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CONDUIT DIMENSIONS OF XYLEM IN *HEVEA BRASILIENSIS* GROWN UNDER TWO AGROCLIMATES

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Xylem vessel dimensions in terms of lumen diameter and element length and their distribution pattern along with certain qualitative traits were compared in three clones (RRIC 52, RRII 105 and PR 261) of *H. brasiliensis* grown under two agroclimates. Mean vessel diameter from transections showed significant clonal differences. The mean vessel diameter for RRIC 52 was significantly more (0.1640 mm) than that of RRII 105 (0.1448 mm) and PR 261 (0.1325 mm). There was no location-wise variation for these traits. The mean length of vessel element was higher for RRIC 52 (0.6197 mm) followed by RRII 105 (0.5913 mm) and PR 261 (0.5855 mm). A significant reduction in vessel element length was observed in the clones grown in Dapchari. Significant clonal differences for vessel dimensions were observed, which appeared to influence the conduit anatomy of different clones. Vessel shape was found to be diagnostic of the clones to a certain extent.

Key words : Conduit dimensions, *Hevea brasiliensis*, Xylem vessels.

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INTRODUCTION

Hevea brasiliensis (Willd. ex Adr. de Juss.) Muell. Arg. cultivated extensively in the traditional rubber growing belt of Kerala and Kanyakumari district in Tamil Nadu, in India, has now been established in the non-traditional areas too. North Konkan region of Maharashtra, one of the non-traditional locations, experiences high summer temperatures and severe soil moisture deficit (Chandrashekar *et al.*, 1990). The *Hevea* clones RRIC 52 was identified as potentially tolerant and PR 261 as the least tolerant to drought, based on the growth performance of 15 clones at the Regional Research Station (RRS) of the Rubber Research Institute of India at Dapchari in the North Konkan (Chandrashekar *et al.*, 1998). The performance of the aforementioned clones in the traditional region was also similar (RRII, 1991). In *Hevea*, girth of the trees is the most important factor considered for deciding the maturity of a plantation for tapping.

Drought and waterlogging can modify vascular differentiation in plants (Fahn, 1982; Roberts *et al.*, 1988). Besides environmental conditions, age of the plant