

# Characterization of wood *Araucaria angustifolia* attacked for wood decay agents by ultrasound

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This study aimed to detect the degree of external damage, by wood decay agents, the wood of *Araucaria angustifolia* (Bert.) Kuntze present on floor. To this end, photographs were taken with a metric scale to determine the area attacked in percentage of the wood, through CAD software. Finally, it was used a nondestructive method based on ultrasonic wave propagation in the same parts and regression analysis was done for these two variables. It was found that the relationship between the study variables is reversed, with increasing the degree of attack of the parts slows the wave.

According Shimoyama (2005), higher density woods have higher cellulose content, what increases the stiffness of the wood and this, in turn, increases the wave velocity in wood. Therefore, the attack of wood decay agents degrades cellulose, thus causing mass loss, with consequent loss of stiffness and thus decreases the speed of wave propagation.

The study showed that the coefficient of determination ( $R^2$ ) of ultrasonic velocity as a function of the proportion of wood decay showed considerably good (above 60%), making the ultrasonic wave promising for this type of study.

Keywords - conifer, deterioration and NDT.

[1] Shimoyama, V. R. de S. Estimativas de propriedades da madeira de *Pinus taeda* através do método não-destrutivo emissão de ondas de tensão, visando à geração de produtos de alto valor agregado. 2005. 151f. Tese (Doutorado em Ciências Florestais) - Universidade Federal do Paraná, Curitiba, 2005.

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