

## CONTENTS

## C O N T E N T S

Chapter	Title	Page
-	List of Tables	.. 1
-	List of figures	.. ii
-	Abbreviations	.. iv
-	<u>Introduction</u>	.. 1
I	<u>Review of Literature</u> :	
	1. Indole-3-acetic acid -	
	a) Introduction	.. 8
	b) Responses of groundnut to IAA	.. 10
	i) Seed germinability	.. 10
	ii) Vegetative growth	.. 10
	iii) Reproductive growth	.. 11
	iv) Yield	.. 11
	v) Oil content	.. 12
	2. Gibberellins (GA) -	
	a) Introduction	.. 12
	b) Responses of groundnut to GA	.. 14
	i) Seed germinability	.. 14
	ii) Vegetative growth	.. 14
	iii) Reproductive growth	.. 15
	iv) Yield	.. 16
	v) Oil content	.. 16
	vi) Physiological changes	.. 16
	3. Cytokinins -	
	a) Introduction	.. 17
	b) Responses of groundnut to cytokinins	.. 19
	i) Seed germinability	.. 19

Chapter	Title	Page
I	3. b) ii) Vegetative growth	.. 19
	iii) Reproductive growth	.. 20
	iv) Yield	.. 20
	v) Physiological changes	.. 20
	4. Abscisic acid (ABA) -	
	a) Introduction	.. 21
	b) Responses of groundnut to ABA	.. 22
	i) Germinability	.. 22
	ii) Physiological changes	.. 22
	5. Ethylene -	
	a) Introduction	.. 23
	b) Responses of groundnut to ethylene..	24
	i) Germinability	.. 24
	ii) Vegetative growth	.. 25
	iii) Reproductive growth	.. 25
	iv) Yield	.. 26
	v) Physiological changes	.. 26
	6. Indole-3-butyric acid (IBA) -	
	a) Introduction	.. 26
	b) Responses of groundnut to IBA	.. 27
	i) Seed germinability	.. 27
	ii) Vegetative growth	.. 27
	iii) Yield	.. 27
	7. Naphthyl acetic acid (NAA) -	
	a) Introduction	.. 27
	b) Responses of groundnut to NAA	.. 28
	i) Vegetative growth	.. 28
	ii) Reproductive growth	.. 29
iii) Yield	.. 29	
iv) Seed oil content	.. 30	
v) Physiological changes	.. 30	

Chapter	Title	Page
I	8. Ascorbic acid (AA) -	
	a) Introduction	.. 31
	b) Responses of groundnut to ascorbic acid	.. 31
	i) Germinability	.. 31
	ii) Vegetative growth	.. 32
	iii) Physiological changes	.. 32
	9. 2,3,5-Triiodo benzoic acid (TIBA) -	
	a) Introduction	.. 32
	b) Responses of groundnut to TIBA	.. 33
	i) Germinability	.. 33
	ii) Vegetative growth	.. 34
	iii) Reproductive growth	.. 34
	iv) Yield	.. 35
	v) Oil content	.. 35
	10. 2,4 Dichloro phenoxy acetic acid (2,4-d) -	
	a) Introduction	.. 35
	b) Responses of groundnut to 2,4 D	.. 37
	i) Vegetative growth	.. 37
	ii) Metabolic changes	.. 37
	11. Morphactins -	
	a) Introduction	.. 37
	b) Responses of groundnut to morphactins	.. 38
	i) Vegetative growth	.. 38
	ii) Reproductive growth	.. 38
	12. Maleic hydrazide (MH) -	
	a) Introduction	.. 39
	b) Responses of groundnut to maleic hydrazide (MH)	.. 40
	i) Germinability	.. 40
	ii) Vegetative growth	.. 40

Chapter	Title	Page
I	12. b) iii) Reproductive growth	.. 41
	iv) Yield	.. 41
	v) Oil content	.. 42
	vi) Physiological changes	.. 42
	13. Succinic acid 2,2, dimethyl hydrazide (SADH) -	
	a) Introduction	.. 43
	b) Responses of groundnut to SADH	.. 44
	i) Germinability	.. 44
	ii) Vegetative growth	.. 44
	iii) Reproductive growth	.. 46
	iv) Yield	.. 47
	v) Oil content	.. 49
	vi) Physiological changes	.. 49
	14; Chlorocholine chloride (CCC) -	
	a) Introduction	.. 50
	b) Responses of groundnut to CCC	.. 51
	i) Germinability	.. 51
	ii) Reproductive growth	.. 51
	iii) Yield	.. 52
	iv) Seed oil content	.. 52
Scope of Present Investigation -	.. 53	
II	<u>Material and Methods</u> :	
	A) Material	.. 54
	B) Methods	.. 55
	a) Inorganic constituents	.. 56
	Sodium	.. 56
	Potassium	.. 56
	Calcium	.. 56
	Magnesium	.. 56
	Manganese	.. 56
	Iron	.. 56
	Phosphorus	.. 57

Chapter	Title	Page
II	b) Organic constituents ..	58
	i) Moisture percentage ..	58
	ii) Relative water content ..	58
	iii) Carbohydrates ..	59
	iv) RNA content ..	61
	v) Free Proline ..	62
	vi) Organic acids (TAN) ..	63
	vii) Ascorbic acid content ..	64
	c) Enzymes and - SH content	
	i) Nitrate reductase ..	66
	ii) Sulphydryl groups ..	67
	d) Chlorophylls and carotenoids ..	68
	e) Stomatal behaviour ..	69
III	<u>Result and Discussion</u> :	
	A) Plant Performance ..	70
	B) Inorganic constituents -	
	i) Phosphorus ..	70
	ii) Potassium ..	75
	iii) Calcium ..	81
	iv) Magnesium ..	89
	v) Manganese ..	94
	vi) Iron ..	98
	vii) Sodium ..	
	C) Organic constituents -	
	i) Moisture percentage ..	107
	ii) Relative water content (RWC) ..	110
	iii) Carbohydrates ..	113
	iv) Ribose nucleic acid (RNA) ..	119
	v) Free Proline ..	121
	vi) Titratable acidity status (TAN) ..	126
	vii) Ascorbic acid content ..	130

---

Chapter	Title	Page
III	D) Enzymes and SH content -	
	i) Nitrate reductase activity	.. 134
	ii) Sulphydryl groups	.. 137
	E) Photosynthetic pigments	.. 140
	F) Stomatal behaviour	.. 144
IV	<u>Summary and Conclusion</u> :	.. 149
	- <u>Bibliography</u>	.. 159
	- <u>Publications</u>	.. 198
	- <u>Statement-I</u>	.. 199
	- <u>Statement-II</u>	.. 200

---