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*CICC Scientific Webinar*

# *in vitro* regeneration protocol for cashew trees from meristems.

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STRUCTURE: NANGUI ABROGOUA UNIVERSITY

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# PRESENTATION PLAN

- INTRODUCTION
- METHODOLOGY
- RESULTS
- CONCLUSION

# INTRODUCTION

**Ivory Coast, the world's leading producer of cashew nuts with 702,000 tonnes , since 2015 ( MINAGRI, 2016 )**

**nut production was estimated at 1,220,000 t (FIRCA, 2022)**

**Low yields of around 350 to 500 kg/ha compared to 1000 to 2000 kg/ha in India and South America (Aliyu, 2007)**

- ✓ **All-purpose equipment**
- ✓ **Insufficiency technical supervision of farmers**
- ✓ **Very little variety improvement program**

# INTRODUCTION

**Extension of cultivated areas from 265,654 ha in 2000 to 1,400,000 ha in 2021 (CCA, 2022)**

**Unavailability of arable land and land disputes**

**Launch of the National Cashew Research Program**

**Identification of APHP in orchards, constitute genetic resources for improving cashew production**

**Conservation of APHP in CDCs or in vitrotheques, essential for the improvement of cashew genetic resources**

***in vitro* culture , a technique for regenerating healthy clones**

# INTRODUCTION

- ✓ **Problems of disinfection of explants taken from mature cashew trees**
- ✓ **Low rooting rate**

# General objective

**Develop an *in vitro regeneration protocol* for potentially high-producing trees using the meristem culture technique**

# Methodology

- **Plant material**

**Cashew tree shoots**

# Methodology

## ❑ Obtaining plant material

Cashew tree branches bearing leaves


Spraying the leafless branches with a fungicide solution

Branches protected by a transparent bag

cashew tree shoots protected by a transparent bag

# Methodology

## ❑ Disinfection of plant material

Thoroughly rinse the leafy shoots under a tap

Leafy shoots in alcohol

Leafy shoots in sodium hypochlorite solution

Meristem sampling under a binocular microscope

# Methodology

- **Cultivation on shoot induction medium**

Isolated meristem


Cashew meristem seeded on WPM medium supplemented with BAP +ANA

# Methodology

- **Cultivation of leafy shoots on root induction medium**

**Transfer of leafy shoots obtained onto culture medium supplemented with AIB**

# Methodology

## ❑ Parameters evaluated

- ✓ Percentage of contamination
- ✓ Percentage of viability
- ✓ Percentage of leafy shoots
- ✓ Average time to leaf emergence
- ✓ Rooting percentage
- ✓ Average rooting time
- ✓ Average root length

# Results

## ❑ Disinfection of meristems

Uncontaminated and viable meristem

**Contamination percentage: 27.78%**

**Viability percentage: 64.45%**

# Results

- **Induction of leafy shoots**

Beginning of leaf formation

Leafy shoots

**Percentage of leafy shoots: 91.66%**

**Average time for leaves to appear: 46 days**

# Results

- **Root induction**

Beginning of rooting

Leafy shoots rooted on WPM medium supplemented with AIB

**Rooting percentage:** **76.67%**

**Average rooting time:** **18.33 days**

**Average root length:** **3.04 cm**

# CONCLUSION

***In vitro*** **culture of cashew was made possible using meristem culture.**

# THANKS !!!


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