Indian J. Nat. Rubb. Res. 1(1): 22–26, 1988

CORRELATIONS OF THE CHARACTERS OF PETIOLAR STOMATA WITH LEAF RETENTION AFTER THE INCIDENCE OF *PHYTOPHTHORA* LEAF FALL DISEASE IN *HEVEA BRASILIENSIS* (WILLD EX.) ADR. DE JUSS MUELL. ARG.

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Premakumari, D., Panikkar, A. O. N. and Sethuraj, M. R. (1988). Correlations of the characters of petiolar stomata with leaf retention after the incidence of *Phytophthora* leaf fall disease in *Hevea brasiliensis* (Willd ex. Adr de Juss) Muell. Arg. — Indian J. Nat. Rubb. Res. 1(1): 22–26

The characters of petiolar stomata and the leaf retention percentage after the incidence of *Phytophthora* leaf fall disease in *Hevea brasiliensis* (Willd. ex Adr. Juss) Muell. Arg. was studied in six *Hevea* clones. Considerable differences between disease resistant and susceptible groups of clones were observed for leaf retention percentage, no. of stomata/10mm² length of stomatal aperture and aperture index. Leaf retention percentage had negative correlations with no. of stomata /10mm² ($P<0.01$), length of stomatal aperture ($P<0.05$) and the aperture index ($P<0.01$). Partial and multiple correlations showed the importance of the frequency of petiolar stomata and the aperture index as criteria for selection of disease resistant clones. About 68 per cent variation in leaf retention after the incidence of *Phytophthora* leaf fall disease could be explained by the characters of petiolar stomata.

Key words – *Hevea brasiliensis*, Petiolar stomata, *Phytophthora* leaf fall disease, Disease resistance.

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INTRODUCTION

The size and density of stomata in *Hevea brasiliensis* are clonal characteristics (Senanayake and Samaranayake, 1970; Premakumari et. al, 1979; Premakumari and Panikkar, 1984). Abnormal leaf fall caused by *Phytophthora* is a major disease in *Hevea* causing considerable yield drop, possibly due to the high leaf fall (Radhakrishna Pillay and Chee, 1968) and prophylactic spraying of the foliage with Bordeaux mixture or oil based copper oxychloride dispersed in diluent spray oil is the recommended control measure (Radhakrishna Pillay et al, 1980). Based on the observation that entry of the pathogen is through the stomata (Thankamma et al, 1975) the petiolar stomata of budwood plants of disease resistant and susceptible *Hevea* clones has already been studied in detail (Premakumari et al, 1979). Further observations on the organographic and clonal variability of stomatal features of tapping trees of different clones (Premakumari and Panikkar, 1984) indicated the role of petiolar stomata as a factor influencing the occurrence of *Phytophthora* leaf fall disease. The present work aims to ascertain the degree of relationship of frequency, aperture length and aperture index of the stomata on the petiole with leaf retention after disease incidence.