

## POTENTIAL USE OF QUALITATIVE TRAITS FOR GENETIC DIVERSITY ANALYSIS IN *HEVEA* BREEDING

Deepthy Antony P.

Regional Research Station, Rubber Research Institute of India,  
Kunjaban-799 006, Agartala, Tripura

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The present study was undertaken to assess the utility of qualitative traits of *Hevea brasiliensis* in identification of diverse parents for hybridization programmes. Morphological traits of 30 *H. brasiliensis* clones were scored based on their descriptors and analysed to group the clones based on their similarity. Ortet clones formed three clusters but did not reveal any relation with the geographical origin of the clones. UPGMA dendrogram constructed using similarity measure of 30 clones revealed four major clusters. Cluster I with 10 clones showed the lowest similarity with other clusters. The results of the present study indicate that there exists a genetic relationship among the clones clustered together based on discrete morphological traits. The possibility of using parents from distant clusters in future breeding programmes is discussed.

**Keywords:** Breeding, Divergence, *Hevea*, Parent selection, Qualitative traits

Increasing demand for natural rubber has necessitated the development of high yielding *Hevea brasiliensis* clones. Natural rubber productivity in India increased from 200 kg/ha/year with unselected seedlings during the 1920s to 2500 kg/ha/year during the 1990s with hybrid clones (Varghese *et al.*, 2006). The general pattern of rubber breeding is one of cyclical generation-wise assortative mating. Simmonds (1989) opined that so long as inbreeding is avoided, the results of crossing known parents are fairly predictable. The various approaches to genetic improvement in rubber demand judicious selection of genetically diverse parents to obtain substantial heterosis. However, information on genetic relationships among rubber clones is rather

limited and most of the literature available on genetic diversity is based on wild germplasm and a limited number of cultivated accessions. Though molecular techniques like RAPD, SSCP and microsatellite markers (Varghese *et al.*, 1997; Lekawipat *et al.*, 2003; Nakkanong *et al.*, 2008) have been used for assessing genetic variability, wide utilization of these techniques is hindered as the procedures are cumbersome and involve high cost and skill. Several workers have described the clustering of varieties based on morphological descriptors in other crops (Sultana *et al.*, 2005; Chatan *et al.*, 2009; Chipojola *et al.*, 2009; Al-Saghir, 2010). Minor morphological traits of clones of *H. brasiliensis* are considered to be stable