Poster

P 1: Novel insights improve cryopreservation of the *Mentha* genebank collection

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Abstract

The IPK Gatersleben houses a mint collection of 286 accessions. More than 50 % of these accessions do not produce seeds and can only be maintained in the field, *in vitro* or in cryopreservation. Routine application of mint cryopreservation was started at IPK in 2006. This went along with the development of a simple droplet-vitrification protocol using *In vitro* plants as source material, the plant vitrification solution PVS 2 as cryoprotectant and aluminum strips as carrier material. Recently, the number of accessions exceeded 130, hence about 17 mint species are safely cryopreserved and show on an average 60 % regeneration after rewarming. Highest plant regrowth, up to 100 %, was achieved when *In vitro* plants coming from 10 °C cold storage were prepared for nodal culture and cultivated under changing temperatures at 25 °C/-1 °C. Under these conditions multiplication and hardening was realized in a short-term period of maximum 2 weeks. Genotype, incubation period of explants in loading solution (20 min-120 min) and in PVS2 for 20-40 min at room temperature had only a minor impact on overall regeneration. Therefore, factors determining successful cryopreservation are as important as high initial plant quality, precise shoot tip preparation, the avoidance of endophyte outbreak after rewarming by controlled climatic condition. The developed method is simple and applicable to all mint accessions.