ENHANCING COCONUT DEVELOPMENT THROUGH MICROPROPAGATION TECHNOLOGY FOR FOOD SECURITY AND NATIONAL GROWTH

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Introduction

In Kenya, the coconut sub-sector earns approximately. Ksh. 3.2 billion revenue annually – barely a **quarter** of its potential!!!

Low productivity is largely attributed to:

- Lack of quality seedling materia.
- Aged orchards that are poorly managed
- Lack of quality seedling materials
- High pest infestations and disease in existing orchards
- Excessive harvesting of old coconut orchards for timber and young nuts
- **Lack of technologies for mass production of coconut planting materials and trained personnel for dissemination**

Seed propagation of coconut is time consuming. Hence, in this project, use of tissue culture for micropropagation of coconut seedlings is proposed, with the aim of mass production of quality seedling material.

Micropropagation of coconut by tissue culture as a tool has been established elsewhere in the world, such as the Philippines, Australia and Mexico [1], and has proven to be an attractive alternative for production of coconut seedlings as seen in Table 1 below.

The seedlings obtained were of high quality and were found to adapt well to the external environment and developed to maturity without abnormalities.

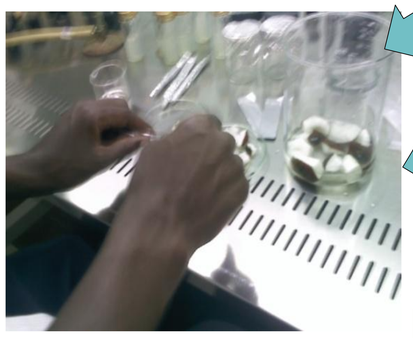
However, the technology is yet to be established for coconut production in Kenya, hence the low numbers as seen below (Table 1).

Table 1: Coconut production statistics (2009)

Country`	Production (tonnes)
Philippines	19,500,000
Indonesia	15,319,500
India	10,894,000
Brazil	2,759,044
Sri Lanka	2,200,000
Thailand	1,721,640
Mexico	1,246,400
Vietnam	1,086,000
Papua New Guinea	677,000
Malaysia	555,120
Tanzania	**370,000**
Kenya	**62,048**

Methodology

1. Dehusking of Coconuts



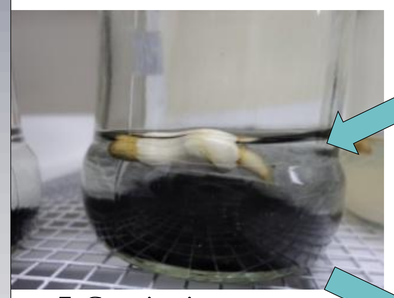
2. Aseptic embryo excision

3. Embryo sterilization

4. Inoculation onto MS growth media

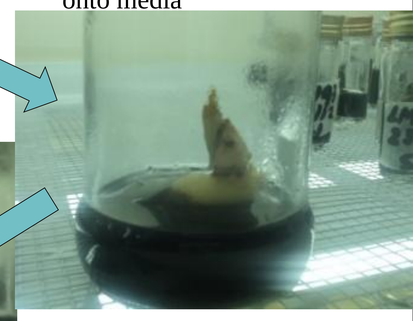
5. Inoculated Embryos in media in the Growth Chamber

Results

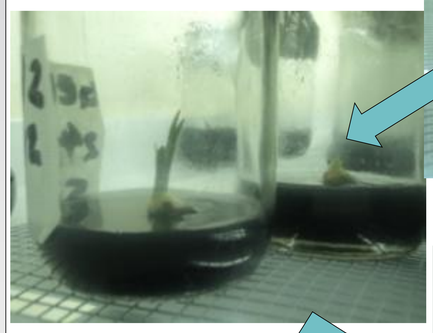


7. Germination

6. Embryos after inoculation onto media



8. Shooting



9. Initial Growth

10. Tissue Cultured plantlet

11. Plantlet Acclimatization

Remarks

It is envisioned that, with the adaptation of micropropagation of coconut, aged, unproductive coconut orchards shall be rapidly replaced with new, high yielding coconut plantations.

This will therefore contribute to food security and national growth

References

[1] Armendariz, B.H.C., Oropeza, C., Chan, J. L., Brian, M., Aguilar C.C.C., and Saenz, L.(2006); *Pollen Fertility and Female Flower Anatomy of micropropagated coconut palms*. Vol:29.004, Mexico; 373-8.

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