

REFERENCES

1. Haviland, G.D. "A Revision of the Tribe Naucleeae." J. Linn. Soc. Bot. 33(1897-1898) : 1-94.
2. Bentham, G. and Hooker, J.D. Genera Plantarum. Vol. 2, London : Reeve and Co., 1873.
3. Schumann, K. In Engler, A. and Prantl, K. Die Natürlichen Pflanzen Familien. Vol. IV, Leipzig : Wilheim Engelmann, 1891.
4. Bakhuizen Van Den Brink Jr., R.C. "Nomenclature and typification of the genera of Rubiaceae-Naucleeae and a proposal to conserve the generic name Nauclea L." Taxon 19 (1970) : 468.
5. Ridsdale, C.E. "A Revision of Mitragyna and Uncaria." Blumea 24 (1978) : 68-100.
6. Shellard, E.J. "The genus Mitragyna." Pharm. Weekblad 106 (1971) : 224-236.
7. Ridsdale, C.E. "Numerical and taxonomic studies on the genus Uncaria Schreb. Thesis for the Degree of Doctor of Philosophy, University of Bristol, England, 1972.
8. Thailand. Royal Forest Department. Siamese Plant Names. 1st Ed. Bangkok: Suri Ratna Press, 1948. : 481-482
9. Craib, W.G. Florae Siemensis Enumeratio. Vol.II, 16-20. The Bangkok Time Press, 1932.
10. Phillipson, J.D.; Hemingway, S.R., and Ridsdale, C.E. "Alkaloids of Uncaria. Part V. Their Occurrence and Chemotaxonomy." Lloydia 41 (November-December 1978): 503-570.
11. Aublet, F. Histoire des plantes de la Guiane Francaise. Vol. I, Paris: Pierre Francois Didot, 1775.

12. Phillipson, J.D.; Hemingway, S.R.; Bisset, N.C.; Houghton, P.J., and Shellard, E.J. "Angustine Related Alkaloids From Species of Mitragyna, Nauclea, Uncaria and Strychnos." Phytochem. 13 (June 1974) : 973-978.
13. Raymond-Hamet "Sur l'alcaloide extrait d'Une Rubiacee Nauclea africana, l'Orouparia africana (G.Don.) H.Baillon." Compt. Rend. Hebd. Seanc. Acad. Sci. 259 (1964): 3872.
14. Phillipson, J.D., and Hemingway, S.R. "Alkaloids of Uncaria attenuata, U. orientalis and U. canescens." Phytochem. 14 (August 1975): 1855-1863.
15. Beecham, A.F.; Hart, N.K.; Johns, S.R., and Lamberton, J.A. "The Stereocchemistry of Oxindole Alkaloids: Uncarines A, B(Formosanine), C (Pteropodine), D (Speciophylline), E (Isopteropodine), and F." Aust. J. Chem. 21 (February 1968): 491-504.
16. Phillipson, J.D., and Hemingway, S.R. "Indole and Oxindole Alkaloids from Uncaria bernaysii." Phytochem. 12 (July 1973) : 1481-1487.
17. Saxton, J.E. "Alkaloids of Mitragyna and Orouparia Species." in The Alkaloids, 521-543. Edited by Manske, R.H.F. New York : Academic Press, 1968.
18. Merlini, L.; Mondelli, R.; Nasini, G., and Hesse, M. "The Structure of Roxburghines A-E, New Indole Alkaloids from an Uncaria sp." Tetrahedron 26 (May 1970): 2259-2279.
19. Merlini, L., Nasini, G., and Haddock, R.E. "Indole Alkaloids from Uncaria gambir." Phytochem. 11 (March 1972) : 1525-1526.

20. Merlini, L.; Mondelli, R.; Nasini, G., and Hesse, M. "Gambirine, A New Alkaloid from Uncaria gambir Roxb." Tetrahedron Lett. 16 (April 1967): 1571-1574.
21. Merlini, L.; Nasini, G., and Phillipson, J.D. "Structure and Synthesis of New Natural Heteroyohimbine N-oxides." Tetrahedron 28 (December 1972): 5971-5975.
22. Chan, K.C. "Gambirdine and Isogambirdine, the alkaloids from Uncaria gambir (Hunt.) Roxb." Tetrahedron Lett. 30 (June 1968): 3403-3406.
23. Taylor, W.I., and Raymond-Hamet "Orouparine, an alkaloid of Orouparia gambir (Roxb.) Baillon." Compt. Rend. Hebdom. Séances Acad. Sci. Ser. I 262D (1966): 1141.
24. Raymond-Hamet "A new alkaloid, formosanine, extract from Orouparia formosana Matsushita and Hayata." Compt. Rend. Hebdom. Séances Acad. Sci. Ser. I 263 (1966): 1383.
25. Tantivatana, P.; Ponglux, D.; Jirawongse, V., and Silpvisavanhonit, Y. "Alkaloids from Uncaria quadrangularis." Planta Med. 35 (January 1979): 92-96.
26. Ponglux, D.; Tantivatana, P., and Pummangura, S. "Alkaloids from the leaves of Uncaria homomalla." Planta Med. 31 (February 1977): 26-30.
27. Merlini, L.; Mondelli, R.; Nasini, G., and Hesse, M. "Indole Alkaloids from Gambir, Structure, of Gambirtannine, Oxogambirtannine and Dihydrogambirtannine." Tetrahedron 23 (July 1967):

28. Nozoye, T. "Studies on Uncaria Alkaloid.XIX. On Mitraphylline." Chem Pharm. Bull. 6(1958): 306-308.
29. Kondo, H., and Ikeda, T. "Alkaloids of Uncaria species IV. Structure of Uncarine." J. Pharm. Soc. Japan 61(1941): 416-453.
30. Kondo, H.; Nozoye, T., and Tobita, M. "Alkaloids of Uncaria species XI." Ann. Rept. ITSUU Lab. 4(1953): 77.
31. Kondo, H., and Oshima, K. "Alkaloids of Uncaria kawakamii Hayata" J. Pharm. Soc. 52(1932): 528.
- 32a Chan, K.C., Morsingh, F., and Yeoh, G.B. "Alkaloids of Uncaria pteropoda. Isolation and Structures of Pteropodine and Isopteropodine." J. Chem. Soc. Section C. (December 1966): 2245-2249
- b Yeoh, G.B.; Chan, K.C., and Morsingh, F. "Pteropodine and Isopteropodine, the Alkaloids from Uncaria pteropoda" Tetrahedron Lett. 9 (March 1966): 931-938.
33. Carrick, J.; Chan, K.C., and Cheung, H.T. "A New Phytochemical Survey of Malaya - Chemical Screening." Chem. Pharm. Bull. Tokyo 16(1968): 2436-2411.
34. Phillipson, J.D., and Hemingway, S.R. "Alkaloids of Uncaria longiflora." Phytochem. 12(September-December 1973): 2795-2798.
35. "Oxindole Alkaloids from Uncaria macrophylla." Ibid. 12 (September-December 1973): 2795-2798.
36. Haginiwa, J.; Sakai, S.; Takahashi, K.; Takuchi, M., and Seo. S. "Studies of Plants Containing Indole Alkaloids. I Alkaloids in Uncaria genus." J. Pharm. Soc. Japan 91(1971): 575.
37. Haginiwa, J.; Sakai, S.; Aimi, N.; Yamanaka, E., and Shinma, N. "Studies of plants containing indole alkaloids. II

- Alkaloids of Uncaria rhynchophylla Miq." Ibid. 93(1973): 448.
38. Nozoye, T.; Shibanuma, Y., and Shigehisa, A. "Studies on Uncaria alkaloid XXI. Separation of Rhynchophylline and Corynoxeine." Ibid. 95(1975): 758.
39. Kondo, H.; Fukuda, T., and Tomita, M. "Rhynchophylline from Uncaria rhynchophylla Miq. Ibid. 48(1928): 321.
40. Kondo, H., and Ireda, J. "Isorhynchophylline from Orouparia rhynchophylla." Ibid. (1973): 881.
41. Sakai, S.I. "The Indole Alkaloids of Japanese Plants; Structures and Reactions." Heterocycles 4(1976): 131-168.
42. Aimi, N.; Yamanaka, F.; Shinma, N.; Fujiu, M., Kurita, J.; Sakai, S., and Haginiwa, J. "Studies on Plants Containing Indole Alkaloids, VI. Minor base of Uncaria rhynchophylla Miq." Chem. Pharm. Bull. 25(August 1977): 2067-2071.
43. Phillipson, J.D., and Hemingway, S.R. "Uncaria species as sources of the alkaloids Gambirine and Roxburghines." J. Pharm. Pharmac. (Suppl.) 25 (December 1973): 143 P.
44. Raymond-Hamet "Sur l' alcaloïde principe d'une Rubiaceae des régions tropicales de l' Amérique du Sud..l' Orouparia guianensis Aublet. Compt. Rend. Hebd. Seanc. Acad. Sci. 25(1952): 547.
45. Hemingway, S.R., and Phillipson, J.D. "Alkaloids from S. American Species of Uncaria (Rubiaceae)." J. Pharm. Pharmac. (Suppl.) 26 (December 1974): 113P.
46. Taylor, W.I., and Farnsworth, N.R. The Catharanthus Alkaloids New York, Marcel Dekker inc., 1975.
47. Shellard, E.J.; Beckett, A.H., and Tantivatana, P.; Phillipson, J.D.,

- and Lee, C.H. "The Mitragyna Species of Asia Part VIII The Alkaloids of the Leaves of Mitragyna javanica var. microphylla Koord. et Valeton." Planta Med. 15 (1967): 245-254.
48. Johns, S.R.; Lamberton, J.A., and Sioumis, A.A. "The Identification of A Leaf Alkaloid of Neonauclea schlechteri (Rubiaceae) as Gambirine (9-Hydroxydihydrocorynantheine)" Aust. J. Chem. 23 (1970): 1285-1286.
49. Cu, N.A.; Goutarel, R., and Janot, M.M. "Alcaloides du Pseudocinchona africana Aug. Chev." Bull. Soc. Chim. France 108 (1957): 1292-1294.
50. Belikov, A.S. "Alkaloids from Rauwolfia canescens." Through Chem. Abst. 70 (1969): 112375c.
51. Woodson, R.E.; Youngken, H.W.; Schlittler, E.; Schneider, J.A., and Lehman, A.J. Rauwolfia Boston: Little, Brown and Company, 1957.
52. Hoechstein, F.A.; Kotaro, M., and Boegem, W.H. "Alkaloids of Rauwolfia heterophylla." J. Amer. Chem. Soc. 77 (1955): 3551.
53. Hochstein, F.A. "Alkaloids of Rauwolfia sellowii." J. Amer. Chem. Soc. 77 (October 1955): 5744-5745.
54. Tamelen, E.E., and Taylor, W.I. "The Alkaloids of Rauwolfia. Structure of Raunescine and Isoraunescine." J. Amer. Chem. Soc. 79 (1957): 5256.
55. Arthur, H.R., and Loo, S.N. "An Examination of Rauwolfia verticillata H.R. Arther." Phytochem. 5 (1966): 977-980.
56. Do Val, J.C. "Extraction and Characterization of the alkaloid ~~weak~~ bases of the roots of Rauwolfia vomitoria." Through Chem. Abstr. 62 (1963): 8933.

57. Wei, C.H. "The Constituents of the Roots of Rauwolfia Gunnensis I. Isolation of Ajmalicine and Reserpine." Through Chem. Abstr. 63 (1965): 16779f.
58. Shellard, E.J.; Phillipson, J.D., and Gupta, D. "The Mitragyna Species of Asia Part XI. The Alkaloids of the Leaves of Mitragyna parvifolia (Roxb.) Korth. Obtained from the Maharashtra State of India." Planta Med. 16 (1968): 20-28.
60. ___ "The Mitragyna Species of Asia Part XIV. The Alkaloids of the Leaves of Mitragyna parvifolia (Roxb.) Korth. Obtained from Burma, Cambodia and Ceylon," Ibid. 17 (1969): 51-58.
61. ___ "The Mitragyna Species of Asia Part XV. The Alkaloids from the Bark of Mitragyna parvifolia (Roxb.) Korth. and a Possible Biogenetic Route for the Oxindole Alkaloids," Ibid. 17 (1969): 146-163.
62. Shellard, E.J., and Houghton, P.J. "The Mitragyna Species of Asia Part XIX. The Alkaloidal Pattern in Mitragyna parvifolia (Roxb.) Korth." Planta Med. 20 (1971): 82-89.
63. ___ "The Mitragyna Species of Asia Part XX. The Alkaloidal Pattern in Mitragyna parvifolia (Roxb.) Korth. from Burma," Ibid. 21 (1972): 263-266.
64. ___ "The Mitragyna Species of Asia Part XXI. The Distribution of Alkaloids in Young Plants of Mitragyna parvifolia Grown from Seeds Obtained from Ceylon." Ibid. 21 (1972): 382-392.
65. ___ "The Mitragyna Species of Asia Part XXII. The Distribution of Alkaloids in Young Plants of Mitragyna parvifolia Grown from

- Seeds Obtained from Uttar Pradesh State of India." Ibid. 22 August 1972): 97-102.
66. "The Mitragyna Species of Asia Part XXIV. The Isolation of Dihydrocorynantheol and Corynantheidol from the leaves of Mitragyna parvifolia (Roxb.) Korth. from Sri Lanka (Ceylon)," Ibid. 24 (1973): 13-17.
67. "The Mitragyna Species of Asia Part XXV. In vivo Studies, Using Carbon 14-Labeled Alkaloids in the Alkaloidal Pattern in Young Plants of Mitragyna parvifolia Grown from Seeds Obtained from Ceylon," Ibid. 24 (August 1973): 341-352.
68. "The Mitragyna Species of Asia Part XXVI. Further in vivo Studies Using 14 C-Alkaloids in the Alkaloidal Pattern in Young Plants of Mitragyna parvifolia (Roxb.) Korth. Grown from Seeds Obtained from Sri-Lanka (Ceylon), Ibid. 25 (February 1974); 80-87.
69. Shellard, E.J., and Houghton, P.J. "The Mitragyna Species of Asia Part XXVII. The Alkaloidal N-oxide in the Leaves of Mitragyna parvifolia (Roxb.) Korth. from Sri-Lanka." Planta Med. 25 (1974): 173-174.
70. Shellard, E.J. and Rungsiyakul, D. "The Mitragyna Species of Asia Part XXIII. The Alkaloids of the Leaves of Mitragyna tubulosa Havil." Planta Med. 23 (February 1973): 221-225.
71. Svoboda, G.H. J. Amer. Pharm. Ass. Sci. Ed. 46 (1957): 508.
72. Muller, J.M. "Uber die Alkaloid_e von Rauwolfia ligustrina R. & S. Raugustin, ein neues reserpinahnliches Alkaloid." Experientia 13 (1957): 479-481.

73. Ing, H.R., and Raison, C.G. "The Alkaloids of Mitragyna speciosa Part I. Mitragynine." J. Chem. Soc. Part I. (1939): 986-990
74. Hendrickson, J.B., and Sims, J.J. "Mitragyna Alkaloids: The Structure of Stipulatine." Tetrahedron Lett. 14 (July 1963): 929-935.
75. Beckett, A.H.; Shellard, E.J., and Tackie, A.N. "The Mitragyna Species of Asia Part. IV. The Alkaloids of Leaves of Mitragyna speciosa Korth. Isolation of Mitragnine and Speciofoline." Planta Med. 13 (May 1965): 241-246.
76. Beckett, A.H.; Shellard, E.J., Phillipson, J.D., and Lee, C.M. "The Mitragyna Species of Asia Part VI. Oxindole Alkaloids from the Leaves of Mitragyna speciosa Korth." Planta Med. 14 (1966): 266-276.
77. Shellard, E.J.; Houghton, P.J., and Resha, M. "The Mitragyna Species of Asia Part XXXI. The Alkaloids of Mitragyna speciosa Korth. from Thailand." Planta Med. 34 (August 1978): 26-36.
78. — "The Mitragyna Species of Asia Part XXXII. The Distribution of Alkaloids in Young Plants of Mitragyna speciosa Korth. grown from Seeds obtained from Thailand." Ibid. 34 (November 1978): 253-263.
79. Robinson, R., and Thomas, A.H. "The Alkaloids of Picralima nitida Stapf. Th. and H. Durand. Part I the Structure of Akuammigine." J. Chem. Soc. (October 1954): 3479-3482.
80. Thomas, A.H. "The Alkaloids of Picralima klaineana." J. Chem. Soc. (1932): 2759.
81. Karrer, P., and Solomon, H. "Uber zwei, neue Alkaloids aus der Yohimberinde." Helv. Chim. Acta. 9 Part II (1962): 1059-1062.

82. Seaton, J.C.: Tondeur, R., and Marion, L. "The Structure of Mitraphylline." Canad. J. Chem. 36 (July 1958): 1031-1038.
83. Phillipson, J.D.; Tantivatana, P.; Tarpo, E., and Shellard, E.J. "Hirsuteine and Mitrajavine from Mitragyna hirsuta." Phytochem. 12 (July 1973): 1507.
84. Shellard, E.J.; Tantivatana, P., and Beckett, A.H. "The Mitragyna Species of Asia Part X. The Alkaloids of the Leaves of Mitragyna hirsuta Havil." Planta Med. 15 (1967): 366-370
85. Houghton, P.J., and Shellard, E.J. "Mitragyna Species of Asia Part XXVIII. Alkaloidal Pattern in Mitragyna rotundifolia from Burma." Planta Med. 26 (August 1974): 104-112.
86. Shellard, E.J., and Phillipson, P.J. "The Mitragyna Species of Asia Part I. "The Alkaloids of the Leaves of Mitragyna rotundifolia (Roxb.) O. Kuntze," Ibid. 12 (March 1964): 27-32.
87. Badger, G.M.; Cook, J.W., and Ongley, P.A. "The Chemistry of the Mitragyna Genus Part I." J. Chem Soc. (1950): 867.
- 88.a. Beckett, A.H.; Shellard, E.J., and Tackie, A.N. "The Mitragyna Species of China: The Alkaloids of the Leaves of Mitragyna stipulosa (DC.) O. Kuntze. J. Pharm. Pharmac. (Suppl.) 15 (December 1963): 158T-165T.
- b. Houghton, P.J.; Lala, P.K.; Shellard, E.J., and Sarpong, K. "The Alkaloids of Mitragyna stipulosa (DC.) O. Kuntze, J. Pharm. Pharmac. 28 (January 1976): 664.
89. Shellard, E.J., and Sarpong, K. "The Alkaloids of the Leaves of Mitragyna inermis (Willd.) O. Kuntze," Ibid. 21 (December 1969): 113S-117S.

90. Beckett, A.H.; Shellard, E.J., and Tackie, A.N. "The Mitragyna Species of Chana: The Alkaloids of the Leaves of Mitragyna ciliata Aubr. et Pellegr," Ibid. 15 (December 1963): 166T-169T.
91. Barger, G.; Dyer, E., and Sargent, L.J. "The Alkaloids of Mitragyna rotundifolia." J. Org. Chem. 4 (September 1939): 418-427.
92. Shellard, E.J., and Sarpong, K. "The Alkaloidal Pattern in the Leaves, Stem Bark and Root of Mitragyna Species from Ghana." J. Pharm. Pharmac. (Suppl.) 22 (December 1970): 34S-39S.
93. Shellard, E.J.; Phillipson, J.D., and Sarpong, K. "Rhynchophylline and Isorhynchophylline N-oxides from Species of Mitragyna." Phytochem. 10 (October 1971): 2505-2511.
94. Shellard, E.J., and Phillipson, J.D. "The Mitragyna Species of Asia Part II. The Alkaloids of the Leaves of Mitragyna parvifolia (Roxb.) Korth." Planta Med. 12 (June 1964): 160-165.
95. Phillipson, J.D., and Hemingway, S.R. "Indole and Oxindole Alkaloids from Cephaelanthus occidentalis." Phytochem. 13 (1974): 2621.
96. Au, T.Y.; Cheung, H.T., and Sternhell, S. "New Corynanthe Alkaloids from Strychnos angustiflora." J. Chem. Soc. Perkins Trans. I (1973): 13-16.
97. Bisset, N.G., and Phillipson, J.D. "Asia Strychnos IV." Lloydia 39 (1976): 263-325.
98. Shellard, E.J., and Sarpong, K. "The Structure of Isomitrajavine." Tetrahedron. 27 (May-June 1971): 1725-1729.
99. John, S.R., and Lamberton, J.A. "Uncaria Alkaloids: Two Stereoisomers of Mitraphylline from Uncaria bernaysii F.v.M. and U. ferrea DC." Tetrahedron Lett. 40 (October 1966): 4883-4888.

100. Saxton, J.E. "Alkaloids of Mitragyna and Related Genera." In The Alkaloids, 123-156. Edited by Manske, R.H.F. New York: Academic Press, 1973.
101. Phillipson, J.D., and Shellard, E.J. "The Correlation Between the Stereochemistry of Some Indole and Oxindole Alkaloids and Their Behaviour on Thin Layer Chromatograms." J. Chromatog. 24 (September 1966): 84-92.
102. — "The Effect of Methoxy Substitution and Configuration on the Thin Layer Chromatographic Behaviour of Some Heteroyohimbine Alkaloids," Ibid. 31 (October 1967): 427-438.
103. — "The Thin Layer Chromatographic Behaviour of Some E. seco Oxindoles and Their Relationship with Indolizidine and Some Simple Oxindoles," Ibid. 32 (February 1968): 692-703.
104. Phillipson, J.D., and Hemingway, S.R. "Chromatographic and Spectroscopic Methods for the Identification of Alkaloids from Herbarium Samples of the Genus Uncaria." Ibid. 105 (February 1975): 163-178.
105. Shamma, M., and Richey, J.M. "The Stereochemistry of the Heteroyohimbine Alkaloids." J. Amer. Chem. Soc. 85 (August 1963): 2507-2512.
106. Trager, W.F.; Lee, C.M., and Beckett, A.H. "Corynantheidine Type Alkaloid I. "Establishment of Physical Criteria for the Normal, Pseudo, Allo and Epiallo Configuration by Conformation Analysis." Tetrahedron 23 (January 1967): 365-374.
107. Cistaro, C., and Mondelli, R. "A 300 MHz NMR. Evidence for the Configuration of Roxburghine B." Hely. Chim. Acta. 59 (1976):

2249-2253.

108. Merlini, L.; Mondelli, R., and Nasini, G. "¹³C-NMR. Analysis of the Roxburghines." Ibid. 59(1976): 2254-2260.
109. Trager, W.F.; Lee, C.M.; Phillipson, J.D.; Haddock, R.E.; Dwuma-Badu, D. and Beckett, A.H. "Configurational Analysis of Rhynchophylline-Type Oxindole Alkaloids. The Absolute Configuration of Ciliaphylline, Rhynchociline, Specionoxeine, Isospecionoxeine, Rotundifoline, and Isorotundifoline." Tetrahedron 24 (January 1968): 523-543.
110. Shamma, M.; Shine, R.J.; Kompis, I.; Striczay, T.; Morsingh, F.; Poisson, J., and Pousset, J.L. "The Stereochemistry of the Pentacyclic Oxindole Alkaloids." J. Amer. Chem. Soc. 89 (March 1967): 1739-1740.
111. Wenkert, W., and Roychaudhuri, D.K. "Oxidation-Reduction Studies in the Realm of Indole Alkaloids." J. Amer. Chem. Soc. 80 (April 1958): 1613-1619.
112. Wenkert, W., and Roychaudhuri, D.K. "The C-3 Configuration of Certain Indole Alkaloids," Ibid. 78 (December 1956): 6417-6418.
113. Weisenborn, F.L., and Diassi, P.A. "The Reaction of Rouwolfa Alkaloids with Mercuric Acetate, Conversion of 3-Isoreserpine to Reserpine." J. Amer. Chem. Soc. 78 (May 1956): 2022-2023.
114. Wenkert, E., and Roychaudhuri D.K. "3-Dehydro Derivative of Some Indole Alkaloids." J. Org. Chem. 21 (July-December 1956): 1315-1318.
115. Leonard, N.J., and Morrow, D.F. "Unsaturated Amines. XIII. Steric

- Requirements of Mercuric Acetate Oxidation of Tertiary Amines." J. Amer. Chem. Soc. 80 (January 1958): 371-374.
116. Wenkert, E. "The Stereochemistry of Ajmalicine and Tetrahydroalstonine," Ibid. 83 (December 1961): 5037-5038.
117. Beckett, A.H.; Dwuma-Badu, D., and Haddock, R.E. "Some New Mitragyna-Type Indoles and Oxindoles; The Influence of Stereochemistry on Mass Spectra." Tetrahedron-25 (1969): 5961-5969.
118. Nozoye, T. "Studies on Uncaria Alkaloid. XX. Structure of Rhynchophylline. (5) Structure of Rhynchophylline and Isorhynchophylline." Chem. Pharm. Bull. 6 (1958): 309-312.
119. Seaton, J.C.; Nair, M.D.; Edwards, O.E., and Marion, L. "The Structure and Stereoisomerism of Three Mitragyna Alkaloids." Canad. J. Chem. 38.
120. Hemingway, S.R.; Houghton, P.J.; Phillipson, J.D., and Shellard, E.J. "9-Hydroxyrhynchophylline-Type Oxindole Alkaloids." Phytochem. 14 (February 1975): 557-563.
121. Kompis, I.; Hesse, M., and Schmid, H. "An Approach to the Biogenetic Classification of Indole Alkaloids." Lloydia 34 (September 1971): 269-279.
122. Finch, N., and Taylor, H.I. "The Conversion of Tetrahydro - Carboline Alkaloids into Oxindoles. The Structures and Partial Synthesis of Mitraphylline and Rhynchophylline." J. Amer. Chem. Soc. 84 (April 1962 a): 1318-1320.
123. Zinnes, H., and Shavel, J. "Yohimbane Derivatives. III. The Oxidative Rearrangement of Indole Alkaloids to Their Spirooxindole Analysis." J. Org. Chem. 31 (June 1966): 1765-1771.

124. Finch, N.; Gemenden, C.W.; Hsu, T.H.C., and Taylor, W.I. "Oxidative Transformations of Indole Alkaloids. II. The Preparation of Oxindoles from cis-DE-Yohimboid Alkaloids. The Partial Syntheses of Carapanaubine," J. Amer. Chem. Soc. 85 (May 1963): 1520-1523.
125. Hart, N.K.; Johns, S.R.; and Lamberton, J.A. "Uncarine C,D (Speciophylline), E and F : C-3 and C-7 Epimeric Oxindoles Related to Tetrahydroalstonine." Chem. Comm. 2 (January 1967): 87-88
126. Aimi, N.; Yamanaka, E.; Endo, J.; Sakai, S., and Haginiwa, J. "Conversion of Oxindole Alkaloids into Indole Alkaloids." Tetrahedron Lett. 11 (March 1972): 1801-1804.
127. Shellard, E.J., and Sarpong, K. "The Conversion of Pseudo Heteroyohimbine Alkaloids to Oxindoles. Part I "in vitro" Studies." Planta Med. 20 (1971): 167-171.
128. Shellard, E.J., and Houghton, P.J. "The Conversion of Pseudo Heteroyohimbine Alkaloids to Oxindoles. Part II" in vivo" Studies in Mitragyna paryifolia (Roxb.) Korth., ibid. 21 (1972): 16-21.
129. Shavel, J., and Zinnes, H. "Oxindole Alkaloid. I. Oxidative Rearrangement of Indole Alkaloids to their Oxindole Analogs." J. Amer. Chem. Soc. 84 (April 1962): 1320-1321.
130. Finch, N., and Taylor, W.J. "Oxidative Transformations of Indole Alkaloids. I. The Preparation of Oxindoles from Yohimbine, The Structures and Partial Syntheses of Mitraphylline, Rhynchophylline and Corynoxeine," ibid. 84 (October 1962): 3871-3877.

131. Woodward, R.B. "Biogenesis of the Strychnos Alkaloids." Nature 162 (1948): 155.
132. Schlittler, E., and Taylor, W.I. "A View of Progress in the Chemistry of Indole Alkaloids." Experientia 14/6 (April 1960): 244-248.
133. Battersby, A.R. "Biosynthesis of the Indole and Colchicum Alkaloids." Pure Appl. Chem. 14 (1967): 117-135.
134. Woodward, R.B. Angew. Chemie. 68 (1956): 13.
135. Robinson, R. Festschrift Arthur Stoll. Birkhäuser : Basel, 1957.
136. Leete, E.; Ghosal, S., and Edwards, P.N. "Biosynthesis of the Non-tryptophan Derived Portion of Ajmaline". J. Amer. Chem. Soc. 84 (March 1962): 1068-1069.
137. Wenkert, E. and Bringi, N.V. "A Stereochemical Interpretation of the Biosynthesis of Indole Alkaloids." J. Amer. Chem. Soc. 81 (March 1959): 1474-1481.
- 138.a. Wenkert, E. "Biosynthesis of Indole Alkaloids. The Aspidosperma and Iboga Bases." J. Amer. Chem. Soc. 84 (January 1962): 98-102.
- b. Wenkert, E.; Chang, C.J.; Chawla, H.P.S.; Cochran, D.W. Hagaman, E.W.; King, J.C., and Orito, K. "General Methods of Synthesis of Indole Alkaloids. 14,^{1,2} Short Routes of Construction of Yohimboid and Ajmalicinoid Alkaloid Systems and Their ¹³C Nuclear Magnetic Resonance Spectral Analysis." J. Amer. Chem. Soc. 98 (June 1976): 3645-3655.
139. Battersby, A.R.; Binks, R.; Lawrie, W.; Parry, G.V., and Webster, B.R. Alkaloid Biosynthesis. Part IX. The Ipecacuanha Alkaloids." J. Chem. Soc. (1965): 7459-7471.

140. Edwards, P.N., and Leete, E. "Incorporation of Formate into Ajmaline." Chem. & Ind. (October 1961): 1666.
141. Leete, E.; Ahmad, A., and Kompis, I. "Biosynthesis of the Vinca Alkaloids. I. Feeding Experiments with Tryptophan-2-C¹⁴ and Acetate-1-C¹⁴." J. Amer. Chem. Soc. 87 (September 1965) : 4168-4174
142. Stolle, K.; Gröger, D., and Mothes, K. "Incorporation of U ^{14C}-shikimic Acid into Catharanthus Alkaloids." Chem. & Ind. (December 1965): 2065.
143. Thomas, R. "A Possible Biosynthetic Relationship between the Cyclopentanoid Monoterpene and the Indole Alkaloids." Tetrahedron Lett. 16 (February 1961): 544-553.
- 144a. Battersby, A.R.; Brown, R.T.; Knight, J.A.; Martin, J.A., and Plunkett, A.O. "Biosynthesis of the Indole Alkaloids from a Monoterpene." Chem. Comm. 23 (1966): 346-347.
- b. Loew, P.; Goeggel, H., and Arigoni, D. "A Monoterpene Precursor in the Biosynthesis of Indole Alkaloids." Chem. Comm. 23 (1966) : 347-348.
145. Hall, E.S.; McCapsa, F., and Money, T. "Concerning the Terpenoid Origin of Indole Alkaloids : Biosynthetic Mapping by Direct Mass Spectrometry." Chem. Comm. 23 (1966): 348-350.
146. Leete, E., and Ueda, S. "Biosynthesis of the Vinca Alkaloids. The Incorporation of Geraniol-3-¹⁴C into Catharanthine and Vindoline." Tetrahedron Lett. 40 (October 1966): 4915-4918.
147. Battersby, A.R.; Brown, R.T.; Kapil, R.S.; Martin, J.A., and

- 1 Plunkett, A.O. "Role of Loganin in the Biosynthesis of Indole Alkaloids." Chem. Comm. (1970): 826-827.
- 148a. Battersby, A.R.; Burnett, A.R., and Parsons, P.G. "Preparation and Isolation of Deoxyloganin : Its Role as Precursor of Loganin and the Indole Alkaloids." Chem. Comm. (1970): 826-827.
- b. Battersby, A.R.; Brown, S.H., and Payne, T.G. "Biosynthesis of Loganin and the Indole Alkaloids from Hydroxygeraniol-Hydroxynerol." Chem. Comm. (1970): 827-828.
149. Battersby, A.R.; Burnett, A.R., and Parson, P.G. "Alkaloid Biosynthesis Part XV Partial Synthesis and Isolation of Vincoside and Isovincoside : Biosynthesis of the Three Major Classes of Indole Alkaloids from Vincoside." J. Chem. Soc. (C) (1969): 1193-1200.
150. Battersby, A.R.; Burnett, A.R.; Hall, E.S., and Parsons, P.G. "The Rearrangement Process in Indole Alkaloids Biosynthesis." Chem. Comm. (1968): 1582-1583.
151. Heckendorf, A.H., and Hutchinson, C.R. "Biosynthesis of Camtothecin. II Configuration that Isovincoside, not Vincoside, is the Penultimate Biosynthetic Precursor of Indole Alkaloids." Tetrahedron Lett. 48 (November 1977): 4153-4154.
152. Rueffer, M.; Nagakura, N., and Zenk, M.H. "Strictosidine, the Common Precursor for Monoterpene Indole Alkaloids with 3α and 3β Configuration." Tetrahedron Lett. 18 (April 1978): 1593-1596.
153. Stockigt, L.; Rueffer, M.; Zenk, M.H., and Hoyer, G.A. "Indirect Identification of 4,21-Dehydro-Corynantheine Aldehyde as an Intermediate in the Biosynthesis of Ajmalicine and Related Alkaloids." Planta Med. 33 (1978): 188-192.

154. Leete, E. "Biogenesis of Ajmaline" Chem. & Ind. (June 1960): 692-693.
155. Leete, E. "The Biogenesis of the Rauwolfia Alkaloids. I. The Incorporation of Tryptophan into Ajmaline." J. Amer. Chem. Soc. 82 (December 1960): 6338-6339.
156. Milborrow, B.V. "Biosynthesis and its Control in Plants!" London and New York : Academic Press, 1973.
157. Qureshi, A.A., and Scott, A.I. "Interconversion of Coryanthe, Aspidosperma and Iboga Alkaloids. A model for Indole Alkaloids Biosynthesis." Chem. Comm. (1968): 945.
158. Jackson, A.H., and Smith, A.E. "Electrophilic Substitution in Indole-II. The Formation of 2,3-Spiro Cyclic Indole Derivatives from Tryptamines and their Rearrangement to β -carbolines." Tetrahedron 24 (January 1968): 403-413.
159. Hahn, G., and Ludewig H. "Synthese von Tetrahydroharman-Derivaten Unter Physiologischen Bedingungen." Chem. Comm. 67 (1934): 2031.
160. Donovan, D.G., and Kennelly, M.F. "The Biosynthesis of Eleagnine." J. Chem. Soc. (C) (1967): 1109.
161. Plouvier, V., and Bonvin, J.F. "Les Iridoides Seco-Iridoides: Repartition, Structure, Proprietes, Biosynthese." Phytochem. 10 (August 1971): 1697-1722.
162. Houghton, P.J., and Shellard, E.J. "The Interconversion of Open and Closed E Ring Oxindole Alkaloids in Mitragyna Species." J. Pharm. Pharmacol. (Suppl.) 25 (December 1973): 143P-144P.

163. Djakoure, L.; Jarreau, F.X.; Goutarel, R., and Janot, M.M.
C.R. Acad. Sci. 274 (1972): 1520
164. Blackstock, W.P.; Brown, R.T., and Lee, G.K. "Configuration at
C 3 in Vincoside" Chem. Comm. 16(August 1971): 905-907.
165. De Silva, K.T.D.; Smith, G.N., and Warren, K.E.H. "Stereochemistry
of Strictosidine." Chem. Comm. 16(August 1971): 905-907.
166. Philipson, J.D.; Rungsiyakul, D., and Shellard, E.J. "N-oxide of
the Oxindole Alkaloids, Isorhynchophylline, Rhynchophylline,
Rhynchociline and Ciliaphylline." Phytochem. 12(July 1973):
2043-2048.
167. Shellard, E.J.; Houghton, P.J., and Lala, P.K. "Rotundifoline
N-oxides." Phytochem. 16(July 1977): 1427-1429.
168. Phillipson, J.D. and Handa, S.S. "Alkaloid N-oxides" Lloydia 41
(September 1978): 385-431.

V I T A



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