

# Plant Tissue Culture

## *In vitro* Seed Germination Technique In Orchid



The germination of seeds under natural conditions (soil media) for orchids is a limiting factor for seedlings production. To mitigate this problem, an *in vitro* technique has been developed called **seed pod culture**. It involves selection of matured (brownish yellow/greenish yellow) seeds as source of tissues. These seeds are being subjected to chemical sterilization treatments and grown in a specialized nutrient media (Vacin & Went), in a closed container, under aseptic conditions and controlled temperature (22°C-24°C), with 16-18 hours light. The seed from the pod will germinate and form into numerous buds which further grow into small rooted plants called **plantlets**. The vigorously growing plantlets are then weaned in the nursery till they are ready to be transplanted in the field.

### BENEFITS:

- Orchid seeds are very small and containing very little or no food reserves and thereby their survival rate is very low under natural conditions. This problem can be solved by *in vitro* technique.
- Possible to substitute the dependency on non-symbiotic fungus *Mycorrhiza* as in soil for seed germination and seedling development by using nutrient medium supplied in *in vitro*.
- Increase the germination rate for limited seeds produced from a particular cross/variety.
- Germination and development of plantlets will be faster as the environment is controlled and there is no competition by other plants.

### METHODS:

There are 3 methods of *in vitro* seed germination which involves sterilization steps and growing in nutrient medium

#### METHOD -1:

1. Harvest matured seed pod from the plant.
2. Immerse seed pod in 80% ethanol for 5 seconds using a pair of forceps.
3. Flame the seed pod quickly.
4. Make a longitudinal slit across the pod.
5. Scoop the seeds from the pod using sterile spatula and culture into the solid nutrient (Vacin & Went) media at controlled temperature of 22°C - 24°C.
6. Transfer the well grown plantlets to the nursery for further transplantation into the field.



Plate 1 - Matured orchid seed pods.

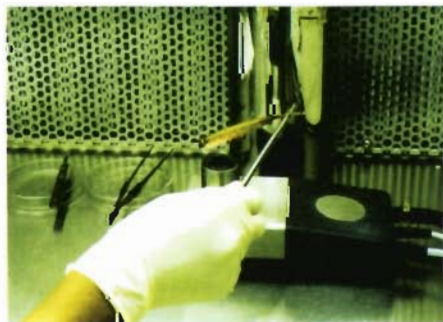


Plate 2 - Flaming the pod inside laminar airflow cabinet.



Plate 3 - Phalaenopsis sp. Tissue culture product.