

STUDIES ON ASCOCHYTA DISEASE
OF PEAS AND ITS CONTROL

By

FATMA SAYED AHMED ABDEL-RAHMAN

A thesis submitted in partial fulfillment

of

the requirement for the degree of

DOCTOR OF PHILOSOPHY

In

Agricultural Science
(Plant Pathology)

Department of Plant Pathology
Faculty of Agriculture
Ain Shams Univeristy

1991

Approval Sheet

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FATMA SAYED AHMED ABDEL-RAHMAN

B SC (Agric.) Plant Pathology,
Ain Shams University, 1969

M Sc (Agric.) Plant Pathology,
Ain Shams University, 1979

This thesis for Ph D Degree has been *في المحضر*
Approved by:

Prof. Dr. M.M.SATOUR *M.M. Satour*
Director of Plant Pathology,
Institute, Agric Research centre.

Prof. Dr. SOUAD ABDEL-ALLAH .. *Saad M. Abdallah* ..
Prof. Dr. Plant Pathology,
Fac. Agric., Ain Shams Univ.

Prof. Dr. M.M.EL-ZAYAT .. *M.M. EL-Zayat*
Prof. Dr. Plant Pathology,
Fac. Agric., Ain Shams Univ.

Date of examination : *27* / *10* / 1991



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FATMA SAYED AHMED ABD EL-RAHMAN
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Under the Supervision of : Prof. Dr. M.M.El-ZAYAT
Prof. of Plant Pathology

Prof. Dr. H.M.El-ANTABLY
Prof. of plant Physiology

Dr. F.A.FADL
Deputy Director, Plant
Pathology Research Institute,
Agric. Res. Center.

ABSTRACT

Three *Ascochyta* species have been isolated from diseased peas in Egypt. They were identified as: A.pisi, A.pinodes and A.pinodella which caused leaf and pod spots, blight and foot-rot diseases, respectively. Incubation period for all species on foliage required 72 hr, with 100% R.H. at 20C, while it needed 35 days for A.pinodella when inoculated seeds were planted. The last pathogen, causes foot rot, on wide range of leguminous plants, while the leaf spot pathogen has a narrow host range. Vulgar and Little Marvel pea cvs. were the highly susceptible ones for leaf spot and foot rot diseases, respectively, where Linocln cv. was the highly resistant one for both diseases.

Environmental conditions that favored growth and sporulation as well as disease incidence included natural media, high relative humidity and 20C for all fungi.

Maximum production of fungal metabolites was detected on rice medium using thin layer chromatography (TLC) or bioassays with B.megaterium, brine shrimp and on pea plants. These metabolites induced reduction in seed germination and caused chlorosis and wilt of pea plants. Also inhibitors were higher in infected plants than healthy ones, where Auxines and GA₃ like-substances were lower in infected than in the healthy one. Total and reducing sugars were higher in the susceptible pea cultivar than in the resistant one, which contained higher amounts of phenolic compounds. The activities of PG, PME, CX and oxidative enzymes were higher in infected pea plants than healthy ones.

Histopathological studies indicated that the leaf invading fungi penetrated the leaves directly and through stomatal openings while the foot rot fungus starts from the root hairs and invade the stem tissues, which turn black due to the presence of fungal pycnidia.

Seed dressing treatments, specially with Thiram, Benlate, Tecto and Tecto MZ and the use of biocontrol agents i.e. Trichoderma harzianum and Gliocladium roseum were effective in minimizing foot rot disease. Also fungicidal spray using Benlate, Kocide 101, Dithane M45, Tri-Milttox fort and Ridomil MZ58 were effective in the control of the leaf spot disease.

ACKNOWLEDGMENT

The author wishes to express her appreciation and gratitude to Prof. Dr. Mohamd M. El-Zayat, Professor and head of the Department of Plant Pathology, Dr. Hamed M. El-Antably Professor of Plant Physiology, Agric. Botany Department, of the Faculty of Agriculture, Ain Shams University and Dr. F.A.Fadl Deputy Director, Plant Pathology Research Institute, Agric. Res. Center for suggesting the problem, continuous guidance and supervision, encouragement throughout this investigation.

Thanks are also due to Dr. T.H.Abd El-Moity Head researcher of Plant Path. Bacterial Diseases and Biological control Department, Dr. M.M.Moustafa associate researcher of Plant Pathology, Vegetable Diseases Research Department of Plant Pathology Institute Agric. Res. Center and Dr. M.A. Boondok Lecturer of Plant Physiology. Agric. Botany Department, of the Faculty of Agriculture, Ain Shams University for their help and valuable criticism during the preparation of the thesis.

I wish to thank also Dr. Hassan A. Amra, Mycotoxins Central Laboratory, National Research Center for his help in toxin studies.

Thanks are also due to all staff members of the department of plant pathology, Faculty of Agriculture, Ain Shams University and Plant Pathology Institute, Agricultural Research Center for their help throughout this work.

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