



**Slovak University of Agriculture in Nitra
Faculty of Agrobiolgy and Food Resources
Institute of Biodiversity Conservation and Biosafety
Department of Genetics an Plant Breeding
Excellent Centre for the Conservation and Sustainable Use
of Agrobiodiversity
Research Centre AgroBioTech**

and



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Department of Fruit Plants Acclimatization**

Book of Abstracts

of the

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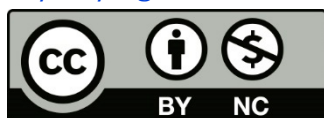




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BIOECOLOGICAL FEATURES OF PLANTS SPECIES OF *SALVIA* L. GENUS UNDER CONDITIONS OF THE FOREST-STEPPE ZONE OF UKRAINE

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Fresh and dry green mass species of the genus *Salvia* L. and biologically active compounds derived from it occupy an important place in the manufacture of modern medicines and food products. The purpose of the work was to investigate the variability of bioecological and morphological characteristics of plants and seeds of species *S. officinalis* L., *S. verticillata* L. and *S. patens* Cav., and selected perspective forms for creating new varieties.

Experimental work was carried out in the period 2012–2017 under conditions of the Forest-Steppe in the M.M. Gryshko National Botanic Garden of the National Academy of Sciences of Ukraine. It is established that the most stable data of mass 1000 pcs. of seeds over the 6 years of storage has *S. patens*. The most dependent on the conditions of the cultivation year and the shelf life is the mass of seeds of *S. officinalis*.

The germination of the seeds *S. verticillata* in the third year decreases threefold, in the sixth year – it is practically zero. The germination of the seeds *S. patens* in the first three years remains approximately at the same level and then decreases strongly. The germination and energy of germination of seeds *S. officinalis* during the first three years of the storage gradually increases and for two more years remains at a stable high level. The germination and energy of germination rates decreased in the eighth year to 4 and 1 %, respectively. Under laboratory conditions, the seeds of the species *Salvia* begin to germinate within 3–4 days at a temperature of + 30 °C. In the soil, the seeds of the species *Salvia* germinate within 18–22 days.

Unlike *S. verticillata*, plants *S. officinalis* and *S. patens* in the first year of life do not blossom. Phenological observations show that in subsequent years, *S. verticillata* and *S. patens* are susceptible to prolonged flowering during the growing season. After cutting above ground mass the new inflorescence stems grow and the plants begin to blossom again. The plants of *S. verticillata* have the largest regenerative capacity. No re-blossom *S. officinalis* was observed after the cut.

The greatest productivity of green mass was obtained by plants grown with inter-rows of 55 cm. This dependence also remained during the second cut, but the yield was 30–40 % lower than at the first cut. The highest productivity was achieved due to the increase in the number of shoots per unit area. Morphometric parameters of generative shoots of different variants differ little from each other. The seed yield was higher in the variant with 45 cm row spacing.

Thus, when growing plants on green mass, it is necessary to sow from 55 cm between rows and on seeds – up to 45 cm. Biometric observations allowed us to establish adaptive possibilities, basic patterns of seasonal growth and development rhythms, characteristic features of *Salvia* spp. for breeding. For the first time in Ukraine, two new cultivars of *S. verticillata* and *S. patens* were created – 'Musketeer' and 'Maestro'.

Keywords: *Salvia* species, seeds, germination, productivity.