

# CONTENTS

CHAPTER	TITLE	PAGE NO.
	List of Tables and Plates	iii-iv
	List of Figures	v
	Abbreviations	vi
	INTRODUCTION	01
I	REVIEW OF LITERATURE ON SOYBEAN SEED GERMINATION	
1	Introduction	6
1.1	Soybean Seed Morphology, Anatomy and Chemical Composition	7
1.2	Factors Influencing Soybean Seed Germination	18
	a) Viability and vigour	18
	b) Temperature	27
	c) Light	32
	d) Gases	33
	e) Water status	34
	f) Soil texture	36
	g) Soil salinity	37
1.3	Influence of Plant Growth Regulators and Other Chemicals on Soybean Seed Germination	39
II	MATERIALS AND METHODS	
A	Presowing Soaking Treatment	55
B	Germination Studies	56
	a) Water uptake	56
	b) Respiration	57
	c) Enzyme $\alpha$ -amylase	57
	d) Enzyme lipase	59
	e) Enzyme acid phosphatase	60
	f) Enzyme phytase	60
	g) Enzyme nitrate reductase	61
	h) Enzyme dehydrogenase	62

CHAPTER	TITLE	PAGE NO.
	i) Enzyme catalase	63
	j) Enzyme peroxidase	63
	k) Enzyme peroxidase by PAGE	64
	l) Soluble proteins	67
	m) Soluble sugars	68
	n) Ascorbic acid	69
	o) Gluthione (SH) group	71
	p) Free proline	73
<b>III</b>	<b>RESULTS AND DISCUSSION</b>	
	3.0 Medium of presowing soaking treatment	75
	3.1 Water uptake	76
	3.2 Respiration	81
	3.3 Enzyme $\alpha$ -amylase	84
	3.4 Enzyme lipase	88
	3.5 Enzyme acid phosphatase	94
	3.6 Enzyme phytase	102
	3.7 Enzyme nitrate reductase	105
	3.8 Enzyme dehydrogenase	111
	3.9 Enzyme catalase	115
	3.10 Enzyme peroxidase	122
	3.11 Soluble sugars	128
	3.12 Ascorbic acid content	131
	3.13 SH group	138
	3.14 Free proline	142
<b>IV</b>	<b>SUMMARY AND CONCLUSIONS</b>	<b>146</b>
	<b>BIBLIOGRAPHY</b>	<b>151</b>
	<b>STATEMENT I</b>	<b>194</b>
	<b>STATEMENT II</b>	<b>195</b>