

## GROWTH CHARACTERISTICS OF FUNGAL PATHOGENS IN CONDITIONS OF WATER RESTRICTIONS

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The increased impact of climate change on plant ecosystems and the security of water resources causes the prevalence of the complex fungal diseases, associated with root and stem rot, seedling rot in the early stage of growth, leaf spot, but also black embryo (black point) in mature seeds. The diversity of these diseases presents a major impediment to achieving the productive potential of the wheat globally. This research focuses on the behavior of causative agents of necrosis under water restriction conditions.

Some cultural and morphological characters of 3 strains of *Drechslera sorokiniana*, *Fusarium solani* and *Alternaria alternata* species on the osmotically modified Potato Dextrose Agar (PDA) environment were investigated. Water restrictions were adjusted with polyethylene glycol (PEG 6000) in concentrations of 5%, 10% and 20% from the volume. PDA boards, inoculated in the center with discs of uniform size (5 mm) were incubated for 7 days at a temperature of 25°C. The indices of radial growth of the colony, the texture of the aerial mycelium, the surface and reverse color, the intensity of pigmentation and the zoning were recorded on the 4<sup>th</sup> and 7<sup>th</sup> days after the initiation of the culture. The fungi *F. solani*, *A. alternata* and *D. sorokiniana* revealed, respectively, a major, medium and low growth rate over the entire 7-day interval. The radial growth of the mycelium varied in a wide range, the growth rate being more pronounced in the period 1-4 days after the initiation of the culture. The water restrictions established at the administration of PEG 6000 in 20% concentration produced significant inhibition of *F. solani* growth, but also *A. alternata* in the period of 5-7 days from the initiation of culture. The mycelium *D. sorokiniana* was tested with the most advantageous increase in various drought simulations in relation to the control. The analysis of the growth rate variance of *F. solani* mycelium demonstrated a considerable decrease in the share of the fungal strain factor (68.9%-17.0%), instead increasing the contribution of PEG 6000 concentration in the 7-day culture (18.0%-48.3%). The high level of PEG 6000 was a decisive factor for the growth of *D. sorokiniana* strains (76.5%-93.6%). The decrease in the weight of the PEG 6000 factor was accompanied by the increase of the weight fungal strain equally in the case of the growth rate of the *A. alternata* fungus. In simulated drought conditions at the administration of PEG 6000, it has been revealed the spread of the mycelium in the form of a dense submerged plate or stretched film. At the same time, the delayed appearance of the aerial mycelium, the increase or decrease of the pigmentation intensity of the mycelium, the lack or decrease of the border band show the adaptability of the growth to the water restrictions.

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