reduction carried out by bacteria. Although S^0 and NO_3^- are less powerful electron acceptors of anaerobic respiration for bacteria than oxidized forms of metals, they used a thermodynamically more favourable electron acceptor, such as Cr(VI), less efficiently, possibly due to its high toxicity.

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PHYTOPATHOGENIC BACTERIA OF THE GENUS *CURTOBACTERIUM* – A NEW PATHOGEN OF LENTIL DISEASE IN UKRAINE

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Abstract. Lentils are gradually making a comeback in Ukrainian agriculture, which is not surprising, as they are rich in nutrients, high in protein, drought-tolerant, and undemanding to grow. Despite this, their yield can be significantly reduced by diseases. There is insufficient information worldwide about bacterial diseases of lentils; in particular, no such studies have been conducted in Ukraine before. We were able to isolate bacterial pathogens from infected lentils and describe them.
Keywords: phytopathogenic bacteria, *Curtobacterium,* lentil.

Phytopathogenic bacteria are constant companions of both cultivated and wild plants. They cause significant economic losses in crop production, forestry, and floriculture, and noticeably reduce crop yields and product quality.

Among plants of the legume family, lentils are being used more and more widely in agriculture as both a forage and an edible crop, as they are economically and environmentally beneficial (Sichkar, 2020). Moreover, Ukraine's climate is suitable for growing lentils (Petkevych, 2016). They are resistant to drought and high humidity, and given that temperatures in Ukraine are gradually rising each year (for example, over the past 60 years, they have increased by 1.5 degrees (Kyrylenko, 2020)), it can be predicted that lentils will be quite promising in the future. In 2025, the area planted with red lentils increased to 25,000–26,000 ha, and the average yield was 2–2.5 t/ha. The price of lentils is currently stable and high (25,000 UAH/t), making it one of the most profitable crops of the season (Basanets, 2025).

According to the literature, it is known that lentils can be affected by *Pseudomonas syringae* pv. *syringae* and *Xanthomonas axonopodis* (Adhikari, 2018; Kulshrestha, 2015); however, there have been no such reports in Ukraine, which demonstrates how little research has been done on this issue.

The purpose of this study is to isolate the pathogens responsible for bacterial diseases from various lentil varieties and to identify them based on their physiological and biochemical properties.

Methods and materials. During the 2022–2025 period, samples of seeds, leaves, and pods of the "Linza" and "Chervona" lentil varieties exhibiting disease symptoms were collected. Symptoms were described, and isolates were obtained from the samples. Isolation was performed on LB solid medium and incubated at 27 °C for 3–5 days. Bacterial colonies resembling phytopathogenic bacteria were then selected. To determine the virulence of the isolates, artificial inoculation of "Linza" lentils was performed under greenhouse conditions. After 7 days, the degree of infection was assessed, and virulent isolates were selected. Morphology was described, and microscopy was performed. To determine the physiological and biochemical properties, an O/F test was performed and oxidase activity was measured. For one of the isolates, fatty acids were also isolated, and their composition was then determined using the Agilent 6800N/5973 Inert chromatography-mass spectrometry system.

Results and discussion. Five isolates were selected that were found to be virulent toward lentils. All caused chlorosis and the appearance of necrotic spots at the site of infection on the leaves and pods. No signs of infection were observed on the stems. Microscopic examination revealed that all 5 isolates were Gram-positive, small rods, occurring singly or occasionally in short chains of 2 rods arranged in the shape of the letter "v." Based on the appearance of the colonies, the isolates were light pink (5k, 7k, and 11k), yellow (2k), and cream-colored (1k). Based on biochemical characteristics, the isolates were found to be low in activity; they did not ferment glucose or lactose and were oxidase-negative. Based on morphological, cultural, and physiological-biochemical characteristics, the isolates are similar to the plant pathogen *Curtobacterium* spp. (specifically the species *flaccumfaciens*). Additionally, the fatty acid composition of the cell lipids was determined for isolate 1k, revealing the presence of C15:0, iC16:0, aiC17:0, and C16:1; of these, aiC17:0 and iC16:0 are marker fatty acids for *C. flaccumfaciens* (Tegli, 2011).

It is known that *C. flaccumfaciens* infects legumes (particularly soybeans and beans) and causes bacterial wilt and rusty-brown leaf spot. The isolation of such strains from infected lentils may indicate that this pathogen is expanding its host range. This pathogen is dangerous because it can be transmitted through seeds and plant debris, is resistant to

desiccation, and can persist for long periods of time; it is also listed on the A-2 quarantine list in Ukraine and many other countries around the world (CORBFL, 2021).

Conclusions. In Ukraine, a description was conducted of lesions on the seeds and green parts of lentil plants of the "Linza" and "Chervona" varieties caused by bacterial pathogens. Five isolates were obtained, all of which were found to be virulent toward lentils. Based on their morphological and physiological-biochemical properties, strains 1k, 2k, 5k, 7k, and 11k were identified as belonging to the genus *Curtobacterium*.

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SOIL MYCOBIOME OF FOREST ECOSYSTEMS OF WESTERN POLISSIA OF UKRAINE: BIODIVERSITY AND STRUCTURAL ORGANISATION

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Abstract. The research dedicated to the study of biodiversity and structural organisation of soil mycobiomes in various forest ecosystems of Western Polissia of Ukraine demonstrated a high species diversity of microscopic fungi. The representatives of *the Ascomycota* shaped a stable taxonomic core, with the genus *Penicillium* being the dominant one. Different forest edaphic habitats demonstrated a high degree of species similarity in their mycobiomes, indicating ecological stability and the presence of a shared regional fungal pool. The results obtained provide a basis for future mycological monitoring and forest restoration.

Keywords: fungal community; fungal diversity; mycobiome structure; forest ecosystem; forest type; edatope; Western Polissia.