

IDENTIFICATION OF RRII 400 SERIES CLONES OF *HEVEA BRASILIENSIS* USING ANATOMICAL TRAITS OF PETIOLE

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As a perennial tree crop, maintaining identity of different clones of *Hevea brasiliensis* is important in crop management system and research. Characterisation of RRII 400 series clones derived from same parental combinations for distinguishable phenotypic variations were very low and overlapping especially in the nursery stage. In this context, a set of distal pulvinus anatomical traits *viz.* shape of the vascular bundles in the abaxial and adaxial side, inter-vascular continuity, medullary bundles, intrusion of cortical cells into the pith, shape of pith *etc.* were used for identification of six *Hevea* clones *viz.* RRII 414, RRII 417, RRII 422, RRII 430, RRII 105 and RRIC 100. Among these, shape of vascular bundles, features of inter-vascular continuity and intrusion of cortical cells, proportion of vasculature and pith area in the stele are observed to be stable anatomical markers for identification of the above clones. RRII 414 showed a close affinity to the female parent RRII 105 and RRII 430 showed more resemblance to its male parent RRIC 100. The other two clones *viz.* RRII 417 and RRII 422 are intermediate with respect to these traits. Structural traits showed more resemblance between RRII 414 and RRII 422. Among the six clones studied, RRII 430 showed both morphological and anatomical identity with RRIC 100. It is obvious that anatomical characteristics represent the environmental adaptation of clones and hence could be used as reasonably reliable adjuncts for identification of *Hevea* clones.

Key words: Clone identification, *Hevea brasiliensis*, Natural rubber, Petiole anatomy

INTRODUCTION

A systematic approach on morphological and structural parameters of different plant organs *viz.* leaf, flower, secretory structures, seed topography, pericarp anatomy *etc.* have significant taxonomic importance (Gamble, 1935; Thomas, 1991, Thomas and Dave, 1994; Dave *et al.*, 1992; Kuriachen *et al.*, 1992). *Hevea brasiliensis*, the prime source of natural rubber, cultivated as plantation crop does not exhibit highly distinct clonal variations for

morphological traits as it is evolved through genetic recombination from a narrow genetic base. During each stage of handling *viz.* genetic improvement of the crop through hybridisation programme, field evaluation of clones and various nursery level operations, utmost care should be taken to maintain identity of clones. Being a perennial crop with a gestation period of about seven years and an economic life span of more than 25 years, selection of genuine planting material should be judicious. In India,