UDK 632.9

YU ISSN 0372 – 7866

INSTITUT ZA ZAŠTITU BILJA I ŽIVOTNU SREDINU – BEOGRAD
INSTITUTE FOR PLANT PROTECTION AND ENVIRONMENT – BELGRADE

ZAŠTITA BILJA
PLANT PROTECTION

VOL. 43(1), No 199, 1992.

Zaštita bilja, Vol 43(1), br. 199: 1 – 80 (1992), Beograd

CONTENTS

Original scientific papers

Preliminary communication

Vitanov, M. (1976): Po nekoi voprosi za pričinitelite na slivovata ržda v Blgaria i borbata s nei. Rstitelna zaščita 24, 5, 34 – 36

Zwirn-Hirsch, H.E. (1946): Infection experiments with aeciospores of *Tranzschelia pruni-spinosae* (Pers.) Die. in Palestine. J. Bot, 3, 178 – 179

(Primljeno 18. 05. 1992.)

DISTRIBUTION OF *TRANZSCHELIA PRUNI-SPINOSA*E (PERS.) DIET. AND *TRANZSCHELIA DISCOLO*R (FUCK.) TRANZ. ET LITV. IN MONTENEGRO AND DETERMINATION OF THEIR AECIAL HOSTS

M. Mijušković
Agricultural Institute, Podgorica

Summary

Studying of *Tranzschelia* spp., during the period 1986-1991 made it possible to find the parasites of stone fruits, *T. discolor* and *T. pruni-spinosae* in Montenegro. The first species is practically the only one on the Adriatic Coast as well as in the Middle part of Montenegro, which is under the influence of the Mediterranean climate, while in the northern part of the Republic, besides this species, there is also *T. pruni-spinosae.*

Rust is an important disease of the stone fruits (plums, apricots, peaches, nectarines and almonds); it is also visible on *Prunus cerasifera* and *P. spinosae. T. discolor* causes greater damage and early defoliation of fruit trees, particularly plums. Reaction of various *Prunus* species is different depending on parasite's species, plant's host and cultivars, too.

Three out of the nine existing *Anemone* spp. in Montenegro (one variety and subvariety) are hosts of aecial stadium of *Tranzschelia* spp. (rust of the stone fruits): *A. ranunculoides, A. hortensis* and *A. apennina,* where aecidia are found. The species *Tranzschelia fusca* (teleutostadium) is found on *Anemone nemerosa* without any relation with the rust of the stone fruits.

T. pruni-spinosae is always caused on *Prunoidea* by artificial inoculations of aeciospores taken from *A,. ranunculoides. A. coronaria* is more or less mentioned all over the world as aecial host of *T. discolor.* This cultivated species does not practically exist in Montenegro. It is found out that *A. hortensis,* widespread in the southern part of the Republic, has got aecidia proved in the life cyce of *T. discolor,* thanks to the artificial inoculations. It is probably for the first time that this relation has been experimentally proved.

A. apennina, widespread in the southern and middle regions of Montenegro, would also be an alternative host of *T. discolor.* The inoculations, done by aeciospores, were successful on plum and apricot trees (but very rarely) without making teleutospores. This conclusion is based on the results of other authors as well as on coincided distribution of *A. apennina* and *T. discolor* on *Prunoidea.*

An incubation under the inoculations by aeciospores, got from *A. ranunculoides* and *A. hortensis* lasted shortime relatively, i.e. 10-20 days, depending on weather conditions. The inoculations by aeciospores, got from *A. apennina,* did not usually succeed, but in case of uredia appearance, the incubation lasted 28 days.

Zaštita bilja, Vol. 43(1), br. 199: 15 – 25 (1992), Beograd

Ćiril Sidor
Pasteur Institute, Novi Sad

Ištvan Jodal
Poplar Research Institute, Novi Sad

Ljubica Dušanić
Pasteur Institute, Novi Sad

UDC: 632.7:632.937:630*1
AGRIS. H10 3000
Original scientific paper

MICROBIAL DISEASES OF GYPSY MOTH (PORTHETRIA DISPAR) IN BLACK LOCUST FOREST*

Microsporidia (*Nosema serbica, Nosema* sp.) and viruses (Baculo-viruses) were found in gypsy moth egg caterpillars, i.e. before their hatching. These pathogens which cause the diseases were represented by different intensity in the gypsy moth caterpillars during their nutrition, as well, what gave rise to the appearance of the disease and led to the decrease in a number of caterpillars mostly in older stages. The disease was also observed both in pupae and moths in the period of several years and it resulted in a decrease of gypsy moth population to a such degree that this insect pest was very rare and even could hardly been found in 1990 and 1991 in "Bagremara" – a forest where it lives on Robinia leaves.
Key words: Porthetria dispar, Nosema serbica, nuclear polyhedrosis virus, Robinia, black locust, Serbia

Introduction

This paper presents some of the results obtained in a long lasting research concerning diseases of gypsy moth (*Porthetria (=Lymantria) dispar* L.), as a restrictive factor for its increase in number, caused by the pathogens for insects. Investigations were caried out in a Robinia (black locust) forest called „Bagremara" near Bačka Palanka, where gypsy moth behaves differently than in orchard and oak forests (S i d o r , J o d a l , 1983, 1990). It is very important to empahsize that gypsy moth is present in the forest each year in the period of several decades. According to regulations in our country, population density of the insect at this locality demands the use of control measures, but they have not been applied for years, because of the request of beekeeper's assocations, who are afraid that these control measures (which should be applied in Robinia

* This research was partly financed by Scientific Fund of Vojvodina

Zaštita bilja, Vol. 43(1), br. 199: 27 – 33 (1992), Beograd

Nenad Filajdić
Turner B. Sutton
North Carolina State University
Releigh, NC, U.S.A.

UDC: 632.4:634.11(73)
AGRIS: H10 6300
Original scientific paper

FIRST OCCURRENCE OF ALTERNARIA BLOTCH OF APPLE IN USA AND SUSCEPTIBILITY OF DIFFERENT VARIETIES TO A NEW DISEASE

In the summer of 1987 and 1988 in western north Carolina (USA), a previously unreported leafspot on Red Delicious was observed. The pathogen was isolated and tentatively identified as *Alternaria mali* Roberts. A host specific toxin was isolated from *A. mali* cultures and appeared to be identical to standards obtained from Japan.

The susceptibility of seventeen commonly grown strain and varieties of apples was tested in the greenhouse, using artifical inoculation. Red Delicious and strains derived from it showed a susceptible reaction. Paulared and Idared were the most resistant of all varieties tested.

Disease severity was rated on leaves of 48 varieties and strains in a 2-yr-old variety demonstration orchard where infection was established naturally. The results were similar to those obtained in the greenhouse.

Key words: Alternaria mali, Alternaria blotch, North Carlina

Introduction

A severe defoliation was noticed in several orchards in western North Carolina in summers of 1987 and 1988. Symptoms on leaves resembled those caused by *Botryosphaeria obtusa* (Schwein.) Shoemaker or captan injury. Lesions were brown, 2 – 5 mm in diameter, often circled with dark color. In later part of the season, lesions became grayish in appearance. Severe symptoms often resulted in defoliation. Isolations were done in the laboratory on potato-dextrose agar (PDA), and they primarily yielded *Alternaria* sp. The morphological characteristics of the conidia were similar to the description of *Alternaria mali* Roberts (Roberts, 1924; Sawamura, 1972). *A. mali* was first descried by Roberts in 1924, but it was not considered pathogenic. He identified two types of the organism, designated as A and B. Conidia were different in length and appearance. Type A forms dark-green colonies with abundance of conidia whereas type B has gray and aerial mycelium and a small number of conidia. The average size of type A conidia is 26 x 9 mm, whereas type B is 49 x 9 mm.

Zaštita bilja, Vol. 43(1), br. 199: 35 – 46 (1992), Beograd

Dragica Ivanović
Maize Research Institute "Zemun Polje",
Belgrade – Zemun

UDC: 632.35:633.15
AGRIS: H10 0120
Original scientific paper

DISTRIBUTION AND FREQUENCY OF MAIZE DWARF MOSAIC VIRUS IN YUGOSLAVIA

The maize virus disease, mosaic dwarf type, in our study was determined to be *maize dwarf mosaic virus (MDMV)*, strian A. The distribution and frequency of this virus was recorded during 1986. The appearance of the virus was confirmed in most areas of Yugoslavia and the incidence of infection significantly varied at individual locations. The most severe infection of maize was recorded in Vojvodina and Slavonia. MDMV was not recorded in the eastern and central regions of Bosnia and Hercegovina and in Slovenia.

Johnsongrass (*Sorghum halepense* (L.) Pers.) as well as common red (*Phragmites communis* Trin.) are important sources of infection.

Key words: Maize, *Maize dwarf mosaic virus,* distribution, frequency.

Introduction

A maize (*Zea mays* L.) virus disease, mosaic dwarf type, was first recorded in Europe in late 1930's (Goidanich, 1939). It was observed with maize in Yugoslavia in 1960 (Panjan, 1960) and with sorghum a year later (Lovisolo and Aćimović, 1961).

During the first half of the 1960's a similar maize disease was recorded in several states of the USA. Williams and Alexander (1965) designated the disease as maize dwarf mosaic, a parasite similar to *maize dwarf mosaic virus, (MDMV).*

Within a short period the disease was registered in many states of the USA (Dale, 1964, Shepherd *et al.* 1964, Hilty and Josephson, 1966, and Ford *et al.* 1967). Tošić, (1962, 1965), Tošić and Mišović (1967) have indicated the importance of this disease in Yugoslavia.

This paper represents a section of the PhD Thesis, dissertation held at the Agricultural Faculty of the University in Novi Sad on March 15, 1991.

I am grateful to Prof. Stevan Jasnić who headed this study for his help and support. I would also like to thank my colleagues at the Maize Research Institute which have made this project possible. I wish to thank Dr Richard E. Ford, Professor and Head of Department of Plant Pathology, University of Illinois, and Dr Adrianna D. Hewings, Research Sci. of USDA, Department of Plant Pathology, Univeristy of Illinois, for excellent guidance in this study and providing laboratory support.

RESISTANCE OF *CERCOSPORA BETICOLA* ISOLATES ORIGINATED FROM DIFFERENT LOCALITIES IN SERBIA TOWARD BENZIMIDAZOLES

by
Mira Gavran
Institute for Plant Protection and Environment, Beograd

Summary

Resistance of *Cercospora beticola* to benzimidazoles has been present in our country since 1975., becoming widespread phenomena in all the localities where sugar beet is grown.

Susceptibility of *C. beticola* isolates originated from different localities in Serbia (Šabac, Požarevac, Sremska Mitrovica, Padinska Skela and Smederevska Palanka) toward benzimidazoles were tested.

Influence of different Benomyl concentrations on inhibition of micelial growth were tested. Medium effective concentrations (LC-50), relative susceptibility of isolates and resistance level were determined.

C. beticola populations in examined localities has different susceptibility to benomyl. Medium effective benomyl concentrations for examined isolates are very heterogeneous, and they arte between 0.3-5.787 mg/l.

In the studied localities in Serbia, the highest percentage of highly resistant isolate has been registered on the localities with the extended and intensive use of the fungicides of benzimidazoles group (i.e. the localities of Požarevac and Smederevska Palanka). The percentage of resistant isolates is directly correlated to the number of the benzimidazoles applications.

Zaštita bilja, Vol. 43(1), br. 199: 55 – 58 (1992), Beograd

Nebojša Marinković
Aleksa Obradović
Mirjana Mijatović
Ljiljana Stanković
Branislav Milić
Center for Vegetables "Palanka",
Smed. Palanka

UDC: 632.4:635.63
AGRIS: H20 1821
Original scientific paper

REACTION OF SOME CUCUMBER GENOTYPES TO INFECTION CAUSED BY *PSEUDOPERNOSPORA CUBENSIS* ROST.

During the course of two growing seasons (1990, 1991) we investigated reaction of 25 cucumber genotypes (cucumber & pickling cucumber), grown outdoors, to natural infection caused by parasitic fungus *Pseudoperonospora cubensis*. According to the obtained results some genotypes showed high level of tolerance to this pathogen. Therefore these genotypes could be recommended for mass production. Also, they could be used as parental material for a cucumber breeding program.
Key words: cucumber, downy mildew, reaction, tolerance

Introduction

Favorable climate and soil conditions in Serbia enable an intensive cucumber production. However, last few years this production was reduced by almost epiphytotic occurrence of cucumber downy mildew caused by *Pseudopernospora cubensis.*

Two main sources of infection are recognized in our agroecological conditions (Aleksić *et al.* 1990). The first one is: diseased plants grown in greenhouse conditions over winter and, the second one is: windborne conidia, coming from the South.

Early appearance and very intensive occurrence of cucumber downy mildew in the field production could be explained by expanding of cucumber greenhouse production which provides an early inoculum, ready to infect young plants grown outdoors. Cvjetković (1988) reported an epiphytotic occurrence of this disease in Croatia in 1985. According to some authors this problem was also recorded in several European countries in the last few years.

Despite applying fungicides such as Ridomil MZ 72, Mikal B and Previcur N, A successful crop protection could not be achieved. Beldano (1990) also emphasized that fungicide Galben M could not provide sufficient protection of cucumber crops.

Zaštita bilja, Vol. 43(1), br. 199: 59 – 67 (1992), Beograd

Ragheb Thalji
Faculty of Agriculture,
Institute for Plant Protection, Novi Sad

UDC: 632.7 : 632.937
AGRILS: H10
Original scientific paper

POPULATION DYNAMICS OF PREDACEOUS DIPTERA (SYRPHIDAE, CECIDOMYIIDAE AND CHAMAEMYIIDAE) AND THEIR APHID PREY (BRACHYCAUDUS HELICHRYSI KALT.) ON SUNFLOWER CROPS IN VOJVODINA

During the period 1981-1984. occurrence and population dynamics of predaceous diptera associated with the aphid *Brachycaudus helichrysi* was investigated in sunflower fields in Vojvodina.

Seven species of larvae belonging to the fasmilies *Syrphidae* (5), *Cecidomyiidae* (1) and *Chamaemyiidae* (1) were recorded. Syrphid larvae were the most important aphid specific predators in all investigated vegetation periods. Every year, a good synchronisation in time of abundance of larvae with increasing density of aphids on sunflower crops could be observed.

Key words: Predaceous diptera, *Brachycaudus helichrysi*, population dynamics, sunflower.

Introduction

Among the aphids attack sunflower in Vojvodina, two species are more important; the small leaf curlin plum aphid (*Brachycaudus helichrysi* Kalt.) and the bean aphid (*Aphis fabae* Scop.). Every year both species may be found on sunflower, but with varying intensity. In certain years, the first one may appear in great intensity, but the second may not. *B. helichrysi* seems to be more harmful aphid than other species (Čamprag, 1976, Čamprag and Thalji, 1981, Čamprag, 1988, Thalji, 1977). In Central-eastern Europe and USSR this aphid is one of the most important pests of sunflower (Popova, 1967, Grigorov, 1968, Rjahovskij, 1969, Kolesova, 1976, Buják, 1984, Hariot, 1988, 1990, Badenhausser, 1988).

Brachycaudus helichrysi on sunflower crops in Vojvodina serves as food for a wide spectrum of aphid-specific as well as polyphagous predators (Thalji, 1977, 1981, 1988, 1991).

General reviews of aphid predators, parasitoides and pathogens are given by Hagen (1962), Hagen and van den Bosch, (1968), Hodek (1966, 1967, 1973) and Schneider (1969).

Zaštita bilja, Vol. 43(1), br. 199: 69 – 72 (1992), Beograd

Velizar Velimirović
Zarija Đurović
Milorad Raičević
Agricultural Institute, Podgorica

UDC: 632.7 : 630*1 (497.16)
AGRIS: H10 3000 G832
Original scientific paper

BUG *OXYCARENUS LAVATERAE* FABRICIUS (LYGAEIDAE, HETEROPTERA) NEW PEST ON LINDENS IN SOUTHERN PART OF MONTENEGRO

The data on first occurence of bug *Oxycarenus lavaterae* on linden trees of Southern Montenegro have been presented. The data on distribution of pest have also been given, as well as short description, brief bioecological, and harmfulness and demages these pests make.

Key words: Bug, Pest, Lindens, *Oxycarenus Lavaterae*

Introduction

In July 1985, for the first time, the presence of the bug on lindens, in the street tree-lines and parks in the area of Podgorica was noticed. Due to the low initial population density it did not attract more attention. However, in the following years the species appeared to be significantly more abundant on the lindens, and the occurrence was especially obvious in 1988, 1990 and 1991. On the basis of morphological traits and other data we have established this bug to originate from genus *Oxycarenus,* and than it was determined as species *Oxycarenus lavaterae* Febricius 1787 *(Lygaeidae, Heteroptera)*[1)].

According to literature data this pest was recorded by Novak and Wagner (1951) in the area of Split; they reported abundant occurrence of the bugs on one linden tree. Also, Andrej and Matija Gogala (1988-1989) reported the presence of *O. lavaterae* on the linden in the locality of Nova Gorica mentioning that 25 years ago they found the samples of these bugs in the same area. As cited by Sorauer (1956) this type of bugs is widespread in Algeria, Tunisia, as well as in Italy and France.

In the region of Titograd we have found that the bug *O. lavaterae,* for now, attacks only the small-leaved linden *Tilia parvifolia* Ehrh. (Syn. = *T. cordata* Mill. and *T. ulmifolia* Scop.), while on the other types of lindens, also present in parks, we have not recorded the presence of the bug. In the area of Nova Gorica, according to data given by Gogala, the bug attacks small-leaved linden

1) Ms. Ljiljana Protić, associate of Museum of Natural History o f Belgrade,has determined the species, and we acknowledge our gratitude to her for this.

Zaštita bilja, Vol. 43(1), br. 199: 73 – 80 (1992), Beograd

Duška Simova-Tošić
Radoslava Spasić
Danijela Milojićević
Ivana Božinović
Faculty of Agriculture, Beograd-Zemun

UDC: 632.7 : 633.11 : 631.82
AGRIS: H10 F25 0180
Preliminary communication

INFLUENCE OF MINERAL FERTILIZERS ON WHEAT ENTOMOFAUNA

The paper shows some preliminary results of the investigations pertaining to the influence of mineral fertilizers (NPK 15:20:10 and KAN 34,5%) on wheat entomofauna and population density of harmful species.

The influence of mineral fertilizers (N, P and K) at different application rates with respect to feeding and harmfulness of cereal leaf beetle (*Lema melanopus* L.) larvae has also been studied.

Key words: wheat, entomofauna, harmful insects, mineral fertilizers

Introduction

Wheat yield increase in the past ten years has been result of the introduction of high cereal yielding varieties as well as of the application of significant quantities of mineral fertilizers. However, investigations have shown that by increasing plant density and yield, mineral fertilizers may also provoke population density increase of some insect species. According to Painters (1951) soil fertility plays a dominant role favouring multiplication of these pests, causing damage as well, although each species exhibits specific effects. Green bug, *Schizaphis graminum* Rond, has been recorded in nitrogen deficient soils (Hensen, 1946; cited by Čamprag, 1980). On the other hand Daniels (1957) has stated an increased number of *Sch. graminum* in sols with nitrogen excess, whereas Arant and John (1951) reported that an excess of nitrogen amount decreases population density of the species cited earlier. Based on the investigations carried out by Ljubenov (cited by Čamprag, 1980), single nitrogen treatments provoked yield decrease due to the presence of thrips, *Haplothrips tritici* Kurd. However, yield losses provoked by the pest cited earlier have been noted to decline when applying a mixture of fertilizers. Rational fertilization and adequate amounts of elements have been recorded to influence the attack of fruit fly, *Oscinis fruit* L. More intensive fertilization using phosphorus- and potassium-containing fertilizers decreses the attack, whereas greater nitrogen amounts provoke population density increase of the species mentioned (Aganović and Hadžić, 1964). Based on the results obtained by the authors cited