

Intisari

PENGARUH DURASI *RESTING TIME* TERHADAP KARAKTERISTIK FISIK BIOPLASTIK KITOSAN – GELATIN

Resting time adalah waktu yang diberikan pada campuran koloid polimer untuk membentuk konformasi polimer sehingga dapat memperbaiki struktur dan meningkatkan karakteristik fisik bioplastik. Bioplastik yang terbuat dari kitosan 2% dan gelatin 6% telah diteliti namun memiliki kuat tarik yang belum memenuhi standar kemungkinan karena memerlukan waktu untuk membentuk konformasi polimer. Penelitian ini bertujuan untuk mengetahui pengaruh *resting time* terhadap karakteristik fisik bioplastik berbahan dasar kitosan 2%, gelatin 6%, dan gliserol 0,5%. *Resting time* dilakukan sebelum proses pengeringan (menggunakan oven bersuhu 70°C selama 4 jam) dengan durasi 1-8 hari. Karakteristik fisik yang diuji antara lain kuat tarik, elongasi, densitas, ketebalan, kelarutan, kadar air, analisis gugus fungsi dan dilakukan pada setiap hari pengamatan. *Resting time* selama 7 hari menghasilkan bioplastik kitosan-gelatin dengan karakteristik fisik yang sudah memenuhi standar yaitu kuat tarik sebesar 28,60 MPa, elongasi sebesar 50,04%, densitas sebesar 1,437 g/cm³, ketebalan sebesar 0,085 mm, kelarutan sebesar 25,878%, dan kadar air sebesar 2,95%.

Kata kunci: bioplastik, kitosan, gelatin ikan, *resting time*, karakteristik fisik

Abstract

EFFECT OF RESTING TIME DURATION ON THE PHYSICAL CHARACTERISTIC OF CHITOSAN-GELATIN BIOPLASTICS

Resting time is the time given to the polymer colloid mixture to form a polymer conformation which can improve the structure and enhance the physical characteristics of bioplastics. Bioplastics made from 2% chitosan and 6% gelatin have been studied but have a tensile strength that does not meet the standards, likely due to insufficient time for polymer conformation formation. This study aims to determine the effect of resting time on the physical characteristics of bioplastics made from 2% chitosan, 6% gelatin, and 0,5% glycerol. Resting time was applied before the drying process (using an oven at 70°C for 4 hours) with a duration of 1-8 days. Physical characteristics tested included tensile strength, elongation, density, thickness, solubility, moisture content, functional group analysis, which were conducted daily throughout the observation period. A resting time of 7 days produced chitosan-gelatin bioplastics with physical characteristics that met the standards, including a tensile strength of 28,60 MPa, elongation of 50,04%, density of 1,437 g/cm³, thickness of 0,085 mm, solubility of 25,878%, and moisture content of 2,95%.

Keywords: bioplastic, chitosan, fish gelatin, resting time, physical characteristics