

## **ŻYWOTNOŚĆ KOMÓREK ZAWIESIN GORYCZEK PO TRAKTOWANIU ULTRANISKĄ TEMPERATURĄ**

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**The viability of gentians cells suspension after treatment ultralow  
temperature**

### **ABSTRACT**

Programmed freezing, vitrification and encapsulation were comparatively tested for cryopreservation of *Gentiana tibetica* cell suspensions. The viability of tissue was describe using TTC test and ultrastructure analysis. The cells of aggregates showed lethal injuries during programmed freezing. The vitrification and encapsulation appeared more effective methods. Only not significant ultrastructure changes in the cells cryoprotected in those manners were observed. Vitrification and encapsulation assure the maintenance of high viability after freezing and fast restoration of the suspension culture.

**Key words:** cell suspension, *Gentiana tibetica*, cryopreservation, ultra-structure, programmed freezing, vitrification, encapsulation