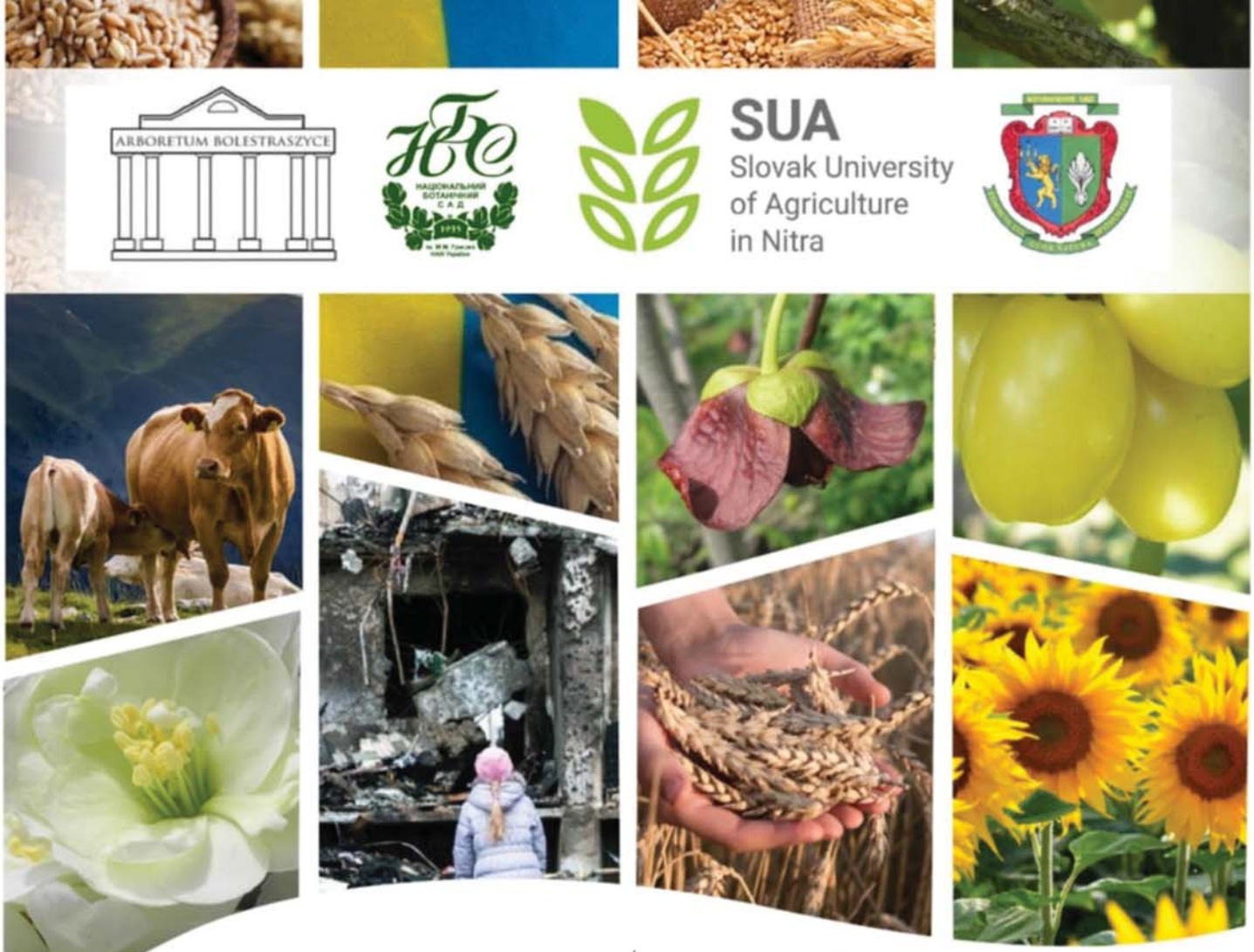

Book of Abstracts of the

6th International Scientific Conference

AGROBIODIVERSITY FOR IMPROVING THE NUTRITION, HEALTH, QUALITY OF PEOPLE LIFE AND NATURE

Nitra 2024

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Institute of Food Sciences

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MVTS/SR-UA/FAPZ-6/14 2022–2026
MVTS-SR-UA/FAPZ/-08/10 2021–2026
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CLONAL SELECTION IN THE CREATION OF *CORNUS MAS* L. CULTIVARS

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The genus cornelian cherry (*Cornus mas* L.) has a long history in Ukraine. Despite being neglected, this culture represents well-adapted key resources for redesigning sustainable farming systems. Cornelian cherry bears edible fruits, which have sour and sweet tasting juice, are consumed in parts of Eurasia and North America. Due to numerous biologically active substances, the cornelian cherry fruits are widely used for medicinal purposes. Very few studies have covered the selection of cornelian cherry in Ukraine and the world. Systematic selection of *Cornus mas* has not been done for a long time; in areas where it has long been grown, the local forms were cultivated.

The work aims to highlight the importance of clonal selection in the creation of cornelian cherry cultivars.

The work was performed based on the cornelian cherry gene pool of the M.M.Gryshko National Botanical Garden (NBG) of the National Academy of Sciences of Ukraine.

The methods used in the research include analytical, synthetic, and clonal selection.

Selection work is aimed at creating cultivars with the justification of their parameters. The cultivar model is based on the already achieved levels of the best cultivars but also takes into account modern trends and requirements. In Ukraine, the work to recover *C. mas* culture began 60 years ago at the NBG (Kyiv). The gene pool of *C. mas* of the NBG is characterized by the rich variety of biological and economic features. Currently, there are 14 cornelian cherry cultivars of NBG selection in the Register of Plant Cultivars of Ukraine. In addition to the registered cultivars, the following new cultivars were created and are prepared for the state test: Nartsyz, Starokyivskyi, Niznyi, Koralovyi, Kozerig, Yuvileinyi Klymenko, Sulija, Nespodivanyi, Priorskyi, Zavetnoje, Vytivka Svitlany. More than 50 promising cultivars were created as a result of analytical, synthetic, and clonal selection.

The value of clonal selection has been known for a long time (mutations were discovered by de Vries in 1900). Mutations are the driving factor of evolution, which leads to the elimination of harmful changes from the gene pool by natural selection and to the accumulation of useful adaptations. Somatic mutations are the material for the selection of organisms that reproduce vegetatively. It refers to the use of somatic mutations that arise in somatic cells as a result of environmental factors. Beneficial mutations increase the viability of the organism. They are inherited only by vegetative reproduction, forming clones of a new genotype – the future cultivar. Currently, clonal selection is widely used in Eurasia and North America, especially in the selection of *Malus domestica*. Through clonal selection, the following cultivars were created: Svitlachok (a mutation of the Lukjanivskyi), Ekzotychnyi (a mutation of the Svitlachok), Present (a mutation of the Jantarnyi), Pistryavolistyi (a mutation of the Semen) and Mriia of Shaidarovoi (a mutation of the Priorskyi).

Bud mutations were propagated vegetatively to transform them into a homogeneous state. Selection of clones and preservation of their homogeneous state is the main part of our work. The best clones were propagated and their vegetative progeny were studied. Two cultivars of clonal selection have been included to the State Register of Plant Cultivars of Ukraine.

The importance of clonal selection as an organic link of the selection process in fruit growing in the creation of new cultivars of cornelian cherry is shown.

Keywords: Cornelian cherry, clonal selection, cultivars, Ukraine.