The cryopreservation of cell suspension of selected species of *Gentiana* taxa

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The lecture will discuss problems concerning cryopreservation of long-term embryogenic cell suspensions of selected gentians. The cryopreservation used to be a method which helped to save the genome of plant material in non-changed stage. The arrest of all metabolic processes of living cell ensures genetic stability of maintenance of primary embryogenic potential and regeneration abilities. It is the reason that cryopreservation may to be used to store the plant material originated from *in vitro* culture.

Ours long-term experiments brought about evidences of various response of studied suspensions according to the species and showed a necessity to use a special cell suspension pretreatment before LN_2 treatment. The subculture carried out for at least four weeks with a high level of sucrose stimulated remodelling of cytoplasm density. Observed changes mainly concerned cell vacuole and only small and numerous vacuoles were formed. Sucrose as such a high concentration acts as a stress factor, too. Furthermore, it could affect the ABA production, what help to accommodate cells to stress. Alternatively, DMSO used influenced the of the percent of surviving cells plated on agar medium.

A high level of survival of LN_2 treated suspension and it abilities to carry on high embryogenic potential appears to be a good model for studies of plant morphogenesis.