

Title Encapsulation for in vitro short-term storage and exchange of ginger (*Zingiber officinale* Rosc.) germplasm

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Abstract

Synseeds of ginger (*Zingiber officinale*) were produced using aseptically proliferated 2-week old encapsulating explants (microshoots) upon complexation of 4% sodium alginate prepared in Murashige and Skoog (1962) medium (MS) and 100 mM calcium chloride. Conversion of synseeds into plantlets (conversion) was recorded as 66% and 53% on MS (3% sucrose) and on MS (3% sucrose) + 2.5 mg/l BA media, respectively. However, shoots/synseed were significantly higher on MS (3% sucrose) + 2.5 mg/l BA medium. For short-term storage of germplasm, sucrose-dehydrated synseeds were found better than air-dehydrated or fresh synseeds. Synseeds dehydrated in 0.25 M sucrose liquid medium for 16 h and stored in cryovials (with out medium) at 25 °C for 8 weeks and 12 weeks exhibited 53% and 13% conversion, respectively, on MS (3% sucrose) + 2.5 mg/l BA medium. Plantlets obtained from stored synseeds were hardened, established successfully ex vitro and were morphologically similar to each other as well as their mother plants. This synseed protocol could be useful for short-term storage and exchange of germplasm of ginger between national as well as international laboratories.