

ABSTRAK

PEMANFAATAN SELULOSA TONGKOL JAGUNG (*Zea mays L*) DAN PATI SINGKONG (*Amylum manihot*) MENJADI *BIODEGRADABLE FOAM* DENGAN MENGGUNAKAN METODE *THERMOPRESSING*

Aulya Lourenza Putri, 2025, 52 Halaman, 7 Tabel, 18 Gambar, 4 Lampiran

Biodegradable foam adalah bahan kemasan nabati yang dibuat dari biopolimer alami yang dirancang sebagai pengganti *styrofoam* konvensional. Penelitian ini bertujuan untuk menentukan pengaruh penambahan selulosa dari tongkol jagung dan pati singkong terhadap kandungan kualitas *biodegradable foam* dan menemukan formulasi terbaik berdasarkan SNI *Biodegradable foam*. Pati diekstraksi dari singkong segar, sementara selulosa diisolasi dari tongkol jagung melalui proses delignifikasi dan *bleaching*. Karakterisasi bahan baku menunjukkan kadar α -selulosa sebesar 82,0256% dan keberadaan pati dikonfirmasi melalui uji iodine. *Biodegradable foam* dibuat dengan metode *thermopressing* menggunakan variasi perbandingan massa pati:selulosa (100:0 hingga 75:25) dan konsentrasi polivinil alkohol (PVA) 10% dan 15%. Hasil pengujian menunjukkan bahwa penambahan selulosa dan peningkatan konsentrasi PVA secara signifikan menurunkan daya serap air (hingga 14,03%), meningkatkan biodegradasi (hingga 51,2151%), serta mempercepat waktu degradasi sempurna (hingga 27 hari). Sifat mekanik biofoam juga mengalami peningkatan, dengan nilai kuat tarik tertinggi sebesar 1,483 MPa dan kuat tekan terbaik 0,70 MPa. Formulasi terbaik diperoleh pada komposisi pati 85% : selulosa 15% dengan PVA 15%. Penelitian ini membuktikan bahwa kombinasi pati singkong, selulosa tongkol jagung, dan PVA dapat menghasilkan biofoam yang ramah lingkungan, memiliki sifat mekanik baik, serta layak digunakan sebagai kemasan sekali pakai.

Kata kunci : *Biodegradable Foam* (Biofoam), Tongkol Jagung, Singkong, Polivinil Alkohol (PVA)

ABSTRACT

UTILIZATION OF CORN COB CELLULOSE (*Zea mays* L) AND CASSAVA STARCH (*Amylum manihot*) INTO BIODEGRADABLE FOAM USING THE THERMOPRESSING METHOD

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Biodegradable foam is a plant-based packaging material made from natural biopolymers designed as a replacement for conventional styrofoam. This study aims to determine the effect of adding cellulose from corn cob and cassava starch on the quality content of biodegradable foam and to determine the best formulation based on SNI Biodegradable foam. Starch was extracted from fresh cassava, while cellulose was isolated from corn cobs through delignification and bleaching processes. Characterization of the raw materials showed α -cellulose content of 82,0256% and the presence of starch was confirmed through iodine test. Biodegradable foam was prepared by thermopressing method using variation of starch:cellulose mass ratio (100% : 0% to 75% : 25%) and polyvinyl alcohol (PVA) concentration of 10% and 15%. The test results showed that adding cellulose and increasing PVA concentration significantly decreased water absorption (up to 14,03%), increased biodegradation (up to 51,2151%), and accelerated complete degradation time (up to 27 days). The mechanical properties of the foam also improved, with the highest tensile strength value of 1,483 MPa and the best compressive strength of 0,70 MPa. The best formulation was obtained in the composition of 85% starch: 15% cellulose with 15% PVA. This research proves that the combination of cassava starch, corn cob cellulose, and PVA can produce biofoam that is environmentally friendly, has good mechanical properties, and is biodegradable.

Keywords: *Biodegradable Foam (Biofoam), Corn Cob, Cassava, Polyvinyl Alcohol (PVA)*