

SUPPORTING INFORMATION

The current tabulation of alkaloids (Table S1), excluding samandarines (Figure 1) and batrachotoxins (Figure 2), contains the following entries. The tabulated data is derived from published^{1,7,17-19,24,33,35ab,36,40,42,48-51,54,57,58,67,68,74,77,80,88ab,94} and unpublished results.

1) The code designation in bold face based on the molecular weight and an identifying letter or letters. A number of alkaloids occur in frog skin extracts as more than one diastereomer or are isomeric with respect to position of double bonds, etc. In many cases, such isomeric alkaloids are tabulated under a generic code designation; such isomers were usually not differentiated in early studies on skin extracts. The isomers or diastereomers are then listed and properties noted under the tabulated generic code designation. In some cases, it is possible that more than one alkaloid may have been listed under the same code designation, based solely on early GC-MS data. N-Oxides have been detected having virtually the same mass spectrum as the parent alkaloid, but emerging on GC much later.

2) The class of alkaloid. Structures for alkaloids in each class are shown in the following figures. The abbreviations and figures are as follows: Histronicotoxins (HTX, Figure 3); Pumiliotoxins (PTX, Figure 4); Allopumiliotoxins (aPTX, Figure 5); DeoxyPTXs, dehydrodesmethylPTXs, and desmethylPTXs (Figure 6); Homopumiliotoxins, desmethylhPTXs and deoxyhPTXs (hPTX, Figure 7); Decahydroquinolines (DHQ, Figure 8); Other quinolines: octahydroquinolines (OHQ) and tetrahydroquinolines (THQ) (Figure 9); 3,5-Disubstituted pyrrolizidines (3,5-P, Figure 10); 3,5-Disubstituted indolizidines (3,5-I, Figure 11); 5,8-Disubstituted indolizidines (5,8-I, Figure 12); Dehydro-5,8-Indolizidines (Dehydro-5,8-I, Figure 13); 5,6,8-Trisubstituted indolizidines (5,6,8-I, Figure 14); 4,6-Disubstituted quinolizidines (4,6-Q, Figure 15); 1,4-disubstituted quinolizidines (1,4-Q, Figure 16), Lehmizidines (Lehm, Figure 17); Epiquinamide (Figure 18); Tentative gross structures for other izidines (Figures 19, 20); Tentative gross structures for ring-hydroxylated izidines (Figure 21); 2,5-Disubstituted pyrrolidines (Pyr, Figure 22); 2,6-Disubstituted piperidines (Pip, Figure 23); Other piperidines (Figure 24); Gephyrotoxins (GTX, Figure 25), Coccinelline-like tricyclics (Tricyclic, Figure 26); Cyclopentaquinazolines (CPQ, Figure 27); Spiropyrrrolizidines (SpiroP, Figure 28); Pseudophrynamines (Pseudo, Figure 29); Other indolic alkaloids (Figure 30); Epibatidines and other pyridinic alkaloids (Figure 31); Unclassified alkaloids (Unclass) for which a structure has not been postulated (see text).

3) An empirical formula based on high resolution MS. Postulated formulae are indicated by single quotation marks and are based on GC chromatographic properties and mass-spectral data. The molecular weight for all tabulated alkaloids was apparent from

the electron-impact (EI) mass spectrum and/or was confirmed by chemical ionization (CI) mass spectral analysis.

4) The emergent temperature (Rt) from a 30 m (0.25 mm id) fused silica capillary column programmed from 100° to 280° at 10 °C/min. Different columns have been used over the years, but all Rt values have been normalized, based on emergent temperatures of well-known alkaloids copresent in the extract under analysis. Multiple Rts indicate apparent isomers. The detection of a minor or trace isomer is indicated by > preceding the Rt value. Values of Rt reported only to tenths of minutes are estimates based on early GC data. In some cases normalization was not possible and no Rt value is given. Rts were important with regard to isomers and structural complexity of alkaloids.

5) Diagnostic mass spectral (MS) ions are presented with the intensities, relative to a base peak set equal to 100, in parentheses. Ions below m/z 50 were not recorded. The majority of the mass spectra are from ion trap pseudo-electron impact analyses, which for an ion trap instrument, such as the Finnigan GCQ, can give significantly different intensities of fragment ions dependent on source conditions. In some cases, protonated parent ions due to an intermolecular chemical ionization pathway are observed. Nonetheless, the profile of MS fragment ions does provide diagnostic data for identification of alkaloids by mass spectral analysis. Such diagnostic fragmentation pathways have been presented in detail.^{1,6,8,13} Unless otherwise noted the MS data are for the major isomer.

6) Vapor-phase FTIR spectrum. Significant absorption peaks are reported including Bohlmann bands, OH, C=O, *cis* CH=CH, conjugated (conj.) CH=CH, C=CH₂, C=C=C, C≡CH, etc. Unless otherwise noted FTIR data are for the major isomer. For some of the histrionicotoxins a reference is given rather than the FTIR spectral data. Citations are given for published vapor-phase FTIR spectra.

7) NMR indicates that such data has been obtained on the natural alkaloid. Citations are given.

8) The number of hydrogens exchangeable with ND₃ (0D, 1D, 2D, etc).

9) The number of hydrogens in a perhydro-derivative (H₀, H₂, H₄, etc) after catalytic hydrogenation.

10) Other data or comments.

11) Synthetic. Indicates that the alkaloid or an isomer has been synthesized. A review of the synthetic literature is beyond the scope of the overview.

12) Designation of occurrence in Dendrobatid, Bufonid, Mantellid or Myobatrachid anurans and in arthropods or plants.

Table I. Amphibian Alkaloids.

- 135.** Adenine. $C_5H_5N_5$. Rt 4.70. MS: 135(100), 108(25). Dendrobatid, Mantellid.
- 151A.** Unclass. ' $C_{10}H_{17}N$ '. Rt 6.3. MS: 151(100), 150(25). 0D. Dendrobatid.
- 151B.** Polyzonimine. $C_{10}H_{17}N$. Rt 5.12. MS: 151(4), 150(3), 136(21), 108(20), 96(57), 82(100), 81(60). FTIR¹: C=N 1623 cm^{-1} . NMR.⁷¹ 0D. Synthetic. Dendrobatid, Mantellid. Millipede.
- 153A.** Unclass. ' $C_{10}H_{19}N$ '. Rt 6.5. MS: 153(100), 152(60). 1D. H₀. Dendrobatid.
- 153B.** Unclass. ' $C_{10}H_{19}N$ '. Rt 6.0. MS: 153(45), 152(100). 0D. H₀. Dendrobatid.
- 153C.** Unclass. ' $C_{10}H_{19}N$ '. Rt 6.30. MS: 153(44), 138(5), 110(54), 96(90), 95(100), 94(87), 82(37), 68(15). Dendrobatid.
- 155.** Unclass. $C_9H_{17}NO$. Rt 5.95. MS: 155(40), 140(11), 126(100), 114(78), 113(88), 98(26), 84(16), 70(54). FTIR: Weak Bohlmann band 2808 cm^{-1} ; OH 3614 cm^{-1} . 1D. Dendrobatid, Mantellid.
- 161A.** Unclass. $C_9H_{11}N_3$. Rt 6.69. MS: 161(76), 160(100), 133(10, $C_8H_9N_2$), 119(8, $C_7H_7N_2$), 107(22). FTIR: Aromatic 3050, 1594 cm^{-1} . 0D. Mantellid.
- 161B.** Unclass. ' $C_9H_{11}N_3$ '. Rt 6.58. MS: 161(100), 146(47), 86(32). Mantellid.
- 162.** Nicotine. $C_{10}H_{14}N_2$. Rt 6.19. MS: 162(12), 161(26), 133(37), 84(100). 0D. Synthetic. Dendrobatid, Mantellid.
- 167A.** 5,8-I. $C_{11}H_{21}N$. Rt 6.72. MS: 167(1), 138(100), 96(5), 70(10). 0D. H₀. Dendrobatid.
- 167B.** Izidine. $C_{11}H_{21}N$. Synthetic 5-propyl I. MS: 167(1), 124(100), 96(23). Synthetic 5,9Z. Rt 5.26. FTIR: Strong Bohlmann band 2788 cm^{-1} ; synthetic 5,9E. Rt 4.81. FTIR: Weak Bohlmann band 2811 cm^{-1} . A previously postulated natural 5-propyl I (**167B**) has not been confirmed (see **167F**).
- 167C.** Unclass. $C_{11}H_{21}N$. Rt 6.3. MS: 167(100), 166(55). 0D. H₀. Dendrobatid.
- 167D.** Unclass. ' $C_{11}H_{21}N$ '. Rt 6.6. MS: 167(100), 166(53). 1D. H₀. Dendrobatid.
- 167E.** 3,5-I. $C_{11}H_{21}N$. Rt 4.58. MS: 167(<1), 138(100), 70(22). 5Z,9Z. FTIR: Moderate Bohlmann band 2788 cm^{-1} . 0D. Synthetic. Dendrobatid. Ant.
- 167F.** 3,5-P. ' $C_{11}H_{21}N$ '. Rt 6.0. MS: 167(8), 166(5), 124(100). 0D. H₀. Previously incorrectly postulated to be a 5-propyl I (**167B**). Dendrobatid.
- 167G.** Unclass. ' $C_{10}H_{17}NO$ '. Rt 8.00. MS: 167(13), 152(100), 138(11), 124(8), 98(23), 84(15), 82(9), 67(8). FTIR: Bohlmann band 2867 cm^{-1} , C=O 1717 cm^{-1} . 1D. Dendrobatid.
- 179.** Dehydro-5,8-I. Rt 5.68. ' $C_{12}H_{21}N$ '. MS: 179(13), 136(100), 134(30), 124(14), 70(35). Dendrobatid.
- 181A.** 3,5-I. ' $C_{12}H_{23}N$ '. Rt 5.65. MS: 181(2), 180 (1), 152(100). 0D. H₀. Dendrobatid.
- 181B.** 5,8-I. $C_{12}H_{23}N$. Rt 6.63. MS: 181(2), 138(100), 96(10), 70(3). 0D. H₀. Dendrobatid.

- 181C.** Unclass. 'C₁₂H₂₃N'. Rt 5.69 > 5.92. MS: 181(30), 180(35), 166(18), 110(20), 96 (17), 71(100), 70(48), 58(62). FTIR: Strong, sharp Bohlmann band 2786 cm⁻¹. 0D. H₀. Dendrobatid.
- 181D.** DHQ. 'C₁₂H₂₃N'. Rt 5.86. MS: 181(3), 152(100). 1D. Dendrobatid, Mantellid.
- 181E.** Unclass. 'C₁₂H₂₃N'. Rt 6.85. MS: 181(100), 180(46). 1D. H₀. Dendrobatid.
- 183A.** Pip. C₁₂H₂₅N. Rt 6.61. MS: 183(3), 154(100). 1D. H₀. Dendrobatid.
- 183B.** Pyr. 'C₁₂H₂₅N'. Rt 5.87. MS: 183(10), 126(100). 1D. H₀. Dendrobatid.
- 183C.** Unclass. 'C₁₂H₂₅N'. Rt 5.06. MS: 183(45), 168(100), 154(7), 112(35), 98(19), 85(24), 84(22), 58(60). 0D. Dendrobatid, Bufonid.
- 185.** Pip. 'C₁₁H₂₃NO'. Rt 6.4. MS: 185(1), 170(100). 1D. H₀. Dendrobatid.
- 189.** THQ. 'C₁₃H₁₉N'. Rt 7.50. MS: 189(10), 188(18), 174(26), 161(100), 146(54), 91(10). FTIR: Aromatic 3050, 1590 cm⁻¹. 0D. Mantellid.
- 191A.** Tricyclic. 'C₁₃H₂₁N'. Rt 6.66. MS: 192(43), 191(28), 163(58), 152(20), 148(30), 134(33), 120(100), 106(33), 95(50). 0D. Dendrobatid, Mantellid.
- 191B.** Tricyclic (Propyleine). C₁₃H₂₁N. Rt 7.10. MS: 191(100), 190(82), 176(43), 148(26), 134(23), 120(20). Synthetic. Dendrobatid, Mantellid. Beetle.
- 191C.** Unclass. 'C₁₃H₂₁N'. Rt 9.06. MS: 191(26), 190(100), 162(4), 119(30), 91(10). Fragment ions indicate an aromatic system. Dendrobatid.
- 191D.** Izidine. 'C₁₃H₂₁N'. Rt 6.75. MS: 191(12), 135(10), 134(100), 133(12), 106(4). 0D. H₄. Bufonid.
- 191E.** Izidine. 'C₁₃H₂₁N'. Rt 7.28. MS: 191(1), 148(100), 134(12). 0D. Bufonid.
- 191F.** Tricyclic. 'C₁₃H₂₁N'. Rt 7.15. MS: 191(23), 190(42), 176(100), 162(11), 156(17), 148(15). An isomer of propyleine. Dendrobatid.
- 191G.** Unclass. 'C₁₂H₁₇NO'. Rt 7.00. MS: 191(<1), 126(35), 110(85), 94(100), 68(58), 67(62). Dendrobatid.
- 191H.** Dehydro-5,8-I. 'C₁₃H₂₁N'. Rt 6.45. MS: 191(1), 190(1), 136(100), 134(65). Mantellid.
- 193A.** Unclass. C₁₃H₂₃N. Rt 6.3. MS: 193(100), 192(65). 0D. H₀. Dendrobatid.
- 193B.** Tricyclic. C₁₃H₂₃N. Rt 7.12, 6.23. MS: 193(8), 192(7), 178(9), 150(100), 122(8), 70(7). 0D. H₀. Dendrobatid, Mantellid.
- 193C.** Tricyclic (Precocinelline). C₁₃H₂₃N. Rt 6.91. MS: 193(45), 192(95), 178(35), 164(55), 151(80), 150(100), 137(40), 136(50), 122(40), 108(30), 96(30), 94(30), 82(20), 80(20). FTIR⁸: Weak Bohlmann band 2800 cm⁻¹. Synthetic. Dendrobatid, Mantellid, Bufonid. Beetle, Mite.
- 193D.** OHQ. C₁₃H₂₃N. Rt 7.10. MS: 193(9), 178(6), 150(100), 122(6), 110(5), 96(12). FTIR: Weak Bohlmann band 2807 cm⁻¹; enamine 3040, 1641 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 193E.** 5,8-I. C₁₃H₂₃N. Rt 6.56. MS: 193(<1), 192(3), 152(100), 96(22). FTIR: Strong, sharp Bohlmann band 2788 cm⁻¹; C=CH₂ 3083 cm⁻¹. 0D. Mantellid.

- 193F.** DeoxyhPTX. C₁₃H₂₃N. Rt 7.20. MS: 193(20), 192(23), 178(27), 164(100), 151(19), 150(31), 136(27), 122(37), 84(26). FTIR: Moderate, broad Bohlmann band 2745 cm⁻¹. 0D. Dendrobatid.
- 193G.** 5,6,8-I. 'C₁₃H₂₃N'. Rt 6.07. MS: 193(<1), 152(100), 110(31), 70(12). Dendrobatid, Mantellid.
- 193H.** DeoxyPTX. 'C₁₃H₂₃N'. Rt 7.11. MS: 193(14), 192(20), 178(17), 150(100), 136(21), 108(27), 70(38). Dendrobatid. Mite.
- 193I.** Izidine. 'C₁₃H₂₃N'. Rt 6.41. MS: 193(15), 192(5), 178(73), 150(56), 134(13), 109(100), 70(91). 0D. H₂. Dendrobatid, Bufonid.
- 193J.** Izidine. 'C₁₃H₂₃N'. MS: 193(<1), 192(1), 138(100), 110(51). 0D. Dendrobatid.
- 193K.** Unclass. 'C₁₃H₂₃N'. Rt 7.99. MS: 193(44), 192(61), 178(11), 164(13), 152(100), 150(23), 137(16), 136(15), 122(9), 110(19). 0D. Bufonid.
- 193L.** Tricyclic. 'C₁₃H₂₃N'. Rt 6.71. MS: 193(38), 192(54), 178(33), 164(100), 152(13), 150(29), 136(72), 122(22), 110(11), 84(26). Mantellid.
- 195A.** DHQ. C₁₃H₂₅N. *Cis*-**195A**. Rt 7.20. MS: 195(3), 194(5), 152(100), 109(8). FTIR^{11,15}: Weak Bohlmann band 2804 cm⁻¹. NMR.^{12,39,41,39,89} 1D. H₀. *N*-Acetyl derivative. *Trans*-**195A**. Rt 7.38. MS: 196(1), 152(100), 109(11). FTIR¹⁵: No Bohlmann band. Synthetics. Dendrobatid, Mantellid, Bufonid, Myobatrachid. Ant.
- 195B.** 3,5-I. C₁₃H₂₅N. Rt 6.61, 6.68. MS: 195(2), 194(2), 180(6), 138(100). FTIR: Bohlmann bands: *5Z,9Z*: moderate 2788 cm⁻¹; *5E,9E*: moderate 2793 cm⁻¹; *5E,9Z*: weak 2800 cm⁻¹; *5Z,9E*: none. NMR.⁴⁶ 0D. H₀. Synthetics. Dendrobatid, Mantellid, Bufonid. Ant (monomorine).
- 195C.** 4,6-Q. C₁₃H₂₅N. Rt 6.93. MS: 195(6), 180(13), 152(100). *6Z,10E*: FTIR^{1,18}: Weak Bohlmann band 2813 cm⁻¹. NMR.¹⁸ 0D. H₀. Synthetics. Dendrobatid, Mantellid. Ant.
- 195D.** 5,6,8-I. 'C₁₃H₂₅N'. Rt 7.1. MS: 195(2), 166(100), 110(12), 70(5). 0D. H₀. Dendrobatid.
- 195E.** Unclass. 'C₁₃H₂₅N'. Rt 7.1. MS: 195(45), 194(100). 0D. H₀. Dendrobatid.
- 195F.** 3,5-P. C₁₃H₂₅N. Rt 7.15 > 7.35. MS: 195(<1), 124(100). *Cis*-isomer: FTIR: Weak Bohlmann band 2795 cm⁻¹. 0D. Dendrobatid, Mantellid. Ant.
- 195G.** 5,6,8-I. 'C₁₃H₂₅N'. Rt 6.00 > 6.53. MS: 195(<1), 194(<1), 152(100), 110(13), 70(11). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹. 0D. Dendrobatid, Mantellid, Bufonid.
- 195H.** Izidine. 'C₁₃H₂₅N'. Rt 6.79. MS: 195(1), 194(3), 124(100), 96(9), 70(3). 0D. Mantellid.
- 195I.** 5,8-I. 'C₁₃H₂₅N'. Rt 6.30, 6.83. MS: 195(<1), 138(100), 96(23). 0D. Dendrobatid, Mantellid.

- 195J.** DHQ. 'C₁₃H₂₅N'. Rt 6.90. MS: 195(5), 180(32), 152(100), 110(10). *Cis*-**195J**. FTIR: Weak Bohlmann band 2804 cm⁻¹. 1D. Mantellid. Ant.
- 195K.** Izidine. 'C₁₃H₂₅N'. Rt 7.40. MS: 195(2), 194(3), 152(100), 124(25). Dendrobatid.
- 195L.** Unclass. 'C₁₃H₂₅N'. Rt 6.25. MS: 195(58), 194(60), 180(18), 166(29), 99(35), 58(100). Dendrobatid, Bufonid.
- 195M.** Unclass. 'C₁₃H₂₅N'. Rt 6.66. MS: 195(43), 194(100), 180(33), 166(27), 153(34), 152(50), 138(27), 124(55), 110(27), 96(26), 84(24), 70(42). 0D. Mantellid.
- 196.** Epiquinamide. C₁₁H₂₀N₂O. Rt 10.00. MS: 196(<1), 137(100), 136(69), 122(40), 96(7), 83(10), 82(13). FTIR⁵⁸: Two moderate Bohlmann bands 2802, 2765 cm⁻¹; NH 3380 cm⁻¹; C=O (acetamide) 1706, 1487 cm⁻¹. NMR.⁵⁸ 0D. Synthetic. Dendrobatid.
- 197A.** Unclass. 'C₁₂H₂₃NO'. Rt 7.5. MS: 197(1), 180(100), 126(35). 1D. H₀. Dendrobatid.
- 197B.** Pyr. C₁₃H₂₇N. Rt 7.11. *Trans*-isomer. MS: 197(1), 196(2), 140(78), 126(100). FTIR: No Bohlmann band. 1D. H₀. Synthetic. Dendrobatid. Ant.
- 197C.** 5,8-I. C₁₂H₂₃NO. Rt. 8.12. MS: 197(1), 196(1), 180(1), 154(100), 136(12), 96(38), 70(15). FTIR: Strong, sharp Bohlmann band 2789 cm⁻¹; OH 3485 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 197D.** Unclass. 'C₁₂H₂₃NO'. Rt 7.40 > 7.10. MS: 198(50), 197(35), 196(23), 182(47), 125(32), 108(39), 71(32), 58(100). Dendrobatid.
- 197E.** Pip. 'C₁₃H₂₇N'. Rt 7.04, 7.55. MS: 197(1), 182(8), 98(100). 1D. Dendrobatid.
- 197F.** Pip. 'C₁₃H₂₇N'. Rt 7.51. MS: 197(6), 196(23), 168(3), 112(100). Dendrobatid, Mantellid.
- 197G.** 5,6,8-I. 'C₁₂H₂₃NO'. Rt 7.71. MS: 197(3), 196(5), 182(100), 164(13), 110(31), 70(22). FTIR: Strong, sharp Bohlmann 2791 cm⁻¹; OH 3655 cm⁻¹. Mantellid.
- 197H.** 5,6,8-I. 'C₁₂H₂₃NO'. Rt 7.92 > 7.81. MS: 197(1), 196(3), 168(100), 150(11), 110(70), 70(4). 1D. Mantellid.
- 197I.** Izidine. 'C₁₂H₂₃NO'. Rt 11.73. MS: 197(9), 154(53), 125(25), 70(100). Tentatively, a 5,8-I with an 8-OH. See **211S**. Dendrobatid.
- 199.** Unclass. 'C₁₂H₂₅NO'. Rt 6.40. MS: 199(4), 86(100), 72(18), 58(18). Dendrobatid.
- 201A.** Dehydro-5,8-I. C₁₄H₁₉N. Rt 8.88 > 9.08. MS: 201(<1), 200(2), 136(100), 134(41), 120(15). 0D. Dendrobatid.
- 201B.** Tricyclic 'C₁₄H₁₉N'. Rt 14.00, 14.30, 15.00. 1st isomer. MS: 201(43), 186(100), 158(41), 144(21), 130(26). 2nd isomer. MS: 201(40), 186(100), 173(12), 158(40), 144(19), 130(25). 3rd isomer. MS: 201(100), 186(32), 172(13), 158(21), 144(56), 130(16). Dendrobatid.

- 203A.** 5,8-I. $C_{14}H_{21}N$. Rt 8.22 > 8.57. MS: 203(1), 202(2), 138(100), 96(13). FTIR¹¹: Strong, sharp Bohlmann 2789 cm^{-1} ; conj. CH=CH 3038 cm^{-1} ; C≡CH 3327 cm^{-1} . NMR.¹² 0D. H_6 . The minor isomer: No Bohlmann band. Dendrobatid, Mantellid.
- 203B.** Tricyclic. ' $C_{14}H_{21}N$ '. Rt 8.13, 8.72. MS: 203(37), 202(29), 188(32), 174(31), 160(19), 146(100), 134(16), 120(12). 0D. Dendrobatid, Bufonid, Mantellid.
- 205A.** 5,8-I. $C_{14}H_{23}N$. Rt 8.10 > 8.23, 7.86. MS: 205(1), 204(2), 138(100), 96(15). Major isomer. FTIR¹: Strong, sharp Bohlmann 2787 cm^{-1} ; C≡CH 3327 cm^{-1} . NMR.^{12,39} 0D. H_4 . Minor isomers. Strong, sharp Bohlmann bands 2787 cm^{-1} and C≡CH 3327 cm^{-1} . Synthetic. Dendrobatid, Mantellid. Arthropod.
- 205B.** Tricyclic. $C_{14}H_{23}N$. Rt 7.72. MS: 205(31), 204(46), 190(100), 162(17), 148(10), 134(16), 96(15). FTIR⁶⁶: Weak Bohlmann band 2796 cm^{-1} . NMR.^{39,66} 0D. H_2 . Synthetic. Dendrobatid.
- 205C.** Unclass. ' $C_{14}H_{23}N$ '. No Rt. MS: 205(5), 190(5), 176(23), 140(84), 126(100). Mantellid.
- 205D.** Unclass. ' $C_{14}H_{23}N$ '. Rt 7.62. MS: 205(35), 190(33), 176(13), 162(11), 150(64), 148(73), 134(33), 82(100). Dendrobatid.
- 205E.** Tricyclic. $C_{13}H_{19}NO$. Rt 10.22. MS: 205(41), 204(13), 190(34), 177(18), 176(13), 163(100), 162(45), 134(42), 122(21), 108(15), 70(43). FTIR: Moderate Bohlmann bands 2794, 2739 cm^{-1} ; C=O 1728 cm^{-1} . Dendrobatid.
- 205F.** Izidine. ' $C_{14}H_{23}N$ '. Rt 7.95. MS: 205(2), 204(17), 176(6), 135(20), 134(100), 133(18), 106(7). 0D. Dendrobatid, Bufonid.
- 205G.** Izidine. ' $C_{14}H_{23}N$ '. Rt 8.87. MS: 205(14), 204(2), 135(11), 134(100), 133(12), 106(2). 0D. An isomer of **205F**. Dendrobatid, Bufonid.
- 205H.** Tricyclic. ' $C_{14}H_{23}N$ '. Rt 7.90 > 8.81. MS: 205(100), 204(22), 190(87), 176(33), 162(74), 150(40), 148(75), 136(41), 122(70), 70(28). FTIR: Moderate, sharp Bohlmann band 2820 cm^{-1} , shoulder 2795 cm^{-1} ; C=CH₂ 3087 cm^{-1} . 0D. Dendrobatid, Bufonid.
- 205I.** Tricyclic. ' $C_{14}H_{23}N$ '. Rt 6.83. MS: 205(18), 190(41), 176(100), 164(27), 148(30), 147(23), 146(29), 133(27), 119(71), 106(28), 105(22), 91(41), 70(14). May have coeluted with an aromatic. 0D. Bufonid.
- 205J.** Tricyclic. ' $C_{14}H_{23}N$ '. Rt 7.38. MS: 205(40), 190(15), 176(100), 168(10), 160(15), 150(12), 134(12), 122(12), 120(10), 96(30), 94(17). Mantellid.
- 205K.** Tricyclic. ' $C_{14}H_{23}N$ '. Rt 9.30. MS: 205(93), 204(75), 190(15), 176(30), 162(26), 135(52), 134(100), 120(59), 107(24). Bufonid.
- 207A.** 5,8-I. $C_{14}H_{25}N$. Rt 7.90. MS: 207(1), 206(2), 138(100), 96(13), 70(9). FTIR: Strong, sharp Bohlmann band 2787 cm^{-1} ; C=CH₂ 3084 cm^{-1} . NMR.³⁴ 0D. H_2 . Two minor isomers: Rt 7.48, 7.83. Both appear to have an internal double bond. FTIRs⁸: Strong, sharp Bohlmann band 2787 cm^{-1} ; *cis* CH=CH

- 3010 cm^{-1} or in the other minor alkaloid 3015 cm^{-1} . Synthetic. Dendrobatid, Mantellid, Bufonid.
- 207B.** Unclass. $\text{C}_{13}\text{H}_{21}\text{NO}$. Rt 7.7. MS: 207(10), 190(15), 166(100), 70(80). 1D. H_2 . Possibly, an atypical pumiliotoxin with an unbranched side-chain. Dendrobatid.
- 207C.** 5,6,8-I. ' $\text{C}_{14}\text{H}_{25}\text{N}$ '. Rt 6.58. MS: 207(16), 152(100), 110(13), 70(6). 0D. H_2 . Dendrobatid, Mantellid.
- 207D.** Unclass. ' $\text{C}_{14}\text{H}_{25}\text{N}$ '. Rt 7.3. MS: 207(58), 180(100). 0D. H_2 . Dendrobatid.
- 207E.** Dehydro-5,8-I. ' $\text{C}_{14}\text{H}_{25}\text{N}$ '. Rt. 8.32. MS: 207(10), 206(12), 178(30), 164(100), 162(29), 120(22). FTIR: Moderate, sharp Bohlmann band 2787 cm^{-1} . 0D. Dendrobatid, Mantellid.
- 207F.** Unclass. ' $\text{C}_{14}\text{H}_{25}\text{N}$ '. Rt 7.38. MS: 207(9), 192(100), 126(41), 110(54), 94(44), 83(15), 82(12). 0D. H_2 . Dendrobatid.
- 207GH.** Tricyclic. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 8.00, 8.60, 8.76. MS: 207(38), 206(100), 192(16), 178(17), 136(20), 97(27), 96(49), 84(81). All isomers. FTIR: Strong, sharp Bohlmann band 2789 cm^{-1} . 0D. All isomers (see also **207K**) have similar MS spectra. Dendrobatid, Mantellid.
- 207I.** 1,4-Q. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 7.96. MS: 207(<1), 206(2), 166(100), 110(11), 84(3). FTIR¹⁹: Moderate, broad Bohlmann band 2789 cm^{-1} ; $\text{C}=\text{CH}_2$ 3084 cm^{-1} . Synthetic. Mantellid.
- 207J.** Tricyclic. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 8.86. MS: 207(21), 206(11), 192(15), 178(23), 164(29), 152(38), 150(11), 138(50), 136(100), 108(52), 70(45). FTIR: Strong Bohlmann band 2789 cm^{-1} . Dendrobatid, Mantellid.
- 207K.** Tricyclic. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 9.09. MS: Nearly the same as **207GH**. Probably another isomer. Dendrobatid.
- 207L.** Unclass. Rt 6.81. ' $\text{C}_{14}\text{H}_{25}\text{N}$ '. MS: 207(9), 206(6), 178(15), 164(14), 123(85), 109(23), 81(45), 70(100). Dendrobatid.
- 207M.** Pip. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 7.59. MS: 207(2), 206(1), 164(100), 140(82). FTIR: Moderate Bohlmann band 2805 cm^{-1} ; $\text{C}\equiv\text{CH}$ 3328 cm^{-1} . 1D. Tentatively, a *cis*-2-propyl-6-pentynyl piperidine with also a ring methyl substituent. Mantellid.
- 207N.** Unclass. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 6.80. MS: 207(13), 206(5), 192(7), 178(6), 152(100), 150(27), 136(22), 122(11), 70(11). Dendrobatid, Mantellid.
- 207O.** DeoxyhPTX. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 7.38 > 7.24. MS: 207(17), 206(19), 192(31), 164(100), 150(21), 136(11), 122(23), 109(13), 84(38). FTIR: Moderate, broad Bohlmann bands 2799, 2657 cm^{-1} . Dendrobatid, Mantellid.
- 207P.** Tricyclic. $\text{C}_{14}\text{H}_{25}\text{N}$. Rt 7.39. MS: 207(48), 206(19), 192(100), 164(35), 152(68), 136(20), 126(52), 110(43), 94(37), 83(60), 82(83). Dendrobatid.
- 207Q.** 5,8-I. ' $\text{C}_{14}\text{H}_{25}\text{N}$ '. Rt 7.60. MS: 207(<1), 166(100), 96(35), 70(14). Dendrobatid.

- 207R.** Tricyclic. 'C₁₄H₂₅N'. Rt 8.81. MS: 207(4), 206(3), 192(47), 178(9), 164(18), 150(38), 136(100), 70(70). FTIR: Moderate, broad Bohlmann band 2807 cm⁻¹. 0D. See **221M**. Dendrobatid.
- 207S.** Izidine. 'C₁₄H₂₅N'. Rt 7.41. MS: 207(5), 192(3), 179(4), 178(5), 164(4), 150(4), 137(13), 136(35), 122(100). FTIR: Strong sharp Bohlmann band 2790 cm⁻¹; C=CH₂ 3083 cm⁻¹; enamine 1642 cm⁻¹. 0D. H₂. Tentatively, a 2,5,7,8-tetrasubstituted indolizidine. Bufonid.
- 207T.** Izidine. 'C₁₃H₂₁NO'. Rt 9.13, 9.21. MS: 207(6), 189(3), 135(10), 134(100), 133(13), 106(4). 1D. H₄. Bufonid.
- 207U.** Tricyclic. 'C₁₃H₂₁NO'. Rt 9.50. MS: 207(64), 192(26), 164(100), 150(79), 138(19), 122(22), 110(25), 108(14), 70(15). Bufonid.
- 207V.** Izidine. 'C₁₄H₂₅N'. Rt 7.86. MS. 207(<1), 192(2), 150(100), 148(30), 134(5), 84(12). Bufonid.
- 208/10.** Epibatidine. C₁₁H₁₃N₂Cl. Rt 12.35. MS: 210(4), 208(12), 181(1), 179(3), 142(3), 140(9), 69(100), 68(30). FTIR⁸²: No Bohlmann band; pyridine 1574, 1460, 1110 cm⁻¹. FTIR and NMR of *N*-acetyl.⁸² 1D. Synthetic. Dendrobatid.
- 209A.** DHQ. 'C₁₃H₂₃NO'. Rt 7.9. MS: 209(5), 168(100). H₂. Dendrobatid.
- 209B.** 5,8-I. C₁₄H₂₇N. Rt 7.20. MS: 209(5), 138(100), 96(12). 0D. H₀. Synthetic. The natural alkaloid could no longer be detected for comparison with the synthetic.¹⁹ Dendrobatid, Mantellid.
- 209C.** 5,6,8-I. C₁₄H₂₇N. Rt 7.05. MS: 209(11), 152(100), 110(5), 70(8). 0D. H₀. Dendrobatid, Mantellid.
- 209D.** Izidine. C₁₄H₂₇N. Synthetic 5-hexyl I. MS: 209(1), 208(2), 124(100), 96(10). Synthetic 5,9Z. Rt 9.05. FTIR¹¹: Moderate, sharp Bohlmann band 2788 cm⁻¹. Synthetic 5,9E. Rt 8.81. FTIR¹¹: Weak Bohlmann band 2813 cm⁻¹. A natural 5-hexyl I has not been confirmed (see **209K**).
- 209E.** 5,6,8-I. 'C₁₄H₂₇N'. Rt 7.2. MS: 209(17), 166(100), 110(8), 70(3). 0D. Dendrobatid.
- 209F.** PTX. C₁₃H₂₃NO. Rt 7.42. MS: 209(6), 208(4), 166(60), 112(15), 84(24), 70(100). FTIR¹²: Moderate, sharp Bohlmann bands, 2798, 2752 cm⁻¹; OH 3542 cm⁻¹. NMR.¹² 1D. Dendrobatid, Mantellid.
- 209G.** Unclass. C₁₄H₂₇N. Rt 7.36 > 7.93. MS: 209(13), 194(5), 166(35), 138(100), 125(51), 110(43), 96(21), 82(42). FTIR: Moderate, broad Bohlmann band 2759 cm⁻¹. 0D. Mass spectral fragments are similar to those of **225G** except for m/z 82. Dendrobatid.
- 209H.** DesmethylhPTX. 'C₁₃H₂₃NO'. Rt 8.56. MS: 209(25), 208(21), 194(15), 166(100), 122(17), 84(47). Dendrobatid, Mantellid.
- 209I.** 5,8-I. C₁₄H₂₇N. Rt 7.72. MS: 209(<1), 208(<1), 166(100), 96(17), 70(11). FTIR¹⁹: Strong, sharp Bohlmann band 2786 cm⁻¹. Synthetic. Dendrobatid, Mantellid.

- 209J.** DHQ. C₁₄H₂₇N. Rt 7.26. MS: 209(3), 208(3), 180(10), 166(100). FTIR: No Bohlmann band. 1D. Dendrobatid.
- 209K.** 3,5-P. 'C₁₄H₂₇N'. Rt 9.94. MS: 209(2), 194(4), 124(100). 0D. H₀. Previously was incorrectly proposed to be a 5-I, **209D**. Dendrobatid, Mantellid.
- 209L.** Izidine. 'C₁₄H₂₇N'. Rt 7.31. MS: 210(3), 208(2), 166(100), 124(19), 84(2). 0D. Dendrobatid.
- 209M.** Unclass. 'C₁₃H₂₃NO'. Rt 6.93. MS: 209(54), 208(40), 193(50), 192(100), 166(35), 151(56), 150(25), 70(24), 58(92). Bufonid.
- 209N.** Izidine. 'C₁₄H₂₇N'. Rt 7.56. MS: 209(<1), 208(1), 138(100), 110(16), 70(2). Bufonid.
- 209O.** Tricyclic. 'C₁₃H₂₃NO'. Rt 10.21. MS: 209(48), 208(100), 194(13), 152(21), 150(38), 136(22), 122(15). FTIR: Weak Bohlman band 2800 cm⁻¹; OH 3652 cm⁻¹. 1D. Dendrobatid.
- 209P.** Tricyclic. 'C₁₃H₂₃NO'. Rt 10.39. MS: 209(23), 208(27), 194(11), 178(45), 164(100), 152(21), 150(17), 136(28), 122(18), 84(10). 1D. Dendrobatid.
- 209Q.** 3,5-P. 'C₁₃H₂₃NO'. Rt 10.19. MS: 209(20), 166(12), 152(100), 110(18), 96(10). Dendrobatid.
- 209R.** Unclass. 'C₁₃H₂₃NO'. Rt 9.47. MS: 209(28), 180(7), 123(8), 122(100), 96(56). Bufonid.
- 209S.** 5,8-I. 'C₁₃H₂₃NO'. Rt 8.65. MS: 209(<1), 138(100), 96(23). Dendrobatid.
- 211A.** DHQ. C₁₃H₂₅NO. Rt 9.86. MS: 211(3), 210(2), 168(100), 152(32), 150(13), 133(16), 105(10). NMR.³⁹ 2D. H₀. Dendrobatid.
- 211B.** Izidine. 'C₁₃H₂₅NO'. Rt 9.27 > 9.32. MS: 211(2), 196(3), 154(100). 1D. Dendrobatid, Mantellid.
- 211C.** Izidine. 'C₁₃H₂₅NO'. Rt 8.76. MS: 211(2), 210(1), 168(100), 124(12), 110(21), 70(9). FTIR: No Bohlmann band; OH 3535 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 211D.** Pip. 'C₁₄H₂₉N'. Rt 8.56 > 8.29. MS: 211(2), 210(3), 168(85), 126(100). 1st isomer *cis*-**211D**. FTIR: Very weak Bohlmann band 2799 cm⁻¹. 2nd isomer *trans*-**211D**. FTIR: No Bohlmann band. 1D. Mantellid.
- 211E.** 3,5-I. C₁₃H₂₅NO. Rt 9.20. MS: 211(<1), 210(1), 196(5), 138(100). 5E,9E. FTIR: Moderate Bohlmann band 2791 cm⁻¹; OH 3653 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 211F.** Izidine. C₁₃H₂₅NO. Rt 10.07. MS: 211(<1), 210(2), 196(3), 140(100), C₈H₁₄NO). FTIR: Moderate Bohlmann band 2801 cm⁻¹; OH 3556 cm⁻¹. 1D. Dendrobatid.
- 211G.** Unclass. 'C₁₃H₂₅NO'. Rt 7.92. MS: 211(20), 210(18), 194(15), 178(27), 58(100). Dendrobatid.
- 211H.** Unclass. C₁₃H₂₅NO. Rt 9.20, 9.40. MS: 211(<1), 210(<1), 196(5), 154(100), 124(17), 68(10). FTIR: Moderate Bohlmann band 2797 cm⁻¹; OH 3649 cm⁻¹. 1D. Dendrobatid.

- 211I.** Pip. 'C₁₄H₂₉N'. Rt 7.13. MS: 211(2), 210(1), 154(81), 140(100). 1D. Dendrobatid.
- 211J.** Pip. C₁₄H₂₉N. Rt 7.36. MS: 211(<1), 196(6), 112(100). 0D. Tentatively, an *N*-methyl Pip. Dendrobatid.
- 211K.** DHQ. 'C₁₃H₂₅NO'. Rt 8.03. MS: 211(9), 210(4), 196(23), 168(100), 150(10). 2D. Dendrobatid.
- 211L.** 5,6,8-I. 'C₁₃H₂₅NO'. Rt 9.46. MS: 211(<1), 152(100), 110(24), 70(4). FTIR: Strong sharp Bohlmann band 2788 cm⁻¹; OH 3660 cm⁻¹. 1D. Dendrobatid.
- 211M.** 5,6,8-I. 'C₁₃H₂₅NO'. Rt 9.31. MS: 211(5), 196(100), 110(33), 70(24). Mantellid.
- 211N.** Izidine. 'C₁₃H₂₅NO'. Rt 9.19. MS: 211(11), 196(100), 138(44). Mantellid.
- 211O.** Unclass. 'C₁₃H₂₅NO'. Rt 8.99. MS: 211(<1), 196(8), 154(100), 136(20). Mantellid.
- 211P.** Izidine. 'C₁₃H₂₅NO'. Rt 8.61. MS: 211 (<1), 168(100), 126(17), 108(6). Mantellid.
- 211Q.** 1,4-Q. 'C₁₃H₂₅NO'. Rt 9.39. MS: 211(<1), 210(3), 196(100), 110(30), 84(20). Mantellid.
- 211R.** Unclass. 'C₁₂H₂₁NO₂'. Rt 11.57. MS: 211(15), 196(100), 168(11), 152(11),124(7), 96(10), 72(16), 58(15). Mantellid.
- 211S.** Izidine. 'C₁₃H₂₅NO'. Rt 12.86 > 12.66. MS: 211(12), 154(80), 125(12), 86(15), 70(100). Tentatively, a 5,8-I with an 8-OH. See **197I**. Dendrobatid.
- 211T.** Pyr. 'C₁₄H₂₉N'. Rt 6.65. MS: 211(<1), 196(6), 168(100), 154(17), 112(78). Tentatively, a 2-propylpyrrolidine with a C₇H₁₅ substituent not at the 5-position. Dendrobatid.
- 213A.** Pip. 'C₁₃H₂₇NO'. Rt 7.34. MS: 213(<1), 198(3), 114(100), 96(11). FTIR: No Bohlmann band; OH 3658 cm⁻¹. 2D. Dendrobatid.
- 213B.** Pip. 'C₁₃H₂₇NO'. Rt 9.24. MS: 213(2), 170(100), 152(49), 142(96), 124(72), 98(39). 2D. Dendrobatid.
- 215.** Izidine. 'C₁₅H₂₁N'. Rt 9.88. MS: 215(<1), 150(89), 148(100), 134(11), 124(9). Dendrobatid.
- 217A.** 1,4-Q. C₁₅H₂₃N. Rt 9.48 > 9.68. MS: 217(<1), 216(<1), 152(100), 110(14), 84(3). FTIR¹⁴: Moderate, broad Bohlmann band 2788 cm⁻¹; C≡CH 3327 cm⁻¹; conj. CH=CH 3039 cm⁻¹. NMR⁵⁶. 0D. H₆. Mantellid.
- 217B.** 5,8-I. C₁₅H₂₃N. Rt 9.52 > 9.70, 10.18. MS: 217(<1), 216(<1), 152(100), 96(13). FTIR¹⁴: Strong, sharp Bohlmann band 2789 cm⁻¹; C≡CH 3327 cm⁻¹; conj. CH=CH 3039 cm⁻¹. 0D. Dendrobatid, Mantellid. Ant.
- 217C.** Unclass. 'C₁₅H₂₃N'. Rt 8.36. MS: 217(1), 216(3), 202(6), 178(28), 160(8), 150(7), 138(100), 110(23), 84(11), 70(15). 0D. Dendrobatid, Mantellid.
- 217D.** Unclass. 'C₁₅H₂₃N'. Rt 10.09. MS: 217(<1), 152(100), 70(86). Dendrobatid.

- 217E.** Tricyclic. 'C₁₅H₂₃N'. Rt 9.18. MS: 217(29), 216(55), 202(42), 188(54), 178(100), 176(81), 174(62), 160(66), 152(94), 134(87), 122(64), 110(40), 91(51), 84(65). Mantellid.
- 217F.** Unclass. 'C₁₅H₂₃N'. Rt 10.70. MS: 217(35), 146(100), 131(15). Mantellid.
- 217G.** 5,6,8-I. 'C₁₅H₂₃N'. Rt 9.77. MS: 217(<1), 152(100), 110(16), 70(4). Mantellid.
- 219A.** DHQ. C₁₅H₂₅N. MS: 219(1), 218(1), 178(100). *Cis*-**219A**. Rt 9.90. FTIR^{1,11}: No Bohlmann band. *Trans*-**219A**. Rt 10.20. FTIR^{1,11}: Weak Bohlmann band 2800 cm⁻¹. *5-Epi-trans*-**219A**. Rt 10.01. Weak Bohlmann band 2800 cm⁻¹. *2-Epi-cis*-**219A**. Rt 9.18. All isomers; C=CH₂ 3084 cm⁻¹. NMR.^{17,46} 1D. H₄. *N*-Acetyl derivative. Dendrobatid.
- 219B.** 1,4-Q. 'C₁₅H₂₅N'. Rt 9.56. MS: 219(<1), 218(1), 152(100), 110(16), 84(6). 0D. H₄. Dendrobatid, Mantellid.
- 219C.** DHQ. C₁₅H₂₅N. Rt 8.6. MS: 219(<1), 152(100). 1D. H₄. Dendrobatid.
- 219D.** DHQ. C₁₅H₂₅N. Rt 9.76. MS: 219(3), 180(100). 1D. H₄. Dendrobatid.
- 219E.** Izidine. 'C₁₅H₂₅N'. Rt 7.8. MS: 219(1), 218(3), 166(100). 0D. Probably a 5,6,8-I. Dendrobatid.
- 219F.** 5,8-I. C₁₅H₂₅N. Rt 9.81 > 10.57. MS: 219(<1), 152(100), 96(12), 70(3). FTIR: Strong, sharp Bohlmann band 2789 cm⁻¹; C≡CH 3329 cm⁻¹. Dendrobatid, Mantellid.
- 219G.** Dehydro-5,8-I. Rt 9.16. 'C₁₅H₂₅N'. MS: 220(20), 164(100), 162(46), 120(30). FTIR: Strong Bohlmann band 2787 cm⁻¹. 0D. H₄. Dendrobatid, Bufonid.
- 219H.** Izidine. 'C₁₅H₂₅N'. Rt 8.33. MS: 219(8), 204(5), 150(100), 148(11), 135(33), 134(30), 121(59), 107(21). 0D. Dendrobatid.
- 219I.** Tricyclic. C₁₅H₂₅N. Rt 9.60, 9.65. MS: 219(30), 218(9), 204(25), 190(18), 176(12), 164(18), 162(8), 148(100), 138(10), 136(9). FTIR: Strong, sharp Bohlmann band 2792 cm⁻¹; *cis* CH=CH 3020 cm⁻¹. Dendrobatid.
- 219J.** 5,8-I. C₁₅H₂₅N. Rt 9.32. MS: 219(1), 218(1), 176(100), 96(6), 70(10). 0D. Dendrobatid, Mantellid.
- 219K.** Tricyclic. 'C₁₅H₂₅N'. Rt 10.30, 10.53. 1st isomer. MS: 219(31), 218(30), 204(16), 190(14), 178(20), 154(20), 152(100), 136(52), 112(23), 91(42), 86(28), 68(20). 0D. 2nd isomer. MS: 219(42), 218(81), 204(57), 190(24), 176(37), 162(52), 154(30), 152(77), 136(100), 112(27), 110(30), 94(42), 91(30), 86(47), 68(55). Mantellid.
- 219L.** 5,8-I. C₁₅H₂₅N. Rt 9.51. MS: 219(<1), 152(100), 96(21). FTIR: Strong, sharp Bohlmann band 2788 cm⁻¹; C=CH₂ 3090 cm⁻¹; conj. CH=CH 3030 cm⁻¹. 0D. Mantellid.
- 219M.** Unclass. 'C₁₅H₂₅N'. Rt 8.23. MS: 219(<1), 150(100), 135(31), 134(16), 121(60), 107(14), 70(11). Dendrobatid.

- 219N.** 5,6,8-I. 'C₁₅H₂₅N'. Rt 8.28. MS: 219(<1), 218(1), 152(100), 110(24), 70(15). Dendrobatid. Mantellid.
- 219O.** Tricyclic. 'C₁₅H₂₅N'. Rt 9.75. MS: 219(38), 218(27), 204(100), 190(15), 176(5), 162(20), 152(44), 148(25), 134(20), 96(17). FTIR: Weak Bohlmann band 2794 cm⁻¹. Mantellid.
- 221A.** 5,8-I. 'C₁₅H₂₇N'. Rt 7.9. MS: 221(<1), 220(2), 138(100), 96(9). 0D. H₂. Dendrobatid.
- 221B.** DHQ. 'C₁₅H₂₇N'. Rt 9.0. MS: 221(2), 192(100). 1D. H₂. Dendrobatid.
- 221C.** DHQ. C₁₅H₂₇N. Rt 8.3. MS: 221(2), 152(100). 1D. H₂. Dendrobatid.
- 221D.** DHQ. C₁₅H₂₇N. Rt 9.96. MS: 221(3), 180(100). 1D. H₂. Dendrobatid.
- 221E.** Izidine. 'C₁₅H₂₇N'. Rt 9.10. MS: 221(8), 206 (5), 150(100), 148(28), 134(10). 0D. Mantellid, Bufonid.
- 221F.** DehydrodesmethylPTX. 'C₁₄H₂₃NO'. MS: 221(<1), 220(40), 176(10), 162(100), 160(40), 148(18), 134(42), 120(38), 91(35). Mantellid.
- 221G.** Tricyclic. C₁₅H₂₇N. Rt 8.72, 8.88. MS: 221(33), 220(47), 206(17), 179(19), 178(16), 150(19), 136(16), 124(14), 110(27), 98(70), 97(100), 83(53). FTIR: Moderate Bohlmann bands 2800, 2758 cm⁻¹. 0D. Dendrobatid.
- 221H.** 3,5-I. 'C₁₅H₂₇N'. Rt 10.26. MS: 221(14), 220(11), 178(57), 166(100), 136(45). FTIR: Moderate, sharp Bohlmann band 2795 cm⁻¹. Dendrobatid.
- 221I.** 5,8-I. C₁₅H₂₇N. Rt 9.20. MS: 221(<1), 152(100), 96(11). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹; *cis* CH=CH 3015 cm⁻¹. 0D. Synthetic. Mantellid.
- 221J.** Dehydro-5,8-I. 'C₁₅H₂₇N'. Rt 9.53. MS: 221(1), 220(3), 164(100), 162(65), 120(28). Dendrobatid.
- 221K.** 5,8-I. 'C₁₅H₂₇N'. Rt 8.54. MS: 221(1), 180(100), 96(35). 0D. Dendrobatid.
- 221L.** Pip. 'C₁₅H₂₇N'. Rt 9.72, 9.98. MS: 221(<1), 98(100). 1D. Dendrobatid.
- 221M.** Tricyclic. 'C₁₅H₂₇N'. Rt 8.35. MS: 221(3), 220(5), 206(8), 192(50), 178(17), 164(34), 150(100), 136(22), 126(21), 124(29), 110(22), 70(100). FTIR: Moderate Bohlmann band 2800 cm⁻¹. 0D. Homolog of **207R**. Dendrobatid.
- 221N.** Izidine. 'C₁₄H₂₃NO'. Rt 10.76. MS: 221(2), 206(3), 154(100), 136(7), 112(16), 94(11). 1D. Mantellid.
- 221O.** Dehydro-5,8-I. 'C₁₄H₂₃NO'. Rt 11.42. MS: 221(9), 220(20), 136(100), 134(10), 122(27), 70(13). 0D. Mantellid.
- 221P.** 5,6,8-I. 'C₁₅H₂₇N'. Rt 9.86. MS: 221(<1), 178(100), 124(22), 70(5). Mantellid.
- 221Q.** 5,6,8-I. 'C₁₅H₂₇N'. Rt 8.52. MS: 221(<1), 220(1), 152(100), 110(27), 70(1). 0D. Dendrobatid, Bufonid.
- 221R.** Izidine. 'C₁₄H₂₃NO'. Rt 9.42. MS: 221(1), 134(100), 106(3). 1D. Bufonid.
- 221S.** Tricyclic. 'C₁₅H₂₇N'. Rt 8.07. MS: 221(16), 220(19), 206(10), 178(27), 150(100), 136(9). 0D. Bufonid.

- 221T.** 5,6,8-I. 'C₁₅H₂₇N'. Rt 9.75. MS: 221(<1), 180(100), 110(44), 70(18). Dendrobatid.
- 221U.** 5,6,8-I. 'C₁₅H₂₇N'. Rt 8.98. MS: 221(<1), 180(100), 124(39). 0D. Dendrobatid, Mantellid. Mite.
- 221V.** Dehydro-5,8-I. 'C₁₄H₂₃NO'. Rt 12.08. MS: 221(15), 220(29), 204(6), 190(100), 188(13), 178(21), 136(28), 134(27), 120(30), 106(21). FTIR: Moderate Bohlmann bands 2791, 2739 cm⁻¹; CH=CH 3025 cm⁻¹; homoallylic OH 3650, 3600 cm⁻¹. 1D. Dendrobatid.
- 221W.** Tricyclic. 'C₁₄H₂₃NO'. Rt 10.06. MS: 221(20), 193(23), 192(100), 178(17), 150(21), 148(18), 134(29), 133(19), 70(11). Bufonid.
- 221X.** 1,4-Q. 'C₁₅H₂₇N'. Rt 10.61. MS: 221(10), 166(100), 110(30), 84(5). Mantellid.
- 221Y.** 5,8-I. 'C₁₅H₂₇N'. Rt 9.03. MS: 221(<1), 152(100), 96(11). FTIR: Strong sharp Bohlmann band 2787 cm⁻¹; C=CH₂ 3085 cm⁻¹. Mantellid.
- 222.** SpiroP. C₁₃H₂₂N₂O. Rt. 11.98. MS: 222(1), 221(2), 112(100), 82(16). FTIR⁷⁰: Weak Bohlmann band 2827 cm⁻¹, C=NOH 3641 cm⁻¹. NMR.^{39,70} 1D. Synthetic. Dendrobatid, Mantellid.
- 222/4A.** *N*-Methylepipibatidine. 'C₁₂H₁₅N₂Cl'. Rt 12.19. MS: 224(5), 222(8), 83(69), 82(100). 0D. Synthetic. Dendrobatid.
- 222/4B.** Phantasmidine. C₁₁H₁₁N₂OCl. Rt 14.00. MS: 224(<1), 222(<1), 169(30), 167(C₈H₆NOCl, 100), 80(C₅H₆N, 30), 56(60). FTIR. No Bohlmann band; pyridine 1595, 1418 cm⁻¹. NMR. 1D. *N*-Acetyl derivative. Related in structure to epibatidine. Dendrobatid.
- 223AB.** 3,5-I. C₁₅H₂₉N. Rt 8.75, 8.28, 8.50, 9.00. MS: 5*E*,9*E*: 223(<1), 180(88), 166(100), 124(10); 5*Z*,9*Z*: 223(<1), 180(27), 166(100), 124(15); 5*E*,9*Z*: 223(<1), 180(100), 166(75), 124(25); 5*Z*,9*E*: 223(<1), 180(100), 166(86), 124(30). FTIR⁸: Bohlmann bands moderate to none 5*E*,9*E* 2795 cm⁻¹>5*Z*,9*Z* 2792 cm⁻¹>5*E*,9*Z* 2803 cm⁻¹>>5*Z*,9*E* none. NMRs.⁴⁴⁻⁴⁶ 0D. H₀. Synthetics. Dendrobatid (5*E*,9*E*, 5*Z*,9*Z* > other isomers), Bufonid (5*Z*,9*Z*>5*E*,9*Z*>5*E*,9*E*), Mantellid (5*Z*,9*Z*). Ant (5*E*,9*E* and 5*Z*,9*Z*).
- 223A.** 5,6,8-I. C₁₅H₂₉N. Rt 8.52 > 8.63. MS: 223(3), 222(2), 180(100), 124(10). FTIR⁵³: Strong, sharp Bohlmann band 2784 cm⁻¹. NMR.⁵³ 0D. H₀. Synthetic. Dendrobatid, Mantellid.
- 223B.** 3,5-P. C₁₅H₂₉N. MS: 223(1), 222(2), 166(100). *Cis*-**223B**. Rt 9.40. FTIR⁸: Weak Bohlmann band 2802 cm⁻¹. *Trans*-**223B**. Rt 9.80. FTIR⁸: No Bohlmann band. 0D. H₀. Dendrobatid, Mantellid, Bufonid.
- 223C.** 5,6,8-I. 'C₁₄H₂₅NO'. Rt 10.59. MS: 223(1), 222(2), 152(100), 110(16), 70(6). 0D. Dendrobatid, Mantellid.
- 223D.** 5,8-I. 'C₁₅H₂₉N'. Rt 9.12, 10.09 > 10.22. MS: 223(2), 222(1), 138(100), 96(28). 0D. Dendrobatid, Mantellid, Bufonid.

- 223E.** Izidine. 'C₁₄H₂₅NO'. Rt 8.60, 9.60. MS: 223(2), 222(3), 168(100), 150(10). 1D. H₂. Dendrobatid, Mantellid.
- 223F.** DHQ. C₁₅H₂₉N. Rt 9.58, 10.25, 11.00. MS: 223(2), 222(1), 180(100). *Cis-223F*. FTIR⁸: Weak Bohlmann band 2801 cm⁻¹. *Trans-223F*. FTIR⁸: Virtually no Bohlmann band. 1D. H₀. A 5-*epi-trans-223F* also detected. Synthetic. Dendrobatid, Bufonid.
- 223G.** hPTX. C₁₄H₂₅NO. Rt 8.83. MS: 223(10), 208(6), 180(37), 98(23), 84(100). FTIR¹⁴: Moderate, broad Bohlmann band 2753 cm⁻¹; OH 3555 cm⁻¹. NMR.³⁹ 1D. H₂. Synthetic. Dendrobatid, Mantellid.
- 223H.** 3,5-P. C₁₅H₂₉N. Rt 8.91 > 9.50. MS: 223(1), 208(4), 124(100). *Cis-223H*. FTIR⁸: Very weak Bohlmann band 2803 cm⁻¹. 0D. H₀. Minor *trans*-isomer. Synthetic. Dendrobatid, Mantellid, Bufonid. Ant.
- 223I.** Izidine. C₁₅H₂₉N. Rt 9.08. MS: 223(3), 222(1), 194(7), 180(100), 166(12), 152(15), 138(10), 112(7), 96(10). FTIR: Weak Bohlmann band 2781 cm⁻¹. Dendrobatid, Mantellid, Bufonid.
- 223J.** 5,8-I. C₁₅H₂₉N. Rt 9.09. MS: 223(<1), 222(1), 166(100), 96(11), 70(8). FTIR¹⁹: Strong, sharp Bohlmann band 2786 cm⁻¹. 0D. Synthetic. Dendrobatid, Mantellid.
- 223K.** Pip. 'C₁₅H₂₉N'. Rt 9.89, 9.62. MS: 223(1), 222(1), 208(3), 124(31), 111(23), 98(100). 1D. Synthetic. Dendrobatid. Ant.
- 223L.** Unclass. 'C₁₅H₂₉N'. MS: 223(1), 222(2), 208(2), 194(23), 180(40), 167(53), 166(24), 152(18), 138(28), 137(20), 124(15), 96(42), 82(100). 0D. Dendrobatid.
- 223M.** 3,5-P. C₁₅H₂₉N. Rt 8.59, 9.01. *Cis*- and *trans-223M*. MS: 223(3), 222(2), 180(55), 152(100). FTIR: Virtually no Bohlmann bands. 0D. Mantellid.
- 223N.** Pyr. C₁₅H₂₉N. Rt 10.39. MS: 223(12), 222(6), 152(85), 140(100). 1D. Dendrobatid, Mantellid
- 223O.** Unclass. C₁₃H₂₁NO₂. Rt 11.03 > 10.73. MS: 223(<1), 222(2), 206(4), 184(100), 166(11), 148(7), 134(9), 120(13), 70(87). FTIR: Strong, sharp Bohlmann band 2810 cm⁻¹; C=C=C 1955 cm⁻¹; OH 3658, 3511 cm⁻¹. Dendrobatid, Mantellid.
- 223P.** Tricyclic. 'C₁₄H₂₅NO'. Rt 11.52. MS: 223(22), 208(11), 206(15), 180(9), 168(14), 164(50), 152(35), 150(100), 138(35), 136(39), 122(28), 110(58), 96(58), 81(42), 70(88). 1D. Dendrobatid.
- 223Q.** DHQ. 'C₁₅H₂₉N'. Rt 10.00. MS: 223(11), 222(9), 208(45), 180(67), 152(100). FTIR: Weak Bohlmann band 2801 cm⁻¹. 1D. Dendrobatid.
- 223R.** 3,5-I. 'C₁₅H₂₉N'. Rt 9.29. MS: 223(<1), 222(1), 138(100), 70(10). 0D. Dendrobatid. Ant.
- 223S.** 4,6-Q. 'C₁₅H₂₉N'. Rt 8.60. MS: 223(<1), 194(16), 166(100). Mantellid.

- 223T.** Unclass. 'C₁₅H₂₉N'. Rt 8.17, 8.62. MS: 223(57), 222(34), 208(17), 194(12), 180(33), 166(22), 152(8), 113(9), 58(100). 0D. A third isomer. Rt 8.38. MS: 223(38), 222(25), 208(11), 181(32), 180(31), 164(25), 110(18), 58(100).
Bufonid.
- 223U.** PTX. 'C₁₄H₂₅NO'. Rt 8.76. MS: 223(<1), 166(100), 70(47). Dendrobatid.
- 223V.** 5,8-I. 'C₁₅H₂₉N'. Rt 9.23. MS: 223(<1), 180(100), 96(40), 70(13). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹. Synthetic. Dendrobatid.
- 223W.** Unclass. 'C₁₅H₂₉N'. Rt 8.93. MS: 223(9), 166(42), 124(100). Mantellid.
- 223X.** 5,6,8-I. 'C₁₅H₂₉N'. Rt 9.04 > 8.42. MS: 223(2), 194(2), 166(100), 138(8), 124(9), 110(14), 70(8). 0D. Mantellid.
- 223Y.** Unclass. 'C₁₅H₂₉N'. Rt 9.83. MS: 223(2), 194(100), 152(38). Mantellid.
- 223Z.** 3,5-I. 'C₁₅H₂₉N'. Rt 8.54. MS: 223(<1), 222(3), 194(24), 152(100). Mantellid.
- 223AA.** 5,8-I. 'C₁₅H₂₉N'. Rt 9.19. MS: 223(1), 222(4), 152(100), 96(21), 70(5). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹. Mantellid.
- 223BB.** Unclass. 'C₁₄H₂₅NO'. Rt 11.11. MS: 223(<1), 208(2), 194(5), 182(10), 166(5), 139(5), 138(4), 97(10), 86(100). Mantellid.
- 223CC.** Unclass. 'C₁₄H₂₅NO'. Rt 11.51. MS: 223(20), 222(25), 136(100), 122(50), 70(25). 1D. Mantellid.
- 223DD.** Unclass. 'C₁₅H₂₉N'. Rt 9.25. MS: 223(1), 180(100), 152(35). FTIR: Moderate Bohlmann band 2803 cm⁻¹. 1D. Dendrobatid.
- 225A.** Izidine. 'C₁₄H₂₇NO'. Rt 9.20. MS: 225(3), 224(6), 208(2), 168(100), 152(25). 1D. H₀. Dendrobatid, Mantellid.
- 225B.** Pip. C₁₅H₃₁N. Rt 9.22. MS: 225(1), 224(1), 154(100). 1D. H₀. Dendrobatid.
- 225C.** Pyr. C₁₅H₃₁N. Rt 9.44. MS: 225(1), 224(2), 168(70), 126(100). 1D. H₀. Synthetics. FTIRs.¹⁵ Dendrobatid. Ant.
- 225D.** 5,8-I. C₁₄H₂₇NO. Rt 10.29, 10.95. MS: 225(<1), 138(100), 96(12), 70(4). 1D. H₀. Dendrobatid.
- 225E.** aPTX. C₁₃H₂₃NO₂. Rt 9.46. MS: 225(10), 208(28), 182(16), 114(27), 112(38), 70(100). NMR.¹² 2D. Dendrobatid.
- 225F.** PTX. C₁₃H₂₃NO₂. Rt 10.62. MS: 225(21), 194(28), 166(79), 112(19), 84(26), 70(100). FTIR¹²: Strong, sharp Bohlmann band 2794 cm⁻¹, shoulder 2750 cm⁻¹; OH 3660, 3600, 3542 cm⁻¹. NMR.¹² 2D. *O*-Acetyl derivative. FTIR.¹² Dendrobatid.
- 225G.** Izidine. C₁₄H₂₇NO. Rt 9.59. MS: 225(8), 138(100), 125(63), 110(33), 96(9), 70(23). FTIR: Weak Bohlmann band 2791 cm⁻¹; OH 3638 cm⁻¹. 1D. Dendrobatid.
- 225H.** Pyr. C₁₅H₃₁N. Rt 10.03. MS: 225(<1), 154(100), 140(91). Natural *trans*-**225H**. FTIR: No Bohlmann band. Synthetic *cis*-**225H**. FTIR: Weak Bohlmann band 2798 cm⁻¹. 1D. Synthetics. Dendrobatid, Mantellid. Ant.

- 225I.** Pip. 'C₁₅H₃₁N'. Rt 9.97. MS: 225(<1), 224(1), 98(100). 1D. Synthetics. FTIRs.¹⁵ Dendrobatid. Ant.
- 225J.** Izidine. 'C₁₄H₂₇NO'. Rt 10.44. MS: 225(2), 210(3), 182(100), 180(8), 140(7), 110(5), 94(4), 82(4), 70(5). Mantellid.
- 225K.** 5,6,8-I. 'C₁₄H₂₇NO'. Rt 10.20. MS: 225(<1), 168(100), 110(12), 70(4). Mantellid.
- 225L.** 5,6,8-I. 'C₁₄H₂₇NO'. Rt 8.94, 10.21. MS: 225(<1), 224(4), 210(5), 152(100), 110(20), 70(5). Mantellid.
- 225M.** 5,8-I. 'C₁₄H₂₇NO'. Rt 9.65. MS: 225(10), 152(100), 96(28). Dendrobatid.
- 227.** Unclass. 'C₁₄H₂₉NO'. Rt 9.35. MS: 227(<1), 184(100), 128(12), 112(29), 86(36). Dendrobatid.
- 231A.** 1,4-Q. C₁₆H₂₅N. Rt 10.74 > 10.90. MS: 231(2), 230(1), 166(100), 110(12), 84(3). FTIR¹: Moderate, broad Bohlmann band, 2789 cm⁻¹; conj. CH=CH 3029 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. H₆. Dendrobatid, Mantellid.
- 231B.** 5,6,8-I. C₁₆H₂₅N. Rt 9.68 > 10.24. MS: 231(2), 230(1), 152(100), 110(13), 70(4). FTIR¹: Strong, sharp Bohlmann band 2788 cm⁻¹; conj. CH=CH 3031 cm⁻¹; C≡CH 3327 cm⁻¹. 0D. H₆. Dendrobatid.
- 231C.** 5,8-I. C₁₆H₂₅N. Rt 10.60 > 10.50. MS: 231(3), 230(4), 138(100), 96(19), 70(9). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹; conj. CH=CH 3034 cm⁻¹; C≡CH 3327 cm⁻¹. 0D. H₆. Synthetic. Dendrobatid.
- 231D.** Izidine. 'C₁₅H₂₁NO'. Rt 9.30. MS: 231(1), 154(100). 1D. Dendrobatid.
- 231E.** DHQ. 'C₁₆H₂₅N'. Rt 8.8. MS: 231(<1), 230(3), 152(100). 1D. H₆. Dendrobatid.
- 231F.** Unclass. 'C₁₆H₂₅N'. Rt. 9.2. MS: 231(1), 180(100). 0D. H₆. Dendrobatid.
- 231G.** 5,8-I. 'C₁₆H₂₅N'. MS: 231(4), 232(2), 202(10), 152(42), 138(100), 110(8), 96(21). Dendrobatid.
- 231H.** Izidine. Rt 9.92. C₁₆H₂₅N. MS: 231(<1), 216(16), 162(17), 160(20), 150(100), 148(28), 134(17), 122(10), 107(12), 94(15), 80(25). FTIR: Weak Bohlmann band 2801 cm⁻¹; C≡CH 3329 cm⁻¹. Dendrobatid.
- 231I.** Unclass. 'C₁₆H₂₅N'. Rt 10.33. MS: 231(18), 190(100), 178(14), 148(11). Dendrobatid.
- 231J.** Unclass. 'C₁₆H₂₅N'. Rt 11.75. MS: 231(39), 146(100), 131(17). 0D. Dendrobatid, Mantellid.
- 231K.** 5,6,8-I. 'C₁₆H₂₅N'. Rt 11.12. MS: 231(<1), 166(100), 110(34), 70(10). 0D. Mantellid.
- 231L.** Dehydro-5,8-I. 'C₁₆H₂₅N'. Rt 11.40. MS: 231(12), 230(51), 136(80), 134(100), 120(14). Mantellid.
- 231M.** Unclass. 'C₁₆H₂₅N'. Rt 10.62. MS: 231(21), 190(100). Dendrobatid.

- 233A.** 1,4-Q. $C_{16}H_{27}N$. Rt 10.28 > 10.52. MS: 233(2), 232(1), 166(100), 110(8), 84(3). FTIR¹⁹: Moderate, broad Bohlmann band 2789 cm^{-1} ; $C\equiv CH$ 3329 cm^{-1} . 0D. H_4 . Synthetic. Dendrobatid, Mantellid.
- 233B.** Izidine. ' $C_{15}H_{23}NO$ '. Rt 11.2. MS: 233(<1), 168(100). 1D. Dendrobatid.
- 233C.** DHQ. $C_{16}H_{27}N$. Rt 10.90. MS: 233(1), 192(100). FTIR: Moderate, sharp Bohlmann band 2780 cm^{-1} ; $C=CH_2$ 3082 cm^{-1} ; *cis*- $CH=CH$ 3015 cm^{-1} . 1D. H_4 . Dendrobatid.
- 233D.** 5,8-I. $C_{16}H_{27}N$. Rt 10.80 > 11.30. MS: 233(3), 232(2), 164(17), 151(17), 138(100), 96(20). FTIR: Strong, sharp Bohlmann band 2787 cm^{-1} ; *cis* $CH=CH$ 3017 cm^{-1} ; $C=CH_2$ 3083 cm^{-1} . NMR.¹² 0D. H_4 . Dendrobatid.
- 233E.** Dehydro-5,8-I. ' $C_{16}H_{27}N$ '. Rt 10.99. MS: 233(4), 232(9), 136(100), 134(32), 120(8). Dendrobatid, Mantellid.
- 233F.** DehydrodesmethylPTX. $C_{15}H_{23}NO$. Rt 11.50. MS: 233(12), 232(27), 218(14), 162(100), 160(31), 134(16), 120(11). FTIR: Weak Bohlmann band 2790 cm^{-1} ; *cis* $CH=CH$ 3020 cm^{-1} ; $C=O$ 1731 cm^{-1} . Mantellid.
- 233G.** 5,6,8-I. $C_{16}H_{27}N$. Rt 11.00 > 10.48. MS: 233(2), 231(1), 152(100), 110(9), 70(3). FTIR: Strong, sharp Bohlmann band 2785 cm^{-1} ; $C\equiv CH$ 3329 cm^{-1} . Dendrobatid.
- 233H.** Unclass. ' $C_{15}H_{23}NO$ '. Rt 11.52. MS: 233(66), 218(23), 202(100), 159(17), 131(14), 115(33), 82(50). FTIR: Weak Bohlmann band 2784 cm^{-1} ; $C=CH_2$ 3067 cm^{-1} ; OH 3665 cm^{-1} ; strong bands 1487, 1275, 1050 cm^{-1} . 0D. Dendrobatid.
- 233I.** 1,4-Q. $C_{16}H_{27}N$. Rt 10.49. MS: 233(1), 232(<1), 190(100), 138(6), 110(9), 84(9). Mantellid.
- 233J.** Dehydro-5,8-I. ' $C_{16}H_{27}N$ '. Rt 9.70. MS: 233(37), 232(12), 218(24), 204(15), 190(25), 178(100), 176(30), 148(19), 120(9), 108(17). 0D. Dendrobatid.
- 233K.** Unclass. ' $C_{15}H_{23}NO$ '. Rt 10.60. MS: 233(12), 232(8), 218(100), 176(50), 174(20), 160(20), 134(22), 120(6). Mass spectrum very similar to that of a synthetic 8,9-dehydrohomopumiliotoxin.³³ Mantellid.
- 233L.** 5,6,8-I. ' $C_{16}H_{27}N$ '. Rt 10.83. MS: 233(8), 232(21), 204(15), 166(100), 110(25), 70(26). Mantellid.
- 233M.** 5,8-I. ' $C_{16}H_{27}N$ '. Rt 10.66. MS: 233 (<1), 232(2), 138(100), 96(14). FTIR: Strong, sharp Bohlmann band 2787 cm^{-1} ; $C\equiv CH$ 3328 cm^{-1} . Mantellid.
- 234.** SpiroP. ' $C_{14}H_{22}N_2O$ '. Rt 10.46. MS: 234(4), 126(100). A dehydro-**236**. Mantellid.
- 235A.** HTX. $C_{15}H_{25}NO$. Rt 11.57. MS: 235(5), 234(2), 218(15), 194(76), 176(25), 150(28), 96(100). FTIR¹³: No Bohlmann band; OH broad 3345 cm^{-1} ; $C=CH_2$ 3084 cm^{-1} . NMR.¹³ 2D. H_4 . Synthetic. Dendrobatid.
- 235B.** 5,8-I. $C_{16}H_{29}N$. Rt 10.28, 10.40. 1st isomer **235B'**: MS: 235(2), 234(1), 138(100), 96(10). FTIR: Strong, sharp Bohlmann band 2787 cm^{-1} ; $C=CH_2$

- 3083 cm^{-1} . NMR. 0D. H_2 . 2nd isomer **235B''** (formerly **235B**): MS: 235(2), 234(1), 164(13), 151(12), 138(100), 96(10). FTIR: Strong, sharp Bohlmann band 2787 cm^{-1} ; *cis* CH=CH 3010 cm^{-1} . NMRs.^{12,34,39,55} 0D. H_2 . Synthetics. Dendrobatid, Mantellid.
- 235C.** DehydrodesmethylPTX. $\text{C}_{15}\text{H}_{25}\text{NO}$. Rt 11.68 > 11.24, 12.00. MS: 235(28), 234(53), 220(20), 176(11), 162(100), 160(25), 134(23), 120(15). FTIR¹⁴: Weak Bohlmann band 2792 cm^{-1} ; conj CH=CH 3029 cm^{-1} ; OH 3654 cm^{-1} . 1D. H_4 -derivative. MS: 239(<1), 238(38), 224(8), 196(7), 195(8), 194(12), 180(18), 166(16), 138(42), 125(40), 124(62), 110(80), 84(100), 70(96). *O*-Acetyl derivative. Mantellid.
- 235D.** Unclass. ' $\text{C}_{15}\text{H}_{25}\text{NO}$ '. Rt 11.3. MS: 235(<1), 196(20), 170(100). 1D. H_6 . Dendrobatid.
- 235E.** 5,6,8-I. ' $\text{C}_{16}\text{H}_{29}\text{N}$ '. Rt 10.05, 10.60 > 11.00. MS: 235(5), 152(100), 110(18), 70(13). 2nd isomer. FTIR⁸: Strong Bohlmann band 2787 cm^{-1} ; *cis* CH=CH 3020 cm^{-1} . 0D. H_2 . Dendrobatid, Mantellid, Bufonid.
- 235F.** Pyr. ' $\text{C}_{16}\text{H}_{29}\text{N}$ '. Rt 9.8. MS: 235(5), 234(3), 166(36), 138(100). Dendrobatid.
- 235G.** Unclass. ' $\text{C}_{16}\text{H}_{29}\text{N}$ '. Rt 9.9. MS: 235(2), 206(100), 194(65). Dendrobatid.
- 235H.** CPQ. ' $\text{C}_{16}\text{H}_{29}\text{N}$ '. Rt 9.21. MS: 235(60), 234(68), 220(28), 178(48), 164(20), 152(28), 150(32), 112(50), 111(100), 98(52), 96(40). 0D. Dendrobatid.
- 235I.** Tricyclic. $\text{C}_{16}\text{H}_{29}\text{N}$. Rt 9.69. MS: 235(63), 234(100), 220(61), 208(12), 206(21), 192(26), 178(11), 150(20), 138(18), 136(50), 122(21), 110(20), 96(20), 84(27), 70(30). FTIR⁸: Strong, sharp Bohlmann band 2791 cm^{-1} . Bufonid.
- 235J.** Unclass. ' $\text{C}_{15}\text{H}_{25}\text{NO}$ '. MS: 235(12), 220(2), 208(2), 192(2), 134(8), 109(18), 84(100). FTIR: Moderate Bohlmann band 2755 cm^{-1} ; OH 3551 cm^{-1} . 1D. Mantellid.
- 235K.** Unclass. $\text{C}_{16}\text{H}_{29}\text{N}$. Rt 10.63. MS: 235(6), 234(21), 220(4), 206(7), 192(100), 178(33), 164(14), 150(15), 136(14), 122(9). FTIR: Weak Bohlmann band 2792 cm^{-1} ; C=CH₂ 3084 cm^{-1} . 0D. Mantellid.
- 235L.** Unclass. $\text{C}_{14}\text{H}_{21}\text{NO}_2$. Rt 12.08. MS: 235(<1), 192(11), 170(100, $\text{C}_9\text{H}_{16}\text{NO}_2$), 152 (34, $\text{C}_9\text{H}_{14}\text{NO}$), 136(6), 134(14, $\text{C}_9\text{H}_{12}\text{N}$), 112(8), 96(19), 70(30). FTIR: Strong, sharp Bohlmann band 2806 cm^{-1} ; conj. CH=CH 3038 cm^{-1} ; C≡CH 3328 cm^{-1} ; OH 3662, 3516 cm^{-1} . Mantellid.
- 235M.** Tricyclic. $\text{C}_{16}\text{H}_{29}\text{N}$. Rt 10.19 > 10.46. MS: 235(24), 234(100), 220(13), 206(24), 192(38), 165(23), 164(32), 151(25), 150(28), 136(24), 122(8). FTIR: Very weak Bohlmann band 2798 cm^{-1} . Dendrobatid, Mantellid.
- 235N.** DHQ. $\text{C}_{15}\text{H}_{25}\text{NO}$. Rt 11.93. MS: 235(2), 234(1), 194(5), 168(100), 112(4). Dendrobatid, Mantellid.
- 235O.** Unclass. $\text{C}_{16}\text{H}_{29}\text{N}$. Rt 10.40. MS: 235(<1), 234(2), 192(100). Mantellid.

- 235P.** Unclass. $C_{16}H_{29}N$. Rt 9.45. MS: 235(6), 234(5), 220(10), 206(82), 192(13), 178(31), 164(22), 150(46), 140(32), 138(38), 124(18), 122(22), 98(35), 96(20), 70(100). 0D. Dendrobatid.
- 235Q.** Dehydro-5,8-I. ' $C_{15}H_{25}NO$ '. Rt 11.59, 11.70. MS: 235(5), 234(1), 136(100), 134(20), 122(37), 120(16), 70(18). 0D. Mantellid.
- 235R.** Unclass. ' $C_{16}H_{29}N$ '. Rt 9.08, 9.48. 1st isomer. MS: 235(6), 234(22), 220(10), 180(18), 178(26), 150(100), 136(12), 122(8). 0D. 2nd isomer. MS: 235(6), 234(29), 220(13), 178(28), 165(35) 150(100), 137(24), 136(14), 120(23), 93(23), 92(76), 70(5). 0D. Dendrobatid, Mantellid.
- 235S.** Unclass. ' $C_{15}H_{25}NO$ '. Rt 9.67. MS: 235(72), 206(100), 122(28), 70(67). 1D. Bufonid, Mantellid.
- 235T.** Tricyclic. ' $C_{15}H_{25}NO$ '. Rt 11.17, 11.48. MS: 1st isomer. 235(8), 234(28), 220(13), 218(55), 190(100), 164(18), 148(13). 2nd isomer. 235(7), 234(12), 220(18), 218(50), 190(100), 164(16), 150(10). Mantellid.
- 235U.** 1,4-Q. ' $C_{16}H_{29}N$ '. Rt 10.39. MS: 235(<1), 234(1), 166(100), 110(25), 84(2). FTIR: Moderate, broad Bohlmann band 2788 cm^{-1} ; *cis*-CH=CH 3015 cm^{-1} . Mantellid.
- 235V.** DeoxyPTX. ' $C_{16}H_{29}N$ '. Rt 9.03. MS: 235(6), 234(17), 178(23), 150(100), 136(14), 70(12). 0D. Mantellid.
- 235W.** 1,4-Q. ' $C_{16}H_{29}N$ '. Rt $10.45 > 10.02$. MS: 235(4), 192(100), 110(5), 84(5). Mantellid.
- 235X.** Unclass. ' $C_{15}H_{25}NO$ '. Rt 11.28, 11.77. MS: 235(78), 206(100), 188(31), 162(8), 70(6). Mantellid.
- 235Y.** Tricyclic. ' $C_{15}H_{25}NO$ '. Rt 12.84. MS: 235(16), 234(14), 220(100), 218(10), 176(61), 174(35), 160(34), 148(20), 134(18), 120(8), 70(14). Mantellid.
- 235Z.** 5,8-I. ' $C_{15}H_{25}NO$ '. Rt 11.33. MS: 235(1), 234(2), 194(16), 176(100), 96(20), 70(20). Mantellid.
- 235AA.** Tricyclic. ' $C_{16}H_{29}N$ '. Rt 9.35. MS: 235(14), 220(13), 206(16), 192(37), 178(29), 164(50), 152(100), 148(27), 136(47), 122(21), 110(38), 96(43), 70(47). Dendrobatid.
- 235BB.** Unclass. ' $C_{15}H_{25}NO$ '. Rt 11.28. MS: 235(3), 194(100), 176(23). Dendrobatid.
- 236.** SpiroP. $C_{14}H_{24}N_2O$. Rt 10.50. MS: 236(8), 126(100). FTIR⁷⁰: No Bohlmann band; =N-OCH₃ $1055, 864\text{ cm}^{-1}$. NMR^{39,70}. 0D. Synthetic. Dendrobatid, Bufonid, Mantellid. Millipede.
- 237A.** PTX. $C_{15}H_{27}NO$. Rt 9.80. MS: 237(6), 236(4), 194(20), 166(54), 84(19), 70(100). FTIR: Moderate Bohlmann bands $2797, 2749\text{ cm}^{-1}$; OH 3545 cm^{-1} . 1D. H₂. Dendrobatid, Mantellid. Mite.
- 237B.** aPTX. $C_{14}H_{23}NO_2$. Rt 9.5. MS: 237(11), 182(60), 114(30), 112(25), 70(100). 2D. Dendrobatid.

- 237C.** 5,6,8-I. 'C₁₆H₃₁N'. Rt 9.70, 10.12. MS: 237(1), 236(2), 180(100), 110(7), 96(4), 70(13). 0D. H₀. Dendrobatid, Mantellid. Ant.
- 237D.** 5,8-I. 'C₁₆H₃₁N'. Rt 10.40. MS: 237(1), 236(<1), 138(100), 96(14), 70(6). 0D. H₀. Synthetic. Dendrobatid.
- 237E.** 3,5-I. 'C₁₅H₂₇NO'. Rt 11.16. MS: 237(1), 236(3), 208(70), 152(100). H₂. Dendrobatid.
- 237F.** HTX. C₁₅H₂₇NO. Rt 11.62. MS: 237(13), 220(11), 194(39), 176(12), 166(27), 152(58), 139(24), 110(10), 96(100). 2D. H₂. Dendrobatid.
- 237G.** 3,5-P. 'C₁₅H₂₇NO'. Rt 11.32 > 11.55. MS: 238(2), 124(100). *Cis*-**237G**. FTIR: Very weak Bohlmann band 2804 cm⁻¹; C=O 1731 cm⁻¹. The position of the carbonyl is tentative. Dendrobatid, Mantellid, Bufonid.
- 237H.** 5,8-I. 'C₁₅H₂₇NO'. Rt 11.44, 11.66. MS: 237(<1), 236(1), 152(100), 96(11), 70(3). FTIR: Strong, sharp Bohlmann band 2788 cm⁻¹; OH 3646 cm⁻¹; *cis* CH=CH 3010 cm⁻¹. Mantellid.
- 237I.** 4,6-Q. C₁₆H₃₁N. Rt 9.87. MS: 237(2), 236(1), 194(45), 180(100), 138(12), 110(20), 84(8), 70(6). Dendrobatid.
- 237J.** Pip. 'C₁₆H₃₁N'. Rt 9.52. MS: 237(<1), 98(100). 1D. Dendrobatid.
- 237K.** Unclass. C₁₅H₂₇NO. Rt 11.35. MS: 237(23), 236(11), 222(13), 178(100), 164(53, C₁₁H₁₈N), 84(10). Mantellid.
- 237L.** 5,6,8-I. C₁₆H₃₁N. Rt 9.80. MS: 238(2), 180(100), 124(15). Dendrobatid.
- 237M.** 5,6,8-I. 'C₁₅H₂₇NO'. Rt 10.78. MS: 238(26), 237(8), 168(100), 150(14), 110(68), 70(25). FTIR: No Bohlmann band; OH 3656 cm⁻¹. Dendrobatid.
- 237N.** 5,6,8-I. 'C₁₅H₂₇NO'. Rt 11.22. MS: 237(25), 206(18), 192(100), 124(15). Dendrobatid.
- 237O.** Tricyclic. 'C₁₅H₂₇NO'. Rt 11.00. MS: 237(71), 236(100), 222(8), 220(13), 208(57), 194(15), 164(67), 150(26), 122(10), 70(8). Bufonid.
- 237P.** Dehydro-5,8-I. 'C₁₅H₂₇NO'. Rt 11.46, 11.54, 11.69 > 11.89. 1st isomer. MS: 237(2), 236(11), 208(5), 194(16), 136(100), 134(10), 122(22), 108(8), 70(7). 2nd isomer. MS: 237(3), 236(9), 208(5), 136(100), 134(10), 122(25), 70(18). MS: 237(9), 236(14), 222(8), 136(100), 134(16), 122(38), 70(17). 3rd isomer. MS: 237(1), 222(4), 194(5), 162(14), 136(100), 134(12), 122(26), 70(15). 1D. Mantellid.
- 237Q.** Tricyclic. 'C₁₅H₂₇NO'. Rt 10.81. MS: 237(18), 220(16), 208(79), 194(24), 180(42), 178(91), 166(27), 152(100), 148(22), 140(37), 136(31), 122(42), 110(24), 96(35), 70(31). Mantellid.
- 237R.** 3,5-P. 'C₁₅H₂₇NO'. Rt 12.37. MS: 237(1), 124(100), 110(5). Mantellid.
- 237S.** 5,6,8-I. 'C₁₆H₃₁N'. Rt 9.61. MS: 237(<1), 152(100), 110(16), 70(4). Mantellid.
- 237T.** 1,4-Q. 'C₁₆H₃₁N'. Rt 9.83. MS: 237(1), 152(100), 110(19), 84(2). Mantellid.

- 237U.** DHQ. C₁₆H₃₁N. Rt 11.20. MS: 237(1), 194(100), 70(8). FTIR: Moderate, sharp Bohlmann band 2780 cm⁻¹. 1D. Dendrobatid.
- 238.** SpiroP (Nitropolyzonamine). C₁₃H₂₂N₂O₂. Rt 12.15. MS: 238(2), 122(20), 108(23), 82(100). FTIR¹: Moderate Bohlmann band 2810 cm⁻¹, NO₂ 1562, 1367 cm⁻¹. Synthetic. Dendrobatid, Mantellid. Millipede.
- 239AB.** 3,5-I. C₁₅H₂₉NO. Rt 12.31 > 11.17. MS: 239(2), 238(3), 182(100), 180(90). Major isomer *5E,9E*. FTIR¹: Weak Bohlmann band 2798 cm⁻¹; OH 3670 cm⁻¹. NMR.^{45,46} 1D. H₀. *O*-Acetyl derivative. Synthetic. Dendrobatid, Mantellid.
- 239A.** Izidine. 'C₁₅H₂₉NO'. Rt 11.2 > 11.0. MS: 239(2), 238(3), 182(100). 1D. H₀. Dendrobatid.
- 239B.** Izidine. 'C₁₅H₂₉NO'. Rt 11.2. MS: 239(2), 238(3), 180(100). 1D. H₀. Dendrobatid.
- 239CD.** 3,5-I. C₁₅H₂₉NO. Rt 12.39 > 11.41. MS: 239(4), 238(3), 196(100), 166(60). Major isomer *5E,9E*. FTIR: Weak Bohlmann band 2796 cm⁻¹; OH 3669 cm⁻¹. NMR.^{45,46} 1D. H₀. *O*-Acetyl derivative. Synthetic. Dendrobatid, Mantellid.
- 239C.** 5,8-I. C₁₅H₂₉NO. Rt 11.44 > 11.30. MS: 239(<1), 238(1), 196(100), 140(8), 124(4), 96(4), 70(4). FTIR: Strong, sharp Bohlmann band 2788 cm⁻¹; OH 3660 cm⁻¹. 1D. H₀. Dendrobatid, Mantellid.
- 239D.** 5,8-I. 'C₁₅H₂₉NO'. Rt 11.3 > 11.0. MS: 239(2), 238(3), 166(100), 96(11). H₀. Dendrobatid, Mantellid.
- 239E.** 3,5-I. 'C₁₅H₂₉NO'. Rt 11.61. MS: 239(2), 238(3), 210(40), 152(100). 1D. H₀. Dendrobatid.
- 239F.** Izidine. 'C₁₅H₂₉NO'. Rt 10.38. MS: 239(1), 168(100), 152(19), 150(12), 126(19), 110(6). 1D. H₀. Dendrobatid, Mantellid.
- 239G.** 5,8-I. C₁₅H₂₉NO. Rt 10.61. MS: 239(1), 238(3), 138(100), 96(8). 1D. Dendrobatid, Mantellid.
- 239H.** HTX. C₁₅H₂₉NO. Rt 12.20. MS: 239(11), 222(16), 196(51), 168(39), 152(100), 139(33), 110(11), 96(75). FTIR¹: No Bohlmann band; OH broad 3328 cm⁻¹. 2D. H₀. Dendrobatid.
- 239I.** Pip. C₁₆H₃₃N. Rt 10.36. MS: 239(3), 182(40), 140(100). 1D. H₀. Dendrobatid.
- 239J.** Noranabasamine. C₁₅H₁₇N₃. Rt 17.14. MS: 239(75), 238(30), 210(25), 183(20), 182(35), 157(80), 84(100). NMR.²² 1D. H₀. Dendrobatid.
- 239K.** 3,5-P. 'C₁₅H₂₉NO'. MS: 239(<1), 224(2), 124(100). *Cis*-**239K**. Rt 11.30. FTIR: Very weak Bohlmann band 2800 cm⁻¹; OH 3560 cm⁻¹. *Trans*-**239K**. Rt 11.68. FTIR: No Bohlmann band; OH 3656 cm⁻¹. A minor isomer at Rt 11.90. Mantellid.
- 239L.** Pip. C₁₅H₂₉NO. Rt 12.18 > 11.80. MS: 239(<1), 238(4), 224(6), 98(100). Major isomer *trans*-**239L**. FTIR: No Bohlmann band; C=O 1733 cm⁻¹. Minor isomer *cis*-**239L**. FTIR: Very weak Bohlmann band 2810 cm⁻¹; C=O 1733

- cm⁻¹. Dendrobatid.
- 239M.** hPTX. C₁₄H₂₅NO₂. Rt 11.77. MS: 239(10), 238(4), 208(14), 180(56), 96(23), 84(100). FTIR: Moderate, broad Bohlmann band 2760 cm⁻¹; homoallylic OH 3610, 3580 cm⁻¹; OH 3550 cm⁻¹. 2D. Mantellid.
- 239N.** Unclass. C₁₇H₂₁N. Rt 12.03. MS: 239(11), 238(17), 200(100), 172(40), 152(28), 146(25), 120(23). Mantellid.
- 239O.** Pip. 'C₁₆H₃₃N'. Rt 12.08. MS: 239(2), 168(85), 154(100). 1D. Dendrobatid.
- 239P.** Pyridylnicotine. 'C₁₅H₁₇N₃'. Rt 15.50. MS: 239(52), 238(73), 224(5), 210(73), 196(17), 183(19), 169(16), 84(100), 70(4). FTIR: Strong, sharp Bohlmann band 2791 cm⁻¹; pyridine 1591, 1468, 1014 cm⁻¹. 0D. Dendrobatid.
- 239Q.** 3,5-I. 'C₁₅H₂₉NO'. Rt 10.30. MS: 239(<1), 238(1), 196(13), 166(100), 124(26), 70(5). FTIR: Moderate Bohlmann bands 2798 > 2728 cm⁻¹; OH 3531 cm⁻¹ (broad). NMR. Bufonid.
- 239R.** 3,5-P. 'C₁₅H₂₉NO'. Rt 11.18. MS: 239(7), 238(4), 224(12), 196(75), 152(100), 124(14), 110(22), 70(15). Mantellid.
- 239S.** Unclass. 'C₁₅H₂₉NO'. Rt 10.56, 11.28. 1st isomer; MS: 239(2), 210(100), 194(10), 166(20), 130(22), 58(34). 2nd isomer; MS: 239(21), 210(100), 194(5), 166(11), 116(20), 58(14). Dendrobatid.
- 239T.** Unclass. 'C₁₅H₂₉NO'. Rt 11.48. MS: 239(<1), 238(2), 196(100), 136(33), 122(14), 70(8). Mantellid.
- 239U.** 5,8-I. 'C₁₅H₂₉NO'. Rt 11.61. MS: 239(1), 238(2), 224(4), 210(2), 152(100), 96(21), 70(4). Mantellid.
- 239V.** Unclass. 'C₁₄H₂₅NO₂'. Rt 11.87. MS: 239(<1), 182(24), 170(100), 152(57), 134(24), 70(56). Mantellid.
- 239W.** 5,6,8-I. 'C₁₅H₂₉NO'. Rt 10.12. MS: 239(1), 208(100), 138(12), 70(3). Mantellid.
- 239X.** Izidine. C₁₅H₂₉NO. Rt 11.68. MS: 239(1), 238(1), 196(77, C₁₂H₂₂NO), 182(100, C₁₁H₂₀NO), 140(18), 110(6). FTIR: Weak Bohlmann band 2800 cm⁻¹; OH 3652 cm⁻¹. 1D. H₀. Dendrobatid.
- 239Y.** 3,5-P. 'C₁₅H₂₉NO'. Rt 10.97. MS: 239(12), 224(6), 182(85), 166(100), 138(10), 124(11). Dendrobatid.
- 241A.** Unclass. 'C₁₄H₂₇NO₂'. Rt 11.4. MS: 241(2), 240(3), 166(100), 126(48). Dendrobatid.
- 241B.** Unclass. C₁₆H₃₅N. Rt 11.45. MS: 241(15), 125(45), 58(100). 0D. H₀. Mantellid (pet trade).
- 241C.** Unclass. 'C₁₄H₂₇NO₂'. Rt 11.1. MS: 241(1), 152(100). Dendrobatid.
- 241D.** Pip. C₁₅H₃₁NO. Rt 11.87. MS: 241(<1), 240(2), 226(6), 114(100), 96(8), 70(28). FTIR⁹⁰: Weak Bohlmann band 2808 cm⁻¹; OH 3649 cm⁻¹. NMR.³⁴ 2D. H₀. Synthetic. Dendrobatid.

- 241E.** Izidine. 'C₁₄H₂₇NO₂'. Rt 10.7. MS: 241(3), 212(62), 154(100). 2D. Dendrobatid.
- 241F.** 5,8-I. C₁₇H₂₃N. Rt 12.06 > 12.19. MS: 241(<1), 176(100), 96(12). FTIR: Strong, sharp Bohlmann band 2790 cm⁻¹; conj. CH=CH 3039 cm⁻¹; two C≡CH 3328 cm⁻¹. 0D. Dendrobatid, Mantellid.
- 241G.** Pip. C₁₄H₂₇NO₂. Rt 11.83 > 12.18. MS: 241(<1), 226(6), 98(100). 2D. Dendrobatid.
- 241H.** aPTX. 'C₁₃H₂₃NO₃'. Rt 11.91. MS: 242(5), 240(3), 182(15), 114(100), 96(14), 84(15), 70(78). 3D. Dendrobatid.
- 241I.** Unclass. 'C₁₄H₂₇NO₂'. Rt 10.45. MS: 241(<1), 152(19), 140(42), 126(78), 110(100), 96(22), 84(34), 70(70). Dendrobatid.
- 242.** Pseudo. 'C₁₆H₂₂N₂'. Rt 12.42. MS: 242(35), 227(30), 185(33), 173(61), 130(100). Tentatively, a deoxy-**258**. Myobatrachid.
- 243A.** DHQ. C₁₇H₂₅N. MS: 243(2), 242(1), 202(100). *Cis*-**243A**. Rt 12.32. FTIR¹¹: No Bohlmann band. *Trans*-**243A**. Rt 12.68. *5-Epi-trans*-**243A**: Rt 12.74. FTIRs¹¹: Both weak Bohlmann bands 2805 cm⁻¹. NMRs.^{12,17,46} 1D. H₈. *N*-Acetyl derivative. Dendrobatid, Bufonid.
- 243B.** 5,8-I. C₁₇H₂₅N. Rt 11.90. MS: 243(<1), 176(100), 96(12). 0D. H₈. Dendrobatid, Mantellid.
- 243C.** 5,8-I. C₁₇H₂₅N. Rt 11.85. MS: 243(<1), 178(100), 96(15). FTIR: Strong, sharp Bohlmann band 2789 cm⁻¹; C=CH₂ 3085 cm⁻¹; *cis* CH=CH 3020 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. Mantellid.
- 243D.** 5,8-I. 'C₁₇H₂₅N'. Rt 11.59. MS: 243(<1), 242(17), 176(18), 164(12), 152(32), 122(44), 96(45), 91(50), 70(100). FTIR: Strong, sharp Bohlmann band 2789 cm⁻¹; conj. CH=CH 3035 cm⁻¹; *trans* CH=CH 970 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. Mantellid.
- 243E.** Tricyclic. 'C₁₇H₂₅N'. Rt 11.85. MS: 243(3), 242(35), 214(27), 200(30), 176(40), 164(29), 146(48), 124(100), 122(55), 96(42). Dendrobatid.
- 243F.** Dehydro-5,8-I. C₁₇H₂₅N. Rt 11.95. MS: 244(<1), 242(12), 150(100), 148(93), 120(34). Dendrobatid.
- 243G.** Tricyclic. 'C₁₇H₂₅N'. Rt 11.71. MS: 243(28), 242(100), 228(29), 214(48), 192(24), 186(31), 176(34), 172(35), 164(22), 152(42), 136(28), 122(48), 96(41), 91(35), 70(35). Mantellid.
- 243H.** Unclass. 'C₁₇H₂₅N'. Rt 12.23. MS: 243(1), 148(56), 146(34), 134(29), 120(100), 108(28), 80(46), 70(25). Dendrobatid.
- 243I.** Izidine. 'C₁₇H₂₅N'. Rt 12.12. MS: 243(2), 242(1), 174(100), 172(30), 134(33). Mantellid.
- 243J.** Izidine. 'C₁₇H₂₅N'. Rt 11.86. MS: 243(6), 242(16), 214(17), 176(100), 174(30), 134(29). Mantellid.

- 245A.** CPQ. 'C₁₆H₂₃NO'. Rt 12.00. MS: 245(20), 109(100), 108(55), 107(60), 94(30). Dendrobatid.
- 245B.** 5,8-I. C₁₇H₂₇N. Rt 11.48 > 11.59. MS: 245(2), 244(1), 202(17), 178(100), 96(9), 70(5). FTIR: Strong, sharp Bohlmann band 2788 cm⁻¹; C=CH₂ 3085 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. Mantellid.
- 245C.** 5,8-I. 'C₁₇H₂₇N'. Rt 11.55. MS: 245(<1), 244(15), 216(20), 206(10), 204(10), 202(10), 188(15), 175(15), 174(17), 164(15), 152(32), 134(15), 132(15), 122(35), 96(45), 91(48), 79(60), 70(100). FTIR: Strong, sharp Bohlmann 2788 cm⁻¹; *trans* CH=CH 970 cm⁻¹; C≡CH 3329 cm⁻¹. 0D. Mantellid.
- 245D.** 5,8-I. 'C₁₇H₂₇N'. Rt 10.83. MS: 245(<1), 138(100), 96(10). 0D. Dendrobatid.
- 245E.** DHQ. 'C₁₇H₂₇N'. Rt 10.72. MS: 245(5), 244(3), 202(100), 180(43), 178(19). *Cis*-**245E**. FTIR: Weak Bohlmann band 2807 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 245F.** Dehydro-5,8-I. C₁₇H₂₇N. Rt 12.39 > 12.02. MS: 245(<1), 244(2), 216(6), 150(100), 148(21), 120(12). FTIR: Moderate, sharp Bohlmann band 2787 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. H₆. Perhydro derivative: MS: 251(<1), 152(100), 96(12). Mantellid.
- 245G.** 5,6,8-I. 'C₁₇H₂₇N'. Rt 10.90. MS: 246(4), 245(2), 192(12), 166(100), 124(18). 0D. Dendrobatid.
- 245H.** Dehydro-5,8-I. 'C₁₇H₂₇N'. Rt 11.66 > 11.80. MS: 245(2), 244(4), 174(100), 172(18), 134(32), 120(15). FTIR: Moderate Bohlmann band 2801 cm⁻¹; C≡CH 3327 cm⁻¹. 0D. H₆. Perhydro derivative: MS: 251 (<1), 180(100), 96 (10). Mantellid.
- 245I.** 5,8-I. 'C₁₇H₂₇N'. Rt 11.47. MS: 245(2), 244(2), 152(100), 96(28). Mantellid.
- 245J.** Tricyclic. 'C₁₇H₂₇N'. Rt 11.50, 11.66. 1st isomer. MS: 245(10), 244(41), 230(26), 216(50), 202(51), 196(53), 188(45), 176(51), 174(61), 164(50), 152(100), 136(46), 124(60), 122(51), 96(45), 91(61), 79(66), 70(64). 2nd isomer. MS: 245(23), 244(100), 230(30), 216(91), 202(54), 188(41), 176(43), 174(42), 164(35), 152(56), 136(33), 134(31), 123(34), 122(48), 120(35), 96(43), 91(39), 79(30), 70(37). Mantellid.
- 245K.** Unclass. 'C₁₇H₂₇N'. Rt 11.95. MS: 245(<1), 176(9), 162(27), 148(75), 134(34), 122(58), 120(100), 108(35), 96(30), 80(45), 70(35). Dendrobatid.
- 245L.** Dehydro-5,8-I. 'C₁₇H₂₇N'. Rt 11.38, 12.08. 1st isomer. MS: 245(7), 244(11), 176(100), 174(77), 120(64). 2nd isomer. MS: 245(<1), 244(1), 176(100), 174(23), 134(30), 120(5). Mantellid.
- 245M.** Tricyclic. 'C₁₇H₂₇N'. Rt 11.59. MS: 245(5), 244(20), 216(25), 202(28), 178(100), 176(35), 152(40), 151(23), 122(20), 96(30), 70(37). Mantellid.
- 245N.** 5,8-I. 'C₁₇H₂₇N'. Rt 11.95. MS: 245(2), 244(3), 176(100), 96(11). Mantellid.

- 245O.** Izidine. 'C₁₇H₂₇N'. Rt 11.07. MS: 245(<1), 244(1), 180(21), 138(100), 110(25), 70(7). Dendrobatid.
- 247A.** CPQ. C₁₆H₂₅NO. Rt 11.50. MS: 247(15), 110(37), 109(100). FTIR⁷⁵: Enamine 1692 cm⁻¹. 1D. H₄. *O*-Acetate. Dendrobatid.
- 247B.** 5,6,8-I. 'C₁₇H₂₉N'. Rt 11.39. MS: 247(1), 192(4), 178(100), 110(8), 70(4). 0D. Dendrobatid, Mantellid.
- 247C.** 3,5-I. C₁₇H₂₉N. Rt 10.19. MS: 247(2), 246(1), 192(100), 178(37), 138(6), 124(5). FTIR: Moderate Bohlmann band 2787 cm⁻¹; C=CH₂ 3089 cm⁻¹. 0D. Mantellid.
- 247D.** 1,4-Q. C₁₇H₂₉N. Rt. 10.43. MS: 247(<1), 166(100), 110(11), 84(3). FTIR: Moderate, broad Bohlmann band 2790 cm⁻¹; C≡CH 3328 cm⁻¹. Mantellid.
- 247E.** 5,8-I. 'C₁₇H₂₉N'. Rt 11.22 > 11.29. MS: 247(<1), 204(12), 178(100), 96(27), 70(25). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹; C=CH₂ 3087 cm⁻¹; *cis*-CH=CH 3010 cm⁻¹. 0D. Dendrobatid, Mantellid.
- 247F.** 5,8-I. 'C₁₇H₂₉N'. Rt 12.04. MS: 247(<1), 246(3), 152(100), 96(21), 70(4). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹; C≡CH 3328 cm⁻¹. Mantellid.
- 247G.** Izidine. 'C₁₇H₂₉N'. Rt 11.94. MS: 247(3), 246(2), 206(14), 178(100), 176(93), 134(24), 96(47). 0D. H₄. Dendrobatid, Mantellid.
- 247H.** Tricyclic. 'C₁₇H₂₉N'. Rt 10.64. MS: 247(100), 246(34), 232(15), 204(10), 166(9), 152(13), 126(52), 110(36), 94(58). Dendrobatid.
- 247I.** 3,5-P. 'C₁₇H₂₉N'. Rt 11.01. MS: 247(3), 192(76), 164(100), 110(18). Mantellid.
- 247J.** Izidine. 'C₁₇H₂₉N'. Rt 11.69. MS: 247(7), 246(4), 206(19), 176(100), 174(20), 134(38). 0D. Mantellid.
- 247K.** Unclass. 'C₁₆H₂₅NO'. Rt 14.18. MS: 247(36), 246(92), 232(14), 230(16), 202(40), 188(54), 186(41), 176(98), 160(30), 146(60), 134(40), 120(100), 96(30), 94(32), 80(20). Mantellid.
- 249A.** 3,5-I. C₁₇H₃₁N. Rt 10.26 > 10.31, 10.52. MS: 249(3), 248(2), 192(100), 180(25), 124(15). FTIR¹⁴: Weak Bohlmann band 2791 cm⁻¹; C=CH₂ 3085 cm⁻¹. 0D. Dendrobatid, Mantellid.
- 249B.** CPQ. 'C₁₆H₂₇NO'. Rt 11.15. MS: 249(18), 234(48), 222(26), 221(98), 220(100), 206(30), 192(28), 186(13), 178(20), 172(63), 168(30), 166(30), 164(48), 152(100), 136(18), 124(15), 114(53), 111(66), 98(30). 0D. Dendrobatid.
- 249C.** 5,6,8-I. C₁₇H₃₁N. Rt 10.70. MS: 249(4), 248(1), 192(8), 152(100), 110(12), 70(11). FTIR: Weak Bohlmann band 2811 cm⁻¹. 0D. H₀. Dendrobatid, Mantellid.
- 249D.** DHQ. 'C₁₇H₃₁N'. Rt 11.73. MS: 249(2), 248(3), 206(100), 180(15). *Cis*-**249D**. Rt 11.73. FTIR: Moderate Bohlmann band 2804 cm⁻¹; C=CH₂ 3085 cm⁻¹. *Trans*-**249D**. Rt 12.03. FTIR: No Bohlmann band; C=CH₂ 3085 cm⁻¹. 1D. H₂. Bufonid.

- 249E.** DHQ. 'C₁₇H₃₁N'. Rt 11.95. MS: 250(15), 206(29), 180(100). *Trans*-**249E**. FTIR: No Bohlmann band; C=CH₂ 3084 cm⁻¹. 1D. H₂. Bufonid.
- 249F.** Unclass. 'C₁₆H₂₇NO'. Rt 10.88 > 11.48. MS: 249(12), 220(22), 128(16), 84(100). FTIR: Moderate, broad Bohlmann band 2755 cm⁻¹; OH 3540 cm⁻¹. Bufonid, Mantellid.
- 249G.** DesmethylPTX. 'C₁₆H₂₇NO'. Rt 10.22. MS: 249(14), 152(93), 124(25), 96(34), 70(100). Dendrobatid.
- 249H.** 5,6,8-I. C₁₇H₃₁N. Rt 13.14 > 13.20. MS: 249(7), 220(6), 166(100), 110(8), 95(10), 70(16). FTIR⁵⁵: Very weak Bohlmann band 2810 cm⁻¹. 0D. H₂. NMR.⁵⁵ Dendrobatid.
- 249I.** 3,5-P. 'C₁₇H₃₁N'. Rt 10.89. MS: 249(5), 192(75), 166(100). Dendrobatid.
- 249J.** 5,8-I. C₁₆H₂₇NO. Rt 11.30. MS: 249(2), 176(100), 96(15). FTIR: Moderate, sharp Bohlmann band 2800 cm⁻¹; conj. CH=CH 3030 cm⁻¹; OH 3525 cm⁻¹. Mantellid.
- 249K.** Dehydro-5,8-I. C₁₆H₂₇NO. Rt 12.80, 12.90, 13.13. 1st and 2nd isomer: MS: 249(5), 248(23), 234(6), 162(10), 136(100), 134(70), 120(10). 3rd isomer: MS: 249(3), 248(4), 234(5), 136(100), 134(43), 120(5). 1st isomer. FTIR: Moderate Bohlmann band 2787 cm⁻¹; *cis* CH=CH 3015 cm⁻¹; C=O 1731 cm⁻¹. Dendrobatid, Mantellid.
- 249L.** 5,8-I. C₁₆H₂₇NO. Rt. 11.50. MS: 249(9), 138(100), 96(23). Dendrobatid, Bufonid, Mantellid.
- 249M.** Tricyclic. 'C₁₆H₂₇NO'. Rt 13.11. MS: 249(84), 248(100), 234(78), 218(26), 166(40), 150(33), 109(62), 94(72). 1D. Dendrobatid, Mantellid.
- 249N.** Unclass. 'C₁₇H₃₁N'. Rt 11.12. MS: 249(9), 248(6), 178(10), 150(100), 136(6), 134(4). 0D. Dendrobatid.
- 249O.** 5,8-I. 'C₁₇H₃₁N'. Rt 11.32. MS: 249(6), 206(21), 178(100), 96(15). Dendrobatid, Mantellid.
- 249P.** Unclass. 'C₁₆H₂₇NO'. Rt 12.83 > 12.48. MS: 249(66), 206(100), 188(27), 162(8), 70(9). 1D. Dendrobatid, Mantellid.
- 249Q.** Unclass. 'C₁₅H₂₃NO₂'. Rt. 13.00 > 13.73. MS: 249(6), 248(10), 234(100), 176(55), 174(25), 160(19), 148(12), 134(14), 120(8). Mantellid.
- 249R.** 3,5-I. 'C₁₇H₃₁N'. Rt 10.37. MS: 249(2), 248(2), 206(23), 166(100), 124(20). Mantellid.
- 249S.** Dehydro-5,8-I. 'C₁₅H₂₃NO₂'. Rt 13.73. MS: 249(5), 248(27), 218(12), 152(100), 150(47), 134(28), 122(17), 120(12). Mantellid.
- 249T.** Dehydro-5,8-I. 'C₁₅H₂₃NO₂'. Rt 13.76, 13.86. MS: 249(6), 248(22), 208(12), 162(18), 136(100), 134(80), 120(13). Mantellid.
- 249U.** 5,6,8-I. 'C₁₇H₃₁N'. Rt 10.41. MS: 249(3), 248(2), 206(20), 194(17), 166(100), 124(26), 70(6). Mantellid.

- 249V.** Izidine. 'C₁₆H₂₇NO'. Rt 12.90. MS: 249(2), 194(27), 152(100), 150(70), 134(22), 108(40). Probably a dehydroizidine. Mantellid.
- 249W.** Dehydro-5,8-I. 'C₁₇H₃₁N'. Rt 11.29. MS: 249(4), 248(2), 178(100), 176(30), 152(8), 120(9). Mantellid.
- 249X.** 3,5-P. 'C₁₇H₃₁N'. Rt 11.15. MS: 249(5), 206(60), 152(100). Mantellid.
- 249Y.** Unclass. 'C₁₆H₂₇NO'. Rt 13.33. MS: 249(<1), 164(35), 98(25), 86(100). Mantellid.
- 249Z.** Tricyclic. 'C₁₇H₃₁N'. Rt 11.65. MS: 249(65), 248(29), 220(73), 206(29), 192(31), 178(55), 152(100), 150(31), 136(24), 124(42), 70(81). Mantellid.
- 251A.** DHQ. 'C₁₇H₃₃N'. Rt 10.5. MS: 251(2), 208(6), 152(100). 1D. H₀. Dendrobatid.
- 251B.** 5,8-I. C₁₆H₂₉NO. Rt 12.50 > 12.61. MS: 251(2), 250(1), 164(8), 151(8), 138(100), 96(9), 70(7). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹; *cis* CH=CH 3012 cm⁻¹; OH 3647 cm⁻¹. NMR.¹² 1D. H₂. Dendrobatid, Mantellid.
- 251C.** Izidine. 'C₁₆H₂₉NO'. Rt 11.90. MS: 251(2), 234(4), 154(100). 1D. H₂. Dendrobatid.
- 251D.** PTX. C₁₆H₂₉NO. Rt 10.86. MS: 251(6), 250(4), 194(16), 166(68), 84(12), 70(100). FTIR¹: Moderate, broad Bohlmann band 2797 cm⁻¹; OH 3544 cm⁻¹. NMR.^{12,29} 1D. H₂. A possible *N*-oxide has been detected. Rt 11.70. MS: 251(4), 250(2), 208(4), 194(18), 193(47), 166(100), 70(19). Synthetic. Dendrobatid, Mantellid, Bufonid. Mite.
- 251E.** Izidine. 'C₁₆H₂₉NO'. Rt 10.9. MS: 251(3), 250(1), 168(30), 84(18), 70(100). Dendrobatid.
- 251F.** CPQ. C₁₆H₂₉NO. Rt 11.85 > 11.66. MS: 251(54), 250(65), 236(27), 222(28), 221(30), 220(68), 194(62), 164(19), 152(35), 150(17), 112(43), 111(100), 98(35). FTIR⁷⁵: Strong Bohlmann band 2755 cm⁻¹; OH 3666 cm⁻¹. NMR.⁷⁵ 1D. H₀. *O*-Acetyl derivative. The minor diastereomer has been termed **251F'**. Synthetic. Dendrobatid.
- 251G.** DehydrodesmethylPTX. C₁₅H₂₅NO₂. Rt 12.52. MS: 251(26), 250(45), 162(100), 160(40), 134(13), 120(10). 2D. Mantellid.
- 251H.** DeoxyPTX. 'C₁₆H₂₉NO'. Rt 11.49 > 11.69, 12.15. MS: 251(3), 250(4), 236(2), 178(10), 150(100), 70(20). FTIR³²: Moderate Bohlmann bands 2790, 2740 cm⁻¹; OH 3652 cm⁻¹. NMR.³² 1D. Dendrobatid, Mantellid.
- 251I.** aPTX. 'C₁₅H₂₅NO₂'. Rt 12.68. MS: 251(7), 236(4), 210(15), 209(20), 182(11), 70(100). 2D. H₄. Dendrobatid.
- 251J.** CPQ. 'C₁₆H₂₉NO'. Rt 10.80. MS: 251(92), 250(86), 236(24), 234(63), 222(23), 195(23), 194(23), 178(27), 164(28), 152(100), 150(85), 112(38), 111(82), 98(42). 1D. Dendrobatid.
- 251K.** 3,5-P. C₁₇H₃₃N. Rt 10.80, 11.03 > 11.20. MS: 251(4), 194(76), 166(100). 2nd isomer *cis*-**251K**. FTIR¹: Very weak Bohlmann band 2805 cm⁻¹. 1st isomer

- trans*-**251K**. FTIR¹: No Bohlmann band. 0D. H₀. Dendrobatid, Mantellid, Bufonid.
- 251L**. Unclass. C₁₅H₂₅NO₂. Rt 15.14. MS: 251(1), 250(21), 222(36), 176(100), 148(52), 84(39). Occurs mainly as an *O*-acetate, tabulated as **293G**. Mantellid.
- 251M**. 5,6,8-I. C₁₇H₃₃N. Rt 10.98. MS: 251(<1), 250(1), 180(100), 124(7). 0D. Dendrobatid, Mantellid.
- 251N**. 5,8-I. 'C₁₇H₃₃N'. Rt 11.62. MS: 251(<1), 250(2), 180(100), 96(13), 70(10). FTIR: Major isomer; Strong, sharp Bohlmann band 2787 cm⁻¹. Minor isomer; Weak Bohlmann band 2804 cm⁻¹. Dendrobatid, Mantellid.
- 251O**. 3,5-P. C₁₇H₃₃N. Rt 11.39 > 11.21. MS: 251(2), 250(2), 208(35), 152(100). *Trans*-**251O**. FTIR: No Bohlmann band. 0D. Mantellid. Ant.
- 251P**. Dehydro-5,8-I. C₁₆H₂₉NO. Rt 13.32. MS: 251(5), 250(11), 236(4), 136(100), 134(38), 120(5). FTIR: Moderate Bohlmann bands 2791 > 2734 cm⁻¹; OH 3660 cm⁻¹. 1D. Mantellid.
- 251Q**. Izidine. C₁₆H₂₉NO. Rt 13.40. MS: 251(2), 250(1), 236(5), 122(100, C₈H₁₂N), 120(17). FTIR: Moderate Bohlmann band 2787 cm⁻¹; CH=CH 3025 cm⁻¹; OH 3654 cm⁻¹. Mantellid.
- 251R**. hPTX. C₁₆H₂₉NO. Rt 11.00. MS: 251(1), 250(2), 208(10), 180(35), 84(100). FTIR: Moderate broad Bohlmann band 2753 cm⁻¹; OH 3555 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 251S**. 5,6,8-I. 'C₁₆H₂₉NO'. Rt 11.16, 11.68. 1st isomer. MS: 251(2), 250(1), 152(100), 138(8), 110(11), 70(21). 2nd isomer. MS: 251(1), 250(6), 236(13), 152(100), 138(11), 110(7), 70(12). 1D. Dendrobatid, Mantellid.
- 251T**. 5,6,8-I. 'C₁₇H₃₃N'. Rt 10.70. MS: 251(<1), 152(100), 110(31), 70(6). 0D. Dendrobatid, Mantellid.
- 251U**. 5,8-I. C₁₆H₂₉NO. Rt 10.70. MS: 251(<1), 250(<1), 164(6), 151(7), 138(100), 96(9), 70(5). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹; C=O 1731 cm⁻¹. Dendrobatid, Mantellid.
- 251V**. 5,6,8-I. 'C₁₇H₃₃N'. Rt 10.16. MS: 251(1), 208(100), 138(18), 70(4). Mantellid.
- 251W**. DeoxyhPTX. 'C₁₆H₂₉NO'. Rt 11.40. MS: 251(<1), 164(100), 84(35). Dendrobatid.
- 251X**. Tricyclic. 'C₁₅H₂₅NO₂'. Rt 12.78. MS: 251(8), 250(37), 234(57), 206(100), 188(25), 154(23), 70(19). Mantellid.
- 251Y**. 4,6-Q. 'C₁₇H₃₃N'. Rt 11.15. MS: 251(<1), 250(1), 194(100), 124(9), 84(3). FTIR: Weak Bohlmann band 2797 cm⁻¹. Mantellid.
- 251Z**. Unclass. 'C₁₆H₂₉NO'. Rt 12.56. MS: 251(2), 250(3), 236(6), 136(100). Mantellid.
- 251AA**. 1,4-Q. 'C₁₇H₃₃N'. Rt 12.53. MS: 251(<1), 250(2), 166(100), 110(27), 84(4). Mantellid.

- 251BB.** Unclass. 'C₁₆H₂₉NO'. Rt 13.28. MS: 251(1), 250(4), 182(13), 157(14), 141(11), 86(100). Mantellid.
- 251CC.** Izidine. 'C₁₅H₂₅NO₂'. Rt 11.03. MS: 251(1), 208(33), 180(39), 152(24), 140(100), 138(32), 124(13), 112(38), 110(30), 108(25), 96(12). Mantellid.
- 251DD.** Unclass. 'C₁₆H₂₉NO'. Rt 12.18. MS: 251(5), 250(8), 236(75), 150(100), 136(25), 70(37). 1D. Mantellid.
- 252A.** SpiroP. C₁₄H₂₄N₂O₂. Rt 11.78. MS: 252(4), 251(3), 142(100). FTIR⁷⁰: No Bohlmann band; OH 3611 cm⁻¹; =N-OCH₃ strong band 1048 cm⁻¹. NMR.^{39,70} 1D. Dendrobatid, Mantellid.
- 252B.** SpiroP. 'C₁₄H₂₄N₂O₂'. Rt 12.78. MS: 252(1), 221(5), 126(100). 1D. Mantellid, Myobatrachid.
- 253A.** aPTX. C₁₅H₂₇NO₂. Rt 11.70. MS: 253(4), 236(22), 182(16), 114(27), 112(26), 70(100). FTIR: Strong, sharp Bohlmann band 2803 cm⁻¹; OH 3648, 3520 cm⁻¹. 2D. Dendrobatid.
- 253B.** 5,8-I. C₁₆H₃₁NO. Rt 12.72, 13.25. MS: 253(1), 252(2), 238(4), 138(100), 96(9). FTIR: Strong, sharp Bohlmann band 2787 cm⁻¹; OH 3650 cm⁻¹. 1D. Mantellid.
- 253C.** Unclass. 'C₁₅H₂₇NO₂'. Rt 10.9. MS: 253(3), 192(100). Dendrobatid.
- 253D.** DHQ. C₁₅H₂₇NO₂. Rt 14.80. *Trans*-isomer. MS: 253(<1), 222(6), 212(100). NMR.⁴⁶ 3D. Dendrobatid.
- 253E.** Unclass. 'C₁₆H₃₁NO'. Rt 9.10. MS: 253(7), 180(23), 110(59), 58(100). 0D. Dendrobatid.
- 253F.** PTX. 'C₁₅H₂₇NO₂'. Rt 11.50 > 12.18. MS: 253(1), 224(3), 194(6), 166(100), 70(84). FTIR: Strong, broad Bohlmann band 2800 cm⁻¹; OH 3658, 3539 cm⁻¹. 2D. Dendrobatid, Mantellid.
- 253G.** Tricyclic. 'C₁₅H₂₇NO₂'. Rt 12.00. MS: 253(26), 238(39), 224(14), 212(35), 210(56), 196(20), 182(44), 168(61), 154(50), 140(42), 126(100), 112(33), 111(36), 98(95), 84(23). Possibly a CPQ. Dendrobatid.
- 253H.** 5,6,8-I. 'C₁₆H₃₁NO'. Rt 12.34. MS: 253(<1), 196(100), 180(5), 124(32), 70(18). 1D. Dendrobatid.
- 253I.** Pyr. 'C₁₇H₃₅N'. Rt 11.81, 12.23. MS: 253(<1), 252(2), 168(85), 154(100). 1st isomer. FTIR: No Bohlmann band. 1D. Synthetics. Dendrobatid.
- 253J.** Pip. 'C₁₇H₃₅N'. Rt 12.11. MS: 253(<1), 98(100). 1D. Synthetic. Dendrobatid. Ant.
- 253K.** 5,6,8-I. 'C₁₆H₃₁NO'. Rt 10.85. MS: 253(<1), 238(6), 152(100), 110(46), 70(10). Mantellid.
- 253L.** Izidine. 'C₁₆H₃₁NO'. Rt 12.62. MS: 253(1), 253(2), 224(23), 154(100), 136(53), 124(17). 1D. Dendrobatid.
- 253M.** Unclass. 'C₁₅H₂₇NO₂'. Rt 9.73. MS: 253(2), 210(100), 150(73), 136(10), 122(18), 110(10), 70(15). Bufonid.

- 253N.** Unclass. 'C₁₆H₃₁NO'. Rt 10.50. MS: 253(<1), 180(70), 109(96), 70(100). Dendrobatid.
- 253O.** Unclass. 'C₁₅H₂₇NO₂'. Rt 12.36. MS: 253(3), 224(100), 196(28), 180(27), 152(25), 124(28), 116(36). Dendrobatid.
- 253P.** 5,6,8-I. 'C₁₆H₃₁NO'. Rt 11.58, 11.71. 1st isomer. MS: 253(1), 252(2), 210(100), 192(8), 124(12), 70(2). 2nd isomer. MS: 253(<1), 252(1), 210(100), 192(8), 140(10), 124(12), 70(3). Mantellid.
- 253Q.** Unclass. 'C₁₅H₂₇NO₂'. Rt 10.36. MS: 253(7), 238(100), 178(96), 134(18), 96(16). Mantellid.
- 253R.** Unclass. 'C₁₆H₃₁NO'. Rt 12.18. MS: 253(15), 252(16), 238(100), 94(75). Mantellid.
- 253S.** Tricyclic. 'C₁₅H₂₇NO₂'. Rt. 12.00. MS: 253(24), 238(37), 224(15), 212(35), 210(57), 196(24), 182(43), 168(63), 154(50), 140(44), 126(100), 112(36), 111(38), 98(91). Dendrobatid.
- 253T.** 3,5-I. 'C₁₆H₃₁NO'. Rt 14.10. MS: 253(<1), 196(100), 180(75), 124(20). Dendrobatid.
- 253U.** Pip. 'C₁₇H₃₅N'. Rt 11.26. MS: 253(<1), 252(8), 182(83), 154(100). Dendrobatid.
- 253V.** 5,6,8-I. 'C₁₆H₃₁NO'. Rt 10.80. MS: 253(16), 194(77), 166(100), 110(18), 96(13), 70(16). Dendrobatid.
- 254.** SpiroP. 'C₁₃H₂₂N₂O₃'. Rt 14.09 > 14.12. MS: 254(<1), 122(8), 108(6), 82(100). Hydroxynitropolyzonamines. Dendrobatid. Millipede.
- 255A.** Pip. C₁₅H₂₉NO₂. Rt 13.2. MS: 255(3), 114(100). 2D. H₀. Dendrobatid.
- 255B.** 1,4-Q. 'C₁₈H₂₅N'. Rt 13.03. MS: 256(1), 255(<1), 190(100), 110(28), 84(6). FTIR: Moderate broad Bohlmann 2791 cm⁻¹; conj. CH=CH 3037 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. Dendrobatid, Mantellid.
- 255C.** Pip. 'C₁₅H₂₉NO₂'. Rt 12.58, 12.84. MS: 255(1), 212(13), 198(89), 140(100), 124(19), 84(17), 70(13). 2D. Dendrobatid.
- 255D.** Pip. 'C₁₅H₂₉NO₂'. Rt 12.92. MS: 255(1), 226(13), 184(100), 154(98), 140(11), 126(8), 124(9), 84(17), 70(9). Dendrobatid.
- 255E.** Unclass. 'C₁₅H₂₉NO₂'. Rt 11.98 > 12.76. MS: 255(<1), 112(30), 86(100), 56(25). Mantellid.
- 256.** Pseudo. 'C₁₆H₂₀N₂O'. Rt 14.65. MS: 256(22), 228(10), 227(10), 199(10), 185(28), 173(100), 171(20), 144(28), 130(95), 110(25), 109(30). FTIR.⁷³ Bohlmann band 2808 cm⁻¹; C=O 1703 cm⁻¹; strong bands 1608, 1478, 1240 cm⁻¹. 1D. Myobatrachid.
- 257A.** DHQ. 'C₁₈H₂₇N'. Rt 12.85. MS: 257(1), 256(2), 216(100). FTIR: Moderate, sharp, Bohlmann band 2780 cm⁻¹; C≡CH 3327 cm⁻¹; C=CH₂ 3080 cm⁻¹; *cis* CH=CH 3020 cm⁻¹. 1D. H₈. Dendrobatid.

- 257B.** Unclass. 'C₁₈H₂₇N'. Rt 13.0. MS: 257(60), 256(100), 152(20). 1D. Dendrobatid.
- 257C.** 5,8-I. 'C₁₈H₂₇N'. Rt 12.87. MS: 257(<1), 138(100), 96(8). 0D. H₈. Dendrobatid.
- 257D.** 1,4-Q. C₁₈H₂₇N. Rt 12.98. MS: 257(5), 256(3), 190(100), 110(9), 84(13). FTIR: Moderate, broad Bohlmann band 2790 cm⁻¹; 2 C≡CH 3328 cm⁻¹. 0D. H₈. Dendrobatid, Mantellid.
- 257E.** 5,6,8-I. 'C₁₈H₂₇N'. Rt 12.60. MS: 257(<1), 192(100), 110(13), 70(5). 0D. Mantellid.
- 258.** Pseudo (Pseudophrynaminol). C₁₆H₂₂N₂O. Rt 14.95 > 15.05. MS: 258(25), 185(18), 173(100), 130(90). FTIR⁷³: Moderate broad Bohlmann band 2802 cm⁻¹; OH 3657 cm⁻¹; NH 3429 cm⁻¹; aryl H 3061 cm⁻¹; strong, sharp bands 1606, 1476, 1244, 1015 cm⁻¹. NMR.⁷⁹ 2D. Synthetic. Myobatrachid.
- 259A.** HTX. C₁₇H₂₅NO. Rt 13.20. MS: 259(4), 218(28), 200(14), 164(9), 150(18), 96(100). FTIR¹³: No Bohlmann band, C=CH₂ 3083 cm⁻¹; conj CH=CH 3038 cm⁻¹; C≡CH 3328 cm⁻¹; OH broad band 3330 cm⁻¹. NMR.^{13,91} 2D. H₈. Dendrobatid.
- 259B.** 5,8-I. 'C₁₈H₂₉N'. Rt 11.01 > 11.27, 11.76. MS: 259(3), 138(100), 96(20). FTIR^{1,8}: Weak Bohlmann band 2812 cm⁻¹; conj. CH=CH 3025 cm⁻¹; C≡CH 3327 cm⁻¹. Bufonid.
- 259C.** 5,6,8-I. C₁₈H₂₉N. Rt 11.81. MS: 259(<1), 258(2), 244(10), 152(100), 110(12), 70(8). FTIR: Weak Bohlmann band 2810 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. Dendrobatid.
- 259D.** Tricyclic. 'C₁₈H₂₉N'. Rt 12.29. MS: 259(19), 244(100), 230(10), 216(17), 202(11), 188(11), 168(13), 166(10), 152(10), 96(20). Mantellid.
- 259E.** 1,4-Q. 'C₁₈H₂₉N'. Rt 12.32, 13.20. MS: 259(<1), 192(100), 110(6), 84(6). Dendrobatid, Mantellid.
- 261A.** HTX. C₁₇H₂₇NO. Rt 13.25. MS: 261(8), 220(100), 204(10), 96(68). FTIR¹³: No Bohlmann band; C=CH₂ 3089 cm⁻¹; conj. CH=CH 3035 cm⁻¹, OH broad band 3361 cm⁻¹. 2D. H₆. Dendrobatid.
- 261B.** 5,6,8-I. 'C₁₈H₃₁N'. Rt 11.27. MS: 262(<1), 152(100), 110(23), 70(12). Dendrobatid.
- 261C.** Tricyclic. C₁₈H₃₁N. Rt 12.70. MS: 261(19), 260(29), 246(8), 232(77), 220(64), 218(100), 204(12), 192(9), 190(12), 178(9), 164(14), 162(5), 150(24), 120(7). FTIR⁶⁸: Weak Bohlmann band 2811 cm⁻¹; C=CH₂ 3083 cm⁻¹. NMR.⁶⁸ 0D. Mantellid. Beetle (unpublished).
- 261D.** 5,8-I. C₁₈H₃₁N. Rt 12.27 > 13.33. MS: 262(<1), 220(8), 164(13), 151(18), 138(100), 96(38). 0D. Dendrobatid, Bufonid.

- 261E.** Tricyclic. 'C₁₇H₂₇NO'. Rt 15.06. MS: 261(26), 260(71), 246(17), 244(19), 232(22), 216(25), 188(49), 186(30), 174(76), 160(39), 146(56), 134(57), 120(100), 106(29), 96(54), 91(46), 80(38), 70(33). Mantellid.
- 261F.** Tricyclic. 'C₁₈H₃₁N'. Rt 13.25. MS: 261(100), 246(77), 219(51), 218(43), 205(37), 190(16), 152(18). Dendrobatid.
- 261G.** Unclass. 'C₁₈H₃₁N'. Rt 13.76. MS: 261(8), 246(4), 220(11), 206(12), 190(12), 176(100), 162(18), 150(20), 134(32), 120(10), 70(4). Mantellid.
- 261H.** Tricyclic. 'C₁₈H₃₁N'. Rt 14.17. MS: 261(40), 260(70), 246(10), 232(20), 218(26), 204(10), 190(27), 176(24), 162(50), 148(100), 134(38), 122(36), 120(80), 108(28), 96(20). Mantellid.
- 263A.** 5,6,8-I. C₁₈H₃₃N. Rt 10.28, 10.48. MS: 263(2), 192(4), 152(100), 110(10), 70(6). FTIR: Weak Bohlmann band 2790 cm⁻¹. Dendrobatid.
- 263B.** Unclass. 'C₁₇H₂₉NO'. Rt 10.5. MS: 263(3), 198(100). 0D. Dendrobatid
- 263C.** HTX. C₁₇H₂₉NO. Rt 13.1. MS: 263(1), 222(100), 204(10), 96(48). 2D. H₄. Dendrobatid.
- 263D.** 5,6,8-I. 'C₁₈H₃₃N'. Rt 11.41. MS: 263(3), 234(5), 180(100), 124(16), 70(15). Dendrobatid.
- 263E.** Tricyclic. 'C₁₇H₂₉NO'. Rt 13.87. MS: 263(100), 246(72), 232(20), 204(15), 190(58), 176(84), 174(45), 158(28), 134(37), 126(25), 120(31), 91(52), 70(48). Dendrobatid.
- 263F.** 5,8-I. 'C₁₈H₃₃N'. Rt 12.30. MS: 263(<1), 262(<1), 164(13), 151(14), 138(100), 96(10), 70(8). Dendrobatid.
- 263G.** Tricyclic. 'C₁₈H₃₃N'. Rt 12.75 > 13.76. MS: 263(40), 262(77), 234(78), 220(63), 206(24), 199(27), 192(63), 185(33), 164(52), 157(33), 150(100), 143(55), 135(21), 129(33), 122(21), 115(21), 101(33). Dihydro-congeners of **261C**. Mantellid.
- 263H.** 1,4-Q. 'C₁₈H₃₃N'. Rt 10.32. MS: 263(1), 152(100), 110(20), 84(13). Dendrobatid.
- 263I.** Izidine. 'C₁₇H₂₉NO'. Rt 13.68 > 13.62. MS: 263(5), 262(6), 248(4), 222(15), 176(100), 174(18), 134(32). Mantellid.
- 263J.** Unclass. 'C₁₇H₂₉NO'. Rt 13.75 > 13.48. MS: 263(18), 262(7), 206(100), 204(17), 192(58), 178(27), 176(36), 150(29), 136(17), 134(19), 120(11), 70(10). Mantellid.
- 263K.** 5,8-I. 'C₁₇H₂₉NO'. Rt 13.87. MS: 263(18), 234(7), 220(12), 196(100), 166(25), 96(20). Mantellid.
- 263L.** Dehydro-5,8-I. 'C₁₇H₂₉NO'. Rt 14.05. MS: 263(5), 262(2), 220(7), 206(10), 178(100), 176(40), 148(4), 120(6). FTIR: Moderate, sharp Bohlmann band 2788 cm⁻¹; C=O 1730 cm⁻¹. Mantellid.

- 263M.** Tricyclic. 'C₁₇H₂₉NO'. Rt 14.57. MS: 263(55), 262(75), 248(27), 234(98), 220(27), 206(28), 190(37), 176(100), 162(36), 150(96), 148(97), 137(57), 122(46), 120(60), 108(47), 96(42), 91(40), 79(46), 70(54). Mantellid.
- 263N.** DesmethylPTX. 'C₁₇H₂₉NO'. Rt 13.69. MS: 263(14), 194(32), 152(100), 110(20), 96(23), 70(89). Mantellid.
- 263O.** Dehydro-5,8-I. 'C₁₇H₂₉NO'. Rt 14.25. MS: 263(15), 262(20), 190(18), 178(16), 176(23), 162(25), 150(100), 148(48), 134(15), 122(22), 120(42). Mantellid.
- 263P.** 5,8-I. 'C₁₇H₂₉NO'. Rt 13.64. MS: 263(1), 262(3), 152(100), 96(17). Mantellid.
- 263Q.** Izidine. 'C₁₇H₂₉NO'. Rt 13.45. MS: 263(14), 262(11), 206(100), 204(21), 192(43), 136(20), 120(23), 70(5). 0D. Mantellid.
- 263R.** DHQ. C₁₈H₃₃N. Rt 12.60. MS: 263(<1), 220(100), 74(14), 70(10). FTIR: Moderate, sharp Bohlmann band 2780 cm⁻¹; C=CH₂ 3083 cm⁻¹. 1D. Dendrobatid.
- “265A”.** Non-alkaloidal. Rt 12.85. In early GC studies, an apparent molecular ion at m/z **265** led to assignment of an alkaloid code number to an unknown compound, which proved to be oleic acid methyl ester (MW 296 with a fragment ion at m/z 265).
- 265B.** CPQ. C₁₇H₃₁NO. Rt 13.17. MS: 265(18), 264(22), 250(12), 236(17), 234(20), 194(16), 166(25), 126(30), 125(100), 112(28). 1D. H₀. Dendrobatid.
- 265C.** Izidine. C₁₇H₃₁NO. Rt 11.92. MS: 265(14), 236(10), 210(100), 192(10), 138(21), 84(45). 1D. H₂. Dendrobatid.
- 265D.** PTX. 'C₁₆H₂₇NO₂'. Rt 13.50 > 13.00. MS: 265(1), 250(4), 222(14), 166(100), 138(18), 124(13), 96(7), 70(25). 2D. Dendrobatid.
- 265E.** HTX. Rt 13.34. C₁₇H₃₁NO. MS: 265(5), 264(3), 248(10), 224(48), 222(20), 168(24), 152(95), 139(63), 96(100). FTIR¹³: No Bohlmann band; C=CH₂ 3080 cm⁻¹; OH broad band 3329 cm⁻¹. Dendrobatid.
- 265F.** Dehydro-5,8-I. C₁₆H₂₇NO₂. Rt 13.37, 13.64. MS: 265(5), 206(8), 194(100), C₁₂H₂₀NO, 192(30), 148(11), 136(20), 134(25), 120(19). 1st isomer. FTIR: Weak Bohlmann band 2803 cm⁻¹; OH 3660 cm⁻¹. H₂. O-Acetyl derivative. 2nd isomer. FTIR: Moderate Bohlmann band 2792 cm⁻¹. Mantellid.
- 265G.** PTX. C₁₆H₂₇NO₂. Rt 11.42 > 12.20. MS: 265(8), 222(6), 194(6), 166(100), 84(11), 70(45). FTIR: Strong Bohlmann band 2799 cm⁻¹; OH 3541 cm⁻¹; C=O 1731 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 265H.** Izidine. C₁₇H₃₁NO. Rt 15.51, 15.59. *Cis*- and *trans*-**265H**: MS: 265(2), 264(1), 250(1), 152(100). FTIR: Weak or no Bohlmann bands; C=O 1730 cm⁻¹. Mantellid.
- 265I.** 5,6,8-I. 'C₁₇H₃₁NO'. Rt 12.70. MS: 266(13), 265(4), 248(10), 166(100), 110(22), 70(14). Dendrobatid.

- 265J.** 3,5-P. 'C₁₇H₃₁NO'. Rt 12.48, 12.67. MS: 265(2), 264(1), 208(76), 166(100), 126(18). 1st isomer. *Cis*-**265J**. FTIR: Weak Bohlmann band; C=O 1731 cm⁻¹. 2nd isomer. *Trans*-**265J**. FTIR: No Bohlmann band; C=O 1731 cm⁻¹. 0D. Dendrobatid.
- 265K.** Unclass. C₁₆H₂₇NO₂. Rt 12.76. MS: 265(14), 248(18), 236(11), 222(7), 204(7), 84(100). FTIR: Moderate, broad Bohlmann band 2805 cm⁻¹; OH 3650, 3523 cm⁻¹. Mantellid.
- 265L.** 5,6,8-I. C₁₇H₃₁NO. Rt 12.82 > 12.56. MS: 265(7), 236(4), 152(100), 110(9), 70(13). FTIR: Weak, broad Bohlmann band, 2790 cm⁻¹; OH 3650 cm⁻¹. 1D. Mantellid.
- 265M.** 3,5-I. C₁₇H₃₁NO. Rt 12.47. MS: 265(2), 264(2), 250(4), 196(31), 192(100). Mantellid.
- 265N.** hPTX. C₁₇H₃₁NO. Rt 12.12. MS: 265(8), 222(9), 220(6), 180(64), 98(23), 84(100). FTIR¹: Moderate, broad Bohlmann 2752 cm⁻¹; OH 3553 cm⁻¹. 1D. Dendrobatid, Bufonid, Mantellid.
- 265O.** 5,6,8-I. 'C₁₇H₃₁NO'. Rt 13.00. MS: 265(<1), 248(3), 222(8), 208(15), 192(12), 181(18), 168(100), 150(25), 122(12), 110(32), 96(23), 70(21). Dendrobatid.
- 265P.** 5,8-I. 'C₁₈H₃₅N'. Rt 13.65. MS: 265(<1), 264(1), 180(100), 96(33). Mantellid.
- 265Q.** Tricyclic. 'C₁₇H₃₁NO'. Rt 13.39. MS: 265(54), 264(93), 250(29), 236(56), 235(72), 234(100), 206(25), 194(88), 166(42), 164(35), 152(49), 126(71), 125(58), 112(38), 96(81), 82(24). Dendrobatid.
- 265R.** Unclass. 'C₁₇H₃₁NO'. Rt 12.50, 11.80. MS: 265(<1), 264(1), 248(6), 208(18), 181(57), 168(78), 166(11), 150(42), 136(14), 122(28), 110(100), 96(42), 70(60). Dendrobatid.
- 265S.** Tricyclic. 'C₁₇H₃₁NO'. Rt 12.21. MS: 265(100), 250(26), 222(13), 206(16), 193(58), 179(62), 166(52), 164(21), 138(54), 122(7), 70(14). Mantellid.
- 265T.** Dehydro-5,8-I. 'C₁₇H₃₁NO'. Rt 14.15 > 13.40. MS: 265(2), 264(3), 178(100), 176(34), 120(6). Mantellid.
- 265U.** 5,6,8-I. 'C₁₇H₃₁NO'. Rt 12.32 > 12.26. MS: 265(3), 250(5), 152(100), 110(8), 70(4). FTIR: Weak Bohlmann band 2790 cm⁻¹; OH 3650 cm⁻¹. Mantellid.
- 265V.** DesmethylPTX. 'C₁₇H₃₁NO'. Rt 13.73. MS: 265(7), 264(17), 152(100), 110(14), 96(56), 70(42). Mantellid.
- 265W.** 3,5-P. 'C₁₇H₃₁NO'. Rt 13.38. MS: 265(1), 264(8), 222(93), 152(100), 124(10), 96(8), 70(14). Mantellid.
- 265X.** DeoxyPTX. 'C₁₇H₃₁NO'. Rt 11.50. MS: 265(4), 264(7), 250(10), 206(5), 190(6), 178(20), 166(12), 150(100), 136(10), 110(6), 70(5). Mantellid.
- 265Y.** Dehydro-5,8-I. 'C₁₇H₃₁NO'. Rt 13.90 > 13.44. MS: 265(10), 208(100), 206(23), 192(18), 178(16), 152(5), 134(7), 120(8). Mantellid.

- 265Z.** Tricyclic. 'C₁₇H₃₁NO'. Rt 13.81. MS: 265(35), 264(20), 250(10), 236(50), 220(15), 194(35), 192(40), 178(50), 166(16), 152(100), 150(40), 136(15), 124(34), 110(20), 96(45), 70(68). Mantellid.
- 265AA.** Tricyclic. 'C₁₇H₃₁NO'. Rt 14.20. MS: 265(29), 264(80), 222(53), 220(30), 182(28), 180(28), 166(52), 152(48), 134(40), 98(63), 96(100). Mantellid.
- 267A.** aPTX. C₁₆H₂₉NO₂. Rt 12.68. MS: 267(8), 250(23), 182(21), 114(24), 112(28), 70(100). FTIR¹: Strong, sharp Bohlmann band 2803 cm⁻¹; OH 3649, 3522 cm⁻¹. NMR.³⁴ 2D. H₂. *N*-Oxide: NMR.³⁴ *O*-Acetyl derivative. *7-Epi-267A*: Strong Bohlmann band 2802 cm⁻¹; OH 3581, 3515 cm⁻¹. Synthetic. Dendrobatid, Mantellid.
- 267B.** Unclass. 'C₁₆H₂₉NO₂'. Rt 14.6. MS: 267(7), 266(4), 250(1), 170(100), 152(4), 112(13). 2D. Dendrobatid.
- 267C.** PTX. C₁₆H₂₉NO₂. Rt 13.24 > 13.98. MS: 267(11), 266(7), 224(9), 222(7), 194(12), 166(100), 112(8), 84(18), 70(75). FTIR⁷³: Strong, broad Bohlmann band 2798 cm⁻¹; OH 3655, 3545 cm⁻¹. NMR.⁸⁵ 2D. H₂. Dendrobatid, Mantellid, Bufonid, Myobatrachid.
- 267D.** PTX. C₁₆H₂₉NO₂. All properties, including GC retention time, now indicate that an alkaloid reported in 1984 from a Mantellid frog as **267D** is identical to **267C**.
- 267E.** 5,8-I. 'C₁₆H₂₉NO₂'. Rt 12.98. MS: 267(2), 250(3), 196(100), 96(34), 70(4). 1D. H₀. Dendrobatid, Mantellid.
- 267F.** Unclass. C₁₆H₂₉NO₂. Rt 11.99. MS: 267(12), 266(18), 250(10), 178(100), 126(40), 70(56). Dendrobatid.
- 267G.** Unclass. 'C₁₆H₂₉NO₂'. Rt 12.9. MS: 267(4), 152(100). 2D. H₂. Dendrobatid.
- 267H.** 3,5-P. C₁₇H₃₃NO. Rt 13.40 > 14.00. MS: 267(2), 266(1), 224(48), 152(100). *Cis-267H*. FTIR: Weak Bohlmann band 2805 cm⁻¹; OH 3653 cm⁻¹. 1D. Mantellid.
- 267I.** Unclass. 'C₁₈H₃₇N'. Rt 10.93, 11.08, 11.30. MS: 268(4), 267(2), 224(7), 198(6), 171(18), 152(10), 139(9), 111(10), 96(7), 84(14), 69(17), 58(100). FTIR: Moderate Bohlmann band 2775 cm⁻¹. Dendrobatid.
- 267J.** 5,6,8-I. C₁₇H₃₃NO. Rt 12.95. MS: 267(<1), 266(<1), 196(100), 124(23), 70(14). FTIR¹: Weak Bohlmann band 2805 cm⁻¹; OH 3650 cm⁻¹. 1D. Dendrobatid.
- 267K.** Pip. C₁₇H₃₃NO. Rt 11.01 > 10.30. MS: 267(<1), 266(<1), 250(4), 210(6), 98(100). *Trans-267K*. FTIR: No Bohlmann band; C=O 1732 cm⁻¹. 1D. Dendrobatid.
- 267L.** DHQ. 'C₁₉H₂₅N'. Rt 13.97 > 14.50. MS: 267(<1), 202(100). FTIR: *Cis-267L*; Moderate Bohlmann band 2800 cm⁻¹; conj. CH=CH 3035 cm⁻¹; C≡CH 3328 cm⁻¹. 1D. Dendrobatid.

- 267M.** Unclass. $C_{16}H_{29}NO_2$. Rt 12.89. MS: 267(9), 250(49), 224(8), 222(10), 206(21), 196(13), 178(9), 128(13), 126(19), 84(100). FTIR: Moderate, broad Bohlmann band 2805 cm^{-1} ; OH $3652, 3525\text{ cm}^{-1}$. Possibly, an 8-hydroxyhPTX. Mantellid.
- 267N.** DesmethylhPTX. $C_{16}H_{29}NO_2$. Rt 13.47 > 13.92. MS: 267(3), 194(27), 166(100), 84(31). FTIR: Moderate, broad Bohlmann band 2755 cm^{-1} ; OH $3660, 3563\text{ cm}^{-1}$; strong band 1111 cm^{-1} . 2D. Mantellid.
- 267O.** Unclass. ' $C_{17}H_{33}NO$ '. Rt 11.00. MS: 267(8), 238(4), 194(36), 124(33), 58(100). Dendrobatid.
- 267P.** hPTX. ' $C_{16}H_{29}NO_2$ '. Rt 13.07. MS: 267(2), 208(7), 180(100), 84(28). 2D. Dendrobatid.
- 267Q.** Unclass. ' $C_{18}H_{37}N$ '. Rt 9.35, 9.54. MS: 267(100), 238(25), 224(10), 180(74), 138(24), 124(23), 84(40), 58(89). Dendrobatid.
- 267R.** 5,6,8-I. ' $C_{17}H_{33}NO$ '. Rt 12.58. MS: 267(<1), 266(2), 168(100), 110(29), 70(6). Bufonid.
- 267S.** 5,8-I. ' $C_{17}H_{33}NO$ '. Rt 13.70. MS: 267(<1), 266(3), 180(100), 96(28). Mantellid.
- 267T.** 5,6,8-I. ' $C_{17}H_{33}NO$ '. Rt 13.16. MS: 267(4), 252(8), 224(100), 152(47), 110(15), 70(20). Dendrobatid.
- 267U.** 5,6,8-I. ' $C_{17}H_{33}NO$ '. Rt 12.35. MS: 267(<1), 266(1), 224(100), 138(8), 70(4). FTIR: Strong, sharp Bohlmann band 2788 cm^{-1} ; OH 3655 cm^{-1} . Mantellid.
- 267V.** Pip. ' $C_{17}H_{33}NO$ '. Rt 13.80. MS: 267(<1), 113(100), 98(50). Tentatively, a methylpiperidone. Mantellid.
- 267W.** 5,6,8-I. ' $C_{16}H_{29}NO_2$ '. Rt 14.08. MS: 267(4), 224(39), 152(100), 110(15), 70(15). Mantellid.
- 267X.** Pip. ' $C_{17}H_{33}NO$ '. Rt 12.60. MS: 267(<1), 98(100). Dendrobatid.
- 269AB.** DHQ. $C_{19}H_{27}N$. MS: 269(4), 268(12), 226(6), 204(100), 202(80), 148(20). **Trans-269AB.** Rt 15.05. FTIR¹⁷: Weak Bohlmann band 2803 cm^{-1} ; conj. CH=CH 3036 cm^{-1} ; C≡CH 3328 cm^{-1} ; C=C=C 1952 cm^{-1} . **Cis-269AB.** Rt 14.90. FTIR¹⁷: Moderate Bohlmann band 2800 cm^{-1} ; conj. CH=CH 3035 cm^{-1} ; C≡CH 3328 cm^{-1} ; C=C=C 1952 cm^{-1} . NMRs.¹⁷ 1D. H₁₀. N-Acetyl derivative. Minor isomer **5-epi-trans-269AB.** Rt 15.25. Variable amounts of the diastereomers of **trans-269AB** occur in different extracts. Dendrobatid. Ant (unpublished).
- 269A.** DHQ. ' $C_{19}H_{27}N$ '. Rt 14.63. MS: 269(4), 226(10), 204(100), 202(10). **Trans-269A.** FTIR¹⁷: Weak Bohlmann band 2801 cm^{-1} ; conj. CH=CH 3034 cm^{-1} ; C≡CH 3327 cm^{-1} ; C=C=C 1952 cm^{-1} . 1D. H₁₀. Dendrobatid.
- 269B.** DHQ. ' $C_{19}H_{27}N$ '. Rt 14.60. MS: 269(4), 226(5), 204(11), 202(100). **Trans-269B.** FTIR¹⁷: Weak Bohlmann band 2803 cm^{-1} ; conj. CH=CH 3035 cm^{-1} ; 2 C≡CH 3328 cm^{-1} . 1D. H₁₀. Dendrobatid.

- 269C.** Pip. 'C₁₇H₃₅NO'. Rt 13.08 > 12.78. MS: 269(<1), 254(3), 98(100). *Trans-269C*. FTIR: No Bohlmann band; OH 3653 cm⁻¹. 2D. Dendrobatid.
- 269D.** Dehydro-5,8,I 'C₁₉H₂₇N'. Rt 14.02. MS: 269(4), 268(7), 228(29), 176(100), 174(17), 134(25), 120(16). FTIR: Moderate Bohlmann band 2788 cm⁻¹; C=CH₂ 3086 cm⁻¹; conj. CH=CH 3031 cm⁻¹; C≡CH 3328 cm⁻¹. Dendrobatid.
- 269E.** Unclass. 'C₁₇H₃₅NO'. Rt 11.03 > 11.11. MS: 269(14), 142(18), 100(9), 58(100). FTIR: Moderate, broad Bohlmann band 2776 cm⁻¹; C=O 1715 cm⁻¹. 0D. Dendrobatid, Mantellid.
- 269F.** Unclass. 'C₁₆H₃₁NO₂'. MS: 269(<1), 238(100), 196(56). Dendrobatid.
- 269G.** Unclass. 'C₁₆H₃₁NO₂'. Rt 13.08. MS: 269(1), 198(22), 196(100), 178(34), 116(42), 70(33). Dendrobatid.
- 269H.** 5,8-I. 'C₁₆H₃₁NO₂'. Rt 13.98, 14.08. MS: 269(<1), 268(2), 210(11), 138(100), 96(21). 2D. Mantellid.
- 269I.** 5,8-I. 'C₁₆H₃₁NO₂'. Rt 15.20. MS: 269(<1), 268(2), 238(7), 138(100), 96(13). FTIR: Strong, sharp Bohlmann band 2788 cm⁻¹; OH 3650, 3565 cm⁻¹. Mantellid.
- 271A.** 5,8-I. C₁₉H₂₉N. Rt 13.70. MS: 271(<1), 270(2), 242(7), 228(6), 204(4), 178(100), 96(13), 70(17). FTIR: Strong, sharp Bohlmann band 2788 cm⁻¹; C=CH₂ 3086 cm⁻¹; conj. CH=CH 3031 cm⁻¹; C≡CH 3328 cm⁻¹. 0D. Dendrobatid.
- 271B.** Unclass. C₁₉H₂₉N. Rt 14.39 > 13.00. MS: 271(7), 228(100). FTIR: No Bohlmann band; enamine or imine 1656 cm⁻¹. 0D. Dendrobatid, Mantellid.
- 271C.** Unclass. C₁₉H₂₉N. Rt 13.92. MS: 271(3), 270(1), 256(44), 206(100), 136(16). Dendrobatid.
- 271D.** DHQ. 'C₁₉H₂₉N'. MS: 271(6), 270(17), 228(13), 204(100). *Cis-271D*. Rt 14.64. FTIR¹⁷: Moderate Bohlmann band 2804 cm⁻¹; C≡CH 3328 cm⁻¹; C=C=C 1953 cm⁻¹. *Trans-271D*. Rt 14.78. FTIR¹⁷: Weak Bohlmann band 2801 cm⁻¹; C≡CH 3327 cm⁻¹; C=C=C 1954 cm⁻¹. *Iso-5-epi-trans-271D*. FTIR¹⁷: Weak Bohlmann band 2798 cm⁻¹; 2 C=C=C 1952 cm⁻¹. *Iso-cis-271D* with two terminal allene side-chains. *Iso-trans-271D* with a terminal allene and a terminal diene side-chain. 1D. Dendrobatid.
- 271E.** Unclass. 'C₁₉H₂₉N'. Rt 14.80. MS: 271(9), 162(100), 106(15), 94(8), 93(11). Dendrobatid.
- 271F.** 3,5-I. C₁₉H₂₉N. RT 12.78. MS: 271(<1), 204(100), 190(67), 126(33). *5E,9E*. FTIR: Moderate, sharp Bohlmann band 2790 cm⁻¹; 2 C≡CH 3328 cm⁻¹. Mantellid.
- 272A.** Pseudo. 'C₁₇H₂₄N₂O'. Rt 14.3. MS: 272(50), 255(12), 199(27), 187(80), 144(100), 143(23), 130(18). 1D. Myobatrachid.
- 272B.** Pseudo. 'C₁₆H₂₀N₂O₂'. Rt 14.6. MS: 272(50), 255(15), 199(33), 187(54), 144(100), 143(25). 2D. A structure is not proposed. Myobatrachid.

- 273A.** 5,6,8-I. $C_{19}H_{31}N$. Rt 12.86 > 12.95. MS: 273(2), 272(1), 234(7), 152(100), 110(8), 70(4). FTIR: Strong, sharp Bohlmann band 2788 cm^{-1} ; conj. $CH=CH$ 3030 cm^{-1} ; $C\equiv CH$ 3328 cm^{-1} . Minor isomer with an unconjugated *cis* $CH=CH$ 3016 cm^{-1} . 0D. Mantellid.
- 273B.** 5,8-I. $C_{19}H_{31}N$. Rt 14.54. MS: 273(3), 272(2), 232(2), 230(5), 218(6), 204(11), 178(100), 96(15), 70(22). 0D. Dendrobatid.
- 273C.** 5,8-I. ' $C_{19}H_{31}N$ '. Rt 13.92. MS: 273(<1), 152(100), 96(18). Dendrobatid, Bufonid.
- 273D.** Unclass. ' $C_{19}H_{31}N$ '. Rt 13.93. MS: 273(<1), 232(1D), 204(7), 165(31), 136(100), 122(27), 96(59), 80(18). Possibly, a dehydrohistrionicotoxin. Dendrobatid.
- 275A.** Lehm. (Lehmizidine). $C_{19}H_{33}N$. Rt 14.50 > 14.80. MS: 275(<1), 274(<1), 260(3), 152(100). FTIR⁷: Very weak Bohlmann band 2805 cm^{-1} ; $C\equiv CH$ 3328 cm^{-1} . 0D. H₄. Synthetic. Dendrobatid.
- 275B.** DHQ. $C_{19}H_{33}N$. Rt 13.80, 14.66. MS: 275(4), 274(3), 232(21), 206(100). *Cis*-**275B**. FTIR¹⁷: Moderate Bohlmann band 2803 cm^{-1} ; $C=CH_2$ 3086 cm^{-1} . *2-Epi-cis*-**275B**. FTIR¹⁷: No Bohlmann band; $C=CH_2$ 3086 cm^{-1} . NMRs.¹⁷ 1D. H₄. Dendrobatid, Bufonid. Ant.
- 275C.** 3,5-I. $C_{19}H_{33}N$. Rt 12.33 > 12.55, 12.79. MS: 275(<1), 274(<1), 206(28), 192(100), 124(10). 5Z,9Z. FTIR¹: Weak Bohlmann band 2790 cm^{-1} ; $C=CH_2$ 3086 cm^{-1} . 0D. Dendrobatid, Mantellid.
- 275D.** Dehydro-5,8-I. ' $C_{19}H_{33}N$ '. Rt 12.40. MS: 275(<1), 274(1), 192(47), 150(100), 148(18), 120(10). Mantellid.
- 275E.** 5,6,8-I. $C_{19}H_{33}N$. Rt 11.28 > 11.50, 12.32. MS: 275(<1), 152(100), 110(6), 70(4). FTIR: Weak, broad Bohlmann band 2790 cm^{-1} ; $C=CH_2$ 3079 cm^{-1} . Minor isomer $C\equiv CH$ 3328 cm^{-1} . An apparent *N*-oxide: Rt 14.08. MS: 275(<1), 152(100), 96(8), 70(26). Dendrobatid, Mantellid.
- 275F.** 5,8-I. ' $C_{19}H_{33}N$ '. Rt 12.97. MS: 275(2), 234(2), 232(6), 178(100), 96(10), 70(18). 0D. Dendrobatid.
- 275G.** Lehm. $C_{19}H_{33}N$. Rt 14.08. MS: 275(2), 274(1), 260(4), 152(100). FTIR: No Bohlmann band; $C=CH_2$ 3085 cm^{-1} . Dendrobatid.
- 275H.** PTX. ' $C_{18}H_{29}NO$ '. Rt 13.20. MS: 275(23), 193(27), 192(18), 166(100), 134(43), 70(37). 1D. Bufonid.
- 275I.** 4,6-Q. $C_{19}H_{33}N$. Rt 12.82. MS: 275(2), 206(100), 138(7), 84(2). FTIR. Weak Bohlmann band 2813 cm^{-1} ; $C=CH_2$ 3085 cm^{-1} . 0D. Bufonid.
- 275J.** Unclass. ' $C_{18}H_{29}NO$ '. Rt 14.33. MS: 275(1), 260(4), 246(9), 204(100), 176(27), 153(33), 152(80), 111(40), 110(51), 93(32), 91(35), 84(30), 70(28). Mantellid.

- 275K.** Unclass. 'C₁₉H₃₃N'. Rt 13.58, 13.70. MS: 275(6), 246(98), 218(100), 206(10), 190(80), 176(61), 162(29), 148(15), 134(10), 110(9), 108(10), 96(10). Mantellid.
- 277A.** Lehm. C₁₉H₃₅N. Rt 14.43. MS: 277(5), 152(100). 0D. H₂. Dendrobatid.
- 277B.** PTX. C₁₇H₂₇NO₂. Rt 14.53. MS: 277(2), 206(15), 194(34), 193(48), 176(14), 166(25), 153(55), 98(28), 84(26), 70(100). FTIR: Strong, sharp Bohlmann band 2802 cm⁻¹; shoulder 2750 cm⁻¹; OH 3544 cm⁻¹; C=O 1710 cm⁻¹. 1D. Dendrobatid, Mantellid, Myobatrachid.
- 277C.** 5,6,8-I. 'C₁₉H₃₅N'. Rt 12.78. MS: 278(5), 208(100), 124(22). Dendrobatid.
- 277D.** Pyr. 'C₁₉H₃₅N'. Rt 12.80. MS: 278(13), 194(68), 152(100). Dendrobatid.
- 277E.** 5,6,8-I. C₁₉H₃₅N. Rt 10.82 > 11.33. MS: 277(2), 152(100), 110(11), 70(5). FTIR: Weak, broad Bohlmann band 2805 cm⁻¹. Minor isomer. FTIR: Weak, broad Bohlmann band 2805 cm⁻¹; C=CH₂ 3085 cm⁻¹. Dendrobatid.
- 277F.** Tricyclic. 'C₁₈H₃₁NO'. Rt 14.00, 14.47, 14.84, 14.92. 1st isomer. MS: 277(6), 248(94), 234(25), 220(68), 192(100), 178(43), 151(23), 122(14). 2nd isomer. MS: 277(14), 276(15), 248(45), 236(83), 234(100), 192(18), 178(25), 164(11), 150(13), 148(8), 136(7), 122(6). FTIR: Weak Bohlmann band 2810 cm⁻¹; C=CH₂ 3084 cm⁻¹; OH 3655 cm⁻¹. 3rd isomer. MS: 277(13), 248(49), 236(35), 234(100), 218(14), 206(23), 204(19), 192(13), 166(26), 162(12). 4th isomer. MS: 277(11), 248(53), 236(24), 234(100), 218(11), 204(32), 166(12), 162(9). Ring hydroxy analogs of **261C**. Mantellid.
- 277G.** PTX. 'C₁₈H₃₁NO'. Rt 12.83. MS: 277(17), 206(38), 194(35), 166(100), 70(17). 1D. Bufonid.
- 277H.** 1,4-Q. 'C₁₉H₃₅N'. Rt 11.16. MS: 277(<1), 152(100), 110(15), 84(26). Dendrobatid.
- 277I.** Izidine. 'C₁₉H₃₅N'. RT 12.12. MS: 277(4), 192(100), 124(38), 84(24). Mantellid.
- 279A.** Unclass. 'C₁₇H₂₉NO₂'. Rt 12.9. MS: 279(35), 210(90), 190(75), 84(100). 1D. H₀. Dendrobatid.
- 279B.** CPQ. 'C₁₈H₃₃NO'. Rt 14.04. MS: 279(85), 278(100), 264(40), 250(45), 249(45), 248(100), 236(28), 233(40), 222(20), 220(50), 194(58), 180(35), 139(40), 117(42). 1D. Dendrobatid.
- 279C.** CPQ. 'C₁₈H₃₃NO'. Rt 13.06. MS: 279(100), 278(95), 264(43), 262(64), 250(21), 243(23), 236(23), 222(22), 195(22), 180(64), 140(23), 139(33), 126(28). 1D. Dendrobatid.
- 279D.** 5,8-I. 'C₁₈H₃₃NO'. Rt 14.30 > 14.85. MS: 279(<1), 278(1), 164(12), 151(17), 138(100), 96(11). FTIR⁷³: Strong, sharp Bohlmann band 2786 cm⁻¹; *cis* CH=CH 3013 cm⁻¹; OH 3655 cm⁻¹. 1D. Mantellid.
- 279E.** 1,4-Q. 'C₁₈H₃₃NO'. Rt 12.75. MS: 279(4), 210(100), 164(21), 154(11), 150(14), 138(18), 84(45). 1D. Dendrobatid.

- 279F.** 5,6,8-I. $C_{18}H_{33}NO$. Rt 12.52, 12.91. MS: 279(2), 220(4), 152(100), 110(9), 70(7). 1D. Dendrobatid, Mantellid.
- 279G.** Pyr. ' $C_{19}H_{37}N$ '. Rt 13.29. MS: 280(28), 194(53), 154(100). Dendrobatid.
- 279H.** 4,6-Q. ' $C_{19}H_{37}N$ '. Rt 13.80. MS: 279(1), 208(100), 166(12), 124(13), 84(6). Bufonid.
- 279I.** Unclass. ' $C_{18}H_{33}NO$ '. Rt 11.64. MS: 279(35), 264(7), 206(100), 190(14), 164(15), 137(16), 122(7), 70(46). Dendrobatid.
- 279J.** Unclass. ' $C_{17}H_{29}NO_2$ '. Rt 11.30. MS: 279(4), 236(45), 208(10), 192(13), 191(65), 190(42), 176(100), 162(10), 148(35), 134(14), 84(31). Mantellid.
- 279K.** Unclass. ' $C_{17}H_{29}NO_2$ '. Rt 15.94. MS: 279 (13), 278 (3), 220(20), 206(17), 194(100), 192(31), 148(17), 136(24), 134(21), 120(6), 115(13), 70(10). Perhaps related in structure to **265F**. Mantellid.
- 281A.** PTX. $C_{17}H_{31}NO_2$. Rt 14.34. MS: 281(4), 280(2), 264(2), 194(12), 166(72), 70(100). 2D. H_2 . Dendrobatid, Mantellid.
- 281B.** DeoxyPTX. ' $C_{17}H_{31}NO_2$ '. Rt 13.37, 12.69. MS: 281(4), 264(12), 208(25), 206(20), 150(65), 96(20), 70(100). 2D. Dendrobatid.
- 281C.** Unclass. ' $C_{17}H_{31}NO_2$ '. Rt 13.2. MS: 281(25), 208(100). 2D. H_0 . Dendrobatid.
- 281D.** Unclass. ' $C_{17}H_{31}NO_2$ '. Rt 14.07. MS: 281(<1), 210(33), 154(9), 152(7), 110(100), 70(34). 2D. Dendrobatid.
- 281E.** Unclass. ' $C_{17}H_{31}NO_2$ '. Rt 13.97. MS: 281(6), 196(62), 178(22), 123(25), 100(100), 82(78). 2D. Dendrobatid.
- 281F.** DihydroPTX. $C_{17}H_{31}NO_2$. Rt 13.52. MS: 281(3), 264(11), 234(5), 224(7), 222(5), 196(8), 128(16), 126(25), 110(10), 70(100). FTIR¹⁴: Strong, sharp Bohlmann band 2803 cm^{-1} , shoulder 2750 cm^{-1} ; OH $3580, 3512\text{ cm}^{-1}$. Mantellid.
- 281G.** Unclass. ' $C_{17}H_{31}NO_2$ '. Rt 11.82. MS: 281(1), 224(100), 150(40), 138(11), 110(8), 70(27). Dendrobatid.
- 281H.** 5,6,8-I. ' $C_{18}H_{35}NO$ '. Rt 11.64, 12.68. MS: 281(5), 266(6), 152(100), 110(34), 70(10). FTIR: Weak Bohlmann band 2805 cm^{-1} ; OH 3650 cm^{-1} . Mantellid.
- 281I.** 5,8-I. ' $C_{18}H_{35}NO$ '. Rt 14.60. MS: 281(<1), 280(5), 252(14), 138(100), 96(16), 70(4). Mantellid.
- 281J.** Unclass. ' $C_{17}H_{31}NO_2$ '. Rt 15.00. MS: 281(21), 222(37), 210(100), 208(41), 190(5), 174(9), 152(19), 150(37), 132(8), 118(8). Mantellid.
- 281K.** hPTX. ' $C_{17}H_{31}NO_2$ '. Rt 14.20. MS: 281(4), 266(4), 180(100), 84(31). Mantellid.
- 281L.** Non-alkaloid (Oleamide). ' $C_{18}H_{35}NO$ '. Rt 16.78. MS: 281(2), 280(5), 238(20), 220(10), 184(18), 166(20), 152(25), 140(30), 126(100), 112(60), 98(32), 72(76). FTIR: No Bohlmann band; NH_2 $3570, 3440\text{ cm}^{-1}$; amide 1731 cm^{-1} ; *cis*-CH=CH 3012 cm^{-1} . Mantellid.

- 281M.** 5,6,8-I. 'C₁₇H₃₁NO₂'. Rt 14.75. MS: 281(<1), 194(100), 110(35), 70(8). 2D. Mantellid.
- 281N.** DeoxyPTX. 'C₁₇H₃₁NO₂'. Rt 12.62. MS: 281(16), 222(28), 150(100), 110(5), 70(4). Mantellid.
- 281O.** 5,8-I. 'C₁₇H₃₁NO₂'. Rt 16.04. MS: 281(4), 280(5), 212(100), 96(17). Mantellid.
- 283A.** HTX (Histrionicotoxin). C₁₉H₂₅NO. Rt 15.43. MS: 283(9), 282(5), 266(5), 218(48), 200(21), 174(14), 160(22), 132(12), 124(14), 96(100). FTIR¹³: No Bohlmann band; OH broad 3330 cm⁻¹; conj. CH=CH 3038 cm⁻¹, 2 C≡CH 3327 cm⁻¹. NMR.^{13,27,90,91,92} 2D. H₁₂. *O*-Acetyl derivative: FTIR.¹³ A 17,18-*trans*-isomer, which may be artefactual, also detected: FTIR.¹³ NMR. Synthetic perhydroHTX: MS: 295(12), 278(13), 252(18), 224(73), 196(27), 180(100), 168(39), 96(68). FTIR.¹³ NMR.^{91,92} Synthetic. Dendrobatid.
- 283B.** Unclass. C₁₇H₃₃NO₂. Rt 13.25. MS: 283(<1), 282(1), 254(2), 212(40), 152(23), C₁₀H₁₈N), 140(100, C₉H₁₈N). 1D. H₀. *O*-Acetyl derivative. Dendrobatid.
- 283C.** Unclass. C₁₇H₃₃NO₂. Rt 13.0. MS: 283(<1), 282(1), 240(5), 226(28), 224(10), 166(60, C₁₁H₂₀N), 126(100, C₈H₁₆N). 1D. H₀. *O*-Acetyl derivative. Dendrobatid.
- 283D.** Unclass. 'C₁₇H₃₃NO₂'. Rt 14.09. MS: 283(<1), 210(100), 152(14), 116(46), 70(48). Dendrobatid.
- 283E.** Unclass. 'C₁₇H₃₃NO₂'. Rt 13.95. MS: 283(<1), 210(5), 152(10), 142(17), 130(15), 116(100), 84(30), 70(15). Dendrobatid.
- 285A.** HTX (Isodihydrohistrionicotoxin). C₁₉H₂₇NO. Rt 15.75. MS: 285(11), 284(5), 268(15), 218(13), 190(23), 176(37), 162(35), 148(18), 134(27), 122(25), 120(21), 109(40), 108(31), 96(100). FTIR.¹³ NMR.^{13,27,91,92} 2D. H₁₀. Dendrobatid.
- 285B.** HTX (Neodihydrohistrionicotoxin). C₁₉H₂₇NO. Rt 15.69. MS: 285(8), 284(3), 268(12), 220(39), 202(19), 190(11), 176(14), 160(28), 132(18), 96(100). FTIR.¹³ NMR.^{13,91,92,93} 2D. H₁₀. Dendrobatid.
- 285C.** HTX (Allodihydrohistrionicotoxin). C₁₉H₂₇NO. Rt 15.48. MS: 285(14), 284(10), 268(9), 218(18), 190(13), 176(25), 162(19), 144(23), 122(25), 96(100). FTIR.¹³ NMR.^{13,92} 2D. H₁₀. Dendrobatid.
- 285D.** Unclass. 'C₁₈H₂₃NO₂'. Rt 12.9. MS: 285(3), 270(2), 256(2), 180(35), 140(100). Dendrobatid.
- 285E.** HTX (Dihydrohistrionicotoxin). C₁₉H₂₇NO. Rt 15.72. MS: 285(18), 284(8), 268(25), 218(100), 200(84), 176(13), 145(43), 96(78). FTIR.¹³ NMR.⁹² 2D. H₁₀. Dendrobatid.
- 286A.** Pseudo. C₁₇H₂₂N₂O₂. Rt 15.63. MS: 286(38), 199(20), 185(32), 173(100), 157(62), 156(52), 130(97). FTIR⁷³: Moderate Bohlmann band 2800 cm⁻¹; NH

- 3427 cm^{-1} ; aryl H broad 3050 cm^{-1} ; ester 1738 cm^{-1} . NMR.⁷⁹ 1D. Synthetic. Myobatrachid.
- 286B.** Pseudo. ' $\text{C}_{17}\text{H}_{22}\text{N}_2\text{O}_2$ '. Rt 15.6. MS: 286(<1), 199(100), 173(7), 156(10), 130(7), 70(50). FTIR.⁷³ 0D. A structure is not proposed. Myobatrachid.
- 287A.** HTX (Isotetrahydrohistrionicotoxin). $\text{C}_{19}\text{H}_{29}\text{NO}$. Rt 16.00. MS: 287(12), 286(6), 270(7), 220(18), 202(23), 176(42), 162(51), 148(29), 122(30), 120(33), 109(58), 96(100). FTIR.¹³ NMR.^{13,91,92,93} 2D. H₈. Dendrobatid.
- 287B.** HTX (Tetrahydrohistrionicotoxin). $\text{C}_{19}\text{H}_{29}\text{NO}$. Rt 15.90. MS: 287(13), 286(5), 270(5), 220(63), 202(25), 176(15), 96(100). FTIR.¹³ NMR.⁹³ 2D. H₈. Dendrobatid.
- 287C.** GTX (Gephyrotoxin). $\text{C}_{19}\text{H}_{29}\text{NO}$. Rt 16.19. MS: 287(5), 286(3), 242(100), 222(45), 122(14). FTIR⁴: Very weak Bohlmann band 2800 cm^{-1} ; conj. CH=CH 3032 cm^{-1} ; C≡CH 3326 cm^{-1} ; OH 3666 cm^{-1} . NMR.^{91,93} 1D. H₆. *O*-Acetyl derivative. Synthetic. Dendrobatid.
- 287D.** HTX (Allotetrahydrohistrionicotoxin). $\text{C}_{19}\text{H}_{29}\text{NO}$. Rt 16.00. MS: 287(14), 286(6), 270(16), 220(24), 202(36), 176(38), 162(49), 148(21), 134(70), 122(24), 120(38), 106(40), 96(100). NMR.⁹¹ 2D. H₈. Dendrobatid.
- 287E.** Unclass. ' $\text{C}_{18}\text{H}_{25}\text{NO}_2$ '. Rt 16.49. MS: 287(40), 147(49), 146(100), 131(22), 117(11), 91(11), 70(12). Dendrobatid, Mantellid.
- 287F.** Unclass. ' $\text{C}_{18}\text{H}_{25}\text{NO}_2$ '. Rt 14.95. MS: 287(<1), 286(1), 256(37), 118(100), 88(65), 74(21). Mantellid.
- 289A.** Lehm. ' $\text{C}_{19}\text{H}_{31}\text{NO}$ '. Rt 15.30. MS: 289(2), 287(2), 274(3), 152(100). FTIR: Very weak Bohlmann band 2805 cm^{-1} ; C=O 1723 cm^{-1} ; C≡CH 3328 cm^{-1} . 0D. H₄. Dendrobatid.
- 289B.** GTX (Dihydrogephyrotoxin). $\text{C}_{19}\text{H}_{31}\text{NO}$. Rt 16.0. MS: 289(4), 288(3), 245(21), 244(100), 222(49), 122(20). 1D. H₄. Synthetic. Dendrobatid.
- 289C.** PTX. ' $\text{C}_{19}\text{H}_{31}\text{NO}$ '. Rt 14.44. MS: 289(9), 206(42), 193(34), 166(100), 70(30). FTIR: Strong, sharp Bohlmann band 2798 cm^{-1} , shoulder 2750 cm^{-1} ; conj. CH=CH 3040 cm^{-1} ; OH 3541 cm^{-1} . Dendrobatid, Mantellid.
- 289D.** Lehm. ' $\text{C}_{19}\text{H}_{31}\text{NO}$ '. Rt 16.34. MS: 289(<1), 168(100). Dendrobatid.
- 289E.** DeoxyPTX. ' $\text{C}_{19}\text{H}_{31}\text{NO}$ '. Rt 14.50. MS: 289(<1), 193(45), 150(82), 70(100). Dendrobatid.
- 289F.** 1,4-Q. $\text{C}_{19}\text{H}_{31}\text{NO}$. Rt 14.78. MS: 289(<1), 288(1), 250(13), 152(100), 110(17), 84(7). FTIR: Moderate broad Bohlmann band 2791 cm^{-1} ; cis-CH=CH 3015 cm^{-1} ; C≡CH 3328 cm^{-1} ; OH 3560 cm^{-1} . Mantellid.
- 291A.** HTX (Octahydrohistrionicotoxin). $\text{C}_{19}\text{H}_{33}\text{NO}$. Rt 15.62. MS: 291(6), 290(2), 274(11), 250(54), 222(26), 194(24), 192(20), 178(100), 165(22), 136(23), 122(17), 96(65). FTIR.¹³ NMR.^{13,92,93} 2D. H₄. Synthetic. Dendrobatid.
- 291B.** Izidine. ' $\text{C}_{19}\text{H}_{33}\text{NO}$ '. Rt 16.02. MS: 291(2), 290(3), 276(6), 209(4), 168(100), 114(8), 70(38). 1D. H₄. Dendrobatid.

- 291C.** Lehm. 'C₁₉H₃₃NO'. Rt 16.2. MS: 291(1), 290(2), 276(4), 210(10), 152(100). 1D. H₄. Dendrobatid.
- 291D.** Izidine. C₁₉H₃₃NO. Rt 14.1. MS: 291(<1), 276(5), 168(100), 114(6), 70(28). 1D. H₄. Tentatively, an isomer of **291B**. Dendrobatid.
- 291E.** DeoxyPTX. C₁₉H₃₃NO. Rt 13.38, 13.90, 14.21. MS: 291(5), 246(8), 190(18), 178(20), 150(100), 136(8), 70(21). FTIR¹: Moderate Bohlmann bands 2789 > 2734 cm⁻¹; OH 3650 cm⁻¹. 1D. H₄. Mantellid.
- 291F.** Lehm. C₁₉H₃₃NO. Rt 16.14. MS: 291(<1), 196(5), 168(100), 70(6). FTIR: No Bohlmann band; C≡CH 3327; OH 3651 cm⁻¹. 1D. Dendrobatid.
- 291G.** PTX. 'C₁₉H₃₃NO'. Rt 13.82 > 13.60. MS: 291(29), 206(50), 166(100), 70(18). 1D. Dendrobatid, Bufonid, Mantellid.
- 291H.** 5,8-I. 'C₁₉H₃₃NO'. Rt 13.98. MS: 291(<1), 178(100), 96(59), 70(47). Dendrobatid.
- 291I.** Unclass. 'C₁₈H₂₉NO₂'. Rt 15.51. MS: 291(<1), 290(5), 276(3), 194(13), 168(73), 152(100), 70(37). Dendrobatid.
- 291J.** Izidine. 'C₁₉H₃₃NO'. Rt 14.75. MS: 291(2), 222(100), 208(57), 140(12). 1D. Mantellid.
- 293A.** DHQ. 'C₂₀H₃₉N'. Rt 13.1. MS: 293(2), 152(100). 1D. H₀. Dendrobatid.
- 293B.** Unclass. 'C₁₉H₃₅NO'. Rt 16.52. MS: 293(<1), 292(1), 150(33), 95(35), 81(70), 67(100). FTIR: Moderate Bohlmann band 2790 cm⁻¹; OH 3655 cm⁻¹. 1D. Mantellid.
- 293C.** 5,6,8-I. C₁₉H₃₅NO. Rt 12.85, 13.19, 13.19. MS: 293(2), 278(3), 192(5), 152(100), 110(10), 70(9). FTIR: Weak Bohlmann band 2811 cm⁻¹; OH 3596 cm⁻¹. 1D. Dendrobatid, Mantellid.
- 293D.** DeoxyPTX. C₁₉H₃₅NO. Rt 14.20, 13.70. 1st isomer. MS: 293(3), 292(5), 278(2), 264(4), 178(13), 150(100), 70(25). FTIR: Moderate Bohlmann bands 2788 > 2750 cm⁻¹; OH 3665 cm⁻¹. 2nd isomer. MS: 293(4), 292(6), 278(11), 264(5), 194(14), 192(13), 178(20), 150(100), 136(30), 134(17), 70(8). FTIR: Moderate Bohlmann band 2798 > 2750 cm⁻¹; OH 3580, 3509 cm⁻¹. 1D. Mantellid.
- 293E.** PTX. 'C₁₈H₃₁NO₂'. Rt 14.74, 15.41. MS: 293(17), 276(9), 206(27), 194(29), 193(19), 166(100), 70(38). 2D. Dendrobatid, Mantellid.
- 293F.** Lehm. 'C₁₉H₃₅NO'. Rt 15.40. MS: 293(<1), 278(2), 152(100). 0D. Dendrobatid.
- 293G.** Unclass. C₁₇H₂₇NO₃. Rt 15.33. MS: 293(<1), 250(20, C₁₅H₂₄NO₂), 222(35, C₁₃H₂₀NO₂), 176(100, C₁₂H₁₈N), 148(15), 134(8), 84(44). FTIR: Moderate, broad Bohlmann band 2750 cm⁻¹; OH 3550 cm⁻¹; O-Acetyl 1749, 1184 cm⁻¹. Previously tabulated as **251L-O-Ac**. Mantellid.
- 293H.** Unclass. 'C₁₉H₃₅NO'. Rt 12.15. MS: 293(3), 142(100), 114(15), 98(12), 70(36). Dendrobatid, Bufonid.

- 293I.** Lehm. 'C₁₉H₃₅NO'. Rt 15.83. MS: 293(1), 278(6), 168(100), 70(8). 1D. Dendrobatid.
- 293J.** Unclass. 'C₁₈H₃₁NO₂'. Rt 14.88>14.52. MS: 293(35), 292(18), 275(22), 250(26), 234(98), 192(33), 190(100), 164(16), 148(20), 122(23), 84(28). Mantellid.
- 293K.** aPTX. 'C₁₇H₂₇NO₃'. Rt 16.33. MS: 293(<1), 292(2), 209(100), 114(53), 70(57). The aPTX analog of PTX **277B**. Mantellid.
- 293L.** 1,4-Q. 'C₁₉H₃₅NO'. Rt 14.78. MS: 293(4), 278(3), 234(6), 178(8), 165(17), 152(100), 110(16), 84(3), 70(4). FTIR: Moderate broad Bohlmann band 2791 cm⁻¹; OH 3560 cm⁻¹. Mantellid.
- 293M.** Unclass. 'C₁₈H₃₁NO₂'. Rt 16.38. MS: 263(2), 262(1), 248(7), 234(8), 178(33), 165(64), 152(100), 138(23), 110(16), 96(8). Mantellid.
- 293N.** aPTX. 'C₁₇H₂₇NO₃'. Rt 15.13. MS: 293(6), 292(50), 276(61), 182(48), 112(32), 70(100). Dendrobatid.
- 295A.** 5,8-I. 'C₁₉H₃₇NO'. Rt 15.36. MS: 295(3), 278(4), 138(100), 96(9). Dendrobatid, Mantellid.
- 295B.** Izidine. C₁₈H₃₃NO₂. Rt 16.52. MS: 295(<1), 278(2), 236(4, C₁₅H₂₆NO), 180(17, C₁₁H₁₈NO), 167(24), 154(100, C₉H₁₆NO), 112(20), 94(13). FTIR: Moderate, sharp Bohlmann band 2784 cm⁻¹; *cis* CH=CH 3018 cm⁻¹; OH 3655 cm⁻¹. *O,O*-Diacetyl derivative. Mantellid.
- 295C.** DeoxyPTX. 'C₁₈H₃₃NO₂'. Rt 13.81. MS: 295(8), 294(8), 280(6), 266(11), 222(28), 150(100), 136(7), 70(5). Mantellid.
- 295D.** PTX. 'C₁₇H₂₉NO₃'. Rt 15.66. MS: 295(13), 166(100), 70(25). Ranid (trace alkaloid).⁹⁴
- 295E.** 1,4-Q. 'C₁₈H₃₃NO₂'. Rt 15.75. MS: 295(1), 208(100), 182(14), 138(6), 124(8), 110(7), 84(11). Bufonid.
- 295F.** PTX. 'C₁₈H₃₃NO₂'. Rt 14.69. MS: 295(2), 294(1), 262(7), 166(100), 70(14). Mantellid.
- 297A.** aPTX. C₁₇H₃₁NO₃. Rt 16.80. MS: 297(3), 296(4), 280(9), 182(21), 114(27), 112(16), 70(100). 3D. H₂. Dendrobatid.
- 297B.** PTX. 'C₁₇H₃₁NO₃'. Rt 16.4. MS: 297(10), 166(92), 70(100). 3D. Dendrobatid.
- 297C.** Unclass. 'C₁₇H₃₁NO₃'. Rt 13.60. MS: 297(<1), 224(100), 166(80), 126(56). Dendrobatid.
- 297D.** Unclass. 'C₁₇H₃₁NO₃'. Rt 15.40. MS: 297(<1), 280(13), 196(100), 70(64). 3D. Mantellid.
- 297E.** 5,8-I. 'C₁₇H₃₁NO₃'. Rt 13.90. MS: 297(6), 224(45), 150(100), 122(8), 96(20), 70(13). Mantellid.

- 300.** Pseudo. 'C₁₇H₂₀N₂O₃'. Rt 18.34, 18.52. MS: 300(100), 269(23), 241(40), 240(43), 225(10), 213(20), 198(16), 187(47), 185(30), 170(19), 159(25), 106(34). A trace isomer also occurs, but rarely. 0D. Myobatrachid.
- 301.** Unclass. 'C₂₁H₃₅N'. Rt 15.8. MS: 301(<1), 260(100). Dendrobatid.
- 302.** Pseudo. C₁₇H₂₂N₂O₃. Rt 18.10 > 17.90. MS: 302(66), 300(24), 190(35), 189(100), 173(20), 146(30). 2D. The trace isomer has 1D. Myobatrachid.
- 305A.** aPTX. C₁₉H₃₁NO₂. Rt 16.11. MS: 305(6), 288(2), 222(29), 209(23), 182(100), 114(33), 70(55). FTIR: Strong, sharp Bohlmann band 2801 cm⁻¹; conj. CH=CH 3031 cm⁻¹; OH 3645, 3520 cm⁻¹. 2D. H₆. Dendrobatid, Mantellid.
- 305B.** PTX. C₁₉H₃₁NO₂. Rt 16.00. MS: 305(2), 304(3), 206(25), 193(100, C₁₂H₁₉NO), 176(20), 166(55), 150(15), 70(43). FTIR¹⁴: Strong, sharp Bohlmann band 2799 cm⁻¹, shoulder 2750 cm⁻¹; conj. C=O 1689 cm⁻¹; OH 3550 cm⁻¹. 1D. Mantellid.
- 305C.** aPTX. C₁₉H₃₁NO₂. Rt 16.60. MS: 305(1), 304(2), 209(100, C₁₂H₁₉NO₂), 182(5), 114(10), 70(30). FTIR: Strong, sharp Bohlmann band 2802 cm⁻¹; conj. CH=CH 3030 cm⁻¹, OH 3650, 3519 cm⁻¹. Mantellid.
- 305D.** PTX. C₁₉H₃₁NO₂. Rt 15.41. MS: 305(<1), 206(5), 193(100, C₁₂H₁₉NO), 166(18), 150(12), 70(22). FTIR: Moderate Bohlmann bands 2798, 2749 cm⁻¹; conj. CH=CH 3025 cm⁻¹; OH 3640, 3541 cm⁻¹. Mantellid.
- 305E.** Unclass. 'C₁₉H₃₁NO₂'. Rt 15.45. MS: 305(11), 278(5), 206(10), 204(16), 192(18), 166(12), 164(100), 138(11), 84(15). Mantellid.
- 305F.** Unclass. 'C₁₉H₃₁NO₂'. Rt 17.70. MS: 305(13), 165(17), 140(41), 124(100), 123(29), 94(50), 82(54). 0D. Dendrobatid.
- 305G.** Unclass. 'C₁₉H₃₁NO₂'. Rt 14.92. MS: 305(13), 222(15), 220(21), 193(24), 180(56), 150(100), 84(11). 1D. Dendrobatid.
- 305H.** Unclass. 'C₁₉H₃₁NO₂'. Rt 15.25. MS: 305(4), 232(100), 216(5), 204(7), 201(9), 190(7), 122(6), 96(5). FTIR: Weak Bohlmann band 2810 cm⁻¹; C=CH₂ 3085 cm⁻¹; ester 1756 cm⁻¹. 0D. Dendrobatid, Bufonid.
- 307A.** PTX (Pumiliotoxin A). C₁₉H₃₃NO₂. Rt 15.70 > 15.44. MS: 307(7), 290(5), 278(4), 206(10), 194(18), 193(13), 176(10), 166(85), 84(14), 70(100). FTIR^{12,14}: Strong, sharp Bohlmann band 2798 cm⁻¹, shoulder 2750 cm⁻¹; OH 3647, 3544 cm⁻¹. NMR.^{12,29,30,39} 2D. H₄. Both C-15 epimers have been detected. The 15R-epimer (**307A'**) is the natural alkaloid. A 15-O-methyl artifact formed from **307A** has been detected and given the code number **321A**; NMR.³⁹ **307A**: Synthetic. Dendrobatid, Mantellid. Ant.
- 307B.** PTX. C₁₉H₃₃NO₂. Rt 15.02. MS: 307(12), 306(4), 290(2), 194(24), 193(45), 166(100), 70(56). FTIR^{12,14}: Strong, sharp Bohlmann band 2798 cm⁻¹, shoulder 2750 cm⁻¹; OH 3647, 3544 cm⁻¹. 2D. H₄. Pumiliotoxins **307B** and **307F** cochromatograph on packed GC columns, and early studies may not have

always correctly identified such alkaloids. Possibly an artifact formed on allylic rearrangement of **307A**. Dendrobatid, Mantellid.

- 307C.** aPTX. $C_{19}H_{33}NO_2$. Rt 15.27. MS: 307(9), 306(8), 290(4), 222(8), 210(9), 182(62), 114(28), 70(100). Dendrobatid.
- 307D.** PTX. ' $C_{19}H_{33}NO_2$ '. Rt 17.06. MS: 307(8), 290(4), 278(3), 206(14), 194(23), 193(31), 176(10), 166(100), 84(11), 70(63). 2D. H_4 . Tentatively, the *N*-oxide of **307A**. Dendrobatid.
- 307E.** PTX. ' $C_{19}H_{33}NO_2$ '. Rt 16.13. MS: 307(8), 166(100), 70(80). 2D. Tentatively, an isomer of **307A**. Dendrobatid.
- 307F.** PTX. $C_{19}H_{33}NO_2$. Rt 14.83, 14.91. MS: 307(12), 194(24), 193(46), 166(100), 70(68). Two isomers (**307F''**, **307F'''**) are usually seen, apparently epimeric at C-14. FTIR¹²: Strong Bohlmann band 2798 cm^{-1} , shoulder 2750 cm^{-1} ; C=O 1724 cm^{-1} ; OH 3542 cm^{-1} . NMR¹². The third isomer **307F'** with keto in the C-15 position rather than the C-13 position of **307F''** and **307F'''** is sometimes seen. The ion at *m/z* 194 is greater than that at *m/z* 193 in this isomer. FTIR¹²: Strong Bohlmann band 2799 cm^{-1} , shoulder 2750 cm^{-1} ; C=O 1719 cm^{-1} ; OH 3541 cm^{-1} . 1D. Dendrobatid, Mantellid.
- 307G.** PTX. ' $C_{19}H_{33}NO_2$ '. Rt 15.29 > 15.49. MS: 307(15), 262(23), 206(27), 194(23), 176(11), 166(100), 70(43). FTIR¹⁴: Strong, sharp Bohlmann band 2799 cm^{-1} , shoulder 2750 cm^{-1} ; homoallylic OH $3650, 3610\text{ cm}^{-1}$; OH 3545 cm^{-1} . 2D. Dendrobatid, Mantellid.
- 307H.** PTX. ' $C_{19}H_{33}NO_2$ '. Rt 15.24. MS: 306(13), 206(22), 193(100), 166(45), 150(25), 84(20), 70(78). FTIR¹⁴: No Bohlmann band; OH $3650, 3580\text{ cm}^{-1}$; enamine 1653 cm^{-1} . 2D. Tentatively, an isomer of **307A** with a 5,6-double bond. Mantellid.
- 307I.** Unclass. $C_{18}H_{29}NO_3$. Rt 16.39. MS: 307(<1), 252(3), 212(21, $C_{12}H_{22}NO_2$), 168(53, $C_{11}H_{22}N$), 152(100, $C_{10}H_{18}N$), 98(30), 70(35). Dendrobatid.
- 307J.** Unclass. ' $C_{20}H_{37}NO$ '. Rt 13.85. MS: 307(<1), 306(6), 248(100), 232(7), 218(4), 178(5), 166(6), 126(7). Bufonid.
- 308/310.** Epibatidine Amide. ' $C_{16}H_{21}N_2O_2Cl$ '. MS: 310(<1), 308(<1), 207(25), 169(40), 143(5), 141(10), 140(20), 69(100). FTIR: No Bohlmann band; OH 3460 cm^{-1} ; C=O 1690 ; amide 1600 cm^{-1} . 1D. Tentatively, an *N*-(hydroxyacyl) derivative of **208/210**. Dendrobatid.
- 309A.** PTX. $C_{19}H_{35}NO_2$. Rt 15.53, 15.70. MS: 309(9), 308(3), 292(2), 194(15), 193(4), 166(100), 110(10), 84(20), 70(51). FTIR¹⁴: Strong Bohlmann band 2798 cm^{-1} , shoulder 2750 cm^{-1} ; OH $3655, 3544\text{ cm}^{-1}$. NMR. 2D. H_2 . Dendrobatid, Mantellid.
- 309B.** Unclass. ' $C_{19}H_{35}NO_2$ '. Rt 15.70. MS: 309(1), 152(100). Probably an *N*-oxide of **309F**. Dendrobatid.

- 309C.** PTX. 'C₁₉H₃₅NO₂'. Rt 16.03. MS: 309(3), 308(2), 292(1), 194(15), 166(100), 70(90). 2D. H₂. Probably an *N*-oxide of **309A**. Dendrobatid.
- 309D.** aPTX. C₁₉H₃₅NO₂. Rt 15.08. MS: 309(13), 292(34), 210(14), 182(37), 114(26), 112(35), 70(100). FTIR: Moderate, sharp Bohlmann band 2802 cm⁻¹; OH 3646, 3521 cm⁻¹. NMR.¹² 2D. H₂. Dendrobatid.
- 309E.** Unclass. 'C₁₈H₃₁NO₃'. Rt 17.9. MS: 309(32), 266(13), 240(100), 205(22), 124(35), 114(25). 3D. H₂. Dendrobatid.
- 309F.** Unclass. 'C₁₉H₃₅NO₂'. Rt 14.50. MS: 309(2), 152(100). 2D. H₀. See **309B**. Dendrobatid.
- 309G.** Unclass. 'C₁₉H₃₅NO₂'. Rt 15.00. MS: 309(<1), 150(50), 70(100). Dendrobatid.
- 309H.** DeoxyPTX. 'C₁₉H₃₅NO₂'. Rt 14.61. MS: 309(<1), 236(10), 224(15), 150(100), 126(6), 110(6), 70(7). 1D. Mantellid.
- 309I.** Unclass. 'C₁₉H₃₅NO₂'. Rt 15.81. MS: 309(<1), 244(100), 229(21), 167(23), 166(39), 165(13). Mantellid.
- 309J.** DeoxyPTX. 'C₁₉H₃₅NO₂'. Rt 14.84. MS: 309(6), 308(3), 266(7), 222(12), 150(100), 70(6). Probably an isomer of **309H**. Dendrobatid, Mantellid.
- 316.** Pseudo. 'C₁₈H₂₄N₂O₃'. Rt 17.90. MS: 316(90), 215(22), 203(100), 188(37), 174(16), 160(85), 146(18). 1D. Myobatrachid.
- 317.** hPTX. 'C₂₀H₃₁NO₂'. MS: 318(15), 220(10), 208(15), 207(20), 190(12), 180(100), 164(12), 148(10), 98(18), 84(72). Mantellid.
- 319A.** hPTX. 'C₂₀H₃₃NO₂'. Rt 16.44. MS: 320(15), 276(35), 261(37), 220(34), 208(30), 190(27), 180(90), 98(20), 84(100). FTIR: Moderate, broad Bohlmann band 2757 cm⁻¹; C=O 1728 cm⁻¹; OH 3557 cm⁻¹. Bufonid.
- 319B.** hPTX. 'C₂₀H₃₃NO₂'. Rt 16.98. MS: 320(7), 276(12), 261(12), 180(100), 84(83). FTIR⁸: Moderate, broad Bohlmann band 2756 cm⁻¹; conj C=O 1702; conj. C=C 1622 cm⁻¹; OH 3554 cm⁻¹. 1D. An isomer or *N*-oxide has a Rt 17.72. Bufonid.
- 319C.** Unclass. 'C₂₀H₃₃NO₂'. Rt 15.83. MS: 319(5), 276(24), 248(8), 206(36), 194(33), 193(100), 176(26), 150(16), 134(14), 70(33). 1D. Bufonid.
- 319D.** hPTX. 'C₂₀H₃₃NO₂'. Rt 16.73. MS: 319(3), 220(20), 208(23), 207(100), 190(14), 180(31), 164(20), 84(20). Mantellid.
- 319E.** Unclass. 'C₂₀H₃₃NO₂'. Rt 16.80. MS: 319(70), 302(56), 276(66), 258(40), 164(100), 138(50), 70(50). 2D. Mantellid.
- 321A.** PTX. C₂₀H₃₅NO₂. Rt 14.90. MS: 321(3), 304(8), 166(65), 70(100). FTIR. NMR. 1D. A 15-*O*-methyl artefact formed from **307A**. Dendrobatid, Mantellid.
- 321B.** hPTX. C₂₀H₃₅NO₂. Rt 16.58. MS: 321(18), 306(3), 276(13), 220(11), 208(17), 180(100), 84(47). FTIR: Moderate, broad Bohlmann band 2757 cm⁻¹;

- homoallylic OH 3640, 3600; OH 3556 cm⁻¹. 2D. *O*-Acetyl derivative. Other isomers (**321D**, **321E**) also detected in a mantellid frog. Bufonid, Mantellid.
- 321C.** aPTX. C₁₉H₃₁NO₃. Rt 17.32. MS: 321(1), 304(10), 209(100), 192(12), 182(9), 114(32), 70(83). FTIR: Strong, sharp Bohlmann band 2803 cm⁻¹; conj. C=O 1688 cm⁻¹; conj. C=C 1620 cm⁻¹; OH 3647, 3520 cm⁻¹. Mantellid.
- 321D.** hPTX. 'C₂₀H₃₅NO₂'. Rt 16.78 > 16.98. 1st isomer. MS: 321(8), 304(5), 303(4), 220(14), 208(18), 207(16), 190(17), 180(100), 84(25). 2nd isomer. MS: 321(19), 304(15), 220(37), 208(22), 207(15), 190(27), 180(100), 84(40). Mantellid.
- 321E.** hPTX. 'C₂₀H₃₅NO₂'. Rt 16.38, 16.48. 1st isomer. MS: 321(4), 304(4), 292(7), 260(10), 220(11), 207(47), 180(100), 84(23). 2nd isomer. MS: 321(21), 304(4), 292(5), 274(4), 220(12), 207(28), 180(100), 84(21). Mantellid.
- 323A.** PTX (Pumiliotoxin B). C₁₉H₃₃NO₃. Rt 17.38. MS: 323(10), 306(5), 278(12), 206(15), 194(26), 193(22), 176(15), 166(75), 84(15), 70(100). *Threo*-**323A**. FTIR^{12,73}: Strong, sharp Bohlmann band 2799 cm⁻¹, shoulder 2750 cm⁻¹, OH 3655, 3614, 3545 cm⁻¹. NMR.^{29,30} 3D. H₄. An *N*-oxide has been isolated.³⁴ Myobatrachid, Mantellid. A dimethylsilanate artifact of **323A** (m.w. 379) often forms; Rt 16.70. A trace isomer, *erythro*-**323A**, has a similar FTIR¹² and NMR⁸⁹. *Threo*-**323A**: Synthetic. Dendrobatid, Bufonid, Mantellid, Myobatrachid. Ant.
- 323B.** aPTX. C₁₉H₃₃NO₃. Rt 17.20 > 16.85. MS: 323(5), 306(10), 210(4), 209(3), 182(50), 114(20), 70(100). FTIR¹²: Strong, sharp Bohlmann band 2803 cm⁻¹; OH 3647, 3522 cm⁻¹. NMR.^{12,30} 3D. H₄. Both C-15 epimers have been detected. The 15*R*-epimer (**323B'**) is the natural alkaloid. A 15-*O* methyl artifact formed from **323B** has been detected. NMR.¹² **323B**: Synthetic. Dendrobatid, Bufonid, Mantellid, Myobatrachid. Arthropod.
- 323C.** DesmethylhPTX. C₁₉H₃₃NO₃. Rt 18.00. MS: 323(10), 278(23), 206(15), 194(42), 193(30), 166(100), 84(68). FTIR: Moderate, broad Bohlmann band 2751 cm⁻¹; OH 3650, 3600, 3569 cm⁻¹; strong, sharp band 1112 cm⁻¹. Mantellid.
- 323D.** Unclass. C₁₉H₃₃NO₃. Rt 16.39. MS: 323(8), 306(11), 278(19), 266(16), 238(100, C₁₃H₂₀NO₃), 222(30), 218(16), 70(60). FTIR: Moderate, sharp Bohlmann bands 2803, 2769 cm⁻¹; OH 3552, 3516 cm⁻¹; strong band 1094 cm⁻¹. Mantellid.
- 323E.** hPTX. C₂₀H₃₇NO₂. Rt 16.47. MS: 323(7), 294(6), 280(4), 278(6), 208(8), 180(100), 84(73). FTIR: Moderate, broad Bohlmann band 2753 cm⁻¹; OH 3650, 3556 cm⁻¹. 2D. Mantellid.
- 323F.** PTX. C₁₉H₃₃NO₃. Rt 18.04. MS: 323(13), 278(21), 260(7), 206(19), 194(27), 193(20), 166(100), 84(11), 70(57). Tentatively, the *N*-oxide of **323A**.³⁴ Dendrobatid. Mantellid.

- 323G.** Unclass. 'C₁₉H₃₃NO₃'. Rt 15.02 > 15.34. MS: 323(9), 280(11), 250(23), 249(47), 248(46), 222(100), 176(92), 148(54), 134(55), 122(14), 84(34). FTIR: Moderate broad Bohlmann band 2798, 2748 cm⁻¹; OH 3640, 3591 cm⁻¹, C=O 1749 cm⁻¹. Mantellid.
- 323H.** Unclass. 'C₁₉H₃₃NO₃'. Rt 15.20. MS: 323(17), 206(100), 188(16), 70(6). Mantellid.
- 323I.** Unclass. 'C₂₀H₃₇NO₂'. Rt 13.40. MS: 323(1), 266(100), 178(52), 148(28), 124(44), 70(39). 0D. Dendrobatid. Ant.
- 325A.** aPTX. C₁₉H₃₅NO₃. Rt 17.05 > 16.87. MS: 325(12), 308(22), 182(100), 114(25), 112(21), 70(73). FTIR¹²: Strong, sharp Bohlmann band 2803 cm⁻¹; OH 3649, 3520 cm⁻¹. NMR.¹² 3D. H₂. Both C-15 epimers have been detected. The 15*R*-epimer (**325A'**) is the natural alkaloid. Dendrobatid, Mantellid, Myobatrachid.
- 325B.** PTX. C₁₉H₃₅NO₃. Rt 16.94, 17.50. MS: 325(6), 308(8), 166(85), 70(100). 3D. H₂. Dendrobatid, Mantellid.
- 325C.** Unclass. 'C₁₉H₃₅NO₃'. Rt 15.76. MS: 325(21), 308(9), 282(30), 264(14), 212(94), 168(21), 166(30), 110(56), 84(100), 70(27). Mantellid.
- 330.** Pseudo. C₁₈H₂₂N₂O₄. MS (direct probe): 330(100), 302(45), 296(90), 282(32), 243(32), 217(30), 215(30), 199(25), 189(87). 0D. Red color. Myobatrachid.
- 332.** Pseudo. C₁₈H₂₄N₂O₄. Rt 19.20 > 18.75. MS: 332(40), 282(10), 219(100), 217(30), 189(25), 176(35), 161(15). FTIR⁷³. 2D. Myobatrachid.
- 333.** Tricyclic. 'C₂₁H₃₅NO₂'. Rt 16.92. MS: 333(38), 274(100), 246(53), 205(48), 203(35), 188(36). 0D. Mantellid.
- 335.** hPTX. C₂₁H₃₇NO₂. Rt 16.79, 17.40. 1st isomer. MS: 335(23), 318(11), 292(14), 220(28), 209(34), 207(39), 180(100), 84(72). FTIR: Moderate broad Bohlmann band 2753 cm⁻¹; OH 3658, 3553 cm⁻¹. 2nd isomer. MS: 335(7), 318(9), 220(17), 208(27), 207(32), 180(100), 84(14). Mantellid.
- 337A.** hPTX. C₂₁H₃₉NO₂. Rt 17.27. MS: 337(10), 294(13), 180(100), 84(9). 2D. Mantellid.
- 337B.** hPTX. 'C₂₀H₃₅NO₃'. Rt 18.00. MS: 337(7), 320(4), 319(6), 292(12), 274(21), 220(19), 208(28), 190(26), 180(100), 84(28). Mantellid.
- 337C.** Unclass. 'C₂₁H₃₉NO₂'. Rt 14.36. MS: 337(<1), 178(59), 148(42), 124(100), 70(96). Dendrobatid.
- 339A.** aPTX. C₁₉H₃₃NO₄. Rt 18.80. MS: 339(3), 322(3), 192(14), 182(75), 114(25), 70(100). FTIR: Strong, sharp Bohlmann band 2803 cm⁻¹; OH 3600 (broad), 3524 cm⁻¹. NMR.³⁰ 4D. H₄. Synthetic. Dendrobatid, Mantellid.
- 339B.** aPTX. C₁₉H₃₃NO₄. Rt 18.80. MS: 339(3), 322(3), 192(10), 182(70), 114(25), 70(100). NMR.³⁰ 4D. H₄. Epimer at C-7 of **339A**. Synthetic. Dendrobatid.
- 339C.** DesmethylhPTX. 'C₁₉H₃₃NO₄'. Rt 16.55. MS: 339(8), 282(25), 264(5), 212(4), 210(12), 166(35), 110(43), 84(100), 70(31). Mantellid.

- 339D.** Unclass. 'C₁₉H₃₃NO₄'. Rt 16.27, 16.32. 1st isomer. MS: 339(1), 338(2), 322(50), 198(10), 182(100), 170(10), 70(6). 2nd isomer. MS: 339(3), 338(2), 324(25), 322(40), 198(7), 182(100), 168(17), 70(15). Mantellid.
- 339E.** Unclass. 'C₁₉H₃₃NO₄'. Rt 17.25, 17.39. 1st isomer. MS: 339(<1), 338(4), 324(6), 322(14), 224(100), 182(61), 168(42), 140(34), 70(56). 2nd isomer. MS: 339(1), 338(10), 322(100), 236(29), 224(96), 182(22), 169(48), 168(45), 140(26), 70(28). Mantellid.
- 339F.** Unclass. 'C₂₀H₃₇NO₃'. Rt 15.24. MS: 339(<1), 338(1), 324(3), 266(100), 178(55), 148(27), 124(44), 70(58). Dendrobatid.
- 339G.** Unclass. 'C₁₉H₃₃NO₄'. Rt 16.75. MS: 339(<1), 264(6), 251(7), 250(6), 222(100), 148(33), 134(31), 84(17). Mantellid.
- 341A.** aPTX. C₁₉H₃₅NO₄. Rt 16.59. MS: 341(4), 324(3), 323(2), 298(12), 266(11), 254(13), 182(10), 126(15), 114(20), 112(75), 84(38), 70(100). FTIR³¹: Strong, Bohlmann band 2817 cm⁻¹; OH 3535 (broad) cm⁻¹; strong ether band 1070 cm⁻¹. NMR.³¹ 3D. Dendrobatid.
- 341B.** aPTX. 'C₁₉H₃₅NO₄'. Rt 16.8. MS: 341(1), 324(4), 182(60), 114(20), 112(20), 70(100). Tentatively, an isomer of **341A**. Dendrobatid.
- 341C.** 5,6,8-I. 'C₂₀H₃₉NO₃'. Rt 14.58. MS: 341(<1), 268(100), 222(14), 164(16), 110(12), 96(9), 70(11). Mantellid.
- 341D.** Unclass. 'C₁₉H₃₅NO₄'. Rt 17.31. MS: 341(4), 326(12), 294(27), 226(100), 169(24), 168(54), 70(29). Mantellid.
- 346A.** Pseudo. 'C₁₉H₂₆N₂O₄'. Rt 19.64. MS: 346(60), 233(100), 218(22), 190(60), 175(25). 1D. Myobatrachid.
- 346B.** Chimonanthine. C₂₂H₂₆N₄. Rt 13.1. MS: 346(<1), 173(70), 172(100). NMR.²² Synthetic. Dendrobatid. Plant.
- 346C.** Calycanthine. C₂₂H₂₆N₄. Rt 13.3. MS: 346(100). NMR.²² Synthetic. Dendrobatid. Plant.
- 351.** Unclass. 'C₂₁H₃₇NO₃'. Rt 18.0. MS: 351(6), 350(2), 336(4), 152(38), 138(65), 70(100). 4D. Dendrobatid.
- 353A.** PTX. 'C₂₁H₃₉NO₃'. Rt 20.60. MS: 353(4), 338(10), 336(5), 194(20), 166(80), 70(100). 3D. Dendrobatid.
- 353B.** 5,6,8-I. 'C₂₁H₃₉NO₃'. Rt 16.25. MS: 353(<1), 266(100), 178(13), 148(4), 124(8), 98(3), 96(5), 70(11). 1D. FTIR: Moderate Bohlmann 2819 cm⁻¹; ester C=O 1743; ester C-O 1155 cm⁻¹; OH 3630 cm⁻¹. Dendrobatid.
- 353C.** hPTX. 'C₂₁H₃₉NO₃'. Rt 18.14. MS: 353(10), 336(5), 335(6), 310(18), 296(15), 252(22), 234(16), 209(12), 180(100), 84(27). FTIR: Moderate Bohlmann bands 2801, 2751 cm⁻¹; OH broad 3600 cm⁻¹. Mantellid.
- 357A.** aPTX. C₁₉H₃₅NO₅. Rt 18.25, 18.54. MS: 357(3), 339(15), 282(11), 254(16), 182(20), 112(83), 84(35), 70(100). FTIR: Strong, sharp Bohlmann band 2817

- cm⁻¹; OH broad 3574 cm⁻¹; strong ether band 1070 cm⁻¹. 4D. Tentatively, hydroxy-congeners of **341A**. Dendrobatid.
- 357B**. Unclass. 'C₁₉H₃₅NO₅'. Rt 21.50. MS: 357(13), 342(100), 340(29). Mantellid.
- 365**. Unclass. 'C₂₁H₃₅NO₄'. Rt 16.02. MS: 365(9), 292(31), 291(76), 290(73), 232(35), 222(100), 176(83), 148(65), 134(22), 122(12). Probably, an O-acetate of **323G**. Mantellid.
- 369**. Unclass. 'C₂₀H₃₅NO₅'. Rt 18.55. MS: 369(3), 352(8), 212(28), 185(100), 184(91), 138(14), 123(20), 70(8). Mantellid.
- 371**. Unclass. 'C₂₀H₃₇NO₅'. Rt 18.47. MS: 371(1), 356(16), 256(15), 196(100), 168(49), 70(15). Mantellid.
- 380**. DHQ-dimer. 'C₂₆H₄₀N₂'. Rt 20.87. MS: 380(15), 337(100), 253(11), 240(14), 186(54), 158(18). 1D. Dendrobatid.
- 382**. DHQ-dimer. 'C₂₆H₄₂N₂'. Rt 20.48. MS: 383(38), 339(100), 194(8), 192(7), 136(19), 108(7). Mantellid.
- 384A/B**. DHQ-dimer. C₂₆H₄₄N₂. Rt 20.37, 20.60. MS: 384(5), 341(100), 190(13), 150(15), 136(10). FTIR: No Bohlmann band; *cis* CH=CH 3020 cm⁻¹; enamine 1647 cm⁻¹. NMR. 2D. The two isomers, **384A** and **384B**, have virtually identical MS and FTIR spectra. Reversion to "monomers" occurs to some extent on GC- and HPLC-MS analysis. Dendrobatid, Mantellid.
- 390**. Unclass. 'C₂₂H₃₄N₂O₄'. Rt 18.18. MS: 390(100), 315(13), 278(33), 246(24), 97(20), 82(23). 0D. Mantellid.
- 392**. Unclass. C₂₂H₃₆N₂O₄. Rt 18.40. MS: 392(2), 310(20), 294(14), 278(23), 252(100), 234(13), 222(43), 220(31), 178(13), 164(15), 162(11), 136(28), 126(14), 110(19), 98(39), 84(27), 82(21), 68(32). FTIR: No Bohlmann band; OH 3585 cm⁻¹; enamine or imine 1643 cm⁻¹, strong band 1063 cm⁻¹. NMR (unpublished). 1D. Mantellid.
- 395**. Unclass. C₂₃H₄₁NO₄. Rt 16.57. MS: 395(<1), 326(100, 2D), 234(10), 182(35), 164(55), 134(5), 110(15), 70(5). FTIR: No Bohlmann band; OH 3547 cm⁻¹; C=O 1732 cm⁻¹. 1D. (M+1)⁺ a major ion only on HPLC-MS. Mantellid.
- 396**. DHQ-Dimer. 'C₂₆H₄₀N₂O'. Rt 22.00. MS: 396(24), 353(100), 256(15), 202(66), 174(19). 2D. Dendrobatid.
- 398**. DHQ-Dimer. 'C₂₆H₄₂N₂O'. Rt 21.14. MS: 398(30), 355(100), 273(20). 1D. Dendrobatid.
- 400**. DHQ-Dimer. 'C₂₆H₄₄N₂O'. Rt 21.74, 22.20. 1st isomer. MS: 400(3), 357(100), 190(26). 1D. 2nd isomer. MS: 400(3), 357(100), 228(14), 190(16). Dendrobatid.
- 434**. Unclass. C₂₄H₃₈N₂O₅. Rt 19.00. MS: 434(<1), 352(18), 320(20), 294(100), 276(23), 234(53), 222(25), 220(25), 136(39), 110(33), 98(51), 84(65), 83(51), 82(47), 68(85). FTIR: No Bohlmann band; *O*-acetyl 1761, 1229 cm⁻¹; enamine or imine 1643 cm⁻¹. An *O*-acetate of **392**. Mantellid.

- 512.** Pseudo (Pseudophrynamine A). $C_{32}H_{40}N_4O_2$. MS (direct probe): 512(56), 456(23), 455(13), 340(55), 338(100), 273(20), 241(40), 211(17), 199-197(20-23), 185-182(22-25), 173(80), 172(60), 144(20), 138(38). IR.⁷⁹ NMR.⁷⁹ 2D. Synthetic. Myobatrachid.
- 524.** Pseudo. $C_{33}H_{40}N_4O_2$. MS (direct probe): Present in a mixture; fragments not assigned. 0D. Tentatively, an *N*(8)-methyl-dehydro analog of **512**. Myobatrachid.
- 528.** Pseudo. $C_{32}H_{40}N_4O_3$. MS (direct probe): 528(10), 472(5), 356(15), 354(25), 173(100), 130(95). 3D. Myobatrachid.