

STUDIES ON THE INTRAXYLARY PHLOEM AND ITS
ASSOCIATION WITH CERTAIN GROWTH CHARACTERS
IN *HEVEA BRASILIENSIS*
(WILLD. EX ADR. DE JUSS.) MUELL. ARG.

D. Premakumari and A.O.N. Panikkar

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Quantitative differences in the number of primary xylem points, number of intraxylary phloem points and the thickness of xylem and phloem in one year old twigs were assessed in eight clones of *Hevea brasiliensis*. The linear relationship of these structural characteristics on the growth characters such as diameter of the twigs of the tapping trees and girth increment on tapping were also examined.

The data revealed marked differences of anatomical and growth characters among clones. The number of intraxylary phloem points had significant association with the number of primary xylem points ($r = 0.8158^{**}$), twig diameter ($r = 0.5067^{**}$) and the rate of girth increment on tapping ($r = 0.4231^*$). The number of primary xylem points also was correlated with the twig diameter ($r = 0.5258^{**}$). This trait also showed a positive relationship with the rate of girth increment on tapping though not significant.

Key words - *Hevea*, Intraxylary phloem, Protoxylem.

D. Premakumari (for correspondence) and A. O. N. Panikkar, Rubber Research Institute of India, Kottayam - 686 009, India.

INTRODUCTION

Growth rate during pre-exploitation phase and that after opening the trees for tapping are equally important factors influencing the yield of *Hevea*. Tapping retards girthing and biomass production (Abraham and Taylor, 1967; Templeton, 1969; Sethuraj, 1981 and George *et al.*, 1984) for which the disturbance of phloem transport may be one major cause. It takes a few years, after opening the trees for tapping, for collecting information on the clonal variation in girth increment on tapping. An easier method is to exploit the phenomenon that selection pressure on one character brings about changes in other significantly associated characters (Simmonds, 1969).

The occurrence of intraxylary phloem strands associated with the protoxylem groups in the pericentral region has been identified in *Hevea* (Premakumari *et al.*, 1985). The present work is an attempt to quantify the intraxylary phloem and a few other structural traits of eight *Hevea* clones. The linear relationship among the anatomical traits and the girth increment on tapping was examined with a view to exploring the possibility of using these traits in clone selection.

MATERIALS AND METHODS

Twig samples of one year's growth were collected from 15 year old trees of eight clones, namely, RRII 101, RRII 102, RRII