



HANS EM
FACULTY OF FOREST SCIENCES
LANDSCAPE ARCHITECTURE AND
ENVIRONMENTAL ENGINEERING



Ss. Cyril and Methodius University in Skopje
Hans Em Faculty of Forest Sciences, Landscape Architecture and
Environmental Engineering
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Morphological variability of bulbs, fruits, and seeds of the genus *Galanthus* L. (Amaryllidaceae) in Serbia

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Abstract:

To shed some light on the taxonomy of the genus *Galanthus* L. in Serbia, we analyzed variability of five rarely studied quantitative characters in 60 individuals from populations representing two autochthonous species (*G. nivalis* L., and *G. elwesii* Hook.f.). Morphometric measurements were conducted on living plant material, and the obtained data were processed employing descriptive, univariate, and multivariate statistical methods. The results show that the values of all analyzed characters were larger in (a) *G. elwesii* than in (b) *G. nivalis* (mean±standard deviation: bulb length a. 22.81±3.39 mm, b. 19.79±2.87 mm; bulb diameter a. 16.26±2.33 mm, b. 14.56±1.73 mm; bulb length to bulb diameter ratio a. 1.41±0.14, b. 1.37±0.20; fruit diameter a. 11.69±2.13 mm, b. 11.29±2.75 mm; seed diameter a. 3.77±0.47 mm, b. 3.74±0.58 mm). Almost all of the examined characters (except for fruit diameter in *G. nivalis*) exhibited moderate degrees of variability (coefficient of variation 10–20%), and the values of several characters (fruit and seed diameters in *G. nivalis*, and bulb length and fruit diameter in *G. elwesii*) exceeded the limits of variation stated in literature. The analysis of variance revealed statistically significant differences in bulb length ($P=0.0005$), and bulb diameter ($P=0.0022$). However, the canonical discriminant analysis did not provide differentiation between the two studied species, suggesting that for their taxonomic delimitation additional characters should be used. The results of the study contribute to the general knowledge of the variability of *Galanthus* species in Serbia, and could also be valuable for the management and protection of these species as they belong to the world's most traded bulb genus collected from forests. This study was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia (Contract No. 451-03-68/2022-14/200027).

Keywords: *Galanthus*; Serbia; morphological variability; numerical taxonomy; conservation



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