

**NEW BIOCOMPOSITE MATERIAL FROM RAMIE FIBER
AND NATURAL MATRIX OF FLEA SECRETION ON ALBASIA TREE
AS EXPANSION EFFORT OF TEACHING MATERIAL**

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ABSTRACT

Biocomposite is one of composite which consist of natural fiber as reinforcement and matrix as binder agent. Biocomposite materials are interesting phenomena because environmental friendly, renewable resources and can increase level of economic around people. The objective of this research is to study feasibility of biocomposite material from secretion of albasia flea as binder agent and ramie fiber as reinforcement.

Secretion of albasia flea was collected from Ciamis forest, West Java, Indonesia with lumps type and then was reacted with methylated spiritus to liquefaction. Heating of dilution of flea secretion at 180°C during 15 minute can decrease viscosity so changed become gel. The gels were layered on surface of ramie fiber woven roving with hand layout methode. Molding of biocomposite was done at 180-200°C during 10-15 minutes after 2-4 layers of ramie fiber were soaked with gel, pressing with pressure 40 MPa, and cooling at room temperature during 4 hours. Density and tensile strength of biocomposites were evaluated with ASTM D638-90 standard and compared with publicized biocomposites to know feasibility.

Tensile strength of biocomposite from 60% of ramie fiber woven roving and secretion of albasia flea was 87 MPa with density 1.17 g/cm³. This result showed that biocomposites have relative higher tensile strength and lower density than epoxy or polyester matrix. Biocomposite of matrix of albasia flea secretion can become novel material and high feasibility based on availability of renewable resources, simplicity of matrix processing, no high technology on molding biocomposite, and have higher tensile strength relative with lower density.

Implication of the research is developing of new teaching material in engineering material subject of study on engineering faculty of Yogyakarta State University.

Keywords: biocomposite, ramie fiber, secretion of albasia flea, natural matrix

