PHYSIOLOGICAL AND PATHOLOGICAL STUDIES ON SOME FUNGI CAUSING ROOT ROT TO TOMATO

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A O K N O W L E D G U E N T

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INTRODUCTION

Touato (Lycopersecon esculentum ver.common) is one is the most important crops in A.R.E. The cultive-ted area of touato crop has been increased gradually within the last years. It was about 191.000 feddans in 1965 and 257.000 in 1970 from the total cultivated area with vegetable crops which was 623.000 and 713.000 feddans respectively (Anon. 1971).

Tonato plants are attacked by several pathogens 1.e. fungi, Banteria, virus and neuated.

One of the wost important fungal diseases is dauping off and root rot. As far as the writer is sware, no attempt was carried out to study the rot rot of toward in A.R.M. This investigation was sarried out to study the following:-

- 1 The fungi which are responsible for this disease.
- 2 Some physiological studies on the pathogenic fungi as nutrition effect fungicides and others.
- 3 Factors affecting the disease severity i.e. varietal mesic mae, fungicidal effect and fertilization.
- 4 Interaction between infection and some actabo-

REVIEW OF LITERATURE

A. Osusel Organisms:

Samuel (1950) found that the fungus Phytophthors
persaition caused damping-off of seedlings, but sometimes caused by Pythium oryptogae and Pythium app.

Alexander (1931) observed that Pythium ultinum and Corticium vagum var. solani caused serious damping-off of tomato seedlings in seed bed in Ohio.

Selman and War (1951) reported that Pythium spp. caused a root-rot of young touatoes.

Houston (1945) reported that tousto seedlings were killed by the fungus Corticium solani primarily in the pre-energence stage.

Anon. (1949) reported that Bhizostonia solani attacks vegetable crops. Losses of green-wrap tonato due to soil rot were unusually high, amounting to as much as 50% of certain pickings of experimental planting.

Harrison (1955) stated that Pythius spp. and Phisoctonia solani caused losses up to 80% from damping-off of field set tomato plants.

that Pythium, Fusarium and Phisostonia app. caused damping-off of tomato soedlings.

Strong (1961) and Watterson (1945) reported that Phisostonia solani caused stem canker of tomato. Inside the stems was coarse brown muchling of the fungus.

Marras (1964) found that seedlings blights caused by Pythium debarranum, Phytophthora parasitica, Steamhy-lium app., . Alternaria tenuisa Corticium solani occur occasionally is : Airly common in greenhouse but less so in the field.

Harfaush (Dorrys) (1970) found that Fussrium orraporum F. lycoperator, Pythium aphanidermatum and Rhisostonia solani are the most pathogenic fungi causing damping-off of tousto plants.

Leary (1971) reported that a root rot and crown rot disease of tomatoes caused by Fuserium oxysporum different from the classical vascular wilt has been observed in southern California.

and the second s

B. Physiological Studios:

1 - Bilegt of media and Temperatures:

Haynaker (1928) found that the best growth of Fusarium exysporum f.lycoperaici on potato dextrose agar was at 28°C.

Lauritss and Whitney (1933) found that the optiuum temperature of <u>Phisoctonia solani</u> extents from 24 to 30°C.

Le Clerg (1939) found that the optimum temperature for the growth of R. solani was at 30°C.

Person (1944) reported that the optimum range for R. solani was between 25-30°C.

Rendrick (1951) reported that the optimum temperature for the growth in culture of <u>R. solani</u> isolated from various districts in California varied from 64 to 91°F. (17.7 - 32.7°C).

Ashour and El-Kadi (1958) found that potato dextrose agar and Richard's nedia gave the most rapid growth of <u>Fusarium</u> semitectum while the best growth for temperature for growth and spore germination in <u>Fustrium</u> spp. was at 28°C and the optimum media was potato-glucose, Caspek's and Richards.

Parchat (1970) found that Phisoctonia schoni gave its best rate between 25 - 30°C.

Harfoush (Dorrys, (1970) indicated that <u>Fusarium</u>

<u>OXYSDOFUM f.lycopersoi</u>, and <u>Rhizoctopis solani</u> gave their

best rate of growth on Richard's media, the optimum temperature on Richard's medium for <u>F. oxysporum f.lycopersici</u>

and <u>Rhizoctopis solani</u> was 30°C.

2 - Effect of Cerbon and nitrosen sources:

RAO and Rayudu (1964) indicated that the growth of Bhizoctonia solani from ground nut roots on a medium with glutamic soid and nitrate, revealed no differences during the first 4 days; but on the 5th, growth was stopped coupletely on nitrate.

Ashour et al (1965) found that the best growth and int of R. solani was given by using sucrose, while the lowest was with lactose. He found that replacement

of asparigin instead of potassium nitrate decreased the smount of growth of &. solani. Peptone gave the best amount of growth, but aumonium nitrate or sodium nitrate decreased the amount of growth.

El-Genusl (Sewsen) (1967) found that the addition of the fatty soids to the medium of Aspersillus niger caused a decrease in the amount of growth.

3. Effect of fungicides on growth and physiclogical processes:

Welman and Wilcoxon (1941) have reported toxic action in which the dosage-response curve consists of two or more linear segments, the whole curve consisting a broken line, for the fungus Magrosporium asrcinseforme.

Rushdi and Jeffers (1955) found that 20 p.p. m Arasam caused complete inhibition of growth of Rhizocotomic solani.

Crossen et al (1958) found that in the presence of 4 p r 2 Captan, thereonine, glutanic scid, and 4 anino buteric scid were missing in fungus Botrvosphaera ribis. In the presence of 6 p p. 2 Copper sulphate,

The first of the state of the s

-suind buterio soid and methionine, were missing and thorounine, glutanio oid were reduced in quantity in fungus Colletetrichum consici.

Ross (1959) reported that uyoslium of <u>Verticillium</u> albo-atrum exposed to 10 and 50 p p.m. of fungiohromin lost all soluble suino acids.

Siegel and Orossan (1959) indicated that copper caused a general reduction in the amount of the free amino soids present, plus a loss of cystine and argenine, Glydin reduced the amount of the bound amino soids of fungus Colletotrichum capsici.

Tolba and Salana (1961) found that suspension of mycelial mats of <u>Rhizoctonia solani</u> over media containing 100 - 2000 p n dihydrostreptonycine increased the uptako of sucrose, release of reducing sugars, synthesis of carbohydrates.

Orossan and Morehart (1962) stated that alcoholic extract of manebtreated cells of fungus Colletotrichun capsici showed marked increase in the following animo acids; histidine, leucine and lysine. No change occurredinthe quantity of valine.

4. Utilisation of sucrose and absorption of none-

Baid and Maguib (1953) found that sucrose was hydrolysed at the protoplasmic surfaces of their tissues by an ensure of the frustofuranceidase type before it is taken up.

Mandles (1954) indicated that sucrose is metabolised by non-hydrolytic system in spore of the fungus Myrothecium verruosris even though invertuse is present in excess of the metabolic requirements.

Tolba and Salama (1958) observed that sucrose was hydrolysed at the mycelial surface by an ensure of the fractofuranosidase type giving glucose and fructose.

Apart of these hydrolysis products was subsequently absorbed, while the rest recained in the external culture nedia.

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