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PLANT REGENERATION *VIA* SOMATIC EMBRYOGENESIS FROM ROOT EXPLANTS IN *HEVEA BRASILIENSIS*

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An efficient plant regeneration pathway through somatic embryo induction has been established in *Hevea brasiliensis* using root explants. In this experiment, actively growing roots of germinating somatic embryos were used as the initial explants. Different basal media *viz.* modified MS, white's low salt base, N6 basal and woody plant medium fortified with growth regulators 2, 4-D, NAA, IBA and BA were tried at various stages of the pathway. Compact calli could be induced at a high frequency (80%) when root explants were cultured over modified MS containing 2.0 µM 2, 4, D and 1.0 µM Kinetin. Modified MS and WPM were found to be effective for induction of friable embryogenic calli. A combination of 4.35 µM GA_3 and 8.8 µM BA was optimum for embryogenesis (50%). A plant regeneration frequency of 60 per cent could be achieved on modified WPM medium fortified with 2.9 µM GA_3 and 8.8 µM BA. Regenerated plants were successfully hardened. This system is reproducible and efficient in terms of frequency of embryogenesis and plant development and can provide a constant supply of target tissues for genetic transformation, which now depend upon the seasonal availability of floral explants. Moreover, after appropriate modifications, this pathway can be utilized for propagation of elite root stocks identified for specific desirable characters.

Keywords: Based media, *Growth regulators*, Root explants, Somatic embryogenesis

INTRODUCTION

Hevea brasiliensis, the natural rubber producing tree, is a cross pollinated, highly heterozygous, perennial tree crop with a very long breeding cycle, thus rendering crop improvement through conventional techniques of breeding and selection much laborious and time consuming. Biotechnological approaches hold much relevance in bringing about crop improvement in *Hevea*. Availability of established cell and tissue culture techniques and efficient protocols for regeneration of whole plants from these cultures is an essential pre-requisite for the application of genetic transformation technologies for plant improvement. In *Hevea*, plant regeneration has been reported from different explants like integumental tissue (Asokan *et al.*, 1992, a,b; Carron *et al.*, 1995), anther (Wang *et al.*, 1980; Chen, 1984; Jayasree *et al.*, 1999) and pollen (Chen *et al.*, 1979). Sushamakumari *et al.* (2000) reported an efficient and reproducible plant regeneration pathway through somatic embryogenesis using immature

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