the control. Species richness and Shannon–Weaver diversity were also higher. *Amaranthus tricolor* reached approximately 1 m in the treated area compared with only 5 cm in the control.

Conclusions. *Vitasergia svidasoma* IMV F-100106 (PRJNA807518) is a novel endophytic yeast of the family *Debaryomycetaceae*, isolated from *Tuber melanosporum*. It possesses a complete T2T genome of 11.195 Mbp (PRJNA807518) and has no close relatives at the genus level. As the active agent of the Mykovital preparation, *V. svidasoma* promotes tomato growth and mycorrhizal development, increases yield (+11–12 %) and fruit quality, and accelerates fruit ripening. Application of *V. svidasoma* promotes the formation of a soil mycobiome dominated by mycorrhizal and beneficial fungi, with a reduced proportion of pathogenic components, creating conditions for reduced agrochemical use.In combination with biochar and organic mulch, Mykovital promotes the restoration of micromycete abundance and α-diversity in artillery-damaged soil and supports vigorous plant establishment, demonstrating the potential of this biotechnology for the rehabilitation of lands degraded by military activities.

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EFFECT OF CO-CULTIVATION OF LACTIC ACID BACTERIA AND YEAST ON ACIDITY LEVEL OF FERMENTED PUMPKIN JUICE

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Abstract. The study investigates the ability of *Lactiplantibacillus plantarum* strains and yeast to ferment pumpkin juice as monocultures and their combinations. The acidity level is an indicator of active microbial growth and is one of the key organoleptic characteristics. The lactic acid bacteria (LAB) and yeast strains differed in their acid production levels during juice fermentation. Combinations of LAB and yeast strains were selected based on the higher pH values and titrable activity levels compared to corresponding monocultures.
Keywords*:* lactic acid bacteria, yeast, coculture fermentation, pumpkin juice, acidity.

Fermentation is a long-standing practice in the food industry, which improves the sensory qualities and enriches the nutritional composition of foods (Shah et al., 2023). It is well-known that production of organic acids by LAB during fermentation leads to a decrease in pH values and inhibition of unfavourable microbiota growth. Furthermore, LAB strains can synthesise bacteriocins that also play the role of biopreservatives of food products (Anumudu et al., 2024). The interaction between lactic acid bacteria and yeast has long been a focus of researchers' attention. It was shown that a synergistic interaction between yeast and LAB results in unique flavour profiles and increased acid production, which shortens the time to reach the desired acidity level and obtain the end product (Fang et al., 2024). In addition, the positive health effect of consuming foods containing lactic acid bacteria and yeast strains with probiotic potential has been reported (Tullio, 2024). Pumpkin is one of the most important agricultural crops in Ukraine, which contains a variety of biologically active compounds, minerals and dietary fibre (Batool et al., 2022; Gavril et al., 2024), So, pumpkin serves as an excellent matrix for the development of food fermentation biotechnology.

The aim of the work was to investigate the effect of cocultivation of LAB and yeast strains on the level of acid production during fermentation of pumpkin juice and to select the most effective strain combinations.

LAB and yeast strains of the Ukrainian Collection of Microorganisms (UCM) and the Working Collection of the Department of Physiology of Industrial Microorganisms (D. K. Zabolotny Institute of Microbiology and Virology of the National Academy of Sciences of Ukraine) were used. Among them, 6 strains of *Lactiplantibacillus plantarum* species and *Leuconostoc sp* UCM B-2947 strain, 35 strains of *Saccharomyces cerevisiae*, 11 strains of *Kluyveromyces marxianus*, 2 strains of *Wickerhamomyces anomalus*, *S. uvarum* FF20, *Kluveromyces lactis* 327, *Yarrowia lipolytica* FF21 and *Y. lipolytica* FF24 strains. LAB and yeast were grown for 24 h in MRS medium at 37 °C and in YPD medium at 30 °C, respectively. Monocultures and strain compositions (in equal proportions) were used for inoculation of sterilised pumpkin juice. All samples were incubated for 24 h at 30 °C. Uninoculated pumpkin juice was used as a control. Monitoring of the fermentation process and selection of promising strains were carried out based on the results of pH value measurement and the total titrable acidity (expressed in Terner Degrees, °T) determination. The results are presented as M ± SD, where M is the mean and SD is the standard deviation.

Initial pH values of pumpkin juice ranged from 5.19 to 5.99, and titrated acidity ranged from 3 °T to 5 °T, depending on the raw material used. Among LAB monocultures, the highest acidification was found in juices fermented with *L. plantarum* УКМ B-2627 (pH 4.31 ± 0.30, 9.66 ± 1.15 °T), *L. plantarum* IMV B-7565 (pH 4.29 ± 0.20, 10.50 ± 86 °T), *L. plantarum* IMV B-7598 (pH 4.42 ± 0.33, 10.16 ± 0.35°T) and *L. plantarum* KM-4 (pH 4.22 ± 0.15, 10.25 ± 0.35 °T) strains, which showed a significant difference from the results of the control unfermented sample of pumpkin juice (pH 5.65 ± 0.23 and 4.10 ± 1.02 °T). Among the yeast, *K. marxianus* F21 (pH 4.57 ± 0.56, 13.00 ± 1.41 °T), *Y. lipolytica* FF21 (pH 5.12 ± 1.36, 2.75 ± 0.35 °T), and *S. cerevisiae* UCM Y-2519 (pH 4.52 ± 0.37, 12.00 ± 2.82 °T) strains characterized by a high level of acid production.

Pairwise combinations were formed between the most effective *L. plantarum* and yeast strains. No direct antagonism was observed in any combination, confirming their compatibility during fermentation. There was no statistically significant difference between the acidity values of 8 out of 12 tested combinations and juice samples obtained with a monoculture of the corresponding *L. plantarum* strains. Other combinations of strains showed higher acid production compared to juice samples fermented with *L. plantarum* and yeast monocultures. Pumpkin juice samples fermented by *L. plantarum* IMV B-7565 and *S. cerevisiae* UCM Y-2519 strains had pH 4.19 ± 0.18 and total titrable acidity 10.25 ± 1.06 °T. Furthermore, significant improvement was observed in all combinations with *L. plantarum*

KM-4 strain: *L. plantarum* KM-4 + *K. marxianus* F21 (pH 4.22 ± 0.19, 21.25 ± 2.47 °T), *L. plantarum* KM-4 + *Y. lipolytica* FF21 (pH 3.92 ± 0.01, 26.5 ± 0.7 °T), *L. plantarum* KM-4 + *S. cerevisiae* UCM Y-2519 (pH 4.12 ± 0.21, 19.5 ± 0.7 °T).

Thus, the results obtained demonstrate that selected strains of lactic acid bacteria and yeast are promising candidates for pumpkin juice fermentation to obtain a functional drink. Further research is needed to study the spectrum of biologically active compounds synthesised by microorganisms during fermentation and their interaction, and the effect of fermentation on the antioxidant potential of the pumpkin juice.

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EFFECT OF CULTIVATION PARAMETERS ON ANTIBIOTIC PRODUCTION IN ACTINOMYCETES OF THE GENUS *MICROMONOSPORA*

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Abstract. The effect of the composition of the ISP-9 synthetic medium on the growth and antimicrobial activity of strains of the genus *Micromonospora* was investigated. It was found that the use of arginine as a nitrogen source resulted in the highest level of activity at a concentration of 2.5 g/L. As the phosphate concentration increased, antimicrobial activity decreased, with the highest activity observed at a concentration of 1 mM. A dependence of pigment formation on the phosphate content in the medium was also observed.
Keywords: *Micromonospora,* secondary metabolism, culture medium, antimicrobial activity.