

INCLINATION OF LATICIFERS AND PHLOIC RAYS IN TEN CLONES OF *HEVEA BRASILIENSIS*

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A detailed investigation on various structural traits of bark and their influence on the inclination and orientation of laticifers in *Hevea brasiliensis* was attempted in ten clones, viz., Tjir 1, Gl 1, GT 1, PB 86, PB 28/59, PB 235, RRIM 600, RRIM 703, RRII 105 and RRII 300 at the age of 17-21 years. The inclination of laticifers in seedling progenies of two Wickham x Amazon cross combinations (RRII 105 x MI 1005 and RRIM 600 x AC 495) and bud grafted plants of RRII 105 and RRIM 600 was also studied at the age of 4 years to understand the pattern of inclination during the immature growth phase.

The present investigation revealed significant clonal variation in the angle of inclination of laticifers and phloic rays. The clones RRIM 703, Gl 1, RRII 300, Tjir 1, PB 235 and GT 1 showed laticifers inclined towards the right and the clone PB 86 towards the left direction. Three clones, PB 28/59, RRIM 600 and RRII 105, showed the laticifer inclination towards both left and right directions. The young budded plants of RRII 105 showed rightward inclination whereas the laticifers of the clone RRIM 600 showed both rightward and leftward inclination. The seedling progenies of both cross combinations showed rightward inclination. Correlation and regression analyses conclusively proved that various anatomical characters showed positive or negative associations with laticifer inclination. The inclination of phloic rays was identified as the most important factor which shows positive influence on inclination of laticifers. The inclination of laticifers in *H. brasiliensis* can be considered as a clone - specific character and has great significance on the direction and angle of tapping cut to be adopted for optimisation of potential yield of different clones.

Key words: Bark anatomy, *Hevea brasiliensis*, Laticifer inclination, Phloic rays.

INTRODUCTION

Hevea brasiliensis is the major source of natural rubber (NR), extracted from the latex formed in the specialised tissues called laticifers or latex vessels (Dickerson, 1964; Southorn, 1966). Latex vessels are distributed among the secondary phloem tissue (bark) as articulated anastomose network. Anatomically bark of *H. brasiliensis* consists of an inner soft bark continuous to

cambium and outer hard bark peripheral to soft bark marked with abundance of stone cells. Latex is extracted by tapping cut, done at a specific angle on the bark based on the orientation and inclination of laticiferous system (Gomez, 1982). A half spiral cut on the bark of tree trunk from upper left to lower right at an angle of 25° in seedlings and 30° for budded trees is generally adopted (Vijayakumar *et al.*, 2000).