Indian Journal of Natural Rubber Research, 14(2) : 106 - 111, 2001.

GIBBERELLIC ACID-REGULATED EMBRYO INDUCTION AND GERMINATION IN *HEVEA BRASILIENSIS* (MUELL. ARG.)

P. Kumari Jayasree and A. Thulaseedharan

Jayasree, P.K. and Thulaseedharan, A. (2001). Gibberellic acid-regulated embryo induction and germination in *Hevea brasiliensis* (Muell. Arg.) *Indian Journal of Natural Rubber Research*, 14(2) : 106 - 111.

Effect of gibberellic acid (GA_3) on embryo induction and germination during somatic embryogenesis of *Hevea brasiliensis* with respect to clone RRII 105 was studied. Immature anthers were inoculated on callus induction medium supplemented with 2,4-dichlorophenoxyacetic acid (2,4-D) and kinetin (KIN) and the induced calli were then transferred to the embryo induction medium. Incorporation of GA_3 up to 2.0 mg/l increased the embryo induction. Germination percentage was significantly enhanced by higher concentrations, however, further plant development was affected by increasing GA_3 levels. A reduction in response to both embryo induction and germination was observed by co-autoclaving of GA_3.

Key words : Anther culture, Gibberellic acid, *Hevea brasiliensis*, Somatic embryogenesis.

P. Kumari Jayasree (for correspondence) and A. Thulaseedharan, Rubber Research Institute of India, Kottayam – 686 009, Kerala, India (Email : rrii@vsnl.com).

INTRODUCTION

During *in vitro* culture, the cells possess or acquire competence for morphogenesis and undergo a permissive pattern of development. Although the success of such pattern of development is affected by various factors, the effect of constituents of medium is very crucial for production of embryo from somatic cells (Ammirato, 1986). In *Hevea*, somatic embryogenesis using different explants has been reported from China, Malaysia, France and India (Wang *et al.*, 1980; Wan *et al.*, 1982; Carron and Enjalric, 1985; Asokan *et al.*, 1992; Jayasree *et al.*, 1999). Somatic embryogenesis remains problematic due to low germination and plant conversion rate although enough attention has been focussed on its induction phase (Etienossier *et al.*, 1997).

Gibberellins (GA) are known to regulate many aspects of growth and development of plants (Hooley, 1994). Gibberellic acid (GA_3) is a potent growth regulator influencing embryo induction and germination. Although conflicting reports are existing for the influence of GA_3 on embryo induction and germination in many crops, a comprehensive study in *Hevea* is lacking. Therefore, it was of interest to investigate the influence of GA_3 on somatic embryogenesis in *Hevea*.

MATERIALS AND METHODS

Floral buds were collected from *Hevea brasiliensis*, clone RRII 105. After ascertaining the developmental stage, buds at the diploid stage were selected and surface-sterilized with 0.5 per cent hypochlorite solution for 5 min and then washed with sterile distilled water (Jayasree *et al.*, 1999). Immature anthers were dissected out and cultured on modified callus induction medium (Murashige and Skoogs, 1962) containing 2,4-D (2.0 mg/l), KIN (0.5 mg/l) and sucrose (3%). Cultures were incubated under darkness at 25 ± 2°C. Calli induced were then subcultured on embryo induction medium supplemented with glutamine (200