

ABSTRAK

PEMBUATAN *BIODEGRADABLE FOAM* BERBAHAN BAKU SERAT TONGKOL JAGUNG (*Zea mays* L.) DENGAN PATI JAGUNG TERASETILASI DAN TIDAK TERASETILASI MENGUNAKAN METODE BAKING

Yolanda Dwi Putri, 2026, 51 Halaman, 8 Tabel, 17 Gambar, 4 Lampiran

Pemakaian styrofoam sebagai material kemasan masih menimbulkan dampak lingkungan karena proses penguraiannya di alam berlangsung sangat lambat.. Solusi yang berpotensi menggantikan styrofoam adalah biofoam yang dibuat dari bahan baku limbah hasil pertanian. Penelitian ini dilakukan bertujuan untuk menganalisis pengaruh perbandingan serat tongkol jagung dengan pati jagung yang dimodifikasi melalui proses asetilasi maupun tidak terasetilasi terhadap sifat-sifat biofoam yang dihasilkan serta menentukan komposisi optimum yang berpotensi memenuhi Standar Nasional Indonesia (SNI) No. 8218:2024. Pembuatan biofoam dilakukan menggunakan metode baking process dengan variasi rasio serat tongkol jagung : pati jagung sebesar 1:9, 2:8, 3:7, 4:6, dan 5:5. Karakterisasi yang dilakukan meliputi uji daya serap air, biodegradasi, ketebalan, dan FTIR. Hasil penelitian menunjukkan komposisi optimum biodegradable foam diperoleh pada rasio serat tongkol jagung : pati jagung 5 : 5 dengan penggunaan pati jagung terasetilasi. Pada komposisi tersebut diperoleh nilai daya serap air sebesar 5,94%, biodegradasi mencapai 100% pada hari ke-21, dan ketebalan sebesar 2,85 mm. Hasil penelitian menunjukkan bahwa peningkatan kandungan serat tongkol jagung mempengaruhi karakteristik biodegradable foam, sedangkan modifikasi pati melalui proses asetilasi mampu meningkatkan ketahanan terhadap air tanpa mengurangi kemampuan biodegradasi material. Dengan demikian, biofoam yang dihasilkan berpotensi menjadi alternatif kemasan ramah lingkungan pengganti styrofoam.

Kata Kunci: Biofoam, Tongkol Jagung, Pati Jagung, Asetilasi, Biodegradasi

ABSTRACT

PREPARATION OF BIODEGRADABLE FOAM BASED ON CORN COB FIBER (*Zea mays L.*) USING ACETYLATED AND NON-ACETYLATED CORN STARCH VIA BAKING METHOD

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The use of styrofoam as a packaging material still causes environmental impacts because its decomposition process in nature occurs very slowly. A potential solution to replace styrofoam is biofoam made from agricultural waste materials. This research was conducted to analyze the effect of the ratio of corn cob fiber to corn starch modified through acetylation and non-acetylation processes on the properties of the produced biofoam and to determine the optimum composition that has the potential to meet the Indonesian National Standard (SNI) No. 8218:2024. The biofoam was produced using the baking process method with variations in the ratio of corn cob fiber : corn starch of 1:9, 2:8, 3:7, 4:6, and 5:5. The characterization tests conducted included water absorption, biodegradation, thickness, and FTIR analysis. The results showed that the optimum composition of biodegradable foam was obtained at a corn cob fiber : corn starch ratio of 5:5 using acetylated corn starch. This composition resulted in a water absorption value of 5.94%, biodegradation reaching 100% on the 21st day, and a thickness of 2.85 mm. The results indicated that increasing the corn cob fiber content affected the characteristics of biodegradable foam, while starch modification through the acetylation process improved water resistance without reducing the biodegradability of the material. Therefore, the produced biofoam has the potential to become an environmentally friendly packaging alternative to replace styrofoam.

Keywords: Biofoam, Corncob, Corn Starch, Acetylation, Biodegradation