

# **ANALISA PENGARUH FRAKSI VOLUME SERAT PELEPAH AGEL PADA KOMPOSIT Matrik EPOKSI TERHADAP KEKUATAN TARIK DAN BENDING YANG DIBUAT MENGGUNAKAN METODE VACCUM BAG**

Safi'i Rahman\*, Agus Dwi Catur\*\*, Nasmi Herlina Sari\*\*

\*Mahasiswa Jurusan Teknik Mesin Fakultas Teknik Universitas Mataram

\*\*Dosen Jurusan Teknik Mesin Fakultas Teknik Universitas Mataram

Jln. Majapahit No.62 Mataram Nusa Tenggara Barat Kode Pos: 83125

Telp. (0370) 636087; 636126; ext 128 Fax (0370) 636087

## **ABSTRACT**

*need for components that have structural capabilities, light and strong, environmentally friendly materials are also the demands of today's technology. One material that is expected to be able to fulfill this is composite material with natural fiber filling material. The advantages of natural fibers are low density, easy to obtain, cheaper prices, environmentally friendly, and not harmful to health.*

*In this study the natural fibers used are agel midrib fiber (corypha utan), as a filler and epoxy resin as a binder. The purpose of this study was to determine the effect of the volume fraction of agel midrib fibers on epoxy-based composites on tensile strength and bending strength which were made using the method vacuum bag. The fiber volume fraction used was 20%, 25%, and 30%.*

*Based on the results of research conducted on the effect of the volume fraction of agel midrib fibers on epoxy chemistry composites showed that, variations in fiber volume fraction affect the tensile strength and bending strength of composites, where the highest average tensile strength was obtained in composites with 30% fiber volume fraction of 28, 13 N/mm<sup>2</sup> and the lowest tensile strength at 20% fiber volume fraction of 16.45 N/mm<sup>2</sup>. While the highest average bending strength is obtained in composites with 30% fiber volume fraction of 39,40 N/mm<sup>2</sup> and exposed to 20% volume fraction of 7,21 N/mm<sup>2</sup>. Judging from the results of SEM observations showed that the bond interface between fiber and epoxy is getting stronger with increasing fiber, the fiber pull out is shorter so the tensile strength of the composite becomes high.*

*Keywords: fiber volume fraction, tensile strength, bending strength and SEM observation.*