


Executive Summary

Micro-propagation in *Jatropha curcas*: A Potential Bio Fuel Plant

Okafor Uche Cyprian 

Department of Plant Science and Biotechnology, Plant Tissue Culture Unit, University of Nigeria, Nigeria

Keywords:

Fossil fuels, depletion, bio-fuel plants, micropropagation, low seed yields, plant micropropagation, basal medium, immature embryo, growth regulators, *Jatropha curcas*, renewable and substitute energy, fossil fuels, micro-propagation seed yield

Citation:

Okafor Uche Cyprian, 2019. Micro-propagation in *Jatropha curcas*: A Potential Bio Fuel Plant. Asian Journal of Emerging Research, 1(1): 21-22.

Corresponding Author:

Okafor Uche Cyprian, Department of Plant Science and Biotechnology, Plant Tissue Culture Unit, University of Nigeria, Nigeria

Copyright:

2019 Okafor Uche Cyprian. This is an open access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution and reproduction in any medium, provided the original author and source are credited.

Competing Interest: The authors have declared that no competing interest exists.

Data Availability: All relevant data are within the paper and its supporting information files.

Article History:

Received: January 23, 2019 | Accepted: April 10, 2019

Currently, experts are searching for renewable and substitute energy sources because of continuous depletion of fossil fuels. Therefore, mass propagation of bio-fuel plants, is needed and *Jatropha curcas* is considered as a crucial plant in this regard¹.

Conventional macro-propagation in this plant is done through stem and seeds but low seed yields as well as poor root development has been observed in case of stem cutting². Yield can be enhanced by using seeds but this goal can't be accomplished in absence of adequate rainfall, moisture as well as other pre-requisites during propagation. For this reason, plant micro-propagation by means of embryo culture is encouraged.

In this regard Mohan *et al.*³ investigated the *in vitro* propagation of *J. curcas* by utilizing immature embryo obtained from seeds and by employing Murashige and Skoog basal medium.

These facts urged Comfort *et al.*⁴ for designing a research to compare the two basal media by utilizing zygotic embryos as explants and supplementing both basal media with two growth regulators including auxin and cytokinin to investigate the morphogenesis of embryo explants. For this purpose, scientists removed the zygotic embryos from mature seeds of tested plant and then inoculated on modified basal media under aseptic conditions.

This research showed the efficiency of tested protocols which can be used for the mass production of plantlets by consuming less duration and without the inclusion of plant growth regulatory substances as well. Conclusively, scientists suggested Gamborg's medium (B5) as the most appropriate medium for *in vitro* micropropagation of *J. curcas* by employing embryo explants.

REFERENCES

1. Prakash, A.R., J.S. Patolia, J. Chikara and G.N. Boricha, 2007. Floral biology and flowering behaviour of *Jatropha curcas*. Proceedings of the Expert Seminar on *Jatropha curcas* L. Agronomy and Genetics, March 27, 2007, Central Salt and Marine Chemicals Research Institute, G.B. Marg, Bhavnagar, Gujarat, India, pp: 10.
2. Datta, M.M., P. Mukherjee, B. Ghosh and T.B. Jha, 2007. *In vitro* clonal propagation of biodiesel plant (*Jatropha curcas* L.). *Curr. Sci.*, 93: 1438-1442.
3. Mohan, N., S. Nikdad and G. Singh, 2011. Studies on seed germination and embryo culture of *Jatropha curcas* L. under *in vitro* conditions. *Biotechnol. Bioinf. Bioenerg.*, 1: 187-194.
4. Comfort, A.C., O.U. Cyprian and O.C.E. Agab, 2018. *In vitro* plant regeneration from mature embryo explants of *Jatropha curcas* L. (A biodiesel plant) on two standard basal nutrient media. *Am. J. Plant Physiol.*, 13: 23-35.