Zabol University
Agriculture Collage
Plant Protection Department
Plant Pathology Master of Science

A Dissertation for M.Sc Degree in Plant Pathology

Title

An investigation of Antagonistic affects of Soilborne Actinomycetes against Citrus Gommusis *in vitro* and *in vivo* in Kerman

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Abstract

In this research was activitiy of biocontrol of Gommusis Citrus invistigated with Actinomycetes.firstly,seventy isolates Fungi of the genus *Phytophthora* were isolated from disease plants.colony morphology,growth rates,features of sexual and asexual structurea and maximum growth temperatures were examind.finally *Phytophthora parasitica* and *P. citrophthora* were consistenly assocated with Citrus Gommusis in Kerman Provice.the antagonistic activity of 200 soil Actinomycete isolates assayed against *Phytophthora parasitica* and *Phytophthora citrophthora* in Kerman Provice. Among all Actinomycetes, strains of 19 and 29 showed high level of activity in Agar disk and Well-diffusion methods. Both isolates was grown in submerged cultures for determination of growth curve and preparation of crude extract for further biological characterizations. strain 19 and strain 29, activity reached maximum at 9 days in rotary cultures. pH ranges 6-11 was most suitable for maximum performance of activity in Both isolates. strain 19 and strain 29 thermal inactivation points of activity of crude extracts were 150 and 100 ºC respectively. In both isolates, the active substance was water soluble but insoluble in chloroform. Minimum inhibitory. concentration (MIC) of the crude extracts were 0/62 mg/ml for Both isolates. Longevity *In Vitro* (LIV) of active crudes in soluble state at room temperature were about 150 days and 90 days for strain 19 and strain 29 respectively. Antifungal activity was fungicidal type on the pathogen mycelia in both strains.results of Analysis of variance by Dancan's Multiple Range test in Factoriel experimental design showed treatments were significantly different at level 5%. The investigation Greenhouse showed effects of four treatments pathogen, pathogen by antagonist ,antagonist and control on high and dry wet root seedlings and length , wide leaves were significantly different at level 0/05% in completely randomized experimental design. Strin 19 on high and dry wet root seedlings and lenth leaves isolate and Strin 29 on wide leaves were most effective.From the results of our studies it is clear that usage of strain 19 and 29 as a biofungicidal natural product for application as an amendment in greenhouse soil mix inhibits or reduces the pathogen adverse effects. Antagonistic activity of two isolates confirm activity of biocontrol of both isolate 19 and 29 in Greenhouse experiments.

KeyWords:*Actinomycetes, Phytophthora parasitica,P.citrophthora*,Biological control