Indian Journal of Natural Rubber Research, 5 (1&2) : 51-56, 1992

GENETIC PARAMETERS AND HETEROSIS IN *HEVEA BRASILIENSIS*

1. HYBRID CLONES OF RRII 105 X RRIC 100

J. Licy, A. O. N. Panikkar, D. Premakumari, Y. Annamma Varghese and M. A. Nazeer

Licy, J., Panikkar, A. O. N., Premakumari, D., Varghese, Y. A., and Nazeer, M. A. (1992). Genetic parameters and heterosis in rubber (*Hevea brasiliensis*) : 1. Hybrid clones of RRII 105XRRIC 100. *Indian Journal of Natural Rubber Research*, 5 (1&2) : 51-56.

The nature and magnitude of genetic variability, heritability and heterosis were assessed in 23 F1 hybrid clones, derived from the cross between RRII 105 and RRIC 100 of *Hevea brasiliensis*, at the premature phase of $4^1/_2$ years after planting. The hybrid clones displayed substantial differences and heterotic responses for various characters. Genetic variability was highest for total volume of latex (GCV 42.7%) and lowest for bark thickness (GCV 4.24%). Mean annual yield exhibited a heritability of 68% with a genetic advance of 59 per cent. Yield following ethrel stimulation, initial flow rate per unit length of tapping cut and plugging index recorded high heritability coupled with high genetic advance. The high heritability and genetic advance suggest preponderance of additive gene action. Among the 23 hybrids, 15 outyielded their superior parent (RRII 105), of which six displayed significant heterosis over RRII 105.

Key words : *Hevea brasiliensis*, Heritability, Genetic advance, Heterosis.

J. Licy (for correspondence), A.O.N.Panikkar, D.Premakumari and Y.Annamma Varghese, Rubber Research Institute of India, Kottayam - 686 009, Kerala, India; M.A. Nazeer, Hevea Breeding Sub Station, Rubber Research Institute of India, Nettana- 574 230, Karnataka, India.

INTRODUCTION

Genetic variability in any crop is the breeders' treasury for crop improvement programmes. Varcital improvement for yield in *Hevea* is mainly dependent on the extent of genetic variability present in the population. For effective selection, knowledge of heritable and non- heritable components of variation is imperative. Information regarding the magnitude of genetic parameters like components of variation, heritability and expected genetic advance for yield and yield components can be used for the successful exploitation of heterosis for development of high yielding hybrid clones. Attempts to estimate genetic parameters for some economic characters in *Hevea* using the data from breeding programmes of Rubber Research Institute of Malaysia have been reported (Nga and Subramaniam, 1974; Tan *et al.*, 1975). The present paper reports the estimates of genetic parameters for yield and certain yield attributes from a single biparental clonal family of *Hevea brasiliensis* (Willd. ex Adr. de Juss.) Muell. Arg. and their implication in selection of hybrids.

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