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EFFECTS OF SOME ECOLOGICAL FACTORS ON *DOTHICHIZA POPULEA* SACC. ET BR. GROWTH

ABSTRACT: The aim of the present work was to evaluate the mycelial growth and fruiting vigor of *Dothichiza populea* Sacc. et Br. under various temperatures, pH values, and light regimes. Effect of temperature on the fungus growth was examined by growing isolates in polythermostat at 5°C to 30°C. The best mycelial growth occurred at 20°C, while at 30°C it was inhibited. Fruiting of the fungus was not observed at 5°C, 25°C, and 30°C. However, the best fruiting of the isolates appeared at 20°C. The influence of different pH of the cultivation medium (3,5—10) on the fungus isolates growth was also evaluated. Optimal pH for the fungus growth ranged between 6 and 8, while formation of reproductive organs occurred at all pH values. The influence of two light regimes (light/dark regime and continuous dark) on the fungus growth was also studied. Obtained results showed that mycelial growth and fruiting of the fungus were considerably better under the light/dark regime.

KEY WORDS: *Dothichiza populea*, ecological factors — temperature, pH, light regime

INTRODUCTION

During the second half of the 20th century fungus *Dothichiza populea* Sacc. et Br. has attracted considerable attention of scientists in our country and abroad (Butin, 1957, Taris, 1957, Donaubauer, 1957, Hubbes, 1959, Magnani, 1959, Marinković, 1965, Gojković, N., 1981, Avramović, 1988). A remarkable portion of these authors' investigations was directed to elucidate effect of different external and internal factors on its life cycle. It is known that the fungus actively responds to various external influences by producing or "filtering" of varieties compatible with those conditions. It is supposed that the fungus population comprises subpopulations or varieties (isolates) differing in their response to environmental influences. Responses of isolates to various temperatures, pH, and light regimes were evaluated *in vitro*, in order to study their ecological characteristics.

Considering that these factors also affect the host organism of the parasite fungi, it is not convenient for these investigations to be carried out in the environment. Hence, these investigations were performed at *in vitro* laboratory. Of course, effects of the environmental factors could not be completely realistic evaluated on the base of obtained results, but information about the importance of a certain factor for the fungus growth *in vitro* is valuable. Besides, these results do not have to be in accordance with the situation in nature, where factors other than mentioned also influence the fungus and its host plant, positively or negatively.

MATERIAL AND METHODS

The *Dothichiza populea* isolates were provided from the infected seedlings, originating from Experimental Estate of the Institute for Lowland Forestry and Environment — Novi Sad and from different localities in Vojvodina. Studies of the fungus ecological characteristics were performed using six isolates. Five of them (isolates 229, 1004, 447, 103/92, and 1—5) originate from the Institute's Experimental Estate, while isolate 214 Bč originates from Bečej.

All laboratory experiments started with sowing of the mycelial fragments (size 5 mm) on the carrot medium. Experiments were performed in four replicates, with five Petri dishes in each of them. In order to estimate the mycelial growth, the diameter of the colonies was measured at certain time intervals. The growth of *D. populea* was measured until the colony in whichever Petri dish covered the complete area of the medium. The presence of aerial and substrate mycelia, as well as form and appearance of the colonies, were evaluated by visual observation, during the period of the growth measurements.

Effects of temperature on the fungus growth were examined by growing isolates on the carrot culture medium in polythermostat at 5°C, 10°C, 15°C, 20°C, 25°C, and 30°C. This method for evaluation of different temperatures impact on the pathogen growth under laboratory conditions was used by many authors (Magnani, 1959, Marinković, 1965, Marković, 1970, Arsenijević and Veselić, 1997, Kečа, 2001). The diameter of the colonies was measured 5, 12, and 16 days after the experiment beginning.

The pH values of the carrot culture medium were 3, 5, 5, 6, 7, 8, 9, and 10. Prior to sterilization, pH was adjusted using the pH meter, by adding 1N NaOH or HCl. Isolates were cultivated at 20°C, and the diameter of their colonies was measured after 5, 12 and 16 days, as suggested by other authors: Arsenijević (1963), Marković (1970), Borić (1985), Vučinić (1991), Arsenijević and Veselić (1997).

The influence of two lighting conditions (light/dark regime and continuous dark) on the fungus growth was also studied. The light/dark regime was performed in a 12-hour photoperiod. In both light regimes, the fungus was cultivated on the carrot medium at 20°C, while relative humidity was 65%—70%. After sowing, isolate 447 was cultivated in the climate chamber under light/dark regime, while mycelium exposed to total darkness was grown in the incu-

bator. Observations and measurements of the colony diameter were done after 7, 11, and 14 days, according to the method of V u č i n i ć (1991).

RESULTS

Influence of different temperatures on the fungus growth

Appearance of the colonies

Colonies of all isolates formed thin, white, circular shaped mycelia, at 5°C. At higher temperatures (10° and 15°C), colonies formed denser and more compact mycelia, having a typical look of colonies formed on the carrot culture medium at 20°C. Significant differences in appearance of the colonies at 20°C and 25°C were not found. Dirty-white plates of the aerial mycelium occurred around the primary inoculum at 30°C.

Fruiting of the isolates

With exception of the isolate 1—5, all others formed stromata with pycnidia. The fruiting bodies were formed at 10°C, 15°C, and 20°C after 45 days (Tab. 1). The isolates showed the greatest fruiting at 20°C. At this temperature, fructification of isolates 214Bč, 1004 and 447 was intensive, of isolate 229 moderate, while of isolate 103/92 mild. The fruiting intensity was weaker at lower temperatures, with exception of the isolate 103/92 which showed an uniform poor fruiting at temperatures ranging from 10°C to 20°C.

Tab. 1 — Influence of different temperatures on the fruiting intensity of *D. populea* isolates after 45 days of cultivation

Temperature / Isolates	229	214Bč	1004	447	103/92	1—5
5°C	—	—	—	—	—	—
10°C	+	+	+	++	+	—
15°C	++	++	++	+++	+	—
20°C	++	+++	+++	+++	+	—
25°C	—	—	—	—	—	—
30°C	—	—	—	—	—	—

In this experiment, temperature conditions significantly affected growth and characteristics of the studied isolates in all time intervals.

Growth of the colonies

According to results regarding the diameter of the colonies after 5 days of cultivation (Tab. 2), it could be seen that applied temperatures markedly influenced the rate of the colonies growth. The greatest growth isolates exhibited at 20°C; lower or higher temperatures decreased their growth. A negligible

growth of mycelium was observed at 5°C, 10°C, and 30°C. The isolate 447 was characterized by the highest values of the average diameter of the colony at almost all temperatures (Fig. 1). Lower values were recorded for isolates 103/92, 1004 and 229, whose diameters were similar. Isolates 214Bč and 1—5 had the weakest mycelial growth. After 5 days at 30°C, growth of the colonies was thoroughly stopped.

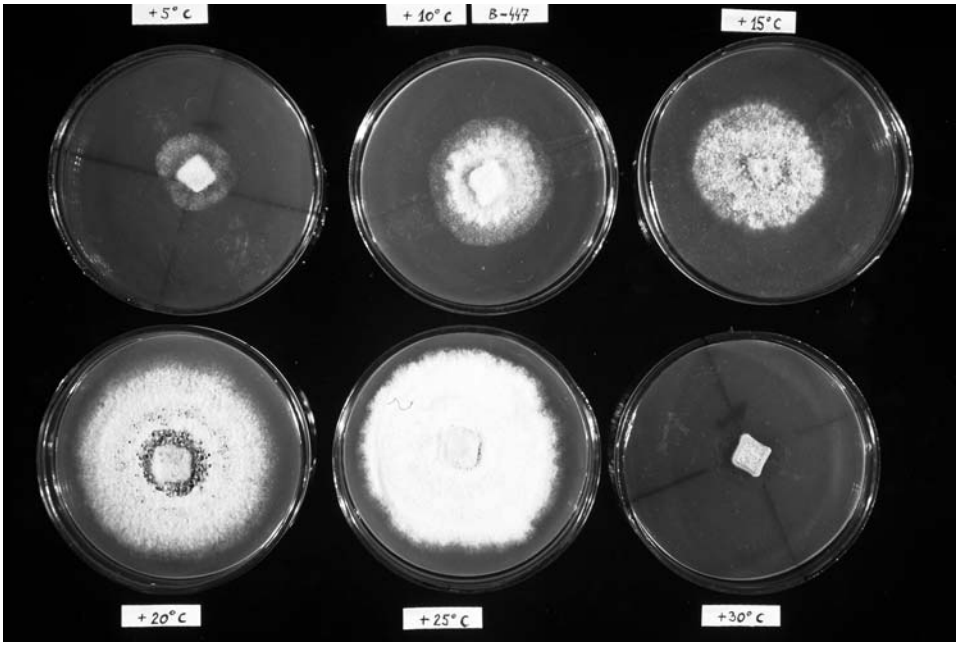

Fig. 1 — Growth of isolate 447 at different temperatures after 17 days of cultivation

Influence of various temperatures on the average diameter of the colonies cultivated for 5—12 days was pronounced. The colony growth was the greatest at 20°C, while at 25°C and 15°C it was significantly weaker. The lowest values were measured at 10°C and 5°C. The order of the isolates was changed after this period. The fast growth of isolate 214Bč caused this situation, because values of its average diameter were equal or higher than of isolates 103/92, 1004 and 229. The lowest values were recorded for isolate 1—5.

The last measurements were performed on the 16th day. The influence and order of the average values obtained for temperature intervals were not changed. Differences in growth between isolates were evident. Isolates 103/92 and 214Bč showed better growth and differentiation than 1004 and 229.

Tab. 2 — Influence of different temperatures on the mycelial growth of *D. populea* cultivated on the carrot nutrient medium

Isolates	Temperatures																	
	5°C			10°C			15°C			20°C			25°C			30°C		
	Average diameter of the colonies after 5, 12 and 16 days of cultivation (mm)																	
	5	12	16	5	12	16	5	12	16	5	12	16	5	12	16	5	12	16
447	13.2	29.2	34.7	16.2	39.2	49.0	27.3	50.0	59.0	38.6	72.2	78.0	40.5	71.7	76.5	13.5	13.5	13.5
103/92	11.0	24.2	30.8	13.7	38.0	47.0	23.8	49.2	57.2	39.3	79.7	89.7	31.2	57.3	68.0	14.7	14.7	14.7
214Bč	10.8	22.2	27.2	12.2	37.3	44.5	20.8	49.3	58.3	34.8	67.2	79.5	28.2	67.8	76.2	11.5	11.5	11.5
1004	12.3	20.8	24.0	16.0	34.5	39.3	24.0	49.3	55.7	41.0	64.2	69.2	31.8	54.5	60.8	15.5	15.5	15.5
229	12.3	21.2	23.3	16.0	34.3	38.3	24.0	42.5	46.8	35.5	61.2	67.2	35.3	44.8	49.7	14.8	14.8	14.8
1—5	11.2	16.7	22.2	14.0	27.0	31.7	18.2	29.5	33.8	25.0	50.0	59.5	28.0	47.3	56.0	14.0	14.0	14.0

Influence of different pH values of the cultivation medium on the fungus growth

In this experiment, changes of the colony appearance, color of the aerial and substrate mycelia and fruiting intensity, caused by different pH values of the cultivation medium were described.

Appearance of the colonies

A grayish-brown pigmentation of the colony center occurred in isolate 229, following 11 days of cultivation at pH 3.5 and 5 (Fig. 2). At the same time, pigmentation of the substrate mycelium was more pronounced at lower pH.

Colonies of the isolate 1004 formed a discrete rings of the aerial mycelium at pH 3.5, 5 and 10 (Fig. 2). At pH between 6 and 9, colonies were identical in their morphology (uniform density on the entire area).

Observation of the colonies formed by isolate 447 revealed irregular, ambiguous, ring-shaped increase of the aerial mycelium at pH 3.5 and 5 (Fig. 2). All colonies had the same morphological characteristics at pH 6—10.

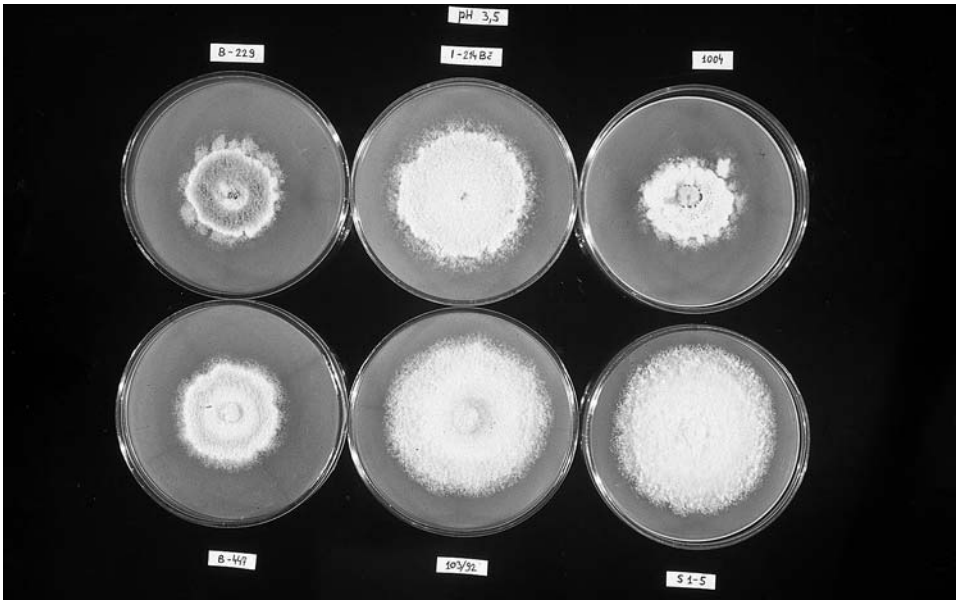

Fig. 2 — Appearance of the *D. populea* colonies at pH 3.5 after 16 days of cultivation (original)

Isolates 214Bč, 103/92, and 1—5 have retained their primary appearance at all pH values (3.5—10).

Fruiting of the isolates

Isolates formed exclusively stromatic aggregations with pycnidia. Isolate 229 produced fruiting bodies under all pH conditions (Tab. 3). After 30 days, a water drops occurred on the colonies. Pillow-shaped, blackish-brown agglomerations of hyphae, i.e. stromatic aggregations with pycnidia were formed under these drops. This isolate showed a vigorous fructification at pH 5 where stromata were formed. In addition, fructification was intensive at all pH values. Isolate 214 Bč produced a corpulent stromatic bulk following 35 days of cultivation, under all pH conditions. Fruiting was very intensive at pH 3.5—8, and weaker at pH 9 and 10 (Fig. 3).

Tab. 3 — Influence of the cultivation medium pH on fruiting intensity of *D. populea* isolates

pH / Isolates	229	214Bč	1004	447	103/92	1—5
pH 3.5	+++	+++	+	++++	—	—
pH 5	++++	++++	++	++++	—	—
pH 6	+++	+++	+++	+++	—	—
pH 7	+++	+++	+++	+++	—	—
pH 8	+++	+++	++	+++	—	—
pH 9	+++	++	++	+++	—	—
pH 10	+++	++	+	++	—	—

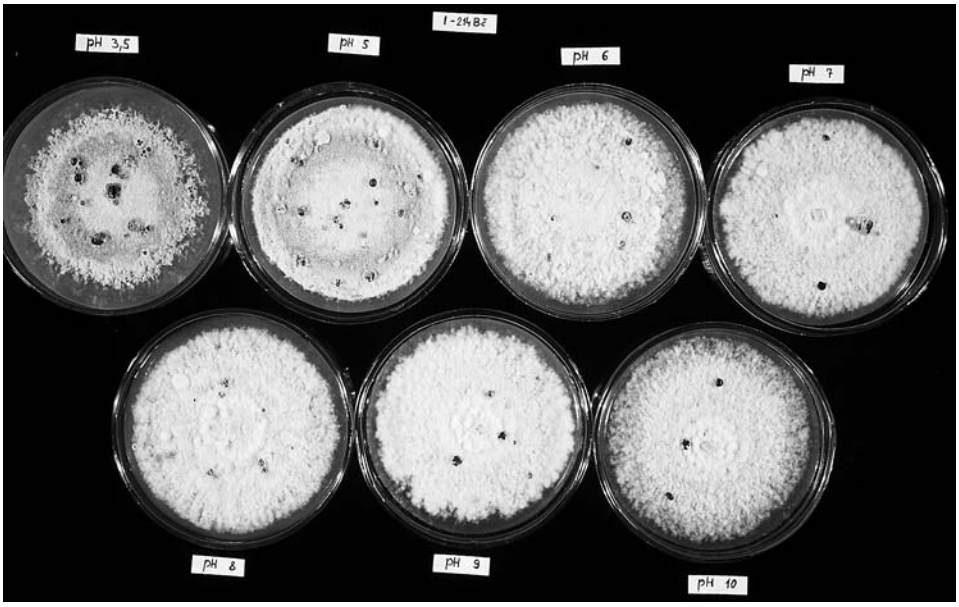

Fig. 3 — Fruiting of the isolate 214 Bč at different pH after 45 days of cultivation

The best fruiting of isolate 1004 was found at pH 6 and 7. With increase or decrease of pH, intensity of fructification evenly decreased (Tab. 3). Fruiting bodies were formed following 4 weeks of cultivation.

After 20 days, isolate 447 produced stromata at all pH values. Stromata were situated on the entire area of the colonies. Fructification was very intensive at pH 3.5 and 5, and numerous, irregularly shaped stromata provided a very specific appearance of the colonies. At pH 6—9, colonies had a similar fruiting intensity, characterized by strong fructification. Fruiting was evaluated as moderate only at pH 10. Fruiting bodies have not been formed at colonies of isolates 103/92 and 1—5.

Occurrence of the fruiting bodies at all pH values was observed in four isolates. However, two isolates failed to form reproductive organs. Isolates 229, 214Bč and 447 exhibited medium to very intensive fructification under all pH conditions. Cultivation media with acid reaction (pH 3.5 and 5) have stimulated fruiting of the isolates mentioned above. The best fruiting of isolate 1004 was found on neutral and slightly acid cultivation medium, and it decreased along with changes of pH values (increase or decrease).

Overall, colonies of *D. populea* isolates grew at a wide range of pH values.

Growth of the colonies

The mycelial growth after 5 days of cultivation was recorded under all pH conditions (Tab. 4). In this period, significant differences between average diameters of colonies at pH 3.5—8 were not found. Cultivation media with pH 9 and 10 markedly slowed down growth of the colonies. Isolates 103/92, 44, and 214Bč were grouped on the basis of great colony diameter, in comparison to isolates 1004, 22, and 1—5 (Tab. 4).

The results obtained following 12 days of the isolates cultivation elucidated high divergence of the average diameter of colonies at different pH.

Cultivation medium with pH 7 had the most beneficial effect on the colony growth. A very good growth was observed at media with a slightly alkaline (pH 8) and a slightly acid (pH 6) reactions. Average diameters of the colonies at pH 5 and 9 were smaller than those obtained at pH 6, 7, and 8. The slowest colony growth occurred on extremely acid medium (pH 3.5) and on a very alkaline medium (pH 10). At this period, colonies of isolates 103/92 and 447 showed the best growth under all pH conditions, when compared to others. Isolate 214Bč grew considerably slower than above mentioned ones (103/92 and 447). Isolates 1004, 229 and 1—5 constituted a group, characterized by slow growth of their colonies. Colonies of isolate 1—5 thrived well on a slightly acid media (pH 3.5 and 5), while on other media, their growth was the weakest (Tab. 4).

Results obtained on the 16th day, related to the growth characteristics at various pHs, have not revealed changes of relationship between their values, in comparison to the previous period. Alterations of the isolates order and of relations between the average colony diameters were not evident.

Tab. 4 — Influence of different pH on the mycelial growth of *D. populea* isolates on the carrot cultivation medium

Isolates	pH values																				
	pH 3.5			pH 5			pH 6			pH 7			pH 8			pH 9			pH 10		
	Average diameter of the colonies after 5, 12 and 16 days of cultivation																				
	5	12	16	5	12	16	5	12	16	5	12	16	5	12	16	5	12	16	5	12	16
103/92	33.2	58.0	68.3	32.2	67.7	80.3	34.7	67.7	82.8	33.2	69.3	82.7	30.3	68.3	82.5	27.8	62.7	80.0	21.0	57.8	72.7
447	30.7	59.5	70.8	29.3	63.3	75.0	33.7	72.0	85.3	34.0	72.8	89.5	31.3	71.2	89.7	28.2	62.2	87.0	21.7	59.3	75.0
214Bč	29.2	43.2	51.3	30.2	55.8	70.7	28.8	58.7	75.2	30.0	64.8	73.8	30.0	65.3	80.3	27.2	59.8	72.0	22.0	53.5	67.0
1004	24.7	39.7	46.2	28.3	41.2	49.2	27.2	54.5	73.7	30.2	61.3	73.5	29.3	62.3	75.2	26.2	59.5	70.7	19.7	51.5	64.7
229	26.8	40.5	50.5	27.5	47.2	54.5	27.7	61.7	72.7	26.7	60.0	72.7	27.5	61.8	74.7	24.2	57.5	69.3	21.3	51.3	64.3
1—5	27.0	56.3	68.0	26.8	61.0	74.8	26.8	50.8	66.0	25.7	50.7	60.7	26.2	52.3	64.5	19.2	46.7	58.8	9.8	30.8	43.0

Influence of light regime on the fungus growth

Appearance and fruiting of the colonies

Following 10 days of the light/dark regime, detached drops of water occurred on the colonies. They were arranged in a ring-shape manner, in area around the primary inoculum. After 15 days, numerous drops occupied the whole area around the fragment, which was 3—4 cm in diameter. Black concentrically arranged stromatic aggregations were formed below them. Fruiting was characterized by strong fructification. In this zone, aerial mycelium was grayish, while color of the substrate mycelium varied from pale yellow to brown. Out of this zone, both aerial and substrate mycelia were white. Concomitantly, pigmentation and water drops were not observed on the colonies cultivated in total darkness. However, the first drops were formed on these colonies after 20 days of cultivation, while stromatic aggregations after four weeks. The stromata were mainly uniformly spaced on the colony area, while fructification was intensive (Fig. 4). Therefore, the fruiting bodies appeared earlier and were more abundant on the colonies cultivated under the light/dark regime than in total darkness.

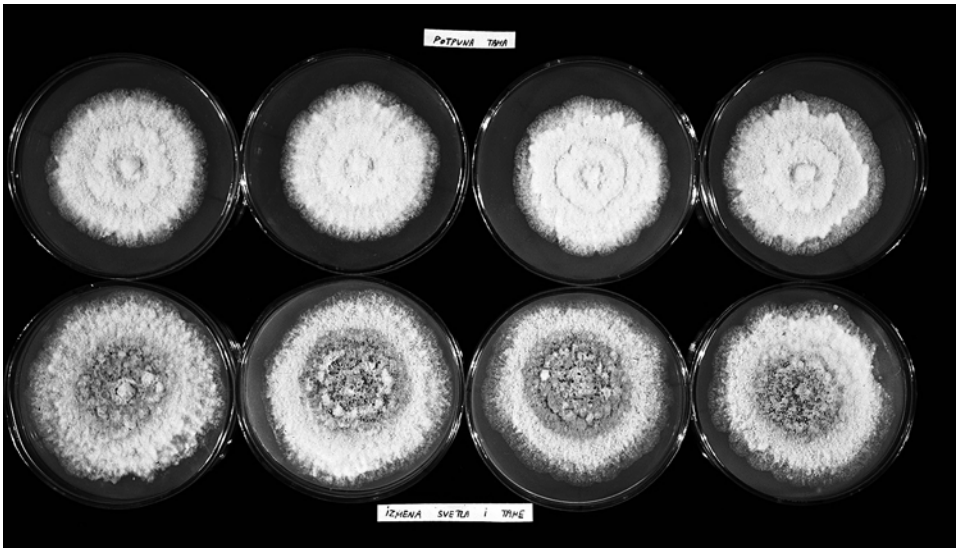

Fig. 4 — Appearance of colonies of isolate 447 exposed to various light regimes after 14 days of cultivation (orig.)

Growth of the colonies

Colonies exposed to the light/dark regime exhibited slower mycelial growth and markedly lower average values of their diameter for the first 7 days of cultivation, than those exposed to total darkness (Tab. 5).

Average values of the colony diameter, obtained after the second measuring period (i.e. after 11 days), indicated changed mycelial growth, and relationships between the varieties. In this period of cultivation, the light/dark regime induced a rapid increment of the mycelial growth, and differences between these colonies and those cultivated in total darkness became evident (Tab. 5).

Tab. 5 — Impact of light regimes on the mycelial growth of *D. populea* on the carrot cultivation medium

Isolate	Mycelial growth					
	Light/dark cycle			Total darkness		
	Average diameters of the colonies after 7,11 and 14 days of cultivation (mm)					
	7	11	14	7	11	14
447	31.9	63.6	81.3	38.7	58.8	71.5

Growth of the colonies under the light/dark regime remained very fast and dynamic in the last measuring period. According to average values of their diameters, variability between varieties became more evident.

DISCUSSION

Impact of temperatures, pH, and light regime, i.e. important ecological factors, on the fungus growth was studied in this work.

Effect of temperature on the fungus growth and development spontaneous and artificial infection of plants under both natural and *in vitro* conditions were studied by numerous authors. These investigations mainly referred to determination of temperatures optimal for the fastest mycelial growth and the best fruiting, in both the culture and plant tissue. Some authors have investigated impact of temperature on the fungus, using a wide range of values.

Donaubauer (1957) reported that optimal temperatures for the fungus growth in the culture were 20—22°C. Investigations were performed in Austria with isolates obtained from poplar plantations established on alluvium of the Danube. According to our results, the minimum limit of temperature reported by this author was optimal for the fungus growth in the culture.

Giving the retrospective view of the massive infection of poplars by *D. populea*, during 1956 in Croatia, Böhm (1957) found that optimal temperature was 18°C. He connected occurrence of epidemic spread of fungus with high mean daily temperatures during spring. These climate conditions were beneficial for the parasite growth, but unfavorable for physiological processes of plants, and massive infection occurred. Temperature reported by this author was lower than optimal values for the fungus growth obtained in our work.

In his doctoral thesis, Marinković (1965) studied characteristics of the fungus at temperatures ranging from 11 to 28°C, when mycelial physiological activity was high. Taking into consideration mean daily increment of the mycelia, the author concluded that optimal temperature was 23°C. This value was higher than that from our investigation.

Decrease of the moisture content in bark of poplar trees by 10% made them susceptible to *D. populea* attack at 20°C (B u t i n, 1957). Such results could be explained by high aggressiveness of the fungus at temperatures optimal for growth of its vegetative organs.

The mycelial growth at different temperatures (0°C—35°C) has been studied by M a g n a n i (1959). The fastest growth of the colonies occurred at 25°C, and they reached the greatest dimensions after 15 days of cultivation. The temperature was higher for several degrees than that obtained in our work.

K e č a (2001) investigated mycelial growth on MEA cultivation medium (malt extract agar) using temperatures from –1 to 35°C. The author found that temperatures between 22 and 26°C were optimal for the fungus growth. These values are higher than those obtained in our experiment, as well as in investigations of other authors.

According to average values of the colony diameter for all intervals (Tab. 2), the greatest values were reached at 20°C. Hence, we have supposed that this temperature and values close to it were optimal for the mycelial growth.

A very good growth of *D. populea* isolates at 5°C, 10°C, and 15°C was not a surprise, because the best growth in cortical tissues of plants in nature occurs in early spring, when temperatures range between 18°C and 22°C. Cambial activity does not occur at –1°C, but growth of the fungal mycelium and hyphae begins. Minimal reactions of cambium are possible at +5°C, when activity of the fungus is already high. This enables the fungus growth, which causes cell and tissue necrosis even at very low temperatures. According to H u b b e s (1959), reactions of plants become more intensive than the activity of the fungus at 15°C. Studying artificial infections in laboratory, this author found particularly great number of infections at temperatures below 12°C, suggesting a good adaptation to these temperatures. Z y c h a (1955) have described a good mycelial development and growth in the cambium at +4°C, causing death of the cells.

There is a disagreement about the maximum temperatures compatible with the fungus growth between our and other authors' results. Following several days of minimal growth at 30°C, the mycelial growth was completely retained (Tab. 2). However, the mycelium was still alive after 16 days at this temperature. Several days after the transfer of Petri dishes into incubator at 20°C, it continued the normal growth, meaning that previous period was the stage of hypobiosis, i.e. of stagnancy. The same results were reported by K e č a (2001), who have studied the influence of different temperatures on the mycelial growth. In contrast to our results, D o n a u b a u e r (1957) and K e č a (2001) observed week, but monotonous and continuous growth during the entire period of cultivation at 30°C. The upper temperature limit, where the mycelial growth stops, amounts 32°C (D o n a u b a u e r, 1957) i.e. 33°C (K e č a, 2001). Similar to these authors, M a g n a n i (1959) described a good mycelial growth at 30°C for 15 days, while the mycelium failed to grow at 35°C.

The literature data related to effects of pH on the fungus growth have elucidated the basic characteristics of the fungus at detached pH values of the nutrient medium (H u b b e s 1959, M a g n a n i 1964, B r e n d e l 1965, G o j k o v i ć 1981).

Hubbes (1959) noticed that growth of *D. populea* in the Czapek-Dox nutrient solution was slow at pH 3.6, while the adjustment of pH at 5.2 has significantly increased the dry mass of the mycelium. In our experiment, the fungus grew well at pH 3.5, but we used the nutrient medium for its cultivation, in contrast to this author, who used the nutrient solution.

The mycelial growth was intensive at solid medium containing a poplar bark extract at pH 5.2—5.6 (Brendel, 1965), while Magnani (1964) and Gojković (1981a) observed the best mycelial growth at the carrot cultivation medium at pH 6. Results of these authors suggest the beneficial effect of a slightly acid media on the mycelial growth. Results at Tab. 4 confirmed that pH 6 was the optimal in our experiment, while good growth of the colonies occurred also at pH 7 and 8.

Veldeman and Welvaert (1956) and Taris (1957) explored physiological activity of the fungus at different pH, and their investigations were focused on the germination of spores and growth of the initial hyphae. Spores were germinating even at pH below 3.5, while at 8.5 germination was stopped. These authors found that optimal pH for germination of spores was 4—6.4.

Effect of different pH values (1.9—9) on the spore germination and growth of the initial hyphae was studied by Taris (1957), who reported that germination occurs at pH 4—7, while the optimum was at pH 6.1. In addition, he has noticed a good growth of the initial hyphae at this pH. Taking into consideration the above-mentioned facts, it could be concluded that growth of the initial hyphae and spore germination occur at several pH values, while the range of optimal values for the mycelial growth obtained in our work was wider. This disagreement resulted from differences in analyzing of parameters between experiments. The above-mentioned authors studied physiological activity of reproductive organs (spores) and growth of the initial hyphae, unlike our experiment where the mycelial growth in the culture have been determined under different conditions.

The average colony diameter of the isolates (Tab. 4) was high not only on media with a very acid reaction (pH 3,5), but also with high concentration of H ions (pH 9 and pH 10).

Of many authors who have studied ecological characteristics of the fungus, only Taris (1957) has been interested in the impact of light on its development. Experiments of this author were related to spore germination and growth of the initial hyphae. Spores exposed to total darkness for three days showed higher percentage of germination and manifold longer initial hyphae than variants exposed to continuous light or a light/dark regime. Besides, the hyphae formed in total darkness were thin, thread-like, with rare branching, in contrast to a dense, branching hyphae formed at continuous light and a normal alteration of day and night. The author considered that the winter period with reduced light contributed to the success of infection. Results of our experiment showed that the mycelial growth and fruiting were considerably better at light/dark regime than in total darkness. These results could partly be compared with those of Taris (1957) because of the differences in analyzing of parameters. However, there are some agreements between experiments. The

mycelial growth in total darkness was better than at light/dark regime during the first days of experiment, similar with results obtained by T a r i s (1957), who measured growth of the initial hyphae.

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УТИЦАЈ НЕКИХ ЕКОЛОШКИХ ФАКТОРА НА РАЗВОЈ *DOTHICHIZA POPULEA* SACC. ET BR.

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Резиме

Проучаван је утицај различитих температура, pH вредности и режима светла на развој мицелије и снагу плодоношења *Dothichiza populea* Sacc. et Br. Утицај температуре на развој гљиве испитиван је гајењем изолата у политермостату на температурама од 5 до 30°C. Најинтензивнији пораст мицелије је био на 20°C, док је на 30°C развој био прекинут. Највећи интензитет плодоношења изолати су испољили на 20°C, а гљива није плодоносила на 5, 25 и 30°C. Проучаван је и утицај различитих pH вредности у подлози на развој изолата гљиве у распону од 3,5 до 10 pH. Оптимална pH вредност подлоге за пораст колонија гљиве кретала се у интервалу од 6 до 8. Репродуктивни органи су се образовали при свим pH вредностима. Утицај светлости на развој гљиве је испитан у условима смене светла и таме и условима потпуне таме. Резултати су показали да су пораст мицелије и плодоношење гљиве били значајно већи при смењивању светла и таме него у условима таме.