

# **PENGARUH FRAKSI VOLUME SERAT TERHADAP SIFAT MEKANIK KOMPOSIT YANG DIPERKUAT SERAT DAUN LONTAR**

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## **ABSTRAK**

Telah dilakukan penelitian tentang pengaruh fraksi volume serat daun lontar (*Borassus flabelifer*) terhadap sifat mekanik komposit polyester. Tujuan penelitian ini adalah untuk mengetahui pengaruh sifat mekanik komposit polyester dengan penguat serat daun lontar serta mengetahui presentase fraksi volume serat daun lontar (*Borassus Flabellifer*) agar diperoleh komposit polyester dengan karakteristik terbaik berdasarkan sifat mekanik. Bahan yang digunakan adalah serat daun lontar, resin unsaturated polyester 157 BQTN EX Yukalac dan katalis MEKPO.

Serat daun lontar direndam dalam larutan NaOH konsentrasi 5% selama 2 jam. Pembuatan komposit dengan menggunakan metode *hand lay up*. Variasi fraksi volume serat yang digunakan adalah 20%, 25%, 30%. Pengujian yang dilakukan diantaranya, uji kekuatan tarik, dan uji impak. Hasil penelitian komposit polyester dengan penguat serat daun lontar diperoleh kekuatan tarik tertinggi pada fraksi volume serat 25% yaitu 17 MPa dan kekuatan impak tertinggi pada fraksi volume 20% yaitu 0.045 J/mm<sup>2</sup>.

**Kata kunci** : serat daun lontar, polyester, fraksi volume serat, kekuatan tarik, kekuatan impak.

**THE EFFECTS OF FIBER VOLUME FRACTIONS ON THE  
MECHANICAL COMPOSITE PROPERTIES STRENGTHENED  
BY LONTAR LEAF FIBER**

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***Abstract***

*Research has been conducted on the effect of lontar leaf fiber volume fraction (*Borassus flabellifer*) on the mechanical properties of polyester composites. The purpose of this study was to identify the effects of mechanical properties of polyester composites on lontar fiber reinforcement and to describe the percentage fraction of lontar leaf fiber (*Borassus flabellifer*) with the aim of obtaining polyester composites with the best characteristics based on mechanical properties. The materials used were lontar leaf fiber, 157 BQTN EX Yukalac unsaturated polyester resin and MEKPO catalyst.*

*The lontar leaf fiber used was soaked in NaOH solution with a concentration of 5% for 2 hours. This composite used the hand lay up method. The variations in the fraction of the volume of fiber used were 20%, 25%, 30%. The tests carried out in testing the composite were tensile strength and impact test. The results of the study of polyester composites with the reinforcement of palm leaf fibers showed the highest tensile strength at 25% fiber volume fraction with 17 MPa and the highest impact strength was 20% volume fraction with 0.045 J/mm<sup>2</sup>.*

***Keywords:*** *palm leaf fiber, polyester, fiber volume fraction, tensile strength, impact strength.*