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POSSIBILITIES IN PROTECTING MAIZE SEED FROM *FUSARIUM GRAMINEARUM* USING FUNGICIDES

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Summary

The object of our investigations was to determine in controlled conditions to what degree maize seed treated with fungicide is protected against *Fusarium graminearum*. This species was chosen since it belongs to the group of the most important maize seed rot pathogens.

In our work, we have tested four fungicides on seed of inbred line ZPLR 70ž (Radotiram WP, Lekinol 15, Captan 50, Dithan 60) with a dose of 200 g/100 kg of seed. The effectiveness of the fungicides was investigated in treatments: a) seed treated first with fungicide and then infected with *Fusarium graminearum* and b) seed infected first with *Fusarium graminearum* and then treated with fungicide compared to different check treatments: c) untreated seed, d) seed treated with fungicide and e) seed treated with pure culture of *Fusarium graminearum*. The experiments were conducted using the method developed by Molot et Simone (1967).

The analysis of results was performed on the basis of statistical computations of: number of germinated seeds, length of aboveground part, root length, weight of aboveground part, root weight, and rating of resistance of seedlings in the three-leaf stage.

Results of these investigations show that the tested fungicides were effective in protecting the seed and seedlings from *Fusarium graminearum*.

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INVESTIGATION OF THE INFLUENCE OF TERMS OF APPLICATION OF FUNGICIDES IN THE CONTROL OF PRIMARY AND EARLY SECONDARY INFECTIONS OF THE LEAVES OF SOUR CHERRY TREE CAUSED BY THE FUNGUS *Blumeriella jaapii* (Rehm) V. Arx

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S u m m a r y

The objective of this study was to examine the effect of the date of fungicide treatment in controlling primary and early secondary infections by the fungus *Blumeriella jaapii*, in conditions when the fungus forms ascii which serve as the source of primary inoculi.

The experiment was conducted on sour cherry tree which were subject to various dates of the first and subsequent treatments which continued till the time of picking.

The obtained results indicated that the ascus stage is an important source of primary inoculi, contributing to the occurrence of early and intensive infections if conditions were favourable for the parasite's development, as in 1977 and especially in 1978. Primary infections usually took place at the end of flowering (late April, early May) when it became necessary to start protecting the plants. If, however, that period was relatively dry and cool, as in 1979, primary infections were less intensive. It was then possible to postpone the first treatment till first heavy rains.

If the period of intensive leaf growth, till harvest, was favorable for the fungus, primary and early secondary infections were efficiently controlled by 1—2 treatments at 10 to 14 day interval.

**FUSARIUM — ARTEN ALS ERREGER DER TROCKENFÄULE DER
KARTOFFELKNOLLEN IN SLOWENIEN**

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Z u s a m m e n f a s s u n g

Anhand der Versuchsergebnisse *in vitro* und der Inokulationsversuche kann geschlossen werden:

— Trockenfäule der Kartoffelknollen in Slowenien gewinnt wegen der Ausbreitung der maschinellen Bearbeitung, Lagerhaltung und Finalisierung in den Lagern, ebenso wie mit der Einfuhr infizierter Kartoffelsorten, zunehmend an Bedeutung. Das wird durch isolierte *Fusarium*-Arten, ihre Verbreitung und Pathogenität bewiesen.

— In den Inokulationsversuchen erwies sich als am stärksten pathogene Art *Fusarium avenaceum* (Pathogenitätsindex = 28,03), geringste Pathogenität hatte *Fusarium solani* (Path. index = 3,20%). Am stärksten war *Fusarium sambucinum* vertreten (41,7%).

— Die höchste Anfälligkeit gegenüber den Erregerarten der Trockenfäule zeigten Sorten Bintje (Pathogenitätsindex = 29,16) und Resy (Path. index = 24,05). Geringste Anfälligkeit zeigte Sorte Saskia (Path. index = 8,67).

SPIDERS, NATURAL ENEMIES OF THE SYCAMORE LACE BUG

by

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Summary

In an early publication Maceljčki and Balarin (1974) have mentioned the importance of spiders as predators of the sycamore lace bug.

In 1982 and 1983 we have collected many spiders on trees infected with this bug and 23 species were identified.

In the laboratory we made feeding trials with some of these species. The spiders *Chiracanthium mildei* L. Koch and *Theridion lunatum* (Oliv.) were feeding voraciously on sycamore lace bugs during 42—70 days. During this period one specimen of those species was devouring 217—564 bugs in average 3,1—9,3 per day. The average feeding rate of *Chiracanthium mildei* was 8,2 specimens per day and *Theridion lunatum* 3,1 per day.

As these spiders are very important factors in regulating the density of population of the sycamore lace bug, it is necessary to continue researchs with other species too.

Zaključak

Na osnovu dobijenih rezultata može se izvesti sledeći zaključak: Apollo 50% WP i Apollo 50% SC pri koncentraciji od 0,04—0,08%, koja se preporučuje u praksi za primenu, nisu prouzrokovali uginjavanje imaga *E. formosa*.

Pri tretiranju najvišim koncentracijama (0,3) ovih preparata smrtnost se kretala od 20,0% do 30,0%.

Smrtnost imaga *Ph. persimilis* tretiranih sa Apollo 50% WP pri koncentraciji od 0,275% iznosila je oko 15% a sa Apollo 50% SC, pri koncentraciji 0,25%, oko 5%.

Jaja *Ph. persimilis* tretirana sa Apollo 50% WP pri koncentraciji od 0,275% uginjavala su 40% a pri tretiranju sa Apollo 50% SC uginjavala su 30%.

Na osnovu izvršenih ispitivanja, Apollo 50% WP i Apollo 50% SC mogu se smatrati selektivnim preparatima za imaga *E. formosa* i imaga i jaja *Ph. persimilis* što pruža realne osnove za njihovo uključivanje u program integralne zaštite biljaka u zaštićenom prostoru od štetnih grinja i leptiraste vaši.

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EFFECT OF NEW ACARICIDE BISCLOFENTEZIN ON *ENCARSIA FORMOSA* G. and *PHYTOSEIULUS PERSIMILIS* A. — H.

by

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Summary

The study shows results of our investigation concerning susceptibility of *Encarsia formosa* G. and *Phytoseiulus persimilis* A. — H. to the new acaricide, Bisclofentezin (preparations Apollo 50% WP and Apollo 50% SC).

Research was conducted under laboratory conditions, with artificial light, at a temperature of 24+2°C and relative humidity of 70%.

Results obtained in investigation indicate that Bisclofentezin is selective to *E. formosa* G. and *Ph. persimilis* A. — H. and may be used within the programme of integral plant protection in a closed space.

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POPULATION DYNAMICS OF *CYDIA (LASPEYRESIA) FUNEBRANA* TREITACHE (*LEPIDOPTERA, TORTRICIDAE*) AND ITS NOXIOUSNESS

by

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Summary

Over the 1980—82 period population dynamics of *Cydia (Laspeyresia) funebrana* Tr. and the intensity of the attack on fruits were monitored by means of pheromone baits. Funemone in the Čačak area (locality Ljubić) and Valjevo area (locality Brankovina).

In the areas of Čačak and Valjevo, *C. funebrana* is economically the most important pest of plum so that special control measures have to be undertaken against it.

Ecdlosion of moths in the area under observation begins in the early April and lasts till the second half of October. The flight period of moths lasts 169—182 days, the average flight duration being 175.3 days. Maximum flight activity of the first generation was recorded in the period from the beginning till the end of May, and with the second generation from mid-July till the second half of August.

Over the 1980—82 period, there was assessed the increase of population density of *C. funebrana* in Ljubić locality and in Brankovina locality the population density increased in 1981 and decreased in 1982.

The number of fruits damaged in the plantings where control measures are applied range from 1% to 5.4%, and on the untreated trees this number is considerably higher, ranging from 32% to 46.5%. The highest number of fruits damaged on the untreated trees in both localities was assessed in 1981 (46.1% and 46.5%, respectively).

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(Primljeno 8. 02. 1984)

THE INFLUENCE OF THE HOST PLANT ON THE WEIGHT OF
CATERPILLARS, FERTILITY AND EGG-LAYING CAPACITY OF
MOTHS OF CORN BORER (*OSTRINIA NUBILALIS* HBN.,
LEPIDOPTERA, PYRALIDAE)

by

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S u m m a r y

There was investigated the influence of eight species of cultivated plants and of the same number of weed species on the weight of caterpillars, fertility and egg-laying capacity of Corn Borer moths. The results have shown that the weight, i.e. the development of caterpillars and fertility and egg-laying capacity of moths are in direct dependence on the plant species on which Corn Borer lives.

The heaviest caterpillars were obtained from corn plants, with the variation from 94.58 mg to 99.35 mg. Further from hop, sorghum and hemp. And from among weed plants, from common burdock and

from common mugwort. With other cultivated and weed plants, the weight of caterpillars, with a few exceptions, did not exceed 60 mg.

The egg-laying capacity and fertility of Corn Borer are greatest with the corn plants, further with hop, sorghum and hemp and from among weed plants with common burdock and common mugwort. The average egg-laying capacity of Corn Borer moths from corn plants varied from 399.60 to 419.35 eggs, and fertility in all the years was above 500 eggs. The maximum fertility with these moths as recorded in 1976, was 594.30 eggs. A somewhat lower fertility and egg-laying capacity were with the moths emerged from hop, sorghum and hemp. The moths from above mentioned plants had in all the years an egg-laying capacity over 300 eggs and the highest one in 1976 with hop plants (386.35 eggs) and in 1977 with sorghum plants (373.35 eggs). Also the total fertility with the above mentioned moths was over 400 eggs and in some years it had values greater than 500 eggs (hop in 1976 543.05 eggs and sorghum in 1977 513.20 eggs). Similar results were obtained also from common burdock and common mugwort plants. Maximum egg-laying capacity and fertility of these moths was, namely in 1976 and amounted with common burdock plants to 337.16 laid eggs, i.e. the total fertility was 457.05 eggs and with common mugwort plants the egg-laying capacity amounted to 343.05 eggs and fertility to 468 eggs).

The Corn Borer moths from other cultivated and weed plants had egg-laying capacity which was about 250 eggs and also a less fertility (less than 400 eggs).

By the dissection of moths we observed a considerable number of unlaidd eggs, particularly with the moths having manifested a marked egg-laying capacity. These are, in the first place the moths from corn (from 151.25 to 174.95 eggs), sorghum and hop. And in a somewhat lesser measur from hemp, common burdock and common mugwort. With other cultivated and weed plants, the number of eggs which remained in the sexual organs of females of Corn Borer varied from 88 to 114 eggs.

By the data analysis was not obtained a correct correlation between the egg-laying capacity of Corn Borer moths, the number of laid egg clausters and the size resp. number of eggs in clusters. The results have shown that a greater number of egg clusters were laid by the females with a greater egg-laying capacity, with some exceptions as in the hop plants in 1976 and great burdock in 1977, when the moths laid the greatest number of egg cluster though they did not manifeste the greatest egg-laying capacity. In many cases, however, the number of eggs in egg clusters was greater with less fertile moths, which is the case with many weed plants (great burdock in 1975. 23.06 eggs; common reed in 1976 30.19 eggs and barnyard grass in 1977 29.98 eggs).

RESULTS FROM THE INVESTIGATION OF THE NEW COMBINATIONS OF FUNGICIDE IN THE CONTROL OF DOWNY MILDEW (*PLASMOPARA VITICOLA*) ON VINE

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S u m m a r y

This work a review of the results from the investigations performed in the course three years, of the sistemics and preventive fungicides in the control of *Plasmopara viticola* (B. et C.), a carrier of downy mildew on vine. Tests have been made in several localities: Skopje, Strumica and Valandovo, on the plantages under grape vine of different ages and grow both im row system and horisontal way of cultivation. Trials were made four replicates on desert sorts of grape vines, White winter variety, Afus ali, Cardinal and Queen of vineyards.

Determined was the infection intensity on leaves of grapes, with an aim to check the phytopharmaceutical value of the products tested. Best results were obtained with combinations of systemic fungicides Ridomil combi, Cimofol, Ridomil plus, Kupriksalin, Kupriksalin A and Cimozin. The percentage of the efficacy was from 97.4% to 99.7%.

Other group of products which had high efficacy, were the combinations of conventional fungicides, but they were statistucally different from the first ones. Highest percentage gave the combination of Copper oxychloride×Folpet 96.5% and lowest 84.9% Zineb S-65.

POSSIBILITIES FOR BIOLOGICAL CONTROL OF FIELD AND VEGETABLE
CROP DISEASES

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S u m m a r y

The authors present a review based on literature on possibilities for biological control diseases of wheat, barley, rye, maize, sugarbeet, sunflower, soybeans, tobacco, beans, peas, tomato, cucumber, cabbage, onion and doder.

The conclusion drawn from the data is as follows:

Research in the field of biological control of plant diseases is increasing from year because of its importance.

In spite of numerous superparasites and antagonists, their use in practice is still being limited.

Further investigation have to help in overcoming many difficulties related to isolation, breeding and massive growing of the most effective strains and biotypes of superparasites and antagonists.

In Yugoslavia, more attention is to be payed to biological control of plant diseases. In this purpose higher international cooperation is necessary to be established.