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IN VITRO POLLEN GERMINATION IN SIX CLONES OF *HEVEA BRASILIENSIS* MUELL. ARG.

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Clonal variations were observed in pollen germination studies of six clones of *Hevea brasiliensis* viz. RRII 118, RRIM 600, PB 235, PB 255, PB 280 and KRS 128 for pollen size, stainability, germination percentage, mode of germination, pollen tube length and breadth. Largest pollen was observed in PB 255 (40.63 x 31.82 µm) and smallest in KRS 128 (37.35 x 30.75µm). The highest pollen stainability (92.74%) and germination (51.19%) was recorded in RRII 118. The lowest germination was noticed in PB 280 (25.73%), which also registered the maximum pollen tube length (165.23µm). The highest pollen tube breadth was observed in PB 255 (13.24µm). Several abnormalities such as deformed pollen tube growth, development of more than one tube from a single pore and pollen tube branching were noticed in the clones PB 280 and KRS 128.

Key words : Genotype, *Hevea brasiliensis*, Pollen germination

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INTRODUCTION

In vitro pollen germination studies are valuable in determining the pollen viability of different plant species. Information on pollen viability is of importance in designing breeding programmes as it has a direct bearing on seed set. *In vitro* pollen germination has been reported for a large number of plants (Stanley and Linskens, 1974). The germination of *Hevea* pollen on artificial media has been reported earlier by Ramaer (1932), Majumder (1964), Markose and Nair (1970), Saraswathyamma and Panikkar (1990) and Saraswathyamma *et al.* (1995). In *Hevea*, hybridization programmes are regularly taken up for evolving high yielding clones. Knowledge of pollen viability status of various clones facilitates the choice of better male parents. In the present investigation, a detailed study on pollen size, stainability, germination percentage and pollen tube growth of six clones of *Hevea brasiliensis* has been carried out.

MATERIALS AND METHODS

The clones selected for the study were RRII 118, RRIM 600, PB 235, PB 255, PB 280 and KRS 128. All these clones are diploids with a somatic chromosome complement 2n=2x = 36. Flower samples were collected from trees planted in the experimental farm at the Rubber Research Institute of India (RRII) during 1989. Earlier studies (Saraswathyamma and Panikkar 1990, Saraswathyamma *et al.*, 1995) revealed that 20 % sucrose with 100 ppm boric acid dissolved in distilled water is an ideal pollen germination medium for *Hevea brasiliensis* and hence was used in this study. Male flowers just prior to anthesis were collected. Pollen grains were dusted in 1:1 acetocarmine - glycerin mixture and stainability was assessed after one hour. Fully and uniformly stained grains were considered as fertile while unstained/ aborted grains were treated as sterile. Germination was studied by the hanging drop technique at room temperature. Pollen germination percentage was assessed after 18 hours, by scoring 100 pollen grains from 10 microscopic fields selected at random. Abnormalities if any, in pollen tube growth were also recorded. Pollen size index was calculated by the method proposed by Tseng and Ting (1964). Clonal