

PATH COEFFICIENT ANALYSIS OF YIELD AND YIELD ATTRIBUTES IN THE *HEVEA BRASILIENSIS* CLONE RRII 105

Interclonal variations are often very marked in a mature plantation of *Hevea brasiliensis* Muell. Arg. Apart from significant variations in yield and girth of the trees (Premakumari *et al.*, 1991; Varghese *et al.*, 1993), there are prominent differences in the shape and structure of the canopy, shape, size and orientation of leaflets etc. between clones. In addition to this, intraclonal variations in yield and certain growth characteristics are also observed though vegetative propagation through budgrafting guarantees the genetic homogeneity of the shoots (Dijkman, 1951; Buttery, 1961; Ng *et al.*, 1981; Chandrashekar *et al.*, 1993). It is generally suggested that one of the sources of intraclonal variations may be the heterogeneous root stocks which are grown from seeds produced largely through pollination between trees belonging either to the same or different clones (Yeang *et al.*, 1995; Sobhana, 1998). These seeds are heterozygous in nature (Dijkman, 1951). While root stock effects on scion performance are largely taken for granted, it remains to be scientifically proven that the genetic heterogeneity of the root stock is the cause of the large intraclonal variations that are observed in rubber plantations. The intraclonal variations are not only confined to growth, but to latex yield and flow characteristics also. Enzyme polymorphism was observed in young plants within a given clone budgrafted to polyclonal root stocks (Krishnakumar *et al.*, 1992).

Intraclonal variations in isozyme profiles of three enzyme systems such as peroxidase, catalase and esterase were observed in the leaf and bark tissues of the scion indicating the possible influence of the rootstock on gene expression in the scion (Sobhana, 1998; Sobhana *et al.*, 2000). The RAPD analysis of the bark tissues of both rootstock and scion tissues revealed that there was genetic homogeneity among the scion tissues of a given clone, but the rootstocks showed appreciable variation (Sobhana *et al.*, 1999; Thomas *et al.*, 2000). In the present investigation, intraclonal variations in dry rubber yield, dry rubber content, plugging index and concentrations of sucrose, thiols and inorganic phosphorus in the latex were monitored for a period of two years.

The experiment was conducted utilizing twenty three healthy trees of the clone RRII 105 selected at random from 400 trees, which were planted in an estate at Kottayam in 1985 and opened for tapping in 1992. The tapping systems adopted were 1/2S d/2, 6d/7 up to December 1995 and thereafter 1/2S d/3 6d/7. The study was started in January 1995 and the yield parameters were recorded monthly for a period of two years.

Dry rubber content (DRC) was determined by gravimetric method. Dry rubber yield (g/tree/tap) was computed by multiplying DRC with the volume of latex harvested in a single tapping from a tree.