EFFECT OF GENOTYPES ON MICROPROPAGATION OF JATROPHA *CURCAS*

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PLANT TISSUE CULTURE OF JATROPHA *CURCAS* L.: A REVIEW

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PHYLOGENY: JATROPHA *CURCAS*

Kingdom: Plantae

Order: Malpighiales

Family: Euphorbiaceae

Genus: Jatropha

Species: *curcas*

PLANT TISSUE CULTURE
(INTRODUCTION)

-a technique of growing tissue under a suitable environment that promotes successful growth

- Clone
- Disease free plants
- Production of large number of plantlets
- Germplasm maintenance
- Regeneration of whole plant

TECHNIQUES

- Sterilization of explants
- Solid medium
- Liquid medium
- Hormones
- Callus and cell culture
- Shoot culture
- Regeneration from shoot explant
- Agrobacterium mediated transformation

USES OF J. *CURCAS*

- Oil
- Edible
- Fish poison
- Soaps
- Illumination

Plant part used	Diseases
Seeds	To treat arthritis, gout and jaundice
Tender twig/ stem	Toothache, gum inflammation, gum bleeding, pyorrhea
Plant sap	Dermatomucosal diseases
Plant extract	Allergies, burns, cuts and wounds, inflammation, leprosy, leucoderma, scabies and small pox, wound healing
Water extract of branches	HIV, tumor

USES OF JATROPHA *CURCAS (CONT)*

STEM EXPLANTS

- Simple, rapid and cost effective protocol
- Shoots cultured on medium containing IBA
- 40% rooting achieved after 5 weeks

HISTORY AND BACKGROUND

JATROPHA *CURCAS* IS A POISONOUS, TOXIC, DROUGHT RESISTANT PLANT THAT IS CULTIVATED IN TROPICAL AND SUBTROPICAL REGIONS. TODAY, J. *CURCAS* IS A WIDELY USED AS A BIOFUEL CROP.

- Physic nut
- Seed contains about 30-50% of oil
- Seed contains taxalbumin curcin
- Genome sequenced in October, 2010
- Life expectancy 40 years
- Biodiesel (major use)

The genus name Jatropha derives from the Greek jatros (doctor), trophe (food)

MEDIA PREPARATION

Two media used

1. Jatropha shoot medium (MS + Vitamin+ 30g/l Sucrose + 3 mg/l BAP + 0.1 mg/l IBA + pH 5.8 + Agar 7 g/l) sterilized at 121˚C, 20 minutes

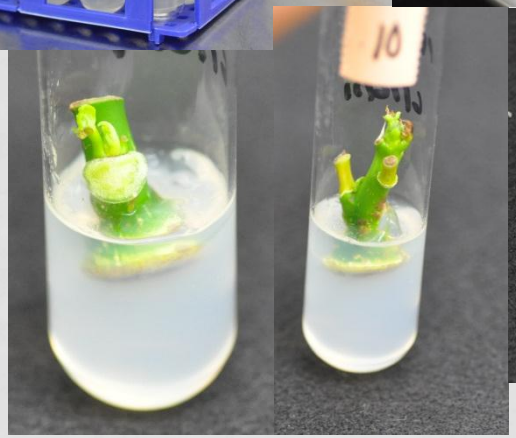
2. Callus Induction medium (MS + Vitamin + 30g/l Sucrose + 1.5 mg/l BAP + 0.05 mg/l IBA + pH 5.8 + Agar g/l) sterilized at 121˚C for 15"

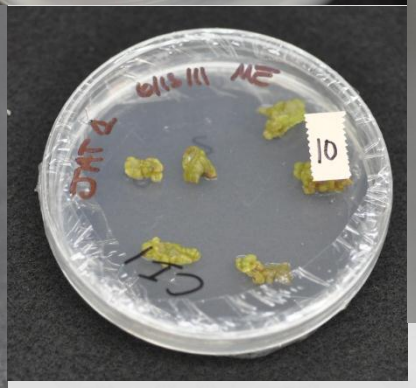
DECONTAMINATION

- Wash (Tween20) 10’
- Hood
- 10% bleach (5’)
- Sterile water (3x)
- .1% Mercuric Chloride (5’)
- Sterile water (5-6x)

PRELIMINARY RESULTS

- Rate of contamination
- Early response (axillary bud break, curling response)





PRELIMINARY RESULTS (CONT.)

			Total Percent Contaminated: 16.36%			
Percent Contamination						
GT_1: 9.09%						
GT_2: 33.33%						
GT_3: 12.50%						
GT_{12}: 12.50%						
GT_5: 6.25%						
GT_9: 6.25%						

			Total Percent Contaminated: 0%			
Percent Contamination						
GT_1: 0%						
GT_2: 0%						
GT_3: 0%						
GT_{12}: 0%						
GT_5: 0%						
GT_9: 10%						

CONCLUSION

- There is no clear difference between the 10 genotypes Tested so far. It is early to make a conclusion but will have a better understanding by the end of this REU program.