GENETIC DISTANCE BETWEEN THE ROOT STOCK AND SCION OF HEALTHY AND TPD AFFECTED TREES OF *HEVEA BRASILIENSIS*

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The mean genetic distance (GD) between the root stock and scion of budgrafted *Hevea* trees was significantly more in tapping panel dryness (TPD) affected (33%) than healthy (20%) trees. More number of healthy trees tended to have a closer GD while more number of TPD trees had a wider GD between their root stock and scion. Thus a greater GD between the root stock and scion was observed to be associated with TPD even if this may not be an absolute prerequisite for the incidence of the syndrome. Exploitation of optimum GD between root stock and scion may be useful for excellence in agronomic performance of budgrafted plants.

Key words: Bud graft, Genetic distance, *Hevea brasiliensis*, Stock scion interaction, Tapping panel dryness.

Several plantation and horticultural crops are propagated through grafting genetically superior scion to a root stock that has a genetic composition different from the scion. The root and shoot systems of a plant are always under dynamic communication through exchange of metabolites and hormones both ways and the roots have significant effects on the scion (Casper, 1990; Ravishanker *et al.*, 1995). It has been known for long that the root stocks impart profound effect on the scion and *vice versa* like dwarf root stocks altering the canopy architecture of the scion (Hartman and Kester, 1976; Rom and Carlson, 1987) and scion affecting the cation exchange capacity of the roots (Sobhana, 1998).

In *Hevea brasiliensis*, genetically divergent seedlings grown from cross pollinated seeds are used as root stocks and this has been often implicated as a source of the large tree to tree variations in growth and yield of bud grafted trees (Lockard and Schneider, 1981). It also has been reported that the genetic heterogeneity of the root stocks leads to polymorphism in the isozymes of several enzymes in the scion of budgrafted *H. brasiliensis* plants (Krishnakumar *et al.*, 1992; Sobhana, 1998; Thomas *et al.*, 2000). Since the root stock and scion tissues are genetically different, existence of genetic conflicts between them is possible. Even in a single plant, tissues with different genetic constitutions are in constant conflicts for resource allocation (Doust and Doust, 1988). Root stock-scion interaction effects may be physiological expressions of subtle genetic conflicts existing between them, but this has never been properly investigated. For example, it is now known that such interactions are minimal when the genetic distance between the root stock and scion is less and that a particular generic association between the root stock and scion would lead to better agronomic

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