

# MASS PROPOGATION OF VANILLA BY TISSUE CULTURE TECHNIQUE

## INTRODUCTION

*Vanilla planifolia* is one of the most economically important members of Orchidaceae. Vanilla plants are of high commercial value at all stages of its life cycle. Due to its monopodial growth style with thick beautiful long lasting foliages, it has horticultural value. The flowers of vanilla also make expensive ornamental having demand in cut flower market throughout the world. Finally, the fruits, (the vanilla beans) are of tremendous market value due to the vast application of vanilla flavour produced from vanilla beans.

Plant Tissue Culture (PTC) is an application-oriented wing of biotechnology. PTC may be defined as culture of a part of the plant on fully defined nutrient media under aseptic conditions. PTC has direct impact on present day agriculture and has been the direct cause for face-lift of modern agriculture in developed countries. This has been possible because of enormous supply of desired type of planting/sowing material obtained by mass micro propagation. At present several laboratories together in the world are producing over 500 million plants annually.

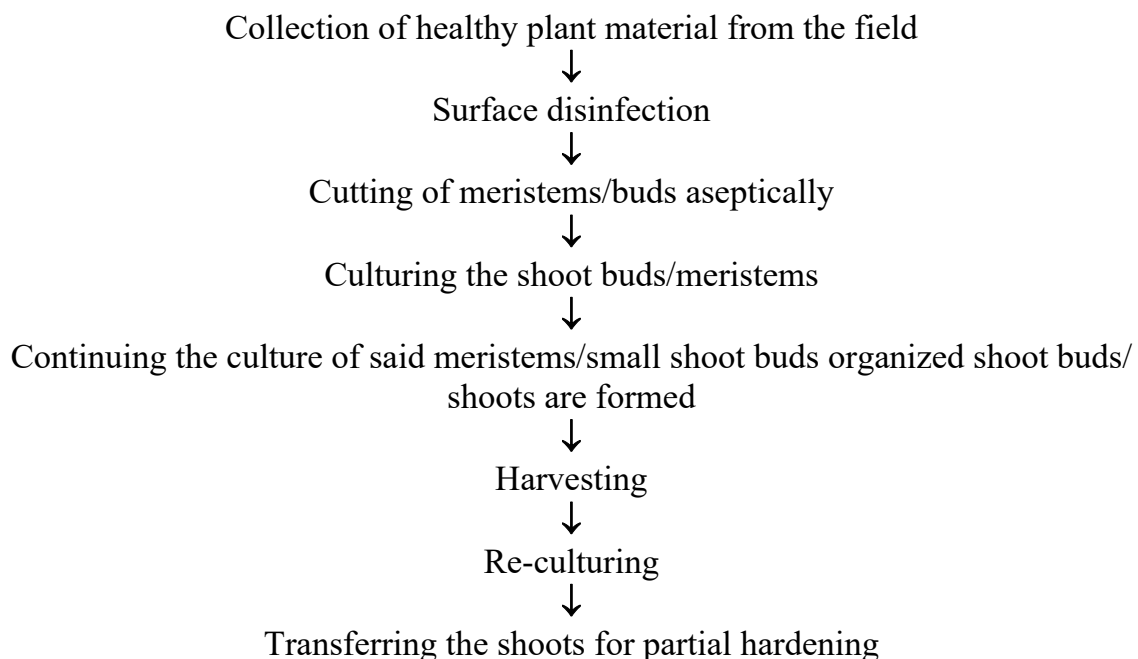
## MARKET

With the changing trend in modern agriculture and need for natural vanilla, demand for large market for *vanilla planifolia* internationally and, therefore is the demand for planting material. However, marketability of planting material may be expanded by popularizing advantages of Tissue culture vanilla plants over the conventionally produced planting material. Since vanilla plants live for about 10-12 years, there is always a need for fresh planting material.

## MATERIALS AND PROCESS

**Raw materials:** single distilled water, nutrient medium, phytohormones, tissue culture incubation room with illumination (200 lux) and temperature control (air-conditioned).

**Process:** The process involves the following steps:



## **PLANTS AND MACHINERY**

**Principal equipments:** Laminar flow hoods, Culture vials or bottles with screw caps, autoclave for sterilisation, Stereomicroscope, refrigerators with freezer and refrigerators without freezer, air conditioners, heaters and large stainless steel wares.

**Auxiliary equipments:** glass measuring devices, distillation units, balance, ordinary + fine.

### **Project Cost – Fixed Cost – Working Capital (in Rs.000) (estimate for a model project)**

a. Land (4000 Sq.m)	320.00
b. Building (450 m <sup>2</sup> )	956.00
c. Plant and machinery	129.00
d. Miscellaneous fixed assets	133.70
e. Pre-operative expenses	77.50
Total fixed capital	1616.20
Working capital margin	Nil
Total project cost	1616.20

### **PRODUCTION CAPACITY – (estimate)**

10 Lakh vanillas per year

### **Technology / Manufacturing Process - availability**

CFTRI has standardized the technology and general methods of processing mass propagation of vanilla by tissue culture technique. Apart from this procedure for quality control, packaging and packaging material specifications, the institute also provides equipment details.