

## **ABSTRACT**

### **THE EFFECT OF NAIL DOWEL ADDITION ON THE FLEXURAL STRENGTH OF LAMINATED SAGO BARK**

*This study aims to determine the effect of adding nail dowels on the flexural strength of laminated sago bark as an environmentally friendly alternative building material. The research employed an experimental method conducted at the Material Testing Laboratory of Bengkalis State Polytechnic. The specimens were made from sago bark laminated using Presto Polyurethane (PU) adhesive with three variations: without nail dowels, with nail dowels spaced at 10 cm, and with nail dowels spaced at 15 cm. The tests performed included compressive strength, shear strength, tensile strength, and flexural strength in accordance with the applicable Indonesian National Standards (SNI). The test data were analyzed to determine the mechanical properties of laminated sago bark and the effect of nail dowels on the Modulus of Elasticity (MOE) and Modulus of Rupture (MOR). The results showed that the laminated sago bark had an average compressive strength of 0.6 MPa, an average shear strength of 3.44 MPa, and an average tensile strength of 120.33 MPa. The addition of nail dowels improved the ability of the laminated material to resist bending loads, thereby enhancing its mechanical performance. Therefore, laminated sago bark has the potential to be used as an alternative building material with added value through the utilization of sago waste.*

*Keywords: sago bark, lamination, nail dowels, flexural strength, MOE, MOR.*