

Contents

	Pages
1. Introduction.....	1-2
2. Review of Literature.....	3-31
3. Materials and Methods.....	32-46
3.1. Plant material.....	32
3.1.1. Selection.....	32
3.1.3. Plantation.....	32
3.1.4. Maintenance.....	38
3.2. Fungal Culture.....	38
3.2.1. Source.....	38
3.2.2. Koch's postulate.....	38
3.2.3. Stock culture maintenance.....	38
3.2.4. Assessment of mycelial growth	39
3.2.4.1. Solid media.....	39
3.2.4.2. Liquid media.....	39
3.3. Composition of media.....	39-41
3.4. Inoculation of media.....	42
3.4.1. Detached leaf.....	42
3.4.2. Cutshoot	42
3.5. Assessment of disease intensity	42
3.5.1. Artificial inoculation.....	42
3.5.1.1. Detached leaf.....	42
3.5.1.2. Cutshoot.....	43
3.5.2. Natural infection.....	43
3.6. Obtaining meteorological data.....	43
3.7. Collection of diffusible compounds from tea leaves...	43
3.7.1. Spore germination bioassay.....	44
3.8. Extraction of phenol from tea leaves.....	44
3.9. Estimation of total and orthodihydroxy phenol	44
contents.....	44
3.9.1. Total phenol.....	44

3.9.2.	Orthodihydroxy phenol.....	44
3.10.	Extraction of chlorophyll from tea leaf surfaces.....	45
3.11.	Estimation of chlorophyll content.....	45
3.12.	Extraction of epicuticular wax from tea leaf surfaces.....	45
3.13.	Estimation of epicuticular wax content.....	45
3.14.	Sample preparation for anatomical studies.....	46
4.	Experimental.....	47-115
4.1.	Pathogenicity test of <i>G. cingulata</i> on different tea varieties.....	47
4.1.1.	Detached leaves	47
4.1.2.	Cutshoot.....	49
4.2.	Factors affecting brown blight disease development following artificial inoculation.....	49
4.2.1.	Age of culture.....	51
4.2.2.	Spore concentration	51
4.2.3.	Light	51
4.2.4.	Different seasons	51
4.3.	Brown blight disease occurrence under natural conditions.....	51
4.4.	Meteorological data of three years.....	62
4.5.	Correlation of environmental factors with disease occurrence.....	62
4.6.	Factors affecting mycelial growth <i>invitro</i>	78
4.6.1.	Different media.....	78
4.6.1.1.	Solid media	78
4.6.1.2.	Liquid media	85
4.6.2.	Incubation period.....	85
4.6.3.	pH	87
4.6.4.	Carbon source.....	88
4.6.5.	Nitrogen source	89
4.7.	Factors affecting spore germination and appressoria formation.....	90
4.7.1.	Incubation period.....	90

4.7.2.	pH.....	93
4.7.3.	Temperature.....	94
4.7.4.	Light period	94
4.7.5.	Age of culture	95
4.7.6.	Concentration of spores.....	95
4.8.	Studies on factors affecting phenolic contents of tea leaves.....	96
4.8.1.	Varietal difference.....	96
4.8.2.	Seasonal difference.....	98
4.8.3.	Age of leaves.....	98
4.8.4.	Incultation with <i>G.cingualta</i>	102
4.9.	Phenol contents of diffusible compounds of tea leaves..	102
4.10.	Studies on chlorophyll content of tea leaves.....	106
4.10.1.	Different varieties.....	106
4.10.2.	Age of leaves	107
4.10.3.	Natural infection.....	109
4.11.	Determination of epicuticular wax content in tea leaves.	109
4.11.1.	Different varieties	109
4.11.2.	Different ages of leaves.....	111
4.11.3.	Natural infection	113
4.12.	Studies on anatomical features.....	115
5.	Discussion.....	116-125
6.	Summary	126-127
7.	References.....	128-142