

## **Synthetic Seeds**

**A synthetic seed is often described as a novel analogue to true seed consisting of:**

- A somatic embryo or bud

**Surrounded (or not according to type) by:**

- an artificial coat (like media used in tissue culture solidified with alginate instead of agar)

### **Method**

- Prepare half strength MS medium supplemented with 20 g/L sucrose.
- Terminal buds were immersed several times in 2.5% sodium alginate solution prepared in ½-MS medium with 2% sucrose and pH was adjusted at 5.8.
- buds, mixed well in sodium alginate solution, were dropped individually with a pipette (inside diameter 8 mm) into 75 mM calcium chloride solution prepared in ½ -MS0 medium with 2% sucrose and left for 20 min.
- Later, calcium chloride solution was decanted and the encapsulated buds were washed 4 times with sterile distilled water.

### **Buds surrounded with alginate coat**

### **Comment**

A synthetic seed is often described as a novel analogue to true seed consisting of a somatic embryo surrounded (or not according to type) by an artificial coat (like media used in tissue culture solidified with alginate instead of agar) which is at most equivalent to an immature zygotic embryo, possibly at post-heart stage or early cotyledonary stage. Today synthetic seeds represent capsules with a gel envelope, which contain not only somatic embryos but also axillary and apical buds. These plant materials are encapsulated in protecting material (eg: hydrogel or alginate gel) and can be developed into a plant. The coating protects the explants from mechanical damage during handling and allows germination and conversion to occur without inducing undesirable variations. They behave like true seeds and sprout into seedlings under suitable conditions.

