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ABSTRACTS

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GENE POOL OF ECONOMICALLY VALUABLE PLANTS: BIOTECHNOLOGICAL METHOD OF CONSERVATION AND RATIONAL USE

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Plant biotechnology uses *in vitro* collections to produce sterile test-tube plants, culture organs, tissues or plant cells, and to isolate protoplasts. Based on the final products, the biotechnologies are divided into two groups: first produces intact economically-useful plants, in the second group the end products are biomass cell cultures and/or phytochemicals. Thus, the aim of this article is to review collections from Central botanical Gardens National Academy of Sciences of Belarus in its broadest sense and to explore its use across many fields of application: from the conservation of endangered species to the storage of economically important crop plants and industrial plant cell culture collections.

The Central Botanical Gardens of NAS of Belarus has a Certificated by the Ministry of Natural Resources and Environmental Protection RB for the collection of aseptic cultures of economically useful plants. Currently, it contains 242 taxa from more than 20 families of angiosperms. In 2015 plant *in vitro* collection of rare and endemic species on the basis of wild flora of Belarus on the basis of natural sources and existing collections in EurAsEC countries was organized and the experience of its creation was conducted and analyzed. Both collections were established for the purpose of conservation, reintroduction and development of industrial use. Plant biotechnologies (from plants in the test-tube to protoplasts) are directed toward creating new plant forms, simplifying selection processes, and effectively reproducing and improving valuable genotypes. Optimization of nutrient media for the tissue culture propagation and the deposit of rare and endemic plants species, including medicinal were carried out. Seeds and meristem of several rare species from Belarus were deposited to cryobank of the Timiryazev Institute of Plant Physiology of Russian Academy of Sciences for the long-term storage. Common platform concerning creating, maintaining, and utilizing of biotechnological collections was developed: protocols of preservation of genetic resources and deposition at low temperatures of *in vitro* plant banks; protocols for plant clonal micro propagation to obtain high quality planting material; protocols of plant cell and tissue culture using for BAS production: protocols for industrial production of natural herbal remedies for various purposes; protocols for assessing the genetic diversity (GD) parameters of natural populations of protected natural flora for including in the collection.

The creation of DNA banks is an important biotechnology component in terms of conservation and sustainable use of plant biodiversity, including research, identifying the most productive genotypes of economic crops and crops with increased adaptive potential for external environmental factors, quantitative assessment of the parameters of genetic diversity of natural and ex situ populations, as well as collections of individual taxa, diagnosis of diseases and control of the incidence of plants in collections. DNA bank consists of 980 preparations.