

## **Krioprezewacja w zabezpieczeniu (epi)genetycznej stabilności materiału roślinnego**

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### **Cryopreservation efficacy in protection of (epi)genetic stability of plant material**

#### **Summary**

Cryopreservation is important for the long-term conservation of plant genetic resources, especially for the species producing recalcitrant seeds and clonally propagated crops which are proliferated through grafting or as vegetative cuttings, suckers, roots, tubers and bulbs. Despite the fact that in liquid nitrogen temperature the cell division and metabolism are arrested, the factors associated with cryotreatment, cryostorage or plant recovery could be a source of somaclonal variations. The lecture assesses an attempt of attained knowledge within the influence of cryopreservation on the genetic integrity of regenerated plants or recovered tissue.

Assessment of genetic and epigenetic stability of the recovered plants derived from cryopreserved plant material is an important step to success of any storage protocol. Until now, from among 64 published papers, only 7 have shown genetic changes in plantlets regenerated after cryopreservation, and 3 - variability in tissue recovered after cryostorage without consequences in regenerants. Epigenetic changes were described using isoschisomers and MSAP, AMP or RAPD methods in 9 works. It was suggested that the processes of cryoprotection and cryostorage had an impact on DNA methylation status, it could lead to alterations in chromatin structure and changes in gene expression. However, majority of the works reported on the insignificant or any influence of cryopreservation on the plant material.

#### **Key words:**

cryopreservation, genetic and epigenetic variability, DNA methylation

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