

Contents

<i>Preface</i>	<i>ix</i>
<i>Acknowledgement</i>	<i>xi</i>
<i>Abbreviations</i>	<i>xii</i>
1. Introduction	1
2. History of natural dyes	4
2.1 Introduction	4
2.2 Pre-Vedic period	4
2.3 Vedic period	5
2.4 Post-Vedic period	5
2.5 Epic period	5
2.6 The Classical period	5
2.7 The Medieval period	6
2.8 Down fall of the natural dyes	6
2.9 Revival of natural dyes	7
2.10 Present status	8
3. Methods of extraction	9
3.1 Introduction	9
3.2 Raw materials	13
3.3 Size reduction	14
3.4 Batch extraction	14
3.5 Phase separation	14
3.6 Fine filtration	14
3.7 Precipitation/concentration/drying	14
3.8 Characterization	15

4.	Mordants and their applications	18
4.1	Introduction	18
4.2	Application of moderants	22
4.3	Mordanting of cotton	22
4.4	Mordanting of wool	26
4.5	Mordanting of silk	27
5.	Preparation of fiber for dyeing	29
5.1	Cotton	29
5.2	Silk	30
5.3	Wool	30
6.	Enumeration of dyes	33
6.1	Adinin	33
6.2	Alizarin	34
6.3	Alkannin	39
6.4	Apigenin	44
6.5	Azure blue	50
6.6	Berberine	50
6.7	Betanin	55
6.8	Bixin	56
6.9	Blanc-fixe	60
6.10	Brazilein	61
6.11	Butein and butin	64
6.12	Calendulin	66
6.13	Capsanthin	67
6.14	Caramel	70
6.15	Carbon	71
6.16	Carminic acid	73
6.17	Carotene	76
6.18	Carthamin	78
6.19	Catechin	81
6.20	Chlorophyll	87
6.21	Chrysin	91
6.22	Chrysophanic acid	93

6.23	Citronetin	102
6.24	Coreopsin	103
6.25	Crocin and crocetin	105
6.26	Curcumin	110
6.27	Delphinidin	113
6.28	Datiscetin	116
6.29	Dracocarmin	117
6.30	Ellagic acid	120
6.31	Embelin	125
6.32	Emodin	127
6.33	Erythroaphins	132
6.34	Euxanthic acid	135
6.35	Fisetin	138
6.36	Flemingin	140
6.37	Fukugetin	141
6.38	Galloflavin and isogalloflavin	143
6.39	Galiosin	144
6.40	Gamboge	146
6.41	Gardenin	147
6.42	Gossypetin	149
6.43	Green Earth	152
6.44	Guanine	153
6.45	Haematoxylin	154
6.46	Hypericin	157
6.47	Indigo or indigotin	159
6.48	Isorhamnetin	164
6.49	Juglone	166
6.50	Kaempferol	169
6.51	Kermesic acid	173
6.52	Laccaic acid and erythrolaccin	175
6.53	Lapachol	178
6.54	Lawsone	180
6.55	Luteolin	184
6.56	Lycopene	185
6.57	Maclurin	187

6.58	Malachite	191
6.59	Malvidin	191
6.60	Morin	194
6.61	Morindone	196
5.62	Myricetin	199
6.63	Ochres	202
6.64	Orchil or archil	204
6.65	Patuletin	207
6.66	Phycocyanin	208
6.67	Pratol	209
6.68	Pseudopurpurin	211
6.69	Purpurin and munjistin	213
6.70	Quercetagetin	216
6.71	Quercetin	218
6.72	Red lead or minium	223
6.73	Rhamnazin	224
6.74	Rhamnetin	226
6.75	Riboflavin	230
6.76	Rottlerin	232
6.77	Rubiadin	237
6.78	Ruburobrassicin	239
6.79	Rutin	241
6.80	Santalin	245
6.81	Sepiomelanin	248
6.82	Soranjidiol	249
6.83	Tectoleafquinone	251
6.84	Titanium dioxide	254
6.85	Ultramarine blue	255
6.86	Ventilagin	256
6.87	Vitexin	257
Appendices		261
Appendix 1: List of coloring matter, color, sources, and uses		261
Appendix 2: Application of coloring matter		270
Index		295