ABSTRAK

PEMANFAATAN PATI UBI JALAR (*Ipomoea batatas)* DALAM PEMBUATAN BIOPLASTIK DENGAN PENAMBAHAN KITOSAN DAN *PLASTICIZER* GLISEROL

Prayessa Arianti, 2025, 53 Halaman, 12 Tabel, 16 Gambar, 4 Lampiran

Permasalahan limbah plastik konvensional yang sulit terurai telah mendorong pengembangan bioplastik ramah lingkungan yang dapat terdegradasi secara alami. Penelitian ini bertujuan untuk mengetahui pengaruh variasi konsentrasi pati ubi jalar (Ipomoea batatas) dan volume gliserol terhadap sifat fisik bioplastik, serta menentukan formulasi terbaik yang mendekati standar SNI 7188.7:2016. Proses pembuatan bioplastik dilakukan melalui pencampuran pati ubi jalar, kitosan, dan gliserol dengan variasi konsentrasi tertentu, dilanjutkan dengan pengujian kuat tarik, elongasi, ketahanan air, dan biodegradasi. Hasil penelitian menunjukkan bahwa peningkatan gliserol menurunkan kuat tarik dan biodegradasi, namun meningkatkan elongasi hingga titik optimum. Komposisi terbaik diperoleh pada 6gram pati dan 3 ml gliserol, dengan nilai kuat tarik 3,34 MPa, elongasi 15%, ketahanan air 65,71%, dan biodegradasi 46,15%. Formulasi ini memiliki keseimbangan sifat fisik dan mekanik yang baik serta berpotensi diterapkan dalam produksi bioplastik skala industri kecil hingga menengah.

Kata kunci: *bioplastik, ubi jalar, gliserol, biodegradabel, kuat tarik, elongasi, ketahanan air.*

ABSTRACT

Use of Sweet Potato (Ipomoea batatas) Starch in Bioplastic Production with the Addition of Chitosan and Glycerol Plasticizer)

Prayessa Arianti, 2025, 53 *Pages*, 12 *Tables*, 16 *Figures*, 4 *Attachments*

The problem of conventional plastic waste that is difficult to decompose has encouraged the development of environmentally friendly bioplastics that can degrade naturally. This study aims to determine the effect of variations in sweet potato starch (Ipomoea batatas) concentration and glycerol volume on the physical properties of bioplastics, and to determine the best formulation that approaches the SNI 7188.7:2016 standard. The bioplastic manufacturing process is carried out by mixing sweet potato starch, chitosan, and glycerol with various concentrations, followed by testing for tensile strength, elongation, water resistance, and biodegradation. The results showed that increasing glycerol decreased tensile strength and biodegradation, but increased elongation to the optimum point. The best composition was obtained at 6 grams of starch and 3 ml of glycerol, with a tensile strength of 3.34 MPa, elongation of 15%, water resistance of 65.71%, and biodegradation of 46.15%. This formulation has a good balance of physical and mechanical properties and has the potential to be applied in small to medium-scale industrial bioplastic production.

Keywords: *bioplastic, sweet potato, glycerol, biodegradable, tensile strength, elongation, water resistance.*