

Contents

C O N T E N T S

Chapter	T i t l e	Page No.
	INTRODUCTION	1
I.	REVIEW OF LITERATURE	7
	1. Soil Salinity	7
	2. Salinity and Plant Growth	9
	A. Growth	9
	B. Metabolism	14
	i) Mineral nutrition	14
	ii) Photosynthesis	19
	iii) Nitrogen metabolism	22
	a) Nitrate reductase	23
	b) Nitrite reductase	24
	c) Glutamate dehydrogenase	25
	d) Glutamine synthetase	26
	e) Glutamate synthase	26
	f) Nitrogen metabolism under saline conditions	27
	3. Work done in our laboratory	29
	4. Scope of present investigation	32
	5. Plants investigated	34
	A. <u>Sesbania grandiflora</u> :	
	i) Morphology and economic importance	35
	ii) Physiology of <u>S. grandiflora</u>	38
	iii) Salt tolerance in <u>S. grandiflora</u>	39
	B. <u>Crotalaria juncea</u> :	
	i) Morphology and economic importance	40
	ii) Physiology of <u>C. juncea</u>	42
	iii) Salt tolerance in <u>C. juncea</u>	44

Chapter	Title	Page No.
II.	MATERIAL AND METHODS :	
1.	Material	46
2.	Methods	
	A. Growth	46
	B. Photosynthetic pigments	47
	C. Polyphenols	48
	D. Nitrogen Eractions	48
	i) Nitrate nitrogen	49
	ii) Nitrite nitrogen	49
	iii) Proteins (Soluble nitrogen)	50
	iv) Insoluble nitrogen	50
	E. Proline	51
	F. Enzymes of Nitrogen Metabolism :	
	i) Nitrate reductase	52
	ii) Nitrite reductase	53
	iii) Glutamine synthetase	54
	iv) Glutamate dehydrogenase	55
III.	RESULTS AND DISCUSSION :	
1.	Growth	56
2.	Photosynthetic Pigments :	
	A. Chlorophylls	62
	B. Carotenoids	66
3.	Polyphenols	68
4.	Nitrogen Metabolism :	
	A. Total Nitrogen	70
	B. Nitrogen Fractions	75
	C. Proline	83
	D. Enzymes :	
	i) Nitrate reductase	87
	ii) Nitrite reductase	93
	iii) Glutamine synthetase	96
	iv) Glutamate dehydrogenase	100

Chapter	T i t l e	Page No.
IV.	SUMMARY AND CONCLUSIONS	.. 104
	B I B L I O G R A P H Y	.. 113
