

## EMERGENCE AND INITIAL GROWTH OF ALLIUM URSINUM IN DIFFERENT SOIL TYPES

Stefan Gordanić<sup>a</sup>, Dragoja Radanović<sup>a</sup>, Sara Mikić<sup>a</sup>, Snežana Mrđan<sup>a</sup>, Željana Prijić<sup>a</sup>, Tatjana Marković<sup>a</sup>, Đorđe Moravčević<sup>b</sup>

<sup>a</sup>Institute for Medicinal Plants Research "Dr Josif Pančić", Tadeuša Koščuška 1, 11 000 Belgrade, Serbia

<sup>b</sup>University of Belgrade, Faculty of Agriculture, Nemanjina 6, 11080 Belgrade, Serbia

\*Corresponding author: [sgordanic@mocbilja.rs](mailto:sgordanic@mocbilja.rs)



### INTRODUCTION

*Allium ursinum* is a significant perennial medicinal plant species belonging to the family *Amaryllidaceae*. *A. ursinum* is widely used in diet, traditional and modern medicine. It is a wild, geophyte plant species that grows in forests throughout Europe and Asia. In natural populations, *A. ursinum* reproduces vegetatively (by dividing the bulbs), while only a small number of plants reproduce generatively (by seeds).

### AIM

In order to define the optimal soil conditions for the growth of bear onion (*Allium ursinum* L.), in September 2020, field experiment was established. The aim was to determine the influence of 4 different soil types on the growth and development of the aboveground part of the medicinal plant species *A. ursinum*.

### MATERIAL AND METHODS

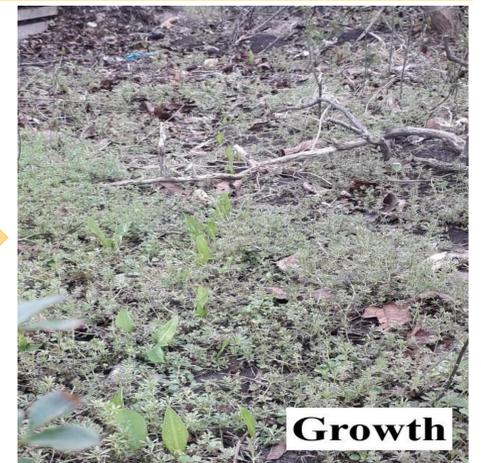
The experiment was performed in a plastic container measuring 40x12x15 cm, and the containers were filled with 4 soil types: arenosol, fluvisol, cambisol and chernozem, with each type containing 4 containers. Prior to planting into the containers, reproductive material of *A. ursinum* (bulbs) was collected from the locality Ležimir ("45 °07'40.0" N 19 ° 31'57.2 "E"). For planting, 160 healthy and uniform bulbs were selected. In each container, 10 bulbs were planted at depth of 10 cm. After planting, containers were placed in the shade and buried in the soil to a depth of 15 cm. Monitoring of plant growth and development began at the end of March 2021 by counting sprouted plants and measuring leaf weight.



Vegetative material



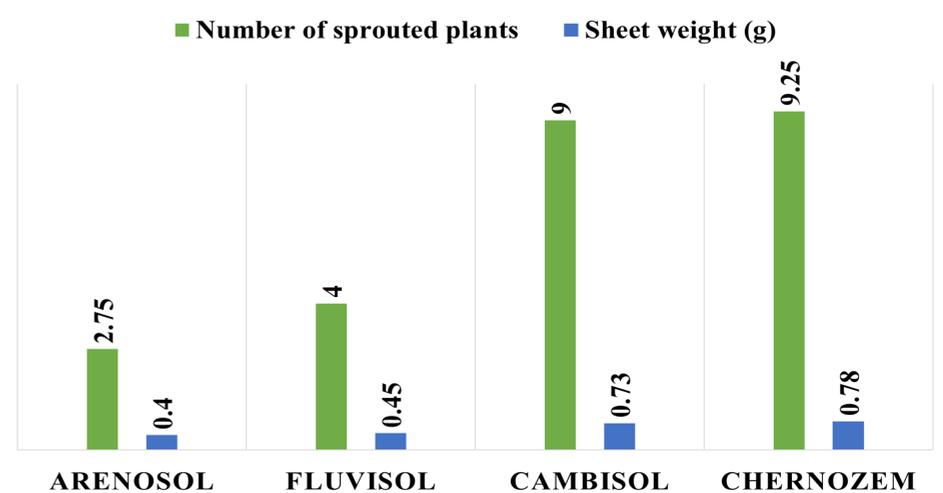
Planting Bulbs



Growth

### RESULTS AND DISCUSSION

Soil type	Number of sprouted plants	Sheet weight (g)
Arenosol	2.75	0.4
Fluvisol	4	0.45
Cambisol	9	0.73
Chernozem	9.25	0.78



The highest average number of sprouted plants (9.25) and the highest average leaf weight (0.78 g) were obtained by growing *A. ursinum* in chernozem. In arenosol, the average number of sprouted plants was 2.75 with an average leaf weight of 0.40 g, while in fluvisol the average number of sprouted plants was 4 with average leaf weight of 0.45 g. Plants grown in cambisol were slightly better than plants grown in arenosol and fluvisol, but still lower than in chernozem soil. The average number of sprouted plants grown in cambisol was 9, and the average weight of the leaves was 0.73 g.

### CONCLUSION

- Bulbs of *A. ursinum* collected from natural habitat can be grown in arenosol, fluvisol, cambisol and chernozem.
- Preliminary results showed that chernozem and cambisol could be the most suitable soil types for domestication and introduction of this medicinal plant species.
- Regarding *A. ursinum* chemical qualities there is a need for further research that includes the influence of other environmental factors on the products of secondary metabolites.