

Micropropagation of *Fungal-free* Plantlet of Indigenous Banana 'Ambon Curup' in Bengkulu

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Introduction

Fungal wilt disease caused by *Fusarium oxysporum* is major disease of indigenous banana 'Ambon Curup' in Bengkulu. The spread of the diseases mainly due to the use of infected suckers as planting material. The availability of *fungal-free plant* material could be produce through a micropropagation technique using a meristem part of plant material. Callus and organ formation derived from meristem part of banana plant lead to produce high multiplication plantlet regeneration. *In vitro hardening* treatments were required to prepare plantlet in acclimatization condition.

The experiment was purposed to regenerate *fungal-free* plantlet of banana ‘Ambo Curup’ and to prepare plantlets perior to *ex vitro* transplanting.

Methods

Initiation of Plantlet

Callus formation

Organ formation

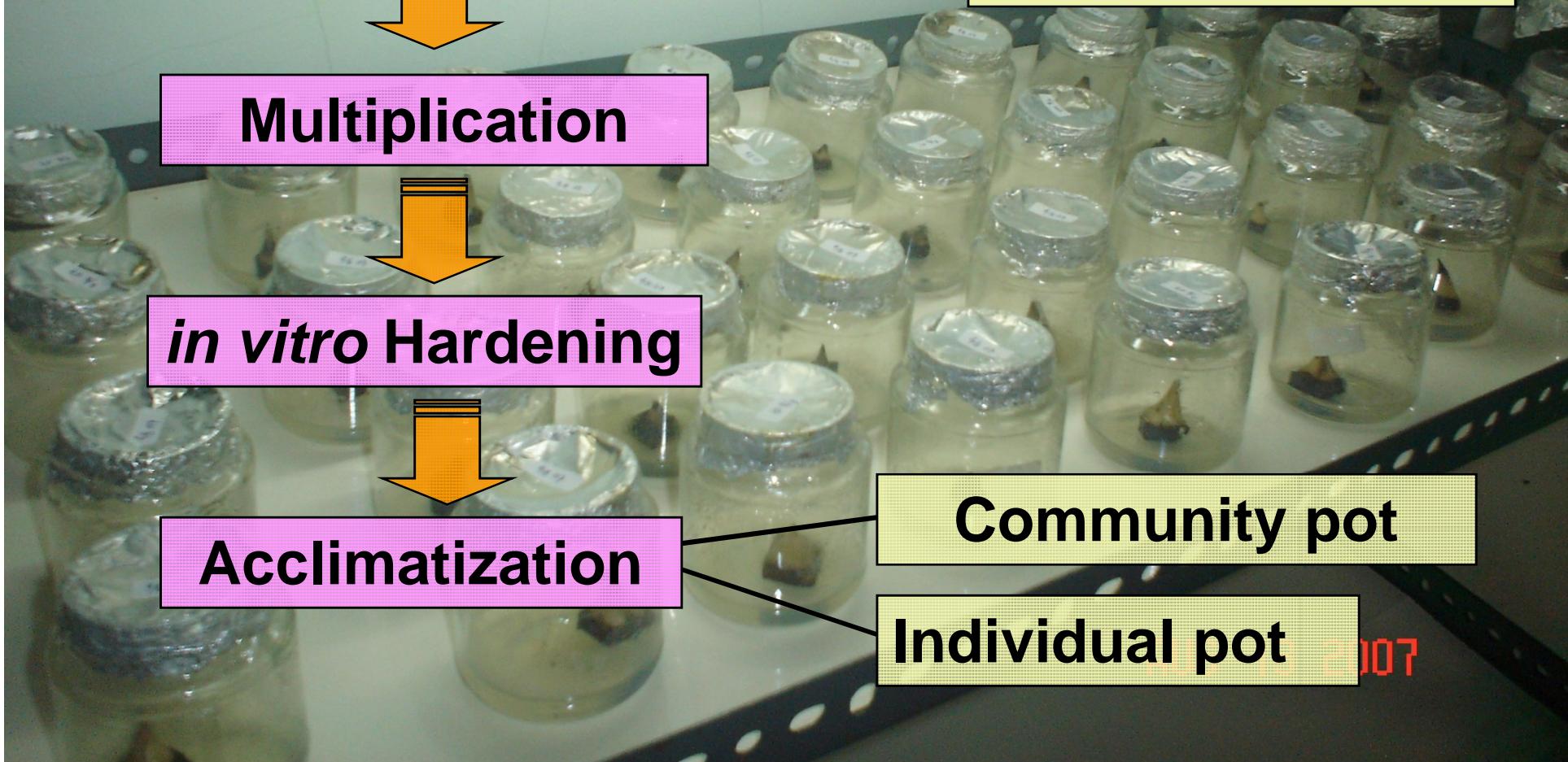
Multiplication

in vitro Hardening

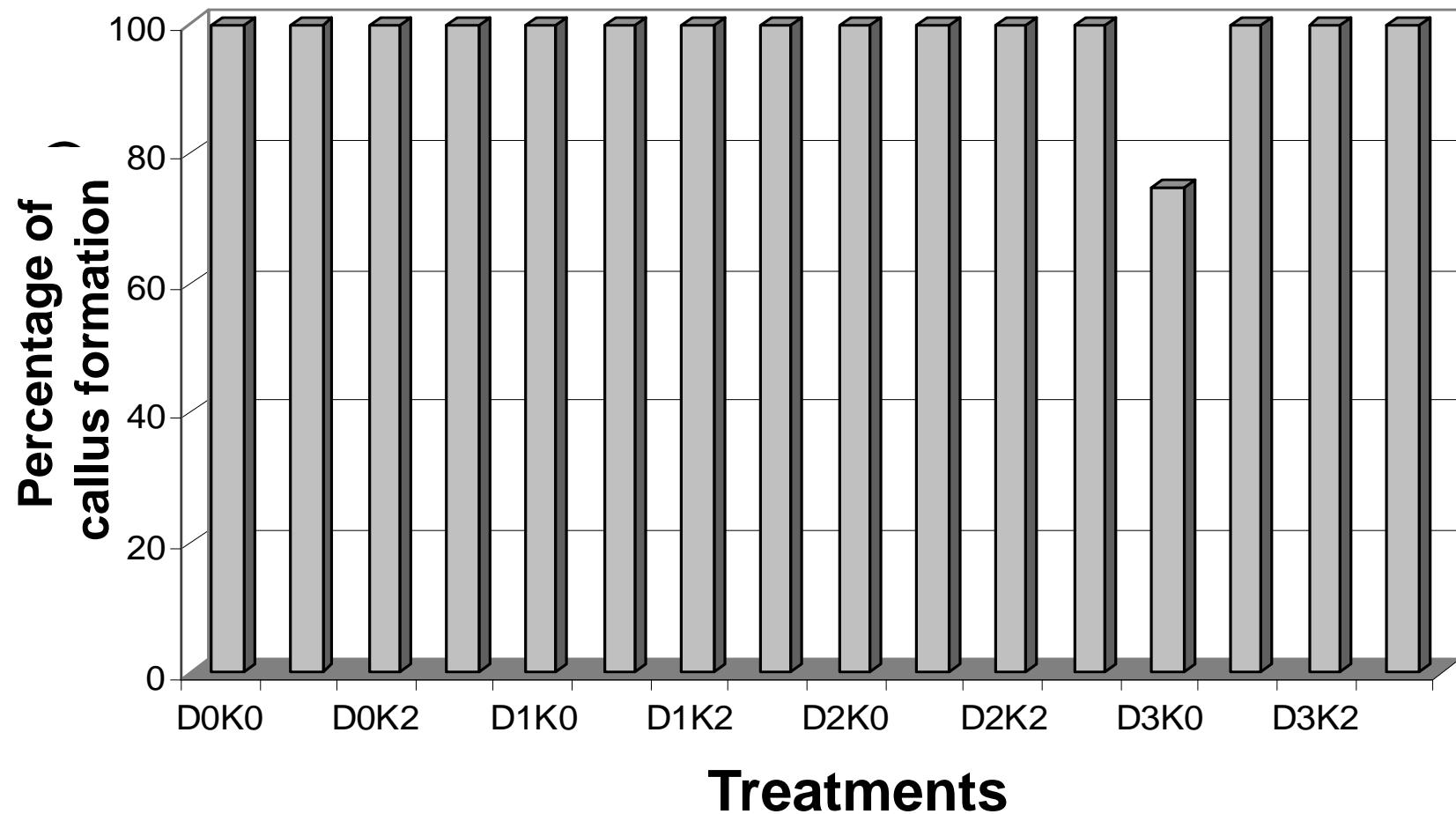
Acclimatization

Community pot

Individual pot



Callus Formation



Percentage of explant growth *in vitro* in media with 2,4-D and Kinetin, 8 weeks of culture

Plantlet Formation



Hormone free medium



Medium with 2 ppm of BAP



In vitro Hardening



Plantlets growth in medium with 2 g/L of activated charcoal and 60 g/L of sucrose



ACCLIMATION



Effect of medium composition on plantlet growth in community pots (6 weeks of transplanting).

Treatment s	Plant Heigh	Leaf number r	Leaf width	Stem diameter
M1	14,567 b	4,333 b	3,500 b	0,567 a
M2	16,000 b	5,667 a	3,733 b	0,667 a
M3	26.933 a	6,000 a	7,067 a	0,833 a

M1 = Soil

M2 = Soil + Organic compound with *T. harzianum*

M3 = Organic compound with *T. harzianum*

Conclusion

- Supplementing the medium with 2,4-D and Kinetin were promoted explant growth and developed in to a callus formation.
- Shoot multiplication were increased in medium with 825 mg/L of NH₄NO₃ and 2 ppm of BAP.
- Media with 6% of sucrose and 0.2 % of activated charcoal were needed to promote shoots and roots growth in vitro hardening. The plantlets were transferred successfully in acclimatization media.
- Results were attained in tissue culture works, proved that such technique had a prospective benefit to enhance the high multiplication of *fungus-free plantlets* of banana 'Ambon Curup' in Bengkulu in order to improve plant quality and production.

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