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## Induced Desiccation Tolerance by ABA Treatment in Sugarcane Somatic Embryos

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### Abstract

The preservation of viability and vigor of somatic embryos is one of the problems, which still has to be solved prior to practically applying synthetic seed technology. The encapsulation of the somatic embryos does not prevent precocious germination and short storage period. Loss of water from somatic embryo tissue brings it to a metabolically inactive or quiescent state. Sugarcane (*Saccharum officinarum* L.) embryogenic callus was initiated from young leaf-rolled cultured on Murashige and Skoong agar medium supplemented with 3 mg/l 2,4-D, 50 mg/l cystein and 5% coconut water under dark condition at 25°C. Embryogenic cell suspension culture achieved in Murashige and Skoong liquid basal medium supplemented with 3 mg/l 2,4-D, 10% coconut water and 400 mg/l casein hydrolysate and kept in continuous dark at 25°C. Desiccation tolerance of sugarcane somatic embryos was induced by exogenous application of abscisic acid (ABA). Somatic embryos were treated with various ABA concentration for ten days prior to dehydration by silica gel to formed dried synthetic seeds. Treated somatic embryos were encapsulated with 3 percent sodium alginate and dehydrated with silica gel until 80 percent water loss, respectively. The germeability of dried synthetic seed was varied on the ABA concentration, dried synthetic seeds showed germination rate at 53 percent when treated with 0.1 mg/l ABA. Pretreatment sugarcane somatic embryos with 0.1 mg/l for 10 days prior to encapsulation, then dehydrated by silica gel until 80 percent water loss resulted germeability at 32 percent without dead or precocious germination after 3 weeks of storage at 25°C. These results indicate that the pretreatment with ABA can maintain germeability of dried sugarcane synthetic seed after short storage period.

**Keywords:** ABA, desiccant, germeability, somatic embryo