Plant Tissue Culture and its application in propagating Butterfly attracting Plants

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eat bugs gourmet exotic

We offer to you a specially assortment of gourmet exotic treats. Bush foods such as Witjuti grubs from the Australian outback. Baked Giant Scorpions and Fried Crickets & Worms from the North-East of Thailand. For centuries all of these insects have been consumed as part of an everyday diet.. Some of our other popular delicacies include; Bugs Dipped in Chocolate, Creamy Crocodile Green Curry, Crunchy Fried Locust & Beetles, Spicy Frogs Legs, Scorpion Lollypops & more..

We cater to all occasions. Visit our online shop and see our new selection of kids and adult party bags, ideal for your special events this year. Each pack comes with an assortment of creepy crawly nibbles. YUM YUM !!

Insects in a Beijing (China) market in 2004. (Source)

Tequila flavoured candy with worm (source)

Sale of Sapelli caterpillars at a market in Bangui, Central African Republic.

Sapelli caterpillars on sapelli leaves. Caterpillars are rich in protein, carbohydrates, minerals and vitamins.

FOOD-INFO

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helping to build a world wi

Edible insects, important source of protein in central Africa

Nutritious, income generating, biological pest control

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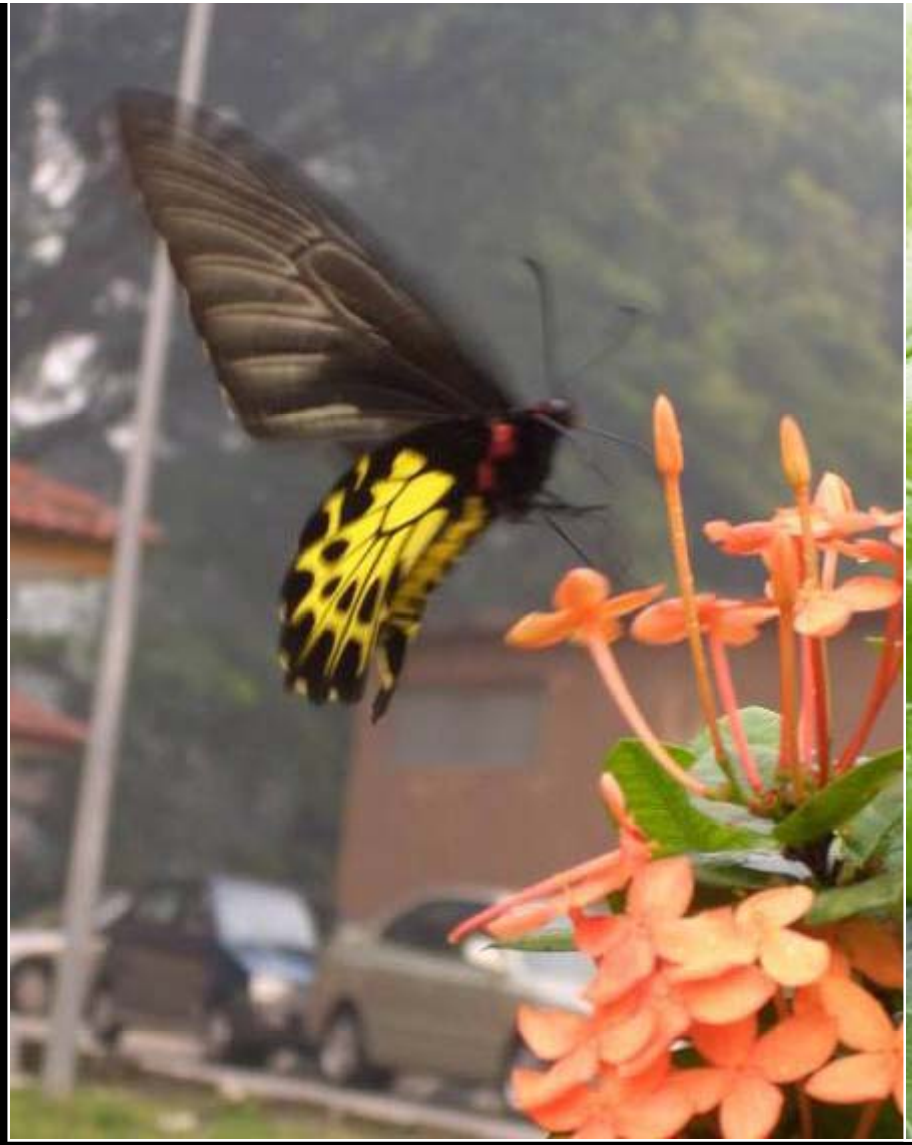

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Crateva religiosa

Cratoxylon formosum

Aristolochia sp

Diospyros chloroxylon

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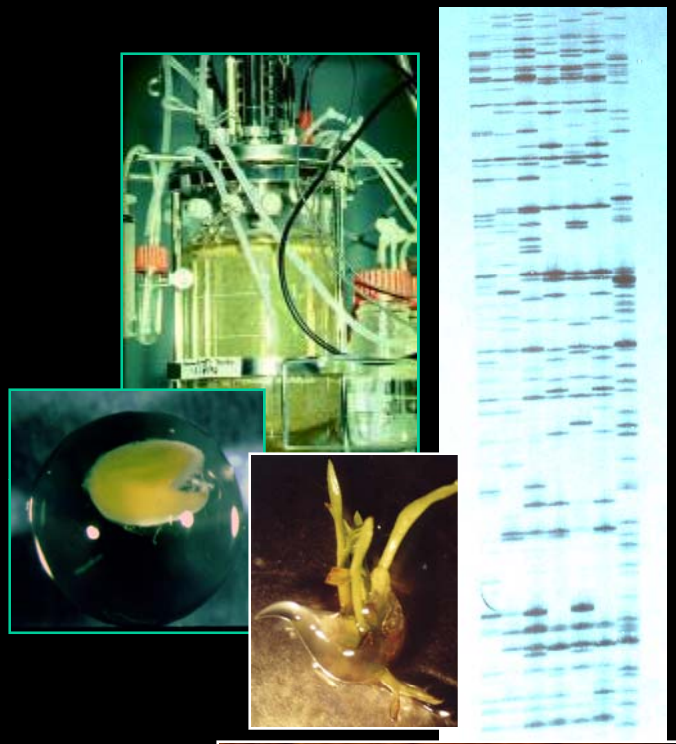
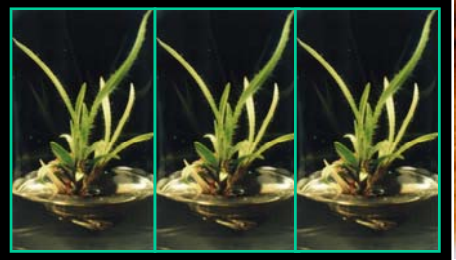
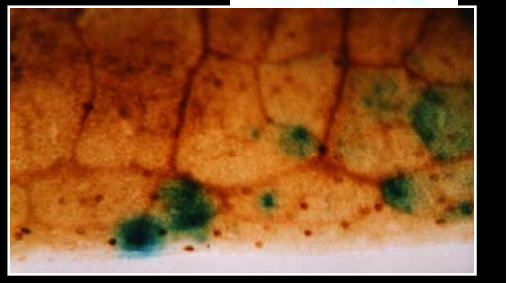
Plant biotechnology

1. Tissue Culture (Clonal Plants)
2. Recombinant DNA
3. Phytopharmaceutical
4. Green pharmacy







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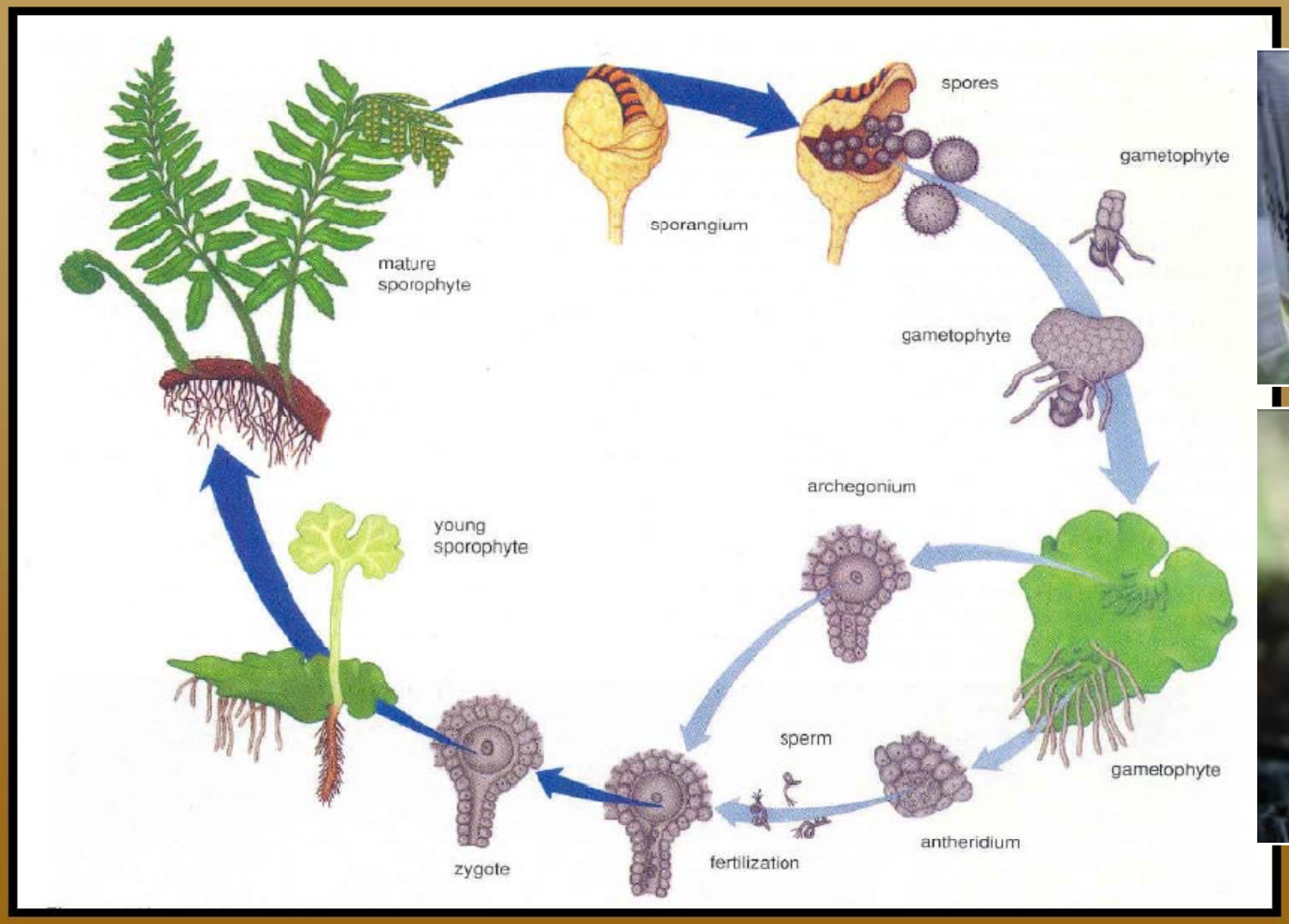
Life Cycle of a Fern



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Plant Tissue Culture

some basics

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Description

Growing surface sterilised plant tissue in a nutrient medium under aseptic conditions in a controlled environment

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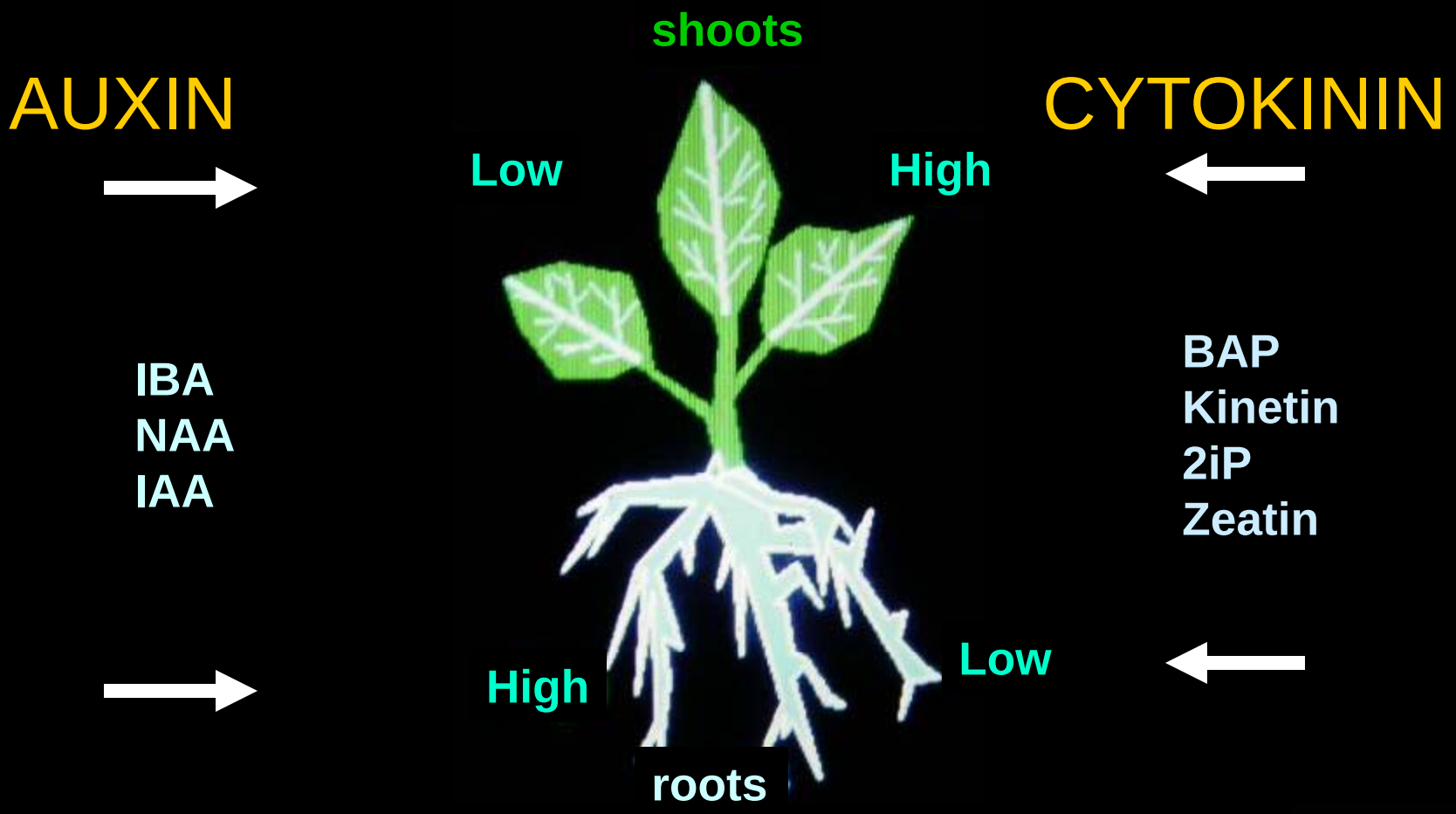
Hormonal control of growth



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where do we begin?

quick recap

Facilities & Infrastructure

We are fully equipped to undertake a complete range of in vitro studies, i.e. micropropagation, suspension cell culture, somatic embryogenesis, etc.


Media Preparation Room


Transfer Room


Growth Rooms


Culture Racks


Weaning Chamber


Misting Area


Growing Area


Holding Area

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Media Formulations

- Nutrients:
  - Macro & Micro
  - Vitamins
  - Amino Acids
- Growth Regulators:
  - Cytokinins (BAP, Kinetin, etc.)
  - Auxins (NAA, IBA, IAA, etc.)
- Stages:
  - Multiplication
  - Rooting
  - Weaning (potting)

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Basic Steps

1. Identification of explant
2. Decontamination of explant
3. Culture introduction
4. Shoot multiplication
5. Root induction (if necessary)
6. Acclimatisation (weaning)

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Explant

Any living plant tissue used as a starting material, e.g.:

1. Leaf, stem, petiole, root, cotyledon segments
2. Embryo, anther, pollen, flower, etc.

Decontamination

1. Wash thoroughly in running tap-water
2. Brief dip (ca 60s) in 70% ethanol & agitate in 20-30% bleach solution (with 1-drop of detergent)
3. Rinse-off all traces of detergent & trim-off all bleached tissue
4. Culture onto appropriate media.

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Growth Parameters

- Growth room condition
  - Temperature (e.g. 25±2°C)
  - Humidity (e.g. 40-45%)
  - Photoperiod (e.g. 16h light)
- Greenhouse condition
  - Temperature (e.g. 25±2°C)
  - Humidity (e.g. 80-100%)
  - Light levels (70% shade)

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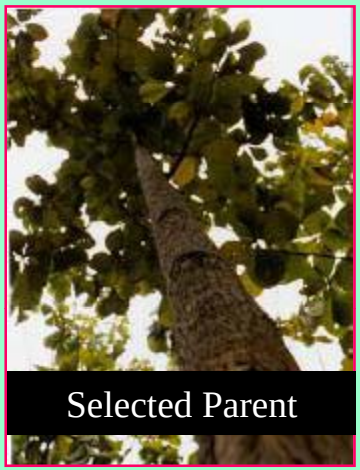
Research & Development

Development of suitable, economically viable mass propagation protocol for various forest species.

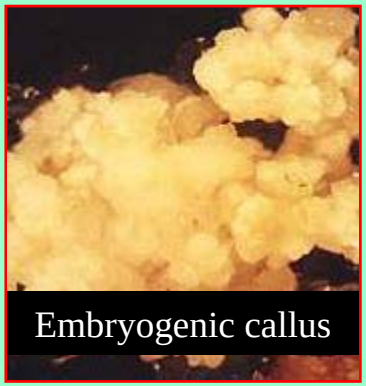

Selected Parent

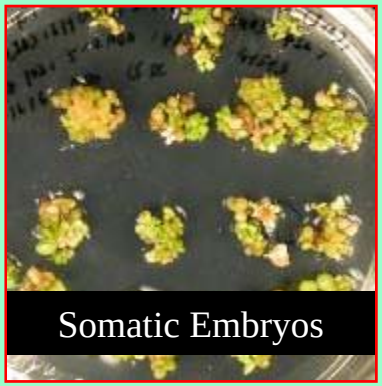

Explant Material


Culture Initiation


Multiplication


Weaned Plantlet


Embryogenic callus


Somatic Embryos


S.E. germination


Shorea (Rita System)


Nepenthes

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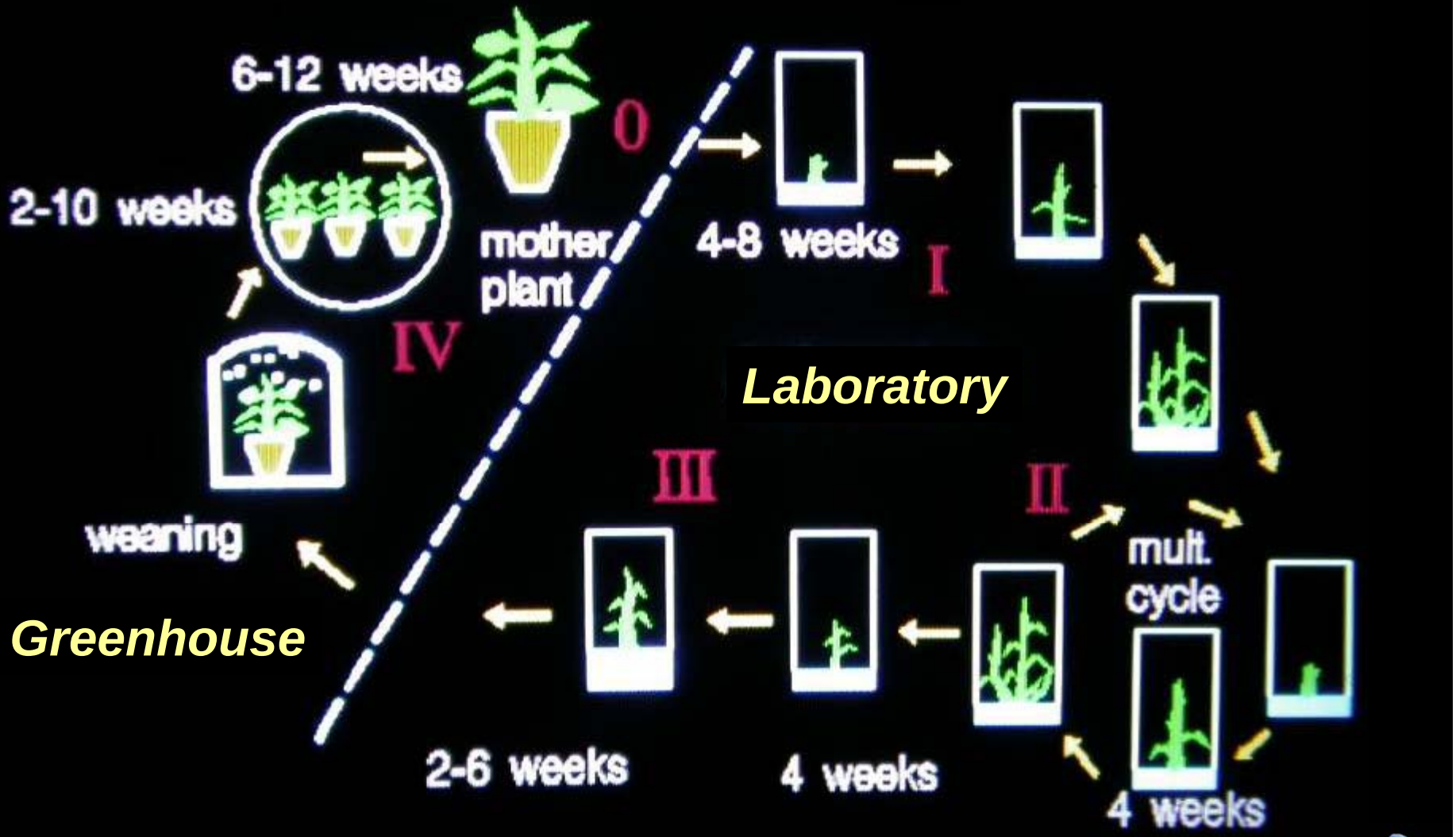
Micropropagation cycle



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MICROPROPAGATION
(Tropical timber)



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Plant Tissue Culture

@ FRIM

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Sonneratia caseolaris

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Avicennia officinalis

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Begonia sp







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Wild Gingers

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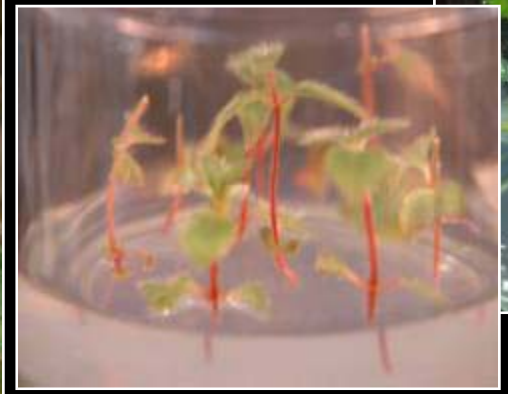
Senduduk



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Misai Kuching

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Shorea leprosula

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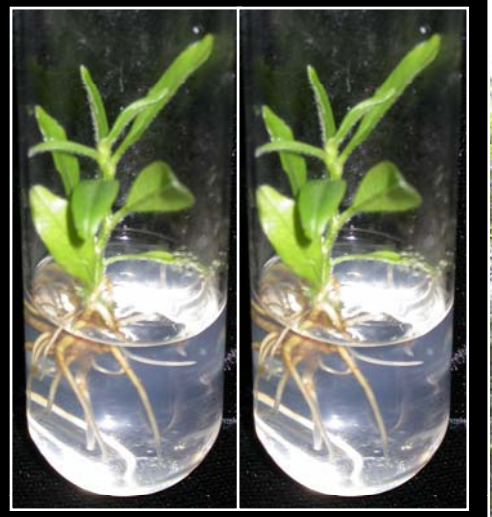

Gaharu

(Aquilaria malaccensis)

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associated problems

at a brief

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Searching for Excellence:
Development of TheTropical Weaning Chamber

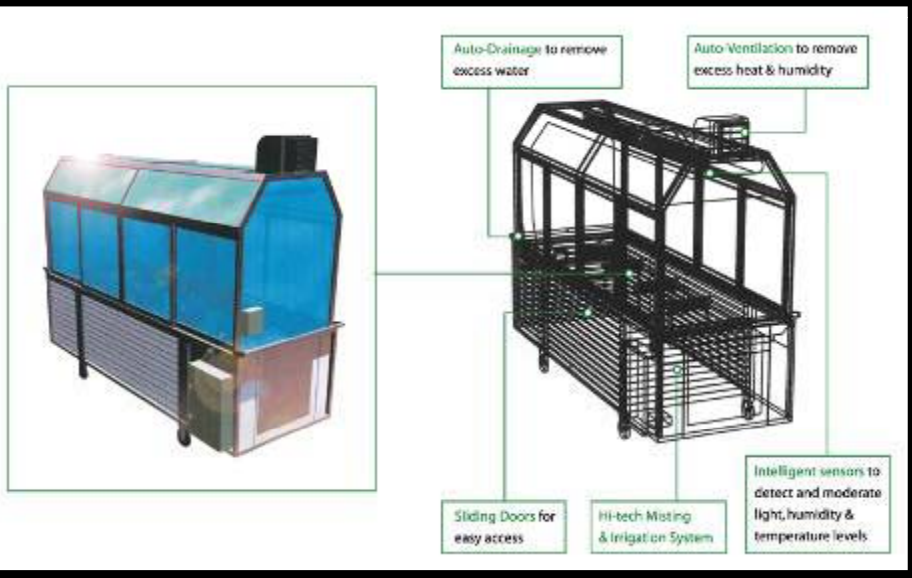
1. Outdated - Conventional Tunnel-shaped Humid Chamber
Extremely low survival rates of transplanted tissue culture-derived plantlets (<20%)

Searching for Excellence:
Development of TheTropical Weaning Chamber

2. Success - 1st Generation Weaning Chamber
High survival rates for most tissue culture-derived plantlets (> 80%)

Searching for Excellence:
Development of TheTropical Weaning Chamber

3. Excellence - Tropicalised Weaning Chamber
Optimal growing environment. Weaning time reduced to < 7 days with survival rates > 95%.



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Human resource

- Smooth running of production line
- Skilled & semi-skilled
- Strict job specification
  - Production Manager
  - Production Supervisor
  - Operators
  - Support staff
- Monitor & evaluate performance
- Healthy and safe workplace

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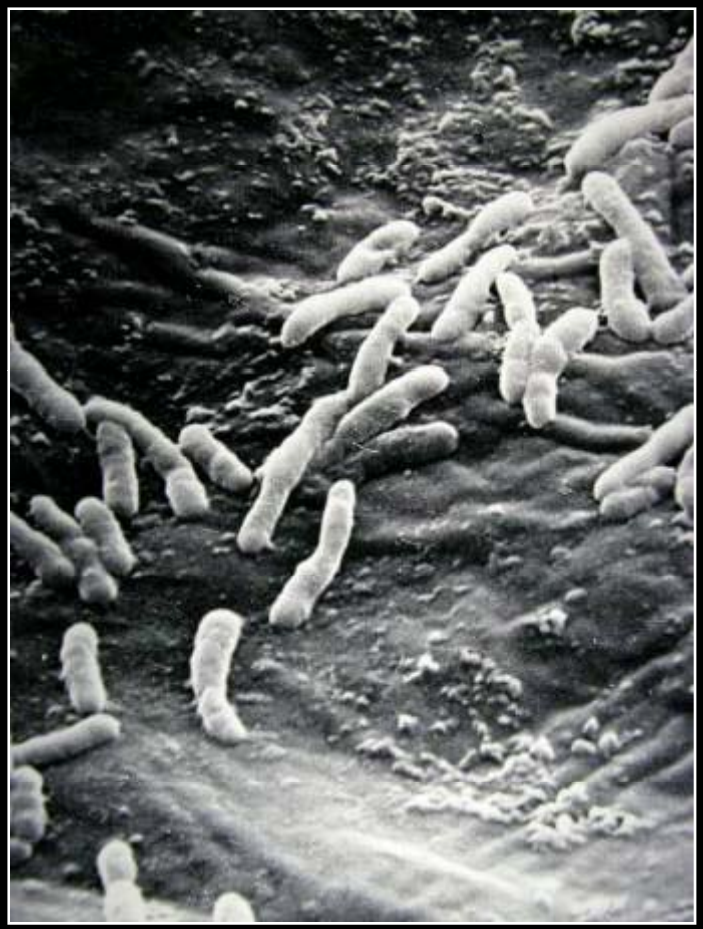
Associated problems



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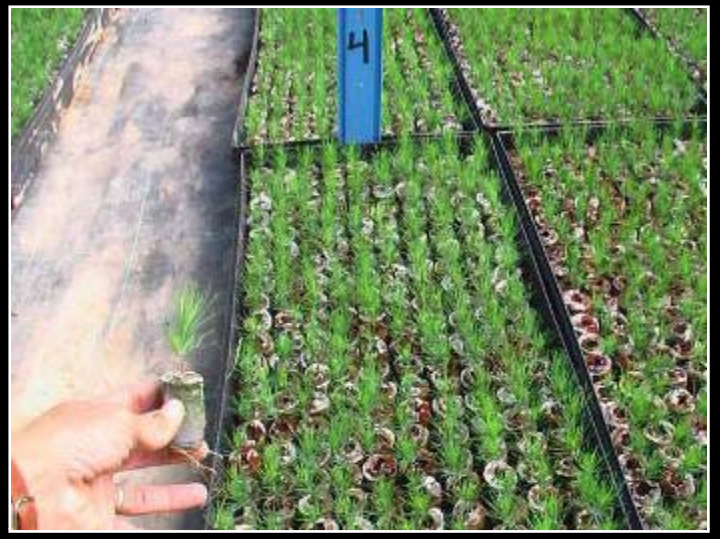

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MICROPROPAGATION
(Ornamental)



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SEED-ROUTE PLANTATION

CLONAL PLANTATION

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SEED-ROUTE PLANTATION

CLONAL PLANTATION

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THANK YOU

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