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**SOME CHARACTERISTICS OF THE *Phomopsis* spp. STRAINS
ISOLATED FROM VARIOUS FRUIT-TRESS, GRAPEVINE
AND ORNAMENTAL PLANTS IN SERBIA**

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SUMMARY

During 1970-1995 at the Faculty of Agriculture in Novi Sad a lot of *Phomopsis* spp. strains, the pathogens of various woody plants were isolated.

They were identificated by Dr E. Punithalingam(International Mycological Institute, Bakeham Lane, Egham, Surrey TW 20 9TY, UK) as the follow species: *Phomopsis perinicos*a Grove originated from pome and stone trees and fruits diseased as well as from rooted cuttings and nursery stock of pome including *Phomopsis* sp. from medlar branches infected, *Ph. juglandina* (Sacc.)Höhnel and *Phomopsis* sp. from branches dieback and nusery plants of walnut, *Ph. corticis* (Fuckel) Grove, *Apioporth*e *vepris* (Delacr.)Wehm. (anamorf: *Phomopsis vepris* Höhnel) and *Phomopsis* sp. causal agents of necrotic dieback of blackberry canes, *Apiopoithe vepris* (Delacr.) Wehm. (anamorf: *Phomopsis vepris* Höhnel) and *Phomopsis* sp. isolated from raspberry canes diseased, *Ph. viticola* (Sacc.) from canes of grape dieback, *Phomopsis pernicios*a Grove from cherry-laurel branches infected, *Ph. incarcerata* (Sacc.) Höhnel (syn. *Ph. rosae* Grove) originated from canker and branches dieback of wild rose and *Ph. arnoldiae* B. Sutton (syns: *Fusicoc*cum *elaeagni* Carter et Sacamano; *Phomopsis elaeagni* (Carter et Sacamano) Arnold et Carter cause branches dieback of Russian olive plants.

The main characteristics of conidiomata, α and β -pycnidiospores and the signs designated of the *Phomopsis* spp.strains isolatet from woody plants in Serbia were given in this paper.

Key words: fruit-trees, grapevine, ornamental plants, *Phomopsis* spp., colonies, pycnidial stromata, α and β - pycnidiospores

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The autor is very grateful to Dr Punithalingam for the identification of many *Phomopsis* spp. strains isolated from various plant species.

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**BOTRYOSPHERA OBTUSA CAUSER OF APPLE FRUIT
ROT IN SERBIA**

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SUMMARY

The symptoms of apple fruit black rot of different cultivars caused by *Botryosphaeria obtusa* were found in the refrigerated warehouse of PIK «Južni Banat», Vršac, and on the trees in the field in Šabac town vicinity during 2003 and 2004. The optimal temperature for both pathogen development and spore germination were between 25° and 30°C for all isolates marked as J-1, J-2, J-15 and J-16, respectively. The results of morphological investigation of the isolates indicated that two different morphotypes of pathogen *B. obtusa* exist on apple fruits. (type A: isolates J-1 and J-2 and type B: isolates J-15 and J-16). Both types of isolates could caused rotting of apple fruits, but there were significant differences in their aggressiveness.

Key words: apple, fruit rotting, *Botryosphaeria obtusa*

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PHOMOPSIS ARNOLDIAE – THE PATHOGEN OF RUSSIAN OLIVE NEW FOR OUR COUNTRY

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SUMMARY

In spring 1994 and 1995 a strong infection of Russian olive (*Elaeagnus angustifolia* L.) was noticed in Novi Sad city (Serbia). On the plants crown many branches diseased typical symptoms of the wilting and dieback expressed. From the tissue necrotic a lot of fungal strains were isolated on PDA. Their pathogenicity were proved by artificial inoculation of Russian olive branches expressing high virulence causing wilting and dieback symptoms similar to those under the spontaneous infection.

The fungus was reisolated successfully. The whitishgray colonies of the fungal isolates and reisolates yielded black pycnidial stromata and both α /fuziform/ and β /filiform/ pycnidiospores typical for the species of the *Phomopsis* genus. On the basis of the morphological and cultural characteristics of the strains isolated from Russian olive the fungus studied was identified as *Phomopsis arnoldiae* Sutton which is for the first time observed in Serbia.

During this investigation no teleomorph was noticed in vitro nor in vivo. His existence in the world is disputable (Arnold and Carter, 1974).

Key words: Russian olive, *Elaeagnus angustifolia* L., *Phomopsis arnoldiae*, strains, pathogenicity, pycnidial stromata, α and β pycnidiospores.

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EPIDEMIOLOGICAL STUDY OF REDNESS ON MAIZE

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SUMMARY

Redness as a harmful disease on maize has been present in Banat, as well as in some other regions of Serbia, since 1957. Some years the redness of maize was epiphytotic causing considerable reduction of yield of corn, sometimes over 50%.

Redness of maize is a peculiar disease. It appears usually at the beginning of July when maize plants approach tasseling. First symptom can be seen as redness of main vein in the leaves near the ear. Later on redness spreads all over leaf blade, than on upper and lower leaves, as well as on stalk and ear of infected plants. The kernels of diseased maize plants, starting from the top of the ear remain empty (not properly filled) and shrivelled. Infected maize plants wilt and dry up early.

From maize plants diseased by redness the fastidious bacteria have been extracted. Those bacteria we found in leaf, kernel and adventive roots. Fastidious bacteria were also extracted from Johnson grass (*Sorghum halepense*) leaf and rhizome, as well as from leaves of *Setaria viridis* and *Taraxacum officinale* plants showing symptoms of redness.

Maize plants grown under plastic tunnel (controlled space) from the beginning of June until the end of August were not infected and did not show the symptoms of redness. On the other hand, the most infections of maize plants by the cause of redness took place when maize plants were uncovered during the second half of July. In both years of investigations (2004. and 2005.) the redness was present in the surrounding crops of maize. In 2004 32.0% and in 2005 21.5% maize plants in neighbouring crops showed symptoms of redness.

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THE STRAINS CHARACTERISTICS OF *Pseudomonas syringae* pv. *mori* BACTERIUM OF MULBERRY PATHOGEN IN VOJVODINA

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SUMMARY

Six isolates of the bacterium *Pseudomonas syringae* pv. *mori* obtained from the diseased shoots and leaves of mulberry tree /Fig.1/ were studied. On the mulberry leaves inoculated by petal leaves dipped into the bacterial suspension 10 cfu/ml chlorotic and necrotic changes appeared, wich spread covering a large tissue surface of the infected leaves /Fig.2c/.

On unripe frits of fruit trees /pear cherry, sour cherry and lemon / inoculated by pricking using bacterial suspension 10 cfu/ml no tissue necrosis appeared.

Tissue necrosis was also absent on string bean pods inoculated by infiltration of bacterial suspension as well as on young bean plants by spraying. /Table 1/.

The check strains of *Pseudomonas syringae* pv. *syringae* /K-4 and Ks-108/ caused fruit tissue necrosis of fruit trees, string bean pods and bean plants /Table 1/. Negative results of the pathogenicity obtained on bean plants artificially inoculated with mulberry strains were opposite to literature data /Bradburry, 1986/.

The investigated mulberry strains were grammnegative; on King's B medium they produced green fluorescent pigment and colonies of levan type on NAS medium; oxidase production, potato slices rot and arginine dihydrolase activity were negative, but tobacco hypersensitivity positive /LOPAT: + -----+;/ glucose metabolism was oxidateve /Table 2/.

The tests of biochemical-physiological differentiation /gelatin hydrolysis, erythrytol utilization and DL-lactate metabolism/ of mulberry strains were in accordance with literature data-/Bradburry, 1986/. Due to this, isolates from mulberry tree manifested negative results while the check ones of *Pseudomonas syringae* pv. *syringae* originated from pear /K-4/ and apricot tree /Ks-108/ were positive /Table 3/.

Therefore, the isolates originating from mulberry tree are clearly more closely related to the bacterium *Pseudomonas syringae* pv. *mori* Boyer et Sambert Young, Dye et Wilkie 1978 to which they most probably belong.

Key word: mulberry tree, bacterium, pathogenicity, cultural characteristics, biochemical-physiological properties, *Pseudomonas syringae* pv. *mori*.

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BIOEFFICIACY OF TWO BACTERIAL INSECTICIDES OF *BACILLUS THURINGIENSIS* BERL AND *SACHAROPOLYSPORA SPINOSA* AS A BIOLOGICAL CONTROL AGENT AGAINST *GLOBODERA* *ROSTOCHIENSIS* ON POTATOES

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Biocontrol potential of the biopreparations of *B. thuringiensis* var. Berliner and Kurstaki: HD₁ (Custum larvo WT; Costar 76 LW) and Naf 85 (Spinosad 480 Sc- derived from the actinomycete *Sacharopolyspora spinosa*) alone (soil and potato-tubers treatment) and in the combination with herbicide agents *G. rostochiensis* on potatoes were studied under glasshouse conditions. The soil applications of the biopreparations improved the plant growth and yield of potatoes, being greatest with Costar 76 LW. The greatest increase in the yield occurred in the Oxamyl application (16,6 %) followed by Costar 76 LW (9,9 %) and Custum larvo WT (8,2 %). Soil application was relatively more effective than the potato-tubers treatment. The percentage of infected females was from 26,8 % to 45,2 % and from 4,4 % to 21,1 % at the soil application and potato-tubers treatment respectively. The nematode reproduction was reduced 86,0 % with Oxamyl and 52,7 % with Costar 76 LW. The herbicides – Raft 800 WG (800 g/kg apsadiarzhil) at rate 28 g a. i./0,1ha, Merlin 750 WG (750 g/kg izoxaflutol) at rate 2,63 g a.i./0,1ha and Dual gold 960 EC (960 g/kg – metolachlor) at rate 144 g a.i. /0,1ha, had no effect on the activity of the biopreparations.

Key words: nematode density, bioagents, herbicides.

INTRODUCTION

Potato cyst nematode *Globodera rostochiensis* is an important pest of potatoes and it can cause severe losses in yield. So far mostly nematicide insecticides were used for the control, and most of them are potentially dangerous because they pollute the environment.

**NEW DAGGER NEMATODES (NEMATODA: DORYLAIMIDA)
FROM SERBIA**

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SUMMARY

During a nematological survey to determine the occurrence and distribution of Longidoridae in Serbia, specimens representing two new *Longidorus* species for Serbia were collected. First of them (*L. elongatus* de Man, 1876) Thorne at Swanger, 1936, was found at site Mojince near Dimitrovgrad in East Serbia in a native pasture. Second one (*L. leptcephalus* Hooper 1961) was collected long time ago (1972) and recently in grassland on mountain Zlatibor, on locality Stočna farma in West Serbia and also found together with *L. elongatus* in same locality Mojince in East Serbia.

Morphology and morphometrics of above mentioned species are presented and illustrated in this article.

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COLORADO POTATO BEETLE (*Leptinotarsa decemlineata* Say) RESISTANCE LEVELS TO ENDOSULFAN IN SERBIA

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Insecticide efficacy for Colorado potato beetle (*Leptinotarsa decemlineata* Say) control rapidly decreases due to genesis and development of resistance. Resistance causes harmful impact to both, economy and ecology. Resistance monitoring has one of the most important roles in avoiding these problems. Early detection and resistance monitoring could prolong use of insecticides. Colorado potato beetle resistance monitoring to endosulfan was conducted. Test insects were collected from nine localities that cover all regions in Serbia. The first generation adults of both sexes and third instar larvae were tested for differences in susceptibility between populations and life stages. The data suggest the possible unique mode of resistance to endosulfan, considering narrow intervals of resistance ratios. Significant differences of susceptibility between life stages were determined. Larvae were more susceptible and this could be important for control of this pest.

Key words: Colorado potato beetle, resistance, insecticide, endosulfan, larva, adult, monitoring, method.

INTRODUCTION

Colorado potato beetle, *Leptinotarsa decemlineata* Say (Coleoptera: Chrysomelidae) is a limiting factor for production of potato worldwide (Harc, 1990). In Serbia, potato beetle has 2 generations per year, by favour of which obtains high density. In order to assure normal yield, potato in Serbia is treated with insecticides 3-4 times a year (Zabel et al., 2000a; 2000b). Most of the potato