

The logo graphic consists of a large yellow chevron pointing downwards, which contains three green diagonal bars of varying lengths.

FORS²D

FORESTRY SCIENCE FOR SUSTAINABLE DEVELOPMENT

BOOK OF ABSTRACTS

**"Perspectives of forestry and related sectors
as drivers of sustainable development in the post-Covid era"**

**Banja Luka, the Republic of Srpska / Bosnia and Herzegovina
29–30 September 2022**

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GENETIC DIFFERENTIATION OF WILD CHERRY (*PRUNUS AVIUM* L.) POPULATIONS IN SERBIA BASED ON SEEDLING'S MORPHOLOGICAL TRAITS

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ABSTRACT

This study aimed to determine the amount and the pattern of phenotypic variations within- and among Serbian wild cherry populations due to seedling morphological traits.

Seeds were collected from 10 trees in each of nine natural stands (populations), in total 90 half sib lines. Leaf morphological traits (leaf blade area, lamina width, lamina length and petiole length) and growth traits (height of seedlings and root collar diameter) of one (1 + 0) and two-year-old (2 + 0) seedlings were analysed. The phenotypic variations were examined using analysis of variance (ANOVA) and multivariate analyses: principal component analysis (PCA) and cluster analysis. The Pearson's correlation coefficients among the analysed traits as well as among the traits and climate variables of the original populations stands were calculated.

The ANOVA results showed statistically significant differences ($p < 0.01$) among the populations. The variability within the populations had the largest share in the total variability. The PCA results showed discrimination of the populations due to elevation and related climatic parameters indicating ecocline pattern of differentiation.

The phenotypic variations indicates high genetic variations among and within populations and therefore high potential of the species to adapt to climate change. Significant genetic variability of Serbian wild cherry populations emphasizes their importance as valuable sources of forest reproductive material.

Key words: *Prunus avium* L., phenotypic traits, variability, populations