



INDEX

Table of Contents

Sr. No.	DESCRIPTION	Page No.
1	General Introduction	1
2	Materials and methods	21
2.1	Collection of Samples	21
2.2	Microtechniques	21
2.2.1	Killing and Fixation	22
2.2.2	Softening of Material	22
2.2.3	Microtomy	22
2.2.4	Staining Procedure	24
2.2.5	Macerations	25
2.2.6	Measurements	25
2.3	Photography	25
3	Results	28
I	Primary Unusual Growth	28
3.1	Internal Phloem	28
	<i>Ipomoea hederifolia</i> L.	30
	<i>Ipomoea aquatica</i> Forsskal	30
	<i>Leptadenia reticulata</i> (Retz.) W. & A.	33
	<i>Cressa cretica</i> Linn.	35
	<i>Solanum pseudocapsicum</i> Linn.	37
	<i>Strychnos bicolor</i> Prog.	39
3.2	Medullary Bundles	40
	<i>Argyreia nervosa</i> (Burm. f.) Bojer.	41
	<i>Mirabilis jalapa</i> L.	44
	<i>Boerhaavia diffusa</i> L.	46
3.3	Cortical Bundles	47
	<i>Couroupita guianensis</i> Aubl.	49
	<i>Nyctanthes arbortristis</i> L.	51
II	Unusual Secondary Growth	53
3.4	Successive Cambia	53
3.4.1	Successive Cambia Having Normal Orientation	55
	<i>Spinacia oleracea</i> Linn.	55
	<i>Diploclisia glaucanscens</i> (Bl.) Diels.	57
	<i>Cocculus hirsutus</i> (L.) Diels.	57
	<i>Antigonon leptopus</i> Hook. & Arn.	60
3.4.2	Successive Cambia Having Inverse Orientation	62
	<i>Dolichos lablab</i> L.	62
	<i>Ipomoea hederifolia</i> L.	65
	<i>Ipomoea biloba</i> Forsk	66
	<i>Ipomoea quamoclit</i> L.	66
3.5	Interxylary Phloem Produced By A Single Cambium	69
3.5.1	<i>Combretum</i> type	70
	<i>Leptadenia reticulata</i> (Retz.) W. & A.	70

	<i>Salvadora persica</i> L.	72
	<i>Coccinia indica</i> L.	74
3.5.2	Scattered or Diffused type or <i>Azima</i> type	78
	<i>Ipomoea hederifolia</i> L.	78
	<i>Canavalia ensiformis</i> (L.) DC.	80
	<i>Mucuna pruriens</i> var. <i>pruriens</i> (Linn.) DC.	82
3.5.3	<i>Strychnos</i> type	83
	<i>Strychnos bicolor</i> Prog.	83
3.5.4	<i>Calycopteris</i> type	85
	<i>Calycopteris floribunda</i> Lamk.	86
3.6	Cambium Normal In Function But Abnormal In Conformation	89
3.6.1	Stem Flattened In Transection	90
	<i>Camptosema isopetalum</i> (Lam.) Taub	90
	<i>Phanera glabra</i> Jacq.	90
3.6.2	Stem Lobed In Transection	91
	<i>Phanerao utimouta</i> (Aubl.) Queiroz	92
3.6.3	Stems With Furrowed Xylem	93
	<i>Begonia alliacea</i> L.	93
3.6.4	Xylem In Plates	95
	<i>Aristolochia indica</i> Linn.	96
	<i>Tinospora cordifolia</i> (Thunb.) Miers	97
3.6.5	Divided xylem cylinder	99
	<i>Serjania corrugata</i> Radlk.	99
3.6.6	Compound Secondary Xylem	100
	<i>Serjania caracasana</i> (Jacq) Willd	101
3.7	Combinations of Cambial Variant	102
	<i>Cocculus hirsutus</i> (L.) Diels.	102
	<i>Coccinia indica</i> L.	103
	<i>Ipomoea triloba</i> L.	104
	<i>Macherium aculeatum</i> Raddi.	105
	<i>Securidaca rivinaefolia</i> (L.) Blake	108
4	Discussion	112
5	Conclusion	146
6	References	213