

# **Comparison of Mechanical Properties of Polymer Matrix Composite Leather Tree Waru With Type WR 200 Fiber**

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## ***ABSTRACT***

This research was conducted to determine the comparative results of tensile strength fiber from a polymer composite hibiscus fiber with less fiber types WR 200, and analyzes the results of microstruktur of the results of the tensile test. Fiber WR 200 is a type of synthetic fiber made of inorganic material with a chemical composition, 200 WR fiber or glass fiber made of silicia, alumunia, lime, magnesia and others. In the manufacture of composite specimen consists of two constituent matrix and reinforcement, Making the specimen was conducted using woven mat of each natural fibers and fiber WR 200, The test results are generated value of a test of strength between the fibers hibiscus tree with fiber types WR 200 tensile strength hibiscus lower compared with the fiber of hibiscus which is the average value of the strain ( $\epsilon$ )  $9.2 \times 10^{-2}\%$  tensile stress ( $\sigma$ ) of  $7.7 \text{ (N / mm}^2\text{)}$ , fiber strain WR 200 for ( $\epsilon$ ) of  $1.9 \%$  and the value of the tensile stress of ( $\sigma$ )  $3.4 \times 10^1 \text{ (N / mm}^2\text{)}$ . The images carried on fiber microstructure WR 200 does not wet all (wettability). Density WR 200 obtained a value of  $8 \text{ kg / m}^3$  with a length of 300 mm and a width of 100 mm, while the density of hibiscus fiber with a length of 300 mm and a width of 100 mm is equal to  $6 \text{ kg / m}^3$ , the higher specific gravity of the fiber, the greater the strain and the strain.

Keywords: fiber, matrix, micro photograph, stress-strain.