

Formation and anatomical characteristics of tension wood in plantation-grown *Hevea brasiliensis* (Willd.) Muell.-Arg.

Abstract

Hevea brasiliensis wood is now widely utilized for wood industry. A problem of low yield or recovery has been pointed out. Tension wood is considered to be one of the possible causes for the low recovery. The characteristics of tension wood formation of three plantation-grown *H. brasiliensis* trees with different leaning angles were investigated. In a tree with strongly leaning stem, eccentric growth which is one of the typical characteristics of tension wood occurred in the upper (tension) side of the leaning stem. In the eccentric growth portion, almost all fibers except growth ring boundary showed gelatinous fibers with gelatinous layer. In a tree with weakly leaning stem, the eccentric growth did not occur. However, the upper side wood had gelatinous fibers. The opposite wood had partially gelatinous fibers. Three distribution patterns of gelatinous fibers were indicated. In a tree whose stem was in the upright position, the gelatinous fibers were distributed not in a fixed-direction but along the circumference of the disk. Their amount was not much compared to those of the upper side wood of leaning stems. The fibers in upright stems showed similar structure with gelatinous layer in leaning stems. The occurrence of gelatinous fibers in a weakly leaning stem or in the upright stem suggests the possibility of uneven distribution of plant hormones necessary and sufficient for the formation of gelatinous fibers.

Keyword: Gelatinous fiber; Gelatinous layer; *Hevea brasiliensis*; Latex timber clone; Tension wood.