Vegetative multiplication of the in vitro recalcitrant coconut palm is a promising approach to propagation of locally adapted palms and production of high-quality populations for renewal of ageing plantations in many countries. It also opens the way to the use of genetic transformation in the aim of producing plants resistant to various diseases.

**THE MAIN DIFFICULTIES ENCOUNTERED IN COCONUT MULTIPLICATION:**

- Intense browning of tissues due to their high sensitivity to synthetic auxins like 2,4-D.
- Heterogeneous tissular reaction and highly determined tissue component.
- Low embryogenic potential.
- Embryogenesis often incompletely expressed (without caulinar apex).
- Slow morphogenic events and consecutive difficulties in in vitro experimentation.

**THE STRATEGIES USED TO GET ROUND SOME OF THESE DIFFICULTIES:**

- Use of activated charcoal which improves control of tissue browning.
- Creation of homogeneous calli strains by multiplication of primary calli. Their screening on the basis of their embryogenic competence circumvent the difficulties linked to tissular heterogeneity.
- Quantification of 2,4-D not adsorbed by charcoal allowed us to increase the reproducibility of embryogenesis.
- Histological checks in order to detect the first signs of somatic embryogenesis and monitor tissue development.

Our approach led to improve our basic knowledge on somatic embryogenesis and yielded complete embryos and plantlets from several genotypes.

The main thrust of future work will be to determine the conditions required for achieving adventive embryogenesis in order to satisfy mass ramet production.

**REFERENCES**


**Acknowledgements:** This work was performed in the frame of a joint research programme between ORSTOM (Institut Français de Recherche Scientifique pour le Développement en Coopération) and CIRAD-CP (Centre de Coopération Internationale en Recherche Agronomique pour le Développement - Département Cultures Pérennes). The authors wish to thank IDEFOR (Ivory Coast) for the supply of plant material.
1. Homogeneous granular callus

2. Somatic embryogenesis of unicellular origin with embryogenic cells
3- Cluster of embryos with shoot emission

4- Shootlet before rooting

5- The first vitroplant in the field (Ivory Coast)
VIII INTERNATIONAL CONGRESS OF PLANT TISSUE AND CELL CULTURE

Firenze, 12-17 June, 1994

International Association for Plant Tissue Culture