

DEVELOPMENT OF AGRICULTURAL PLANT BIOTECHNOLOGY IN THE HIGHER EDUCATION SYSTEM OF THE REPUBLIC OF MOLDOVA

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The main objective of the present study was to conduct a review and analytical assessment of the development of agricultural plant biotechnology within the higher education system of the Republic of Moldova during the period 1990–2025. The study focuses on the formation of scientific and educational directions, research conditions, and the transformation of the material and technical infrastructure.

It is shown that during the 1990s–2020s the development of plant biotechnology occurred under conditions of limited instrumental support. Nevertheless, classical methods of plant tissue and cell culture, microclonal propagation, development of new *in vitro*-derived somaclonal maize lines, as well as biochemical approaches for plant genome identification based on protein markers, were successfully adapted and implemented. These approaches contributed to the establishment of a scientific and educational school and to the training of specialists in the field. Particular attention is paid to educational approaches aimed at developing stable practical skills in mastering *in vitro* methodologies.

A separate section characterizes the modern stage of modernization in 2025 associated with the introduction of a new generation of laboratory equipment and innovative technologies within the integrated plant biotechnology laboratory of the Green BioHub Center at the Faculty of Agricultural, Forestry and Environmental Sciences of the Technical University of Moldova. Prospects for automation of biotechnological processes, application of molecular genetic methods, genomic analysis, and high-throughput screening technologies are discussed.

It is concluded that 35 years of accumulated experience in research and specialist training have created a solid foundation for the transition to internationally competitive research. Promising directions for further investigations and scientific cooperation based on the renewed biotechnology center are identified.

Keywords: *agricultural plant biotechnology, higher education system, material and technical infrastructure.*