IN VITRO PROPAGATION OF PLANTS AT THE "ALEXANDRU CIUBOTARU" NAȚIONAL BOTANICAL GARDEN (INSTITUTE)

Maria TABĂRA*, Nina CIORCHINĂ, Aliona GLIJIN, Alina CUTCOVSCHI-MUȘTUC
National Botanical Garden (Institute) "Alexandru Ciubotaru", Moldova State University, Republic of Moldova

*Corresponding author: maria.tabara@gb.usm.md

https://doi.org/10.52757/bsd26.68

Biotechnological investigations at the National Botanical Garden (Institute) "Alexandru Ciubotaru" were formally initiated in 1985 with the establishment of the Biotechnological Complex, under the coordination of acad. Al. Ciubotaru. The initial phase of development was primarily oriented toward the systematic acquisition, mobilization, and introduction of novel species and taxa into the institutional collections and exhibitions. This period was distinguished by extensive planting programs, employing seedlings obtained from diverse regions of the former USSR as well as from international sources.

In this context, the prevalence of plant diseases particularly viral infections affecting ornamental crops was identified as a critical challenge, necessitating the development of effective diagnostic and control strategies for both viral and fungal pathogens. In response, a specialized research group dedicated to plant protection and microclonal propagation was established. The investigations were conducted within the Embryology and Biotechnology Laboratory and were directed toward elucidating callusogenic, androgenic, and gynogenic processes, as well as toward the production of pathogen-free biological material suitable for breeding programs. Furthermore, the research agenda encompassed the introduction of novel species to the RM, including *Stevia rebaudiana*, *Actinidia chinensis*, *Rosmarinus officinalis*, and *Withania somnifera.*

In parallel with the advancement of scientific investigations, the research infrastructure underwent significant modernization through the acquisition of contemporary laboratory equipment. Applied projects with socio-economic impact were also implemented, notably the design and establishment of urban green spaces utilizing ornamental plant material produced via *in vitro* culture. Through targeted technology transfer initiatives, micropropagation protocols for fruit shrub varieties of the *Rubus* genus were successfully developed and disseminated.

Concurrently, the application of *in vitro* culture techniques has proven particularly effective in the *ex situ* conservation of rare taxa from spontaneous flora, offering viable solutions to mitigate the adverse impacts of anthropogenic pressures. Current investigations are directed toward the refinement of micropropagation technologies and the systematic expansion of the plant genetic pool. The novelty of this research lies in the incorporation of previously unstudied species into culture systems and in the advancement of efficient biotechnological propagation methodologies, which collectively contribute to both biodiversity conservation and the enhancement of breeding resources.

Keywords: Micropropagation, explants, nutrient medium.

Acknowledgements: The research was conducted within the framework of the State Program for Research and Innovation (2020-2023), entitled "Introduction and development of multiplication and cultivation technologies through conventional techniques and in vitro cultures of new woody plant species" (Project No. 20.80009.7007.19) and continued under Subprogram 010101, entitled "Research and ex situ and in situ conservation of plant diversity in the RM."