(https://www.dsmz.de/?id=441). Strain tolerance to temperature, NaCl concentration, and initial medium pH was examined in the same medium without agar. Strain growth was evaluated after 14 days of incubation by measuring the optical density of the culture broth at 540 nm using a KFK-2MP photoelectric colorimeter; medium pH was measured with an I-160MI laboratory ion meter. Uninoculated medium served as the control. The ability of the strains to grow at different temperatures was examined at 12–37 °C; osmotolerance was evaluated at NaCl concentrations of 3–15 %; and tolerance to active medium acidity was determined in the initial pH range of 4.5–7.0. It was established that the examined strains exhibited significant thermotolerance: all of them grew at 25–28 °C, 79.0 % were capable of growth at 12–15 °C, 88.4 % at 37 °C, and 83.7 % at 42 °C. The coryneform bacteria showed a high degree of salt tolerance: all strains grew at NaCl concentrations of 3–5 %, the vast majority (91 %) were resistant to 7 % NaCl, and a significant proportion (65 %) to 10 % NaCl. The highest NaCl tolerance was observed in 53 % of the strains belonging to *B. aurantiacum*, *B. linens*, and several *Corynebacterium sp.* which grew actively at a 15 % NaCl concentration. Assessment of growth capacity at different initial pH values showed that all strains grew efficiently at pH 6.5–7.0, whereas 97 % demonstrated growth at pH 6.0. A majority of the strains (79 %) were resistant to pH 5.5, but only 21 % retained viability at pH 5.0. None of the strains grew at pH 4.5.

The study resulted in the selection of coryneform bacteria strains belonging to the genera *Brevibacterium* and *Corynebacterium* that met the main technological requirements for their use as adjunct cultures in the production of smear-ripened cheeses.

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VITASERGIA SVIDASOMA IMV F-100106 – A NOVEL ENDOPHYTIC YEAST FROM *TUBER MELANOSPORUM* AND ITS USE IN SUSTAINABLE AGRICULTURE AND RESTORATION OF MILITARY-DEGRADED SOILS

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Abstract A novel endophytic yeast fungus, *Vitasergia svidasoma* IMV F-100106 (PRJNA807518), belonging to the family *Debaryomycetaceae*, was isolated from the fruiting body of *Tuber*

melanosporum. The complete genome of the species is 11.195 Mb in size and consists of eight chromosomes and one mitochondrial genome. *Vitasergia svidasoma* IMV F-100106 is an active component of the soil biological preparation Mykovital (Oliferchuk et al., 2022; Oliferchuk et al., 2023a; Oliferchuk et al., 2023b). Its application in tomato cultivation technologies contributed to improved plant growth, increased yield and fruit quality, accelerated fruit ripening in the absence of mineral fertilizers, and stimulated the development of mycorrhizal symbiosis. An important practical application of *V. svidasoma* was its use in combination with biochar to facilitate the establishment of *Amaranthus tricolor* in an area damaged by artillery shelling. This technology demonstrated the potential of the endophytic yeast fungus for restoring vegetation cover and regulating microbiological processes in soils degraded by military activities.The results obtained demonstrate the considerable potential of *Vitasergia svidasoma* IMV F-100106 as a biological agent for sustainable agriculture, soil microbiome regulation, stimulation of mycorrhizal interactions, and biological remediation of ecosystems disturbed by anthropogenic and military impacts.
Keywords: *Vitasergia svidasoma* IMV F-100106 (PRJNA807518); mycorrhizal symbiosis; organic farming; soil mycobiome; military-degraded soils.

Relevance. The relevance of this study is driven by global climate change, increasing anthropogenic pressure on ecosystems, and large-scale soil degradation caused, in particular, by military activities in Ukraine. The restoration of soil fertility and ecosystem functions through the use of effective and environmentally safe biological technologies is becoming increasingly important. Microorganisms, particularly endophytic yeasts, are promising biological agents capable of promoting plant growth, enhancing mycorrhizal interactions, and regulating microbiological processes in soil. This study summarizes the genomic characteristics of V. svidasoma and the results of its application for improving tomato productivity, regulating the soil mycobiome, and restoring soils degraded as a result of military activities.

Materials and Methods. *V. svidasoma* was isolated from surface-sterilized fruiting bodies of *Tuber melanosporum* using Malt Extract Agar (MEA). The genome was analyzed using hybrid sequencing on the Illumina NovaSeq and Oxford Nanopore MinION platforms; genome assembly was performed using Flye, followed by assembly polishing with Medaka/Pilon and genome annotation using MOSGA/BRAKER. Field trials with tomato were conducted in the Vinnytsia region without the application of mineral fertilizers. Mykovital was applied through drip irrigation at rates of 1.0 and 1.5 L/ha; untreated plants served as the control, while MikePro PS3 was used as the reference preparation.The restoration of artillery-damaged soil was studied in the village of Torfiane, Kyiv region. *V. svidasoma* immobilized on biochar was applied as part of a soil restoration system that included organic substrates and the Rozum warm-bed technology. Six months after treatment, microscopic fungal abundance, species richness, and diversity were assessed. Statistical analysis was performed using two-way analysis of variance (two-way ANOVA).

Results. The complete T2T genome of *V. svidasoma* IMV F-100106 comprised eight chromosomes and a mitochondrial genome (52,458 bp), with a total size of 11.195 Mbp and GC content of 55.05 %. Genome annotation identified 4,452 protein-coding sequences, 83 tRNA genes, and 165 rRNA genes. Whole-genome phylogeny revealed no close genus-level relatives, supporting the assignment of the strain to the novel genus *Vitasergia*. The genome is deposited in GenBank (CP095433.1–CP095441.1; PRJNA807518). Application of Mykovital at 1.0–1.5 L/ha increased tomato plant density by 8.1–10.4 %, height by 13.2–14.3 %, mean fruit weight by 11.4–13.4 %, and yield by 11.1–12.1 % compared with the control. Fruit ripening began 12–14 days earlier, while treated plants developed stronger root systems and more pronounced mycorrhization.Mykovital application shifted the soil mycobiome toward ectomycorrhizal and beneficial fungi and reduced the contribution of pathogenic components. In military-degraded soil, six months after application of Mykovital + biochar, micromycete abundance reached 107–142·10⁴ CFU/g compared with 17–57·10⁴ CFU/g in

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.