# *In vitro* shoot initiation of *Artocarpus heterophyllus* Lam. (Jak Fruit) Effect of the explant type and the season of explant collection

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## Abstract

A method for rapid propagation of mature Jack fruit was developed. Four types of explants (mature embryos, apical meristems of young seedlings, apices from mature plants and nodal segments) were used. It has been found 88% of young apical meristems produced shoots in Campbell and Durzan (CD) medium compared to 60% in Murashige and Skoog (MS) medium. Only 1/3 of them produced multiple shoots. Shoot initiation from nodal segments was very rare. Mature apices produced callus. Although removal of the sheathing cover around mature buds enhanced the shoot initiation but success rate was low in growth regulator free medium. Embryos respond to the CD medium but not to the MS medium. Embryos from seeds soaked in water for 24 hours produced shoots after 8 weeks of incubation and the success rate was 70% while embryos from dry seeds only produced roots. There was no significant effect of cold storage (refrigeration) for 7 days on shoot initiation from mature embryos (65%) but the ability for shoot induction declines with storage time (55% after 21 days of cold storage).

Mature axillary buds were established in Modified Campbell and Durzan (CD) medium supplemented with 0.5mg/l and IBA. There was a significant difference in the growth performance of shoots according to the period of the year in which explants were collected. Highest (60%) was observed in November-January period. It was only 30% when the explants were collected in February-April or May-July and decreased to 20% in August-October. The shoots produced in November-January showed a higher vigor than those produced in other months. Since Jak fruit show seasonal changes in fruit bearing and shedding of leaves, it can be

suggested that the difference in growth performances of tissues cultured in artificial culture media would have been affected by endogenous rhythms.