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CONTENTS

MONARTHROPALPUS BUXI (LABOULB.) AND ITS PARASITES (*DIPTERA, CECIDOMYIDAE*)

by

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Summary

During 1982—1984 in numerous localities of Yugoslavia an increased number of *M. buxi* was observed, respectively causing conciderable damages. Using this opportunity we studied its biology.

In the vincinity of Belgrade the midges emerged from mid April to mid May. The number of eggs laid per leaf, according to new hatched larvae, varied from 1—23, an average 4,37.

The gall formation starte with the feeding of the second instar larvae. The canges at the begining are visible in the pallisade parenchyma. The cells become larger and the tissue is disordered. Later they move to the spongy parenchyma causing enlargement of the cells. I tissue of bulky cells is being formed around the larva, and the larva starts consuming it. As a result of feeding cavity is being formed around the larva. In case of thin-walled Box-species the larva consumes ali of the tissue, forming a common chamber insade the leaf where a number of larvae stay together provoking the impression of gregarity. In tick-walled Box-species the newly formed tissue is richer, the larva does not succeed in consuming it, and later on full grown larva and pupa are encircled ba the ring of the newly formed tissue. This is of importance for the larvae with retarded development. The small larvae which can be found in spring, mostly die out at the time of midges emergence. The penetration of the epidermis during eclosion disturbs the integryti of e leaf and microclimatic conditions. In tick-walled Box-species the opening is being formed only at the spot of larval cavity. The integrity of the leaf is not disturbed, as a result of which the development of small larvae is later made possible.

Tetrastichus microscopicus Rond has been established as parasite of *M. buxi.* It is solitary endoparasite of larvae. The parasites overwinters as pupa in the gall. The percentage of the larvae attacked by the parasite was 2,8.

The birds of the *Paridae* family were fed on *M. buxi* larvae and the persentage of consumed larvae was from 13,5 to 56.

CONTRIBUTION TO THE HORSE CHESNUT MINER

by

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Summary

Last years in the locality of Ohrid, the intensive attack of the horse chesnut miner were observed. The mines were caused by the caterpillars of the till up now unknown *Gracillaridae* — species.

The life cycle was followed during 1983/84. The miners overwinters as a full grown larvae or pupa in the leaf mines. The first flight began on April 26. and last till 16 June, with maximum at 10—11 May.

The second flight began on June 26. and last till 15 August, with maximum at 12. July.

The third flight began on August 22. and last till 15. September, with maximum at 3. September.

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(Primljeno 5. 03. 1985)

THE EFFECT OF TEMPERATURE ON THE FECUNDITY OF THE SUMMER FRUIT TORTRIX MOTH, *ADOXOPHYES ORANA* F. v. R. *(LEPIDOPTERA, TORTRICIDAE)*

by

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Summary

Laboratory tests were carried out to study the effect of various constant temperatures (15, 18, 21, 25 and 28°C) at 75—85% relative humidity and a photoperiod of LD 16 : 8 on the fecundity, course and rate of egg laying of *Adoxophyes orana* F. v. R.

Temperature was found to have a significant effect on the fecundity of *A. orana.*

Oviposition begins on the first, resp. on the second day after the emergence of females and lasts 7—11 days. The highest number of eggs laid was assessed at 18°C (averaging 272,9 eggs per female) and the lowest at 28°C (113,8). The temperature optimum for oviposition ranged from 18 to 21°C.

The number of eggs per batch is highly variable, ranging from 6 to 230 at 28°C and 21°C, respectively.

The number of eggs laid depended on the population density too. The number of eggs laid decreases with the increase in population numbers in a certain area. The greatest number of eggs laid was assessed when rearing two females and two males together (each female laid an average of 270,7 eggs), and the lowest one when groups of 10 females and 10 males were reared (averaging 201,6 eggs/female).

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ERIOPHYID RASPBERRY LEAF MITE, *PHYLLOCOPTES GRACILIS* (NAL.) (*ERIOPHYOIDEA, ACARINA*), AN INSUFFICIENTLY KNOWN PEST IN YUGOSLAVIA

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Summary

A mass occurrence of raspberry leaf eriophyid mite *Phyllocoptes gracilis* (Nal.) was registered in many raspberry plantations in Yugoslavia. Investigations on this mite were carried out in the period from 1981—1984.

This paper concerns some significant morphological and bioecological characteristics and harmfulness of this species in our conditions.

Eriophyid raspberry leaf mite hibernates in the stadium of an adult fertilized female in the bud axilla in colonies from 40 to a few hundered individuals.

When the temperature in spring rises above 11°C fmeales become active, feed and when the daily temperature in the field is about 25°C they lay the first eggs.

The embryo development completes for about 7 days. Eriophyid raspberry leaf mite has few genrations annually, and it can be seen on leaves from the third decade of April until the end of November.

Overwintering females do not have a diapause. Total development of one generation completes for about 14 days. *Phyllocoptes gracilis* (Nal.) is a monophagous species and it damages only raspberry (*Rubus ideus* L.) and wild and cultivated blackberry (*Rubus* spp.) leaves. Symptoms of injury manifest themselves on raspberry leaves in the form of light green to yellow spots. On the foliage undersurface natural hairness is lost and we can see naked spots.

Often symptoms on raspberry leaves caused by this mite are attributed to viruses.

The damage manifests itself in the form of progressive foliage depigmentation, shoot proliferation, photosynthetic decreases, producing small fruits and total decrease of fruitfulness.

Out of a number of natural enemies, a great efficiency is being demonstrated by the predatory mite *Phytoseius macropilis* Banks. of the family *Phytoseiidae*, which is a significant regulator of the number of this mite in nature.

PLANT PARASITIC NEMATODES OF VINEYARDS WITH SPECIAL ATTENTION ON GENUS *XIPHINEMA*

by

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Summary

On the base of three-year investigation of plant parasitic nematodes of vineyards on the territory of Slavonia and Baranja, it could be concluded:

Plant parasitic nematodes are found in high number to the depth of 100 cm of soil and some of them until 150 cm. The most represent nematodes were from the next genus: *Helicotylenchus, Paratylenchus, Pratylenchus, Tylenchorhynchus* and *Xiphinema.*

From the representatives of genus *Xiphinema* were determined two species *Xiphinema vuittenezi,* Luc et al, 1964 and *Xiphinema pachtaicum* (Tulaganov, 1938) Kirjanova, 1951. This species are found in high number from 110 to 277 individuals larval stages in 100 com of soil and mostly to the depth of 100 cm.

It is known that some species of family *Longidoridae* are virus vectors on grape vine. and for that we should pay more attention for investigation their role as virus vectors in our vineyards.

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NECTRIA COCCINEA (PERS. EX FR.) FRIES AS CAUSE OF THE DYING THE BEACH OF SERBIA

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Summary

In this paper, the authors give date about the first discovery of beech scale (*Cryptococcus fagisuga* Lind.) and fungi *Nectria coccinea* (Pers. ex Fr.) Fries. in the forests of Serbia (Južni Kučaj, Majdanpek, Kapetanske livade). The most severe attack was in the district Majdanpek (»Felješana« reservation). In this area we have found all stages of the beech bark disease.

Typical symptoms of beech bark disease with colonies of scale insects and sexual fruiting bodies (perithecia) of fungi has also been found.

On other lokalites occurences of successive attacks of beech scale and the fungi has been less severe. In other beech forests in Serbia this hasn't been found yet.

Other secondary insects and wood — rooting fungi quickly invade the trees beneath bark killed by beech bark disease.

XANTHOMONAS CAMPESTRIS PV. PHASEOLI (SMITH) DYE AS THE PARASITE OF STRING BEANS AND BEANS IN OUR COUNTRY

by

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Summary

On account of susceptibility of the assortment which is being grown, bacterioses of the string beans and beans are becoming more and more important. Considering that there exist several bacteria — parasites of these plants — and that the symptoms they cause are similar, it is difficult to distinguish them in the field.

Five isolates of bacteria we have studied (Bor-1, Bor-5, Bor-13, Bor-14 and Bor-15) originate from diseased plants on which one notices chlorotic or necrotic spots and after that also the withering of leaves or of entire plants (Fig. 1).

Their common property is yellow colour of colonies and occurrence of dark brown pigment in the base (Fig. 2). Bacteria are asporogenous and gram-positive. Inoculated plants of string beans, lupin, broad beans, peas and soybeans behave differently (Tab. 1).

When the inoculation is carried out by spraying with a hand sprayer, using the suspension of bacteria, concentration 10^8 cells/ml, the symptoms of the disease manifest themselves on string bean plants only, after 8 days, first in form of chlorotic spots, on young three-stipulate leaves, and then in form of necroses and withering of leves (Fig. 4).

When inoculating by the infiltration of the suspension of bacteria by means of medical syringe into the leaf tissue of plants, there was used the suspension of bacteria, concentration 10^6 cells/ml. Necrotic spots which appear there after, have been noticed four days later with string beans and broad beans and three days later with lupin. The spots gradually increase and spread causing the withering of leaves (Tab. 1). The least changes have been noticed on broad beans and the greatest ones on string beans and (Fig. 3 and 6). On peas and soybeans there occur no changes at all.

On the pods of string beans, having been inoculated with the medical syringe there develop first greenish oily spots and afterwards dark spots with the red aureole and drops of yellowish bacterial exudate. The tissue on the edge of spots raises itself in form of blisters that burst, which can serve as a diagnostic symptom (Fig. 5).

All of the five studied isolates produce the acid without gas on culture media containing: arabinose, galactose, glucose, xylose, mannose, saccharose and lactose in the first week of development, and on the culture media containing maltosa and glycerin in the course of the second

week of development. They do not dissolve dulcite. On culture media with raffinose, dextrin, esculin and mannite these bacteria behave in different manners.

Except the isolate Bor-14, all the other isolates dissolve gelatin and hydrolyze starch. They peptonize milk, create hydrogen sulfide and ammonia, do not reduce nitrates and nitrites and do not produce indole. They develop in culture media containing 3% NaCl, whereas the MR and VP tests are negative. The unequal behavious of our isolates in culture media of starch and gelatine, as well as on the above mentioned sugars, may indicate the existence of strains with these bacteria.

On the basis of morphological, breeding, biochemical and pathogenic properties of the studied isolates it is possible, according to the recent nomenclature and taxonomy, to conclude that they belong to the bacterium *Xanthomonas campestris pv. phaseoli* (Smith) Dye, since the old denomination *X. phaseoli var. fuscans* (Burkholder) Starr et Burkholder is no more used (Young et al., 1978; Dye et al., 1980).

EFFECT OF *PHOMOPSIS* ON GRAIN YIELD AND OIL CONTENT IN SUNFLOWERS

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Summary

The author studied the effect of Phomopsis on grain yield and oil content in inoculated sunflower plants and he drew the following conclusions.

Highest infection rates were achieved with one inoculation in the second internode or half way up the stem at the stage of flower (100 and 92.50%, respectively), one inoculation at the stage of budding (97.73%), and two or three inoculations at the stage of flower (100% in either case).

Lowest infection rates were achieved with the inoculation in the head, regardless of the stage of development.

Grain yield and oil content varied in dependence of the time, site and number of inoculations. One inoculation half way up the stem was more detrimental to oil yield if performed at the stage of budding than at the stage of flower. If performed after the stage of flower, the inoculation was practically ineffectual.

One inoculation in the head at the stage of flower was more detrimental to grain yield and oil content than one inoculation after the stage of flower.

Two or three inoculations at the stage of flower brought considerable reductions in grain yield and oil content.

All variants of inoculation at the stage of budding (1) and flower (2, 3, 4, 5, and 6) brought significant reductions in grain yield in relation to the variants of inoculation after flower (7 and 8) and both controls (9 and 10).

The inoculations brought about significant changes in the content and ratio of essential fatty acids in sunflower oil.

INFLUENCE OF TEMPERATURE ON GERMABILITY OF SPORES OF *VENTURIA INAEQUALIS* (COOKE) WINTER, AND THEIR VIABILITY AS AFFECTED BY AGE

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Summary

Investigation of the influence of temperature on germability of *Venturia inaequalis* spores was carried out with homogeneized conidial population not older than two days, and with ascospores released at the same time from mature perithecia.

Conidia and ascospores originated from the leaves of the apple variety Golden Delicious, which had been infected by conidia in the preceding treatment.

Conidia were exposed to temperatures ranging between 2° and 35°C in the course of 1, 2, 3, 5, 15, 25 and 45 hours in the dark, and ascospores to temperatures varying from 0.5° to 35°C over 1, 2, 3, 6, 16, 24 and 48 hours, also in the dark.

Both conidia and ascospores germinate within a wide and approximately the same temperature range. For germination of conidia, minimum, optimum and maximum temperatures are those of 2°, 16°—25°, and 32°C, respectively. Minimum temperature for germination of ascospores is 0.5°, optimum ranges between 16 and 20°C, whereas the maximum one is 30°C. A minimum period for beginning of conidial germination is 3 hours, and that of ascospores 2 hours. In the zone of either minimum or maximum temperatures, germination of conidia is considerably low, except in the longest germination periods. Unlike conidia, ascospores do germinate at a higher percentage also at temperatures of 0.5° and 5°C even when the germination period is rather short. At 30°C their germination is low, even when germination period is very long. The beginning of germination of both conidia and ascospores slackens as temperatures get closer to either minimum or maximum values.

On the basis of the results obtained in this investigation it can be concluded that temperature has no decisive influence on germination of either conidia or ascospores of *V. inaequalis* since both achieve a high germination percentage within wide temperature ranges. However, the beginning of germination of conidia and ascospores is highly dependent on temperature.

Evaluation of the influence of age on viability of *V. inaequalis* spores was performed on one-day old conidia and on ascospores which had been caught at the same time from mature perithecia onto microscopical slides. Until germination, both conidia and ascospores were stored in a dark chamber at 10° and 5°C, respectively. Viability was assessed on the basis of conidia and ascospores germination in distilled water drops, at a temperature of 20°C in the dark. Germination of co-

nidia was tested over 39 days, whereas that of ascospores over 25 days. Germination period for conidia and ascospores lasted 24 hours. Germination intensity was determined for 300 spores taken from each sample. Conidia which were permitted to germinate immediately after being placed on microscopical slides, and ascospores which were allowed to germinate as soon as they were released from perithecia were used as a control.

With ageing, conidia as well as ascospores retain their viability for approximately the same time — 18 days for conidia and 19 days for ascospores. Conidia are most viable during 8 days of their early age, and ascospores in the course of the initial 4 days. Ascospores lose their viability considerably more rapidly than do conidia.

CONTRIBUTION STUDY OF POWDERY MILDEW ON CUCUMBERS *ERYSIPHE CICHORACEARUM* D. C., IN GLASSWORKS WITH SPECIAL TURN ON BIOLOGICAL AND MORPHOLOGICAL CHARACTERISTICS PARASITES

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P. K. »Mladost«, OOUR »Proizvodnja«, Gnjilane

Summary

The testing we did in glassworks »Gornja Morava« from Kosovska Vitina in production of the year 1978/79 and 1979/80.

Pathogen *Erysiphe cichoracearum* D. C., as causer of cucumbers powdery mildew in glassworks, has not been investigated in our conditions so far.

On the base of carried out results, during our testing which has been made on the base of studying for microscopic and macroscopic symptoms of disease, biological and morphological characteristics of fungus, we can lead out the following summeries.

The first symptoms of the powdery mildew are evident in the lower and middle leaf. The strongest attack intensity of pathogen we have always conclude in the increasing plants by powerful developing leaf although the attack of pathogen is not saved and little increasing and very young at moving small plants.

In glassworks conditions on the leaf comes to some differencions symptoms of disease, in diffusing shape, and arrangement of pathogen along nervous system leaf until diffusing shape meets the lower, middle and uppermost leaf, so far, nervous system shape of pathogen appears exclusively in the lower and middle but never appears in the upermost leaf.

Except the face of leaf pathogen in glassworks can perform infection in the back of the leaf too. Also we have observed that pathogen often appears on the leaf of stem and trunk.

Although it's very rare, but it's also possible in the glassworks to become an infection to the fruits. Especially it's dangerous if the pathogen appears in the time when it's flowering and ferming new fruits. New infectioned fruits very soon became dry and fade.

— Pathogen develops very successfully in artificial infections plants bred in laboratory conditions. It's possible to perform infection in all greenish parts and with the same symptoms as in glassworks.

— *E. cichoracearum* in glassworks has a full developing cycle. Mycelium is assembled of septate hiphs whish are white or silver colour. In mycelium in it's upper parts raises some individual and unbranching conidiophores in the lower haustory. It's number and density is really dependenced of intensity attack of pathogen and developing strength of mycelium.

— On conidiophore are differentiates conidias. They are uncoloured, eggs stack or barrel stack shape. Conidias size in glassworks conditions and in natural infectioned material carried out 24—39 × 15—25 μm. During germination plainly appears a germ tube.

— Forming of perithecia in glassworks is a very rare ocourrence. Its size is moving in limits size from 93—167 μm.

In every perithecia there are 2—3 asci and very rare 5 or more asci. Its size moves from 51—86 × 29—42 μm in glassworks conditions. In asci the most frequently are two ascospores which size are 22—31 × 13—20 μm.

РЕЗУЛЬТАТЫ ИССЛЕДОВАНИЯ НЕКОТОРЫХ ГЕРБИЦИДОВ У СОРГО (*SORGHUM VULGARE VAR. EUSORGHUM*)

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Резюме

В течении 1982—1984 года в исследовании были включени следующие вариянти гербицидов: атразин, цианазин, пеноксалин, метобромурон, алахлор, линурон, металахлор, атразин + алахлор, атразин + металахлор и атразин + пеноксалин.

Наряду с гербицидами, в исследовании были включени и две контрольньее вариянты одна с окучиваними (два раза), а другая без окучивания (таб. 1).

Преобладающие сорняки били следующие: *Solanum nigrum, Portulaca oleracea, Amaranthus retroflexus, Chenopodium album, Datura stramonium* а нечто маньше *Echinochloa* и *Setaria* spp. (таб. 3).

Общая засоренкость опыта выносим они 142,9 сорняков на 1 м² в 1984 году до 285,4 сорняков на 1 м² в 1983 году (таб. 3).

В течении 1982 года у определеного числа гербицидов (алахлор, линурон, пеноксалин, метобромурон и метолахлор) коэффициент полезности гораздно мас и колеблется от 40,8 у метолахлорота до 77,7 у алахлората.

Поллезность этих перечисленньх гербицидов слабая ИЗ-за доволяно большого присуствия сорняков *Datura stramonium, Solanum nigrum* сорняки на которых эти гербициди слабо или совсем не деиствуют. У других вариянтов гербицида коэффициент полезности довольно высокии и колеблется от 95,4 у цианазина до 99,3 у комбинации атразин + алахлор.

Во второи год исследования гербициди ИЗ-за благоприятных климатических условии (большее количество дождеи таб. 2) показали большую полезность в сравнении с другими годами исследования (таб. 4).

В течении 1983 года из-за обильньх дождей в началее вегетационого периода, алахлорот и метолахлорот, в любое время когда были использовани одни или комбинировани с атразином, дейстовали фитотоксическо верх сорго и разретивале посев от 20,5 до 41,6% (таб. 5).

Урожай сорго находится в непосредственой связи от ефективности гербицидов в отклонении сорняков, т. е. зависит от фитотоксичнього деиствения некоторих гербицидов.

Самый вьсокий урожай обеспечивают двойнье комбинации. В 1983 году, в виду фитотоксичного действия алахлората и метолахлората, урожей у комбинации етих двух гербицидов в смеси с атразином меньше в сравнении с комбинаций атразин + пеноксалин, где урожай вьносит 94,2% в сравнении с контролной вариянтой т. е. с окучиванием.

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A NEW *PHOMOPSIS* DISEASE OF »THORNFREE« BLACKBERY IN YUGOSLAVIA

— Preliminary communication —

by

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Summary

A *Phomopsis* disease tentatively identified as *Phomopis vepris* (Sacc.) v. Höhn. was isolated from naturally occurring cankers on blackberry canes.

Lesions were evident as elliptic, axial, dark discolorations at the base of the buds. Buds or branches of the infected node were usually killed. Mature cankers often showed a zonate pattern and appeared surrounded by a definite margin. Conidiomata of the fungus developed subepidermically throughout the cankers; later they became erumpent and exposed their ostioles, from which dense drops or curled cirri of pycnospores oozed out. Subelliptical or fusiform α — conidia, 4.9—8.9 ×

1.4—1.8 μm, were found in most cirri; both α — and β — conidia were less often encountered in the same pycnidial cavity or exudate. Conidiomata with only β — conidia were rare. ~~β — conidia were less often encountered in the same conidiomatal cavity or exudate. Conidiomata with only β — conidia were rare~~. β — conidia were slightly curved, 28.0—32.6 × 0.4—0.7 μm. Intermediate forms, 19.2—22.2 μm in lenght and 0.8 μ in width at the rounded end and almost filiform at the other end, were occasionally seen.

A total of 70 isolates of 25 collections from different localities were obtained from diseased host tissues or from pycnospores. The fungus grew well on MA, producing white mycelium which later turned to pale peach and sometimes to grayish. Ochre colours were often observed in the hyphae around the fructifications. Green colours, characteristic in other *Phomopsis* species hen growing upon MA, were not observed.

Polymorphic stromatic structures, which began to be observed within 7—8 days, showed a tendency to be concentrically distributed in the colonies grown under alternate light and dark cycles at room temperature (21—28°C). Conidiomata irregularly globose, 250 × 200 μm (grand mean) in diameter, developed from these complex structures. Conidiophores, 20.0 — 33.0 × 0.9 — 1.8 μm unbranched, phialidic, arose from the cell layer lining the interior of the pycnidium. As in the living host tissues, most of the conidiomata examined contained only α — conidia, which on MA attained (exceptionally) up to 11.8 × 2.2 μm.

Since *Ph. vepris* has been reported on *Rubus* spp. by different authors, this binomial has been tentatively adopted to designate the causal agent of the new disease. One of the discrepancies in relation to the original description of *Ph. vepris* refers to the length of the conidiophores, indicated as very short by the ancient mycologists, whereas they were relatively long in the material from Yugoslavia.

The results of the pathogenicity tests will be presented in a next paper.

Zahvalnost

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