PENGARUH PERSENTASE SERAT PINANG TERHADAP SIFAT MEKANIK DAN BIODEGRADABILITAS KOMPOSIT POLIPROPILENA DENGAN PENAMBAHAN PATI PISANG

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ABSTRAK

Telah dilakukan penelitian mengenai pengaruh persentase serat pinang terhadap sifat mekanik dan biodegradabilitas komposit polimer dengan penambahan pati pisang. Variasi Persentase serat 0%, 3%, 5%, 7%, dan 9%. Panjamg serat yaitu 3,5 mm. Sifat mekanik dan fisik yang diujikan meliputi kuat tarik, FTIR, impak, dan biodegradasi. Dari hasil pengujian didapatkan nilai kuat tarik dan modulus elastisitas yang tertinggi diperoleh pada persentase serat 3% dan 5% yaitu 20,69 MPa dan 489,93 MPa. Nilai regangan dan kuat impak tertinggi pada persentase serat 9% dan 7% yaitu 5,6 % dan 0,072 J/mm^2. Nilai biodegradasi rata-rata yaitu sebesar 0,0028%. Terbentuknya ikatan baru dilihat pada uji FTIR. Fraksi volume serat merupakan salah satu faktor yang mempengaruhi sifat fisik dan sifat mekanik komposit polipropilena dengan penambahan pati pisang dan diperoleh bahwa nilai fraksi volume kritis terdapat pada persentase 5%.

Kata kunci: Serat pinang, polipropilena, pati pisang, kuat tarik, kuat impak, biodegradasi.

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THE EFFECT OF THE PERCENTAGE OF ARECA FIBER ON THE MECHANICAL PROPERTIES AND BIODEGRABILITY OF POLYPROPILENE COMPOSITE BY THE ADDITION OF BANANA STRACH

ABSTRACT

Reserch has been conducted on the effect of the percentage of areca fiber on the mechanical properties and biodegrability of polypropilene composite by the addition of banana strach. Variation in percentage of fiber 0%, 3%, 5%, 7% and 9%. Fiber length is 3,5 mm. Mechanical and physical properties tasted include tensile strength, FTIR, impact and biodegrdation. From the test result obtained strength and high modulus of elasticity obtained of fiber 3% and 5% is 20,69 MPa and 489,93 MPa. The highest strain value and impact strength at 9% and 7% fiber percentage is 5,6% and 0,072 J/mm^2. The biodegradation value is average, which is equal to 0,0028%. New bonds are formed seen in the FTIR test. Fiber volume fraction is one of the factors they influence the phisical and mechanical peoperties of polypropilene composite by adding banana strach and it was found thet the vlue of the critical volume fraction at the percentage of 5%.

Keyword : Areca fiber, polypropylene, banana strength, tensile strength, Impact strength, biodegradation.