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Scientific papers

In memoriam

SOME SPECIES OF CUSCUTA L. WHICH ARE LESS SPREAD ON THE TERRITORY OF SERBIA, VOJVODINA AND MACEDONIA

by

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Summary

In the course of several years was effected the identification of the species belonging to the genus Cuscuta on cultivated plants and on the spontaneous flora on the territory of Serbia, Vojvodina and Macedonia. On this occasion were observed 7 species which occur sporadically, as fallow: *Cuscuta monogyna* Vahl., *C. lupuliformis* Krock., *C. pentagona* Eng., *C. tinei* Inzenga, *C. approximata* Bab., *C. epithymum* Murr. and *C. europaea* L. There were identified also the following varieties: *Cuscuta monogyna* var. *typica* Buia, *C. pentagona* var. *typica* Buia, *C. approximata* var. *typica* Buia, *C. approximata* var. *leucosphaera* (B o i s s. et H e l d r.) Yunck., *C. epithymum* var. *typica* Beck., *C. europaea* var. *conocarpa* Eng., *C. europaea* var. *nefrens* Fries. and *C. europaea* var. *viciae* Eng.

C. pentagona, C. approximata and *C. epithymum* were found on clover, alfalfa and spontaneous flora, whereas the other species were found only on spontaneous flora.

davina i dužim sušnim periodima tokom vegetacije. Nedostatak vlage u zemljištu u određenim periodima razvoja suncokreta verovatno utiče na slabljenje biljaka i povećanje osetljivosti prema parazitu.

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CONTRIBUTION TO THE STUDY OF BIOLOGY AND EPIDEMIOLOGY OF PHOMA MACDONALDI BOREMA CAUSER OF BLACK SPOT OF SUNFLOWER

by

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Summary

Phoma black spot has become very harmfull disease of sunflower in Yugoslavia. It appears every year some times causing great decrease in yield of seed.

In this paper the results of four years investigation on some biological characteristics and epidemiology of *Phoma macdonaldi* have been found that there is a great variability in the pathogenicity between the different isolates of the fungus. It has been for the first time discovred that transmission of the parasite occurs from one season to other also by seed itself.

The infection takes place in susceptible genotype by fungus under saturated atmosphere at 15°C and minimal exposition period of 48 hours. By increasing the exposition period up to 72 hours in saturated atmosphere at 25°C, increase the intensity of infestation.

Some of agrotechnical practices have a great influence on the development of the disease during sunflower vegetation. The intensity of disease was regularly much higher in early sowing crops (from beginning of March till middle of April). Phoma black spot attack was closely related to the quantity of N. P. K. nutrients and its time of application. Application of higher doses of Nitrogen were in correlation with the more intensive development of the disease. Great differences in attack of disease on different sunflower fields of the same locality, could be explaind by different agrotechnical managment.

The first symptoms of the disease usually appear in the middle July in the area of Vojvodina, the main growing region of sunflower in Yugoslavia. The lowest infestion of Phoma black spot of sunflower was observed in 1977. It was characterized by very high quantity and good distribution of prectiption of rainfall from beginning to the end of vegetation period. The greatest damages of disease was found in 1979, due to unfavorable weather condition especially because of three dry periods during vegetation. So the water stress seems to be very important factor in weaking the plants which makes them more susceptible to the disease.

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BIOTYPES OF PHYSIOLOGICAL RACES OF *PUCCINIA GRAMINIS TRITICI* ISOLATED FROM GRASES

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Summary

In the period from 1975 to 1979 in the Institute for Small Grains at Kragujevac, 122 isolates of the parasitic fungus *Puccinia graminis tritici* from grasses were examined.

In the southeastern part of Yugoslavia this fungus was found to grow on fifteen grasses: *Hordeum murinum, H. spontaneum, H. villosa, H. marinum, H. leporinum, Lolium perenne, Aegilops cylindrica, A. variabilis, A. ventricosa, A. ovata, A. longissima, A. binucialis, A. charonensis, Bromus rigens* and *Agropyrum repens.*

From these grasses five races (1, 11, 34, 116 and 194) and six biotypes have been identified (RKK, RRT, RTT, RKF, RKT and RHT). The dominant races were 11 (53,28%) and 34 (37,70%) and biotypes RRT (18,03%) and RTT (13,12%). The most virulent in the population was biotype RTT. Effective for this biotype was only gene Sr 9e.

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DAS AUFTRETEN DES PILZES *RHIZOCTONIA SOLANI* KÜHN ALS URSACHE DER HALMFÄULE AN WEIZEN UND GERSTE

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Zusammenfassung

In der Arbeit sind erste Ergebnisse über den Befund des Pilzes *Rhizoctonia solani* Kühn als Ursache der Halmfäule an Weizen und Gerste beschrieben. Der Pilz wurde an diesen Getreidearten erstenmal gefestgestellt. Die Determination wurde nach den Symptomen und mit Isolierung in Reinkultur durchgeführt.

A CONTRIBUTION TO THE KNOWLEDGE OF THE MOST IMPORTANT CAUSERS OF DISEASES OF THE SNAP BEANS ON THE TERRITORY OF LIJEVAČ POLJE

by

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Summary

On the basis of the published investigations of sensitivity of three sorts of snap beans (Cordon, Harvester and Top Crop), to the infections with the economically most important pathogans *Colletotrichum lindemuthianum* and *Pseudomonas phaseolicola* in the conditions of two-terms sowing (in spring and in summer), with and without irrigation, following conclusions may be drawn.

The sort Cordon was the most resistant to the infection with both pathogens, because it had the lowest disease index with *Colletotrichum lindemuthianum*, whereas this index was 0 with *Pseudomonas phaseolicola*.

In relation to the infection with *Colletotrichum lindemuthianum* the sort Top Crop is somewhat more resistant than the sort Harvester, whereas the sensitivity to the infection with *Pseudomonas phaseolicola* is somewhat higher under the conditions of irrigation.

The yield achived with the irrigation was regularly higher than in the culture without irrigation, although the disease index was higher. The sort Harvester had the highest yield under the conditions without irrigation (in 1977 in the second sowing term 142.8 dt/ha) as well as with irrigation at the same term and in the same year (192.4 dt/ha).

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ENZIMSKI IMUNOADSORPCIONI TEST (ELISA) ZA DOKAZIVANJE VIRUSA ŠARKE*

U radu je proveravana vrednost serološkog testa »ELISA« za dokazivanje virusa šarke, uporedo kod osetljivih i tolerantnih sorti šljiva i kajsije. Virus je uspešno dokazivan u uzorcima: lisnih pupoljaka, cvetnih pupoljaka, krunčnim listićima, lišću, kori i zrelim plodovima.

Uvod

U borbi protiv viroza poljoprivrednih biljaka, brza i pouzdana dijagnostika zauzima jedno od najznačajnijih mesta. Njen značaj dolazi naročito do izražaja kod onih virusa koji se brzo šire putem lisnih vašiju i koji zaražavaju više biljnih vrsta, što je slučaj sa virusom šarke za koji je utvrđeno da pored šljive *(Prunus domestica)* može zaraziti još 23 vrste iz roda Prunus.

Dijagnoza prisustva virusa šarke u šljivi se obavlja najlakše vizuelnim opažanjem simptoma na lišću tokom juna meseca i na plodovima tokom leta, odnosno u vreme njihovog sazrevanja. Međutim, neke sorte ne ispoljavaju simptome na lišću, pa ako nisu stupile na rod simptomi se ne mogu zapažati ni na plodovima. Isto tako, postoje sorte koje ne daju simptome ni na lišću ni na plodovima. Pored toga u nekim slučajevima javljaju se problemi raspoznavanja simptoma prouzrokovanih virusom šarke od simptoma linijskog mozaika (Savalesku & Macovei, 1965; 1968) ili simptoma na plodovima, tzv. »lažna šarka« (Kegler et al., 1964; Posnette & Ellenberger, 1963; Schuch, 1961). Zbog toga se pribeglo korišćenju nekoliko metoda za dokazivanje virusa šarke: kalemljenje na drvenaste indikator biljke koje reaguju specifičnim simptomima (sejanci breskve i *Prunus tomentosa),* inokulacije sokom na osetljive zeljaste biljke *(Chenopodium foetidum* i dr.), elektronska mikroskopija i serološke metode.

* Rad je saopšten na IV. jugoslovenskom simpozijumu o zaštiti bilja, Poreč 8—13 decembra 1980. godine.

ENZYME-LINKED IMMUNOSORBENT ASSAY (ELISA) IN THE DETECTING SHARKA VIRUS

by

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Summary

The serological ELISA test has been checked for validity in detecting Sharka virus in susceptible and tolerant plum and apricot cultivars simultaneously. The virus presence has been confirmed by this test in 25 plum and 3 apricot cultivars, artificially infected through grafting, in which the virus presence had been previously proved on the basis of leaf symptoms or in biossays.

The virus presence has been detected in the samples prepared from leaf and flower buds, petals, young and older leaves and from the skin of ripe fruits. Green fruits are a poor source of viruses at all stages of their development, and are therefore unsuitable as test samples.

Because of the possible virus localization which is strongly expressed in some cultivars, such as Opal, Early Rivers and Borsum, a negative reaction does not always necessarily mean the absence of the virus. The advantages of this test over the usage of indicator plants are that a large number of samples can be tested and that the results can be obtained quickly.

The ELISA method can prove very useful in the control Sharka virus, when removing infected trees in detecting latent virus carriers, and for deciding in the cases where symptoms are indistinct.

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INVESTIGATIONS OF PESTICIDE RESIDUE LEVELS IN FOODSTUFFS IN SERBIA (1979—1980)

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* The Agricultural Combine »Delišes«, Vladičin Han

Summary

The monitoring program for pesticide residue levels in foodstuffs of plant and animal origin, cover the period from 1979 to 1980. The samples were collected in the retail network from different localities (towns) in Serbia.

The organochlorine and organophosphate residues were determined by gas-liquid chromatography.

Results have shown that there are pesticide residues from the group of chlorinated hydrocarbons in most of the controlled products. At that, the residues occuring most frequently are those of α-HCH and lindane. The established amounts were in most cases quite small. However, in a certain, although small, number of samples the established amounts were greater than the maximum allowed by law.

EFFECT OF HERBICIDES ON THE GROWTH RATE AND YIELD OF MAIZE INBRED LINES

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Two year rezults of investigation the effect of herbicides on the growth rate and yield of five maize inbred lines are presented in this paper. Five herbicide mixtures were used each in three doses. The hight of treated and untreated plants was measured during the growing season and the grain yield after harvesting.

On the basis of results obtained, it was concluded that each inbred reacted in a specific way and the alachlor did not cause a reduction in the growth rate and yield of inbred lines even if applied with a high dosis (D_3). Inbred R-59 was found susceptible to this herbicide. Metolachlor applied with a dosis of 9 l/ha affected unfavourably the growth rate and yield of investigated inbreds.

Eradican and cianazin caused a stronger reaction at the beginning of the growing season. R-319 was found as the most susceptible inbred to the herbicides. Stomp caused, more or less, a reduction in the growth rate and yield of investigated inbreds depending on the dosis applied. As the most susceptible inbreds to these herbicides. Inbreds V-158 and W-64 A were singled out.

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CONTRIBUTION TO THE KNOWLEDGE ON THE BIOLOGY OF THE FUNGI NAEMACYCLUS MINOR BUTIN. — CAUSER OF NEEDLECAST OF SCOTS PINE

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Summary

Naemacyclus minor is an Ascomyceteous fungi which cause needle blight in pine species. Some authors consider this fungi as the causal organism of a needlecast but others describe it as saprophytic. Isolations *N. minor* from newly developed, 1-moold needles in the absence of any other known pathogens shows that *N. minor* can be harmful to Scots pine and the premature needle casting is associated by this fungus.

The fungus described corresponds most nearly to the description of *N. minor* given by B u t i n (1973). The optimum temperature for mycelial growth is around 25°C, and for ascocarp production in culture 18 — 20°C. The most favourable media for ascocarp formation are Oatmeal and Dry — needle agars. On these media ascocarps formed from 11 — 25°C. Growth was fastest on potato — carrot agar, but strongest on malt agar. *N. minor* showed cultural variations into two main types which was most evident on malt agar. Artificial inoculations 2 — years old seedlings Scots pine (with a water suspension of ascospores from 5 weeks old cultures of *N. minor* on 2% malt agar) have shown that *N. minor* can infect Scots pine needles under controlled conditions and proves the pathogenicity of this fungi.

N. minor is widely distributed in Serbia in Scots pine plantations aged between 10 — 20 years.

INTENSITY OF THE ATTACK OF LOPHODERMIUM SPECIES AND THE DEVELOPMENT OF THE DISEASE ON SOME YUGOSLAV PROVENANCES OF SCOTS PINE SEERLIINGS

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Summary

In previous investigations regarding the susceptibility of Scots pine provenances to attack of *Lophodermium pinastri* (Schrad.) Chev., various facts are considered as relevant. However, the nature of the plant resistant is not entirely understood.

Until now variability of *Lophodermium* species is not taken under consideration. This could cause some difficulties in controling the diseases and in the discovering resistant pine provenances.

Accepting the new approach of taxonomy of *Lophodermium* spp. with more species colonizing Scots pine needles we have investigated the intesity of attack and development of the disease on one year old seedlings of some Yugoslav provenances of Scots pine. The seedlings were grown on natural and on artificial supstratum under noncontroled and partly controled conditions for infection.

It was found that there are two *Lophodermium* species colonizing pine needles in Bosnia with different bioecological characteristics. These are *L. pinastri* and *L. seditiosum* spec. nov.

Under noncontroled condition for infection *L. seditiosum* cause severe damage on young primary needles while *L. pinastri* attacks only old primary needles (oldest primary needles — coleptiles) and has no economic importance in nurseries.

Under partly controled conditions *L. Seditiosum* attacs both young and old primary needles.

In our investigations it was olso shown that interaction between plant provenances and ecological conditions of sites are most important factor for intensity of the disease. Geographical variability of Scots pine and ecological characteristics of experimental plots are olso considered as a relevant for the differences in the intensity of *Lophodermium* attack and development of the discase.