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GENETIC INFLUENCE FOR INTRACLONAL VARIATIONS AND ASSOCIATIONS OF JUVENILE YIELD AND GIRTH IN THIRTEEN *HEVEA* CLONES GROWN IN KANYAKUMARI REGION OF SOUTH INDIA

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The available information on intraclonal variations of *Hevea* clones is based on CV alone, which is not sufficient to attribute such variations to the heterogeneity of root stock. A study was conducted to examine the magnitude of intraclonal variations in 13 *Hevea* clones with respect to juvenile yield and girth and 'b' values computed to examine the influence of heterogeneous root stock on such variations. Variability was low for girth while it was comparatively higher for test tap yield. High 'b' values for girth and yield indicated high genetic involvement for the intraclonal variations, which should be due to stock-scion interaction. The study revealed differential sensitivity of the clones to foreign stock. The scope of identification and utilization of stock sensitivity of clones for generating desirable variability, within a clone, for the improvement in growth and productivity is discussed. The advantages of stock sensitivity in reducing the detrimental effect of monoculture and its influence on character associations are also discussed. The need for more work to compare the magnitude of variability among seedling populations and the variability generated by stock-scion interaction in clonal populations of rubber is suggested.

Key words: Grafting, Heterogeneity, *Hevea*, Monoculture, Productivity, Stock-scion, Variability

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INTRODUCTION

Vegetative propagation through bud grafting is an accepted method for perpetuating the genetic make up of planting materials in *Hevea*. The variability of yield observed for clones (Alika, 1980; Chandrasekhar *et al.*, 1997) is less than that observed for seedlings (Sharp, 1940). However, intraclonal variations of considerable magnitude for the economic traits such as yield and tree girth (Buttery, 1961; Chandrasekhar *et al.*, 1997; Dijkman, 1951) and even for enzyme levels (Krishnakumar *et al.*, 1992) have been reported in *Hevea*. In budgrafted plants, the genetic make up of the scion part is the same as that of the mother plant, but the stock has a different genetic composition, which may influence the physiological and biochemical reactions of scion characters, through stock-scion interaction, generating intraclonal variability. However, systematic studies to ascertain genetic involvement in such variations to assure stock effect are scanty. Hence intraclonal variability of economically important traits due to stock effect is a topic of interest and is a thrust area to be explored in the research for improving the productivity of *Hevea* clones. The objective of this study is to examine the magnitude of intraclonal variations in 13 *Hevea* clones with respect to juvenile yield and girth and to examine whether the variation is genetically controlled through the heterogeneous stock seedlings used for bud grafting. Interclonal and intraclonal associations have also been worked out using the same data and the results are discussed.

MATERIALS AND METHODS

The materials used for this study were 13 *Hevea* clones planted in Keeriparai divi-