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# ZAŠTITA BILJA PLANT PROTECTION

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CONTENTS

*Original scientific papers*

- Nenad Dimić, Pantelija Perić, Biljana Magud*  
*Phyllonorycter Medicaginata* Gerasimov, 1930. (Lepidoptera, Gracillariidae),  
a new species in the entomofauna of Yugoslavia ..... 267-281
- Miroslav Ivanović*  
Biological characteristics of septoria apiicola pathogen of celery ..... 281-309
- Biljana Urošević, Zorica Tomić, Jasmina Rudović,*  
*Fusarium* sp. a causal agent of red clover wilting ..... 311-318

**PHYLLONORYCTER MEDICAGINELLA GERASIMOV, 1930,  
(LEPIDOPTERA, GRACILLARIIDAE), A NEW SPECIES IN THE  
ENTOMOFAUNA OF YUGOSLAVIA**

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S u m m a r y

According to literature data (Herring, 1957; Deschka, 1967, ...) lucerne is inhabited by three leaf miner species from the genus *Phyllonorycter*. In mid - June 1995, high population density of one *Phyllonorycter* species on lucerne was registered in the locality of Konjarnik (Belgrade). On the basis of the appearance and structure of male genital armature, this species was identified as *Phyllonorycter medicaginella* Gerasimov, 1930. Completely formed mines were transferred to the Institute in Zemun. Ecloded imagoes were isolated on ten chosen leaf clusters of lucerne. Since then, the research of the newly-determined species has started. The very same year, the species was proved also in Zemun, and later on, also in other localities of the wide region of Belgrade (Topčider, Obrenovac, Plavinac-Smedcrevo ...).

The moths belonging to the species of the genus *Phyllonorycter* (*Lithocolletis*), which inhabit lucerne, are very much alike. Due to this, over 40% of the material in the most of scientific collections was wrongly determined. The identification of them depends only on the structure of male genital armature (at females, differences are insignificant, and a confusion is possible). In contrast to *Ph. insignitella* Zeller and *Ph. nigrescentella* Logan, the *Ph. medicaginella* Gerasimov external parts of male genitalia are completely symmetric.

During the previous four years, the researches proved that *Ph. medicaginella* in our conditions has got six to seven generations. This is in total opposition to the previous findings, according to which this species has got two generations. In the same way, the data on plant sustainer are problematic. Literature data on plant sustainer could non be confirmed by our investigations (neighter found in nature, nor inhabited ed by force on the plants in pots).

*Ph. medicaginella* causes characteristic tent-like mines on the underside of lucerne leaves. Very rarely (approximately 1/1000) the tent-like mines occur on the upper side of lucerne leaf, from which most often moths do not occur.

*Key words:* lucerne, *Medicago sativa* L, Leaf miner, *Phyllonorycter medicaginella*

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## BIOLOGICAL CHARACTERISTICS OF *SEPTORIA APICOLA* PATHOGEN OF CELERY

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### S u m m a r y

Leaf spot represents a frequent celery disease not only in the world, but in our country as well. For as the celery in the field or at the market is concerned, numerous irregularly round leaf spots of light and dark brown colour have been often found.

Since the fungal pathogen, *Septoria apiicola*, a causal agent of celery leaf spot, has not been thoroughly investigated in Yugoslavia yet, we started isolating and researching its biological characteristics. The morphological and cultural characteristics of the eight isolates originating from the different and geographically distant localities have been studied.

On the potato - dextrose agar (PDA) the isolates formed whitish, grey or black colonies with flat circumferential part and low radial growth and convex central part. The mycelium of the parasite was multicellular and hyaline. Within the globose fruiting body of the fungus, the pycnidium, 77-185  $\mu$ m in diameter, on average the hyaline, filiform and multicellular pycnidiospores which the average size was 21,55 - 58,32 x 1,90 - 3,35  $\mu$ m were formed. The characteristic changes, which proved to be property of fungi of *Septoria* genus were noticed during the germination period. In the unfavourable conditions for of fungi to develop, chlamydospores were formed.

When studying their cultural characteristics, it could be concluded that the celery leaf- and root-extract agar conditioned the isolate growth most favourably. They appeared to grow most intensively in the conditions of the natural cycle of rotation day and night (14 hours of day light - 10 hours of night-time) and of application of pH 6 and pH 8 PDA. The optimal temperature for the investigated isolates to grow was ranging from 20 to 25° C.

Researching the host range of *S. apiicola* isolates, it was found that they were highly specialized. Namely, the isolates exhibited pathogenicity only to celery while the other plants, members of *Apiaceae* family, proved to be resistant. Inoculation of different celery cultivars, indicated their high susceptibility to the parasite.

The parasite kept surviving and was transmitted by the infected celery leaf debris. The viability of the pycnidiospores lasted within the period of eight to over twelve months, depending on the ecological conditions that they were exposed to. The seed is shown to be the significant inoculum source. On which the pycnides have maintained their viability for about 14 months.

In order to make an infection of the celery leaf successful, it was necessary to place the plants that had already been inoculated in the conditions of high humidity. The most intensive infection occurred at the temperature of 25° C, in the optimal period high humidity of (100% r.h.) ranging from 24 to 48 hours.

Under known conditions the incubation period of *S. apiicola* lasted from nine to thirteen days. However, it was climate-dependent, first of all on wet periods and temperature that the plants were exposed to.

*Key words:* celery, leaf spot, *Septoria apiicola*, morphological and cultural characteristics, host plants, cultivar susceptibility, epidemiology.

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## *FUSARIUM* SP. A CAUSAL AGENT OF RED CLOVER WILTING

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### S u m m a r y

On the basis of the results obtained, it can be concluded that the studied fungus, isolated from the red clover root and root neck, belongs to the species *Fusarium* spp.

Symptoms expressed on artificially inoculated red clover plants are identical with these ones occurring in nature. They caused stunted growth and chlorosis in infected plants. Necrosis of the vascular tissue is evident on a cross-section of the near-ground part of the stem. Subsequent phases of disease development included the necrosis of root, near-ground and upper parts of the stem. Leaves curled from the base to the tip, which regularly resulted in entire plant wilt.

On potato-dextrose agar (PDA), the fungus formed a well-developed and compact aerial mycelium grayish-white with rosy shades in color. Microconidia is  $6.2 \times 2.8 \mu\text{m}$  ( $5-12 \times 2.2-3.5 \mu\text{m}$ ). in size Macroconidia had principally three septa, slightly bent in the upper part. They are  $28.3 \times 5.8 \mu\text{m}$  in size. ( $4-5.5 \times 25-50 \mu\text{m}$ ). The dimensions of chlamydospores are  $7-11 \mu\text{m}$ .

The studied fungus is pathogenic for the following test plants: red clover (80%), lucerne (63%), white clover (67%), and soybean (40%), bean (23%), pea (17%), lupinus (13%), field pea (7%) (Table 2).

Colony grew most rapidly on oil-beat agar and potato-dextrose agar. The fungus did not develop well on Czapek Sagar, but did it fairly well on all other media (Table 3).

The most intensive sporulation was on PDA and on maiz flour agar. Mycelium was predominantly white-colored. Optimal temperature for fungus growth was  $23^\circ\text{C}$  (Table 4).

*Key words:* red clover, *Fusarium* sp, wilt, morfological characteristics, cultural properties.

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