

INDEX

S. No.	CONTENTS	PAGE NO.
1.	CHAPTER 1. INTRODUCTION	1-10
	1.1 Varieties	2-3
	1.2 History of Mango cultivation	3-4
	1.3 Origin and Geographical Distribution of Mango	4-5
	1.4 Mango Production	5
	1.5 Nutritional Value	5-10
2.	REVIEW OF LITERATURE	11-22
	2.1 Anthracnose	13
	2.2 Alternaria Rot (Black Spot)	13-14
	2.3 Bacterial Canker	14
	2.4 Mango Malformation	14-15
	2.5 Die Back	15-16
	2.6 Powdery Mildew	16-17
	2.7 Mango Burl	17-18
	2.7.1 Burl Shape and Size	18-19
	2.7.2 Incidence and Fruit Yield Loss	19-20
	2.7.3 Histological Examination of Burl Infected Stems	20
	2.7.4 Relationship Studies of Burl	20
	2.7.5 Causal Organism	20-21
	2.7.6 Biochemical Changes in Burl Infected Fruit and Stem Bark	21-22
	Objectives	22
3.	MATERIALS AND METHODS	23-36
	3.1 Field Screening	23
	3.2 Collection of Samples	23

3.3 Incidence and Characterization of Burl Disease	23-24
3.4 Burl Symptoms Expression in Young Age of Trees	24
3.5 Fruit Yield Loss	24-25
3.6 Correlation Studies Between Burl Size and Tree Age	25
3.7 Correlation Studies Between Burl Disease and Climatic Factors	25
3.8 Anatomical Examination	25-26
3.9 Sample Preparation for the Isolation of Causal Organism	26-27
3.10 Preparation of Media and Their Constituents	27
3.10.1 Potato Dextrose Agar (PDA) Media	27
3.10.2 MacConkey	27-28
3.10.3 MGY Media	28
3.10.4 Hofers Media	28
3.10.5 NASA Media	28
3.11 Isolation and Identification of Causal Organism	28-29
3.12 Isolation of Genomic DNA from Pathogen	29
3.13 Molecular Characterisation and Phylogenetic Analysis	29-30
3.14 Pathogenicity Test	30-31
3.15 Biochemical Analysis of Fruits	31
3.15.1 Total Sugar	31-32
3.15.2 Reducing Sugar	32
3.15.3 Non-reducing Sugar	32
3.15.4 Ascorbic Acid	32-33
3.15.5 Acidity	33
3.16 Biochemical Analysis of Stem	33-34
3.16.1 Moisture Content	34
3.16.2 Estimation of Cellulose and Lignin in Mango Stem Wood	34-35

3.16.3 Estimation of Fibre	35
3.16.4 Estimation of Ash Content	35
3.16.5 Estimation of Phenol	35-36
3.16.6 Estimation of Starch	36
3.17 Statistical analysis	36
4. RESULTS	37-89
4.1 Morphological Characterization of Burl	40-41
4.2 Disease Incidence and Burl Size	41-43
4.3 Isolation and Identification of Causal Organism	44
4.3.1 Colony Characters, Gram Staining and On Plate assay of Causal Organism	45
4.3.2 MGY Medium Plate	45
4.3.3 Hofer's Medium	45
4.3.4 NASA Medium	45
4.3.5 MacConkey (Broth) assay	45
4.3.6 MacConkey (Agar) Plate assay	45
4.3.7 Molecular characterization	45-46
4.3.8 Phylogenetic Analysis of Obtained Sequences	47
4.4 Pathogenicity Test	47
4.4.1 (i) Carrot Disk assay	48
4.4.2 (ii) Inoculation of The Pathogen in Mango and Tomato Saplings	48
4.5 Fruit Yield Loss	48-49
4.6 Correlation Between Disease Incidence, Burl Size and Fruit Yield Loss with Tree Age:	49-50
4.7 Correlation Between Burl Incidence, Burl Size, Fruit Yield Loss with Climate	51-53
4.8 Biochemical Analysis of Fruits	54

4.9 Biochemical Analysis of Mango Stem Wood	54
4.9.1 Moisture Content in Wood	54-55
4.9.2 Ash Content in Wood	55
4.9.3 The Cellulose Content in Wood	55
4.9.4 Lignin Content in Wood	55
4.9.5 The Xylem Fibre Content in Wood	56
4.9.6 Sugar Content in Wood	56-57
4.9.7 Starch Content in Wood	57
4.9.8 Ascorbic Acid	57
4.9.9 Total Phenol	57-58
4.10 Anatomical Examination	58
4.10.1 Structure of (Healthy) Normal Secondary Xylem	58-59
4.10.2 Structure of Burl and Transition Wood	59-60
FIGURES	61-90
5. DISCUSSION	91-105
5.1 Morphological characterization	92-94
5.2 Burl Incidence and Size	94-96
5.3 Identification of Causal Organism	96-98
5.4 Pathogenicity	98
5.5 Fruit Yield Losses	99-99
5.6 Correlation of Burl and Climatic Conditions	99-100
5.7 Correlation of Burl Incidence with Tree Age	100
5.8 Biochemical Analysis	100-101
5.9 Biochemical Analysis of Fruits	101
5.10 Biochemical Aanalysis of Wood	101-103
5.11 Burl Anatomy	104-105

6.	SUMMARY AND CONCLUSION	106-110
7.	BIBLIOGRAPHY	111-129
8.	PUBLICATION	130-135
