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(Primljeno 1. 09. 1988.)

TOMATO SEED INFECTION WITH MOSAIC VIRUS AND POSSIBILITY OF DISINFECTION

by

Rana Noor Hassan
Sind Agricultural University,
Tandojam, Pakistan
B. Krstić and **M. Tošić**
Faculty of Agriculture University of Belgrade,
Beograd — Zemun

Summary

Tested tomato fruits, collected in August 1986 et the fresh market in Zemun, were infected with tobacco mosaic virus from 61—90%. All seeds from infected tomato fruits were also infected with the virus.

Tomato seed lots from the shops, collected in January 1988, were infected by tobacco mosaic virus in a very low percentage (0—1%). Seed lot of tomato cv. San Pierre was infected 0.66%, seed lot of cv. Marglobo was infected with the virus at the ratio of 1%, but seed lot of tomato cv. Heinz, tested at the same time, was free of tobacco mosaic virus.

Thermotherapy of tomato seed for 24 hrs at 85°C showed to be effective against tobacco mosaic virus, while treatments for the same period at 82°C or 80°C were less effective and tobacco mosaic virus was not completely inactivated. Seed germination after thermotherapy was not considerably decreased.

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ACTIVITY OF PEROXIDASE IN THE ROOT OF THE SUGAR BEET INFECTED WITH THE VIRUS OF NECROTIC YELLOW OF SUGAR BEET NERVES

by

N. Milićević
Institut for Plant Protection, Beograd

Summary

The activity of the peroxidase (Ap) was determined by the method cited by Gregory (1966). The plants used in this experiment were reared in the glasshouse and they developed in the substratum with different percentages of infected soil (10 and 50%). The experiments were carried out on following sugar beet sorts: Ritmo-2, Hillesog mono-8046 (tolerant) and Monopur (susceptible). The samples for the investigation of Ap were taken from three zones: near the top, in the middle and at the root head. The infection with the virus of necrotic yellow of the sugar beet nerves caused the increase of the activity of peroxidase. The greatest Ap was 11.1 times greater than the Ap of the corresponding check sample. The activity of this ferment is the greatest in the zone with clear symptoms of the necrosis of conveying vessels. Ap was greater with the plants of the sort Monopur than with the tolerant sorts. The plants having grown in the substratum with a higher degree of infectedness had the greater Ap. The activity of the peroxidase shows a determined dynamics: it increased from the beginning of the pathogenesis and, having reached the maximum, it fell rapidly. The changes in the activity of this ferment are one of the indicators of the disturbances in physiological and bio-chemical activities of infected cells, which gives rise to important disturbances in the growth of the sugar beet root, to the decrease of yields and of the digestion.

MYCOFLORA OF THE BARK OF DEAD GROPE SHOOTS II

by

S. Stojanović

Institute for Plant Protection, Beograd

Summary

On dry young vine leaves, originating from 8 localities on the territory of Yugoslavia, we observed several species of fungi, only 6 of which were represented in a greater intensity. (S t o j a n o v i ć, 1986). Other species occurred sporadically, cliefly in mixed infections with *Phomopsis viticola, Botryosphaeria obtusa, Phoma vitis* and *Guignardia baccae.*

On dry young vine leaves in Yugoslavia have not been noticed: *Cytospora leucosperma, Monochatia viticola, Hendersonia vitis, Microdiplodia uvicola, Diplodia viticola, Diplodina ampelina, Pleospora vitis, Leptosphaeria viticola, Didymosphaeria vitis, Ophiobolus sarmenti* and *Sordaria uvicola.*

SELECTION OF WHEAT CONCERNING THE RESISTANCE TO THE CAUSER OF POWDERY MILDEW

by

S. Stojanović and **Branka Ponoš**
Institute for Cereals, Kragujevac

Summary

Powdery mildew is a frequently occuring and economically important disease of wheat in our country. On account of this, its control is of an absolute necessity. Within the complex of integral measures of protection, the creation and growing of resistant sorts are being paid an increasing importance. In this respect have been achieved noticeable results.

In the period from 1977 to 1986, there were present 53 genotypes of the parasite in the south-eastern part of Yugoslavia, which was an aggravating factor in the selection for the resistance. Prevailing races were 4 (14.82%), 27 (28.78%), 46 (5.74%) and 59 (7.45%).

The investigation of the resistance of seedlings and grown-up plants under the conditions of artificial inoculations have shown that the sorts Halle Stamm 13471, Weihenstephan M_1, PI 170911. McNair 1789, CI 12633, ZG 2444/72, Idaed 59b and Arthur 71 possess a satisfactory degree of resistance and that they can be used in the selection as donors of the resistance genes, The investigated commercial sorts Partizanka, Rana 2, Kosmajka, Bezostaja 1, Krajinka, Kavkaz, Kragujevčanka 56 and Zlatna dolina were susceptible.

By the crossbreeding of resistant and susceptible commercial sorts were created several lines of the F_7, F_8, F_9 and BC_8 generations, which are characterized, in addition to the great resistance to the causer of powdery mildew, also by a good fertility and other productive-technological properties. The most important are the lines under the numbers 5, 13, 14, 19, 21, 24, 26 and 27.

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(Primljeno 10. 06. 1988.)

THE REACTION OF SPRING WHEAT GENOTYPES TO *PUCCINIA GRAMINS TRITICI* IN HILLY-MOUNTAIN REGIONS OF BOSNIA AND HERCEGOVINA

by

Jelena Bošković
Institute for Plant Protection, Novi Sad

Summary

In the trials of Nevesinje, Gacko, Duvno and Kupres 1979, 1980 and 1981 it was examined the reaction of 35 spring wheat genotypes and 18 Sr. isogenic lines to *Puccinia graminis tritici*. Only the line ZA-85 was resistante. Less susceptible were warieties Raduša, Livanjka, Tobari 66 and ZG-61/68. Three years resistante were the lines Sr. 11, Tt_1 and Sr. 9e. Some of these genes may be present in our line ZA-85.

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(Primljeno 1. 07. 1988)

ON THE FINDINGS OF PESTALOTIOPSIS SP. *(SYN PESTALOTIA* SP.) ON APPLE FRUITS PUT INTO STORAGE

by

M. Arsenijević and **J. Janĕurić**
Faculty of Agriculture, Novi Sad

Summary

From apple fruits put into storage, which showed the symptoms of brown rot of the diseased tissue, were obtained several isolates of the fungus in snow-white colonies (Fig. 1). On the potato medium the substratum part of colonies becomes light brown after a few days of development already, and the aerial one keeps the whitish aspect for a longer time. It is only after 10 to 15 days that the aerial part of the colonies changes, too, owing to the forming of fructiberous corpuscles, and becomes whitish-grey.

The fructaferous corpuscles, of the acervuli type, are formed individually or in form of greater granular layers, with yellowish exudate, composed of characteristic conidia. Conidia are brown and multicellular, most frequently with three septa and for the most part with two cilia, always on one pole (Fig. 4). The size of conidia is 16.2—25.0 × 5.0—7.5 μm.

After the artificial inoculation of the apple fruits there appear brown spots which gradually spread, causing the changes similar to those which were observed when the fungus was being isolated (Fig. 2). The obtained re-isolates, too, manifest the same characteristics as the isolates, with conidia and other properties characteristic for all the species of the genus *Pestalotiopsis* to which they belong.

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(Primljeno 21. 03. 1988)

CONTRIBUTION TO THE KNOWLEDGE OF *BRUCHOPHAGUS RODDI* GUSS. (CHALCIDOIDEA, EURYTOMIDAE)

by

Radoslava Spasić and **Olivera Petrović**
Faculty of Agriculture, Beograd—Zemun

Lj. Mihajlović
Faculty of Forestry, Beograd

Summary

In alfalfa seed samples from several localities in Serbia, three chalcid species (*Chalcidoidea*, Hym.), were found in 1987.

One of them was established to be a very harmful species for alfalfa seed, *Bruchophagus roddi* Guss., (*Chalcidoidea, Eurytomidae*), the other two are its parasites.

Until now, only *Bruchophagus gibbus* Boh., a similar alfalfa seed pest occurred in our country, although according to some foreign authors this species was found on clover seed, while *B. roddi* was found as a pest on alfalfa seed.

Our reults are only the beginning of investigations in determining the presence of *B. roddi* and *B. gibbus* in Yugoslavia and their relation to host plants.

Besides *B. roddi*, two species of parasites, *Liodontomerus perplexus* Gah. (*Chalcidoidea, Torymidae*), and *Habrocytus ? medicaginis* Gah. (*Chalcidoidea, Pteromalidae*) were found. These species are new for the Yugoslav fauna.

H. medicaginis, known in N. America as a paraste of *Bruchophagus* spp., although not present in the Key for European species of the genus *Habrocytus*, could not be positively determined but is cited only as *H ? medicaginis* until our American colleagues confirm the assumption.

THE FATE OF PHORATE IN SOIL AND POTATOES

by

Marica Baković, Nada Miloševski and **I. Perić**
University of Belgrade, INEP — Institute for pesticides and environment protection, Beograd — Zemun

M. Šestović
Faculty of Agriculture, Institute for plant and food protection, Beograd — Zemun

R. Mirković
»ZORKA« Chemical Industry, Šabac

Summary

Chernozem type soil was treated with Timet G5, 2 kg ac/ha. Timet G5 was applied by hand at a depth of 10 cm, in rows. Simultaneously, potatoes were panted at a distance of 10 cm from the placed granules.

The elementary characteristics of the soil were determined and the air temperature and amount of precipitation were measured during the first year.

The dynamics of phorate degradation and the persistence of its metabolites in soil were follwed after six monts in two layers, 0—10 and 10—20 cm, and in a 0—30 cm layer after one year.

The uptake and metabolism of phorate in potatoes were determined during one vegetation period. Up to 45 days after application, whole plants were analysed and their average fresh and dry weight were determined. Furthermore, the roots were analysed after 45, 90 and 180 days.

The results of this experiment have shown that the degradation of Timet G5 in soil containing 3.7% humus and of pH (KCl) 8,06, was rapid, event though it was placed into the soil. In the 0—10 cm layer phorate was metabolized by more than 90% during 30 days.

The maximal content of phorate sulfoxide was 3.6 mg/kg after 30 days, decreasing by 36 times after 180 days. The amount of phorate sulfone increased in soil up to 1.35 mg/kg by 90 days and it decreased by only 3 times up to 180 days. Phorate sulfone was the most persistent compound in the soil and the basic metabolite one year after application. The content of phoratoxon in soil was not significant.

There was a certain penetration of phorate, phorate sulfoxide and phorate sulfone into the deeper layer (10—20 cm) of soil, which was the highest after 15 days, 1.9%, and the lowest after 90 days, 0.25%, regarding the applied amount. The mobility of the compound varied at different time intervals after application.

The highest content of phorate, phorate sulfoxide and phorate sulfone in potatoes was established 15 days after application and amounted to only 1.16% of the initial amount in the soil.

During 30 days the uptake predominated over metabolism, although at this time phorate practically wasn't present in the potatoes. Phorat oxone was not detected, and the content of phorate sulfone was constantly above phorate sulfoxide content.

The maxmal amount present in the roots after 45 days was 0.28 mg/kg, in the form of phorate sulfoxide and phorate sulfone. The potatoes ready for digging contained no residues of these toxic compounds.

The content of phorate and its metabolites after 15 days was up to 3.2 μg/plant. At this time the average fresh weight of the plants was about 4 g. After 45 days the weight was increased by about 36 times, and the amount of phorate and its metabolites by about 12 times.

This kind of behaviour of phorate in soil and potatoes implies the need for further investigations in order to safely accept its possible application for potato protection.

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THE RESULTS OBTAINED UNTIL NOW IN THE INVESTIGATIONS OF *PHOMOPSIS/DIAPORTHE HELIANTHI ON SUNFLOWER. I. MYCOLOGICAL* ASPECTS

by

Maria Muntañola-Cvetković
The »Siniša Stanković« Institute for Biological Research, Beograd
M. Mihaljčević
Institute of Field and Vegetable Crops. Novi Sad
Jelena Vukojević
Institute of Botany, Faculty of Sciences, Beograd

Summary

The results obtained, principally in Yugoslavia, during the period 1980—1988 in the investigations on the fungal pathogen of sunflowers *Phomopsis/Diaporthe helianthi* are presented in this paper.

Plant infection is carried out by ascospores, whose germ tubes infiltrate the foliar vascular system. After ramification, the hyphae invade other tissues and gain entrance to the petioles. Stem colonization is initiated internally from mycelium which spreads down the petiole. Hyphae are particularly numerous in the cortex, between the epidermis and the endodermis, where they form protopycnidia; by further differentiation, these become pycnidia. Egress is achieved when the expanding pycnidia rupture the epidermal layers, on which they produce cankers. In Yugoslavia the pycnidia of *P. helianthi* contain only beta-conidia (alfa-conidia and intermediate types (C-conidia) are only occasionally seen, and then sparsely and ephemerally).

The nuclear phase change of the fungus, from anamorphosis (*Phomopsis*) to teleomorphosis (Diaporthe), occurs in the parenchyma cells beneath the endodermis, near the vascular bundles or in the host phloem and cambium. In field conditions teleomorphosis ontogeny begins in autumn and its development occurs slowly and unevenly in subsequent months. Low temperatures prevent the ascoma initials to develop too fast; perithecial maturation must coincide with the sunflower vegetative onset. In Yugoslavia perithecia appear abundantly on overwintered sunflower stem debris. Under wet conditions the rostrum of the perithecia elongates and ascospores are released. These are able to germinate and initiate a new cycle in spring and subsequent months. However, during winter months with warm spells and high humidity in the soil, perithecia may precociously achieve maturation. In experimental conditions perithecial development can be accelerated under suitable temperatures and water supply.

During the 1980—1988 period, the very numerous cultures isolated every year from sunflowers attacked by *P. helianthi* as well as from *D. helianthi* perithecia formed on detritus of these plants, have always shown the same morphologic and physiologic main characters: optimal growth temperature, 23°—25°C, depending on the nutrient medium; aerial mycelium scanty and white on PDA, moderate and olivaceous on MA; black eustromatic pycnidia easily and quickly formed *in vitro*; conidial discharge in drops; beta-conidia always abundant; alfa-conidia absent. The yugoslav isolates very rarely produce perithecia on the common artificial nutrient media. The nutrient agar containing several microelements, aminoacids and vitamins reported by Assémat & Fayret (1987) as suitable for *D. helianthi* perithecial production has not given here consistent results. Taking into account the importance of the ascospores in this species, more studies are needed on this subject.

In the 1980—1988 period the main cultural characteristics of the species have not changed. The isolates obtained from hybrids included in the international comparative tests naturally infected in Yugoslavia have shown the same pattern.

Sunflower stem debris can be colonized by many other fungi and during our eight-year study some few isolates have been recognized as *Phomopsis* species (not identified); they do not however cause the disease under investigation.