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PRATYLENCHUS PENETRANS COBB AND *FUSARIUM*
OXYSPORUM VAR. *MEDICAGINIS* SNYDER ET HANSEN
ON ALFALFA (*MEDICAGO SATIVA* L.)

by

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S u m m a r y

In recent years, damages on alfalfa, caused by phytoparasitic nematodes particularly when phytopathogenic fungi are present at the same time, have been more frequently observed.

For that reason, alfalfa fields in 23 localities on the territories of Serbia and Vojvodina were examined and on that occasion a simultaneous occurrence of the species from the genus *Pratylenchus* (*P. penetrans*, *P. pratensis*, *P. vulnus*, *P. crenatus*) and *Fusarium oxysporum* var. *medicaginis* was determined in 8 localities, whereas *Pratylenchus* spp. alone occurred in 11, and *F. oxysporum* alone in 4 localities.

The greatest damages, manifested through alfalfa wilt and rot, occurred when species *Pratylenchus* and *F. oxysporum* were present at the same time.

Experimental investigations have shown that a simultaneous presence of nematodes causing root rot — *Pratylenchus penetrans* Cobb and the fungus *Fusarium oxysporum* var. *medicaginis* Snyder et Hansen — considerably speeds up the occurrence of alfalfa wilt and decay in relation to the presence of *F. oxysporum* var. *medicaginis* alone, while a simultaneous presence of the mixture of *Pratylenchus* spp. and *F. oxysporum* exerts its influence somewhat slower.

Zaključak

Rezultati ispitivanja osetljivosti *P. ulmi* Koch. — populacija Z prema dicofolu (LD-50 = 90 mg/L LD-95 = 630 mg/L, $b = 2,1$ SR = 1.63), pokazuju da je ova populacija postala rezistentna prema dicofolu sa stepenom rezistentnosti za 2.9 puta većim od SR osetljive populacije.

Populacija Č (LD-50 mg/l, LD-95 = 500 mg/l, $b = 2.1$, SR = 1,45), postala je rezistentna prema dicofolu sa 1.8 puta većim stepenom rezistentnosti od SR osetljive populacije.

Populacija R (LD-50 = 15.100 mg/l, LD-95 = 45.100 mg/l, $b = 2.05$, SR = 3.0), ispoljava ukrštenu rezistentnost prema trifentiolu, čiji je stepen rezistentnosti za 3.0 puta veći od SR osetljive populacije.

Populacija R (LD-50 = 3.100 mg/l, LD-95 = 2.250 mg/l, $b = 3,25$ SR = 4.0) ispoljava ukrštenu rezistentnost prema hlorfenetolu čiji je stepen rezistentnosti za 4.0 puta veći od SR osetljive populacije.

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GAINING RESISTANCE OF *P. ULMI* KOCH. (*TETRANYCHIDAE*) TO SOME ACARICIDES FROM THE CHLORINATED CARBOHYDRATES GROUP

by

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Summary

The aim this study was to investigate susceptibility of *P. ulmi* Koch. — S (susceptible), R (resistant to Dicofol), Z (tested population from Zemun) and Č (tested population from Čačak) populations — to Dicofol, Trifentiol and Chlorfenetol. Z popualtion parametres of susceptibility to Dicofol (LD-500 = 0,014, LD-95 = 0.0375, $b = 2.4$, SR = 2.9)

show that this population is resistant to Dicofol for SR 2.9 times than the susceptible population.

C population parameters of susceptibility to Dicofol (LD-50 = 0.0086, LD-95 = 0.048, $b = 1.8$, SR = 1.8) reveal that this population is resistant to Dicofol for SR 1.8 times higher than the susceptible population.

R population parameters of susceptibility to Trifentol (LD-50 = 1.238, LD-95 = 7.251, $b = 1.1$, SR = 2.6) indicate that this population is cross-resistant to Trifentol for SR 2.6 times higher than the susceptible population.

R population parameters of susceptibility to Chlorfenetol (LD-50 = 0.317, LD-95 = 1.074, $b = 1.1$, SR = 2.9) show that this population is cross-resistant to Chlorfenetol for SR 2.9 times higher than the susceptible population.

Acknowledgement

We express our gratitude to Professor Dr. D. H. C. Herne from the Research Station, Vineland — Canada, for the assistance offered to us in mastering the methodology and enabling us to achieve a part of results of this investigation in his Institute.

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SUSCEPTIBILITY OF *PHYTOSEIULUS PERSIMILIS* ATH. (FITOSEIIDAE) MITE PREDATORS TO SOME PESTICIDES

by

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Summary

The aim of this study was to investigate susceptibility of *Phytoseiulus persimilis* Ath. mite predators to pesticides used in protection of plants growing indoor.

The results of investigation have shown that low toxic pesticides are as follows: benbutation, oxide, tetradifon, bislofentezine, cyhexatin, propargite, pirimicarb, diflubenzuron, Phosmet, malatunon, endosulfan, triadimefon, Fumram, captane, triforin, CGA 71 818 + capton, bitertanol, dodine, fenarimol, CGA 64 251 and bupirimate. Their mortality value ranges within the limits of 0—29%.

Among medium toxic pesticides there are: Amitraz, binapacry, dicofol, dialifos, phosalone, dinocap and carbendazim. Their mortality value ranges within the limits of 30—69%.

Highly toxic pesticides include: brompropylate, diazinon, carbaryl, demeton-S. methyl, azinophos methyl, dimethoate, phosphamidon, methidathion, tetrachlorvinph, fenitrothion, permethrin, omethoate, fenvalerate, cypermethrin, sromophos, decametrine, mancozeb, benomyl, Pyrazophos and quinomethionate. Their mortality value ranges within the limits of 70—100%.

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(Primljeno 5. 11. 1984)

PARECTOPA ROBINIELLA CLEMENS IN YUGOSLAVIA

by

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Summary

In the year 1983 a new insect was discovered on the black locust trees near Zagreb (Igrc, Maceljki, 1983) and identified as an insect of north american origin — *Parectopa robiniella* Clemens (Lep., Gracilariidae). Until now this leaf miner was found in Europe only in Italy in 1970, Switzerland 1971 and Hungary 1983.

The caterpillars of the first and second instars are making small mines on the underleaf surface and the larvae of the third to sixth instar on the upper surface of the leaflets. The full developed mine is covering 140—180 mm², maximum 250 mm². In the continental part of Croatia not more than 3% infested leaflets were found, but in the coastal region of Istra there were 50—80% infested leaflets with 1,5—2,5 mines on one leaflet. On heavy infested trees in Poreč with 19—25 leaflets in one leaf 80 to 136 mines (average 5,9 mines on one leaflet) were found.

The miner has three generations in one year in the continental region of Croatia, probably more in the coastal regions.

A very small number of natural enemies represented by one species of *Thysanoptera* and three species of parasitic wasps were found in Yugoslavia. Literature data (Vidano, Marletto, 1972) state many enemies in the U.S. and a fast growing importance of enemies in Italy where a wasp *Closterocerus cinctipennis* was successfully introduced from the U.S. Thus we will put the stress on the investigation of enemies in Yugoslavia and consider the opportunity to introduce some enemy from Italy.

EFFECTIVENESS OF PARASITES IN THE REDUCTION OF THE POPULATION OF EUROPEAN CORN BORER (*OSTRINIA NUBILALIS* Hbn., LEPIDOPTERA, PYRALIDAE) ON DIFFERENT HOST PLANTS

by

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S u m m a r y

The present paper deals with the research of the biocomplex of the parasites of caterpillars of the European Corn Borer. In the first place it gives different species of parasites which occur in the locality of Bačka Palanka, further the population density and the reductive part, as well as the participation of established parasite species in the reduction of the European Corn Borer populations on eight species of cultivated plants and on the same number of plants belonging to spontaneous flora.

The results of investigations point out that the numbers of parasites are greater on those plants where the population of their hosts is greater (corn, hemp, hop, comon burdock and common mugwort). And secondly, in the years of high numbers of the European Corn Borer, the density of population of the parasites had also high values. All this indicates mutual dependence of the density of population of the European Corn Borer and of that of its parasites.

Unequal numbers, resp. frequency of the European Corn Borer and of its parasites in the nature reflected themselves also on the different and unequalized degree of infestation of this harmful insect with parasites. Therefore, the highest numbers of parasites have been recorded with hop (49 p.c. of plants) and the greatest efficacy in infesting the caterpillars was shown by the parasites on the mule plants in 1975 (35.71 p.c. of infested caterpillars). With some weed plants (stinging nettle, thorn apple, common reed and great burdock), however, in some years there were parasites on caterpillars and even when they were present, the percentage of infestation was low.

With corn plant the parasites were present in all the years of investigation and very efficacious in reducing the European Corn Moth populations. In individual years they destroyed on the plants of this crop approximately 1/3 of the European Corn Borer populations (in 1974 27.02 p.c. of infested caterpillars). With hemp, however, the parasites were less important in the reduction of this harmful insect (the highest percentage of infested caterpillars, 15.21 p.c., was observed in 1976).

In the infestation with parasites of the caterpillars of the European Corn Borer, which developed on test plants have taken part four parasite species, to wit: *Campoplex alkae* Ell., *Eulophus viridulus* Thoms., *Lydella thompsoni* Hrt. and *Horgenes punctorius* Roman. In most cases, however in the infestation of caterpillars in a year took part two, and less frequently three parasite species.

The plants of corn, sorghum, red pepper, pig weed, thorn apple, common burdock and common mugwort exerted the greatest attraction on the tachin *L. thompsoni*, whereas *C. alkae* infested most frequently the caterpillars of the European Corn Borer which were feeding and developing on hemp, tomato, hop, thorn apple, common burdock and common mugwort. *H. punctorius* was most frequently recorded on caterpillars of the European Corn Borer which developed on common burdock, common mugwort, hemp and hop. The sawfly *E. viridulus* was the only species of parasite infesting the caterpillars of the European Corn Borer on millet, mule and barnyard grass.

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EFFECTIVENESS OF *TRICHOGRAMMA EVANESCENS* WEST., (HYMENOPTERA, TRICHOGRAMMATIDAE) IN PARASITIZING THE EGGS OF THE EUROPEAN CORN BORER ON DIFFERENT HOST PLANTS

by

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S u m m a r y

There has been investigated the effectiveness of *Trichogramma evanescens* West., in parasitizing the eggs of the European corn borer and analyzed the dependence of effectiveness of this useful insect on the population density of the host, resp. on the number of egg masses, laid on corn, hemp and hop plants.

The results have shown that the attack of the European corn borer on experimental plants varied not only between the plants themselves, but also in individual research years. The greatest number of laid egg masses was recorded on corn plants in 1976 (6.28 egg masses on an average per plant) and in 1975 (5.23) and on hemp in 1976 (5.67) and in 1977 (4.81 egg masses calculated on one plant). The number of laid egg masses of the European corn borer on hop plants was considerably less and varied from 0.94 egg masses in 1976 to 3.17 egg masses in 1977.

The results on the effectiveness of *T. evanescens* in parasitizing the eggs of the European corn borer show that the eggs, having been laid first on corn and hemp in the second decade of June were not yet parasitized. As the laying of eggs went on, the percentage of parasitizing increased. Towards the middle of the course of egg laying (in the course of July), parasitizing reached the highest value.

If we observe the parasitizing of the eggs of the European corn borer according to years, *T. evanescens* manifested the greatest effectiveness in 1976 and somewhat less in 1975 and 1977. With corn plants the parasitizing varied from 3.99 p. c. in 1977 to 6.00 p. c. in 1976. With the hemp plant the parasitizing of eggs was within the limits of 3.20 p. c. in 1975 to 7.44 p. c. in 1976. A markedly low parasitizing was observed on the eggs of the European corn borer, laid on hop. In all of the investigated periods in the course of 1975—77, there were recorded below 4 p. c. of parasitized eggs.

T. evanescens parasitizes but rarely all the eggs in an egg mass. With corn *T. evanescens* showed a uniformity of parasitizing in all the investigated years, with the variations from 67.93 p.c. in 1977 to 75.52 p.c. in 1975. On the contrary, the maximum number of damaged eggs (81.52 p.c.) in egg masses which had been parasitized was recorded on the hemp plants in 1976, whereas on the hop plants a markedly little number of eggs in parasitized egg masses of the European corn borer were damaged in 1976 (only 49.43 p.c.). The data point at the interdependence between the number of laid egg masses and the population density of the European corn borer and effectiveness of *T. evanescens*, for where a greater number of egg masses and a higher population density of the European corn borer were recorded, there was also more marked the effectiveness of this egg parasite. A characteristic case was observed on corn in 1976 (6.28 egg masses with 5.18 caterpillars on an average per plant, and the parasitizing of eggs reached 6.00 p.c.).

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(Primljeno 5. 11. 1984)

NEW PEST IN ENTOMOFAUNA OF YUGOSLAVIA *GLISCHROCHILUS QUADRISIGNATUS* (SAY) (COLEOPTERA, NITIDULIDAE)

by

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Summary

In autumn of 1983 on plot where maize was planted as a second crop in the area of Productive and processing combine Nova Gradiška in SR Croatia the presence of a new pest of maize — nearctic species *Glischrochilus quadrisignatus* (Say) (Coleoptera, Nitidulidae) was found out. Determination up to species was done in British Museum, London.

In North America *G. quadrisignatus* is important pest on maize, fruit trees and vegetables.

The presence of pest can be notified by divided and bended husks, damaged and bitten kernels as well as by great number of beetles on maize ears. On the plots of maize attacked by pest greater damages were noticed on ears of border rows and the ones which had been previously damaged by birds, diseases or European corn borer.

Although up to present time the presence of this pest was found out in smaller number of localities in Croatia, since this pest is very polyphagous and besides maize it is attacking different fruits as well as vegetables (especially tomatoes), there is a certain possibility of spreading of pest and by time in new environment in other growing areas becoming economically important pest.

go pomena prema višim kategorijama ovog svojstva. U suprotnom slučaju, gde je 606×674 materinska komponenta, pomeranja su ka nižim kategorijama otpornosti u odnosu na majku.

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(Primljeno 19. 11. 1984.)

RESISTANCE OF PROGENIES OF SOME INTERSPECIET HYBRIDS OF PEPPER TO *VERTICILLIUM ALBO-ATRUM* REINKE ET BERTH.

by

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Summary

This work displays reaction of progenies of interspecies hybrids of pepper in order to develop new sources of resistance to *V. albo-atrum*.

On the base of the results obtained in previous investigations and this work, the following conclusions can be drawn:

— Genes of resistance of pepper to *V. albo-atrum* are located in wild representatives of genus *Capsicum*. Between them, *Capsicum frutescens* (line 606) expressed the highest level of resistance, but very great genetic distance from *Capsicum annuum*.

— To overcome the great genetic distance between *C. frutescens* (line 606) and *C. annuum*, *Capsicum sp.* from Columbia (line 674) was used as mediator.

— Elementary botanical and agricultural properties of progenies ordered by mather's component of this hybrids.

— Variability of reaction degree of plants on infection, including that other properties, expressed to progenies in all examined hybrid combinations. In comparation with recurent parents, in progenies of hybrids with *C. annuum* as mother component, resistance is mildly moved in the direction of higher categories of this property. In oposite case, where 606 × 674 mother's component, resistance is moved to the lower categories in comparation with mother.

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(Primljeno 15. 10. 1984)

EFFECT OF MOSAIC VIRUS DISEASE ON GERMINATION OF MAIZE SEEDS AND DIMENSION OF PRIMARY ROOTS OF MAIZE SEEDLINGS

by

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Summary

After two-year investigation it could be concluded that mosaic virus of maize (a virus related to Sugarcane mosaic virus — Jg and Maize dwarf mosaic virus-A) had a harmful effect on the germination of maize seeds and dimension of primary roots of maize seedlings such as:

— the length of primary roots was reduced in hybrids NS-721, NSSC-607 and sweet corn »Zlatna groždica« by 19.23%, 5.36% and 2.93%, respectively;

— the length of primary rootr was reduced in hybrids NS-721, NSSC-607 and sweet corn »Zlatna groždica« by 7.37%, 4.58% and 1.53%, respectively;

— the width of primary roots was reduced in hybrids NS-721, NSSC-607 and sweet corn »Zlatna groždica« by 20%, 12.61% and 8.17%, respectively.

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(Primljeno 12. 11. 1984)

STUDY OF SOME PROPERTIES OF THE WEED ASSOCIATION
OF ALFALFA UNDER THE CONDITIONS OF THE USE
OF HERBICIDES

by

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S u m m a r y

There were made floristic and phytocoenologic studies of weed association of the established alfalfa (second and third year of age) on the soil of chernozem type in the surroundings of Beograd (Surčin).

There were established 37 weed species in all, whereas in individual recordings, their number varied from 14 to 20. On the basis of the composition of the biological spectrum there results that the therophytes predominated, with an important participation of geophytes and hemicryptophytes (T-54; G-24 and H-22).

The majority of most numerous weed species is constituted precisely of characteristic weed species of alfalfa.

Within the stands of this association were laid also field experiments.

There applied the herbicides, based on following active substances: metribuzin 0.52 kg/ha (1) and 0.7 kg/ha (2), simazine + secbumeton 0.52 + 1.2 kg/ha (3), propizamid + diuron 0.75 + 1 kg/ha (4), napropamid + diuron 2 + 0.75 kg/ha (5), terbacil 0.8 kg/ha (6) and hexazinon 0.9 kg/ha (7). All the herbicides were used before beginning of the vegetation of alfalfa.

The use of herbicides produced a drastic effect both on the impoverishment of floristic composition and on the reduction of numbers of plants of individual weed species. Such reductive influence, however, was poorly manifested with most numerous weed on the test plot—*Glechoma hederacea*, and this is a consequence, in the first place, of its specific biological characteristics. This weed manifested the greatest susceptibility in the variant 3, in which, besides, has been achieved on the whole the most expressive influence on weediness, both in qualitative and in quantitative senses.

With all the variants of the test, from the association were practically excluded most species of therophyts weeds. There was only observed a determined degree of diminished susceptibility with *Erigeron canadensis*, and with *Setaria glauca* (particularly in the variants 7, 2 and 4) there occurred a renewal of weediness.

There was reduced the numerical representation of some perennial weeds, whereas *Taraxacum officinale* manifested less susceptibility to the action of most of the examined herbicides.

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POSSIBILITIES FOR BIOLOGICAL CONTROL OF DISEASES ON FRUIT, FLOWER AND FOREST PLANTS AND ON MISLETOE AND MUSHROOMS

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Summary

The authors present a review based on literature on possibilities for biological control of diseases on fruit, flower and forest plants, misletoe and mushrooms.

Occurrence of superparasites and antagonists is here as common as on field and vegetable crops.

The results of their practical application for biological control of diseases in some cases are encouraging.

For this reason higher financial support of the investigation of biological control is being needed.