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DISTRIBUTION OF PROTEIN-STORING CELLS IN THE BARK TISSUE OF *HEVEA BRASILIENSIS* IN RESPONSE TO TAPPING PANEL DRYNESS AND STIMULATION

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Latex from *Hevea brasiliensis* is harvested through controlled wounding (tapping) of the latex vessels present in the bark tissue. The continuous injury on the bark leads to regeneration of the tissue involving various anatomical and biochemical changes in the cells adjacent to the wounded bark. In general, trees of high yielding *Hevea* clones when subjected to over-harvesting latex are susceptible to tapping panel dryness (TPD), resulting into the cessation of latex flow. The actual mechanism involved in the partial or complete cessation of latex flow in the TPD affected trees is still obscure.

The distribution and occurrence of protein-storing cells (PSC) in the secondary phloem (bark) are a common phenomenon which is considered as an end product of various translocation mechanisms taking place in the bark tissue. In healthy trees of rubber, the PSC was distributed in one or two layers surrounding the phloic rays and also adjacent to sieve tubes, where as its density was increased in TPD affected trees (4-5 layers) as well as in TPD affected regions of stimulated trees. The PSC were in close association with the sieve elements which were an important in the movement of photosynthates. Occurrence, structure and distribution of PSC and its functional role in *Hevea* bark tissue with respect to TPD and stimulation were studied and discussed.

Key words: *Hevea brasiliensis*, Protein storing cells, Stimulation, Tapping panel dryness.

INTRODUCTION

Hevea brasiliensis, the prime source of natural rubber, is harvested through controlled wounding (tapping) of latex vessels present in the bark tissue (Fig. 1). The continuous injury of the bark leads to a series of anatomical and histochemical changes in the cells adjacent to the wound leading to bark regeneration as the cambium is undisturbed (Thomas *et al*., 1995). In general, trees of high yielding clones of *Hevea* when subjected to over-harvesting latex are susceptible to a disorder termed tapping panel dryness (TPD) (Fig. 2), resulting in the cessation of latex flow from the tapping cut. Towards the end of the economic life span

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