

Contents

	Introduction	1	
1	Alkaloid Drugs	3	
1.1	Preparation of Extracts.	3	
1.2	Thin-Layer Chromatography	4	
1.3	Detection	6	
1.4	Drug List	6	
1.5	Formulae	14	
1.6	TLC Synopsis of Important Alkaloids. Fig. 1,2	22	
1.7	Chromatograms	24	
	Rauvolfiae radix, Yohimbe cortex, Quebracho cortex, Catharanthi folium	Fig. 3,4	24
	Vincae minoris folium Secale cornutum	Fig. 5,6	26
	Strychni and Ignatii semen Gelsemii radix	Fig. 7,8	28
	Harmalae semen Justiciae-adhatodae folium, Uncariae radix	Fig. 9,10	30
	Ipecacuanhae radix Chinae cortex	Fig. 11,12	32
	Opium	Fig. 13,14	34
	Corydalis rhizoma, Fumariae herba	Fig. 15,16	36
	Spartii flos, Sarothamni herba Genistae herba	Fig. 17,18	38
	Chelidonii herba Colchici semen	Fig. 19,20	40
	Berberidis cortex, Colombo radix, Hydrastis rhizoma, Mahoniae radix/cortex	Fig. 21,22	42
	Boldo folium Nicotianae folium	Fig. 23,24	44
	Aconiti tuber, Sabadillae semen Lobeliae herba, Ephedrae herba	Fig. 25,26	46
	Solanaceae drugs	Fig. 27,28	48
	Purine drugs	Fig. 29,30	50
2	Drugs Containing Anthracene Derivatives	53	
2.1	Preparation of Extracts.	53	

2.2	Thin-Layer Chromatography.....	53
2.3	Detection.....	54
2.4	Circular TLC in Addition to the Ascending TLC.....	55
2.5	Drug List.....	56
2.6	Formulae.....	58
2.7	Chromatograms.....	62
	Aloes..... Fig. 1,2.....	62
	Rhamnus species..... Fig. 3,4.....	64
	Rhei radix..... Fig. 5,6.....	66
	Sennae folium, fructus..... Fig. 7,8.....	68
	Circular TLC (CTLC) in comparison to ascending TLC of Senna extracts	
	Hyperici herba..... Fig. 9,10.....	70
3	Bitter Drugs	73
3.1	Preparation of Extracts.....	73
3.2	Thin-Layer Chromatography.....	73
3.3	Detection.....	74
3.4	Drug List.....	75
3.5	Formulae.....	79
3.6	TLC Synopsis of Bitter Drugs..... Fig. 1,2.....	84
3.7	Chromatograms.....	86
	Gentianae radix, Centaurii herba, Menyanthidis folium..... Fig. 3,4.....	86
	TLC Synopsis, Drugs with Iridoid Glycosides..... Fig. 5,6.....	88
	Absinthii herba	
	Cnici herba..... Fig. 7,8.....	90
	Oleae folium, Marrubii herba	
	Quassiae lignum..... Fig. 9,10.....	92
	TLC Synopsis, Drgus with Cucurbitacins..... Fig. 11,12.....	94
	Cynarae herba	
	Humuli lupuli strobulus..... Fig. 13,14.....	96
4	Cardiac Glycoside Drugs	99
4.1	Preparation of Extracts.....	99
4.2	Thin-Layer Chromatography.....	99
4.3	Detection.....	100
4.4	Drug List.....	102
4.5	Formulae and Tables.....	104
4.6	TLC Synopsis of Cardiac Glycosides..... Fig. 1,2.....	110
4.7	Chromatograms.....	112

	Digitalis folium	Fig. 3,4	112
	Nerii (Oleandri) folium		114
	Uzarae (Xysmalobii) radix	Fig. 5,6	114
	Strophanthi semen		
	Erysimi herba, Cheiranthi herba	Fig. 7,8	116
	Adonidis herba, Convallariae herba	Fig. 9,10	118
	Helleborus species	Fig. 11,12	120
	Scillae bulbus	Fig. 13,14	122
5	Coumarin Drugs		125
5.1	Preparation of Extracts		125
5.2	Thin-Layer Chromatography		126
5.3	Detection		126
5.4	Drug List		126
5.5	Formulae		130
5.6	Chromatograms		132
	Asperulae, Meliloti herba; Toncae semen	Fig. 1,2	132
	Coumarins – Chromatographic Standards		
	Abrotani herba, Fabiani herba	Fig. 3,4	134
	Fraxini cortex,		
	Mezerei cortex	Fig. 5,6	136
	Scopoliae, Belladonnae Mandragorae radix		
	Ammi fructus	Fig. 7,8	138
	TLC Synopsis of Apiaceae Roots, Furanocoumarins	Fig. 9,10	140
	Imperatoriae, Angelicae and		
	Levistici radix	Fig. 11,12	142
	Rutae herba	Fig. 13,14	144
	Herniariae herba	Fig. 15,16	146
6	Drugs Containing Essential Oils (Aetherolea), Balsams and Oleo-Gum-Resins		149
6.1	Determination of Essential Oils		149
6.2	Thin Layer Chromatography		151
6.3	Detection		151
6.4	List of Essential Oil Drugs, Gums and Resins		152
6.5	Formulae		162
6.6	Terpene and Phenylpropane Reference Compounds	Fig. 1,2	166
6.7	Chromatograms		168
	Anisi fructus, Foeniculi fructus, Basicili herba,		
	Sassafras lignum	Fig. 3,4	168
	Cinnamomi cortex, Caryophylli flos	Fig. 5,6	170
	Calami rhizoma, Asari radix	Fig. 7,8	172
	Myristicae semen, Petroselini fructus	Fig. 9,10	174

	Ajowani fructus, Thymi and Serpylli herba Carvi, Coriandri, Cardamoni fructus, Menthae crispae folium Fig. 11,12	176
	Menthae folium (Lamiaceae) Rosmarini and Melissa folium (Lamiaceae) Fig. 13,14	178
	Melissae folium and substitutes (Lamiaceae) Lavandulae flos and commercial oils (Lamiaceae) Fig. 15,16	180
	Aurantii and Citri pericarpium Fig. 17,18	182
	Salviae folium, Eucalypti folium Fig. 19,20	184
	Matricariae flos, Anthemidis and Cinae flos Fig. 21,22	186
	Curcumae rhizoma Fig. 23,24	188
	Juniperi aetherolea, Myrrha Benzoin and balms Fig. 25,26	190
	Pini aetherolea, Terebinthinae aetherolea Fig. 27,28	192
7	Flavonoid Drugs Including Ginkgo Biloba and Echinaceae Species	195
7.1	Flavonoids	195
7.1.1	Preparation of Extracts	195
7.1.2	Thin-Layer Chromatography	196
7.1.3	Detection	196
7.1.4	Drug List	197
7.1.5	Formulae	204
7.1.6	Reference Compounds Fig. 1,2	210
7.1.7	TLC-Synopsis "Flos" Fig. 3,4	212
7.1.8	Chromatograms	214
	Arnicae flos and adulterants Fig. 5,6	214
	Calendulae, Cacti, Primulae flos Fig. 7,8	216
	Pruni spinosae, Robiniae, Acaciae, Sambuci, Spiraeae and Tiliae flos Fig. 9,10	218
	Farfarae folium; flos Petasitidis folium, radix Fig. 11,12	220
	Betulae, Juglandis Rubi, and Ribis folium Castaneae folium Fig. 13,14	222
	Crataegi folium, fructus flos, Lespedezae herba Fig. 15,16	224
	Equiseti herba Fig. 17,18	226
	Virgaureae herba Violae herba Fig. 19,20	228
	Anserinae, Passiflorae herba, Sophorae gemmae Flavon-C-glycosides as reference compounds Fig. 21,22	230
	Citri, Aurantii pericarpium Orthosiphonis, Eriodictyonis folium Fig. 23,24	232
	Cardui mariae (Silybi) fructus Viburni cortex Fig. 25,26	234
7.2	Ginkgo biloba	236

		236
7.2.1	Preparation of Extracts.	236
7.2.2	Thin-Layer Chromatography.	236
7.2.3	Detection.	236
7.2.4	Drug Constituents.	237
7.2.5	Formulae	237
7.2.6	Chromatogram	240
	Ginkgo bilobae folium Fig. 27,28	240
7.3	Echinacea radix.	242
7.3.1	Preparation of Extracts.	242
7.3.2	Solvent Systems and Detection	242
7.3.3	Drug List	242
7.3.4	Formulae	243
7.3.5	Chromatogram	244
	Echinaceae radix Fig. 29,30	244
8	Drugs Containing Arbutin, Salicin and Salicyl Derivatives.	247
8.1	Drugs with Arbutin (Hydroquinone derivatives)	247
8.1.1	Preparation of Extracts.	247
8.1.2	Thin-Layer Chromatography.	247
8.1.3	Detection	247
8.1.4	Drug List	248
8.1.5	Formulae	248
8.2	Drugs Containing Salicin and its Derivatives.	249
8.2.1	Preparation of Extracts for TLC	249
8.2.2	Thin-Layer Chromatography.	249
8.2.3	Detection	249
8.2.4	Drug List	249
8.2.5	Formulae	250
8.3	Chromatograms	252
	Arbutin drugs Fig. 1,2	252
	Salicis cortex Fig. 3,4	254
9	Drugs Containing Cannabinoids and Kavapyrones	257
9.1	Cannabis Herba, Cannabis sativa var. indica L., Cannabaceae	257
9.1.1	Preparation of Drug Extracts.	257
9.1.2	Thin-Layer Chromatography.	257

XII	Contents	
9.1.3	Detection	257
9.1.4	Formulae	258
9.2	Kava-Kava, Piperis methystici rhizoma, Piper methysticum G. FORST, Piperaceae (MD, DAC 86)	258
9.2.1	Preparation of Drug Extracts for TLC	258
9.2.2	Thin-Layer Chromatography	258
9.2.3	Detection	259
9.2.4	Formulae	259
9.3	Chromatograms	260
	Cannabis herba, Hashish	
	Kava-Kava rhizoma, Piper methysticum	Fig. 1,2 260
10	Drugs Containing Lignans	263
10.1	Preparation of Extracts	263
10.2	Thin-Layer Chromatography	263
10.3	Detection	264
10.4	Drug List	264
10.5	Formulae	266
10.6	Chromatograms	268
	Eleutherococci radix (rhizoma)	Fig. 1,2 268
	Viscum album	Fig. 3,4 270
	Podophylli rhizoma	
	Cubebae fructus	Fig. 5,6 272
11	Drugs Containing 1,4-Naphthoquinones	
	Droserae herba, Dionaeae herba	275
11.1	Preparation of Extract	275
11.2	Thin-Layer Chromatography	275
11.3	Detection	275
11.4	Drug List	276
11.5	Formulae	276
11.6	Chromatograms	278
	Droserae herba, Dionaeae herba	Fig. 1,2 278
12	Drugs Containing Pigments	281
12.1	Preparation of Extracts	281
12.2	Thin-Layer Chromatography	281
12.3	Detection	282
12.4	Drug List	282

12.5	Formulae	283
12.6	Chromatograms	286
	Hibisci flos, Reference compounds Fig. 1,2	286
	TLC Synopsis	
	Myrtilli fructus, Croci stigma Fig. 3,4	288
13	Drugs with Pungent-Tasting Principles	291
13.1	Pungent-Tasting Constituents	291
13.1.1	Preparation of Extracts	291
13.1.2	Thin-Layer Chromatography	291
13.1.3	Detection	292
13.1.4	Drug List	292
13.2	Drugs with Glucosinolates (Mustard Oils)	293
13.2.1	Preparation of Extracts	293
13.2.2	Thin-Layer Chromatography and Detection Methods	293
13.2.3	Drug List	294
13.3	Drugs with Cysteine sulphoxides and Thiosulphinates	
	Allium sativum L., Allium ursinum L., Allium cepa L. – Alliaceae	294
13.3.1	Preparation of Extracts for TLC	294
13.3.2	Thin-Layer Chromatography and Detection	295
13.4	Formulae of Pungent Principles	296
13.5	Chromatograms	298
	Capsici and Piperis fructus	
	Capsici fructus, Sinapis semen Fig. 1,2	298
	Galangae and Zingiberis rhizoma Fig. 3,4	300
	Allium species Fig. 5,6	302
14	Saponin Drugs	305
14.1	Preparation of Extracts	305
14.2	Thin-Layer Chromatography	306
14.3	Detection	306
14.4	Drug List	307
14.5	Formulae	311
14.6	Chromatograms	318
	TLC Synopsis of Saponin Drugs	
	Ginseng radix Fig. 1,2	318
	Hippocastani semen, Primulae radix	
	Quillajae cortex, Saponariae radix Fig. 3,4	320
	Hederae folium Fig. 5,6	322

	Rusci rhizoma, Centellae herba	Fig. 7,8	324
	Avenae sativae		
	Liquiritiae radix	Fig. 9,10	326
15	Drugs Containing Sweet-Tasting Terpene Glycosides		329
15.1	Preparation of Extracts		329
15.2	Thin-Layer Chromatography		329
15.3	Detection		329
15.4	Drug List		330
15.5	Formulae		331
15.6	Chromatograms		332
	Liquiritiae radix		
	Steviae folium	Fig. 1,2	332
16	Drugs Containing Triterpenes		335
16.1	Preparation of Extracts		335
16.2	Thin-Layer Chromatography		335
16.3	Detection		335
16.4	Drug List		336
16.5	Formulae		336
16.6	Chromatograms		338
	Cimicifugae rhizoma		
	Ononidis radix	Fig. 1,2	338
17	Drugs Containing Valepotriates (Valerianae radix)		341
17.1	Preparation of Extract		341
17.2	Thin-Layer Chromatography		341
17.3	Detection		342
17.4	Drug List		342
17.5	Formulae		343
17.6	Chromatograms		346
	Valerianae radix	Fig. 1,2	346
18	Screening of Unknown Commercial Drugs		349
18.1	Preparation of Drug Extracts for Analysis		349
18.2	Thin-Layer Chromatography		350
18.3	Detection and Classification of Compounds		350
18.4	Scheme of Separation and Identification		352

19	Thin-Layer Chromatography Analysis of Herbal Drug Mixtures	355
	Salviathymol®	
	Commercial laxative phytopreparations Fig. 1,2	355
	Appendix A: Spray Reagents	359
	Appendix B: Definitions	365
	Standard Literature	367
	Pharmacopoeias	368
	Subject Index	369



<http://www.springer.com/978-3-642-00573-2>

Plant Drug Analysis

A Thin Layer Chromatography Atlas

Bladt, S.

1996, XV, 384 p., Softcover

ISBN: 978-3-642-00573-2