

## Morphological variability of the fruit and seed of wild cherry (*Prunus avium* L.) in a part of its natural distribution in Bosnia and Herzegovina

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### Abstract:

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The paper discusses morphological variability of the fruit and seed of wild cherry (*Prunus avium* L.) which have been collected in 12 localities of its natural distribution in Bosnia and Herzegovina. A total of 2,926 fruits have been collected, and the following properties have been studied: fruit length, fruit width, fruit thickness, seed length, seed width and seed thickness. A discriminant analysis by groups formed according to classes of altitude and ecological and vegetation zoning has shown that there are no separations within the studied populations, which implies the possibility to use seed and planting material from different altitudes and ecological and vegetation zones within the studied area.

**Key words:** Bosnia and Herzegovina, variability of the fruit and seed, wild cherry

### Introduction

The wild cherry (*Prunus avium* L.) has great and multiple importance. The fruit of the wild cherry is used for several purposes (as food for people, birds and other animals, as well as in phytotherapy). Literature data about the morphological variability of the wild cherry are scarce and only general information for particular characteristics can be found, usually for seed and less for flower characteristics (Ballian, 2000, 2002), as well as some data about fruit size which serve for the taxonomic determination of the wild cherry (Herman, 1971). There are several different pieces of information available about the origin of the wild cherry. It is generally assumed

that it originated in west Asia and Caucasus (Vavilov, 1935), while others believe its origin is in the Mediterranean (Žukovsky, 1965). However, some authors (Mišić, 1987) state that the wild cherry originated in Asia Minor, as well as South and Mid Europe, whereas others point out the Pontic area (Ninkovski, 1998).

### Material and methods

The plant material was collected from 12 natural populations in Bosnia and Herzegovina. The fruit and seed were collected from marginal or solitary trees, usually from the south-facing, outer sun-exposed parts of the tree crown. The following characteristics were measured: fruit length (FL),

fruit width (FW), fruit thickness (FT), seed length (SL), seed width (SW) and seed thickness (ST). (Figure 1. Wild cherry seed). All statistical analyses of the data were made using the SPSS 15.0 package for Windows.

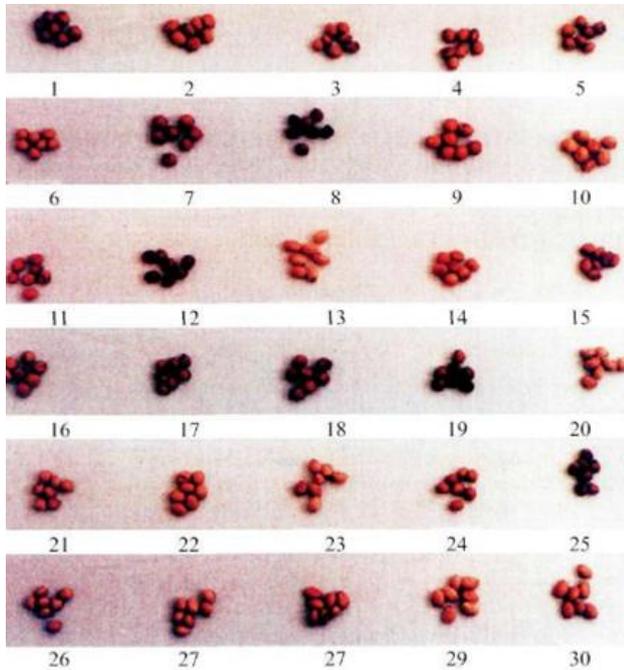


Fig. 1. Wild cherry seed

## Results and discussion

The results obtained show the presence of a high level of intrapopulation, as well as interpopulation, morphological variability in the natural populations of the wild cherry which have been investigated. Analyses of population differentiation have not confirmed our expectations. A discriminant analysis by groups formed according to classes of altitude (Fig. 1) and ecological and vegetation zoning (Fig. 3) has shown that there are no separations within the studied populations, which implies the possibility to use seed and planting material from different altitudes and ecological and vegetation zones within the studied area.

## Conclusion

The analyses of 6 morphological characteristics in 12 natural populations of the wild cherry in Bosnia and Herzegovina showed statistically significant differences between investigated populations. Differentiation in natural populations of the wild cherry was very low and identified only in fruit dimension characteristics.

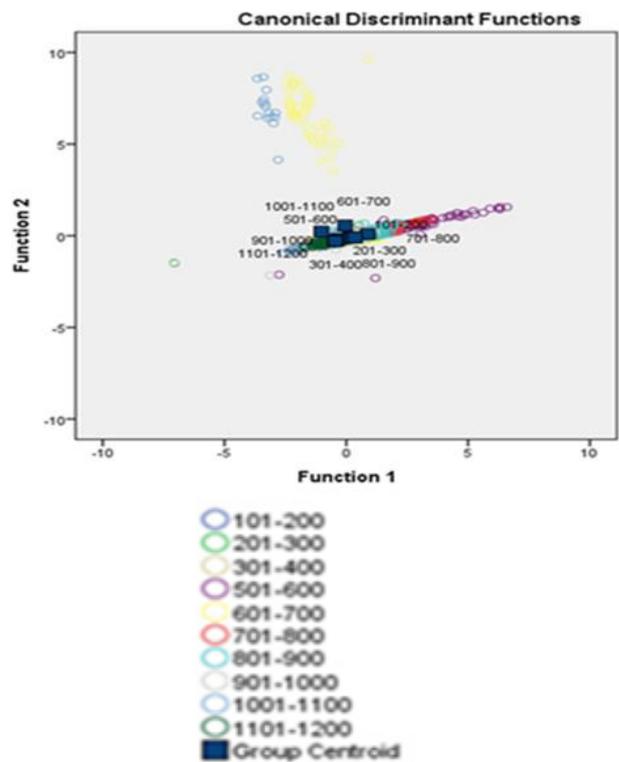


Fig. 2. Discriminant analysis by groups according to classes of altitude

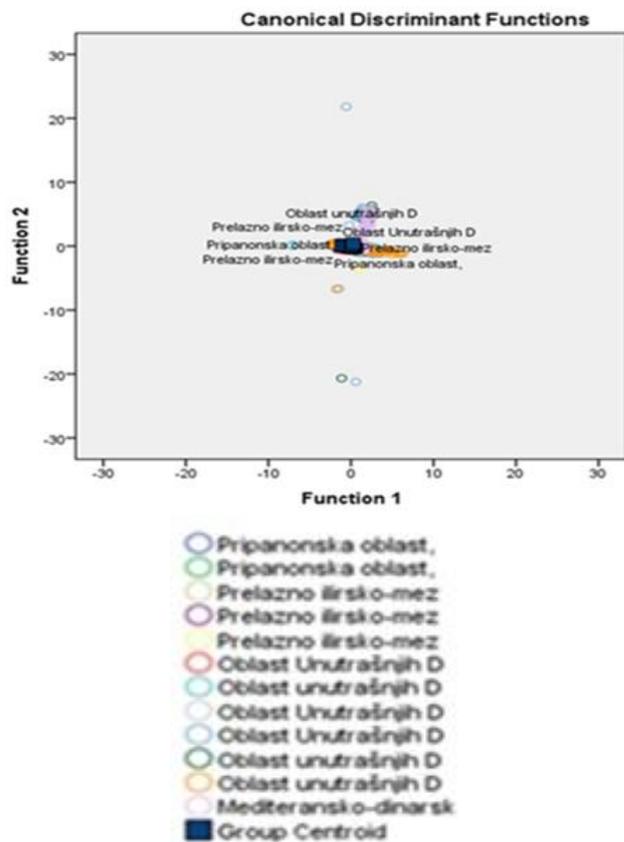


Fig. 3. Discriminant analysis by groups according to ecological and vegetation zoning

## References

- Ballian, D. 2000: Početna istraživanja varijabilnosti morfoloških svojstava sjemena divlje trešnje (*Prunus avium* L.). *Šumarski list*, 124 (5–6): 271–278.
- Ballian, D. 2002: Variability of characteristics of the wild cherry blossom (*Prunus avium* L.) in the region of central Bosnia. *Ann Sci For*, 25(2): 19.
- Herman, J. 1971: Šumarska dendrologija. Stanbiro. Zagreb, 466 p.
- Ninkovski, I. 1998: Trešnja. Nauka i praksa, Beograd, 151 p.
- Vavilov, N. I. 1935: Teoretičerskie osnovi selekcii rastenij. Gos izdat kolhoznoj i sovhoznoj literaturi, Moskva-Leningrad.
- Žukovsky, P. M. 1965: Main gene centers of cultivated plants and their wild relation within the territory of the USSR. *Euphytica*, p 14.