PHYSIOLOGICAL STUDIES ON MICROPROPAGATION OF JACKFRUIT (*Artocarpus heterophyllus* L.)

By

NAGLAA ABDALLAH ABDELSALAM
B.Sc. Agric. Sci. (Plant Pathology), Fac. Agric., Cairo Univ., Egypt, 1999

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Submitted in Partial Fulfillment of the
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APPROVAL SHEET

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To my loving family my husband,

Mohamed,

my sons ***karim*** *and* ***shady*** *and my daughter*

jana.

Deep appreciation and love to my father, mother in law, my sisters and brother and special thanks to my sister ***Noha*** *for fruitful help.*

To the memory of late mother

prof. Dr. ***Nagwa Ali Mossa,*** *my god blesses her soul.*

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ABSTRACT

This study was carried out in the Tissue Culture Laboratory at Genetic Resources Department, Desert Research Center, Ministry of Agriculture, Egypt, to establish an efficient protocol for rapid direct plant regeneration of ***Artocarpus heterophyllus* L.**

In order to optimize the establishment of both *in vitro* and *ex vitro* culture of ***Artocarpus heterophyllus* L**., shoot tips and nodal segments from mother plant were used.

Best sterilization conditions were observed when shoot tip and nodal segment explants were surface sterilized by immersion in 30% clorox solution or in mercuric chloride at 0.2% solution containing 3-5 drops of Tween 20 for 15 minutes, followed by three times rinses in sterile distilled deionized water. For establishment stage, MS medium fortified with 3.0 mg/l BA gave the best result for explants survival % and shootlets number, while by using nodel segment explants, MS medium fortified with 2.0 mg/l BA gave the best results. For multiplication stage, MS medium supplemented with 5.0 mg/l BA plus 2.0 mg/l Kin gave the best result for shootlets number. For elongation stage, MS medium fortified with 3.0 mg/l GA, gave the best result for the increase in shootlets length.Obtained shootlets were induced to roots and MS medium fortified with 1.0 mg/l IBA and 1.0 mg/l NAA gave the best result for roots number/plant, root length and rooted shoots %. Rooted plantlets were acclimatized to greenhouse condition with 100% transplant survival; moreover, successful *ex vitro* growth (about 70%) was achieved on peatmoss and sand at the ratio of 1:1(v/v).

Key words: *Artocarpus heterophyllus* L., micropropagation, shoot tip and nodel segment

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