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4th TURKISH PHYTOPATHOLOGICAL CONGRESS

The Turkish Phytopathological Society held its forth Congress in conjunction with the Scientific and Technical Research Council of Turkey in the Provincial Public Library buildings at Izmir-Turkey, October 8-11, 1985.

A total of 241 persons from various agricultural establishments in Turkey registered for the joint the Congress including 96 the Turkish Phytopathological Society members. In the course of Congress in question, 60 phytopathological papers were offered.

Congress Organizing Committee :

Coşkun SAYDAM
Ersin ONOĞUR
Semih ERKAN
Mustafa COPÇU
Emel SEZGİN
Aykut KAPKIN
Tarık DEMİR

ABSTRACTS OF PRESENTATIONS AT THE FORTH TURKISH PHYTOPATHOLOGICAL CONGRESS

1— General

Major Problems and Their Solution Ways in the Field of Phytopathology in Turkey

Abdullah GÜRCAN (1)*

Our national economy is based on agricultural activities. There are reasons for this idea. Turkey has different geografical regions and climates and also to percent of population work on Agricultural field that makes suitable conditions for agriculture. Beside this advantages, there are several diseases and pests that find suitable conditions to grow and cause damages on plants and plant products. The agents of plant diseases and bests can develop new species which may resist to fungicides and pesticides. This is the main problem which has been studying in the western research institutes for plant protection. Another big problem comes from applying too much chemicals on plants and plant products. It is called residue and most important problem because of fatal effects on human beings. These are the reasons, diseases and bests play an important role on our agriculture and economy. In order to get rid of these important problems we have to emphasize on agricultural activities and especially on plant protection organization which has been neglected during last twenty years. We should take essential measurements and modernize our research institutes to protect plants and plants products from diseases and pests.

Essential measurements are summerized as follows:

1. Regional plant protection institutes must be reorganized and developed according to new technological ways and also equipped by Laborotories, Libraries and greenhouse facilities.

2. Researchmen who are going to study in these institutes must be selected by technical criteria and supported by economically. Beside these, they must be sent to well developed institutes in abroad for further studies.

3. Resistaney to chemicals must be investigated in these institutes.

4. Residue problems on plant products should worked out by researchmen and their toleranees must be foundout.

5. Plant breeders and plant Pathologists must find out resistant varieties to plant diseases and pests.

6. Inorder to get good controls on diseases and pests, farmers must be well educated about «when and how to use chemicals.»

7. Beside the chemical control researchmen must work on biological control.

The Status and Problems of the Education of Plant Protection in Turkey

Ahmet ÇINAR (4)

The first lesson on the plant protection in our country was given in 1891 in the Agricultural High school, Halkalı Ziraat Mekteb-i Âli. In the middle of 1930, two German academicians, Prof. GASSNER as plant pathologist and Prof. BODENHEIMER as entomologist started working in the Central Plant Protection Research Institute in Ankara. By that way they helped to develop education and research programs in the field of plant protection in Turkey. Currently, the undergraduate program in Plant Protection is being carried out in 5 universities which were independent to set up their own undergraduate program until 1983, had to give up this function to the Commission appointed by the Education Council. Till now this educational program offerred by the universities didn't allow students to perceive the concept of the themes at the molecular and cellular levels. It was the very important deficiency of this educational program.

The number of the students already admitted to the undergraduate programs of the Plant Protection which is decided by the High Education Council brings the quantity problem in front of the quality. Besides, both the limited number of academic personel and the physical facilities in plant protection departments do not have the enough capacity to give the best education to such high number of students. Another point, universities are in charge of preparing all manuscripts and text-books with limited number of academic personel. The lack of cooperation between the universities affects the quality level of education negatively. Moreover, the balance between the entomology and plant pathology in the education program must be emphasized and discussed. In addition, the wishes of the public and private sectors who are the main employers should be taken into consideration. Although the quantity stood before the quality in graduate studies up to recent time, the plant protection programs have been emphasi-

zed and developed since the foundation of Republican Turkey. But legal arrangements was necessary for high-level education and a new law called «University Law, No. 2547» was put into action in 1981. This new law provided many positions for universities to have research assistants working at various departments. Thus the candidete will be student until the end of his/her master and doctoral work, and must learn all knowledges, and should gain experience in his/her field. Moreover the academicians who are involved actively in research must take place in the graduate education and the departments in which the graduate education is offerred, must have a certain research policy.

The Group - Studies Investigating Various Methods as An Alternative to Chemical Control Measures for Pathogenic Fungi

Özden ÇINAR (4) Mehmet BİÇİCİ (4)

Department of Plant Protection of Çukurova University has a great potential due its modern facilities and well educated and trained staff members. At the department, a team-work strategy has been adapted to solve the problems, instead of individual approach. Among the groups, one has ben trying to find a various control measures against soilborne plant pathogenic organisms as a alternative to chemical methods. The group has been investigating the following:

1) To decrease the inoculum potential of **Rhizoctonia solani** Kühn. (The black scurf and stem canker agent on potatoes) by using antagonistic organisms plus (and) soil solarization.
2) To find out the antagonistic organisms and the effect of soil solarization against strawberry black root rot.
3) Possibilities of the use of physical and biological methods to control **Sclerotinia sclerotiorum** white rot diseases.
4) To find out the antagonistic organisms and the effect of soil solarization against Fusarium wilt caused by **Fusarium oxysporum** f. sp. **lycopersici** on tomatoes.
5) To find out phillosphere microorganism which may keep **Phoma tracheiphila** under supression on lemon trees.

One of the above mentioned studies is about near completion and remaining, are being carried more than a year. Some of the results obtained are as follows;

1) The antagonistic **Trichoderma** spp. obtained are very promising and could be used against all the pathogens mentinoned above.

2) According to laboratory studies in dual cultures, especially isolates of Actinomycetes showed great potential towards antagonisms.

3) The yeast and other fungal organisms found in phyllosphere flora in lemon plantations could regulate the host infections.

4) Soil solarization was treated as a supporting method to biological control studies. In field and greenhouse studies, soil covered with plastic stayed at 30-42°C for 1-2 month during the summer and kept plant pathogens, sensitive these degrees, at low levels.

5) The reaction of the pathogens to antagonistic isolates of **Trichoderma** spp., bacteria, and Actinomycetes varied from time to time i.e. **T. harzianum** and other isolates of **Trichoderma** grew and sporulated on **R. solani** colonies, and broke the hyphae of the pathogen. In dual cultures Actinomycetes isolates eliminated the growth of the pathogens. Bacterial and other fungal antagonistic organisms developed inhibition zones.

6) The results of the solarization also varied. This method controlled **S. sclerotiorum** but was no effective enough against **Fusarium** and **Rhizoctonia.**

Developments in the Chemical Control Experiments

Kazım TÜRKOĞLU (12)

In the year of 1960 the Plant Protection Institutes have begun to work in «project system» and Research Committee of Institute, Working groups and Plant Protection Research Council have been established in 1963. Then the studies were started to be controlled in an auto-control system. Chemical control experiments were also conducted according to a projed and pass through the Research Committee, Working group and if necessary they were examined in Research Council stariling from 1964. Later on the conjoined methods for chemical trials were prepared by Working groups and started to be used since 1970.

Until 1960 chemical control experiments were 10-15 % of the whole studies of the institutes but the ratio was raised in ten years and reach up to 56.36 % during 1971-1981. The procedure of these experiments from the desining of the trials until the registration of chemical have been maintained by Plant Protection Research Council in 1982.

Main points of this procedures are as follows:

1— Chemical control experiments should be detailed and designed as other research projects

2— Corresponding Chemical Company will paid the finance of experiment and will help to adivate

3— Research Institutes and research workers will be supplied technically and given the desised importance by law

4— Research workers should provided by peaceful conditions.

2— Fungal Diseases

Research on Resistance Source Indication Against Prevelant Wheat Rust Species (**Puccinia** spp.) in Control Anatolian Region

Engin KINACI (17) Murat ÖZGEN (1)

Although the total food production of world has been increased for the last three decades, still there is a serious food deficit problem.

It is reported that, 50 % of the total world plant production has been destroyed by diseases and insects.

First records on rust damage occurrance in Turkey was given by M. Rasim in 1886. The importance and prevelance of rust in Turkey is reported by various workers, while the others informs time and result of damage and epidemics which is caused by rust.

Almost all scientists are agreement in that practical rust control can be made under six circumstances, and the easiest and economic way amongst them is to develope resistant varieties.

Improvement of resistant cultivars is required to identify the resistant source as a first step, which are preferable from very close related materials of same species.

A study is carried out to identify rust resistant wheat source material, which can be used in breeding programs.

The Cereal Disease Trap Nurseries are planted to the various areas in the region. The composition of the rust population has been indicated by observation and analysis of the samples which are taken from these nurseries. A surveillance program is carried where these nurseries has not been planted.

The promising lines, which are developed by breeding programs and the new introduced materials are tested in the Cereal Disease Observation Nursery. The test has been done in hot-spots under natural conditions, and in the research fields, under artificially created epidemic conditions.

Same material is also tested in the greenhouse at seedling stage. Evaluation of material in field is done by the system of Loegering, while the seedling evaluation in greenhouse is done using the system of Stakman and Levine.

10 stripe rust, 6 stem rust and 8 leaf rust races are identified by analyzing the samples which were obtained in the nurseries and surveys.

33 lines or varieties are determined as resistant to the different rust species, according to the test results which are carried under natural and artificial epiphytotic condition in Central Anatolia.

Über die Reaktionen einiger Weizensorten gegenüber **Gaeumannomyces graminis** var. **tritici**

Ersin ONOĞUR (5) Gülay TURHAN (5)

Die Schwarzbeinigkeit, verursacht durch **Gaeumannomyces graminis** (Sacc.) Arx. et Olivier var. **tritici**, gehört zu den wichtigsten Fusskrankheiten bei Getreide, vor allem bei Weizen, Gerste und Roggen. In den letzten Jahren vermehren sich die Angaben bzw. Beobachtungen über das Vorkommen dieses Pathogens in der Türkei. In diesem Vortrag wird über die Reaktionen von 19 Weizensorten gegenüber dem Erreger berichtet.

Die Saatgut wurde von dem Regionalen Institut für Landw. Forschung, Menemen, zur Verfügung gestellt. Der Erreger wurde aus den befallenen Pflanzen, gesammelt in der Südost-Türkei, isoliert. Die Versuchserde wurde mit der Sandkultur des Erregers im Verhaeltnis von 1:20 gemischt und in Tontöpfe gefüllt. Die erste Bonitur erfolgte im 3-Blattstadium nach einer 0-3 Skala. Die Auswirkung des Befalls auf

das Wachstum wurde 2 Monate nach dem Einsäen durch Trockengewichtbestimmung nochmals bestimmt.

Bei der zweiten Bonitur durch Trockengewichtbestimmung wurde festgestellt, dass die Reihenfolge der Sorten hinsichtlich ihrer Reaktion Differenz in ihren Reaktionen gegenüber dem Erreger. So unterschieden sich die Sorten «Gökgöl» und «Sakarya» von den übrigen durch ihre geringere Symptomauspraegung an den Blaettern. Die Sorte «Çakmak» war als die anfaelligste Sorte zu verzeichnen. Keine der Sorten wurden jedoch in den weiteren Tagen durch den Pilz abgetötet.

Bei der zweiten Bonitur durch Trockengewichtbestimmung wurde festgestellt, dass die Reihenfolge der Sorten hinsichtlich ihrer Reaktion anders war als die der ersten Bonitur. Das Wachstum der befallenen Pflanzen war im Allgemeinen geringer als das von Kontrollpflanzen. Der Befall rief unterschiedliche Wachstumshemmung unter den Sorten hervor. So waren die Sorten «Orso», «Malabadi», «Kunduru» und «Bezostaya» diejenigen, die geringeren Trockengewichtdifferenzen zu ihrer Kontrollen zeigten und als «resistent» zu verzeichnen. Die Sorte «Gönen» wies die höchste Differenz auf und war damit «anfaelliger.»

Von diesen Ergebnissen ausgehend wird geplant, in den weiteren Versuchen die Sorten in spaeteren Wachstumsphasen zu bonitieren und, wenn möglich, auch den Ertrag zu bestimmen.

Host - Pathogen Relations in Leaf Scald on Barley Caused by **Rhynchosporium secalis** (Oudem.) J.J. Davis

M. Timur DÖKEN (3)

This study was carried out on histological basis to investigate host-pathogen relations in leaf scald of barley caused by **Rhynchosporium secalis** (Oudem.) J.J. Davis which is particularly noticeable in the cool rainy periods of Erzurum Region. Isolate of **R. secalis** was obtained from Tokak barley cultivar which is widely grown in the Region. Same cultivar was also used in the study.

After inoculation the conidia germinate and subsequent penetration usually takes place through cuticula and rarely through stomata. Following to penetration hyphae become subcuticular and grow in the depressions between the epidermal cells. Later on subcuticular stromata are formed lying paralel to leaf veins. During the invasion of epidermal and mesophyll cells toxic substances which are produced by the pathogen cause the collapse of the cells. On the other hand

the hyphae initially being intercellular subsequently become intracellular and completely brake down the cells. At this stage necrotic, white grey lesions with dark brown margins are developed. After the break down of epidermal and mesophyll cells the vascular tissues may also be invaded, in which case the vascular flow is reduced or inhibited at that point. If it occurs particularly on the main vein, then the above part of the leaf lamina is wilted and dried.

Under humid conditions conidia are produced consecutively by budding on stromatal cells and force their way out by rupturing the cuticula.

The fungal pathogen can also infects the leaf sheats where it forms subcuticular stromata on both sides. On the inner surface hyphae emerge out through cuticula. This superficial hyphae come in contact with the leaf emerging from the leaf sheat and responsible for the new infections on that leaf.

Some Chemical Studies Against the Rice Blast (**Pyricularia oryzae** Cav.) Disease in the Aegean Region

Mustafa COPÇU (19)

It is necessary to increase rice production in Turkey. In recent years some trials have been carried-out to determine the behaviours of the rice varieties and it was investigated the effectiveness of some chemicals against the rice blast disease (**Pyricularia oryzae** Cav.).

There are a lot of problems for rice growers. One of these is to obtain suitable rice varieties (high yield and quality, resistant against important diseases) under different ecological localities. There have been two projects for these aims in the Aegean Region. Some varieties are peresented as suitable for these purposes. However chemical plant protection could be made almost every year. Therefore we should find some new products. There is only one registered product used against the blast disease and we haven't any seed dressing product. It has been investigated efficacy of seed dressing and spraying materials. In next future we believe that will be able to present some possibilities for Turkey rice growers.

Determination of The Reactions of Grown Rice Varieties or Lines to **Pyricularia oryzae** Bri. et Cav., **Drechslera oryzae** Subram. and Jain and **Giberella fujikuroi** Hr. in Turkey

Hüseyin AKTAŞ (10) Berna ALKANLAR (10)

The trial were established with 32 rice varieties or lines with randomized plot design of 32 characters and 3 replications in order to determine their reactions to **Pyricularia oryzae, Drechslera oryzae** and **Giberella fujikuroi.**

Rice seed investigated for their reactions to **P. oryzae** and **D. oryzae** were sown to soil after 72 hour germination period. Then, at 4-5 leaf-stage, 20 seedlings were transferred to each plot. At stem elongation stage, spor suspansion of $4,8 \times 10^5$ spor/ml of **P. oryzae** and **D. oryzae** were sprayed over the plants with a Wagner Mark Sprayer. They had left under a wet nylon tent for 72 hours for incubation. In the evaluation after 15 days of spraying, the reaction scales of Oran (1975) and Aktaş - Bora (1981) were used for **P. oryzae** and **D. oryzae**, respectively.

Rice seeds to be investigated for their reaction to **G. fujikuroi** were germinated for 72 hours and left in a spor suspansion 10^7 spor/ml for half an hour. Besides this, 10 ml of spor suspansion was added to the soil of each plot.

By this study, the reactions of 32 rice variety or line to these fungal agents have determined.

Studies on The Disease Problem of The Second Crop Maize in Agean Region

Coşkun SAYDAM (12) Mustafa ÖĞÜT (12) Mustafa COPÇU (19)

The climatic conditions of Agean region are favourable for growing some plants as second crop such as maize, groundnut, sunflower, soybean and rice.

The disease problems on the second crop of maize grown in Aydın, İzmir and Manisa provinces of Agean Region were investigated in 1983 and 1984 growing season.

The surveys were performed at the three different times 2,8 and 10 growth stages of the maize.

The countings have been done on the randomly selected 100 maize plants. The disease severity were found by using scales suggested for smut and other leaf diseases.

The causal agents of the infected kernels taken from roted ears were determineted by using blotter method and on PDA medium after 10 days incubation at 20°C and 12/12 hours dark and light conditions.

The results of this study have shown that the maize smut caused by **Ustilago maydis** D.C. Corda was common for second crop maize and there were no differences between the varieties Pioner, G-5050, Px-616, LG-55, P-3360, Px-20, TEM-816, kompozit.

Fusarium spp. were generaly isolated from infected kernels and there was a close relation between the infected ears and damage due to **Sesamia nanogrioides** Lef.

Investigations on The Determination of Fungal Diseases on Sesame Growing as A Second Crop in Aegean Region

Ayhan KARCILIOĞLU (12) **Mahdume ESENTEPE (12)** **Emin ONAN (12)**

Emel SEZGİN (12)

In the study, fungal diseases were determined on sesame growing as a second crop in İzmir, Manisa and Aydın.

Survey was done at two different vegetation stage of plants.
At seedling stage, root rot and leaf spot were found. Fungi isolated from diseased plants were **Macrophomina phaseoli, Fusarium** spp. **Alternaria** spp, **Rhizoctonia solani, Penicillium** spp, **Nigrospora** sp., **Curvularia** sp.
At flowering and capsule stage, diseases were Cercospora leaf spot, powdery mildew **(Oidium erysiphoides)**, leaf spot caused by several agents and wilt.

It was found that **M. phaseoli** caused the serious damage on sesame.

Investigations on Sesame Seed Borne Fungi and Their Rates of Presence

Mahdume ESENTEPE (12) **Emin ONAN (12)** **Emel SEZGİN (12)**

Ayhan KARCILIOĞLU (12)

This investigation was carried out to determine seed borne fungi on sesame and their rates of existence.

Seed samples of Muganlı-72 variety of sesame which were produced as seedcrop were taken from the store houses of Dalaman Devlet Üretme Çiftliği İşletme Müdürlüğü and also different varieties of seed samples were collected from Aydın, İzmir and Manisa in Agean Region where sesame was sown as second crop.

Agar plate and blotter methods were used to determine seed-borne fungi. At the end of the study, 39 fungi species belonging to 32 genera were isolated from the seeds. Generally, **Aspergillus, Penicillium, Cladosporium** genera were isolated from all samples tested in both agar and blotter tests. In addition to these saprofitic fungi it was also isolated pathogenic fungi such as **Alternaria** spp., **Alternaria sesami** (Kaw.) Mohant, **Diplodia** sp., **Drechlera** sp., **Fusarium** spp., **Macrophomina phaseoli** Maubl. Ashby, **Phyllosticta** sp., **Pleospora** sp., **Rhizoctonia sp.** and **Stemphylium** sp.

A Research on Yields and Some Technological Characters and Sensivity of Cotton Varieties (**Gossypium hirsutum** L.) to **Verticillium dahliae** Kleb. in Kahramanmaraş

Davut YELİN (14) Kemal ERŞAN (15)

The two field trials have been carried out to study, the sensivity of fourteen cotton varieties to Verticillium wilt in Kahramanmaraş in 1981 and 1982.

Considering the intensity and incidence of **Verticillium** wilt, it was determined that Tashkent-I and Acala S.J.I. cultivars were relatively resistant. In infected conditions the highest seed-cotton yield were obtained from Thaskent-I, Acala S.J.I., Aleppo-I and Mo-del cultivars. Whereas, the local varieties were very sensitive and gave lower yield than others. It was found out that Verticillium wilt had a negative effects on fiber fineness.

However, the resistant varieties have not been planted. Because, their technological properties were not sufficient for industrial processing. They were used as a doner-parent to improve local varieties.

For this purpose in 1982 Carolina Queen and Sayar 314 cultivars were crossed with Tashkent-I. Then in 1984 resistant plants were selected from F_2 strains, and now seeds of resistant plants were planted in a way of recurrent strain rows.

Untersuchungen Über Weichfäule Erzevgende Erregerkomplex An Zuckerrüben

Ülkü YORGANCI (5) Gülây TURHAN (5)

Im Jahre 1983 wurden Zuckerrübenproben aus der Umgebung von der Alpullu Zuckerfabrik mit dem Verdacht von **Rizomania** zu unserem Institut geschickt. In September 1984 wurden die betreffenden Felder besichtigt. Nach unseren Beobachtungen waren die Symptome wie folgt zu beschrieben: Erst verliert die Schwanzspitze an Turgeszens und werden die Gefässbündel gafärbt, das führt zum Erschlaffen und Vertrocknen der Primärblätter. Die neu gebildeten Sekundärblätter sind klein, schmall und lang gestielt. Einige der befallenen Rüben sterben ab und der Rübenkörper ist vermorscht. Die extreme Bildung von Seitenwurzeln, die in der Literatur als Bärtigkeit bekannt ist, wurde nicht beobachtet.

Aus den Wurzeln der kranken Rüben wurden **Phoma betae, Fusarium** sp., **Macrophomina phaseolina** und eine Art von **Myxomycetes** isoliert. Mach den Pathogenitätsteste erwies sich **Phoma betae** deutlich als pathogen. Durch mechanische Übertragung von Wurzelsäften auf die Indikatorpflanzen wurde keine Virusinfektion nachgewiesen. Mit Hilfe von Fangpflanzenmethode wurden die feine Wurzel von jungen Rübenpflanzen gewonnen und für ELISA-Test nach Deutschland geschickt. Die Ergebnisse waren schwach positiv.

In September 1985 haben wir mehr Bodenproben genommen. Durch die umfangreicheren Untersuchungen wird es uns vermutlich gelingen, über diesen Erregerkomplex etwas sicheres zu sagen.

Seed - Borne Fungal Diseases of Chickpea in Turkey

Salih MADEN (1)

As the result of the examination of 140 chickpea seed samples brought from the important chickpea producing areas of Turkey, the following fungal agents were determined:

Ascochyta rabiei, Botrytis cinerea, Fusarium equiseti, F. moniliforme, F. oxysporum, F. sambucinum, F. solani, Macrophomina phaseoli, Rhizoctonia solani, Stemphylium spp., **Verticillium dahliae** and **Bacillus substilis.** Along with the pathogenic fungi, **Acromoniella** sp., **Alternaria alternata, Alternaria** spp., **Aspergillus** spp., **Chaetomium** sp , **Cladosporium** spp , **Curvularia inaequalis, Drechslera spicifer, Epicoccum purpurescens, Gonatobotrys** sp., **Mucor** sp., **Myrothecium** spp., **Penicillium** spp., **Rhizopus** spp., **Trichoderma** sp., **Trichothecium roseum, Ulocladium** sp., were also recovered on the seeds in question.

Studies on The Physiology of Chickpea Plants Inoculated with **Ascochyta rabiei**

Ersin ONOĞUR (5) Gülseren GÖÇMEN (9)

Chickpea blight caused by **Ascochyta rabiei** (Pass.) Labr. is one of the most important diseases of this food crop in Turkey as in many other countries. Culturing the resistant varieties seems to be a very promising means of controlling the disease.

This study reports some observations on the physiology of resistant and susceptible chickpea plants during the disease development. As the resistant variety the black-seeded line with Cod. No. 72-012 introduced from Israel was used. The local variety with white seeds sown in West Turkey served as the susceptible one. The isolate of the pathogen was obtained from the Regional Research Institute, Menemen, Izmir.

The results of the study are as follows:

— The plants of these two different origins show a very big difference in response to the pathogen in both young and adult stages.

— Washing-off the leaf exudates before the inoculation of adult (60 days old) plants has no distinct effect on the reaction of the plants against the pathogen; Resistance or susceptibility remains stable.

— The leaf and stem extracts prepared from resistant and susceptible plants have the same effect on the germination and germ-tube development of the conidia.

— Infection causes an increase of the total-phenolics in the plants of both origins, a little more in the susceptible ones during the initial phase of the disease.

— The observations made by means of the «Leaf-Diffusion Technique» for detecting the existence of the phytoalexin-like products during disease development show that the diffusates of the resistant plants inhibit the germination and germ-tube elongation more as compared with those of susceptible plants.

These results point to the ineffectiveness of the leaf exudates on the infection chance of the pathogen, the absence of any pre-infectional defence mechanism of chemical basis, no correlation of total-phenolics with disease resistance, and participation of phytoalexin-like products on the resistance of chickpea plants against **Ascochyta rabiei.**

Resistance Source Indication Against **Ascochyta** Blight of Chickpea in Central Anatolian Region

Engin KINACI (17) Hatice DALKIRAN (17)

Most of the products which are used as main nutritions, comes from cereals. To cover the food value lack of starchy nutrients, edible legumes has great importance. Due to protein percentage and amino acid composition, chickpea has unique place in food legumes. It also has importance due to its ability to grow in rainfed areas.

One of the most effective limiting factor to meet demand in production of chickpea is Ascochyta Blight which is caused by **Ascochyta rabiei.**

Currently Ascochyta Blight is the principal disease of chickpeas in many locations of Central Anatolia.

As if in all plant diseases, the easiest and economic application to control of Ascochyta Blight is to grow the resistant cultivars. So, to obtain resistant cultivars, indication of source material is necessary. Research on resistance source has been started in 1938. In Turkey, one of the earliest study on this subject has done in 1976.

For indication of resistance a study has been carried out in two phase at two locations and it covers the 1983 and 1984 periods. In this study, 1100 samples of chickpea which consists Kabuli and Desi types are tested.

Artificial inoculation was made by using to infected crop debris collected from all over the region. Tested materials was scored on a «0-5» scale in 1983 which was developed by Morral and McKenzie. In 1984, it was scored on a «1-9» scale which was also developed by Singh et all.

During the testing years, in two locations, susceptible check 19-1-5 was scored as highly susceptible, so it was believed that, required disease level was created. In the first phase of study in 1983, the 125 samples out of 1100 were indicated as resistant. In the second phase, from those 125 entries, several highly resistant and resistant lines were identified.

ILC 183 and 82-11, in both locations has been found as resistant. With the consideration of this study, the existence of different races in different locations, where infected crop debris were collected, are found believable.

Investigation on The Essential Sources and Control Measury Against Pepper Root and Crown Rot in Ege Region of Turkey

Osman YALÇIN (12) Fikri EVCİL (12) Semra ÖZ (12)

Pepper growing has an important place in vegetable agriculture in Ege region.

First record of pepper root and crown rot (**Phytopthora capsici** Leon.) is in Kahramanmaraş in 1970. Since 1976 it has been widely observed in Ege region. This disease has caused great losses.

Some studies have been started on the transportation of the disease from one locality or year to another locality or year, and control measurements by chemicals or others.

As the result of the above mentioned studies it has been determined by the seed it self but it is inhibited either seedling or field soil.

It is concluded that weed control and cultivating on the top ridge of the furrow and frequent but not excess irrigation are the best methods against the disease.

Satisfactory results can not be obtained with Mancozeb, Carbamate, Propined Fenaminosulf, Captan, Fentin acetate, TMTD, Fosetyl-Al and metalaxyl.

La Résistance de «Serrano Criollo De Morelos» et «PM 217» Au **Phytophthora capsici** A Haute et Basse Température

Kazım ABAK (2)

Depuis vingt-cinq ans beaucoup de travaux de recherche ont été réalisés pour trouver des variétés résistantes au **P. capsici.** Jusqu'aux dernières années les meilleurs résultats ont été obtenus avec la lignée PM 217 provenant du materiel 493-1. Cependant, la résistance de PM 217 est polygénique, partielle et conditionelle. En fonction de l'age et de l'état physiologique de la plante, de l'agressivité de l'agent pathogène et de la température, la résistance peut diminuer ou disparaître.

Le travail présenté ici a pour but d'étudier la résistance d'un autre géniteur «Serrano Crillo de Morelos» à haute température en comparaison avec «PM 217» et une variété sensible «Yolo Wonder».

Les résultats des tests éffectués à 22 at 32°C nous ont montré que la résistance de cette nouvelle variété est aussi satisfaisante à haute température qu' à basse température, tandis que celle de PM 217 diminue nettement à 32°C.

Studies on The Reaction of The Common Vegetable Varieties to Some **Phytophthora** spp. Isolates

Abuzer SAĞIR (11) Mehmet YILDIZ (5)

In the present study 10 tomato (Roma VF, SC 2121, ES 58 2889) F, Super Marmande, Cal-j, VF 134-1-2/WC 156, Super 1 (VFN 8), Super 14 (Campbell 1235, Petomech), 4 pepper (11B-14, Çarliston 52, Maraş, Yağlık), 4 eggplant (Balıkesir Kemer, Halkapınar 46, Topan 374, Pala), 4 watermelon (Sugar Baby, Black Sweet, Washington, Pembe), 2 cucumber (Dere, Çengelköy) varieties and 32 isolates from Phytophthora spp. (29 **P. capsici**, 2 **P. nicotianae** var. **parasitica**, 1 **Phytophthora** sp.) which were isolated from various varieties of vegetables in question were used. All isolates were inoculated on their own original host varieties by cross-cutting the plant stems at the levels of 6 th. and 7 th. leaves. Later, the reaction of these varieties and the virulence of the isolates under test were determined.

These all isolates were found to be high virulent on their own host varieties in measurements performed 20 days (10 days for peppers) after inoculation. The tested vegetables varieties, except watermelon and cucumber, responded different reactions to these pathogens and isolates also showed differences in virulence with the exception of **P. capsici** isolated from cucumber. The isolate **P. capsici** was more virulent than **P. nicotianae** var. **parasitica**. Both of these species were isolated from tomato.

The Studies on The Determination of Tomato Cultivars Resistant to **Fusarium** and **Verticillium** Wilts.

Nurhayat FİLİZ (18)

In 1980, wilted plant samples were collected from 62 sites in İzmir and Manisa where tomato is produced intensively. 35 **F. oxy.** f.sp. **lycopersici** isolates obtained from these samples have been maintained in soil culture.

Pathogenicities of these isolates varied between 2-95 %. The pathogenicity rates of 12 **Verticillium dahliae** isolates from the some samples were between 12-94 %. The wild tomato species, **Lycopersicum pimpinellifolium** tested for race identification was found to be resistant to all isolates indicating that they all belonged to **F. oxy.** f.sp. **lycopersici** race 1.

The isolates with the highest pathogenicity rates for **F. oxy.** f.sp. **lycopersici** race 1 and for **Verticillium dahliae** were used to test resistance of various tomato varieties.

105 tomato varieties were screened. Some varieties were found to be resistant to both pathogens, while some were only resistant to one and others were susceptible to two pathogens.

Studies on The Early Blight of Tomato (**Alternaria solani** Ell. and Martin) in The Greenhouses of Province Içel

Ş. Ali AKTEPE (13) Fatma ERASLAN (18)

The investigations were carried out between 1978-1981, 174 Tomato plant samples which, showed the symptoms of early blight (Yanıkara) were collected from 63 polyethlene - covered greenhouses at villages of Mersin, Erdemli, Silifke, Gülnar and Anamur in every month between November-1978 to May-1979. All samples were belong to «Rakip» line of Süpermarmande cv. covered all parts of plant like as leaf, flower, stem, and fruit. As the result of isolation studies it was determined that the pathogen of disease was **Alternaria solani** (Ell. and Martin) Sor. which caused a great loss on greenhouse Tomato production in the region. Also **Alternaria alternata** (Fr.) Keissler was observed as a weak pathogen on leaf and stem of plant. Although, the **A. solani** attacked to all parts and at all periods of plant, the degree of damage was fairly low at flowers and fruits.

At the end of pathogenicity studies it was determined that **A. solani** was the main pathogen of the disease. Both pathogenicity and resistancy studies were conducted on the various developmental stages of plant like as seed, cotyledon leaf, true leaf, flower and fruit. **A. solani** was determined as a pathogen on the all developmental stages of plant, the greatest damage was obtained on seedling and young plant periods. At this period the moisture of soil and weather increased the severity of disease. The disease didn't occur on green fruits and its symptoms were seen when fruits rupturing. Three izolates of **A. solani** which was used at studies had some different features like as physiological, morphological and mycelial development.

Light and Electron Microscopic Examinations on Roots of Melon (**Cucumis melo**) Infected with **Fusarium** spp.

Haluk SORAN (8) Muhsin ÖZEL (22)

Samples of roots from honey melon plants (Cucumis melo) infected in the laboratory with different fusarium strains (**F. oxysporum**, **F. tabacinum, F. culmorum, F. equiseti** and **F. solani**) and were examined by light and electron microscopy.

F. oxysporum was the only strain which already five days after the infection penetrated up to the xylemcells of the main bundle, and was confirmed as the causative agent of the yellowing disease of honey melons.

In contrast, **F. tabacinum** showed increased multiplication only in the region of the bark parenchyme (tissue specificity) and was identified as an agent primarily causing the rotting of the roots and secondarily yellowing.

F. culmorum, F. equiseti and **F. solani** were not detected in the root samples of infected plants and were confirmed as nonpathogenic for honey melons.

Beobachtungen uber die Fungizideanwendungen in Gemüseangebauten Gewaechshaeusern

Mehmet YILDIZ (5) Nafiz DELEN (5)

In den Jahren 1983, 1984 und 1985 wurden insgesamt in 672 Gewaechshaeusern nämlich 329 Tomaten-, 224 Gurken-, 62 Paprika-, 48 Eierfrucht- und 9 Bohnen- und 2 Zuckermelonen im Ägäischen und Mittelmeergebiete ein Survey durchgeführt. Als wichtigste Krankheitserreger wurden **Botrytis cinerea, Alternaria solani, Phytopththora infestans, Pseudoperonospora cubensis, Sclerotinia sclerotiorum, Corynebacterium michiganense** pv. **michiganense** gefunden und solche andere Welke - und Mehltaupilze waren dabei vorhanden. Durch **Botrytis cinerea** verursachte Grauschimmel kommt jedes Jahr im steigernden Mengen vor. In den Beobachtungen wurden festgestellt, dass die Krankheitsraten von falschen Mehltau an Tomaten und Gurken, Frühbrand und bakterielle Welke an Tomaten erhöht wurden.

Gegen diesen oben genannten Krankheiten wurden viele verschidene Fungizide angewendet. Die wichtigste von diesen sind dithiocarbama-

te, benzimidazole, dicarboximide, acylalanin, dichlofluanid, Kupfer und elementar Schwefel. Obwohl - die Benzimidazoleanwendungen im Vergleich zu den früheren jahren absinkt, steigt dagegen dicarboximide (Vinclozoline, procymidon) acyl-alanin (metalaxyl) und dichlofluanid Anwendungen beträchlich.

In diesen Gewächshäusern wird die Streptomycin in geringen Mengen gegen bakterielle Wellkeerreger verwendet. Im Allgemeinen bevorzugen die Züchter die Fungizidemischungen mit verschiedenen Wirkstoffen.

Importance of Harvest and Postharvest Process to Prevent Decays on Apples in Store - Houses

Tarık DEMİR (12) Aytül SARIBAY (12)

Between the years of 1983 and 1985, the study was carried out to determine the suitable fungicide application time and the effective fungicides against decays on apples in store-houses. When harvest-storage with technical application was compared with harvest-storage under producer conditions, it was seen that the apples on the control were not sufficiently decay to applicate fungicide (2,71 - 3,83 % in cold store-house, 8,43 - 11,29 % in producer's store-house).

Before harvesting apples, doing cultural process carefully, determination of suitable harvest time and doing of suitable technic of harvest-storage prevent decays on apples.

It was found that physiological disorders caused losses and fungal decays and that fungal decays grew on them.

From this data, it came to conclusion that fungicide application needn't against decays on apples in store-houses.

Investigations on the Fig Diseases in Aegean Region

Aytül SARIBAY (12) Tarık DEMİR (12) Ali İhsan ÖZAR (12)

The present study has been carried out between the years of 1981-1984 on the pests and diseases of fig which has a traditional place among the Turkish Agricultural Crops.

During the investigations of reasons for the drying of branches, it was established that sun-burn dry-weather and faulty cultural practices are wide spread reasons, but in the fig orchards that established on mountains area **Phomopsis cinerescens** was the causal agent for drying of the branches. Cultural practices as well as chemical treatments are necessary for the control of disease.

In laboratory experiments good results are obtained with Derosal, Enovit, Benlate against the rootrot agent **Rosellinia necatrix** (Hartig) Berlese. Pot experiments showed that, root-rot agent attacked all the tested fig and caprifig varieties at different rate.

Über die Rolle der Zellwandabbauenden Enzyme bei der Pathogenese der Schwarzfleckenkrankheit an Reben hervorgerufen durch **Phomopsis Viticola** Sacc.

Ersin ONOĞUR (5)

Seit Anfang 1965 wird der Schwarzfleckenkrankheit der Rebe, hervorgerufen durch **Phomopsis viticola** Sacc. eine besondere Bedeutung beigemessen, wie vermehrte Hinweise in der Literatur über dieses Problem hindeuten. In der West-Türkei, vor allem in den Provinzen Manisa und Izmir, ist die Bekaempfung von **Phomopsis viticola** bereits eine Notwendigkeit geworden.

Über die Beteiligung der zellwandabbauenden Enzyme des Pathogens an der Symptomentwicklung auf den Trieben ist fast nichts bekannt.
Als Versuchspflanze diente die Rebsorte «Yuvarlak Çekirdeksiz». Der Erreger wurde aus den kranken Trieben, gesammelt in der Provinz Manisa, isoliert.
Die Enzymaktivitaeten in vitro wurden in der Czapek-Dox-Naehrlösung, addiert mit entsprechenden Enzymsubstraten, bestimmt. Die Wirkung eines Monosacchariden in der Naehrlösung auf die Enzymaktivitaet wurde durch Zugabe von Glucose geprüft.

Zur in vivo Untersuchungen wurden die Internodien der jungen bzw. verholzten Trieben der Topfpflanzen, nach leichtem Verletzen mit einer Nadel, mit einer Sporensuspension von $1x10^6$ Sporen/ml inokuliert. Die Enzymaktivitaeten wurden mitunder auch an den oberflaechlich sterilisierten Triebstücken von 10 cm Laenge, gehalten in den Reagenzglaesern, bestimmt. Die Aktivitaetsmessungen richteten sich nach Symptomentwicklung an den Trieben bzw. Triebstücken. Zur Vermeidung der Inaktivation von Enzymen durch die phenolischen

Verbindungen des Wirtes, wurden bei Herstellung der Enzymextrakte die Methoden von Herrn H. Schaefer (Landes-Lehr-und Forschungsanstalt für Landw., Weinbau und Gartenbau, Neustadt/Weinstrasse, B. Almanya) angewendet. Die Enzymaktivitaeten in den Extrakten wurden durch die Methoden von Agar-Diffusion, Titration und Viskosimetrie nachgewiesen.

In vitro Enzymaktivitaet: In den Flüssigkeitskulturen schied der Pilz Pektinmethylesterase (PME), Polygalacturonase (PG) und C_1 - und Cx - Cellulasen aus. Die Zugabe von Glucose ins Naehrsubstrat wirkte sich auf die Enzymaktivitaet negativ aus, obwohl das Pilzwachstum dadurch gefördert wurde.

Inv vivo Enzymaktivitaet: An den inokulierten Trieben und Triebstükken bildete **P. viticola** PME, PG, PTE (Pektinmethyltranseliminase) und Cellulase. Die Aktivitaeten der jeweiligen Enzyme lief parallel zu der Symptomentwicklung (Wachstum in Kortex, Besiedlung des Holzkörpers, Mazeration und Pyknidienbildung) an den Triebstücken und Verholzung der Triebe.

Diese Ergebnisse deuteten darauf hin, dass die zellwandabbauenden Enzyme des Erregers an der Pathogenese der Schwarzfleckenkrankheit beteiligt sein können.

Eine Mögliche Resistenzmechanismus bei Reben gegenüber **Phomopsis viticola Sacc.**, dem Erreger der Schwarzfleckenkrankheit

Ersin ONOĞUR (5)

Die Schwarzfleckenkrankheit der Rebe gewinnt eine zunehmende Bedeutung in der West-Türkei, vor allem in dem bekannten 'Sultana' Anbaugebiet Manisa und in seiner Umgebung. Die chemische Bekaempfung der Krankheit bereitet Schwerigkeiten, da der Erreger **Phomopsis viticola** unter der Rinde auf mehrjaehrigem Holz Pyknidien bildet, die mit Fungiziden relativ schwer zu erfassen sind.

Das Pflanzenmaterial lieferten die Sorte «Yuvarlak Çekirdeksiz» und 23 andere Sorten in der Rebsortimentanlage der Landw. Fakultaet, İzmir. Die Untersuchungen wurden an Topfpflanzen und an den Triebstückchen in den Reagenzglaesern durchgeführt.

— Die Reaktionen der 24 einheimischen und auslaendischen Rebsorten gegenüber dem Erreger wurden anhand der Sporulationsfaehigkeit

des Erregers an den Triebstückchen festgestellt. Die grosse Differenz bezüglich der Sporulationsdichte ermöglichte es, die Sorten als resistent bzw. anfaellig zu klassifizieren.

— Bei der anfaelligen Sorte «Yuvarlak Çekirdeksiz» erhöhten sich die Gehalte an Total-Phenole und o-Dihydroxyphenole in den Trieben waehrend der Pathogenese. Diese Erhöhung war ausgepraegter in den inokulierten Internodien. Die Aktivitaeten der oxidativen Enzyme, Peroxidase und Polyphenoloxidase, nahmen ebenfalls in den inokulierten Internodien zu.

— Durch Anwendung spezieller Faerbung mit para-Dimethylaminozimtaldehyde (Merck, 822034) konnte festgestellt werden, dass sich die kondensierten Tannine am Anfang der Symptombildung an den «Yuvarlak Çekirdeksiz» - Trieben um den Infektionsherd herum akkumulierten, aber dennoch waehrend der weiteren Besiedlung des Gewebes Richtung Holzkörper nicht nachweisbar waren.

— Es wurde durch die Bavendamm-Reaktion beobachtet, dass der Erreger in vitro das Enzym Polyphenoloxidase bildet, das Tannine oxidieren kann. Dabei wurde angenommen, dass der Pilz auch dazu faehig sein kann, die phenolischen Verbindungen (kondensierte Tannine) des anfaelligen Wirtes waehrend der Pathogenese zu hochmolekularen Polymere zu oxidieren. Damit könnten die zellwandabbauende Enzyme des Erregers im Gewebe des Wirtes weiter aktiv bleiben.

— Die Rebsorten mit dem resistenterem Verhalten gegenüber dem Erreger wiesen einen höheren Gehalt an kondensierten Tannine auf. Somit war anzunehmen, dass diese Inhaltsstoffe bei dem Resistenzmechanismus der Rebsorten gegenüber **P. viticola eine** Rolle übernehmen können.

Effectiveness of Some Chemicals to **Penicillium** spp. Isolates on Citrus Fruits

Necip TOSUN (5) Nafiz DELEN (5)

From the fruit specimens collected from 9 citrus packing-houses 33 **P. digitatum** and 10 **P. italicum** isolates were obtained. Although wax + TBZ are being used in all these packinghouses, imazalil, diphenyl and SOPP aplications are not common.

According to the tests in our Laboratory ED_{50} values of 18 **P. digitatum** isolates for canbendazim, were found to be between 100.0 and

$>$ 10 000.0 µg/ml, while ED_{50} values of 6 **P. italicum isolates** were between $<$ 1.0 and $>$ 10 000.0 µg/ml. But, for imazalil ED_{50} values of 3 **P. italicum** and 5 **P. digitatum** isolates were below of the 1.0 mg/ml.

Moreover, in our study imazalil were determined to be rather effective than TB2 + wax, wax, carbendazim and diphenyl to the fruit nots caused by **P. italicum** and **P. digitatum** isolates on mandarin fruits.

Sensitivity of **Botrytis cinerea** Isolates to Some Classical Fungicides

Nafiz DELEN (5) Mehmet YILDIZ (5) Seher BENLİOĞLU (5)

In this study mancozeb, captan and dichlofluanid were used as classical fungicides. For sampling, 34 and 28 vegetable greenhouses were surveyed in 1984 and 1985, respectively. In the consequence of these surveys, it was determined that mancozeb and captan have been used more intensive than dichlofluanid in the vegetable greenhouses.

For the research in question, forty isolates of **B. cinerea** were tested in 1984 whereas twenty seven isolates were assayed in 1985. The results of these tests indicated that ED_{50} values of the isolates were between $<$ 1.0 and 300.0 µg/ml for mancozeb, $<$ 1.0 and 100.0 µg/ml for captan, and between $<$ 1.0 and 3.0 µg/ml for dichlofluanid. The mean ED_{50} values of the 67 isolates tested were 23.40 $\mp$ 3.17 µg/ml for mancozeb, 16.79 $\mp$ 1.74 µg/ml for captan. On the otherhand, ED_{50} values of 48 out of 67 isolates for dichlofluanid were found to be below of the 1.0 µg/ml.

For further tests as to stability of decreased sensitivity, 5 isolates which were less sensitive to mancozeb and captan were selected. After continious transfers of the isolates to fungicide-free media, it was seen that the sensitivity of the isolates increased.

Identification of Wood-Destroying Fungi in Central and Eastern Blacksea Region in Turkey

Mehmet ABATAY (16)

The research, which has taken place between 1982-1984, was accomplished in Regional Forest of Amasya, Giresun, Trabzon and Artvin's certain areas. The aims of this investigation were to identify wide spread

and economically important species of wood destroyer fungi and to determine their suspectible host species, rate of their infections fructifications and the environmental conditions which were adapted in the area. As a result of this investigation 53 species of wood destructive fungi were identified. According to their host ranges 18 of them fungi listed below were found as important wood-destroying species:

Armillaria mellea, Fomes pini, F. torulosus, F. fomentarius, F. annosus, F. pinicola, Ganoderma applanatum, G. lucidum, Polyporus hispidus, P. hirsutus, P. sulphureus, P. squamosus, P. versicolor, Lenzites sepiaria, L. abietina, Stereum hirsitum, Pleurotus osteatus, Schizophyllum commune.

Antagonistic Activity of Two Actinomycete Isolates Against Soil - Borne Fungi in Vitro

Gülay TURHAN (5) Friedrich GROSSMANN (21)

In the present study which was conducted in the «Institut für Phytomedizin», University of Hohenheim (FRG), an isolate of **Streptomyces ochraceiscleroticus** Pridham (C/2-9) that showed a high degree of antagonistic activity against 11 soil-borne fungi it vitro and proved to be sufficiently effective for the controlling 6 important root rot and wilt diseases in the primarily pot experiments, and an isolate of **Chainia** sp. were tested against 40 species of soil-borne fungi belonging to Mastigomycotina (5), Zygomycotina (3), Ascomycotina (17), Basidiomycotina (1) and Deuteromycotina (14) in order to determine their antifungal spectra.

In the tests made by using the streak method with six replicates, the inhibition zones between the antagonists and the test fungi were found to be different. Whereas C/2-9 appeared to be highly effective against 23 test fungi, **Chainia** sp. provided a high degree of antagonism only toward one species. While C/2-9 was moderately and slightly active against 9 and 5 species, respectively, it displayed no activity toward 3 test fungi. **Chainia** sp. showed moderate and slight activity against 11 and 12 species, respectively, but proved to be ineffective against 16 fungi tested.

Both antagonists caused no inhibition zones towards **Pythium ultimum, Myrothecium roridum** and **M. verrucaria.**

A Research on Reducing The Potential Phytotoxicity of Plant Residues by Microbial Inoculation

Kemal GÜR (7)

Potential phytotoxicity due to organic constituents is most frequently associated with heavy, poorly aerated or waterlogged soils. Microbial decomposition of plant residues in soil under such conditions can impaire plant growth and decrease crop yields. The problem is caused in part by some phytotoxic compounds formed under such conditions by bacterial and fungal decomposition.

After a few months when the plant residue, i.e., straw, has become decomposed, the potential for phytotoxin production decreases because the necessary substrates disappear. This natural loss of substrates might be accelerated and the potential for phytotoxin production reduced if the straw could be decomposed on-farm prior to seeding. Therefore this possibility was investigated using ground wheat straw as plant residue and some bacteria and fungi as inocula, in laboratory.

Non-degraded and degraded straw samples, with various microorganisms used as inocula, were tested for their phytotoxic effects on germination, root extention and root elongation of wheat seedlings grown in laboratory.

The results obtained from the experiment were as follows;

1. The straw samples, which were not degraded with microbial inoculation prior to seeding, produced highly phytotoxic effect on germination, root extention of the wheat seedlings, and the effect was significant ($P \leq 0.01$).

2. The differences in effect between the decomposer microorganisms were also significant ($P \leq 0.05$).

3. **Mucor plumbeus** and **Azotobacter chroococcum** were found to be most effective decomposer of the straw samples to minimize the potential phytotoxicty.

3— Bacterial Diseases

The Determined Bacterial Diseases on Opium Poppy in Uşak

Gönül DEMİR (12) Mehmet GÜNDOĞDU (12)

The study was carried out to determine bacterial diseases, its incidence and presence on opium poppy in Uşak between the years of 1981-1984.

In accordance with surveys at three stages in 1981 and 1982, it was found that there were generally bacterial diseases on opium poppy. At seedling stage bacterial diseases are not significant.

It was determined that although at flowering stage they are means 6,81 %, at mature stage they are 26,73 %.

It is appeared that bacterial agents which cause spots and blights on leaves, blights and rots on main vein of leaves, stems and capsules on Opium poppy are **Xanthomonas campestris** pv. **papavericola, Pseudomonas viridiflava, P. syringae** pv. **syringae.**

Studies on Determination of Succeptibility of Tomato Varieties Against **Corynebacterium michiganense** pv. **michiganense**

Yavuz Emin ÖKTEM (10)

Due to the fact that tomato culture has been widespread in our country, it has brought up a crucial problem along with itself; «the seed problem.» Thus several varieties have been introduced by both legal and other means. Since the pathogen is borne by soil, and also lives on plant debris, it is quite difficult to control it. In controlling this disease not only projects on disease free seeds and resistant varieties are of importance but also it is essential to investigate the reactions of the cultivars against the mentioned disease. With this purpose 80 standard, 49 F_1 (going to be hybrid) and 25 hybrid varieties which make up 154 alltogether have been tested through experiments. Lucy, Vemone, Diego, Tobol, Montfavet, Elvira, Earlydown, Valuka, Dombito, Zirkon, Turquesa, Epona, Adalia, Amfora, Popsy and Sylvia are the varieties among the hybrid ones.

On the other hand varieties as such; Rio fuego, Sirio, California 73, Durpeel, Vis, Red pear, Maremma, UC 90 and Fuoco which are mainly of industrial type have been tested along with other standard varieties. Plovdiv 8/12 and MR4 varieties which are well known for their resistence are also tested against our domestic isolates.

A New Wilt Diseases of Pepper Caused by **Corynebacterium michiganense** pv. **sepedonicum** (Spiek. and Kott.) Dye and Kemp

İsmail ULUKUŞ (13)

A new pepper bacterial wilt disease, with the symptoms such as partially wilting, crisping of the stem, and browning of the vascular

bundles, has been determined in Elazığ and Mardin, in 1979. The disease rate was 2.21 % in Elazığ, and 0.02 % in Mardin. The agent of the disease was isolated by the crushing and diluting technique, and tested for its pathogenicity, and it was identified as a strain of **Corynebacterium michiganense** pv. **sepedonicum** by using biochemical and serological methods. This strain of the bacterium is distinguished from the others with its characteristics «forming yellow pigment on Yeast-Dextrose-Chalk agar», «hydrolysis of starch» and «growing at 37°C».

4— Viral Diseases

Studies on Virus Diseases of Second Crop Sesame in Ege Region

Tomris TÜRKOĞLU (12) Ülkü FİDAN (12)

Sesame (**Sesamum orientale** L.) is an important industrial crop which takes place in the «Second-crop program» and mainly used for seed and oil production.

During the growing season of 1983-1984 yellowing and mosaic showing leaves were observed in the research area. Preliminary studies has revealed that a virus infection was the cause of disorder.

The virus was transmitted from naturally infected plants mechanically to certain test plants. For the determination of the physical properties of the virus conventional methods were employed. It was established that TIP was 85° - 90°C in 10 min. and DEP was 10^{-5} - 10^{-6}. It was also observed that sesamum phyllody was prevalant in the region.

The Detection of Alfalfa Mosaic Virus in Lucerne Seeds by ELISA

Salih ÇALI (10)

AMV has a very wide range of host plants and is common in most countries. The virus, sap and seed transmissible, causes yield losses especially in lucerne.

In this study, double antibody sandwich ELISA and Relative Infectivity (R.I.) tests have been applied to seeds and seedlings of **Medicago sativa** cv. Maris Kabul to detect AMV. The presence of AMV ranged from 4.97 to 12.95 % in lucerne seeds, filter paper and glasshouse seedlings by ELISA and from 0.00 to 3.98 % by R.I. tests.

Identification of the causal agent is the first step in seed pathology, and of course, in virology. But, this, in virology, has faced with great diffuculties and could not be put in use a suitable technique when the samples reached high quantities in certification and indexing scheems. The technique, ELISA, is economic, highly sensitive and applicable in various fields and can be preferable in seed pathology.

Viruses of Soybean in Çukurova Region

Mehmet Asil YILMAZ (4) Saadettin BALOĞLU (4) Ziya NAS (9)

Incidence, disease severity, types of symptoms caused by viruses or virus-like organisms on soybeans have been found to be changed according to the location and environmental conditions. Soybean mosaic virus, tobacco ring spot virus and yellow mosaic virus were identified at the region by mechanical inoculation, serology and vector transmission studies. In addition to above mentioned viruses, new whitefly-borne virus that causes crinkling on soybeans was observed. This virus and yellow mosaic virus are transmitted by whitefly from soybean to **Nicotiana tabacum** (100 %), and to soybean (only 2 %) under the experimental conditions. Tobacco ring spot virus was transmitted by seeds, and it was found that transmission rate was only 6 %.

Detection of Viruses on Soybean by ELISA

Mehmet Asil YILMAZ (4) Saadettin BALOĞLU (4) Ziya NAS (9)

Soybeans are very susceptible to virus infections, like the other members of **Leguminosae** family, and there are considerable yield damage caused by this viruses. Tobacco ring spot virus (budblight) is one of the important ones. It is a seed-borne virus; therefore possibility of the occurrence is widespread, but the damage is not at high level. The symptoms of this virus can be seen at the harvest time. In order to prevent the its incidence, production of virus free seed is

necessary. ELISA test was used to detect the viruses on the seeds. Seeds and the cotyledon leaves of soybean were used a test materials. It was determined that 2 out of 27 materials were infected by Double Antibody Sandwich (ELISA) technique. On the other hand, 4 out of 37 materials were found to be infected by «ELISA with biotinylated antirabbit IgG method.» Extractions from the water soaked seeds did not show any virus presence.

The Prevention of Tobacco Mosaic Virus (TMV) Infection in Pepper and Tomato Seeds

Semih ERKAN (5) Nafiz DELEN (5)

The effectiveness of various seed treatments for tobacco mosaic virus (TMV) in the infected pepper and tomato seeds was investigated in the present study. Treating seeds with trisodium phosphate, dry heating, chloramin T, hydrochloric acid and sodium hypochlorite greatly reduced TMV infection in these seeds. Furthermore, these types of treatments did not negatively influence the germination rates of seeds in question, even when the seeds were stored for 12 weeks following treatments.

Die Anwendung der vegetativen Pfropfmethode in der Resisenzzüchtung gegen Kartoffelviren

Çetin ÖZBAYRAM (20) Ülkü YORGANCI (5)

Die vegetative Pfropfmethode wird bei den Resistenzzüchtungen gegen Viren angewendet, um Virusinfektionen zu bestimmen bzw. unter ungeeigneten Infektionsbedingungen Virusinfektionen festzustellen und Viren zu übertragen, bei denen Pressaftinokulation nicht möglich sind. Die Vorteile dieser Methode sind:

— Die Ausbreitung in der Pflanze erfolgt unbehindert.

— Als Unterlage und Reis kann man ausser Kartoffel andere Pflanzen wie Tomate, Tabak und **Datura** benutzen.

— Unabhängig von den Jahreszeiten werden die Teste in den Gewächshäusern durchgeführt.

— Die Symptome wie nekrotische Lokalläsionen, Spitzennekrose und Blattrollen kann man leichter und sicherer beobachten.

Diese Methode wurde während unserer Untersuchungen zur Identifizierung der Stämme von Kartoffel X-Virus mit grossen Erfolg angewendet.

Eine Untersuchung über den Verseuchungszustand von Kartoffelknollen mit Viren in der Türkei

Çetin ÖZBAYRAM (20) Ülkü YORGANCI (5)

Diese Arbeit wurde in den 23 Provinzen der Türkei durchgeführt die jeweils an der Kartoffelproduktion mehr als 1 % beteiligt sind und insgesamt 78,76 % der Gesamtanbaufläche besitzen und 81,82 % der Gesamtkartoffelproduktion gewährleisten.

Es wurde insgesamt 5128 Knollen und Blattproben nach der geteilten Methode aus den Lagern und Feldern von den Kartoffelanbauer entnommen. Die Virusinfektionen an den Proben wurden durch visuelle Prüfung, Presssaftinokulation und serologische Latex-Testmethode festgestellt. Nach den angewendeten Testverfahren wurden die Verseuchunggrade mit Kartoffelblattrollvirus als 32,08 %, Kartoffel Y-Virus 39,39 %, Kartoffel S-Virus 93,03 % und Kartoffel X-Virus 39,12 % bestimmt.

Virus Diseases Occurring on Lettuce in Izmir Province

Ülkü FİDAN (12) Tomris TÜRKOĞLU (12)

As the results of survey studies lettuce mosaic virus (LMV) cucumber virus (CMV) and broad bean wilt virus (BBWV) were isolated from lettuce plants in the vicinity of İzmir. The viruses were identified on the basis of the response of herbaceous hosts and some physical properties.

Lettuce mosaic virus (LMV) incidence was found to be 5.4 % and the seed trasmission ratio was determined as 8-9 %. It was detected that **Myzus persicae** was transmitted the virus.

Fig Mosaic And Its Transmission in Aegean Coast

Turhan AZERİ (12) Ali İhsan ÖZAR (12)

Fig mosaic is widespread in Aegean coast. The rate of incidence was about 100 % in this region. Fig mosaic generally causes severe damage on severely affected fig trees. Experiments were done on transmission of fig mosaic by **Ceroplastes rusci** L., **Tetranychus urticae** koch, and a most common Eriophydmite on the fig trees in the region. Fig seedlings, approximately 100 or 150 mm long growth, from the seed were used as virus free test plants in the vector transmission tests. This method was found very successfuly in transmission of the suspectev vectors. The transmission tests by several insects revealed that, **Ceroplastes rusci.**, **Tetranychus urticae** koch and the one **unidentified Homotoma** Sp, used in the test were not responsible from the transmission of Fig mosaic. **Eriophyes ficus** Cotte, the efficient vector of the fig mosaic, was found more distributed in our fig growing areas. All the virus free test plants which transmitted with this mite, showed very severe symptoms in 3 weeks. Some old and the well growth fig trees most important variety named Sarılop showed very mild mosaic symptom of the virus. We researched if there is any immunity or resistance against fig mosaic. Rooted cuttings from the symptomless and the well developed fig trees were grown in the greenhouse for the resistance tests. Two bark pieces 25 to 30 mm long cutted from the cuttings of the severely mosaic virus infected fig tree were inserted into the test plants bark. Inoculated cuttings were Cutbaek for new shoots for symptom observations. All of the shoots growth from the inoculated test fig plants developed very severe mosaic symptom. This test showed that, there was no any immunity or resistance against fig mosaic virus in Sarılop fig variety.

Etiological Investigations on A Hazelnut Mosaic Infection in Giresun Area of Turkey

Ahmet ÇITIR (3)

Hazelnut (**Corylus** spp.) is one of the important crop which has various species and cultivars in Turkey. Beside the species of **Corylus avellane** L., **C. colurna** L., **C. pontica** L., and **C. maxima** L., well known Turkish cultivars which have been obtained by the hybridization of **C. avellane** and **C. maxima** have been grown in North-Eastern part of Black Sea Region in Turkey.

Recently some mosaic symptoms probably caused by virus or virus-like agents have been observed on the of the Turkish cultivar «Palaz» in Giresun area. Infected trees have revealed light yellow and dark green areas on leaves as typical mosaic symptoms. The mosaic is mostly located between veins of leaves and young leaves on shoots, usually exhibited slight cloroz. Yield reduction was also observed on infected trees. Up to now there is no record of any mosaic infection on hazelnuts except Cameron (1977)'s report of «Hazelnut Ring Pattern Virus» infection on Italian types of cultivars in Oregon, U.S.A. So it is assumed that this incidence report of such a mosaic on this crop could be a new infection. On the other hand the results of macroscobic and microscobic investigations on infected plant samples indicated that there was no other pathogens associated with those symptoms. Despite of the characteristic virus-like mosaic symptoms on leaves, the mechanical inoculations were made to a number of virus indicator plants from the sap of infected leaves were in vain.

Working Group of Citrus Virus And Virus-like Diseases in The Department of Plant Protection of Çukurova

Ahmet ÇINAR (4) Kadriye ÇAĞLAYAN (4) Makbule GÜLLÜ (4)

Italy, Mexica, Span and Japan occupying an important place in the trade of the world citrus fruit production are near at the marginal limit of the production potential. Today it is estimated that the production of USA, Brazil, Morocco and Turkey could only increase until 2000 year. In 1950, the production of citrus fruits in Turkey was 80 000 tons, but today it has reached 1 400 000 tons. However this increase is only realised through the expansion of the citrus growing area. While many countries in the world reached the marginal limits in the increase of the citrus fruit production, Turkey is merely using 1/10 of its potential. But we have to answer, what our policy must be to increase of the citrus fruit production. Whether the new area must be opened for citrus growing or the best production must be made per unit area in the existing and new establishing orchards through new agricultural technologies. Naturally our desire and aim should be the latter one. Therefore we have established an research group in the Agricultural Faculty of Çukurova University. 4 Master and 6 doctoral thesis are already being carried out only in the plant protection branch of this group. The aim of this working group is to transfer and adapt the new agricultural technologies in the citrus industry and offer this technologies for the utilization to the citrus growers.

In the first step of this group, the pathogen of the Stubborn disease of the sweet orange, **Spiroplasma citri** was isolated. Gummy bark disease of the sweet orange, reported only in the Egypt till now, was found in Turkey too. Besides it is showed that Xyloporosis-cachexia disease is very important in the Satsuma and Fremont orchards of the East-Mediterranean part. In addition, the technique of the shoot-tip grafting and thermotherapy have led to use for freeing plant production materials from virus and virus-like pathogens.

A New Approach for Obtaining Pathogen - Free Citrus Plants by Shoot - Tip Grafting in Vivo And in Vitro

M. Oktay GÖKSEDEF (9) Ahmet ÇINAR (4)

Washington navel (**Citrus sinensis** (L). Osbeck) and Satsuma mandarin (**Citrus unshiu** Marc.) known to be infected by psorosis, exocortis and stubborn were used as scins. Two week-old seedlings of Troyer citrange (**C. sinensis x Poncirus trifoliata** (L.) Raf.) grown **in vitro** were used as rootstocks. The shoot tip was inserted into an inverted-T made at the top of the decapitated rootstock epicotyl. After grafting, plants were allowed to develop in loam-soil-sand mixture (1-1-1) **in vivo.** Liquid growth medium was also employed **in vitro** as control. Fourty seedlings were grafted for each combinations. Eight plants **in vitro** and seven plants **in vivo** showing normal development then transplanted in soil and allowed to grow under natural conditions.

Obtaining normally developing grafted plants **in vivo** indicates the possibility of elimination of some intricate techiniques employed to have pathogen-free plants by shoot-tip grafting **in vitro.**

Necrotic Strain of Satsuma Dwarf Virus and Stubborn Disease on Satsuma Mandarin Trees in Izmir Province

Turhan AZERİ (12)

Satsuma Dwarf virus (SDV) previously reported widely distributed (60 %) on satsuma mandarin in İzmir region. Since then, field and the indexing trials have been done on identification of severe necrotic strain of SDV. Sap inoculation tests were carried out by

using Red kidney bean, blackeye cowpea, and the strain diagnostic host white sesame. Red kidney bean and blackeye cowpea host plants showed local lesion in the inoculated leaves, mottling and vein clearing on the upper leaves, necrotic spots on petioles and stems. White sesame plants showed severe local lesions in the inoculated leaves; vein-clearing, necrosis, curling and malformation of the upper leaves when inoculated with the necrotic strain of SDV. Satsuma trees showed severe symptoms of SDV when infected with necrotic strain. On Satsuma trees Stubborn has been observed since 1973 during the survey and the indexing studies. Satsuma mandarin trees which showed the typical stubborn symptoms were tested by using pencil-sized seedlings of Madam vinous and Koethen sweet orange, Duncan and Marhs grapefruit as indicator plants. Short-term indexing in the glasshouse condition and the side grafts inoculations have been applied in the test. Three or eight months after the graft inoculations, typical symptoms of stubborn disease; small and upright clorotic leaves, pale-green marginal and interveinal areas of the leaves, small and cupped leaves developed on the indicator plants. Further work ise needed for identification of distribution and the vector transmission of stubborn in this region.

Die Virusinfektionen An Freesien

Ülkü YORGANCI (5)

Nach unseren Beobachtungen in den Freesien angebauten Gewächshäusern enstanden an Freesien virusverdächtige Symptome wie hell- und dungel grüne Strichelung, Anthozyanbildunk, nekrotische Flecke an Blättern, Absterben der Plattspitzen, Verkleinerungen und Missbildungen in Form und Farbe an Blüten und Wachstumshemmung der ganzen Pflanze. Die gesammelte Proben wurden an verschiedenen Indikatorpflanzen getestet, serologisch und elektronenmikroskopisch untersucht. In den anderen Ländern wurden an Freesien verschiedene Viren wie Freesia Mosaik Virus, Bean Yellow Mosaic Virus, Tabakmosaik Virus und Freesia Streak Virus identifiziert. An unseren Proben konnte nur Tabakmosaik Virus nachgewiesen werden. Obwohl manche Proben virus ähnliche Symptome zeigten, liefen die Teste negativ. Man könnte solche Ergebnisse auf die ungüngstige Kulturbedingungen bzw. physiologische Ursachen zurückführen.

Geranium Plants Differentiated in Vitro from Apical Meristem

Seyhan KURÇMAN (10)

Plant virus infections are generally systemic and the plants which once systemically infected with a virus usually remains infected for its whole life period and any vegetative parts taken for propagation as tubers, bulbs, corms, runners and cuttings from those plants will be infected. When all the plants of the cultivar have become infected then there is a need to have new plants free of infection. One of the method to have such plants is meristem culture. Meristem culture has been used to have stocks free of certain viruses of chrysanthemum, carnation, dahlia, freesia, orchid, potato and strawberry.

In this study four media were tested to produce virus free geranium plants (**Pelargonium hortorum**) from apical meristem. These are two modified media (MS-1, MS-2) described by Murashiqe and skoog Buys Medium and White medium.

Excised meristematic tips were cultured on nutrient media. These tips were 1 mm long. The excised meristems were maintained in laboratory (16 hour 3000 Lux flourescent light, 9-25°C and in greenhouse (20-25°C). The survival of excised meristems on MS-2 medium in greenhouse was % 26.6, in Laboratory % 23.3 and on MS-1 medium only in greenhouse was % 6. The meristematic tips didn't surviye on other media.

Acer Virus Diseases in Turkey

Gürsel ERDİLLER (1)

Regular epidemiological observation for over two decades of diseased maple (**Acer** spp.) trees in parks and avenues in Turkey, mechanical transmission experiments, serolojical tests, electronmicroscopy and ISEM tests have shown that the trees were infected by viruses. These viruses have been given the kriptogrammatic designation:

Arabis mosaic virus; $\frac{R}{1} : \frac{x}{41} : \frac{S}{S} : \frac{S}{Ne}$

Cucumber mosaic virus; $\frac{R}{1} : \frac{1.3}{18} : \frac{1.1}{18} : \frac{0.8+0.3}{18} : \frac{S}{S} : \frac{S}{V.\ Ve,\ Ap.,}$

Sowbane mosaic virus; $\frac{R}{1} : \frac{1.3}{20} : \frac{S}{S} : \frac{S}{(Au,\ Di)}$

Mechanical inoculation resulted in symptom formation with **Chenopodium amaranticolor, C. quinoa, C. murale, Cucumis sativus, Datura stramonium, Nicotiana tabacum, N. glutinosa, Vinca minor** and **Zinnia elegans** test plants. Particle structure of viruses is isometric and from 26to 30 nm. ISEM tests reacted with German SMV, CMV, AMV antisera. All the three viruses in **Acer** spp. are new in the world.

5— Weeds

Investigations on The Biology and Ecology of Some Barnyardgrass (**Echinochloa** spp.) and Some Annual Sedges (**Cyperus** spp.) Species in Rice Fields in Southeast Anatolia Region of Turkey

Abdurrahman UZUN (11) Yıldız NEMLİ (5)

E. crus-galli (L.) Beauv., **E. macrocarpa** Vasing., **E. oryzicola** Vasing., **E. colonum** (L.) Link., **C. fuscus** L. and **C. difformis** L. are the dominant weeds in the rice fields of the Southeastern part of Turkey.

According to the species, the vegetation periods varied between 110 to 120 days for **E. crus-galli,** 130 to 150 days for **E. macrocarpa,** 150 to 160 days for **E. oryzicola.** However, vegetation periods were 115 to 125 days for **C. fuscus** and 106 to 115 days for **C. difformis.**

The seed dormancy period of **E. crus-galli** was found as 20 months, while this period was 1 to 3 months for **E. macrocarpa, E. oryzicola, E. colonum.** On the other hand **C. fuscus** and **C. difformis** stayed dormant for 19 days.

The anuual sedge species did not germinate under dark conditions but the barnyardgrass species germinated. Under the long day conditions, optimum germination temperature was 24°C for **E. crus-galli, E. macrocarpa, E. colonum, C. difformis** and 30°C for E. oryzicola, C. fuscus.

It was established that **E. oryzicola** was the most sensitive to sowing (soil) depth but **E. macrocarpa** was the least. Barnyardgrass and annual sedge species were effected at different rates from the varied water depths.

Investigations on The Control of Some Barnyardgrass (**Echinochloa** spp.) and Some Annual Sedges (**Cyperus** spp.) Species in Rice Fields in Southeast Anatolia Region of Turkey

Abdurrahman UZUN (11) Yıldız NEMLİ (5)

In this study, mechanical and chemical control of barnyardgrass (**Echinochloa** spp.) and annual sedges (**Cyperus** spp.) species which were problem in the rice fields of Southeast Anatolia Region of Turkey were investigated.

The plowing with plough or primitive plough in different season and different numbers were not effective on control of barnyard grass and annual sedge species in paddy rice fields.

Propanil (360 g/da), benthiocarb (500 g/da), propanil+bentazon (340 g/da+160 g/da), propanil+benthiocarb (288 g/da+390 g/da) were tested as post-emergence in broadcast seeded flooded rice. The pre-seeding application of paraquate (50 g/da) and subsequently post-emergence spraying of propanil (360 g/da) or propanil+bentazon (340 g/da+160 g/da) were tested in cold water rice. In this two rice farming system, all herbicides mentioned above effectively controlled the weeds and were resulted in high yields.

The application of herbicides, after mowing the weeds with scythe were more effective on weed control than without mowing the weeds in cold water rice.

Preliminary Study on The Resistance of Turkish Tobacco Cultivars to Broomrape (**Orobanche ramosa** L.)

Yıldız NEMLİ (5) Ülkü EMİROĞLU (6)

Twenty-four Turkish tobacco cultivars (**N. tabacum** L.) and one cultivar of **N. rustica** L. were tested against **Orobanche ramosa** L .A randomized block design with five replications was used and each plot was represented by one pot which contained three tobacco plants and 250 mgs of broomrape seeds. The broomrape seeds were collected from an infested tobacco field in İzmir district. At the end of May 1983 and 1984, replications were set, pots being placed in the fields of the Agricultural Faculty of Aegean University. After about five weeks of exposure, broomrape shoots were counted. Counts were repeated at 3 day intervals and approximately for 2 months. The number of broomrape shoots per plant was used to indicate the resistance of tobacco cultivars.

«Bitlis» and «Hendek» cultivars appeared to be resistant, while «Canik», «Tömbeki» and «Bursa» were tolerant and the other cultivars tested were sensitive.

Investigation on Weeds and Weed Control of Ornamentals Cultivated Commercially in Aegean Region

İlknur SERİM (12) Erkin ULUĞ (12) Altekin ÖZKUT (12)

The present study was carried out on commercially grown ornamental plants in order to determine the weeds and their control methods between 1979-1984.

During the survey studies in 1979-1980 the weeds and their densities were established on carnation, rose, gladiolus, gerbera, narcissus and hyacinth fields.

Methods of control the weeds of gladiolus, rose and carnations were determined during the studies between 1981-1983.

The results of the studies revealed that in gladiolus fields Karmex (1.5 kg/ha), Trinulan (4 lt/ha), Afalon (2 kg/ha) Gesegard (3 kg/ha) as pre-emergence, Afalon (1.5 kg/ha) as post-emergence applications were suitable. On pruned but without shooted roses Gesatop (2 kg/ha), Karmex (1.2 kg/ha), Topogard (3 kg/ha) and Gesaprim (3 kg/ha) can be applied pre-emergence; in carnation field Treflan (2 lt/ha) and Venzar (5 kg/ha) can be used as post-emergence applications.

6— Nematodes

Determining The Reaction of Some Tomato Cultivars to Root - Knot Nematodes (**Meloidogyne** spp.)

Nurdan ERTEKİN (11)

In this study, the reaction of some tomato cultivars presently cultured and planning to be cultured in Southeastern part of Anatolia to common **Meloidogyne** species were determined.

The experiment was set up in a randomized plot design with 3 replications and 14 characters Süper 1 (VFN-8), Süper 22 (Ca 17), 9-48/864-At 70-12, 13-52/8 ta-68 Vf-26 (St), 2-41/prencers WC Fleco, 3-42/858 Castlamart-II, 4-43/861 Florida MH-1, Süper 16 (Gabry), Süper

6 (H. Es 58.2889), Süper 4 (H. Es 24), Süper 14 (Campbelle 1235), Süper 10 (H. 1409), WC-156 and SC-2121 tomato cultivars). The seedlings were transplanted when they were 20 days old on 27 May 1985 into the 30-cm diameter pots containing a mixture (3:1 v/v) of formaldehyde-fumigated soil, sand and manure. Just before transplanting, 5 g-galled (about 200 females) roots dispensed into each hole made to receive the intact root system. Plants were then placed in the hole. There was only one plant per pot, and this was accepted as a plot. Experiment lasted about 4 months, and the roots were examined under the stereomicroscope based on the gall indices and reproduction degrees.

It is established that Süper 1 (VFN-8) tomato cultivar was immune, Süper 22 (Ca 17) and SC-2121 were lightly resistance, and the others were susceptible to attack of root-knot nematodes.

Researches on The Important Nematodes of Figs in Ege Region

Server ÖZKUT (12) Yıldıray ARINÇ (12) A. İhsan ÖZAR (12)

Figs have special and traditional place among our internal consumption and export materials. A study has been done to investigate the diseases and pests of fig, cultivated in Ege region during the years of 1981-1985.

During the surveys carried out in fig orchards **Xiphinema index** and **X. mediterraneum** have been found widely spread nematodes in soil samples; other nematodes found were belong to the genera **Tylenchus, Longidorus, Pratylenchus, Helicotylenchus, Paratylenchus, Tylenchorhynchus** and **Criconemoides.** Root-knot nematod species (**Meloidogyne incognita, M. acrita, M. javanica**) found in root and soil samples have great damage on plants.

Fig fruit nematode (**Schistonchus caprifici**) has been found densely in the fruits of whole male and female fig varieties and it was also cleared that this nematode has been transmitted to the fruits by **Blastophaga psenes,** an insect which pollinates the Smyrna fig, **Ficus carica,** but not a definite relation has been found between polen germination and the fruit nematode density.

Nemacur 400 E.C. a systemic nematocide was tested against root-knot nematodes and found non-effective. Twelve different fig varieties were tested for resistance against root-knot nematodes and none of them were found resistant.

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BUCHBESPRECHUNG

Hoffmann, G.M., F. Nienhaus, F. Schönbeck, H.C. Weltzien, H. Wilbert :

Lehrbuch der Phytomedizin - Verlag Paul Parey, Berlin und Hamburg, 1985.

Zweite, neubearbeitete Auflage. 488 S. mit 253 Abbildungen (davon 36 farbig auf 4 Tafeln) und 62 Tabellen.

Durch seinen Titel unterscheidet sich das 'Lehrbuch für Phytomedizin' von anderen Büchern über Phytopathologie und angewandte Entomologie in der internationalen Literatur dadurch, dass es gleichzeitig auf einen Beruf hindeutet. Dieser Beruf, naemlich Phytomediziner bzw. Pflanzenarzt, hat besonders in der Bundesrepublik Deutschland eine Anerkennung gefunden. Wie aus der Gliederung des Buches bereits zu erkennen ist, haben die Verfasser den für diesen Beruf erforderlichen Grundstoff mit grossem Erfolg zusammengefasst. Der Inhalt des Buches entspricht auch den Vorlesungen Phytopathologie und Entomologie, die im 3. Semester der Landwirtschaftlichen Fakultaeten in der Türkei gehalten werden.

Das Buch besteht aus 6 Kapiteln. Das erste Kapitel befasst sich mit der historischen und wirtschaftlichen Seite der Phytomedizin sowie mit den gesetzlichen Regelungen des Pflanzenschutzes. In dem folgenden Kapitel werden die Krankheitsursachen und Schaderreger an Nutpflanzen behandelt. Das dritte Kapitel informiert über die Krankheitsentwicklung und den Befallsverlauf an den Pflanzen sowie über den Abwehrmechanismus des Wirtes. Unter dem Gesamtbegriff 'Populationsökologie' werden im 4. Kapitel die Populationsdynamik der Tiere und die Epidemiologie von Pathogenen auseinandergesetzt. Das 5. Kapitel handelt von der Symptomatologie der Pflanzen, befallen durch Mikroorganismen oder Schaedlinge. Hierzu tragen die Farbtafeln zum besseren Verstaendis der Symptome bei. Anschliessend folgt dann der Teil über die Krankheiten und Beschaedigungen an den ausgewaehlten Kulturpflanzen wie u.a. Getreide, Kartoffeln, Zuckerrübe, Gurke, Melone, Kohlarten, Weinrebe, Baumwolle, Luzerne, Rose und Fichte. Das 6. Kapitel beinhaltet die Pflanzenschutzmassnahmen, unterteilt in kulturelle, physikalische, chemische und biologische Bekaempfungsweisen. Ausserdem wird der integrierte Pflanzenschutz auch hervorgehoben.

Abschliessend kann festgestellt werden, dass dieses Werk besonders empfehlenswert ist für diejenigen, die ein breit fundiertes Grundwissen am Anfang ihrer Ausbildung benötigen. Gleichzeitig ist das Buch

ein umfassendes Nachschlagewerk für Alle, die mit Problem der Phytomedizin zu tun haben.

Es ist wünschenswert, das Buch auch in der englischen Sprache zu publizieren, damit es eine breitere Leserschaft finden kann.

Ersin ONOĞUR

KİTAP TANITIMI

Hoffmann, G.M., F. Nienhaus, F. Schönbeck, H.C. Weltzien, H. Wilbert :

«Lehrbuch der Phytomedizin» - Verlag Paul Parey, Berlin und Hamburg.

Yeniden Düzenlenmiş İkinci Baskı, 1985.
488 sayfa, 217 şekil, 62 çizelge ve tabloda 36 renkli şekil.

İlk baskısı 1975, yeniden düzenlenerek ikinci baskısı 1985 yılında yapılan kitap 6 ana bölümden oluşmaktadır. Bitki hekimliğine giriş adını taşıyan ilk ana bölümde, kısaca tarihsel gelişim incelenmekte ve ürün kayıpları, bitki koruma ilaçları piyasası ve özellikle meslek olarak bitki hekimliği konuları bu bölümün alt başlıklarını teşkil etmektedir.

İkinci ana bölüm, bitkilerde zararlara yol açan cansız faktörleri, hastalık etmenleri ve zararlıları içermektedir. Bu bölümde bitkilerde zararlara yol açan tüm nedenler sistematik olarak ele alınmakta ve bir bütünlük içinde sunulmaktadır.

Etmen enzim ve toksinleri, etmen infeksiyonları ve zararlıların etkileri, hastalanma ve zarar sırasında konukçuda ortaya çıkan değişimler ve bitkinin karşı koyma yolları üçüncü ana bölümde üzerinde durulan başlıca konulardır. Yine bu bölümde, ayrıca hasta bitkideki sitolojik ve histolojik değişmeler ile hastalık ve zararlılara karşı dayanıklılık yolları konuları ele alınmaktadır.

Dördüncü ana bölümde zararlı organizmaların populasyon ekolojilerinden, beşinci ana bölümde ise hastalık belirtileri ve zararlanma şekillerinden bahsedilmektedir. Özellikle beşinci bölümde, seçilen önemli bazı kültür bitkilerinde rastlanılan hastalık ve zararlıların bitkilerin hangi gelişme dönemlerinde ne tip belirtiler ortaya koyduklarını gösteren çizelgeler çok iyi bir biçimde düzenlenmiştir.

Son bölüm, bitki koruma önlemlerine ayrılmıştır. Burada, bitkileri hastalık, zararlı ve yabancı otlardan korumaya yönelik karantina, fiziksel, kimyasal, kültürel, biyolojik ve biyoteknik yöntemlerden söz edilmekte ve daha sonra bu yöntemlerin integrasyonu üzerinde durulmaktadır.
Bitkilerdeki hastalık, zararlı ve yabancı otları bir bütünlük içinde inceleyip sunan eserlerin sayısı az olduğu için, bu kitap bitki hastalıkları ve zararlıları ile bitki koruma alanında bilgi edinmek isteyenler için bir başvuru ve kaynak eser olarak dikkati çekmektedir.

Mehmet YILDIZ

ANNOUNCEMENT

The VIIth International Congress of Virology will be held August 9-15, 1987 in Edmonton-Alberta, Canada.

A call for abstracts will be issued in the fall of 1986 and the deadline for the receipt of abstracts in February 1, 1987.

To receive the first circular and more information, please contact with:

K. CHARBONNEAU
Executive Secretary

VIIth International Congress of Virology

National Research Council of Canada

Ottawa, Ontario K1A ORD

CANADA

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