

## GENETIC DIVERGENCE IN *HEVEA BRASILIENSIS*

Kavitha K. Mydin, V. Gopinathan Nair, M. R. Sethuraj,  
P. Saraswathy and A. O. N. Panikkar

Mydin, K. K., Nair, V. G., Sethuraj, M. R., Saraswathy, P. and Panikkar, A. O. N. (1992). Genetic divergence in *Hevea brasiliensis*. *Indian Journal of Natural Rubber Research*, 5 (1&2) : 120-126.

Forty clones of Wickham origin were assessed for the extent of diversity in respect of rubber yield and various physiological, morphological and structural attributes. Significant clonal variation was recorded for all the traits studied. The existence of considerable genetic diversity among the clones was revealed. Employing the Mahalanobis'  $D^2$  statistic, the clones were found to belong to eight genetically divergent clusters. Geographic diversity had no relation with genetic diversity. Volume of latex, plugging index and dry rubber yield contributed most towards genetic divergence.

Key words : *Hevea brasiliensis*, Clonal variation, Yield components, Genetic distance.

Kavitha K. Mydin (for correspondence), M. R. Sethuraj and A. O. N. Panikkar, Rubber Research Institute of India, Kottayam-686 009, Kerala, India; V. Gopinathan Nair and P. Saraswathy, College of Agriculture, Kerala Agricultural University, Trivandrum - 695 522, Kerala, India.

### INTRODUCTION

Assessment of genetic divergence between populations is vital for the success of plant breeding programmes designed to exploit gene recombination and heterosis. Strong positive relationships have been found between genetic distance and heterosis in a wide range of crop species (Balasch *et al.*, 1984; Shamsuddin, 1985). Measures of genetic distance are most useful to breeding when based on a broad range of characteristics relevant to breeding objectives. The utility of multivariate analysis and the use of generalised distance ( $D^2$ ) as a quantitative measure of genetic divergence are well illustrated in other crop plants (Vairavan *et al.*, 1973; Bavappa and Jacob Mathew, 1982).

day *Hevea* clones from a limited number of seedlings referred to as the 'Wickham base' (Simmonds, 1989) has led to efforts to broaden the genetic base by incorporating more genetically diverse germplasm from the wild (Ong *et al.*, 1983; Chevallier, 1988). However, the Wickham material does possess sufficient genetic diversity (Markose, 1984; Chevallier, 1988), which can be maintained by further crossing. The present experiment was conducted to estimate genetic divergence among some clones of Indian, Indonesian, Malaysian and Sri Lankan origin to enable the identification of divergent clones for use in recombination/polycross breeding programmes.

### MATERIALS AND METHODS

The material for the study comprised

Awareness of the origin of the present

Presented in the International Natural Rubber Conference, 5-8 February 1992, Bangalore, India.