Effect of moisture content and grain angle on the ultrasonic properties of rubber wood

ABSTRACT

The ultrasonic velocity and elastic stiffness constant of rubber wood were studied using ultrasonic technique in three main symmetry axes and an angle rotating from the symmetry axes. The effects of moisture content were also determined in each case. A strong correlation was found between the velocity and the moisture content. As the moisture content increased, the velocity and the stiffness constant were found to decrease. The longitudinal direction showed the highest velocity and hence the elastic stiffness constant. Linear regression equations were obtained between velocity and grain angle with R2 from 0.86 to 0.99.

Keyword: Anisotropy; Elastic stiffness constant; Hevea brasiliensis; Moisture content; Rubber wood; Ultrasonic velocity