

INHERITANCE OF TAPPING PANEL DRYNESS IN FULL-SIB POPULATION OF *HEVEA BRASILIENSIS*

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Tapping panel dryness (TPD) is a serious problem of Para rubber tree (*Hevea brasiliensis*) causing significant losses in latex yield. The present study was conducted to assess heritability of TPD using a full-sib population planted in a small scale trial at Central Experimental Station, Chethackal (Pathanamthitta, Kerala). Symptom of TPD among the full-sibs was confirmed through tapping for two consecutive years. Narrow-sense heritability of TPD was estimated based on parent-offspring regression. There was considerable variation for TPD in the population. Incidence of TPD ranged from 3.6 per cent in clone PB 5/51 to 46.4 per cent in PB 235. Clone RR2 33 did not show any incidence of TPD. Progenies of PB 5/51 x RR2 208 showed minimum TPD incidence (3.6%) while those of RRIM 600 x PB 235 exhibited maximum incidence (29.6%). Progenies of RRIM 600 x RR2 33 did not exhibit TPD symptoms. The study showed high narrow-sense heritability ($h^2=0.50$) for TPD. Progenies from hybridization between clones with very low TPD incidences (e.g. RR2 33) exhibited very low TPD incidences. Similarly, progenies from hybridization between clones with very high TPD (e.g. PB 235) possessed more TPD incidences. Overall, the study indicated that TPD may be governed by heritable gene action, which may possibly imply scope for achieving appreciable genetic gain through breeding for TPD tolerance.

Keywords: Breeding, Full-sib, Narrow-sense heritability, Selection, Tapping panel dryness

INTRODUCTION

Hevea brasiliensis (Willd. ex A. Juss.) Müll. Arg. (family, Euphorbiaceae; diploid, $2n=36$), the Para rubber tree, is monoecious, entomophilic and predominantly out-crossing. Laticifer cells in the bark tissue of the tree yield significant amount of natural rubber latex in the entire plant kingdom. TPD is a symptom expressed by the tree when laticifer cells do not exude latex on tapping which ultimately causes significant loss in yield in almost every rubber plantation. The precise cause of TPD is yet

to be recognized (Jacob and Krishnakumar, 2005). It is generally observed that trees which yield precocious amount of latex may ultimately show high incidence of TPD, and the symptom of TPD may be reversible or permanent. It has also been observed that a gap in tapping sometimes result in alleviation of TPD symptoms. Numerous studies have already been done on TPD, however, from breeding and yield-improvement point of view, we still need more information on TPD causing factors and ways to address this important problem affecting yield.