

CONTENTS

INDEX

CHAPTER NO.	TITLE	PAGE NO.
	DECLARATION	
	CERTIFICATE	
	ACKNOWLEDGEMENT	
	CONTENTS	
	List of Tables	i
	List of Figures	ii
	List of Photo Plates	iii
	Abbreviation	iv
I	Introduction	1
I.	Review of Literature	
	A) About aluminium toxicity	
	1) Introduction	5
	2) Soil – Types	5
	3) Acidic Soils	5
	4) Causes of Soil Acidity	6
	5) Acidic Soils in World	11
	6) Acidic Soils in India	11
	7) Acidic Soils in Maharashtra	12
	8) Beneficial effect of Al	12
	9) Phytotoxicity of Al	12
	10) Symptoms of Al toxicity	19
	11) Uptake and distribution of Al	19
	12) Physiological effects of Al toxicity	20
	13) Mineral nutrition under Al toxicity	24
	14) Tolerance :	26
	a. External	26
	b. Internal	31
	15) Molecular genetics in Al toxicity and Al tolerance	32
	16) Aluminum tolerant species	33
	17) Groundnut	36

II	Materials and Methods	
	A. Material	38
	B. Methods	38
	1. Germination Studies	38
	a. Germination percentage	38
	b. Seedling growth	38
	2. Moisture	39
	3. Qualitative determination of Al tolerance	39
	4. Oil	39
	5. Carbohydrates Metabolism	41
	6. Enzymes	42
	a. Lipase	42
	b. Peroxidase	43
	7. Estimation of N	43
	8. Estimation of P	44
	9. Inorganic Mineral status	44
	a. Preparation of acid digest	45
	b. Estimation of K, Ca, Mg, Mn, Fe, Zn, Mo	45
III	Results and Discussion	
	1. Germination Studies	48
	a) Germination Percentage	48
	b) Seedling growth	49
	2. Moisture	54
	3. Qualitative determination of Al tolerance	56
	4. Oil	57
	5. Carbohydrates	62
	6. Enzyme	68
	a. Lipase	68
	b. Peroxidase	71
	7. Inorganic minerals	75
	a. N	75
	b. P	78

	c. K	79
	d. Ca	83
	e. Mg	86
	f. Fe	88
	g. Mn	91
	h. Zn	92
	i. Mo	96
IV	Summary and Conclusions	99
VI —	Bibliography	104
	Publications	128
	Conference	128.