CONTENTS

<table>
<thead>
<tr>
<th>PART</th>
<th>CONTENTS</th>
<th>Page No</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II</td>
<td>REVIEW OF LITERATURE</td>
<td>4</td>
</tr>
<tr>
<td>III</td>
<td>MATERIALS AND GENERAL METHODS</td>
<td>29</td>
</tr>
<tr>
<td>IV</td>
<td>EXPERIMENTAL RESULTS</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td><strong>PART - ONE</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ISOLATION AND PATHOGENECITY</td>
<td></td>
</tr>
<tr>
<td>A)</td>
<td>ISOLATION OF SEED MYCOFLORA - :</td>
<td></td>
</tr>
<tr>
<td></td>
<td>i)  Agar method</td>
<td>44</td>
</tr>
<tr>
<td></td>
<td>ii) Blotter method</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>iii) Different agar media</td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>iv) Different incubation temperatures</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>v) Incubation periods</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>vi) Different pH</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>vii) Effect of seed age</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>viii) Seed mycoflora of different...</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>varieties</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ix) Mycoflora of different seed categories</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td>x) Seed mycoflora of pods and seeds at different developmental stages</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>xi) Seed mycoflora from different parts of seed</td>
<td>63</td>
</tr>
</tbody>
</table>
xii) Artificial inoculation of fungi and their recovery from the pods 67

xiii) Associates and non-associates in seed mycoflora ... 69

xiv) Effect of fungicidal spraying on seed mycoflora ... 71

xv) Effect of spraying of cerasan at different intervals ... 71

B) PATHOGENECITY:

i) Abnormalities in naturally infected seeds ... 74

ii) Abnormalities in artificially infected seeds ...

a) Inoculation of fungi individually ... 77

b) Inoculation of fungi pathogen with non-pathogen ... 79

iii) Effect of fungicides on germinability of artificially infested seeds 81

iv) Effect of fungi on the seedlings of different varieties ... 81

v) Germinability of artificially infected seeds in soil and blotter 86

PART - TWO
STUDIES ON STORAGE FUNGI, SEED BIODETERIORATION
PROTEASE AND TOXINS.

C) ISOLATION OF STORAGE FUNGI:

i) Salt agar medium ... 88
ii) At different seed moisture ... 91
iii) Different containers ... 91
iv) Seed germinability and storage fungi

D) **BIODETERIORATION OF SEEDS**

**EFFECT OF SEED-BORNE FUNGI ON SEED**

i) Dry weight ... ... 96
ii) Ash content ... ... 98
iii) Protein content ... ... 98
iv) Fat content ... ... 102
v) Starch content ... ... 103
vi) Effect of temperature on seed biodeterioration ... 103
vii) Effect of fungicides on seed biodeterioration ... 105

E) **PROTEASE PRODUCTION**

**PRODUCTION** :

i) Two media ... ... 107
ii) Effect of carbohydrates ... ... 109
iii) Effect of Nitrogen sources ... ... 109
iv) Effect of Amino acids ... ... 112
v) Effect of vitamins ... ... 114
vi) Effect of trace elements ... ... 114
vii) Effect of respiratory inhibitors ... ... 116

viii) Effect of Antibiotics ... 116

ix) Effect of fungicides ... 118

x) Effect of temperature ... 118

xi) Effect of Incubation period 121

xii) Effect of pH ... ... 121

F) TOXINS

a) PRODUCTION

i) Effect of media (Seed germination) 123

ii) Effect of stimulatory substances 123

iii) Effect of inhibitory substances 126

iv) Effect of pH ... ... 128

v) Effect of temperature ... 128

vi) Effect of incubation period... 130

b) PROPERTIES OF TOXINS

EFFECT OF CULTURE FILTRATES ON:

i) Seed germination of Host and non-host seeds ... 130

ii) Different varieties of

a) Green gram ... 133

b) Black gram ... 136

iii) Leaf surfaces of different host and non-host crops ... 136
iv) Leaf surfaces of different varieties of green gram ... 138
v) Callus growth ... 140
vi) Callusogenesis of different plant parts ... 140

DISCUSSION ... ... 144

SUMMARY ... ... 164

REFERENCES ... ... 172