

# Plant Tissue Culture

## Tissue Culture In Banana

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Traditionally, multiplication of banana by means of suckers is common method practiced by farmers. Even though, it is the cheapest method but there are many disadvantages, such as the suckers as may not be genetically true type as that of their mother plants and susceptible to pests and diseases. Hence, an alternative method of propagation to overcome this problem is by tissue culture technique. This technique was developed and found to be commercially successful. This method is also known as 'micro-propagation' and it involves the culturing of pseudostem tissue of micro-propagated plants of banana under in-vitro condition.

### ADVANTAGES :

- Higher rates of multiplication of healthy (pest & disease free) plant material
- Minimum space requirement for multiplication of large number of plants
- Planting materials are of superior quality over traditionally propagated plants
- Produce healthy plant material faster and grow vigorously in a short time with a more uniform production cycle
- High yield potential

### PROPAGATON TECHNIQUE:

It involves several steps as follows :-

1. Select suitable suckers (explants) from healthy banana plants which is free from notifiable pests and diseases
2. Cut the leaves and pseudostem about 30cm (12") above soil level of the selected sucker
3. Remove the soil and cut the roots to expose the corm
4. Peel out the outer sheathing leaf bases of the pseudostem one by one till approx. 1 - 2cm diameter and 6-7cm tall

### 5. Sterilization method



**Plate I**  
Soak the pseudostem in a mixture containing 20% Clorox and a few drops of Tween 20 for 20 minutes



**Plate II**  
Rinse the pseudostem with sterile distilled water 3 times



**Plate III**  
Trim the rest of the leaf sheath layers until the meristem approx. 0.5cm diameter at their bases and 2.5 - 3.0cm tall

### 6. Culturing technique



**Plate IV**  
Transfer of pseudostem to culture medium



**Plate V**  
Transfer the pseudostem into banana initiation nutrient Murashige & Skoog media

Plants are to be subcultured every month about 7 or 8 times by cutting all roots and stem which is about 1 cm above the meristem and partially cut into two.

Hardening process takes about 3 - 4 months within the plastic bag in the nursery before planting into the field.