

CONTENTS

CHAPTER	TITLE	PAGE	No.
	List of plates		<i>iv</i>
	List of figures		<i>v</i>
	List of Tables		<i>vi</i>
	Abbreviations		<i>vii</i>
	INTRODUCTION		1
I.	REVIEW OF LITERATURE		
	A. Taxonomy		4
	B. Distribution		5
	C. Cultural Practices		6
	D. Morphology		10
	E. Anatomy		11
	F. Cytogenetical studies		13
	G. Physiological studies		16
	H. Phytochemical studies		24
	I. Pathology		29
	J. Tissue culture		30
	K. Antibacterial, Antifungal, Antipest and Antitermite activities		33
	L. Medicinal uses		36
	M. Pharmacognosy		39
	N. Pharmacology		39
	O. Phytoremediation		40
	P. Wastewater treatment		44
	Q. Soil erosion		45
	R. Other uses of Vetiver		48

II. MATERIALS AND METHODS

A. Materials	51
B. Methods	
1. Foliar spray of plant growth regulators	51
2. Growth parameters	51
3. Pigment status	
a. Chlorophyll	52
b. Carotenoids	53
c. Anthocyanins	53
4. Polyphenols	54
5. Enzymatic study	
a. Enzyme Nitrate reductase (E.C. 1.6.6.1)	54
b. Enzyme Peroxidase (E.C. 1.11.1.7)	55
c. Enzyme Acid phosphatase (E.C. 3.1.3.2)	56
6. Carbohydrate analysis	
Reducing sugar, starch and total sugar.	56
6. Estimation of inorganic constituents	
a. Preparation of acid digest.	58
i. Potassium	
ii. Calcium	
iii. Magnesium	
iv. Iron	
8. Study of Vetiver oil composition	59

III. RESULTS AND DISCUSSION

1. Growth parameters	60
2. Pigment status	
a. Chlorophyll	62

b. Carotenoids	64
c. Anthocyanins	66
3. Polyphenols	69
4. Enzymatic study	
c. Enzyme Nitrate reductase (E.C. 1.6.6.1)	71
d. Enzyme Peroxidase (E.C. 1.11.1.7)	74
c. Enzyme Acid phosphatase (E.C. 3.1.3.2)	75
5. Carbohydrate analysis	
(Reducing sugar, starch and total sugar).	77
6. Inorganic constituents	
i. Potassium	81
ii. Calcium	83
iii. Magnesium	85
iv. Iron	87
7. Essential oil	88
IV. SUMMARY AND CONCLUSIONS	95
BIBLIOGRAPHY	101
STATEMENT I	140
STATEMENT II	141

LIST OF PLATES

Chapter No.	Plate No.	Name of Plate	After Page No.
III	1.	Habit: <i>Chrysopogon zizanioides</i> (L.) Roberty.	51
	2.	Effect of PGRs (CCC, Salicylic acid and Vipul) on root system in plants of Local Vetiver cultivar.	60
	3a.	Effect of PGRs (CCC, Salicylic acid and Vipul) on the essential oil composition of Vetiver cultivar KS 1 as revealed by TLC.	89
	3b.	Effect of PGRs (CCC, Salicylic acid and Vipul) on the essential oil composition of Vetiver cultivar Local as revealed by TLC.	89

LIST OF FIGURES

Chapter No.	Figure No.	Name of Figure	After Page No.
III	1.	Effect of PGRs (CCC, Salicylic acid and Vipul) on some growth parameters in Vetiver cultivars (Local and KS 1).	61
	2.	Effect of PGRs (CCC, Salicylic acid and Vipul) on chlorophyll content in Vetiver cultivars (KS 1 and Local).	63
	3.	Effect of PGRs (CCC, Salicylic acid and Vipul) on carotenoid content in Vetiver cultivars (KS1 and Local)	65
	4.	Effect of PGRs (CCC, Salicylic acid and Vipul) on anthocyanin content in Vetiver cultivars (KS1 and Local).	67
	5.	Effect of PGRs (CCC, Salicylic acid and Vipul) on total polyphenols in leaves of Vetiver cultivars (KS1 and Local).	69
	6.	Effect of PGRs (CCC, Salicylic acid and Vipul) on activity of enzyme nitrate reductase in leaves and roots of Vetiver cultivars (KS1 and Local).	71
	7.	Effect of PGRs (CCC, Salicylic acid and vipul) on enzyme peroxidase in roots of KS1 and local Vetiver cultivars	75
	8.	Effect of PGRs (CCC, Salicylic acid and vipul) on enzyme acid phosphatase in roots of KS1 and local Vetiver cultivars	75
	9.	Effect of PGRs (CCC, Salicylic acid and Vipul) on carbohydrate content in leaves and roots of KS 1 Vetiver cultivar	77
	10.	Effect of PGRs (CCC, Salicylic acid and Vipul) on carbohydrate content in leaves and roots of Local Vetiver cultivar	77
	11.	Effect of PGRs (CCC, Salicylic acid and Vipul) on potassium content in leaves and roots of Vetiver cultivars(KS1 and Local)	81
	12.	Effect of PGRs (CCC, Salicylic acid and Vipul) on calcium content in leaves and roots of Vetiver cultivars(KS1 and Local)	83
	13.	Effect of PGRs (CCC, Salicylic acid and Vipul) on magnesium content in leaves and roots of Vetiver cultivars(KS1 and Local)	85
	14.	Effect of PGRs (CCC, Salicylic acid and Vipul) on iron content in leaves and roots of Vetiver cultivars(KS1 and Local)	87
	15.	Outline of terpenoid biosynthesis	91