PENGARUH VARIASI SUHU PERENDAMAN SERAT ECENG GONDOK TERHADAP KUAT TARIK BIOKOMPOSIT DENGAN MATRIKS TEPUNG TAPIOKA

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ABSTRAK

Telah dilakukan kajian tentang pengaruh variasi suhu perendaman serat eceng gondok (SEG) terhadap kuat tarik biokomposit. SEG direndam dengan variasi suhu 30^{o}C, 40^{o}C, 50^{o}C, 60^{o}C, dan 70^{o}C dengan larutan NaOH 10% selama 2,5 jam, dengan tujuan untuk mendelignifikasi pengotor dan lignin. SEG dicuci hingga mencapai pH netral, kemudian dikeringkan. Hasil perendaman dianalisa menggunakan karakterisasi FTIR. Fabrikasi biokomposit tanpa perlakuan dan perlakuan variasi suhu menggunakan rasio SEG dan tapioka sebesar 40:60, kemudian dicetak menggunakan cetakan dan dikeringkan. Biokomposit hasil sintesis dikarakterisasi menggunakan FTIR dan diuji Kuat Tarik, Elongasi, serta Kekedapan Air. Hasil kuat tarik optimum kemudian dikarakterisasi dengan SEM, dan hasil kuat tarik diuji menggunakan Mikroskop. Hasil penelitian mengindikasikan bahwa suhu optimum biokomposit diperoleh pada suhu 60^{o}C yang dikonfirmasi oleh SEM yang menyatakan bahwa dengan perendaman memiliki interaksi yang lebih baik dibandingkan dengan tanpa perlakuan perendaman dan kuat tarik sebesar 1,226 MPa serta elongasi 3,33%. Hal ini mengindikasikan bahwa lignin pada serat larut dengan baik sehingga terjadi banyak interaksi antara selulosa dengan tapioka.

Kata kunci: alkalisasi, komposit, eceng gondok, kuat tarik

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