

## ADAPTIVE CAPACITY OF THE *FAGUS SYLVATICA* L. POPULATION FROM THE SLOVAK REPUBLIC

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The European beech *Fagus sylvatica* L. is one of the most important tree species not only in the Republic of Moldova, but throughout the European continent, both economically and ecologically. Beech forests in the Republic of Moldova need to be restored with populations that are resistant to globally changing climatic conditions. In this investigation, we studied the possibility of increasing the natural adaptive potential of beech population from the Slovak Republic, Nitra region, Topoľčianky, through the use of plant growth bioregulators capsicoside and genistifolioside at a concentration of 0.001%. The gibberellic acid was used as standard regulator of plant growth. Seeds were stratified at a temperature of  $+4\pm 2$  °C. After the germination, they were sown in solarium with drip irrigation, but without regulation of the air temperature, which in summer rose above  $+35$  °C, sometimes reaching  $+55$  °C. The viability of *Fagus sylvatica* seeds collected in autumn 2019 averaged 65.6%. Treatment of seeds with solutions of capsicoside and genistifolioside before germination leads to stimulation of daily seed germination by 18.5-22.2% and to significant reduction in the period of total seed germination by 20-22 days. As a result,  $87.01\pm 0.03\%$  of seeds germinated in the experiment with bioregulators, which was significantly higher than in the control and standard. The adaptation of germinated seeds to solarium conditions after treatment with bioregulators was 2.5-2.9 times higher than in the standard and 3.0-3.3 times higher than in the control. The survival of seedlings in experimental variants at supraoptimal temperatures was on average 2.7-3.0 times higher than in the standard and control. Beech seedlings treated with bioregulators had the leaves with significantly bigger leaf surface area, the leaves were larger by  $2.3\pm 0.7$  cm and wider by  $0.8\pm 0.4$  cm that contributed to the greatest photosynthetic process. The relative chlorophyll index in the phase of three pairs of true leaves of seedlings in the variants capsicoside and genistifolioside 0.001% was  $144.9\pm 3.5$  and  $145.6\pm 3.7$  g/m<sup>2</sup>, respectively, which significantly exceeded the control ( $135.7\pm 3.2$  g/m<sup>2</sup>) and the variant with gibberellic acid ( $121.5\pm 2.9$  g/m<sup>2</sup>). Two-year-old seedlings were transferred from the solarium to natural conditions, in mixt hornbeam/beech forest of the “Plaiul Fagului” Scientific Reservation. The use of plant growth bioregulators led to a high degree of adaptability of seedlings, 90.17% of transferred plants survived.

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