

P009

Effect of Encapsulation-dehydration on Cryopreservation of Zygotic Embryos of Herbaceous Peony(*Paeonia lactiflora* Pall.)

Hyun Mi Kim¹, Jong Hee Shin², and Jea Keun Sohn^{1*}

¹Department of Agronomy, Kyungpook National University, Daegu 702-701

²Institute of Bioresources, Gyeongbuk Provincial Agricultural Technology Administration, Andong 760-891

Objective

This study was carried out to determine the optimum conditions for the cryopreservation of zygotic embryos in herbaceous peony.

Materials and Methods

- Plant materials : Zygotic embryos of herbaceous peony(*Paeonia lactiflora* Pall.)
- Methods
 - Desiccation : Preculture→desiccation by air drying for 0, 1 and 2h→cryopreservation→thawing in 40°C water bath for 5min→embryo culture
 - Vitrification : Preculture→loaded with a mixture 2M glycerol plus 0.5M sucrose→hydrating with PVS2→cryopreservation and thawing→washing with 1.2M sucrose and culture
 - Encapsulation-dehydration : Preculture→encapsulation into 3% alginate-gel bead→desiccation by air drying for 5h→cryopreservation and thawing→embryo culture

Results and Discussion

Zygotic embryos of herbaceous peony were successfully cryopreserved by encapsulation-dehydration. Zygotic embryos were precultured for 24h on MS basal medium containing 0.3mg/L GA₃.

The survival rate of cryopreserved zygotic embryos changed with desiccation times ranging from 0h to 2h. The plant regeneration from cryopreserved embryos was enhanced for 1h by air drying(Fig.1). The highest survival rate(85.2%) of cryopreserved embryos was obtained by encapsulation-dehydration(Fig.2). This encapsulation-dehydration method appears to be a promising techniques for germplasm cryopreservation of herbaceous peony.

*Corresponding author: Tel : 053-950-5711 E-mail : jhsohn@knu.ac.kr

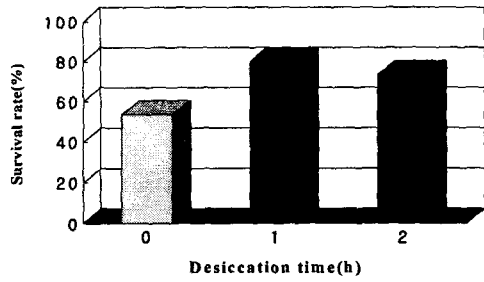


Figure 1. Changes in survival rate of cryopreserved zygotic embryos by desiccation times.

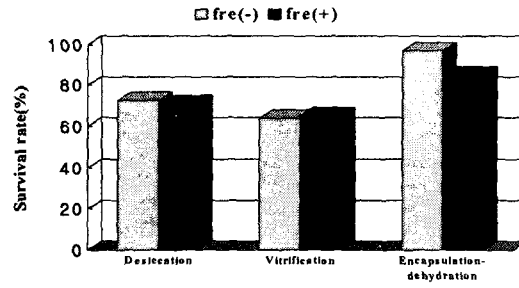


Figure 2. Effect of desiccation, vitrification and encapsulation-dehydration on cryopreservation of zygotic embryos in herbaceous peony