

INTISARI

Bambu merupakan material alami yang dapat dipergunakan sebagai bahan bangunan. Penggunaan bambu sebagai bahan bangunan telah dilakukan oleh masyarakat sejak lama, namun penggunaannya sangat sederhana sehingga kekuatan bangunan yang dibangun tidak optimal. Pengujian secara ilmiah diperlukan agar kekuatan bambu yang sebenarnya dapat dipergunakan secara optimal. Penelitian ini bertujuan untuk mengetahui karakteristik sifat fisika dan mekanika bambu Apus di Turgo serta hubungan antara sifat fisika dan mekanika bambu Apus, dan kelayakan bambu Apus sebagai bahan bangunan.

Penelitian dilaksanakan sesuai dengan peraturan pada ISO 22157-1 *Bamboo – Determination of physical and mechanical properties : Requirements*, ISO 22157-2 *Bamboo – Determination of physical and mechanical properties : Laboratory manual*, serta ASTM D5764 *Standart test method for evaluating dowel-bearing strength of wood and wood-base product vol 04.10*. Penelitian yang dilaksanakan berupa kadar air, kerapatan, kuat tarik sejajar serat, kuat tekan sejajar serat, kuat geser sejajar serat, kuat lentur, dan kuat tumpu baut.

Hasil penelitian menunjukkan kadar air bambu Apus 13,93% dan kerapatan bambu Apus 717,96 kg/m³. Sifat mekanika bambu Apus berupa kuat tarik sebesar 270,94 MPa; kuat tekan 48,97 MPa; kuat lentur 70,46 MPa; kuat geser dengan ruas 5,14 MPa; kuat geser tanpa ruas 4,02 MPa; kuat tumpu 37,38 MPa; serta Modulus Elastisitas tarik, tekan, dan lentur adalah 18.058 MPa; 25.582 MPa; 19.514 MPa. Sifat mekanika bambu Apus berbanding terbalik dengan kadar air dan berbanding lurus kerapatan.

Kata kunci : Bambu Apus, Turgo, Sifat fisika, Sifat mekanika.

ABSTRACT

Bamboo is a natural material that can be used as building materials, the use of bamboo as building material has existed for a long time ago by society, but it's used very simple so that the strength of the building which is built not optimal. Testing scientifically is necessary so that the actual strength of bamboo can be used optimally, this testing aims to determine the characteristics of physical and mechanical of Apus bamboo in Turgo, the relation of physical and mechanical properties and feasibility of bamboo as a building material.

The research was conducted in accordance with the regulations on ISO 22157-1 Bamboo – Determination of physical and mechanical properties : Requirements, ISO 22157-2 Bamboo – Determination of physical and mechanical properties : Laboratory manual, and ASTM D5764 Standart test method for evaluating dowel-bearing strength of wood and wood-base product vol 04.10. The research was conducted to determine moisture content, density, tensile strength, compressive strength, shear strength, static bending, and Dowel-Bearing strength.

The results showed the moisture content of Apus bamboo is 13.93% and density of Apus bamboo is $717,96 \text{ kg/m}^3$. Mechanical properties of Apus bamboo such as tensile strength of 270,94 MPa; compressive strength of 48,97 MPa; static bending strength of 70,46 MPa; shear strength with a node of 5,14 MPa; the shear strength without a none of 4,02 MPa; Dowel-Bearing strength of 37,38 MPa; and tensile modulus of elasticity, compressive, and static bending are 18058 MPa; 25582 MPa; and 19514 MPa. Mechanical properties of Apus bamboo are inversely proportional to the moisture content and is directly proportional to the density.

Keywords : Apus bamboo, Turgo, Physical properties, Mechanical properties.