

CONTENTS

1. Pharmacognostic Study of Glycoside Containing Drugs	1
Glycosides/Sugar ethers	1
Definition	1
Classification	2
A. SAPONIN GLYCOSIDES	5
Glycyrrhiza (<i>Liquorice root</i>)	7
Ginseng (<i>Panax ginseng</i>)	14
Dioscorea (<i>Dioscorea purpurea</i>)	23
Sarsaparilla (<i>Smilax ornata</i>)	28
Senega (<i>Polygala senega</i>)	34
B. CARDIO-ACTIVE GLYCOSIDES	40
Digitalis (<i>Digitalis purpurea</i>)	42
Squill (<i>Urginea maritima</i>)	51
Strophanthus (<i>Strophanthus kombe</i>)	59
Thevetia (<i>Thevetia peruviana</i>)	65
C. ANTHRAQUINONE GLYCOSIDES	72
Aloe (<i>Aloe barbadensis</i>)	73
Senna (<i>Cassia acutifolia</i>)	83
Rhubarb (<i>Rheum palmatum</i>)	91
Cascara (<i>Rhamnus purshiana</i>)	98
D. BITTER GLYCOSIDES	106
Psoralea (<i>Psoralea corylifolia</i>)	106
Gentian (<i>Gentiana lutea</i>)	111
Chirata (<i>Swertia chirayita</i>)	117
IDENTIFICATION TESTS	122
Anthracene Glycosides	122
Cardiac Glycosides	125
Saponin Glycosides	127

Bitter Glycosides	127
Review Questions	128
2. Pharmacognostic Study of Alkaloid Containing Drugs	133
Introduction	133
Definition	135
Classification	138
A. PYRIDINE – PIPERIDINE DERIVATIVES	142
Tobacco (<i>Nicotiana tabacum</i>)	143
Lobelia (<i>Lobelia inflata</i>)	153
B. TROPANE ALKALOIDS	159
Belladonna (<i>Atropa belladonna</i>)	159
Hyoscyamus (<i>Hyoscyamus niger</i>)	165
Datura (<i>Datura stramonium</i>)	171
Coca (<i>Erythroxylon coca</i>)	177
Aswagandha (<i>Withania somnifera</i>)	185
C. QUINOLINE AND ISO-QUINOLINE ALKALOIDS	191
Cinchona (<i>Cinchona calisaya</i>)	192
Ipecac (<i>Cephaelis ipecacuanha</i>)	200
Opium (<i>Papaver somniferum</i>)	205
D. INDOLE ALKALOIDS	218
Ergot (<i>Claviceps purpurea</i>)	218
Rauwolfia (<i>Rauwolfia serpentina</i>)	225
Vinca (<i>Catharanthus roseus</i>)	234
Nux-vomica (<i>Strychnos nux-vomica</i>)	243
E. IMIDAZOLE ALKALOIDS	252
Pilocarpus (<i>Pilocarpus microphyllus</i>)	253
F. STEROID ALKALOIDS OR AZASTEROIDS	259
Kurchi (<i>Holarrhena antidysenterica</i>)	260
G. ALKALOIDAL AMINES (AMINO-ALKALOIDS)	266
Ephedra (<i>Ephedra gerardiana</i>)	266
Colchicum (<i>Colchicum autumnale</i>)	273
H. GLYCOALKALOIDS	280
Solanum (<i>Solanum viarum</i>)	280

I. PURINE DERIVATIVES	285
Coffee (<i>Coffea arabica</i>)	285
Tea (<i>Camellia sinensis</i>)	295
General tests for the Identification of Alkaloids	306
Precipitation Reactions	306
Colour Reactions	308
Review Questions	313
3. Study of Tannins and Tannin Containing Drugs	321
Introduction	321
Properties	324
Classifications	325
Gambir (<i>Uncaria gambier</i>)	333
Black Catechu (<i>Acacia catechu</i>)	339
Myrobalan (<i>Terminalia chebula</i>)	347
Arjuna (<i>Terminalia arjuna</i>)	357
General Tests for Identification of Tannins	365
Review Questions	366
4. Drugs Containing Resin and Resin Combinations	370
Introduction	370
Properties of Resins	370
Classifications	372
Benzoin (<i>Styrax benzoin</i>)	375
Asafoetida (<i>Ferula asafoetida</i>)	385
Balsam of Tolu (<i>Myroxylon balsamum</i>)	393
Podophyllum (<i>Podophyllum peltatum</i>)	399
General Tests for Identification of Resins	406
Review Questions	408
5. Enzymes-Biological Sources, Preparations, Identification Tests and Uses	410
Introduction	410
Structure and Composition of Enzymes	414
Classification of Enzymes	415

Diastase (<i>Hordeum vulgare</i>)	420
Papain (<i>Carica papaya</i>)	427
Pepsin (<i>Sus scrofa</i> var. <i>domesticus</i>)	435
Trypsin (<i>Bos taurus</i>)	440
Pancreatin (<i>Sus scrofa</i> var. <i>domesticus</i> or <i>Bos Taurus</i>)	444
Tests for Identification	446
Review Questions	448
 6. General Techniques of Biosynthetic Studies and Basic Metabolic Pathways	 450
Introduction	450
Photosynthesis or Carbon Assimilation	453
Respiration	462
Pathways in Intermediary Metabolism of Carbohydrates	469
Biogenesis of Secondary Metabolites of Pharmaceutical Importance	474
Biosynthesis of Glycosides	474
Biosynthesis of Alkaloids	478
Biosynthesis of Isoprenoid compounds or Terpenes	483
Biosynthesis of Triglycerides (Fats and Fatty Acids)	484
Stress Compounds	486
Methods used for the investigation of biogenetic pathways	486
Review Questions	492
 7. Natural Dyes and their Applications in Pharmacy	 496
Definition of Dye	496
Sources of Natural Dyes	502
Classification of Dyes	511
Dyeing	515
Importance, Applications and Utilization of Dyes	518
Application of Natural dyes in Pharmacy	519
Review Questions	520
 Appendix: Glossary of Medical Terms Used	 522