Trease and Evans’ Pharmacognosy

FOURTEENTH EDITION

William Charles Evans
BPharm, BSc, PhD, DSc, FIBiol, FLS, FRPharmS
Formerly Reader in Phytochemistry, University of Nottingham, Nottingham, UK

WB Saunders Company Ltd
London Philadelphia Toronto Sydney Tokyo
Contents

Preface ........................................... vii
Contributors ...................................... ix

**Part One  Introduction** ................. 1
1. Pharmacognosy ................................ 3
2. Approaches to the Study of Medicinal Plants; Literature ... 5
3. Plant Nomenclature and Taxonomy ........... 8

**Part Two  The Plant and Animal Kingdoms as Sources of Drugs** .... 13
4. Biological and Geographical Sources of Drugs ................. 15
5. Biologically Active Compounds from Marine Organisms G. Blunden ... 18
6. Orders and Families of Medicinal Plants; Animal-derived Drugs .... 28
   Thallophytes .................................. 28
   Bryophytes and Pteridophytes ................. 31
   Gymnosperms .................................. 32
   Angiosperms: Dicotyledons ...................... 34
   Angiosperms: Monocotyledons ................... 51
   Animal Products ................................ 53

**Part Three  Principles Related to the Commercial Production, Quality and Standardization of Natural Products** .... 57
7. Commerce and Production .......................... 59
8. Plant Growth Regulators ......................... 69
9. Plant Cell and Tissue Culture; Biochemical Conversions; Clonal Propagation .... 76
10. Genetic Aspects .................................. 87
11. Deterioration .................................... 100
12. Quality Control .................................. 105

**Part Four  Phytochemistry** ............. 117
13. Introduction and General Methods .......... 119
14. Methods of Investigation in Biogenetic Studies .................. 131
15. The Living Plant Cell ............................ 135
16. Basic Metabolic Pathways and the Origin of Secondary Metabolites .... 139

**Part Five  Pharmacopoeial and Related Drugs of Biological Origin** .... 161
Introduction ....................................... 163
17. Pharmacological Activities .................... 164
18. Hydrocarbons and Derivatives .................. 172
19. Carbohydrates .................................. 191
20. Phenols and Phenolic Glycosides .......... 218
21. Volatile Oils and Resins .............................................. 255
22. Saponins, Cardioactive Drugs and other Steroids ............... 293
23. Miscellaneous Isoprenoids ......................................... 322
24. Cyanogenetic Glycosides, Glucosinolate Compounds and Miscellaneous Glycosides 334
25. Alkaloids .......................................................... 340
26. Tumour Inhibitors from Plants P. M. Dewick ..................... 409
27. Plants with Antiprotozoal Activity J. D. Phillipson and C. W. Wright 426
28. An Overview of Drugs having Antithepatotoxic and Oral Hypoglycaemic Activities 434
29. Vitamins and Hormones ............................................. 441
30. Antibacterial and Antiviral Drugs ................................ 451
31. Colouring and Flavouring Agents ................................ 456
32. Miscellaneous Products ............................................. 462

Part Six  Plants in Complementary and Traditional Systems of Medicine ....................... 467
Introduction ........................................................... 469
33. Herbal Medicine ...................................................... 471
34. Homoeopathic Medicine M. A. Healy and M. Aslam ............. 480
35. Aromatherapy M. A. Healy and M. Aslam ....................... 485
36. Asian Medicine and its Practice in Britain M. Aslam ........... 488
37. Chinese Herbs in the West S. Y. Mills ............................ 505
38. Plants in African Traditional Medicine–A Review A. Sofowora 511

Part Seven Nonmedicinal Toxic Plants and Pesticides ................. 521
39. Hallucinogenic, Allergenic, Teratogenic and Other Toxic Plants 523
40. Pesticides of Natural Origin ........................................ 534

Part Eight Morphological and Microscopical Examination of Drugs ................. 539
Introduction ........................................................... 541
41. Plant Description, Morphology and Anatomy ..................... 542
42. Cell Differentiation and Ergastic Cell Contents .................. 554
43. Techniques in Microscopy ........................................... 568

Index ................................................................. 579