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. 47 (1), No 215, 1996.

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Reviews papers

Original scientific papers

COLLETOTRICHUM SPECIES ESTABLISHED IN FORMER YUGOSLAVIA

by

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Summary

In this paper the literature rewiew of the 19th *Colletotrichum* species descovered during past 70 years in former Yugoslavia (Table 1) is given. Disease simptoms data, spreading of the pathogens, their morphological and cultural properties and economical importance, hosts range and control measures are exposed.

Theliomorph absenge or presence of the pathogens are disscused. New nomenclatural data of some *Colletotrichum* species are also mentioned (Table 1).

Tošić, M. (1974): Odnos virusa mozaika kukuruza izolovanog u Jugoslaviji prema virusima mozaične kržljavosti kukuruza i mozaika šećerne trske izolovanih u SAD. - Zaštita bilja 129, 265-270.

Tošić, M., Ford, R.E., Shukla, D.D., Jilka, J. (1990): Differentiation of sugarcane, maize dwarf, Johnsongrass, and sorghum mosaic viruses based on reactions of oat and some sorghum cultivars. - Plant Dis. 74, 549-552.

Tošić, M., Mijavec, A. (1991): Maize dwarf mosaic virus, an important pathogen of *Sorghum* in Yugoslavia. - Acta Phytopathologica et Entimologicy Hungarica 26 (1-2), 147-151.

Tošić, M., Mitković, Milica (1984): Virusni mozaik - štetno oboljenje sirka u nas. - Jugoslovenski simpozijum o zaštiti bilja sa Jugoslovenskim savjetovanjem o primeni pesticida - Struga, 22-25.10.1984. (Abstr.). Glasnik zaštite bilja 10/1984, 320.

(Primljeno 25.01.1996.)

EPIPHYTOTIC OCCURRENCE OF MAIZE DWARF MOSAIC VIRUS ON BROOMCORN

by

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Summary

Mass, simultaneous and premature drying and necrosis of broomcorn leaves has been recorded 1995 in the region of south Bačka, but in less extent in regions of north Bačka, Banat and Baranja as well.

The sudden necrosis of broomcorn leaves was characterized as „*shock reaction*". The diseased plants recovered later, forming mosaic leaves and panicles as well.

Maize dwarf mosaic virus (MDMV) was isolated from diseased broomcorn plants. Identification of MDMV was based on biotest - differential sorghum cvs. reaction and serological analysis.

It is supposed that this type of diseased broomcorn plants reaction was favored by low temperature with coldness, which occurred immediately before this phenomenon.

Zaštita bilja, Vol. 47 (1), 215: 37-44 (1996), Beograd

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UDK: 632.4:633.34
AGRIS: H20 0336
Original scientific paper

CULTURAL AND MORPHOLOGICAL CHARACTERISTICS OF *PHOMOPSIS SOJAE* AND *PHOMOPSIS LONGICOLA* ORIGINATING FROM SOYBEAN*

Several *Phomopsis* spp. strains isolated from infected soybean stems and seeds originated from Yugoslavia were investigated. It was established on the basis of cultural and morphological characteristics that investigated strains belong to two species: *Phomopsis sojae* Lehman and *Phomopsis longicola* Hobbs. The first species was investigated earlier, but the second one (*P. longicola*) was described for the first time in Yugoslavia and in Europe, too.

Key words: Soybean; *Phomopsis sojae*; *Phomopsis longicola*; cultural characteristics; morphological properties.

Introduction

The fungal species from *Diaporthe/Phomopsis* genus cause the complex disease of soybean. In the U.S.A. Kulik (1983) cited the following fungi connected with soybean complex disease: *Diaporthe phaseolorum* var. *caulivora*, the causal agent of soybean stem canker, *D. phaseolorum* var. *sojae* and its anamorph *Phomospis sojae*, the pod and stem blight patogen.

The same author mentioned an undetermined species from this genus, e.g. *Phomospis* sp. as the causer of soybean seed decay. On the basis of comparative investigations of the cultural and morphological characteristics between *Phomopsis sojae* and *Phomospis* sp. strains Hobbs et al. (1985) concluded that *Phomopsis* sp. is a new species, and named it as *Phomopsis longicola* Hobbs.

D. phaseolorum var. *caulivora* the soybean stem canker pathogen is economically important species in Yugoslavia and it was investigated in detail. (Jasnić and Vidić, 1981., 1983., Vidić and Jasnić, 1988a., 1988b.). *D. phaseolorum* var. *sojae* was established in Yugoslavia (Jasnić and Vidić, 1985., Tošić, 1986.). The second pathogen *P. longicola* as far as we know is a new species for Yugoslavia and for other countries in Europe.

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* The paper was represent at the III Yugoslav congress of Plant Protection. Vrnjačka Banja, 03-07.10.1994, Yugoslavia

Ovaj rad je prezentiran na III Jugoslovenskom Kongresu o Zaštiti Bilja. Vrnjačka Banja, 03-07.10.1994. Yugoslavija

Van Regenmortel, M.H.V. (1982): Serology and immunochemistry of plant viruses. Academic Press, New York.

Zawadzka, B. (1965): Observations and preliminary experiments on fruit tree virus diseases in Poland. Zaštita bilja, 85-88, 513-516.

(Primljeno 19.12.1995.)

PLUM POX VIRUS (PPV) DETECTION BY ELECTRO-BLOT IMMUNOASSAY

by

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Summary

The PPV was detected by EBIA in plum leaves, as well as in rootstock (*Prunus cerasifera*) late in the season, after early frosts in the autumn.

Due to low virus concentration it was necessary to apply 100 µl of investigated samples per slot of the gell. Blotting onto nitrocellulose paper should be prolonged.

With samples of *Prunus tomentosa* infected with PPV two antigens of different molecular mass were detected. The reaction of those two antigens with the same antiserum of PPV, suggested the possibile presence of different antigen groups within PPV population.

Therefore, there are very good reasons for studying more thoroughly the relationship among plum pox virus population.

Černjul, Z. (1986): Baytan 15 WS - Utjecaj sistemične dezinfekcije sjemena i šireg spektra na povišenje prinosa pšenice i ječma. Jugoslovensko savetovanje o primeni pesticida, Opatija 2-6. XII 1986., Sveska 8: 111-118, Beograd, 1987.

Frank, J.A. and Ayers, J.E. (1986): Effect of Triadimenol Seed Treatment of Powdery Mildew Epidemics on Winter Wheat. Phytopathology, 76: 254-257.

Horvat Gizela, Tatić, M., Meler, A., Ujvari Katica, Francuski, Z. (1992): Rezultati ispitivanja fungicida za tretiranje semena pšenice u D.D. „PIK BEČEJ" u Bečeju. XVI Seminar iz zaštite bilja Srbije, Zlatibor, 26.01.-02.02.1992. godine. Rezimei referata: 17-18.

Jevtić, R., Jerković, Z., Pribaković, M. (1991): Uticaj dezinfekcije semena na razvoj bolesti i prinos novosadskih sorti pšenice. Zbornik radova, Sveska 19: 169-175. Institut za ratarstvo i povrtarstvo, Novi Sad, 1991.

Jevtić, R., Jerković, Z., Pribaković, M. (1992): Suzbijanje bolesti pšenice tokom 1991. godine. XIV Seminar iz zaštite bilja Srbije, Zlatibor, 26.01-02.02. 1992. godine. Rezimei referata: 83-85.

Khan, T.N., Young, K.J. (1988): Seed dressing with Baytan barley yield in Western Australia. Australasian Plant pathology, 17 (4): 99-100.

Mišić, T. i sar. (1995): Oplemenjivanje, proizvodne osobine, semenarstvo i agrotehnika novosadskih sorti pšenice i ječma. Monografija, 1-80, „Semenarstvo", Novi Sad, 1995.

Stubbs, R.W., Prescott, J.M., Saari, E.E. and Dubin, H.J. (1986): Cereal Disease Methodology Manual. Centro Internacional de Mejoramento de Maiz y Trigo (CIMMYT), Mexico: 21 pp.

Treventhan, L.E. (1991): Seed applied fungicides and their effect on winter wheat in Mississippi. Reserch Report-Mississippi Agricultural and Forestry Experiment Station, 16 (4): 4pp.

(Primljeno 29.09.1995.)

THE EFFECT OF FUNGICIDES USED FOR SEED TREATMENT ON DISEASES DEVELOPMENT AND YIELD OF SOME WHEAT VARIETIES

by

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Summary

The results of a two year investigation period of studying the effect of fungicides for seed treatment on diseases development and yield of five winter wheat varieties (Balkan, Jugoslavija, Rana niska, Zvezda and Francuska) are presented in this paper. For seed disinfection the following fungicides were used: Benit universal, Vitavax 200 FF, Prelude SP and Baytan universal.

The varieties Rana niska and Francuska achieved significantly higher yields than varieties Balkan and Jugoslavija at the level of significance of 5%. However, at the level of significance 1% statistically approved differences between yield in 1991 and 1992, at the levels of significance of 5% and 1%, respectively.

In both years of investigation a very weak attack of parasites *E. graminis tritici*, *P. recondita* and *Fusarium* spp. occured (tab. 2 and 3).

A high correlation coefficient between years and hectolitre mass (r=0.97) was found.

PATHOGENIC, BIOCHEMICAL AND PHYSIOLOGICAL CHARACTERISTICS OF THE BACTERIA „*ERWINIA CAROTOVORA*" GROUP, THE POTATO PATHOGENS

by

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Summary

Potato stem base rot or „*black leg*" and tuber soft rot have occured more often in this country recently. Therefore, samples of diseased potato plants and tubers, originating from different localities, were collected and bacteriologically tested. A large number of bacterial strains were isolated. Nineteen of them were studied: 5 bacterial strains isolated from diseased potato stems and 14 strains from rotten tubers. Their pathogenic, morphological, cultural, biochemical and physiological characteristics were investigated. According to the results obtained three strains (Kr-15, Kr-30, Kr-31) were identified as *Erwinia carotovora* subsp. *atroseptica* (van Hall) Dye and 16 strains (Kr-74, Kr-156, Kr-169, Kr-180, Kr-183, Kr-185, Kr-283, Kr-286, Kr-298, Kr-299, Kr-308, Kr-314, Kr-340, Kr-341, Kr-381, Kr-382) as *Erwinia carotovora* subsp. *carotovora* (Jones) Bergey et al. None of the strains investigated belonged to the bacteria *Erwinia chrysanthemi* Burkholder et al.

Penčić, O. Viktorija, Lević, T. Jelena, Stanković, R. Milena (1991): Method for detection of *Stenocarpella maydis* (Earle) Sutt. (*Diplodia maydis* (Berk.) Sacc.) Zeitschrift für Pflanzenkrankheiten und Pflanzenschutz 98: 179-184.

Penčić, Viktorija, Lević, Jelena, Ivanović, Dragica, Stojkov, Slavica (1990): Frequency of fungi causing maize root rot and stalk rot in Yugoslavia. Proceedings of the 8th Congress of the Mediterranean Phytopathological Union, 329-331, Agadir - Morocco.

Pereich, J.A., Lockwood, J.L. (1975): Influence of atrazine on the severity of *Fusarium* root rot in pea and corn. Phytopathology 65: 154-159.

Ragab, M.M., Fahim, M.M., Eisa N.A. (1970): Pathologycal and histological studies on *Fusarium moniliforme* Sheldon the incitant of pink rot disease of maize in U.A.R. Agricultural Research Review, 48: 141-156.

Rao, B., Schmitthenner, A.F., Caldwell, R., Ellett, C.W. (1978): Prevelence and virulence of *Pythium* species associated with root rot of corn in poorly drained soil. Phytopathology 68: 1557-1563.

Scott, G.E., Futrell, M.C. (1970): Response of maize seedlings to *Fusarium moniliforme* and a toxic material extracted from this fungus. Plant Disease Reporter 54:483-486.

Smiljaković, Hristina, Draganić, M. (1977): Prilog proučavanju etiologije truleži korena, stabla i klipa kukuruza u SR Srbiji. Zaštita bilja 28: 97-106.

Sumner (1968): Ecology of corn stalk rot in Nebraska. Phytopathology 58: 755-760.

Sumner, D.R., Hook, J.E. (1985): Irrigation management and root and stalk rot of corn. Plant Disease 69: 239-243.

Warren, H.L., Kommedahl, T. (1973): Prevalence and pathogenicity to corn of *Fusarium* species from corn roots, rhizosphere, residues, and soil. Phytopathology 63: 1288-1290.

Windels, C.E., Kommedahl, T., Stienstra, W.C., Burnes, P.M. (1988): Occurrence of *Fusarium* species in symptom free and overwintered cornstalks in northwestern Minnesota. Plant Disease 72: 990-993.

(Primljeno 24.12.1995.)

STUDIES ON *FUSARIUM PROLIFERATUM* AND *FUSARIUM MONILIFORME* ISOLATED FROM SOIL, MAIZE ROOT AND STALK AND DETERMINATION OF THEIR PATHOGENICITY

by

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Summary

During the two-year period (1993-1994), the following *Fusarium* species with different frequencies were isolated in soil, maize root and stalk. *F. solani, F. equiseti, F. moniliforme, F. oxysporum, F. sybglutinans, F. graminearum, F. culmorum, F. sporotrichioides, F. tricinctum, F. crookwellense* and *F. proliferatum*. *F. proliferatum* was for the first time isolated in Yugoslavia in 1993.

The purpose of this study was to describe in detail this newly discovered *Fusarium* species, to determine whether it was saprophytic or parasitic importance for maize and to ascertain whether maize inbred lines were susceptible to the pathogens or not. At the same time, the study

also included *F. moniliforme*, as it is very distributed species of known pathogenicity and similar properties to *F. proliferatum*.

F. proliferatum and *F. moniliforme* produced microconidia in short chains on polyphialides and long or short chains on monophialides, respectively. The first one formed a little white „tufts" on PDA and CLA media, while the later did not. *F. proliferatum* frequency was higher in soil, while the frequency of *F. moniliforme* was higher in maize root and stalk.

Both species were more distributed in root than in stalk and were patogenic to maize seedlings, especially isolates of *F. moniliforme*, causing tissue necrosis of root and hypocotyl growth. The two isolates out of all *F. proliferatum* isolates, pr23 and pr26, were of the highest and the lowest virulence, respectively. Susceptibility of maize inbred lines to studied fungi and different isolates of one fungus was different.

Obtained results point out that *F. proliferatum* is significant maize pathogenic species and can cause serious necroses and even decay of seedlings.