Lauraceae: *Litsea* (132)
- 130 THALICMININE**
 $C_{20}H_{15}O_6N$ 365.0898
 SOURCES: Ranunculaceae: *Thalictrum* (44)
- 132 IMENINE**
 $C_{20}H_{17}O_5N$ 351.1105
 SOURCES: Menispermaceae: *Abuta* (194)
- 134 CORUNINE (=GLAUVINE 178)**
 $C_{20}H_{17}O_5N$ 351.1105
 SOURCES: Ranunculaceae: *Thalictrum* (146)
- 137 NANDAZURINE**
 $C_{19}H_{13}O_5N$ 335.0793
 SOURCES: Fumariaceae: *Corydalis* (100)
- 216 OXOSTEPHANINE**
 $C_{18}H_{11}O_4N$ 305.0687
 SOURCES: Annonaceae: *Greenwayodendron* (*Polyalthia*) (67)
 Menispermaceae: *Stephania* (62)
- 218 OXOPUTERINE**
 $C_{18}H_{11}O_4N$ 305.0687
 SOURCES: Monimiaceae: *Laurelia* (215) (216)

C-7 and/or C-4 Substituted Aporphines

- 138 NORUSHINSUNINE**
 $C_{17}H_{15}O_3N$ 281.1051
 SOURCES: Annonaceae: *Desmos* (119), *Polyalthia* (89) (236)
 Eupomatiaceae: *Eupomatia* (170)
 Monimiaceae: *Laurelia* (212)
- 139 USHINSUNINE**
 $C_{18}H_{17}O_3N$ 295.1207
 SOURCES: Annonaceae: *Polyalthia* (89)
 Menispermaceae: *Stephania* (63)
- 143 OLIVERINE**
 $C_{20}H_{21}O_4N$ 339.1469
 SOURCES: Annonaceae: *Greenwayodendron* (*Polyalthia*) (67)
- 146 STEPORPHINE**
 $C_{18}H_{17}O_3N$ 295.1207
 SOURCES: Synthesis (111a)
- 148 CATALINE**
 $C_{21}H_{25}O_5N$ 371.1731
 SOURCES: Synthesis (66)
- 228 POLYSUAVINE**
 $C_{19}H_{19}O_4N$ 325.1313
 SOURCES: Annonaceae: *Greenwayodendron* (*Polyalthia*) (67)
- 230 OLIVERIDINE N-OXIDE**
 $C_{19}H_{19}O_5N$ 341.1262
 SOURCES: Annonaceae: *Greenwayodendron* (*Polyalthia*) (67)
- 232 OLIVERINE N-OXIDE**
 $C_{20}H_{21}O_5N$ 355.1418
 SOURCES: Annonaceae: *Greenwayodendron* (*Polyalthia*) (67)
- 237 4-HYDROXYNORNANTENINE**
 $C_{19}H_{19}O_5N$ 341.1262
 SOURCES: Monimiaceae: *Laurelia* (212) (213) (214)

Dehydroaporphines

151 DEHYDROROEMERINEC₁₈H₁₅O₂N 277.1102SOURCES: Menispermaceae: *Stephania* (108)
(144) (145)Papaveraceae: *Papaver* (73) (157)
(178)**154** DEHYDROGLAUCINEC₂₁H₂₃O₄N 353.1626SOURCES: Papaveraceae: *Papaver* (73)**156** DEHYDRONANTENINEC₂₀H₁₉O₄N 337.1313SOURCES: Berberidaceae: *Nandina* (105)
Fumariaceae: *Corydalis* (98) (99)
(100) (197)**157** DEHYDRODICENTRINEC₂₀H₁₉O₄N 337.1313SOURCES: Menispermaceae: *Stephania* (35)
Papaveraceae: *Glaucium* (182)
(183)

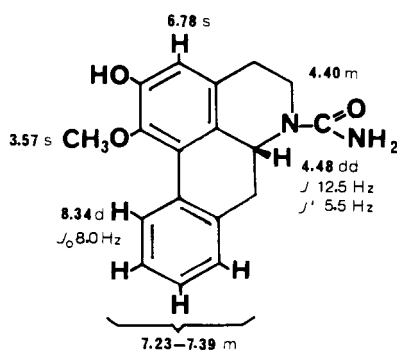
Phenanthrenes

162 ARGENTININEC₁₉H₂₁O₂N 295.1571SOURCES: Annonaceae: *Annona* (120) (233),
Guatteria (72)**163** ATHEROSPERMININEC₂₀H₂₃O₂N 309.1728SOURCES: Annonaceae: *Annona* (120) (128)
(233), *Guatteria* (72)**169** THALICTHUBERINEC₂₁H₂₃O₄N 353.1626SOURCES: Ranunculaceae: *Thalictrum* (227)**172** THALIGLUCINONEC₂₁H₁₉O₅N 365.1262SOURCES: Ranunculaceae: *Thalictrum* (10)**174** THALFLAVIDINEC₂₂H₂₁O₆N 395.1367SOURCES: Ranunculaceae: *Thalictrum* (229)

Miscellaneous

114 THALPHENINEC₂₁H₂₂O₂N⁺ X⁻ 352.1548SOURCES: Ranunculaceae: *Thalictrum* (230)**213** N-DEMETHYLTHALPHENINEC₂₀H₁₉O₄N 337.1313SOURCES: Ranunculaceae: *Thalictrum* (226)**177** CEPHARADIONE AC₁₈H₁₁O₄N 305.0687SOURCES: Aristolochiaceae: *Aristolochia* (3)
Menispermaceae: *Stephania* (108)**247** FLORIPAVIDINEC₂₄H₂₉O₆N 427.1993SOURCES: Papaveraceae: *Papaver* (157) (177)

TABLE 4. Completely New Aporphinoid Alkaloids*

Aporphines *sensu-stricto***249** N-CARBAMOYLASIMILOBINEC₁₈H₁₈O₃N₂ 310.1316

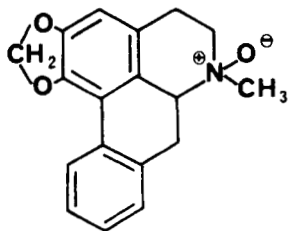
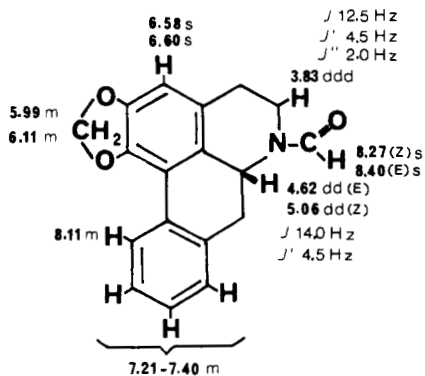
MP: 218° (4)

[α]_D: -273° (c=0.06, MeOH) (4)

UV: 273 (4.08), 305 (3.43) (4)

IR: (CHCl₃) 3530, 3430, 1658, 1585 (4)¹H-NMR: (250 MHz, CDCl₃/D₂O) (4)MS: 310 (M⁺, 34), 266 (10), 251 (13), 250 (22), 239
(18), 238 (100), 237 (20), 224 (16), 223
(86), 195 (17), 194 (12), 178 (17), 165 (16)
(4)SOURCES: Annonaceae: *Hexalobus* (4)

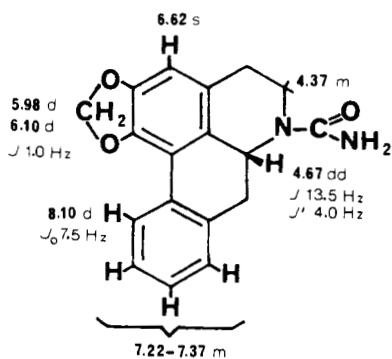
*Not previously reported in "Aporphine Alkaloids" or "Aporphine Alkaloids II."

**250 ROEMERINE N-OXIDE**C₁₈H₁₇O₃N 295.1207MS: 295 (M⁺, 7), 279 (56), 278 (100), 264 (32), 236 (85) (157)SOURCES: Papaveraceae: *Papaver* (157)**251 N-FORMYLANONAÏNE**C₁₈H₁₅O₃N 293.1051

MP: 249-250° (4)

[α]_D: -319° (c=0.1, CHCl₃) (4)

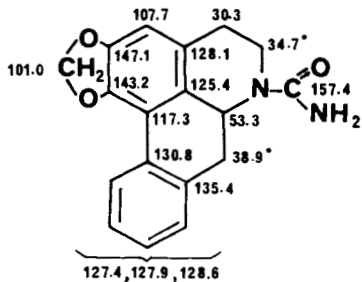
UV: 233sh, 274 (4.23), 292sh, 315 (3.73) (4)

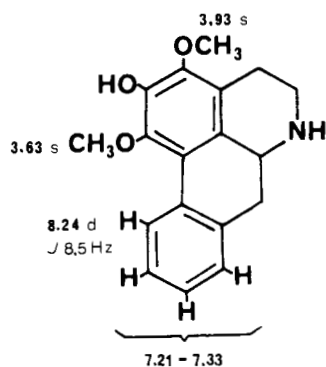
IR: (CHCl₃) 1663 (4)¹H-NMR: (250 MHz) (4)MS: 293 (M⁺, 43), 248 (8), 236 (19), 235 (100), 178 (7) (4)SOURCES: Annonaceae: *Hexalobus* (4)**252 N-CARBAMOYLANONAÏNE**C₁₈H₁₆O₃N₂ 308.1159

MP: 172° (4)

[α]_D: -312° (c=0.2, MeOH) (4)

UV: 232 (4.22), 275 (4.15), 313 (3.53) (4)

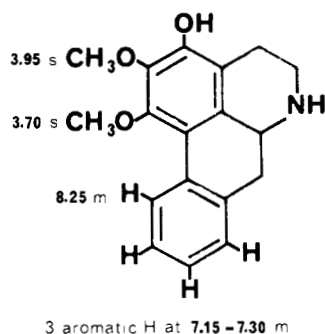
IR: (CHCl₃) 3530, 3430, 1660, 1585, 1050, 940 (4)¹H-NMR: (250 MHz) (4); also in CDCl₃/D₂O (4)¹³C-NMR: (4)MS: 308 (M⁺, 17), 265 (11), 264 (25), 237 (20), 236 (100), 235 (24), 206 (17), 179 (12), 178 (22), 176 (15) (4)SOURCES: Annonaceae: *Hexalobus* (4)

**253 NORLIRIDININE**C₁₈H₁₉O₃N 297.1364

UV: 230sh (4.05), 274 (3.95), 282sh (3.89), 304sh (3.38) (236)

¹H-NMR: (200 MHz) (236)MS: 297 (M⁺, 54), 296 (100), 282 (17), 280 (21), 266 (19), 250 (13), 236 (7), 165 (9), 152 (4), 149 (7) (236)

CD: 0 (318), +3.9 (273), 0 (254), -38 (238), 0 (224), +16 (215) (236)

SOURCES: Annonaceae: *Polyalthia* (236)**254 3-HYDROXYNORNUCIFERINE**C₁₈H₁₉O₃N 297.1364

MP: 194-195° (5)

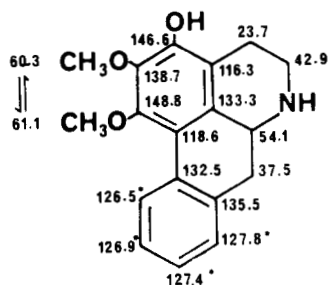
[α]_D: -68° (c=0.2, EtOH) (5)

UV: 219 (4.39), 240sh (3.90), 280 (4.14), 292sh (4.04) (236)

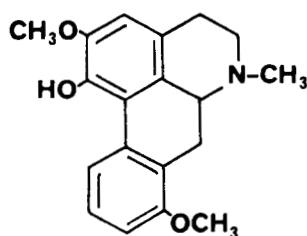
IR: (KBr) 3315, 2940, 2840, 1588, 1568, 1468, 1450, 1438, 1420, 1360, 1352, 1320, 1310, 1245, 1200, 1115, 1085, 1050, 1033, 982, 850, 820, 800, 790, 770, 750, 730, 695, 645 (236)

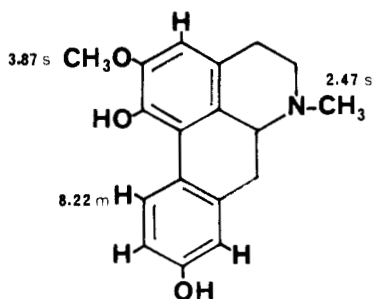
¹H-NMR: (236)¹³C-NMR: (4)MS: 298 (17), 297 (M⁺, 67), 296 (100), 282 (30), 280 (33), 268 (15), 266 (25), 250 (17), 237 (25), 222 (10), 210 (12), 194 (12), 180 (22), 165 (45) (236)

CD: 0 (315), +7.5 (279), 0 (252), -48 (240), 0 (227) +29 (219) (236)

SOURCES: Annonaceae: *Guatteria* (1), *Hexalobus* (4) (5), *Polyalthia* (236)**255 PRESTEPHANINE**C₁₉H₂₁O₃N 311.1520

SOURCES: cited (203a)





3 aromatic H at 6.50 - 6.93

256 1,9-DIHYDROXY-2-METHOXYAPORPHINE

$C_{18}H_{19}O_3N$ 297.1364

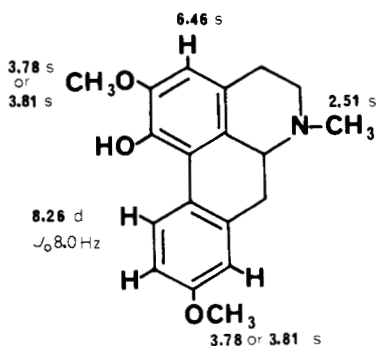
MP: 218-220° (57)

UV: 222 (4.25), 278 (4.22), 302 (3.97), 314 (3.77) (57)

1H -NMR: (DMSO) (57)

MS: 297 (M^+), 296, 282, 280, 266, 254, 239, 236, 222 (57)

SOURCES: Synthesis (57) (151)



2 aromatic H at 6.70 - 6.90 m

257 1-HYDROXY-2,9-DIMETHOXYAPORPHINE*

$C_{19}H_{21}O_3N$ 311.1520

MP: 155-156° (65)

UV: 235 (3.99), 270 (4.04), 283sh (4.02) (151)

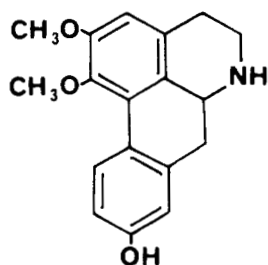
IR: (CHCl₃) 3505 (65)

1H -NMR: (100 MHz) (65)

MS: 311 (M^+), 310 (151)

SOURCES: Synthesis (65) (151)

*This base was originally assigned (erroneously) to lirinine (187).

**258** 9-HYDROXY-1,2-

DIMETHOXYNORAPORPHINE*

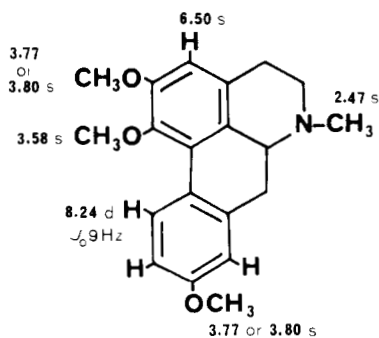
$C_{18}H_{19}O_3N$ 297.1364

UV: 281, 292-305sh (225)

MS: 297 (M^+), 268 (225)

SOURCES: Annonaceae: *Monanbotaxis* (225)

*This assignment is doubtful since the *O*-methyl-derivative is identical to *O*-methyllirinine. Therefore, this alkaloid should be 3-hydroxy-1,2-dimethoxynoraporphine (3-hydroxynornuciferine (254)).



2 aromatic H at 6.71 - 6.86 m

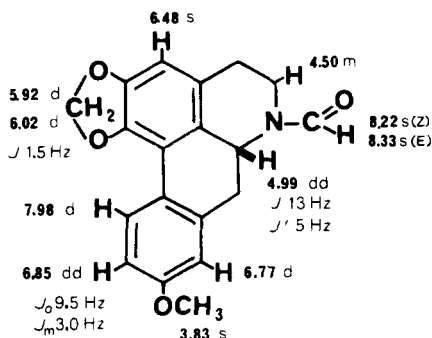
259 1,2,9-TRIMETHOXYAPORPHINE

$C_{20}H_{23}O_3N$ 325.1677

MP: 212-213° (methiodide) (65)

1H -NMR: (65)

SOURCES: Synthesis (65)

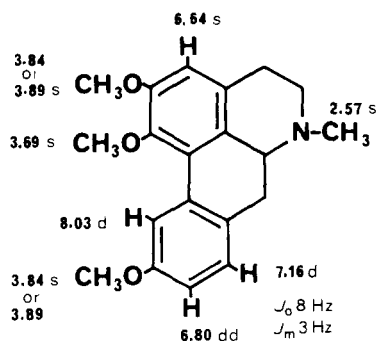
**260 N-FORMYLXYLOPINE** $\text{C}_{19}\text{H}_{17}\text{O}_4\text{N}$ 323.1156

MP: 173° (175)

[α]_D: -248° (c=1.7, CHCl_3) (175)

UV: 220 (4.39), 240sh (4.07), 284 (4.19) (175)

IR: (KBr) 1665, 1645, 1635, 1615 (175)

 $^1\text{H-NMR}$: (175)MS: 323 (M^+ , 41), 295 (6), 278 (6), 265 (100), 222 (5), 165 (14), 152 (6) (175)SOURCES: Annonaceae: *Duguetia* (175)**261 N,O,O-TRIMETHYLSPARSIFLORINE**

(1,2,10-Trimethoxyaporphine)

 $\text{C}_{20}\text{H}_{23}\text{O}_3\text{N}$ 325.1677

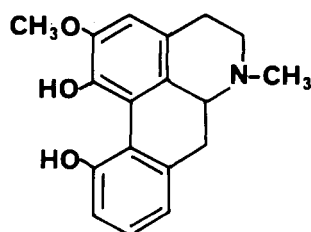
MP: 124-126° (11)

UV: 216 (4.56), 274 (4.01), 298 (4.13) (11)

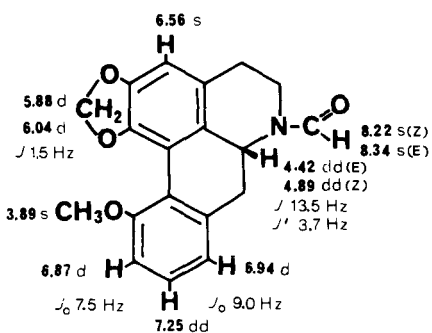
IR: 2900, 2800, 1600, 1560, 1490, 1440, 1420, 1360, 1320, 1315, 1310, 1210 (11)

 $^1\text{H-NMR}$: (100 MHz) (65)MS: 325 (M^+), 324, 310, 294, 282 (11)SOURCES: Ranunculaceae; *Thalictrum* (11)

Synthesis (65)

**262 ISOTHEBAIDINE** $\text{C}_{18}\text{H}_{19}\text{O}_3\text{N}$ 297.1364

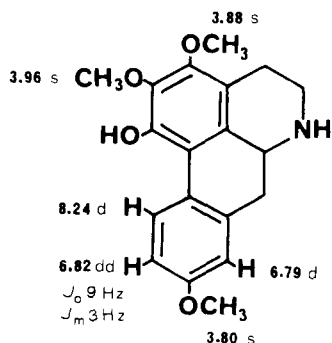
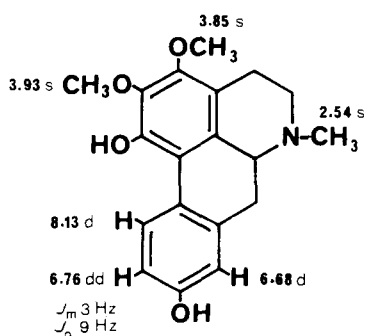
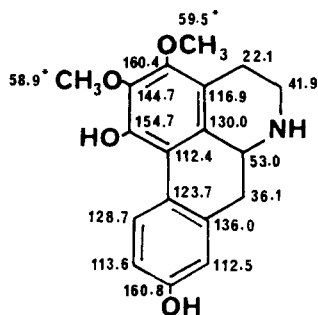
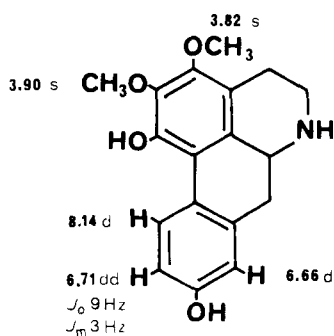
MP: 236-237° (dec) (84)

[α]_D: +321° (c=0.5, MeOH) (84)MS: 297 (M^+), 296, 282, 280 (50), 266 (30), 254, 236 (84)SOURCES: Papaveraceae: *Papaver* (84)**263 N-FORMYLPUTERINE** $\text{C}_{19}\text{H}_{17}\text{O}_4\text{N}$ 323.1156[α]_D: -467° (c=0.42, CHCl_3) (175)

UV: 218 (4.49), 266 (4.07), 274 (4.09), 301 (3.93) (175)

IR: (KBr) 1670 (175)

 $^1\text{H-NMR}$: (250 MHz) (175) $^{13}\text{C-NMR}$: Z form data (175)*MS: 323 (M^+ , 55), 266 (20), 265 (100), 165 (6), 152 (3) (175)SOURCES: Annonaceae: *Duguetia* (175)* $^{13}\text{C-NMR}$ data for E form are also given (175)

**264 OUREGUATTIDINE**C₁₈H₁₉O₄N 313.1313

MP: 140° (125)

[α]_D: -13° (c=0.16, EtOH) (125)

UV: 222 (4.34), 282 (4.25), 300sh (4.08), 316sh (4.01) (125)

IR: (KBr) 3510-3410, 2940, 2830, 1605, 1585, 1480, 1440, 1415, 1360, 1270, 1215, 1150, 1105, 1080, 1040, 1000, 960, 925, 890 (125)

¹H-NMR: (125); also in C₆D₆, 90 MHz (125)¹³C-NMR: CDCl₃/CD₃OD (125)MS: 313 (M⁺, 97), 312 (100), 298 (29), 296 (25), 284 (23), 283 (17), 269 (13), 255 (4), 156.5 (M⁺, 2.5) (125)SOURCES: Annonaceae: *Guatteria* (125)**265 N-METHYLOUREGUATTIDINE**C₁₉H₂₁O₄N 327.1469[α]_D: -88° (c=0.07, CHCl₃) (125)

UV: 213 (4.34), 276 (4.09), 307 (3.88) (125)

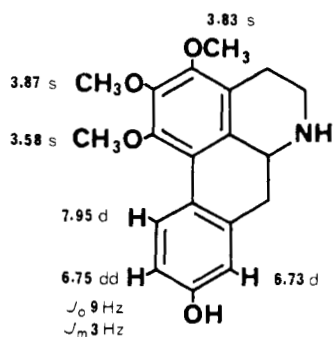
IR: (KBr) 3460-3290, 2895, 1610, 1500, 1460, 1420, 1370, 1340, 1290, 1230, 1190, 1150, 1105, 1075, 1050, 1000, 965, 920, 850, 815 (125)

¹H-NMR: (125); also in C₆D₆ (125)MS: 327 (M⁺, 100), 326 (63), 312 (32), 296 (19), 284 (27), 269 (13), 253 (5) (125)

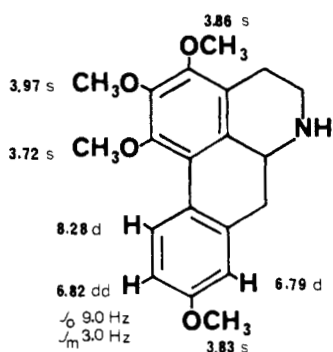
SOURCES: Synthesis (125)

266 9-O-METHYLOUREGUATTIDINEC₁₉H₂₁O₄N 327.1469¹H-NMR: (250 MHz) (125)MS: 327 (M⁺, 100), 326 (79), 312 (32), 310 (24), 298 (20), 297 (31), 283 (12), 266 (10) (125)

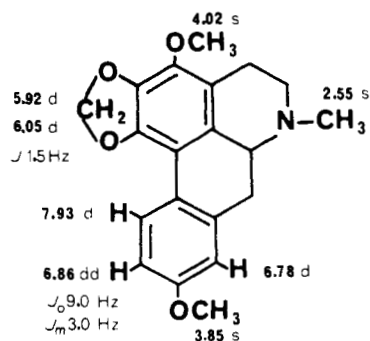
SOURCES: Synthesis (125)

**267 1-O-METHYLOUREGUATTIDINE** $C_{19}H_{21}O_4N$ 327.1469 1H -NMR: (125); also in C_6D_6 , 90 MHz (125)MS: 327 (M^+ , 89), 326 (100), 312 (27), 298 (14), 296 (38) (125)

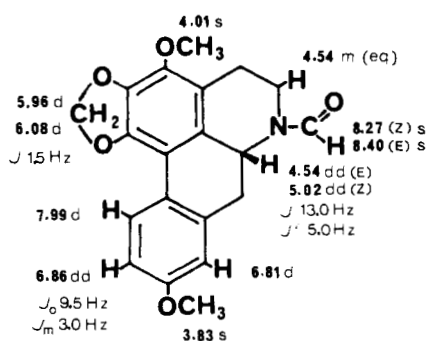
SOURCES: Synthesis (125)

**268 0,0-DIMETHYLOUREGUATTIDINE** $C_{20}H_{23}O_4N$ 341.1626 1H -NMR: (250 MHz) (125)MS: 341 (M^+ , 72), 340 (83), 326 (100), 312 (72), 297 (66), 283 (36), 267 (61) (125)

SOURCES: Synthesis (125)

**269 N-METHYLBUXIFOLINE** $C_{20}H_{21}O_4N$ 339.1469

UV: 217 (4.24), 247 (4.11), 272 (4.25) (175)

 1H -NMR: (175)SOURCES: Annonaceae: *Duguetia* (175)**270 N-FORMYLBUXIFOLINE** $C_{20}H_{19}O_5N$ 353.1262

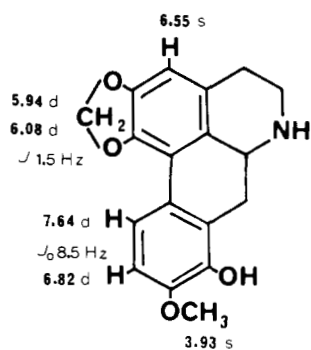
MP: 198° (175)

[α]_D: -181° (c=0.11, $CHCl_3$) (175)

UV: 222 (4.43), 246 (4.22), 288 (4.30) (175)

IR: (KBr) 1663, 1650, 1635, 1615 (175)

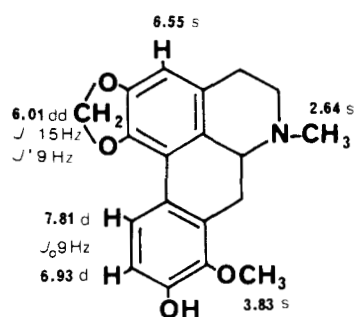
 1H -NMR: (175)MS: 353 (M^+ , 22), 322 (9), 321 (19), 296 (20), 295 (100), 280 (10), 165 (5), 152 (7) (175)SOURCES: Annonaceae: *Duguetia* (175)

**271 (-)-NORANNURADHAPURINE**C₁₈H₁₇O₄N 311.1156

UV: 218sh (4.27), 281 (3.87), 298sh (3.69), 317sh (3.46) (236)

¹H-NMR: (236)MS: 311 (M⁺, 44), 310 (100), 309 (28), 294 (18), 291 (17), 282 (19), 281 (30), 278 (27), 267 (18), 266 (44), 251 (12), 250 (13), 238 (12), 208 (16), 152 (14) (236)

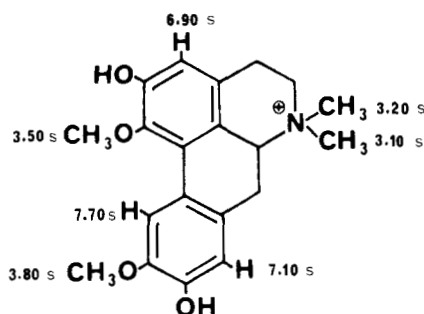
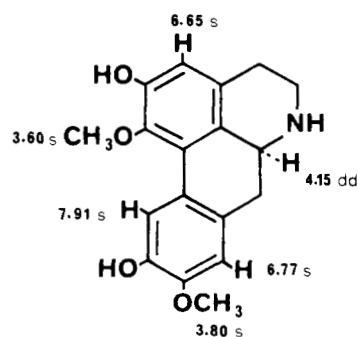
CD: 0 (320), +12 (275), 0 (255), -54 (240), 0 (227), +31 (216) (236)

SOURCES: Annonaceae: *Polyalthia* (236)**272 STESAKINE**C₁₉H₁₉O₄N 325.1313

MP: 188-190° (107)

[α]_D: -79° (CHCl₃) (110)

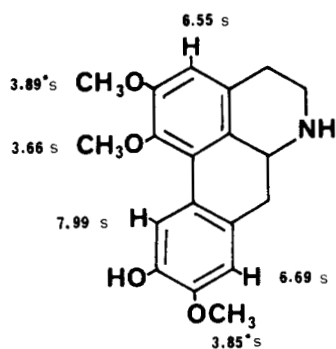
UV: 218 (4.47), 240sh (4.10), 281 (4.23), 320sh (3.69) (110)

IR: (CHCl₃) 3550 (110)¹H-NMR: (110)MS: 325 (M⁺, 18), 324 (19), 323 (8), 308 (5), 282 (7), 149 (5) (110)SOURCES: Menispermaceae: *Stephania* (107) (110)**273 N-METHYLBOLDINE**C₂₀H₂₄O₄N⁺ X⁻ 342.1704MP: 252-255° (dec) (Cl⁻) (180)UV: 220, 280, 305 (Cl⁻) (180)IR: 2850, 2520, 1603, 1560, 1455, 1403, 1238, 870 (Cl⁻) (180)¹H-NMR: (D₂O) (180)SOURCES: Menispermaceae: *Cocculus* (180)**274 LAETANINE**C₁₈H₁₉O₄N 313.1313[α]_D: +105° (c=0.4, MeOH) (17)

UV: 284 (4.07), 304 (4.09) (17)

IR: (KBr) 3500-3300 (17)

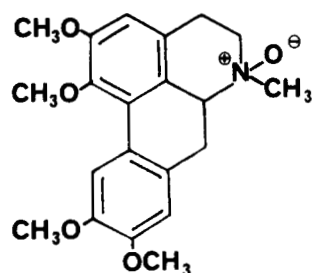
¹H-NMR: (270 MHz, DMSO) (17)MS: 313 (M⁺, 92), 312 (100), 298, 284, 282, 269, 253 (17)SOURCES: Lauraceae: *Litsea* (17)

**275 NORLIRIOFERINE**C₁₉H₂₁O₄N 327.1469

MP: 112-114° (28)

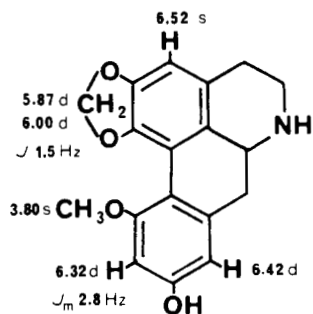
UV: 220 (4.45), 237sh (3.95), 280 (4.02), 305 (3.98),
316sh (3.91) (28)¹H-NMR: (28)MS: 327 (M⁺, 76), 326 (100) (28)

SOURCES: Synthesis (28)

**276 GLAUCINE N-OXIDE**C₂₁H₂₅O₅N 371.1731

MP: 102-103° (37)

SOURCES: Synthesis (37)

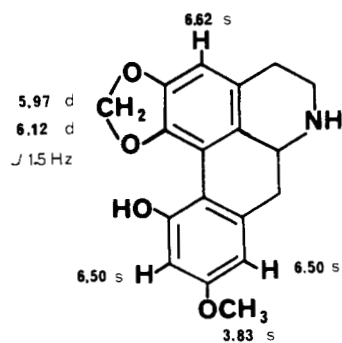
**277 ISOCALYCININE**C₁₈H₁₇O₄N 311.1156

MP: 219° (175)

[α]_D: -147° (c=0.53, pyridine) (175)

UV: 218 (4.42), 282 (4.26), 302 (4.14) (175)

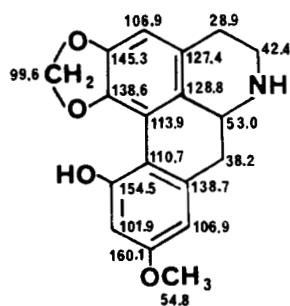
IR: (KBr) 3420 (175)

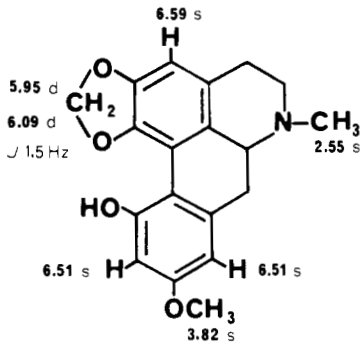
¹H-NMR: (175); also in CD₃OD and C₅D₅N (175)MS: 311 (M⁺, 72), 310 (100), 309 (38), 282 (22), 281
(18), 280 (20), 266 (14), 231 (12) (175)SOURCES: Annonaceae: *Guatteria* (72)**278 CALYCININE**C₁₈H₁₇O₄N 311.1156

MP: 156° (175)

[α]_D: -145° (c=0.5, CHCl₃) (175)UV: 222 (4.43), 268sh (4.12), 278 (4.23), 299 (4.08)
(175)

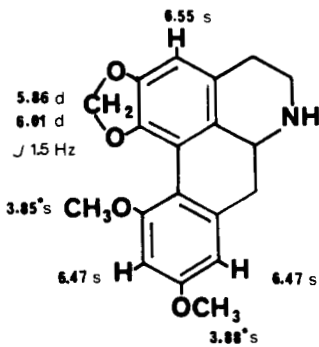
IR: (KBr) 3370 (175)

¹H-NMR: (175); also in C₅D₅N (175)¹³C-NMR: (175)MS: 311 (M⁺, 68), 310 (100), 294 (6), 282 (17), 281 (8),
252 (7), 152 (6) (175)SOURCES: Annonaceae: *Duguetia* (175) (176)

**279** N-METHYLCALYCYNINEC₁₉H₁₉O₄N 325.1313

UV: 223 (4.49), 270sh (4.19), 278 (4.28), 301 (4.13) (175)

IR: (KBr) 3360 (175)

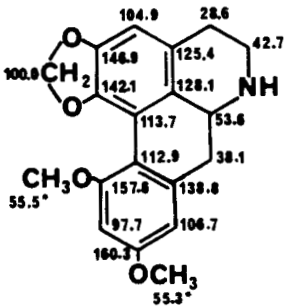
¹H-NMR: (175); also in C₅D₅N (175)MS: 325 (M⁺, 87), 324 (100), 310 (33), 308 (10), 295 (25), 282 (42), 281 (14), 252 (11), 224 (12), 152 (6), 134 (13) (175)SOURCES: Annonaceae: *Duguetia* (175)**280** DISCOGUATTINE

(O-Methylcalycynine)

C₁₉H₁₉O₄N 325.1313

UV: 218 (4.62), 279 (4.39), 296 (4.30) (175)

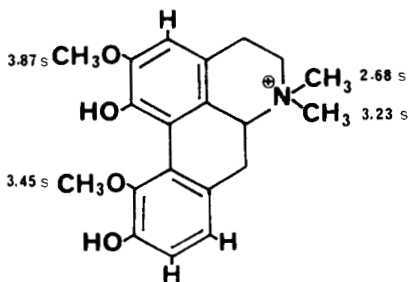
IR: (KBr) 3300 (175)

¹H-NMR: (175); also in C₅D₅N (175)¹³C-NMR: (71)MS: 325 (M⁺, 62), 324 (100), 323 (86), 321 (40), 296 (15), 295 (15) (175)SOURCES: Annonaceae: *Guatteria* (71) (72)
Synthesis (175)**281** N-METHYLISOCORYTUBERINEC₂₀H₂₄O₄N⁺ X⁻ 342.1704

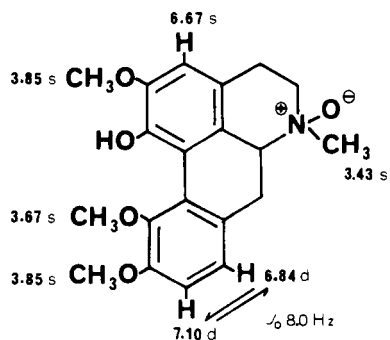
UV: 227, 267, 273, 307 (205)

¹H-NMR: (D₂O) (205); also in CD₃OD and in DMSO (205)¹³C-NMR: CD₃OD (205)MS: 342 (M⁺), 341 (205)

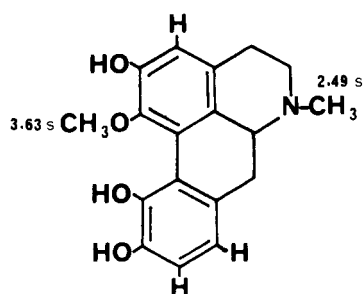
SOURCES: Synthesis (205)



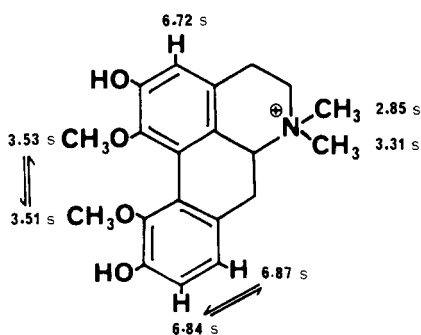
3 aromatic H at 6.60 (2H), 6.83 (1H)

**282 CORYDINE N-OXIDE**C₂₀H₂₃O₅N 357.1575

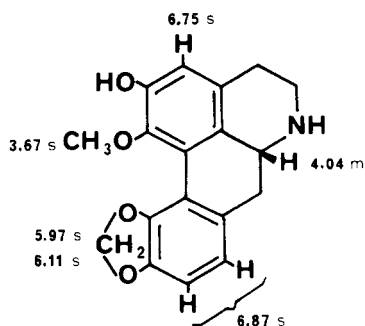
UV: 225 (4.43), 270 (3.89), 313 (3.70) (93)

¹H-NMR: (100 MHz) (93)MS: 357 (M⁺), 341, 339, 326, 324, 298, 283, 267 (93)SOURCES: Papaveraceae: *Glaucium* (93)**283 GLAUFINE**C₁₈H₁₉O₃N 297.1364[α]_D: +83° (c=0.2, MeOH) (92)

UV: 217 (4.60), 274 (4.21), 308 (3.84) (92)

¹H-NMR: (CDCl₃/MeOH) (92)SOURCES: Papaveraceae: *Glaucium* (92)**284 N,N-DIMETHYLHERNOVINE**C₂₀H₂₃O₄N⁺ X⁻ 341.1626UV: 222, 272, 302 (I⁻) (127)¹H-NMR: (DMSO, 90 MHz) (127); also in CD₃OD (127)

SOURCES: Synthesis (127)

**285 LAETINE**C₁₈H₁₇O₄N 311.1156

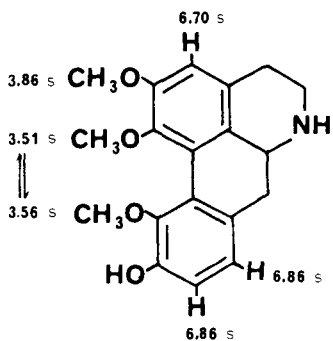
MP: 296° (dec) (166)

[α]_D: -24° (166)

UV: 270 (4.06), 307 (3.67) (166)

IR: (KBr) 3500-3400 (166)

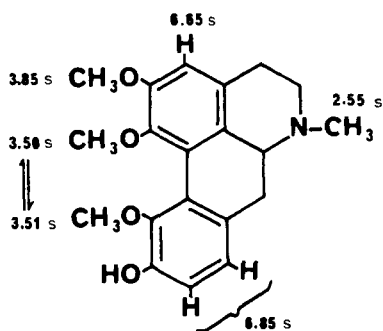
¹H-NMR: (270 MHz, DMSO) (166)SOURCES: Lauraceae: *Litsea* (166)

**286** HERNAGINEC₁₉H₂₁O₄N 327.1469

MP: 222° (22)

[α]_D: +252° (c=1.3, CHCl₃) (22)

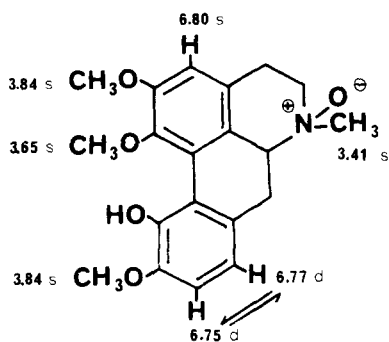
UV: 223 (4.55), 272 (4.15), 304 (3.71) (22)

¹H-NMR: (22)MS: 327 (M⁺, 14), 296 (17) (22)SOURCES: Hernandiaceae: *Hernandia* (22) (114) (116) (232)**287** N-METHYLHERNAGINEC₂₀H₂₃O₄N 341.1626[α]_D: +144° (CHCl₃) (232)

UV: 221 (4.39), 269 (4.04), 307 (3.73) (232)

¹H-NMR: (22)MS: 341 (M⁺), 310 (100) (232)

SOURCES: Synthesis (22) (232)

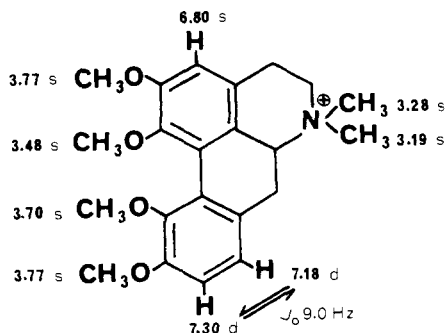
**288** ISOCORYDINE N-OXIDEC₂₀H₂₃O₅N 357.1575

MP: 228-229° (HCl) (91)

UV: (MeOH) 223 (4.39), 271 (3.95), 306 (3.96) (91)

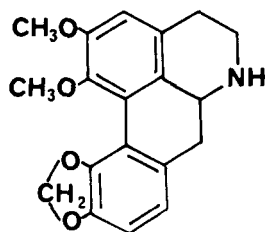
¹H-NMR: (91)

MS: 341, 340, 326, 298, 267 (91)

SOURCES: Berberidaceae: *Berberis* (91)**289** N,O-DIMETHYLISOCORYDINE

(O,O-Dimethylmagnoflorine)

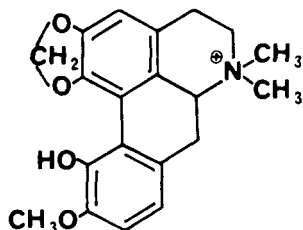
C₂₂H₂₈O₄N⁺ X⁻ 370.2018MP: 228-230° (dec) (Cl⁻) (180)[α]_D: +198° (c=1.03, MeOH) (12)UV: 220, 270, 300 (Cl⁻) (180)IR: 2900, 2500, 1603, 1550, 1450, 1400, 1235, 1120, 980 (Cl⁻) (180)¹H-NMR: (D₂O) (180)SOURCES: Menispermaceae: *Cocculus* (180), *Pachygone* (12)

**290 O-METHYLLYAETINE**C₁₉H₁₉O₄N 325.1313[α]_D: -15° (c=0.35, EtOH) (166)

UV: 269 (3.55), 303 (3.24) (166)

MS: 325 (M⁺) (166)

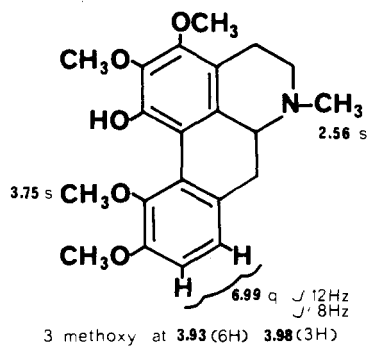
SOURCES: Synthesis (166)

**291 N-METHYLBULBOCAPNINE**C₂₀H₂₂O₄N⁺ X⁻ 340.1548MP: 268-269° (I⁻) (197)[α]_D: +163° (c=0.11, MeOH) (I⁻) (197)

UV: 225 (4.75), 272 (4.25), 310 (4.02) (197)

IR: 3370 (197)

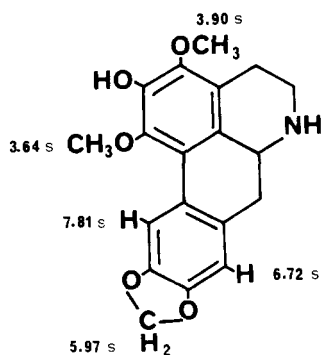
MS: 339, 325 (197)

SOURCES: Fumariaceae: *Corydalis* (197)**292 ISOCONOVINE**C₂₁H₂₅O₅N 371.1731

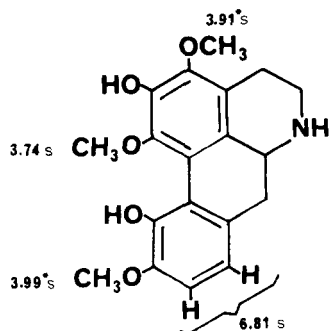
MP: 98-99° (219)

[α]_D: +155° (c=1.0, MeOH) (219)

UV: 224 (4.60), 274 (4.19), 300-303 (3.96) (219)

¹H-NMR: (219)MS: 371 (M⁺, 100), 370 (22), 340 (90), 185.5 (M⁺⁺) (219)SOURCES: Lauraceae: *Ocotea* (219)**293 XYLOGUYELLINE***C₁₉H₁₉O₅N 341.1262

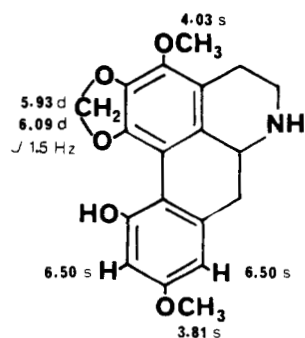
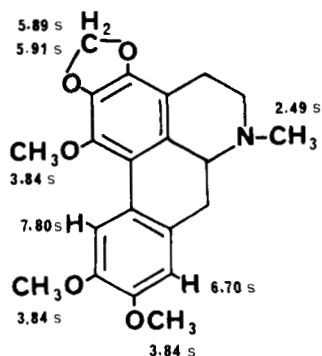
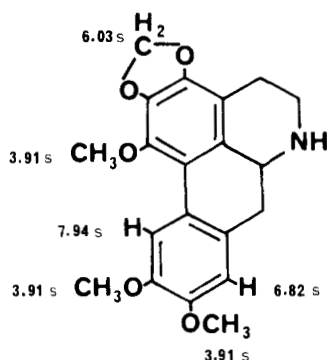
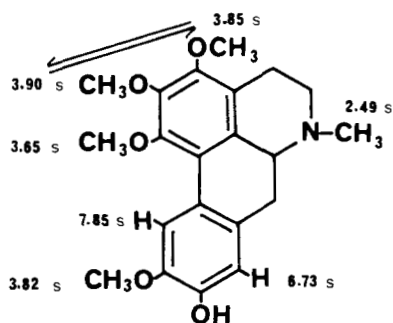
UV: 222, 232sh, 282, 317 (70)

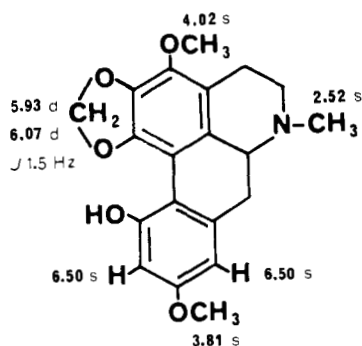
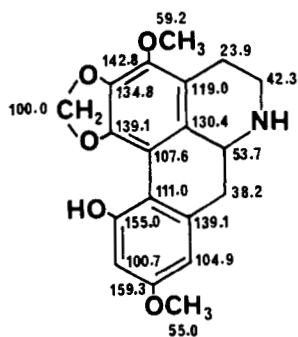
¹H-NMR: (70)MS: 341 (M⁺, 84), 340 (100), 326 (26), 324 (31), 309 (32), 294 (25) (70)SOURCES: Annonaceae: *Xylopi*a (70)*The 2-OCH₃, 3-OH substitution cannot be excluded (70).**294 DANGUYELLINE***C₁₉H₂₁O₅N 343.1418

MP: 190° (70)

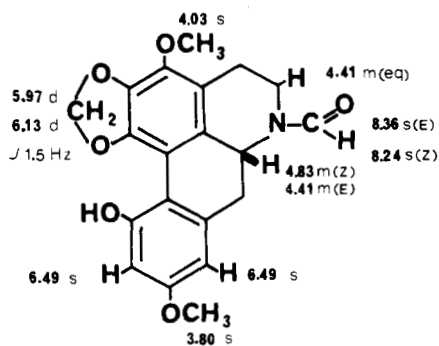
UV: 225, 278 (70)

¹H-NMR: (70)MS: 343 (M⁺, 63), 342 (39), 328 (100), 326 (70), 312 (93) (70)SOURCES: Annonaceae: *Xylopi*a (70)*The 2-OCH₃, 3-OH substitution cannot be excluded (70).



**299 N-METHYLDUGUEVANINE**C₂₀H₂₁O₅N 355.1418

UV: 225 (4.51), 271 sh (4.20), 280 (4.28), 300 (4.09), 309sh (4.04) (175)

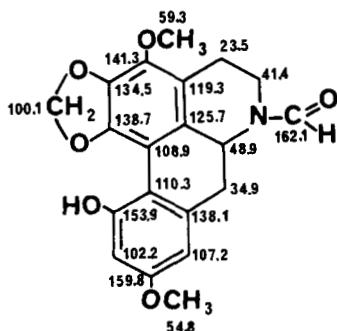
¹H-NMR: (175); also in C₅D₅N (175)SOURCES: Annonaceae: *Duguetia* (175)**300 N-FORMYLDUGUEVANINE**C₂₀H₁₉O₆N 369.1211

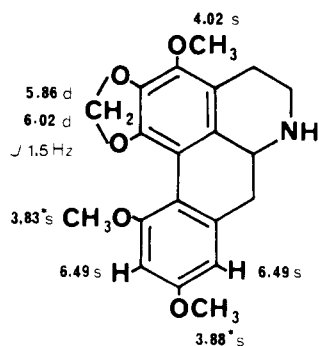
MP: 255° (175)

[α]_D: -358° (c=0.47, CHCl₃) (175)

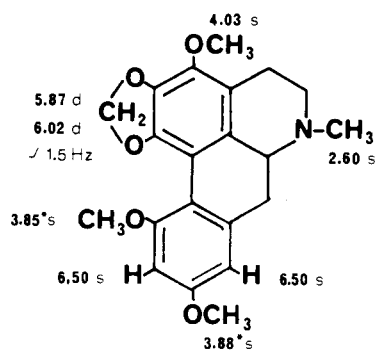
UV: 226 (4.54), 274sh (4.26), 282 (4.34), 301 (4.14), 308sh (4.11) (175)

IR: (KBr) 3370, 1660, 1635, 1615 (175)

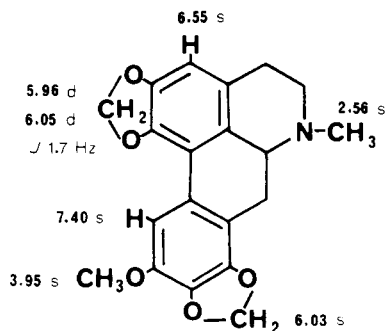
¹H-NMR: (175); also in C₅D₅N (175)¹³C-NMR: Z form data (175)*MS: 369 (M⁺, 53), 338 (21), 337 (24), 312 (64), 311 (100) (175)SOURCES: Annonaceae: *Duguetia* (175)*¹³C-NMR data for E form are also given (175)

**301** O-METHYLDUGUEVANINEC₂₀H₂₁O₅N 355.1418¹H-NMR: (175); also in C₅D₅N (175)MS: 355 (M⁺, 100), 354 (89), 340 (18), 326 (16), 325 (15), 324 (38) (175)

SOURCES: Synthesis (175)

**302** N,O-DIMETHYLDUGUEVANINEC₂₁H₂₃O₅N 369.1575¹H-NMR: (175); also in C₅D₅N (175)MS: 369 (M⁺, 100), 368 (70), 354 (27), 338 (63), 326 (26) (175)

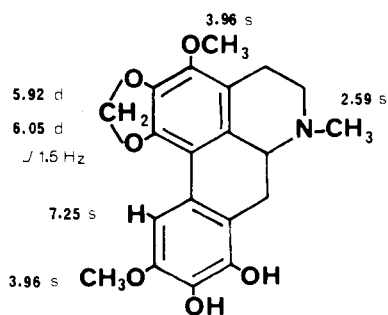
SOURCES: Synthesis (175)

**303** OCOMINARINEC₂₀H₁₉O₅N 353.1262

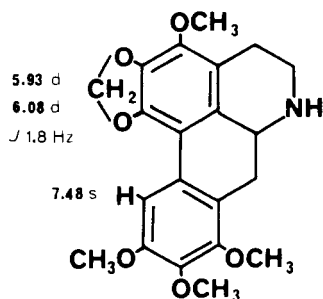
MP: 133-135° (219)

[α]_D: +65° (c=0.5, CHCl₃) (219)

UV: 221 (4.69), 292 (4.33) (219)

¹H-NMR: (219)MS: 353 (M⁺, 62), 352 (100), 322 (14), 310 (38), 176.5 (M⁺) (219)SOURCES: Lauraceae: *Ocotea* (219)**304** 1,2-METHYLENEDIOXY-3,10-DIMETHOXY-8,9-DIHYDROXYAPORPHINE
(9-O-Demethylleucosine)C₂₀H₂₁O₆N 371.1367¹H-NMR: (DMSO) (219); also in C₅D₅N and in CDCl₃/CD₃OD (219)MS: 371 (M⁺, 68), 370 (100), 354 (27), 339 (18), 328 (34), 185.5 (M⁺) (219)

SOURCES: Synthesis (219)



4 methoxy at 3.88, 3.94(6H), 4.04

305 NORLEUCOXYLLONINE

C₂₁H₂₃O₆N 385.1524

MP: 255-260° (HCl) (219)

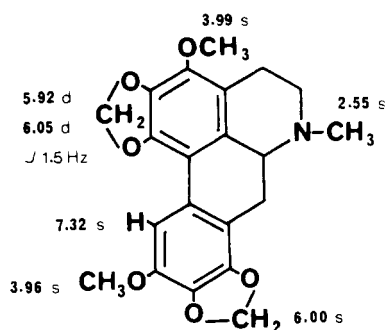
[α]_D: +41° (c=1.0, MeOH) (HCl) (219)

UV: 226 (4.54), 284 (4.33), 305 (4.12) (HCl) (219)

¹H-NMR: (219)

MS: 385 (M⁺, 90), 384 (100), 370 (22), 354 (20), 192.5 (M⁺⁺) (219)

SOURCES: Lauraceae: *Ocotea* (219)

**306 OCOTOMINARINE**

C₂₁H₂₁O₆N 383.1367

MP: 148-149° (219)

[α]_D: +40° (c=1.0, CHCl₃) (219)

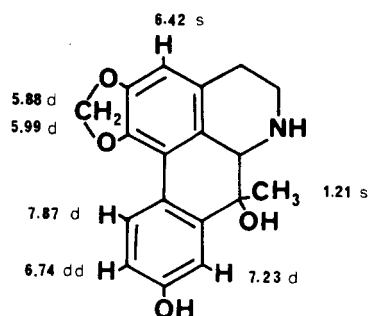
UV: 228 (4.64), 294 (4.36) (219)

¹H-NMR: (219)

MS: 383 (M⁺, 82), 382 (100), 368 (14), 352 (20), 340 (50), 325 (10), 191.5 (M⁺⁺) (219)

SOURCES: Lauraceae: *Ocotea* (219)

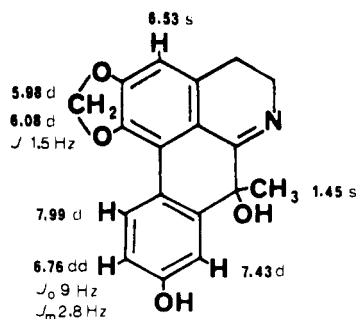
7-Hydroxy 7-Methyl Aporphines

**307 DIHYDROGUATTESCIDINE**

C₁₈H₁₇O₄N 311.1156

¹H-NMR: (75)

SOURCES: Synthesis (75)

**308 GUATTESCIDINE**

C₁₈H₁₅O₄N 309.1000

[α]_D: -165° (c=0.6, CHCl₃) (74)

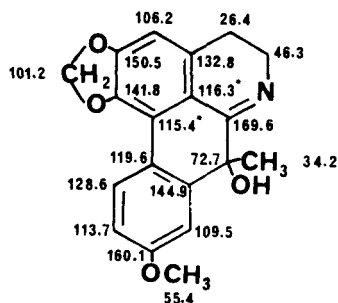
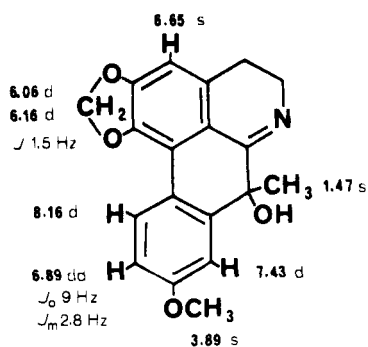
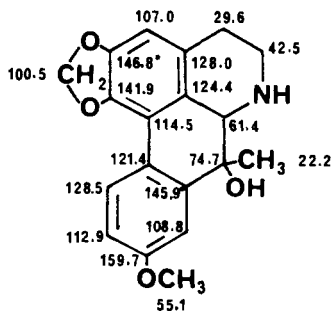
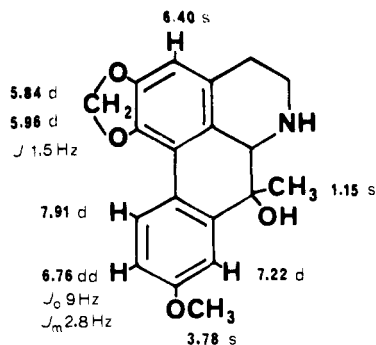
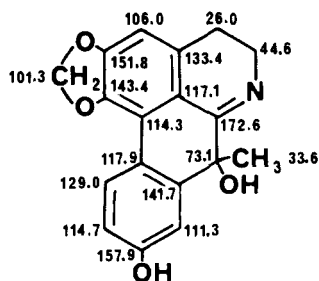
UV: 236 (4.16), 267 (4.40), 302 (3.93), 323 (3.83), 344 (3.75), 358 (3.72); [(HCl) 276 (4.46), 367 (3.92), 420 (3.65)] (74)

¹H-NMR: (74) (75)

¹³C-NMR: (CDCl₃/CD₃OD) (75)

MS: 309 (M⁺, 12), 295 (19), 294 (100), 293 (25) (74)

SOURCES: Annonaceae: *Guatteria* (74) (75)



309 DIHYDROGUATTESCINE

$C_{19}H_{19}O_4N$ 325.1313

$[\alpha]_D$: $+49^\circ$ ($c=1.0$, EtOH) (74)

UV: 217 (4.45), 239 (4.21), 283 (4.31), 293 (4.29), 326sh (3.92) (74)

1H -NMR: (74); also in C_6D_6 (74)

^{13}C -NMR: (74)

MS: 325 (M^+ , 100), 324 (94), 323 (19), 308 (29), 307 (39), 306 (35), 296 (17), 295 (15), 282 (48), 253 (24) (74)

SOURCES: Synthesis (74) (75)

310 GUATTESCINE

$C_{19}H_{17}O_4N$ 323.1156

MP: 160° (74)

$[\alpha]_D$: $+26^\circ$ ($c=0.87$, $CHCl_3$) (74)

UV: 236 (4.14), 265 (4.37), 278sh (4.21), 302 (3.96), 324 (3.88), 344 (3.77), 358 (3.72); [(HCl) 276 (4.45), 368 (3.92), 420 (3.65)] (74)

IR: (KBr) 1648 (74)

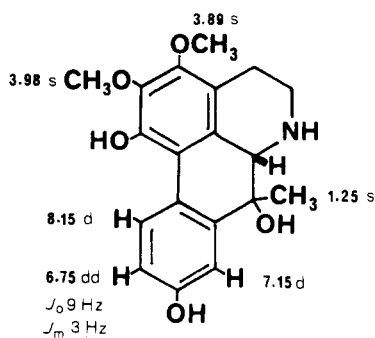
1H -NMR: (74) (75)

^{13}C -NMR: (74) (75)

MS: 323 (M^+ , 12), 309 (23), 308 (100), 294 (6), 280 (5) (74)

X-RAY: (38)

SOURCES: Annonaceae: *Guatteria* (74) (75)

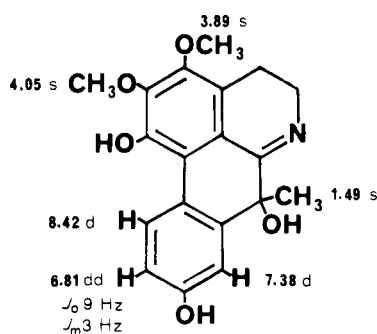
**311 DIHYDROGUATTOUREGIDINE** $\text{C}_{19}\text{H}_{21}\text{O}_5\text{N}$ 343.1418[α]_D: -12° (c=0.2, EtOH) (125)

UV: 216 (4.31), 230sh (4.11), 281 (4.07), 306 (3.85) (125)

IR: (film) 3500-3150, 2940, 2815, 1610, 1495, 1465, 1420, 1380, 1340, 1295, 1240, 1200, 1160, 1130, 1085, 1020, 940, 865, 830 (125)

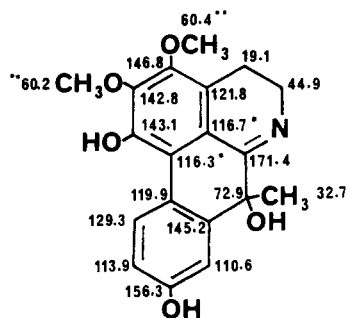
 $^1\text{H-NMR}$: ($\text{CDCl}_3/\text{CD}_3\text{OD}$) (125); also in $\text{C}_5\text{D}_5\text{N}$ (125)MS: 343 (M^+ , 100), 342 (38), 326 (67), 310 (25), 300 (13), 208 (62) (125)CD: +7 (265), 0 (260), -122 (233), 0 (22), +45 (211), 0 (207) (125)

SOURCES: Synthesis (125)

**312 GUATTOUREGIDINE** $\text{C}_{19}\text{H}_{19}\text{O}_5\text{N}$ 341.1262[α]_D: -31° (c=0.17, EtOH) (124)

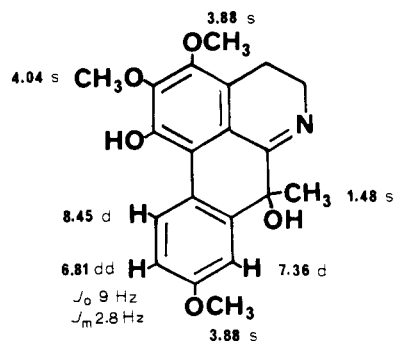
UV: 238sh (4.17), 264 (4.23), 296sh (3.86), 361 (3.71); [(HCl) 272 (4.41), 352 (3.74), 410 (3.59)] (125)

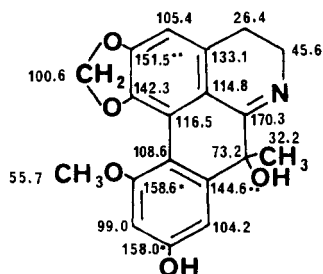
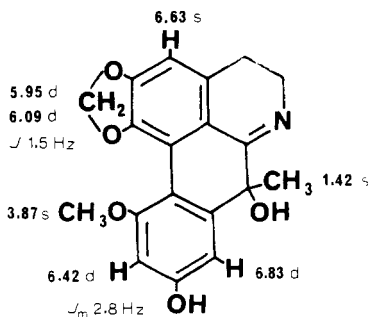
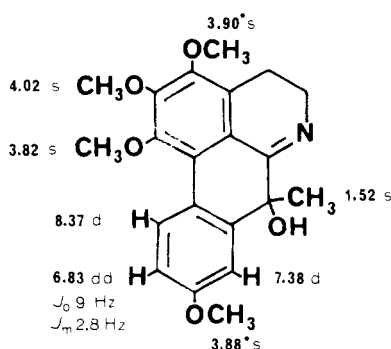
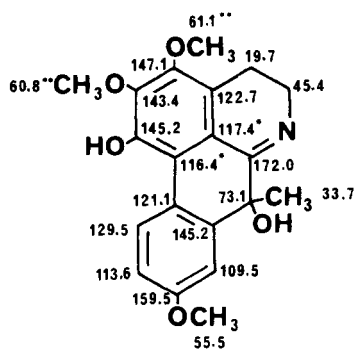
IR: (KBr) 3500-3100, 2945, 2840, 1645, 1610, 1585, 1465, 1420, 1370, 1330, 1300, 1250, 1226, 1195, 1160, 1135, 1090, 1025, 990, 960, 940, 875, 850, 830, 765 (125)

 $^1\text{H-NMR}$: (124); also in $\text{C}_5\text{D}_5\text{N}$ (124) (125) $^{13}\text{C-NMR}$: (124) (125)MS: 341 (M^+ , 18), 327 (21), 326 (100), 312 (2), 311 (6), 310 (9), 298 (7) (124)SOURCES: Annonaceae: *Guatteria* (124) (125)**313 GUATTOUREGINE** $\text{C}_{20}\text{H}_{21}\text{O}_5\text{N}$ 355.1418[α]_D: -69° (c=0.1, EtOH) (124)

UV: 236sh (4.15), 262 (4.22), 352 (3.63); [(HCl) 272 (4.29), 350 (3.66), 438 (3.51)] (125)

IR: (KBr) 3400-3300, 2930, 2855, 1640, 1610, 1580, 1500, 1465, 1435, 1415, 1325, 1300, 1275, 1200, 1175, 1135, 1085, 1040, 1020, 985, 960, 930, 865, 845, 830, 755, 735, 700 (125)

 $^1\text{H-NMR}$: (124) (125) $^{13}\text{C-NMR}$: (124) (125)MS: 355 (M^+ , 16), 341 (24), 340 (100), 326 (4), 325 (8), 324 (9), 312 (6) (124)SOURCES: Annonaceae: *Guatteria* (124) (125)

**314 0,0-DIMETHYLGUATTOUREGIDINE**C₂₁H₂₃O₃N 369.1575

UV: 212 (4.34), 266 (4.49), 352 (3.64); [(HCl) 212 (4.36), 276 (4.48), 336 (3.69), 421 (3.57)] (125)

IR: (film) 2910, 2840, 1630, 1600, 1480, 1450, 1405, 1375, 1325, 1290., 1190, 1130, 1075, 1020, 1000, 940 (125)

¹H-NMR: (124) (125)MS: 369 (M⁺, 14), 355 (25), 354 (100), 337 (11), 325 (6) (125)

SOURCES: Synthesis (124) (125)

315 GUACOLIDINEC₁₉H₁₇O₃N 339.1105

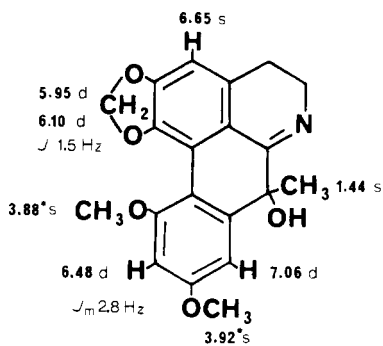
MP: 122° (72)

[α]_D: -39° (c=0.45, MeOH) (72)

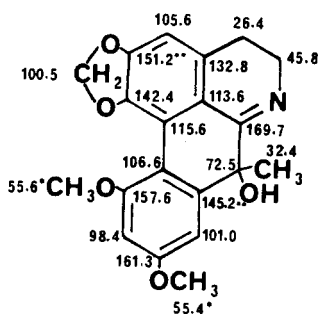
UV: 224 (4.19), 274 (4.12), 328 (3.54), 361 (3.57); [(HCl) 228 (4.12), 278 (4.45), 364 (3.74), 428 (3.44)] (72)

IR: (KBr) 3260, 1645 (72)

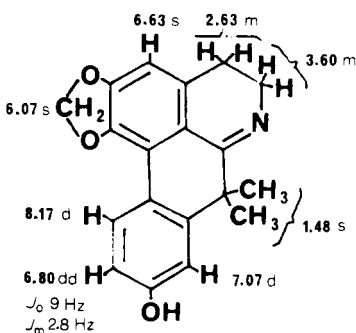
¹H-NMR: (72); also in C₅D₅N, in CD₃OD and in CD₃OD+NaOD (72)¹³C-NMR: (72)MS: 339 (M⁺, 12), 324 (100), 296 (13) (72)SOURCES: Annonaceae: *Guatteria* (72)

**316 GUACOLINE** $C_{20}H_{19}O_5N$ 353.1262[α]D: -37° ($c = 1.08$, MeOH) (72)UV: 222 (4.32), 266 (4.26), 324 (3.85), 353sh (3.63);
[(HCl) 225 (4.25), 273 (4.16), 372 (3.55)]
(72)

IR: 3380, 1645 (72)

 1H -NMR: (72) ^{13}C -NMR: (72)MS: 353 (M^+ , 13), 338 (100), 309 (8), 280 (10) (72)SOURCES: Annonaceae: *Guatteria* (72)

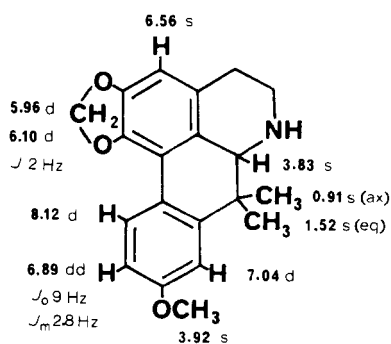
7,7-Dimethyl Aporphines

**317 GUADISCIDINE** $C_{19}H_{17}O_3N$ 307.1207

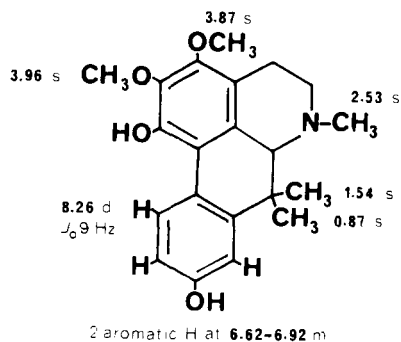
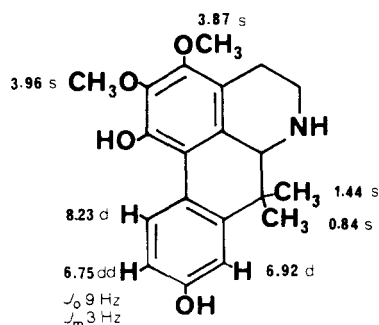
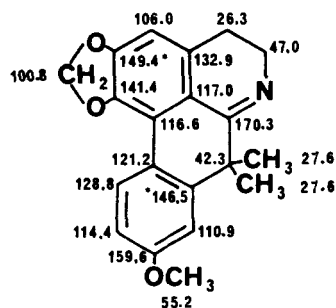
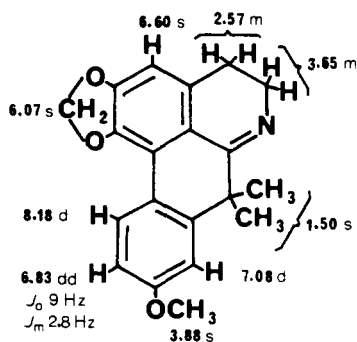
MP: 269-270° (72)

UV: 234 (4.12), 270 (4.38), 306 (4.13), 322sh (3.92),
348 (3.78); [(HCl) 214 (4.35), 278 (4.43),
368 (3.96), 420 (3.68)] (72)

IR: (KBr) 1635 (72)

 1H -NMR: (72)MS: 307 (M^+ , 55), 292 (100) (72)SOURCES: Annonaceae: *Guatteria* (72)**318 6,6a-DIHYDROGUADISCIDINE** $C_{20}H_{21}O_3N$ 323.1520UV: 218 (4.47), 238sh (4.20), 280 (4.36), 290sh (4.31),
320sh (3.74) (71) 1H -NMR: (72)MS: 323 (M^+ , 56), 322 (100), 308 (13), 294 (6), 279 (15)
(72)

SOURCES: Synthesis (71) (72)

**319 GUADISCINE** $C_{20}H_{19}O_3N$ 321.1364

UV: 232sh (3.95), 265 (4.33), 310 (3.97), 316sh (3.84), 342 (3.68), 355sh (3.66); [(HCl) 274 (4.38), 364 (3.88), 408 (3.62)] (71)

IR: (KBr) 1635 (71)

 1H -NMR: (72) ^{13}C -NMR: (72)MS: 321 (M^+ , 32), 306 (100) (72)SOURCES: Annonaceae: *Guatteria* (71) (72)**320 TETRAHYDROMELOSMINE** $C_{20}H_{23}O_4N$ 341.1626

MP: 223° (235)

[α]_D: 0 (CHCl₃) (235)

UV: 218 (3.90), 235sh (3.69), 272sh (3.71), 282 (3.75), 300sh (3.59), 312sh (3.51); [(HCl) 218 (3.90), 235sh (3.69), 272sh (3.71), 283 (3.75), 302sh (3.58), 316 (3.57)] (235)

IR: (KBr) 3500-3300, 2945, 2840, 1610, 1595, 1465, 1420, 1380, 1365, 1342, 1295, 1245, 1200, 1164, 1137, 1090, 1075, 1030, 1005, 925, 865, 825 (235)

 1H -NMR: (CDCl₃/CD₃OD) (235)MS: 341 (M^+ , 100), 340 (82), 326 (24), 325 (32), 324 (64), 322 (8), 312 (11), 311 (13), 310 (30), 309 (6), 308 (8), 298 (30), 297 (17), 294 (7), 280 (6), 170.5 (M^{++} , 4) (235)

SOURCES: Synthesis (235)

321 N-METHYLTETRAHYDROMELOSMINE $C_{21}H_{25}O_4N$ 355.1782[α]_D: 0 (234)

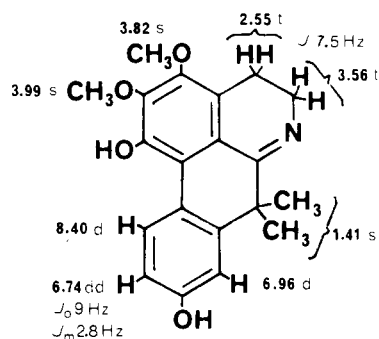
UV: 220 (4.43), 270sh (4.13), 286 (4.19), 301sh (4.15), 311sh (4.06); [(HCl) 220 (4.43), 275sh (4.22), 282 (4.23), 304 (4.11), 315 (4.11)] (234)

IR: (KBr) 3500-3400, 2945, 2860, 1610, 1595, 1464, 1420, 1374, 1333, 1295, 1200, 1160, 1150, 1122, 1090, 1070, 1005, 923, 895, 758 (234)

 1H -NMR: (234)MS: 357 (3), 356 (17), 355 (M^+ , 68), 354 (16), 340 (17), 339 (23), 338 (100), 337 (7), 336 (9), 326 (9), 325 (7), 324 (24), 323 (6), 322 (8), 313 (10), 312 (43), 309 (5), 308 (8), 298 (4),

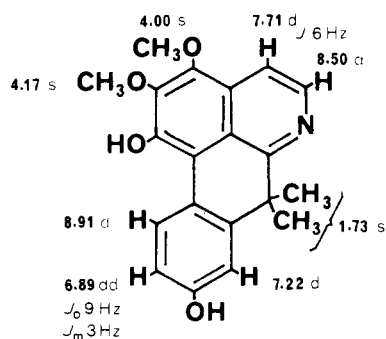
297 (11), 296 (6), 294 (7), 281 (4) (234)

SOURCES: Synthesis (234)

**322 DIHYDROMELOSMINE**C₂₀H₂₁O₄N 339.1469

UV: 234sh (4.05), 262 (4.33), 299sh (3.77), 357 (3.58); [(HCl) 272 (4.33), 356 (3.62), 438 (3.50)] (124)

IR: (film) 3480, 2930, 2840, 1630, 1605, 1580, 1500, 1460, 1415, 1370, 1330, 1295, 1250, 1195, 1160, 1135, 1090, 1070, 1025, 980, 960, 930, 860, 825, 730 (125)

MS: 339 (M⁺, 64), 325 (23), 324 (100), 309 (8), 294 (5), 291 (4), 267 (4), 266 (3), 263 (5) (124)SOURCES: Annonaceae: *Guatteria* (124) (125)**323 MELOSMINE**C₂₀H₁₉O₄N 337.1313

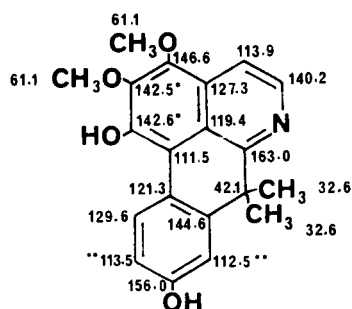
MP: 104° (234)

UV: 218sh (4.34), 240sh (4.41), 252 (4.44), 309 (3.76), 322 (3.78), 377 (3.96); [(HCl) 223 (4.48), 240sh (4.47), 279 (4.56), 331sh (3.55), 450 (3.83)] (234)

IR: (KBr) 3450, 3350, 3200, 1610, 1580, 1495, 1450, 1410, 1350, 1300, 1260, 1200, 1180, 1145, 1100, 1030, 975, 945, 822 (234)

¹H-NMR: (234); also in C₅D₅N (125)¹³C-NMR: (71) (126)MS: 338 (8), 337 (M⁺, 37), 323 (22), 322 (100), 307 (5), 306 (4), 292 (4), 290 (4), 289 (17), 264 (8), 261 (5), 208 (4), 161 (5), 153.5 (M⁺⁺, 6) (234)

X-RAY: (234)

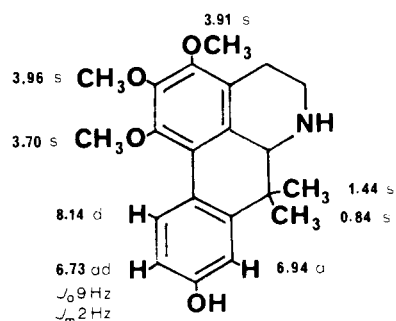
SOURCES: Annonaceae: *Guatteria* (71) (124) (125) (126) (234)**324 TETRAHYDROMELOSMIDINE**C₂₁H₂₅O₄N 355.1782

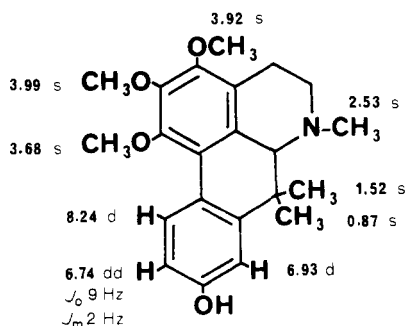
MP: 236° (234)

[α]_D: 0 (234)

UV: 218 (4.52), 237sh (4.24), 273sh (4.31), 284 (4.39), 300sh (4.25); [(HCl) 218 (4.52), 237sh (4.24), 275sh (4.29), 287 (4.39), 302sh (4.23)] (234)

IR: (KBr) 3315, 3260, 2970, 2940, 2870, 2830, 1608, 1588, 1460, 1418, 1405, 1375, 1342, 1295, 1240, 1220, 1205, 1165, 1145, 1120, 1095, 1075, 1062, 1030, 1008, 970, 950, 920, 860, 820, 792 (234)

¹H-NMR: (234)

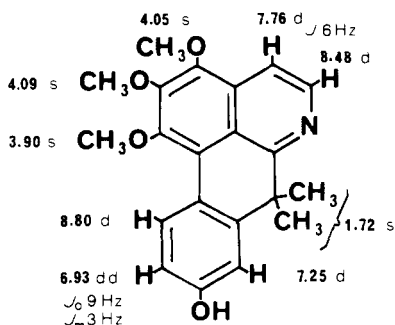
**325 N-METHYLTETRAHYDROMELOSMIDINE** $\text{C}_{22}\text{H}_{27}\text{O}_4\text{N}$ 369.1940[α]_D: 0 (234)

UV: 220 (4.26), 270sh (4.02), 288 (4.11), 301sh (4.02); [(HCl) 223 (4.26), 231sh (4.11), 290 (4.19), 303sh (4.03)] (234)

IR: (KBr) 3400, 2960, 2935, 2860, 1610, 1585, 1460, 1415, 1365, 1345, 1330, 1295, 1205, 1125, 1090, 1070, 1022, 998, 940, 920, 755 (234)

¹H-NMR: (234)MS: 370 (8), 369 (M^+ , 31), 368 (6), 354 (4), 340 (7), 339 (26), 338 (100), 326 (9), 322 (5), 311 (4), 308 (6), 295 (2) (234)

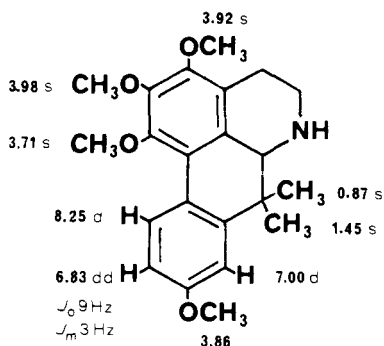
SOURCES: Synthesis (234)

**326 MELOSMIDINE** $\text{C}_{21}\text{H}_{21}\text{O}_4\text{N}$ 351.1469

MP: 170-171° (234)

UV: 219sh (3.90), 242 (4.03), 328 (3.30), 365 (3.32); [(HCl) 229sh (3.98), 239 (4.05), 277 (3.84), 438 (3.15)] (234)

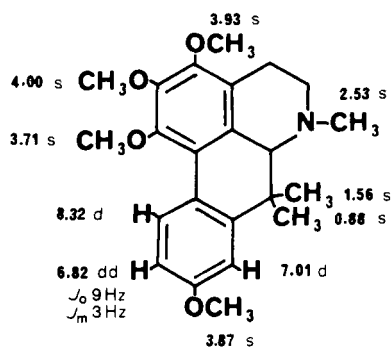
IR: (KBr) 3500-3300, 2920, 2845, 1608, 1595, 1570, 1490, 1475, 1450, 1385, 1305, 1245, 1200, 1140, 1085, 1038, 1008, 970, 950, 820, 805 (234)

¹H-NMR: (234)MS: 352 (12), 351 (M^+ , 44), 337 (24), 336 (100), 320 (5), 307 (8), 306 (3), 292 (6), 278 (7), 235 (18), 207 (10), 175.5 (M^{++} , 1), 153 (5), 151 (9) 234SOURCES: Annonaceae: *Guatteria* (234)**327 0,0-DIMETHYLTETRAHYDROMELOSMINE** $\text{C}_{22}\text{H}_{27}\text{O}_4\text{N}$ 369.1940

UV: 222 (4.34), 236sh (4.16), 274sh (4.20), 286 (4.28), 301sh (4.13); [(HCl) 224 (4.41), 288 (4.29), 303sh (4.13)] (234)

IR: (CHCl_3) 2945, 2845, 1610, 1588, 1465, 1418, 1378, 1364, 1340, 1300, 1090, 1075, 1050, 1030, 1002, 970, 945, 905 (234)¹H-NMR: (234)MS: 370 (19), 369 (M^+ , 79), 368 (58), 367 (8), 355 (5), 354 (17), 353 (15), 352 (11), 340 (9), 339 (27), 338 (100), 326 (13), 325 (12), 324 (6), 323 (8), 322 (7), 309 (4), 308 (9), 280 (4), 222 (4), 184.5 (M^+ , 2) (234)

SOURCES: Synthesis (234)



328 N-METHYL-0,0-DIMETHYLTETRAHYDROMELOSMINE

C₂₃H₂₉O₄N 383.2095

[α]_D: 0 (234)

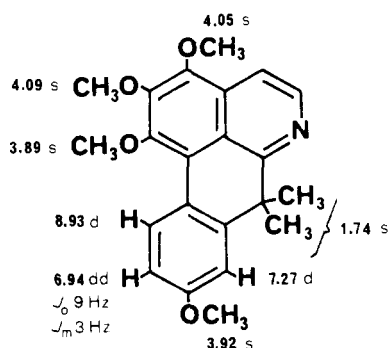
UV: 220 (4.46), 273sh (4.15), 288 (4.29), 303sh (4.16); [(HCl) 221 (4.46), 235sh (4.23), 288 (4.38), 303 (4.21)] (234)

IR: (CHCl₃) 2945, 1608, 1585, 1460, 1415, 1370, 1348, 1330, 1300, 1095, 1070, 1025, 1000 (234)

¹H-NMR: (234)

MS: 384 (6), 383 (M⁺, 26), 382 (5), 368 (4), 354 (4), 353 (26), 352 (100), 340 (9), 337 (3), 336 (5), 322 (6) (234)

SOURCES: Synthesis (234)



329 0,0-DIMETHYLMELOSMINE

(*O*-Methylmelosmidine)

C₂₂H₂₃O₄N 365.1626

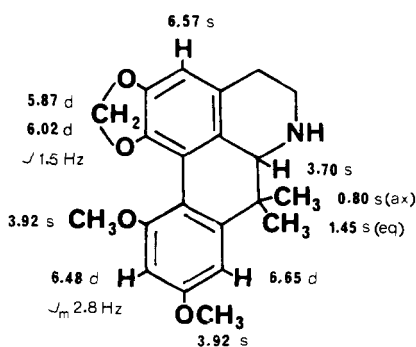
UV: 212 (4.24), 248 (4.27), 255 (4.23), 313sh (3.73), 326 (3.86), 364 (3.81); [(HCl) 215 (4.23), 240 (4.21), 275 (4.37), 337sh (3.37), 433 (3.72)] (234)

IR: (CHCl₃) 2975, 2945, 2845, 1610, 1595, 1573, 1487, 1455, 1382, 1345, 1302, 1150, 1100, 1040, 1012, 970, 917 (234)

¹H-NMR: (234)

MS: 366 (10), 365 (M⁺, 46), 351 (26), 350 (100), 337 (4), 336 (9), 335 (5), 321 (6), 320 (24), 306 (5), 292 (6), 249 (10), 221 (4), 182.5 (M⁺⁺, 6), 175 (11), 167.5 (13), 160 (14) (234)

SOURCES: Synthesis (234)



330 6,6a-DIHYDROGUADISCOLINE

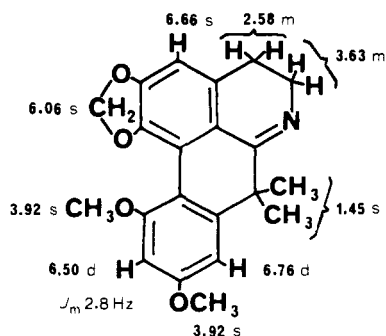
C₂₁H₂₃O₄N 353.1626

UV: 220 (4.45), 270sh (4.17), 278 (4.23), 302 (4.07) (72)

¹H-NMR: (72)

MS: 353 (M⁺, 100), 352 (86), 338 (14), 324 (15), 309 (20) (72)

SOURCES: Synthesis (72)



331 GUADISCOLINE

C₂₁H₂₁O₄N 351.1469

UV: 221 (4.33), 268 (4.22), 320 (3.89), 356sh (3.63); [(HCl) 224 (4.27), 259sh (4.06), 273 (4.15), 368 (3.82), 410sh (3.50)] (72)

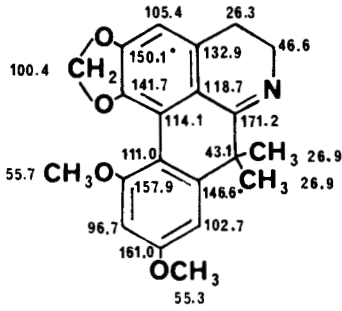
IR: (KBr) 1635 (72)

¹H-NMR: (72)

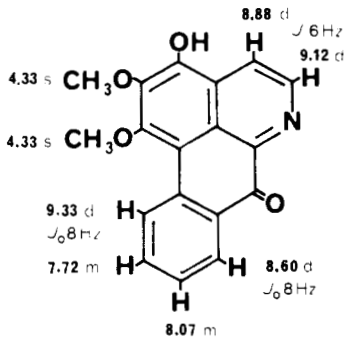
¹³C-NMR: (71)

MS: 351 (M⁺, 59), 336 (100) (72)

SOURCES: Annonaceae: *Guatteria* (71) (72)



Oxoaporphines



332 ISOMOSCHATOLINE

$C_{18}H_{13}O_4N$ 307.0844

MP: 245° (1)

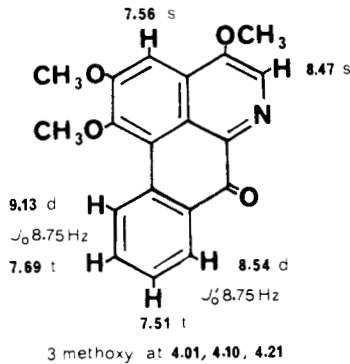
UV: 230 (4.10), 283 (4.26), 363 (2.96), 467 (3.53);
[(HCl) 222 (4.28), 288 (4.25), 545 (3.31)] (1)

IR: (KBr) 3450, 1662, 1598, 1580, 1560, 1545, 1478, 1470, 1388, 1308, 1260, 1200, 1090, 1045, 1035, 988, 975 (1)

¹H-NMR: (TFA) (1)

MS: 308 (21), 307 (M^+ , 100), 293 (5), 292 (24), 264 (15), 260 (7), 249 (10), 221 (10), 193 (4), 165 (7), 164 (6), 153.5 (M^{++} , 3) (1)

SOURCES: Annonaceae: *Cleistopholis* (1), *Gutteria* (1)



333 SPLENDIDINE

$C_{19}H_{15}O_4N$ 321.1000

MP: 235° (194)

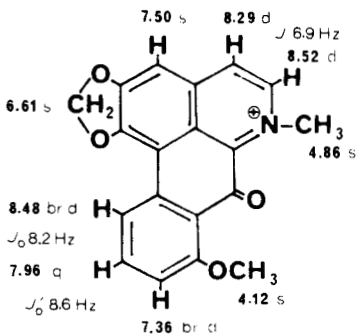
UV: 237 (4.36), 270 (4.34), 290sh (4.15), 415 (4.05) (194)

IR: (KBr) 1665 (194)

¹H-NMR: (194)

MS: 321 (M^+ , 100), 306 (14), 291 (6), 278 (65), 263 (29), 248 (8), 235 (14), 220 (28), 207 (11), 192 (11), 164 (22), 160.5 (M^{++} , 5), 150 (10) (194)

SOURCES: Menispermaceae: *Abuta* (194)



334 THAILANDINE

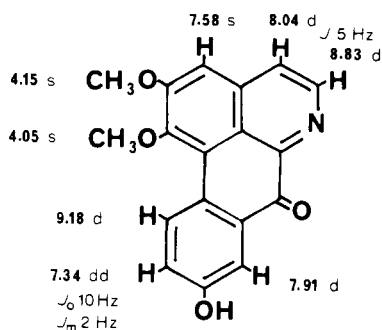
$C_{19}H_{14}O_4N^+ X^-$ 320.0922

UV: 216 (4.34), 257 (4.35), 288 (4.18), 325sh (3.63), 376 (3.83), 464 (3.73) (I^-) (62)

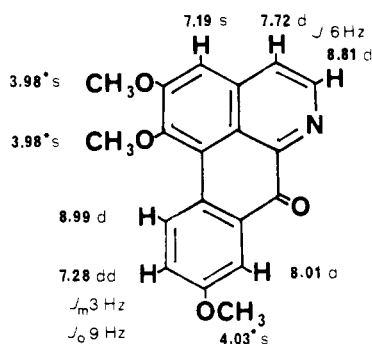
¹H-NMR: (TFA, 360 MHz) (62)

MS: 321, 320 (M^+), 306, 305 (62)

SOURCES: Menispermaceae: *Stephania* (62)

**335 PERUVIANINE**C₁₈H₁₃O₄N 307.0844

MP: 252-255° (142)

UV: 238 (4.42), 271 (4.43), 289sh (4.04), 328sh (3.63),
369 (3.57), 432 (3.57) (142)¹H-NMR: (Acetone-d₆, 250 MHz) (142)SOURCES: Menispermaceae: *Telitoxicum* (142)**336 1,2,9-TRIMETHOXYOXOAPORPHINE**C₁₉H₁₅O₄N 321.1000

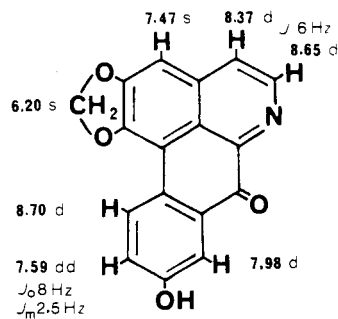
MP: 201-203° (109)

UV: 244 (4.46), 271 (4.44), 292 sh (4.16), 377 (3.68),
444 (3.62) (109)

IR: (KBr) 1680 (109)

¹H-NMR: (109)MS: 321 (M⁺), 320 (100), 306, 305, 278 (109)

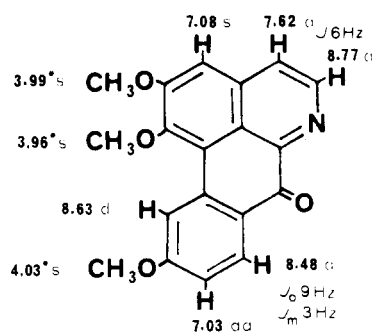
SOURCES: Synthesis (109)

**337 OXOANOLOBINE**C₁₇H₉O₄N 291.0531

MP: 270-275° (dec) (160)

UV: 217 (4.24), 249 (4.43), 274 (4.35), 324sh (3.84),
370 (3.65), 442 (3.76) (160)

IR: (KBr) 3420, 1660 (160)

¹H-NMR: (TFA) (160)MS: 291 (M⁺, 100), 263 (8), 233 (15), 178 (10) (160)SOURCES: Annonaceae: *Guatteria* (160)**338 1,2,10-TRIMETHOXYOXOAPORPHINE**C₁₉H₁₅O₄N 321.1000

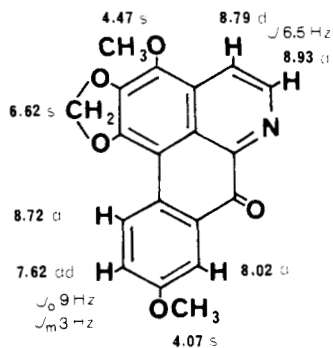
MP: 200-201° (109)

UV: 242 (4.45), 272 (4.44), 284sh (4.19), 312 (3.84),
351 (4.07), 387 (4.00) (109)

IR: (KBr) 1665 (109)

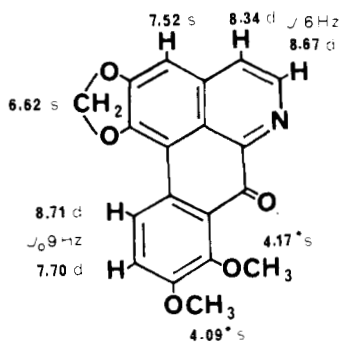
¹H-NMR: (109)MS: 321 (M⁺, 100), 306, 278, 263 (109)

SOURCES: Synthesis (109)

**339 OXOBUXIFOLINE** $C_{19}H_{13}O_5N$ 335.0793MP: 268° (175)

UV: 214 (4.27), 249 (4.25), 271sh (4.23), 282 (4.36), 330 (3.39); [(HCl) 212 (4.37), 224sh (4.29), 269 (4.37), 284 (4.27), 297 (4.18), 362 (3.12)] (175)

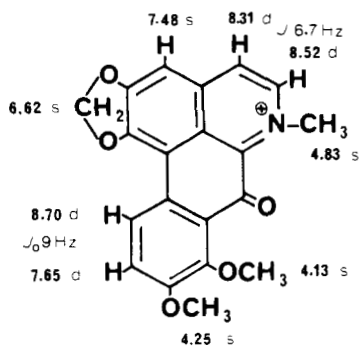
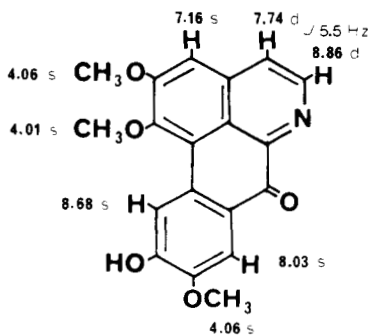
IR: 1640 (175)

 1H -NMR: (TFA) (175)MS: 335 (M^+ , 100), 320 (55), 305 (13), 290 (17), 167 (10) (175)SOURCES: Annonaceae: *Duguetia* (175)**340 OXOCREBANINE** $C_{19}H_{13}O_5N$ 335.0793

MP: 265-269° (108)

UV: 249 (4.03), 273 (3.93), 440 (3.26); [(HCl) 260 (4.00), 285 (3.87), 385 (3.26)] (108)

IR: (KBr) 1660 (108)

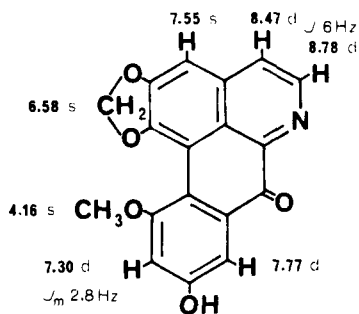
 1H -NMR: (TFA) (108)MS: 335 (M^+ , 100), 320 (17), 307 (28), 305 (33), 304 (21), 292 (13) (108)SOURCES: Menispermaceae: *Stephania* (62) (108)**341 UTHONGINE** $C_{20}H_{16}O_5N^+ X^-$ 350.1027UV: 217 (4.04), 229 (4.01), 263 (3.96), 284 (3.87), 385 (3.12), 500 (2.94) (I^-) (62) 1H -NMR: (TFA, 360 MHz) (62)MS: 351, 350 (M^+), 335 (62)SOURCES: Menispermaceae: *Stephania* (62)**342 OXOLIRIOFERINE** $C_{19}H_{15}O_5N$ 337.0949MP: 270° (dec) (28)

UV: 244 (4.35), 274 (4.32), 294sh (4.12), 359 (3.82), 394sh (3.73) (28)

IR: (KBr) 1650 (28)

 1H -NMR: (28)MS: 337 (M^+ , 100), 312 (34), 294 (25) (28)

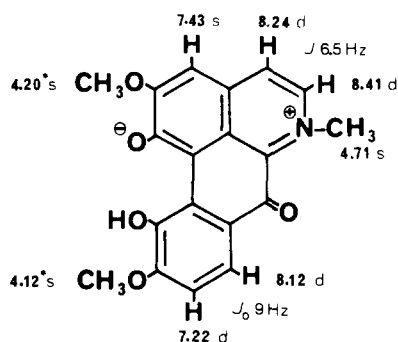
SOURCES: Synthesis (28)

**343 OXOISOCALYCYNINE**C₁₈H₁₁O₃N 321.0636

MP: >280° (dec) (72)

UV: 252 (4.07), 280 (3.96), 320sh (3.18); [(HCl) 264 (4.32), 294 (4.26), 360 (3.66), 390 (3.66)] (72)

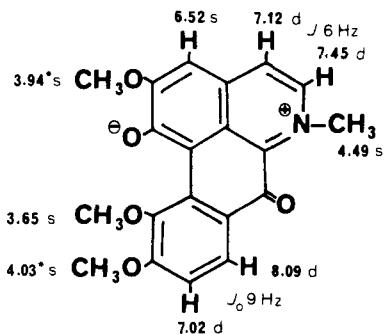
IR: (KBr) 1650 (72)

¹H-NMR: (TFA) (72)SOURCES: Annonaceae: *Guatteria* (72)**344 AROSININE**C₁₉H₁₅O₃N 337.0949

MP: 302-305° (dec) (24)

UV: 244 (4.58), 317 (4.53), 414 (4.01), 590 (3.76); [(HCl) 246 (4.65), 292 sh (4.42), 316sh (4.35), 391 (3.99), 480 (3.62)] (24)

IR: (KBr) 3650-3300, 1645, 1590 (24)

¹H-NMR: (CDCl₃/TFA) (24)SOURCES: Papaveraceae: *Glaucium* (24)**345 GLAUNIDINE**

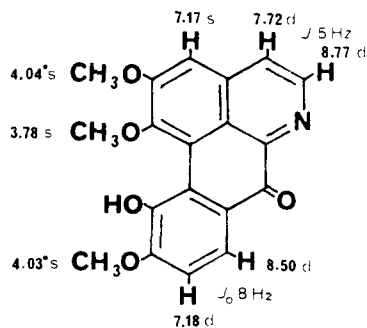
(Arosine)

C₂₀H₁₇O₃N 351.1105

MP: 245-248° (24)

UV: 238 (4.47), 314 (4.40), 410 (3.78), 610 (3.60); [(HCl) 221 (4.50), 253 (4.57), 282sh (4.41), 383 (3.95), 430sh (3.60)] (24)

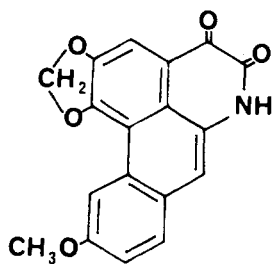
IR: (KBr) 3650-3400, 1625, 1580 (24)

¹H-NMR: (CDCl₃/TFA) (24); also in CDCl₃ (86)SOURCES: Papaveraceae: *Glaucium* (24) (86) (93)
Ranunculaceae: *Aconitum* (16) (237)**346 GLAUNINE**C₁₉H₁₅O₃N 337.0949

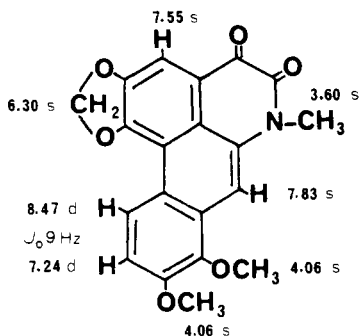
UV: 250 (4.40), 272 (4.22), 310sh (3.97), 348 (3.87), 406 (2.75), 600 (2.68); [(HCl) 248 (4.48), 263sh (4.41), 285 (4.32), 320sh (3.88), 375 (2.94), 470sh (2.60)] (86)

IR: 3410, 1660, 1590 (86)

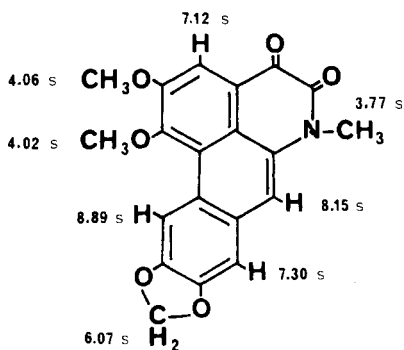
¹H-NMR: (86)SOURCES: Papaveraceae: *Glaucium* (86) (93)

**351 O-METHYLTUBEROSINONE**C₁₈H₁₁O₅N 321.0636

SOURCES: Synthesis (239)

**352 4,5-DIOXODEHYDROCREBANINE**C₂₀H₁₅O₆N 365.0898

MP: 278-280° (107)

UV: 220 (4.54), 244.5 (4.62), 308 (4.21), 321 (4.25),
435 (4.21) (107)IR: (CHCl₃) 1660, 1593 (107)¹H-NMR: (107)MS: 365 (M⁺, 100), 350 (20), 337 (18), 322 (56), 305
(28), 294 (11), 279 (38), 277 (41), 264 (14)
(107)SOURCES: Menispermaceae: *Stephania* (107)**353 CORYDIONE**

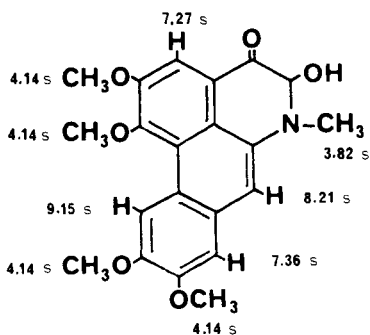
(4,5-Dioxodehydrocrebanine)

C₂₀H₁₅O₆N 365.0898

MP: 273-275° (97)

UV: 223sh (4.48), 241 (4.59), 246 (4.59), 286sh (4.04),
301 (4.14), 314 (4.30), 326 (4.42), 466
(4.04) (106)

IR: (KBr) 1680, 1660 (97)

¹H-NMR: (100 MHz) (97)MS: 365 (M⁺, 100), 337 (28), 322, 294, 293, 292, 279,
264, 236 (106)SOURCES: Berberidaceae: *Nandina* (105) (106)
Fumariaceae: *Corydalis* (97) (100)**354 DIHYDROPONTEVEDRINE***C₂₁H₂₁O₆N 383.1367

MP: 248-250° (37)

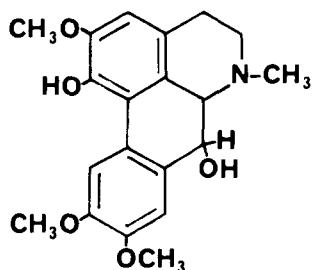
UV: 245, 312, 325, 470 (37)

IR: 1650, 1590 (37)

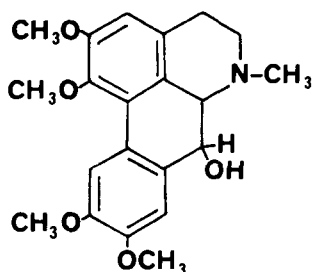
¹H-NMR: (37)MS: 383 (M⁺) (37)

SOURCES: Synthesis (37)

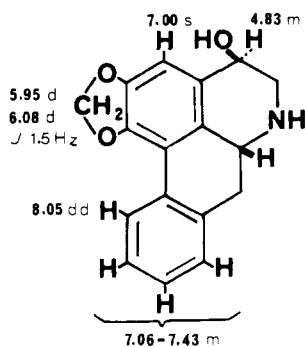
*In equilibrium with the tautomeric forms 4-hydroxy-5-oxo and Δ⁴-4,5-dihydroxy.

**359** 7-HYDROXYTHALICMIDINEC₂₀H₂₃O₅N 357.1575

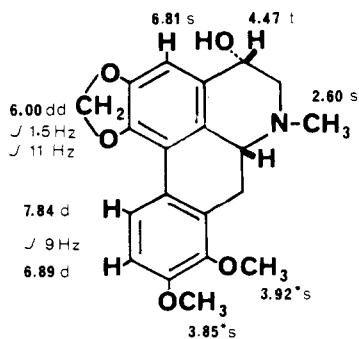
SOURCES: Reported in (25)

**360** 7-HYDROXYGLAUCINEC₂₁H₂₅O₅N 371.1731

SOURCES: Synthesis (25)

**361** 4-HYDROXYANONAININE*C₁₇H₁₅O₃N 281.1051¹H-NMR: (216)SOURCES: Monimiaceae: *Laurelia* (215) (216)

*Isolated in mixture with 4-hydroxynornantenine

**362** 4-HYDROXYCREBANINEC₂₀H₂₁O₃N 355.1418

MP: 191-192° (111)

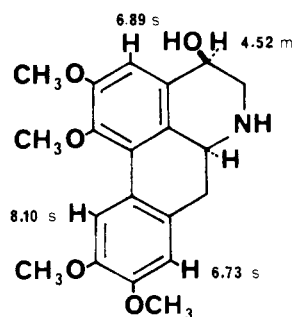
[α]_D: -90° (c=0.27, CHCl₃) (111)

UV: 218 (4.53), 245sh (4.17), 281 (4.34), 320sh (3.58) (111)

IR: (CHCl₃) 3500 (111)¹H-NMR: (111)MS: 355 (M⁺, 3), 336 (28), 335 (100), 321 (45), 320 (79), 312 (15), 306 (11), 291 (12), 277 (31) (111)

CD: +9.1 (277), -45.6 (237), +15.4 (218) (111); ORD also given (111)

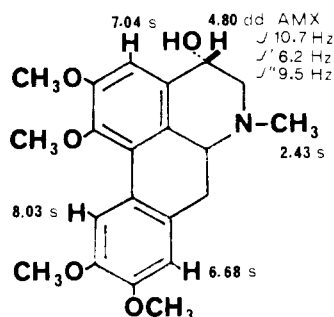
SOURCES: Menispermaceae: *Stephania* (111)

**363** NORCATALINEC₂₀H₂₃O₅N 357.1575

MP: 160-162° (66)

[α]_D: +107° (c=1, CHCl₃) (66)¹H-NMR: (66)

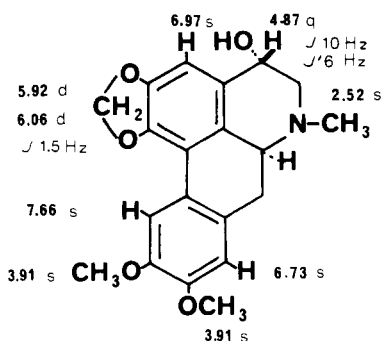
SOURCES: Synthesis (66)

**364** EPICATALINEC₂₂H₂₅O₅N 371.1731

MP: 188-189° (66)

[α]_D: +97° (c=1, CHCl₃) (66)¹H-NMR: (66)

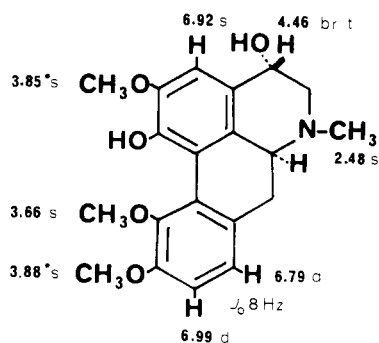
SOURCES: Synthesis (27) (66)

**365** 4-HYDROXYDICENTRINEC₂₀H₂₁O₅N 355.1418

MP: 210° (219)

[α]_D: +60° (c=0.5, CHCl₃) (219)

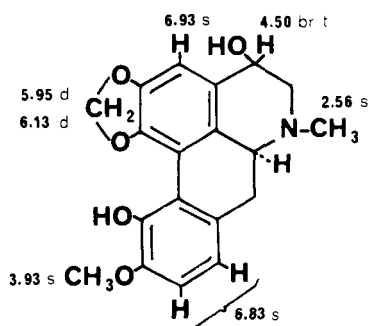
UV: 282 (3.96), 304 (3.98) (219)

¹H-NMR: (219)MS: 355 (M⁺, 33), 354 (25), 312 (100) (219)SOURCES: Lauraceae: *Ocotea* (219)**366** GLAUFIDINEC₂₀H₂₃O₅N 357.1575[α]_D: +182° (c=0.4, MeOH) (85)

UV: 223 (4.51), 269 (4.03), 305 (3.69) (85)

IR: 3500-3200, 1610, 1580 (85)

¹H-NMR: (85)MS: 357 (M⁺, 356, 342, 340, 339, 326, 314, 178.5 (M⁺⁺) (85)SOURCES: Papaveraceae: *Glaucium* (85) (93)

**367** 4-HYDROXYBULBOCAPNINEC₁₉H₁₉O₅N 341.1262

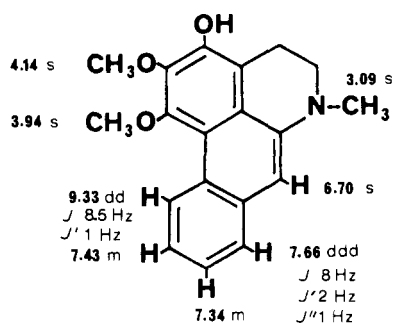
MP: 231-233° (182)

[α]_D: +100° (c=0.14, CHCl₃) (182)

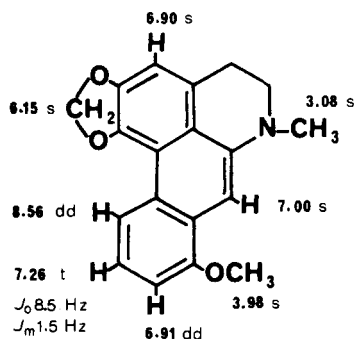
UV: 270 (4.10), 280sh (4.05), 303 (3.71) (182)

¹H-NMR: (182)MS: 341 (M⁺, 89), 340 (34), 326 (54), 324 (11), 308 (13), 299 (19), 298 (100), 296 (15), 283 (19), 269 (30), 139 (14) (182)SOURCES: Papaveraceae: *Glaucium* (182) (183)

Dehydroaporphines (6a,7-Didehydroaporphines)

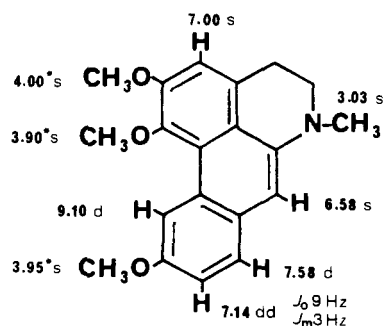
**368** 3-HYDROXY-6a,7-DEHYDRONUCIFERINEC₁₉H₁₉O₃N 309.1364

UV: 262 (4.73), 292sh (4.11) (5)

IR: (CHCl₃) 3530 (5)¹H-NMR: (250 MHz) (5)MS: 309 (M⁺, 100), 294 (25), 293 (6), 279 (16), 277 (14), 276 (13), 262 (11), 251 (12), 194 (11), 152 (10) (5)SOURCES: Annonaceae: *Hexalobus* (4) (5)**369** DEHYDROSTEPHANINEC₁₉H₁₇O₃N 307.1207

MP: 161-163° (110)

UV: 224 (4.43), 253sh (4.55), 262 (4.59), 336 (4.16), 400sh (3.58) (110)

¹H-NMR: (110)MS: 307 (M⁺, 100), 292 (67), 277 (6), 264 (3) (110)SOURCES: Menispermaceae: *Stephania* (110) (144) (145)**370** DEHYDRODOMESTICINE

(1,2,10-Trimethoxydehydroaporphine)

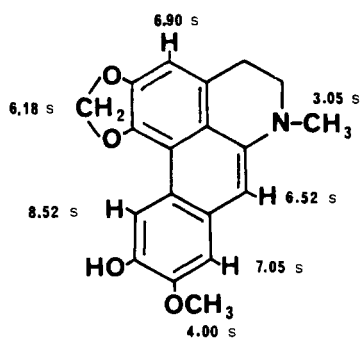
C₂₀H₂₁O₃N 323.1520

MP: 95-97° (109)

UV: 252 (4.66), 264sh (4.57), 297 (3.95), 322 (4.03), 396 (3.40) (109)

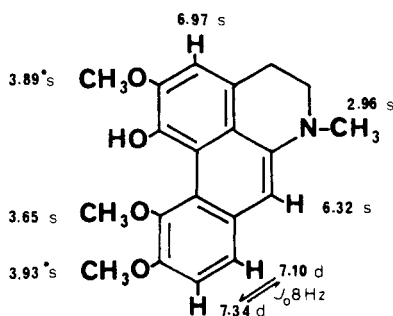
¹H-NMR: (109)MS: 323 (M⁺, 100), 309, 308, 265 (109)

SOURCES: Synthesis (109)

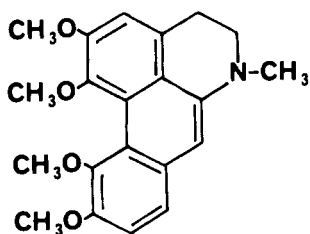
**375 DEHYDROPHANOSTENINE**C₁₉H₁₇O₄N 323.1156

MP: 198-200° (108)

UV: 261 (4.75), 302 (3.93), 337 (4.08), 385 (3.67) (108)

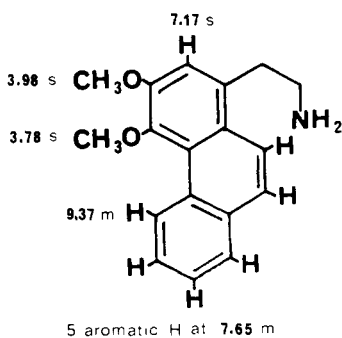
IR: (CHCl₃) 3500 (108)¹H-NMR: (108)MS: 323 (M⁺, 100), 309 (10), 308 (40), 296 (7), 295 (2),
294 (4), 280 (17) (108)SOURCES: Menispermaceae: *Stephania* (108)**376 DEHYDROCORYDINE**C₂₀H₂₁O₄N 339.1469

UV: 220 (4.33), 310 (4.27), 340 (4.10) (93)

¹H-NMR: (100 MHz) (93)SOURCES: Papaveraceae: *Glauicum* (93)**377 DEHYDRO-0,0-DIMETHYLCORYTUBERINE**C₂₁H₂₃O₄N 353.1626

SOURCES: Synthesis (25)

Phenanthrenes

**378 BISNORATHEROSPERMININE**C₁₈H₁₉O₂N 281.1415

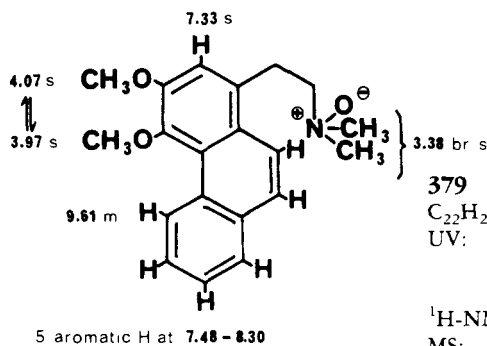
MP: 221-222° (HCl) (78)

UV: 212 (4.24), 233 (4.32), 249 (4.65), 256 (4.78), 274
(4.06), 304 (4.06), 311 (4.06) (HCl) (78)

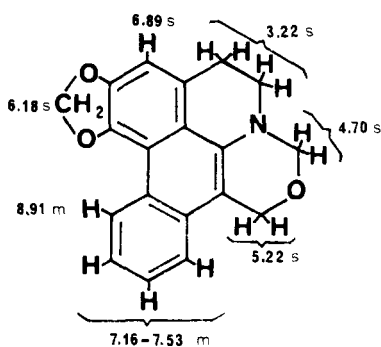
IR: (KBr) 3500, 1600 (HCl) (78)

¹H-NMR: (D₂O) (HCl) (78)¹³C-NMR: (CD₃OD) (HCl) 32.3, 41.6, 116.8, 122.7,
126.4, 127.3, 127.5, 127.6, 128.8,
129.2, 130.7, 131.0, 134.1, 147.8,
152.2, 2 OCH₃ at 57.2 and 60.2 (78)MS: 281 (M⁺) (78)

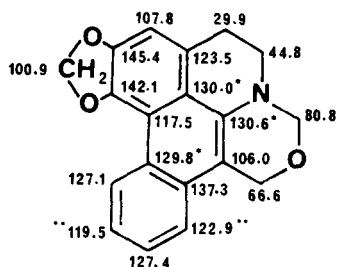
SOURCES: Synthesis (78)

**379** ATHEROSPERMININE N-OXIDEC₂₂H₂₃O₃N 325.1677UV: 213 (4.30), 234 (4.33), 252 (4.60), 258 (4.63),
279sh (4.01), 304 (4.04), 313 (4.04), 346
(3.21), 364 (3.21) (72)¹H-NMR: (72)MS: 264 (100), 249 (16), 233 (16), 217 (71), 206 (17),
189 (28), 178 (33), 61 (22), 58 (89) (72)SOURCES: Annonaceae: *Guatteria* (72)

Miscellaneous*

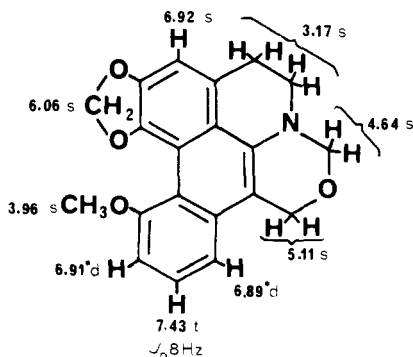
**380** DUGUENAÏNEC₁₉H₁₅O₃N 305.1051

MP: 168-170° (174)

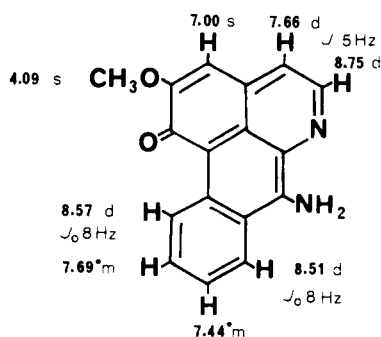
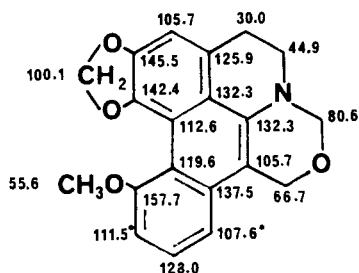
UV: 210 (4.26), 222 (4.34), 256 (4.63), 264 (4.69), 334
(4.06) (174)¹H-NMR: (174)¹³C-NMR: (174)MS: 305 (M⁺, 100), 304 (16), 276 (31), 275 (30), 274
(35) (174)SOURCES: Annonaceae: *Duguetia* (174)**381** DUGUECALYNEC₂₀H₁₇O₄N 335.1156

MP: 202° (174)

UV: 220 (4.05), 266 (4.38), 334 (3.74) (174)

¹H-NMR: (174)¹³C-NMR: (174)MS: 335 (M⁺, 100), 334 (14), 306 (30), 305 (32), 304
(24) (174)SOURCES: Annonaceae: *Duguetia* (174)

*Duguenaïne-type aporphinoids: structures **380-381**; telazolone: **382**; oxoisoaporphines: **383-384**;
taspine: **385**; azafuoranthenes: **386-391**; diazafuoranthene: **392**; tropoloisoquinolines: **393-395**.

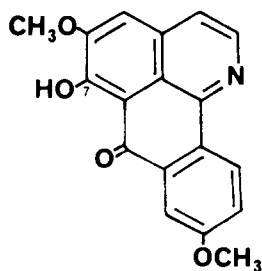
**382 TELAZOLINE***C₁₇H₁₂O₂N₂ 276.0897

MP: 240-243° (142)

UV: 242sh (4.52), 251 (4.53), 283 (4.47), 317sh (3.93), 470 (4.08) (142)

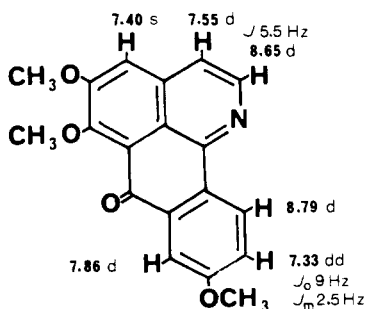
¹H-NMR: (360 MHz) (142)SOURCES: Menispermaceae: *Telotoxicum* (142)

*Tentative structure; an X-ray analysis will be necessary for confirmation (142)

**383 7-O-DEMETHYLMENISPORPHINE***C₁₈H₁₃O₄N 307.0844

SOURCES: Synthesis (112)

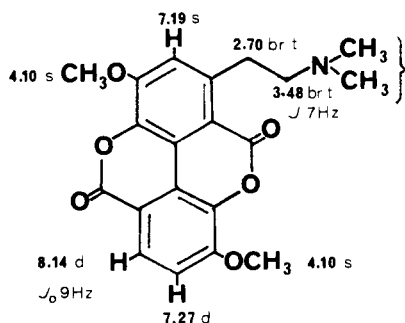
*Unnamed by authors

**384 MENISPORPHINE**C₁₉H₁₅O₄N 321.1000

MP: 199.5-200.5° (112)

UV: 254 (4.72), 288sh (4.13), 319 (3.97), 368 (3.91), 420 (3.97) (112)

IR: 1660 (112)

¹H-NMR: (112)SOURCES: Menispermaceae: *Menispermum* (112)**385 TASPINE**

(Taspine)

C₂₀H₁₉O₆N 369.1211

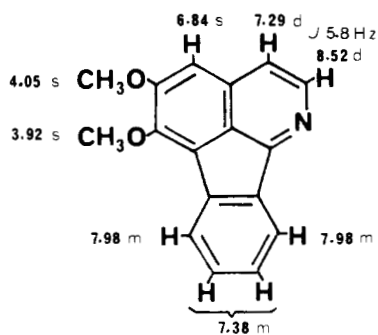
MP: 370° (dec) (153)

[α]_D: +7.6° (Pyridine) (153)

UV: 246 (4.79), 285 (3.94), 297sh (3.88), 330 (3.86), 346 (3.94) (HCl) (184)

¹H-NMR: (184)SOURCES: Berberidaceae: *Leontice* (161)Euphorbiaceae: *Croton* (153)

Synthesis (184)

**386** 5,6-DIMETHOXY-INDENO[1,2,3-ij]-ISOQUINOLINE

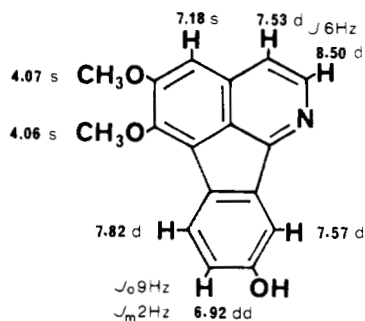
(Triclisine *)

C₁₇H₁₃O₂N 263.0946

MP: 155° (80)

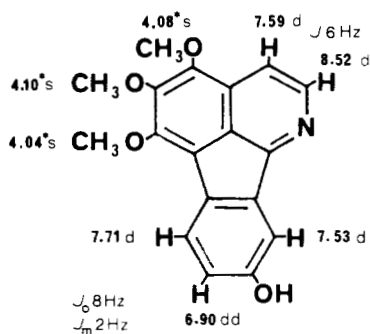
UV: (80)

IR: (KBr) 1630, 1625, 1477, 1283, 1200, 1134, 1023, 850, 752 (80)

¹H-NMR: (80)¹³C-NMR: 8 quaternary C at 125.8, 127.9, 132.1, 139.2, 140.8, 149.1, 160.5; 7 methines at 106.2, 118.5, 123.3, 126.2, 129.8, 131.2, 147.1; 2 methoxys at 57.8, 62.8 (79)MS: 263 (M⁺, 100), 248 (13), 220 (33), 205 (8), 190 (11), 177 (18), 151 (11) (80)SOURCES: Menispermaceae: *Triclistia* (80)*The name "triclisine" was used by Menachery and Cava (142); but a different alkaloid from *Triclistia gilleti* of unknown structure was previously reported under the same name "triclisine" (T.A. Henry, "The Plant Alkaloids," 4th ed., Churchill Ltd., London, 1949, p 778) (79)**387** TELITOXINEC₁₇H₁₃O₃N 279.0895

MP: 273-275° (142)

UV: 233 (4.29), 243 (4.30), 277 (4.14), 288 (4.14), 298 (4.10), 307sh (3.70), 322 (3.55), 350 (3.41), 367 (3.55) (142)

¹H-NMR: (Acetone d₆, 360 MHz) (142)SOURCES: Menispermaceae: *Telitoxicum* (142)**388** NORRUFESCINEC₁₈H₁₅O₄N 309.1000

MP: 235-238° (31)

UV: 225sh (3.56), 248 (3.83), 303 (3.68), 315sh (3.36), 374 (2.87) (31)

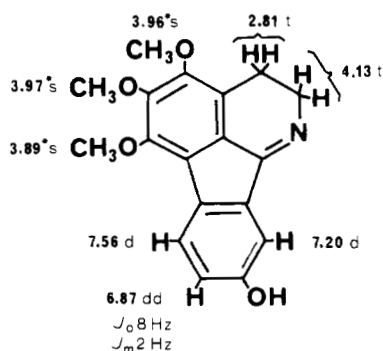
IR: 1610, 1585 (31)

¹H-NMR: (CDCl₃/DMSO) (31)MS: 309 (M⁺) (31)

X-RAY: (101)

SOURCES: Menispermaceae: *Abuta* (31), *Telitoxicum* (142)

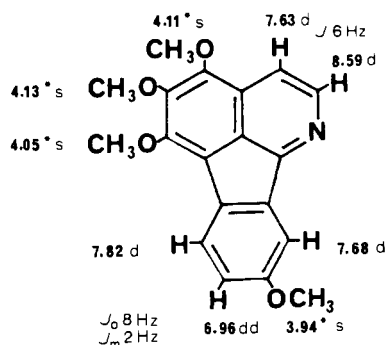
Synthesis (143)

**389** DIHYDRONORRUFESCINEC₁₈H₁₇O₄N 311.1156

MP: 240-242° (143)

¹H-NMR: (CDCl₃/CD₃OD) (143)

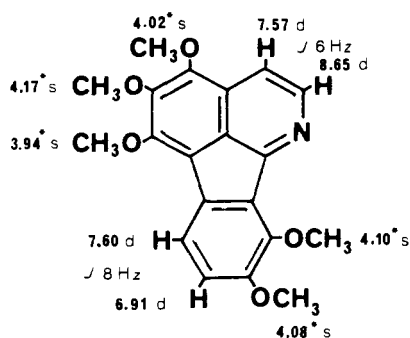
SOURCES: Synthesis (143)

**390 RUFESCINE** $C_{19}H_{17}O_4N$ 323.1156

MP: 88-90° (30)

UV: 247 (4.52), 285sh (4.31), 295 (4.34), 304 (4.29),
315sh (3.84), 356 (3.65), 373 (3.78),
400sh (3.32) (30)

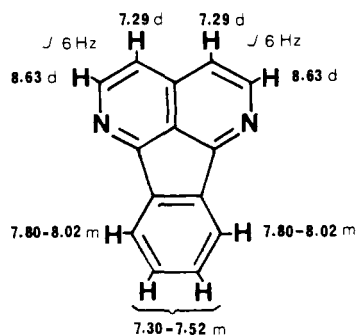
IR: (KBr) 1626, 1587 (31)

 1H -NMR: (100 MHz) (30)SOURCES: Menispermaceae: *Abuta* (30) (31)**391 IMELUTEINE** $C_{20}H_{19}O_5N$ 353.1262

MP: 146-147° (30)

UV: 233 (4.48), 253 (4.49), 288 (4.43), 317 (3.75),
365sh (3.72), 380 (3.85), 400sh (3.72) (30)

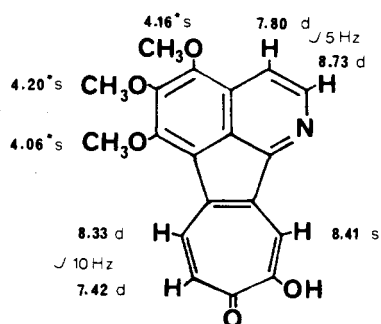
IR: 1575 (30)

 1H -NMR: (100 MHz) (30)SOURCES: Menispermaceae: *Abuta* (30) (31)**392 EUPOLAURIDINE**

(Canangine)

 $C_{14}H_8N_2$ 204.0687

MP: 156-157° (20)

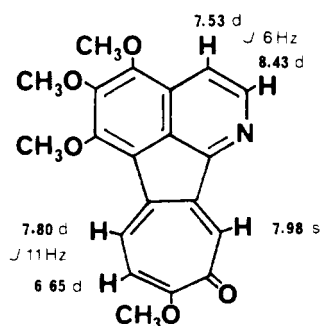
UV: 228 (4.33), 233 (4.34), 278 (4.23), 288 (4.20),
296sh (3.98), 335 (3.57), 350 (3.81), 367
(3.80) (20) 1H -NMR: (100 MHz) (20)MS: 204 (M^+ , 100), 177 (6), 150 (3), 102 (6), 88.5 (2),
75 (4) (20)SOURCES: Annonaceae: *Cananga* (117) (129)Eupomatiaceae: *Eupomatia* (20)**393 GRANDIRUBRINE** $C_{19}H_{15}O_5N$ 337.0949

MP: 201-203° (141)

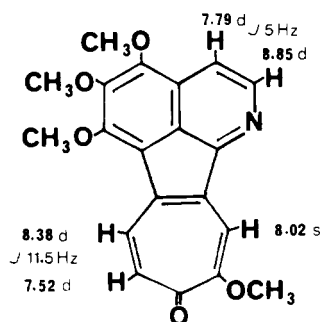
UV: 232 (4.96), 254 (4.79), 274sh (4.66), 296 (4.58),
312sh (4.46), 343sh (4.51), 363 (4.72),
384 (4.41), 400 (4.19), 480 (3.90) (141)

IR: (KBr) 1590 (141)

 1H -NMR: (141)SOURCES: Menispermaceae: *Abuta* (141)



4 methoxy at 3.92, 4.04, 4.10, 4.14



4 methoxy at 4.08, 4.13, 4.29, 4.31

394 IMERUBRINE

$C_{20}H_{17}O_3N$ 351.1105

MP: 183-185° (31)

UV: 255 (4.48), 267 (4.52), 295 (4.40), 350 (4.35),
372sh (4.20), 394 (4.11), 450 (3.93) (31)

IR: (KBr) 1575 (31)

1H -NMR: (31)

X-RAY: (188)

SOURCES: Menispermaceae: *Abuta* (31) (141)

395 ISOIMERUBRINE

$C_{20}H_{17}O_3N$ 351.1105

MP: 183-185° (141)

UV: 230sh, 253, 364, 410, 490 (141)

1H -NMR: (141)

MS: 351 (M^+ , 100), 336 (32), 323 (29), 322 (22), 321
(12), 320 (15), 308 (69) (141)

SOURCES: Synthesis (141)

TABLE 5. Calculated Molecular Weights of New Aporphinoids

| | | | | | | | |
|----------|----------------------|-----------------------------|------------|----------|----------------------|-------------------------------------|------------|
| 204.0687 | $C_{14}H_8N_2$ | Eupolauridine | 392 | 295.1207 | $C_{18}H_{17}O_3N$ | Rormerine N-oxide | 250 |
| 263.0946 | $C_{17}H_{13}O_2N$ | Triclisine | 386 | 297.1364 | $C_{18}H_{19}O_3N$ | Norliridinine | 253 |
| 276.0897 | $C_{17}H_{12}O_2N_2$ | Telazoline | 382 | | | 3-Hydroxynornuciferine | 254 |
| 279.0895 | $C_{17}H_{13}O_3N$ | Telitoxine | 387 | | | 1,9-Dihydroxy-2-methoxyaporphine | 256 |
| 281.1051 | $C_{17}H_{15}O_3N$ | Noroliveroline | 356 | | | 9-Hydroxy-1,2-dimethoxynoraporphine | 258 |
| | | 4-Hydroxyanonaïne | 361 | | | Isothebaidine | 262 |
| 281.1415 | $C_{18}H_{19}O_2N$ | Bisnoratherosperminine | 378 | | | Glaufine | 283 |
| 283.1207 | $C_{17}H_{17}O_3N$ | Anaxagoreine | 355 | 305.1051 | $C_{19}H_{15}O_3N$ | Duguenaine | 380 |
| 291.0531 | $C_{17}H_9O_4N$ | Oxoanolobine | 337 | 307.0480 | $C_{17}H_9O_5N$ | Tuberosinone | 349 |
| 293.0687 | $C_{17}H_{11}O_4N$ | 4,5-Dioxodehydroasimilobine | 348 | 307.0844 | $C_{18}H_{13}O_4N$ | Isomoschatoline | 332 |
| 293.1051 | $C_{18}H_{15}O_3N$ | N-Formylanonaïne | 251 | | | Peruvianine | 335 |
| | | | | | | 7-O-Demethylmenisporphine | 383 |
| | | | | 307.1207 | $C_{19}H_{17}O_3N$ | Guadiscidine | 317 |
| | | | | | | Dehydrostephanine | 369 |
| | | | | 308.1159 | $C_{18}H_{16}O_3N_2$ | N-Carbamoylanonaïne | 252 |

- 309.1000 $C_{18}H_{15}O_4N$
Guattescidine **308**
Norrufescine **388**
- 309.1364 $C_{19}H_{19}O_3N$
3-Hydroxy-6a,7-dehydronuciferine **368**
- 310.1316 $C_{18}H_{18}O_3N_2$
N-Carbamoylasimilobine **249**
- 311.1156 $C_{18}H_{17}O_4N$
Norannuradhapurine **271**
Isocalycinine **277**
Calycinine **278**
Laetine **285**
Dihydroguattescidine **307**
Dihydronorrufescine **389**
- 311.1520 $C_{19}H_{21}O_3N$
1-Hydroxy-2,9-dimethoxyaporphine **257**
Prestephanine **255**
- 313.1313 $C_{18}H_{19}O_4N$
Oureguattidine **264**
Laetanine **274**
- 320.0922 $C_{19}H_{14}O_4N$
Thailandine **334**
- 321.0636 $C_{18}H_{11}O_5N$
Oxoisocalycinine **343**
O-Methyltuberosinone **351**
- 321.1000 $C_{19}H_{15}O_4N$
Splendidine **333**
1,2,9-Trimethoxyoxoaporphine **336**
1,2,10-Trimethoxyoxoaporphine **338**
Menisporphine **384**
- 321.1364 $C_{20}H_{19}O_3N$
Guadiscine **319**
- 323.1156 $C_{19}H_{17}O_4N$
N-Formylxylopinine **260**
N-Formylputerine **263**
Guattescine **310**
Dehydrostesakine **371**
Dehydrophanostenine **375**
Rufescine **390**
- 323.1520 $C_{20}H_{21}O_3N$
6,6a-Dihydroguadiscine **318**
Dehydromesticine **370**
- 325.1313 $C_{19}H_{19}O_4N$
Stesakine **272**
N-Methylcalycinine **279**
Discoguattine **280**
O-Methylaetine **290**
Dihydroguattescine **309**
Ayuthianine **357**
- 325.1677 $C_{20}H_{23}O_3N$
1,2,9-Trimethoxyaporphine **259**
N,O-Trimethylsparsiflorine **261**
Atherosperminine N-oxide **379**
- 327.1469 $C_{19}H_{21}O_4N$
N-Methyloureguattidine **265**
9-O-Methyloureguattidine **266**
1-O-Methyloureguattidine **267**
Norlirioferine **275**
Hernagine **286**
- 335.0793 $C_{19}H_{13}O_5N$
Oxobuxifoline **339**
Oxocrebanine **340**
- 335.1156 $C_{20}H_{17}O_4N$
Duguecalyne **381**
- 337.0949 $C_{19}H_{15}O_5N$
Oxolirioferine **342**
Arosinine **344**
Glaunine **346**
Grandirubrine **393**
- 337.1313 $C_{20}H_{19}O_4N$
Melosmine **323**
Dehydrocrebanine **372**
- 339.1105 $C_{19}H_{17}O_5N$
Guacolidine **315**
- 339.1469 $C_{20}H_{21}O_4N$
N-Methylbuxifoline **269**
Dihydromelosmine **322**
Dehydrothaliporphine **373**
Dehydrolirioferine **374**
Dehydrocorydine **376**
- 340.1548 $C_{20}H_{22}O_4N$
N-Methylbulbocapnine **291**
- 341.1262 $C_{19}H_{19}O_5N$
Xyloguyelline **293**
Duguevanine **298**
Guattouregidine **312**
4-Hydroxybulbocapnine **367**
- 341.1626 $C_{20}H_{23}O_4N$
O,O-Dimethyloureguattidine **268**
N,N-Dimethylhernovine **284**
N-Methylhernagine **287**
Tetrahydromelosmine **320**
- 342.1704 $C_{20}H_{24}O_4N$
N-Methylboldine **273**
N-Methylisocorytuberine **281**
- 343.1418 $C_{19}H_{21}O_5N$
Danguyelline **294**
Dihydroguattouregidine **311**
- 350.1027 $C_{20}H_{16}O_5N$
Uthongine **341**
- 351.1105 $C_{20}H_{17}O_5N$
Glaunidine **345**
Imerubrine **394**
Isoimerubrine **395**

| | |
|---|--|
| 351.1469 C ₂₁ H ₂₁ O ₄ N Melosmidine 326 Guadiscoline 331 | 369.1211 C ₂₀ H ₁₉ O ₆ N N-Formyl duguevanine 300 Taspine 385 |
| 353.1262 C ₂₀ H ₁₉ O ₅ N N-Formylbuxifoline 270 Ocominarine 303 Guacoline 316 Imeluteine 391 | 369.1575 C ₂₁ H ₂₃ O ₅ N N-Methylbaicaline 297 N,O-Dimethyl duguevanine 302 O,O-Dimethylguattouregidine 314 |
| 353.1626 C ₂₁ H ₂₃ O ₄ N 6,6a-Dihydroguadiscoline 330 Dehydro-O,O-dimethylcorytuberine 377 | 369.1940 C ₂₂ H ₂₇ O ₄ N N-Methyltetrahydromelosmidine 325 O,O-Dimethyltetrahydromelosmine 327 |
| 355.1418 C ₂₀ H ₂₁ O ₅ N Baicaline 296 N-Methyl duguevanine 299 O-Methyl duguevanine 301 Guattouregine 313 Sukhodianine 358 4-Hydroxycrebanine 362 4-Hydroxydicentrine 365 | 370.2018 C ₂₂ H ₂₈ O ₄ N N,O-Dimethylisocorydine 289 |
| 355.1782 C ₂₁ H ₂₅ O ₄ N N-Methyltetrahydromelosmine 321 Tetrahydromelosmidine 324 | 371.1367 C ₂₀ H ₂₁ O ₆ N 9-O-Demethylleucosine 304 |
| 357.1575 C ₂₀ H ₂₃ O ₅ N Corydine N-oxide 282 Isocorydine N-oxide 288 7-Hydroxythalicmidine 359 Norcataline 363 Glaufidine 366 | 371.1731 C ₂₁ H ₂₅ O ₅ N Glaucine N-oxide 276 Isoconovine 292 Thalisopynine 295 7-Hydroxyglaucine 360 Epicataline 364 |
| 365.0898 C ₂₀ H ₁₅ O ₆ N 4,5-Dioxodehydrocrebanine 352 Corydione 353 | 383.1367 C ₂₁ H ₂₁ O ₆ N Ocotomarine 306 Dihydropontevedrine 354 |
| 365.1626 C ₂₂ H ₂₃ O ₄ N O,O-Dimethylmelosmine 329 | 383.2095 C ₂₃ H ₂₉ O ₄ N N-Methyl-O,O-dimethyltetrahydromelosmine 328 |
| | 385.1524 C ₂₁ H ₂₃ O ₆ N Norleucoxylophine 305 |
| | 395.1003 C ₂₁ H ₁₇ O ₇ N Ocominarone 347 |
| | 469.1007 C ₂₃ H ₁₉ O ₁₀ N Tuberosinone N-β-D-glucoside 350 |

TABLE 6. Botanical Sources of Aporphinoid Alkaloids*

ANNONACEAE

Anaxagorea

- Anaxagoreine **355**
Asimilobine **3**

Annona

- Anonaine **7**
Argentinine **162**
Asimilobine **3**
Atherosperminine **163**
Corydine **74**
Glaucine **59**
Isoboldine **40**
Isocorydine **85**
Lanuginosine **120**
Liriodenine **116**
Lysicamine **115**
O-Methylmoschatoline **118**
Xylophine **18**

Cananga

- Eupolauridine **392**

Cleistopholis

- Isomoschatoline **332**
Liriodenine **116**

Desmos

- Anonaine **7**
Asimilobine **3**
Boldine **50**
Isoboldine **40**
Laurotetanine **54**
N-Methylaurotetanine **55**
Norushinsunine **138**

Duguetia

- Anolobine **16**
Buxifoline **197**
Calycinine **278**
Duguecalyne **381**
Dugueanine **380**

- Duguevanine **298**
 N-Formylbuxifoline **270**
 N-Formylduguevanine **300**
 N-Formylputerine **263**
 N-Formylxylopine **260**
 Isolaureline **19**
 N-Methylbuxifoline **269**
 N-Methylcalycinine **279**
 N-Methylduguevanine **299**
 Oxobuxifoline **339**
 Xylopine **18**
- Greenwayodendron*
 Oliveridine N-oxide **230**
 Oliverine **143**
 Oliverine N-oxide **232**
 Oxostephanine **216**
 Polysuavine **228**
- Guatteria*
 Actinodaphnine **64**
 Anolobine **16**
 Argentinine **162**
 Asimilobine **3**
 Atheroline **123**
 Atherosperminine **163**
 Atherosperminine N-oxide **379**
 Corydine **74**
 Dicentrinone **126**
 Dihydromelosmine **322**
 Discoguatrine **280**
 Guacolidine **315**
 Guacoline **316**
 Guadiscidine **317**
 Guadiscine **319**
 Guadiscoline **331**
 Guattescidine **308**
 Guattescine **310**
 Guattouregidine **312**
 Guattouregine **313**
 3-Hydroxynornuciferine **254**
 Isoboldine **40**
 Isocalycinine **277**
 Isomoschatoline **332**
 Isopiline **184**
 Lanuginosine **120**
 Laurotetanine **54**
 Liriodenine **116**
 Lysicamine **115**
 Melosmidine **326**
 Melosmine **323**
 O-Methylisopiline **188**
 N-Methylaurotetanine **55**
 O-Methylmoschatoline **118**
 O-Methylpukateine **36**
 Nordicentrine **204**
 Nornuciferine **5**
 Norpredicentrine **51**
 Oureguattidine **264**
 Oxoanolobine **337**
 Oxoisocalycinine **343**
 Puterine **196**
 Roemerine **8**
- Subsessiline **122**
 Xylopine **18**
- Hexalobus*
 Anonaine **7**
 Asimilobine **3**
 N-Carbamoylanonaine **252**
 N-Carbamoylasimilobine **249**
 N-Formylanonaine **251**
 3-Hydroxy-6a,7-dehydronuciferine **368**
 3-Hydroxynornuciferine **254**
 Liriodenine **116**
 Nornuciferine **5**
 Norstephalagine **191**
- Mitrella*
 Anonaine **7**
 Asimilobine **3**
 Liriodenine **116**
- Monanthebotaxis*
 Asimilobine **3**
 9-Hydroxy-1,2-dimethoxynoraporphine
258
 Laurelliptine **39**
 Nuciferine **6**
- Monodora*
 Anolobine **16**
 Anonaine **7**
 Laurelliptine **39**
 Liriodenine **116**
 Magnofflorine **72**
 Sparsiflorine **20**
- Polyalthia*
 Anolobine **16**
 Anonaine **7**
 Asimilobine **3**
 Boldine **50**
 Caaverine **1**
 3-Hydroxynornuciferine **252**
 Isoboldine **40**
 Isopiline **184**
 Liriodenine **116**
 3-Methoxynuciferine **189**
 O-Methylisopiline **188**
 O-Methylmoschatoline **118**
 Norannuradhapurine **271**
 Norliridinine **253**
 Noroliveroline **356**
 Nornuciferine **5**
 Norushinsunine **138**
 Oliveridine N-oxide **230**
 Oliverine **143**
 Oliverine N-oxide **238**
 Oxostephanine **216**
 Polysuavine **228**
 Tuduranine **25**
 Ushinsunine **139**
- Uvaria*
 Asimilobine **3**
 Glaucine **59**
 Isoboldine **40**
 Thaliporphine **44**

Xylopia

- Anonaine 7
- Asimilobine 3
- Buxifoline 197
- Corydine 74
- Danguyelline 294
- Isoboldine 40
- Lanuginosine 120
- Laurotetanine 54
- Liriodenine 116
- N-Methylasimilobine 4
- N-Methylaurotetanine 55
- Norcorydine 73
- Norisocorydine 84
- Norisodomesticine 200
- Nornantenine 61
- Nornuciferine 5
- Norstephalagine 191
- Xyloguyelline 293
- Xylopinine 18

ARISTOLOCHACEAE

Aristolochia

- Cepharadione A 177
- 4,5-Dioxodehydroasimilobine 348
- Magnoflorine 72
- Tuberosinone 349
- Tuberosinone N- β -D-glucoside 350

BERBERIDACEAE

Berberis

- Isoboldine 40
- Isocorydine N-oxide 288
- Magnoflorine 72
- Thalicmidine N-oxide 45

Leontice

- Taspine 385

Mahonia

- Corydine 74
- Glaucine 59
- Isoboldine 40
- Isocorydine 85
- Magnoflorine 72
- Thaliporphine 44

Nandina

- Corydione 353
- Dehydronantenine 156
- Isocorydine 85
- Nantenine 62
- Nornantenine 61
- Oxonantenine 125

CANELLACEAE

Cinnamosma

- Menisperine 86

EUPHORBIACEAE

Croton

- Glaucine 59
- Magnoflorine 72
- Taspine 385
- Thaliporphine 44

EUPOMATIACEAE

Eupomatia

- Eupolauridine 392
- Liriodenine 116
- Norushinsunine 138

FUMARIACEAE†

Corydalis

- Bulbocapnine 92
- Corydine 74
- Corydione 353
- Corytuberine 71
- Dehydronantenine 156
- Domesticine 48
- Glaucine 59
- Isoboldine 40
- Isocorydine 85
- Magnoflorine 72
- N-Methylbulbocapnine 291
- Nandazurine 137
- Nantenine 162
- Oxonantenine 125
- Predicentrine 52
- Thaliporphine 44

Dicentra

- Corydine 74

Fumaria

- Isoboldine 40

HERNANDIACEAE

Hernandia

- Actinodaphnine 64
- Hernagine 286
- Hernovine 76
- Isoboldine 40
- Isocorydine 85
- Laurotetanine 54
- N-Methylactinodaphnine 65
- N-Methylhernangerine 90
- N-Methylhernovine 77
- N-Methylaurotetanine 55
- Nandigerine 89
- Neolitsine 69
- Norisocorydine 84
- Nornantenine 61
- Ovigerine 94
- Oxonantenine 125

LAURACEAE

Cryptocarya

- Isoboldine 40
- Laurotetanine 54
- N-Methylaurotetanine 55
- Norisocorydine 84

Debaasia (Debassia)

- Isocorydine 85

Laurus

- Actinodaphnine 64
- Boldine 50
- Cryptodorine 68
- Isodomesticine 53
- Launobine 91
- N-Methylactinodaphnine 65

- Nandigerine **89**
 Neolitsine **69**
 Norisodomesticine **200**
Litsea
 Actinodaphnine **64**
 Boldine **50**
 Cassameridine **127**
 Corydine **74**
 Dicentrinone **126**
N,O-Dimethylhernovine **82**
 Glaucine **59**
 Isoboldine **40**
 Isocorydine **85**
 Laetanine **274**
 Laetine **285**
 Laurelliptine **39**
 Laurolicsine **49**
 Laurotetanine **54**
N-Methylactinodaphnine **65**
N-Methylhernangerine **90**
N-Methylaurotetanine **55**
 Nandigerine **89**
 Nordicentrine **204**
 Norisocorydine **85**
 Predicentrine **52**
Machilus
 Boldine **50**
 Isoboldine **40**
 Laurolicsine **49**
 Laurotetanine **54**
Mezilaurus
 Corytuberine **71**
Nectandra
 Laurelliptine **39**
Neolitsea
 Isoboldine **40**
Ocotea
 Dicentrine **67**
 Dicentrinone **126**
 4-Hydroxydicentrine **365**
 Isoconovine **292**
 Leucosine **210**
 Leucoxylinone **212**
 Norleucoxylinone **305**
 Ocominarine **303**
 Ocominarone **347**
 Ocopodine **112**
 Ocoteine **109**
 Ocotominarine **306**
 Predicentrine **52**
 Thaliporphine **44**
MAGNOLIACEAE
Magnolia
 Anonaine **7**
 Magnoflorine **72**
 Menisperine **86**
MENISPERMACEAE
Abuta
 Grandirubrine **393**
 Imeluteine **391**
 Imenine **132**
 Imerubrine **394**
 Lysicamine **115**
O-Methylmoschatoline **118**
 Norrufescine **388**
 Rufescine **390**
 Splendidine **333**
Anamirta
 Magnoflorine **72**
Chasmanthera
 Anonaine **7**
O,O-Dimethylcorytuberine **88**
 Glaucine **59**
 Liriodenine **116**
 Lysicamine **115**
 Magnoflorine **72**
 Norglaucine **58**
 Nornuciferine **5**
 Oxoglaucine **124**
Cocculus
O,O-Dimethylcorytuberine **88**
N,O-Dimethylisocorydine **289**
 Laurifoline **41**
 Magnoflorine **72**
 Menisperine **86**
N-Methylboldine **273**
Coscinium
N,N-Dimethylindcarpine **80**
 Magnoflorine **72**
Cyclea
 Magnoflorine **72**
Fibraurea
N,N-Dimethylindcarpine **80**
 Magnoflorine **72**
Heptacyclum
 Magnoflorine **72**
Kolobopetalum
 Magnoflorine **72**
N-Methylcorydine **75**
Menispermum
 Menisporphine **384**
Pachygone
N,O-Dimethylisocorydine **289**
 Liriodenine **116**
 Magnoflorine **72**
Pycnarrhena
N,N-Dimethylindcarpine **80**
 Magnoflorine **72**
Rhigiocarya
 Liriodenine **116**
 Magnoflorine **72**
 Menisperine **86**
Stephania
 Ayuthianine **357**
 Cepharadione A **177**
 Corytuberine **71**
 Crebanine **38**
 Dehydrocrebanine **372**
 Dehydrodicentrine **157**
 Dehydrophanostenine **375**
 Dehydroroemerine **151**

- Dehydrostephanine **369**
 Dehydrostesakine **371**
 Dicentrine **67**
 Dioxodehydrocrebanine **352**
 4-Hydroxycrebanine **362**
 Isoboldine **40**
 Isocorydine **85**
 Lanuginosine **120**
 Liriodenine **116**
 Lysicamine **115**
 Magnoflorine **72**
 N-Methylasimilobine **4**
 N-Methylcorydine **75**
 N-Methylglaucine **60**
 N-Methylauroretanine **55**
 Oxocrebanine **340**
 Oxostephanine **216**
 Roemerine **8**
 Roemeroline **17**
 Sukhodianine **358**
 Stephanine **12**
 Stesakine **272**
 Thailandine **334**
 Ushinsunine **139**
 Uthongine **341**
- Telitoxicum*
- Lysicamine **115**
 Norrufescine **388**
 Peruvianine **335**
 Subsessiline **122**
 Telazolone **382**
 Telitoxine **387**
- Tiliacora*
- Magnoflorine **72**
- Tinospora*
- Magnoflorine **72**
- Triclisia*
- Triclisine **386**
- MONIMIACEAE‡
- Doryphora*
- Isocorydine **85**
- Laurelia*
- Anonaine **7**
 Assimilobine **3**
 Atheroline **123**
 4-Hydroxyanonaine **361**
 4-Hydroxynornantenine **237**
 Lauroretanine **54**
 Liriodenine **116**
 Norcorydine **73**
 Nornantenine **61**
 Nornuciferine **5**
 Norushinsunine **138**
 Obovanine **33**
 Oxonantenine **125**
 Oxoputerine **218**
 Pukateine **34**
- Monimia*
- Atheroline **123**
 Boldine **50**
 Laurolitsine **49**
- Lauroretanine **54**
 N-Methylauroretanine **55**
 Norglaucine **58**
- Siparuna*
- Liriodenine **116**
 Oxonantenine **125**
- PAPAVERACEAE
- Dicranostigma*
- Corydine **74**
 Isocorydine **85**
- Glaucium*
- Arosinine **344**
 Bulbocapnine **92**
 Corydine **74**
 Corydine N-oxide **282**
 Dehydrocorydine **376**
 Dehydrodicentrine **157**
 Dicentrine **67**
 Dicentrinone **126**
 Glaucine **59**
 Glaufidine **366**
 Glaufine **283**
 Glaunidine **345**
 Glaunine **346**
 4-Hydroxybulbocapnine **367**
 Isoboldine **40**
 Isocorydine **85**
 Isocorytuberine **70**
 N-Methylauroretanine **55**
 N-Methylindcarpine **79**
 Neolitsine **69**
 Norcorydine **73**
 Norisocorydine **84**
 Thaliporphine **44**
- Meconopsis*
- Magnoflorine **72**
- Papaver*
- Bracteoline **42**
 Corydine **74**
 Corytuberine **71**
 Dehydroglaucine **154**
 Dehydroroemerine **151**
 Floripavidine **247**
 Glaucine **59**
 Isocorydine **85**
 Isothebaidine **262**
 Isothebaine **31**
 Lirinidine **2**
 Liriodenine **116**
 Magnoflorine **72**
 Menisperine **86**
 N-Methylasimilobine **4**
 N-Methylauroretanine **55**
 Nantenine **62**
 Nuciferine **6**
 Roemerine **8**
 Roemerine N-oxide **250**
 Roemrefidine **9**
- RANUNCULACEAE
- Aconitum*

| | | | |
|-----------------------|-----|------------------------------|-----|
| Corydine | 74 | Thalflavidine | 174 |
| Glaucine | 59 | Thalicminine | 130 |
| Glaucidine | 345 | Thalictuberine | 169 |
| Isoboldine | 40 | Thaliglucinone | 172 |
| Magnoflorine | 72 | Thaliporphine | 44 |
| <i>Caltha</i> | | Thalphenine | 114 |
| Magnoflorine | 72 | Thalisopynine | 295 |
| <i>Coptis</i> | | N,O,O-Trimethylsparsiflorine | 261 |
| Magnoflorine | 72 | Xanthoplanine | 56 |
| <i>Delphinium</i> | | | |
| Magnoflorine | 72 | RHAMNACEAE | |
| <i>Thalictrum</i> | | <i>Ziziphus</i> | |
| Baicaline | 296 | Asimilobine | 3 |
| Corunnine | 134 | Nornuciferine | 5 |
| N-Demethylthalphenine | 213 | | |
| Glaucine | 59 | RUTACEAE | |
| Isoboldine | 40 | <i>Zanthoxylum</i> | |
| Magnoflorine | 72 | N-Acetylanonaine | 183 |
| N-Methylaurotetanine | 55 | Cocsarmine | 57 |
| N-Methylnanténine | 202 | Laurifoline | 41 |
| Ocoteine | 109 | Magnoflorine | 72 |
| | | Menisperine | 86 |

*Excluding those previously tabulated in Aporphine Alkaloids and Aporphine Alkaloids II.

†*Corydalis* and *Dicentra* were previously included in Papaveraceae.

‡Including Atherospermataceae and Siparunaceae.

TABLE 7. Names and Synonyms of Aporphinoids Cited in This Review

| | | | | | |
|--------------------------|-----|--------|--|-----|--------|
| N-Acetylanonaine | 183 | ia | Cassythine | 106 | sd |
| Actinodaphnine | 64 | ia | Cataline | 148 | sd; ia |
| Analobine | 16 | sd; ia | Catalpifoline | 87 | sd |
| Anaxagoreine | 355 | na | Cepharadione A | 177 | ia |
| Anolobine | 16 | sd; ia | Cepharadione B | 176 | sd |
| Anonaine | 7 | sd; ia | Chakranine | 86 | ia |
| Aporheine | 8 | ia | Cocsarmine | 57 | ia |
| Argentinine | 162 | ia | Corunnine | 134 | ia |
| Arosine | 345 | na | Corydine | 74 | ia |
| Arosinine | 344 | na | Corydine N-oxide | 282 | na |
| Artabotrine | 85 | sd; ia | Corydione | 353 | na |
| Asimilobine | 3 | ia | Corytuberine | 71 | ia |
| Atheroline | 123 | ia | Crebanine | 38 | sd; ia |
| Atherosperminine | 163 | ia | Cryptodorine | 68 | ia |
| Atherosperminine N-oxide | 379 | na | | | |
| Ayuthianine | 357 | na | Danguyelline | 294 | na |
| | | | Dehydrocorydine | 376 | na |
| Baicaline | 296 | na | Dehydrocrebanine | 372 | na |
| Bisnoratherosperminine | 378 | na | Dehydrodicentrine | 157 | sd; ia |
| Boldine | 50 | sd; ia | Dehydro-O,O-dimethylcorytuberine | 377 | na |
| Bracteoline | 42 | ia | Dehydrodomesticine | 370 | na |
| Bulbocapnine | 92 | sd; ia | Dehydroglaucine | 154 | sd; ia |
| Buxifoline | 197 | sd; ia | Dehydrolirioferine | 374 | na |
| | | | Dehydronanténine | 156 | ia |
| Caaverine | 1 | ia | Dehydronuciferine | 149 | sd |
| Calycinine | 278 | na | Dehydrophanostenine | 375 | na |
| Canangine | 392 | na | Dehydroroemerine | 151 | ia |
| N-Carbamoylanonaine | 252 | na | Dehydrostephanine | 369 | na |
| N-Carbamoylasimilobine | 249 | na | Dehydrostesakine | 371 | na |
| Cassameridine | 127 | ia | Dehydrothaliporphine | 373 | na |
| Cassifiline | 106 | sd | 6a,7-Dehydro-2,9,10-trimethoxyaporphine-1-ol | 373 | na |
| Cassythicine | 65 | ia | | | |

- 9-*O*-Demethylleucoxine **304** *na*
 7-*O*-Demethylmenisporphine **383** *na*
N-Demethylthalphenine **213** *ia*
 Dicentrine **67** *sd; ia*
 Dicentrinone **126** *sd; ia*
 6,6a-Dihydroguadiscine **318** *na*
 6,6a-Dihydroguadiscoline **330** *na*
 Dihydroguattescidine **307** *na*
 Dihydroguattescine **309** *na*
 Dihydroguattouregidine **311** *na*
 Dihydromelosmine **322** *na*
 Dihydronorufescine **389** *na*
 Dihydropontevdrine **354** *na*
 1,9-Dihydroxy-2-methoxyaporphine **256** *na*
 5,6-Dimethoxy-indeno[1,2,3-*ij*]isoquinoline
386 *na*
N,*O*-Dimethylactinodaphnine **67** *sd; ia*
N,*O*-Dimethylcassyfiline **109** *sd; ia*
O,*O*-Dimethylcorytuberine **88** *ia*
N,*O*-Dimethylduguevanine **302** *na*
O,*O*-Dimethylguattouregidine **314** *na*
N,*N*-Dimethylhernovine **284** *na*
N,*O*-Dimethylhernovine **82** *ia*
N,*O*-Dimethylisocorydine **289** *na*
N,*N*-Dimethylindcarpine **80** *ia*
O,*O*-Dimethylmagnoflorine **289** *na*
O,*O*-Dimethylmelosmine **329** *na*
O,*O*-Dimethyloureguattidine **268** *na*
O,*O*-Dimethyltetrahydromelosmine **327** *na*
 4,5-Dioxodehydroasimilobine **348** *na*
 4,5-Dioxodehydrocrebanine **352** *na*
 4,5-Dioxodehydronantenine **353** *na*
 Discoguattine **280** *na*
 Domesticine **48** *ia*
 Domesticine **62** *ia*
 Duguecalyne **381** *na*
 Duguevanine **380** *na*
 Duguevanine **298** *na*

 Epicataline **364** *na*
 Epidicentrine **62** *ia*
 Esholine **72** *sd; ia*
 Eupolauridine **392** *na*
 Eximine **67** *sd; ia*

 Floripavidine **247** *ia*
N-Formylanonaine **251** *na*
N-Formylbuxifoline **270** *na*
N-Formylduguevanine **300** *na*
N-Formylputerine **263** *na*
N-Formylxylopine **260** *na*

 Glaucetrine **74** *ia*
 Glaucine **59** *ia*
 Glaucine *N*-oxide **276** *na*
 Glaufidine **366** *na*
 Glaufine **283** *na*
 Glaunidine **345** *na*
 Glaunine **346** *na*
 Glauvine **28** *rs; ia*
 Grandirubrine **393** *na*

 Guacolidine **315** *na*
 Guacoline **316** *na*
 Guadiscidine **317** *na*
 Guadiscine **319** *na*
 Guadiscoline **331** *na*
 Guatterine **140** *sd*
 Guattescidine **308** *na*
 Guattescine **310** *na*
 Guattouregidine **312** *na*
 Guattouregine **313** *na*

 Hernagine **286** *na*
 Hernangerine **89** *sd; ia*
 Hernovine **76** *sd; ia*
 Homomoschatoline **118** *sd; ia*
 4-Hydroxyanonaine **361** *na*
 4-Hydroxybulbocarpine **367** *na*
 4-Hydroxycrebanine **362** *na*
 3-Hydroxy-6a,7-dehydronuciferine **368** *na*
 4-Hydroxydicentrine **365** *na*
 1-Hydroxy-2,9-dimethoxyaporphine **257**
na
 9-Hydroxy-1,2-dimethoxynoraporphine **258**
na
 7-Hydroxyglaucaine **360** *na*
 4-Hydroxynornantenine **237** *sd; ia*
 3-Hydroxynornuciferine **254** *na*
 3-Hydroxynuciferine **13, 187** *sd*
 7-Hydroxythalicmidine **359** *na*

 Imeluteine **391** *na*
 Imerubrine **132** *ia*
 Imerubrine **394** *na*
 Isoboldine **40** *ia*
 Isocalycinine **277** *na*
 Isocorydine **85** *sd; ia*
 Isocorydine *N*-oxide **288** *na*
 Isocorytuberine **70** *sd; ia*
 Isodomesticine **53** *ia*
 Isoimerubrine **395** *na*
 Isolaureline **19** *sd; ia*
 Isomoschatoline **332** *na*
 Isoconovine **292** *na*
 Isopiline **184** *sd; ia*
 Isothebaidine **262** *na*
 Isothebaine **31** *sd; ia*

 Laetanine **274** *na*
 Laetine **285** *na*
 Lanuginosine **120** *ia*
 Launobine **91** *ia*
 Laurelliptine **39** *ia*
 Laurifoline **41** *ia*
 Laurolitsine **49** *ia*
 Lauroschooltzine **55** *sd; ia*
 Laurotetanine **54** *sd; ia*
 Leucoxine **210** *sd; ia*
 Leucoxyllonine **212** *ia*
 Liridine **118** *sd; ia*
 Liridinine **186** *sd*
 Lirinidine **2** *ia*

- Lirinine **13, 187** *sd*
 Liriodendron base **124** *sd; ia*
 Liriodenine **116** *sd; ia*
 Litsoeine **54** *sd; ia*
 Luteanine **85** *sd; ia*
 Lysicamine **115** *sd; ia*
- Magnoflorine **72** *sd; ia*
 Melosmidine **326** *na*
 Melosmine **323** *na*
 Menisperine **86** *ia*
 Menisporphine **384** *na*
 3-Methoxynuciferine **15, 189** *sd; ia*
 N-Methylactinodaphnine **65** *ia*
 N-Methylanolobine **17** *sd; ia*
 N-Methylanonaine **8** *ia*
 N-Methylasimilobine **4** *ia*
 N-Methylaporheine **9** *ia*
 O-Methylatheroline **124** *sd; ia*
 N-Methylbaicaline **297** *na*
 N-Methylboldine **273** *na*
 N-Methylbulbocapnine **291** *na*
 N-Methylbuxifoline **269** *na*
 N-Methylcalycinine **279** *na*
 O-Methylcalycinine **280** *na*
 N-Methylcorydine **75** *ia*
 N-Methyl-O, O-dimethyltetrahydromelosmine
328 *na*
 O-Methyl domesticine **62** *ia*
 N-Methyl duguévanine **299** *na*
 O-Methyl duguévanine **301** *na*
 1,2-Methylenedioxy-3,10-dimethoxy-8,9-
 dihydroxyaporphine **304** *na*
 N-Methylglaucine **60** *sd; ia*
 N-Methylhernagine **287** *na*
 N-Methylhernangerine **90** *ia*
 N-Methylhernovine **77** *ia*
 O-Methylisoboldine **44** *ia*
 N-Methylisocorydine **86** *ia*
 N-Methylisocorytuberine **281** *na*
 O-Methylisopiline **188** *sd; ia*
 O-Methyl laetine **290** *na*
 N-Methyl launobine **92** *sd; ia*
 N-Methyl laurelliptine **40** *ia*
 N-Methyl laurotetanine **55** *sd; ia*
 N-Methyl lindcarpine **79** *ia*
 O-Methyl lirinine **15, 189** *sd; ia*
 O-Methyl moschatoline **118** *sd; ia*
 N-Methyl nandigerine **90** *ia*
 N-Methyl nantenine **202** *ia*
 O-Methyl norlirinine **188** *sd; ia*
 N-Methyl oureguattidine **265** *na*
 1-O-Methyl oureguattidine **267** *na*
 9-O-Methyl oureguattidine **266** *na*
 O-Methyl pukateine **36** *sd; ia*
 N-Methyl roemerine **9** *ia*
 N-Methyl tetrahydromelosmidine **325** *na*
 N-Methyl tetrahydromelosmine **321** *na*
 O-Methyl thalicmidine **59** *ia*
 O-Methyl tuberosinone **351** *na*
 N-Methyl xylopine **19** *sd; ia*
- N-Methylzinkerine **193** *sd*
 Michelalbine **138** *ia*
 Micheline **139** *ia*
- Nandazurine **137** *ia*
 Nandigerine **89** *sd; ia*
 Nantenine **62** *ia*
 Neolitsine **69** *sd; ia*
 Norannuradhapurine **271** *na*
 Norboldine **49** *ia*
 Norbulbocapnine **91** *ia*
 Norcataline **363** *na*
 Norcorydine **73** *ia*
 Nordicentrine **204** *ia*
 Norglaucine **58** *ia*
 Norisoboldine **39** *ia*
 Norisocorydine **84** *ia*
 Norisodomeesticine **200** *ia*
 Norleucoxylinone **305** *na*
 Norliridinine **253** *na*
 Norlirioferine **275** *na*
 Nornantenine **61** *ia*
 Norneolitsine **68** *ia*
 Nornuciferine **5** *sd; ia*
 Noroliveroline **356** *na*
 Norpredicentrine **51** *sd; ia*
 Norrufescine **388** *na*
 Norstephalagine **191** *sd; ia*
 Norushinsunine **138** *ia*
 Nuciferine **6** *sd; ia*
- Obovanine **33** *ia*
 Ocominarine **303** *na*
 Ocominarone **347** *na*
 Ocopodine **112** *ia*
 Ocoteine **109** *sd; ia*
 Ocotomarine **306** *na*
 Oliveridine N-oxide **230** *ia*
 Oliverine **143** *ia*
 Oliverine N-oxide **232** *ia*
 Oureguattidine **264** *na*
 Ovigerine **94** *sd; ia*
 Oxanolobine **337** *na*
 Oxobuxifoline **339** *na*
 Oxocrebanine **340** *na*
 Oxoglaucine **124** *sd; ia*
 Oxoisocalycinine **343** *na*
 Oxolirioferine **342** *na*
 Oxonantenine **125** *sd; ia*
 Oxonuciferine **115** *sd; ia*
 Oxoputerine **218** *sd; ia*
 Oxostephanine **216** *sd; ia*
 Oxoushinsunine **116** *sd; ia*
 Oxoxylopine **120** *ia*
- Peruvianine **335** *na*
 Phoebe base **79** *ia*
 Polysuavine **228** *ia*
 Predicentrine **52** *ia*
 Prestephanine **255** *na*
 Pukateine **34** *ia*

| | | | | | |
|-----------------------|-----|-------------------|--------------------------------------|-----|---------------|
| Pulchrine | 193 | <i>sd</i> | Thalicmidine N-oxide | 45 | <i>ia</i> |
| Puterine | 196 | <i>ia</i> | Thalicmine | 109 | <i>sd: ia</i> |
| Remrefidine | 9 | <i>ia</i> | Thalicminine | 130 | <i>ia</i> |
| Roemerine | 8 | <i>ia</i> | Thalichuberine | 169 | <i>ia</i> |
| Roemerine N-oxide | 250 | <i>na</i> | Thalictrine | 72 | <i>sd: ia</i> |
| Roemeroline | 17 | <i>sd: ia</i> | Thaliglucione | 172 | <i>ia</i> |
| Roemrefidine | 9 | <i>ia</i> | Thalisopynine | 295 | <i>na</i> |
| Rogersine | 55 | <i>sd: ia</i> | Thalphenine | 114 | <i>ia</i> |
| Rufescine | 390 | <i>na</i> | Thalporphine | 44 | <i>ia</i> |
| Sukhodanin | 358 | <i>na</i> | Thaspine | 385 | <i>na</i> |
| Sparsiflorine | 20 | <i>ia</i> | Triclisine | 386 | <i>na</i> |
| Spermatheridine | 116 | <i>sd: ia</i> | 1,2,9-Trimethoxyaporphine | 259 | <i>na</i> |
| Splendidine | 333 | <i>na</i> | 1,2,10-Trimethoxyaporphine | 261 | <i>na</i> |
| Stephanine | 12 | <i>sd: ia</i> | 1,2,10-Trimethoxydehydroaporphine | 370 | <i>na</i> |
| Steporphine | 146 | <i>ia</i> | 1,2,9-Trimethoxyoxoaporphine | 336 | <i>na</i> |
| Stesakine | 272 | <i>na</i> | 1,2,10-Trimethoxyoxoaporphine | 338 | <i>na</i> |
| Subsessiline | 122 | <i>rs: sd: ia</i> | N,O-Trimethylsparsiflorine | 261 | <i>na</i> |
| Taspine | 385 | <i>na</i> | Tuberosinone | 349 | <i>na</i> |
| Telazoline | 382 | <i>na</i> | Tuberosinone N- β -D-glucoside | 350 | <i>na</i> |
| Telitoxine | 387 | <i>na</i> | Tuduranine | 25 | <i>ia</i> |
| Tetrahydromelosmidine | 324 | <i>na</i> | Ushinsunine | 139 | <i>sd: ia</i> |
| Tetrahydromelosmine | 320 | <i>na</i> | Uthongine | 341 | <i>na</i> |
| Thailandine | 334 | <i>na</i> | Xanthoplanine | 56 | <i>ia</i> |
| Thalflavidine | 174 | <i>ia</i> | Xyloguyelline | 293 | <i>na</i> |
| Thalicmidine | 44 | <i>ia</i> | Xylopine | 18 | <i>sd: ia</i> |

rs: revised structure

sd: additional physical and spectral data

ia: known natural aporphinoid isolated again

na: new aporphinoid alkaloid

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