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ABSTRAK

PEMBUATAN BIODEGRADABLE FOAM BERBASIS SELULOSA TANDAN KOSONG KELAPA SAWIT (*Elaeis guineensis*) DAN PATI SINGKONG (*Manihot esculenta*) DENGAN ADITIF PVA

Bimo Satrio, 2025, 45 Halaman, 6 Tabel, 17 Gambar, 4 Lampiran

Styrofoam yang banyak digunakan sebagai kemasan makanan memiliki dampak negatif terhadap lingkungan dan kesehatan karena sulit terurai dan mengandung senyawa berbahaya. Oleh karena itu, diperlukan pengembangan kemasan ramah lingkungan seperti biofoam yang berbahan alami berbasis pati dan selulosa. Indonesia memiliki potensi besar dalam pemanfaatan limbah pertanian seperti tandan kosong kelapa sawit (TKKS) dan hasil pertanian singkong yang melimpah. Penelitian ini bertujuan untuk memanfaatkan TKKS dan pati singkong sebagai bahan baku pembuatan biofoam menggunakan metode *thermopressing,* dengan penambahan PVA sebagai aditif untuk memperbaiki karakteristik biofoam yang dihasilkan. Variabel yang diuji meliputi rasio pati singkong terhadap selulosa TKKS (1:1, 2:1, 3:1, dan 4:1) serta konsentrasi PVA (0%, 5%, dan 10). Hasil penelitian menunjukkan bahwa peningkatan rasio pati dan konsentrasi PVA berpengaruh signifikan terhadap seluruh karakteristik biofoam. Formulasi terbaik diperoleh pada kombinasi PVA 10% dengan rasio 4:1, yang menghasilkan daya serap air sebesar 10,04%, ketebalan 0,114 mm, dan biodegradasi sempurna dalam 48,16 hari. Seluruh karakteristik biofoam yang duuji telah memenuhi standar SNI 7188.7:2016.

Kata Kunci : biofoam, selulosa TKKS, pati singkong, PVA, *thermopressing*

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ABSTRACT

PRODUCTION OF BIODEGRADABLE FOAM BASED ON OIL PALM EMPTY FRUIT BUNCH CELLULOSE (Elaeis guineensis) AND CASSAVA STARCH (Manihot esculenta) WITH PVA ADDITIVE

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Styrofoam, which is widely used as food packaging, has negative impacts on the environment and health due to its difficulty to decompose and its content of harmful compounds. Therefore, it is necessary to develop environmentally friendly packaging, such as biofoam made from natural starch- and cellulose-based materials. Indonesia has great potential in utilizing agricultural waste such as oil palm empty fruit bunches (OPEFB) and the abundant yield of cassava. This study aims to utilize EFB and cassava starch as raw materials for the production of environmentally friendly biofoam using the thermopressing method, with the addition of PVA as an additive to improve the characteristics of the resulting biofoam. The tested variables included the ratio of cassava starch to EFB cellulose (1:1, 2:1, 3:1, and 4:1) and PVA concentrations (0%, 5%, and 10%). The results showed that increasing the starch ratio and PVA concentration had a significant effect on all biofoam characteristics. The best formulation was obtained from the combination of 10% PVA with a starch-to-cellulose ratio of 4:1, resulting in a water absorption of 10.04%, thickness of 0.114 mm, and complete biodegradation within 48.16 days. All tested characteristics of the biofoam have met the standards of SNI 7188.7:2016.

Keywords*: biofoam, OPEFB cellulose, cassava starch, PVA, thermopressing*