EFFICACY OF SOME ANTIOXIDANTS FOR CONTROL OF CUCUMBER FUSARIUM WILT DISEASE UNDER GREENHOUSES

a.M.M. Mahdy, a1 A.O. Sagitov b, and G.A. Ahmed a2
a Plant Pathology Branch, Agric. Botany Dept., Fac. Agric., Moshtohor, Benha University, Egypt
a1 Professor of plant pathology
a2 Assistant lecturer of plant pathology (PhD) b Scientific- research institute for plant protection
Professor, Academician of the Kazakh National Academy

Republican Scientific-theoretical conference from 23-25 in Republic of Kazakhstan pages 7. (2009)

ABSTRACT

This study aimed to evaluate the effects of four antioxidants (Ascorbic acid, Citric acid, Oxalic acid and Salicylic acid) each with 3 concentrations (2.5, 5.0 and 10.0mM) on the linear growth and spore germination of F. oxysporum. The obtained results revealed that, all the four antioxidants under study decreased the linear growth and spores germination of F. oxysporum with different degrees. Oxalic acid at concentration 10 mM completely inhibited mycelial growth of F. oxysporum followed by Salicylic acid at concentration of 10 mM was reducing the linear growth of F. oxysporum by 59.43%. While all antioxidants at concentration 5 and 10 mM completely inhibited spore germination of F. oxysporum. The same antioxidants at the same concentrations were used to test their efficacy in reducing disease incidence and disease severity of cucumber fusarium wilt disease. All antioxidants are used as seed soaking. The obtained results showed that, in general, both disease incidence and disease severity of fusarium wilt disease were reduced as a result of treatment by all antioxidants compared to the control. Percentage of disease incidence and disease severity was decreased by increasing the concentration of tested antioxidants from 2.5 up to 10mM. In all cases, Salicylic acid was the most effective antioxidants on disease development as it reduced the percentages of disease incidence and disease severity and increased the percentage of survival plants in addition Salicylic acid at 10 mM completely prevented the disease followed by Oxalic acid & Citric acid at 10 mM and reducing the disease severity by 95.00 and 91.33% respectively. On the other hand, Citric acid at 2.5 mM was the least effective concentration and reduced the disease severity by 76.33%.

Inducing Systemic Resistance against Bean Yellow Mosaic Potyvirus Using Botanical Extracts

Mahdy1, A.M.M.; R.N. Fawzy1 , M.A. Hafez1, ; Hanan A.N. Mohamed2, and Eman S.M. Shahwan1
1Agic. Botany Dept., Fac. Agric., Moshtohor, 13736, Benha Univ., Egypt and 2 Agric. Genetic Engineering Res. Inst. (AGERI), Agric. Res. Center (ARC), 12619, Giza, Egypt.

Egyptian J. Virol. 4, pp. 129-145 December (2007).

ABSTRACT

Mosaic with bright yellowing symptoms suggestive due to bean yellow mosaic potyvirus (BYMV) was the most frequently found and likely most damaging virus in faba bean crop. The virus was detected in different locations in Qalyoubia Governorate using DAS-ELISA. Enhancements were introduced to Ouchterlony double diffusion test. Response of some cultivated faba bean cultivars was studied under artificial inoculation by BYMV. Delaying the sowing date, and spraying faba bean seedlings with six aqueous botanical extracts under field conditions fortnightly interval, were achieved as a simple strategy for BYMV control. Ribosome-inactivating proteins (RIPs) were demonstrated by protein profile pattern of both faba bean and botanicals using SDS-PAGE. ELISA was used as a diagnostic tool at the beginning of the study and at the end to insure no faba virus infections after 3 botanical extract sprayers.

Key words: Faba bean, BYMV, induced systemic resistance, Botanical extracts

Serology and PCR–based techniques for detection of Fusarium wilt in sesame

Mahdy A. M. M.*, Eisa Nawal A.*, Abdel-Latif Faten, M.* A. A. El-Wakil**, and D. A. El-Wakil**

* Botany Dept., Fac. Agric., Moshtohor, Benha Univ., Egypt

**Plant Pathol. Res. Inst., Agric., Res.Center, Giza, Egypt

Annals of Agric. Sc., Moshtohor, 45(2): 587-596 (2007).

ABSTRACT

It is well known that serological methods are very useful for detecting some plant pathogens. In this study, the antisera of five Fusarium spp., i.e., F. moniliforme, F. solani, F. oxysporum, F. roseum and F. semitectum were used to investigate the serological relationships between them. Results illustrated that, there was a specificty as for F. oxysporum for infection with sesame cv. Giza-32 and sesame cv. Tushka-1. Ploymerase chain reaction (PCR) detection of F. oxysporum isolates using F1 & F2 primers, showed a positive reactions with ten F. oxysporum isolates. DNA extracts of F. solani, F. moniliforme and F. oxysporum gave positive reactions compared with the positive control. PCR technique was able to detect very low amount of nucleic acid extracted from F. oxysporum in a dilutions ranged from 10-1 to 10-9 . In addition, results showed that the F1 & F2 primers were useful for detection of 12 Fusarium isolates collected from different locations. It could be concluded as PCR using the two primers would provide a powerful tool for detection of F. oxysporum isolates. Key words: Sesame, Serological methods, Fusarium, PCR, Detection.

Effect of Some Resistance Inducing Agents and Antagonistic Fungi on the Linear Growth of Macrophomina Phaseolina and Fusarium oxyosporum the Causal Agents of Charcoal Rot and Wilt of Sesame In vitro

A.M.M.Mahdy*,Nawal A.Eisa*, A.A.El-Wakil**, Faten M. Abdel-Latif,*
and D.A.El-Wakil **
*Agric.Botany Dept.,Fac.Agric.,Moshtohor,Benha Univ.,Egypt.
**Plant Pathol.Res.Inst.,Agric.,Res.Center,Giza,Egypt.
Annals of Agric. Sc., Moshtohor, 45(2): 561-576.

ABSRACT

Macrophomina phaseolina and Fusarium oxyosporum were isolated from sesame seeds by using Agar plate and blotter methods. Pathogenicity test using sesame seeds cv Giza 32 illustrated that M. phaseolina and F. oxyosporum were the causal agents of charcoal rot and wilt diseases. Laboratory experiments were carried out to study the effect of 7 chemical inducers, 5 plant extracts and 5 Trichoderma spp. isolates on the linear growth (LG) of M. phaseolina and F. oxysporum.Studying the effect of different concentrations of some inducing resistance agents on the linear growth (mm) of the 4 isolates for both fungi showed that the linear growth of the tested isolates was significantly suppressed by all chemical inducers i.e. Potassium Chloride, Hydrogen Peroxide, Acetic Acid, Butyric Acid, Tanic Acid, Salicylic Acid and Bion, respectively. Different concentrations of both filtered and/or autoclaved plant extracts significantly reduced(LG) of the 4 isolates of M. phaseolina and the 4 isolates of F.oxysporum in vitro. Etracts of cumin and thyme caused a high inhibition of mycelial growth at conc.of 55%.The antagonistic effect of T. harzianum ,T. viride and T.hamatum against the two fungi showed a clear suppresion in (LG) by T.harzianum isolates(T1,T2,T3andT4) for the isolates of M.phaseolina (M1,M5,M8 and M10), respectively.

Key words: Sesame, inducing resistance compounds, natural plant extracts, Trichoderma spp. M.phaseolina, F. oxysporum

Bacterial canker disease caused by Pseudomonas syringae Van Hall. in some Egyptian orchards

By
*Eisa (Nawal) A., *Mahdy, A.M.,*El-Habbaa, G.M., **Abdel-Ghafar, N.Y. and *El-Sisy, A.
*Agric. Botany Dept., Plant Pathology Branch, Fac. Agric., Benha University
** Plant Pathology Dept., Fac. Agric., Ain Shams University

11th Congress of the Egyptian Phytopathol. Soc.., Cairo, 2007.

ABSTRACT

Sampling and isolation of the bacterial canker disease showed that the disease occurs on branches, flowers, twigs, buds, leaves, and fruits. The most conspicuous symptoms are the cankers that exude gum during late spring and summer on apricot, peach and pear trees. Gumming is common on stone fruit trees, but occurs on trunks, limbs, twigs or fruits when injuries occur. Cankers on the twigs are darkened areas often at the base of buds. On limbs or trunks, they are often darker than the normal bark, sunken in their centers and they may extend for a considerable distance. Moreover, the grown leaves and shoots may be cankered, wilted and died during the growing season. In contrast, leaves and flowers from the other infected buds may remain symptomless. Leaf infections appear as water-soaked spots then become brown and dry. Fourteen bacterial isolates were isolated from different parts of peach, apricot, pear and apple which collected from different localities of Egypt. In this respect, the bacterial isolates coded as Pb-1, Ps-2 and Pf-4 were isolated from buds, stems and fruits respectively of peach in Daqahlyia (Mit-Ghamr). Meanwhile, the isolates coded as Rs-3 and Lb-11 were isolated from stem and bud of pear and apple respectively in the same governorate (Mit-Ghamr). On the other hand, the bacterial isolates coded as Pb-5, Pb-6, Ps-13 and Pl-15 were isolated from peach in Qualubia governorate while, As-12 was isolated from apricot in the same governorate. Meanwhile, the isolate coded as Rf-10 was isolated from pear in Qualubia governorate (Moshtohor), while, the isolates coded as Pf-9 and Pb-14 were isolated from flower and buds of peach respectively in Beheira governorate. The isolate Al-8 was isolated from leaf of apricot in the same governorate. Concerning identification of isolated bacteria using the traditional techniques according to their inspected morphological and cultural characteristics, these traditional tests revealed that these isolates may be belong to three genera i.e., Erwinia, Bacillus, and Pseudomonas. Also, the other testes based on the biochemical and physiological characteristics of isolated bacteria revealed finally that two isolates i.e. Rs-3 and Lb-11 could be identified as Erwinia amylovora, while, the isolates i.e. Pb-6, Al-8 and Pb-14 could be identified as Pseudomonas syringae but the isolate As-12 as Bacillus polymyxa. On the other hand, PCR-RAPD amplification by using the primer- OP-A-11 for the three bacterial isolates i.e. Pb-6, Al-8 and Pb-14 which identified as P. syringae by the traditional identification verified that these three isolates are P. syringae were closely related while three other primers proved that they may not be typical isolates.

Key Words: bacterial canker disease, Pseudomonas syringae, Isolates, PCR, Identification, Isolation