

ABSTRAK

Pembuatan *Biodegradable Foam* berbasis Pati singkong (*Manihot Esculenta*) dengan penambahan serat bambu (*Bambusoideae*) dengan variasi rasio Pati:selulosa dan konsentrasi *blowing agent*. NaHCO₃

Tata Marcel, 2026, 46 Halaman, 4 Tabel, 13 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 serat bambu dan hasil pertanian singkong yang melimpah. Penelitian ini bertujuan untuk memanfaatkan serat bambu dan pati singkong sebagai bahan baku pembuatan *biofoam* menggunakan metode baking, dengan penambahan *blowing agent* NaHCO₃ sebagai aditif untuk memperbaiki karakteristik *biofoam* yang dihasilkan. Variabel yang diuji meliputi rasio pati singkong terhadap selulosa serat bambu (1:1, 2:1, 3:1, 4:1, dan 5:1) serta konsentrasi *blowing agent* NaHCO₃ (6%, dan 8%). Hasil penelitian menunjukkan bahwa peningkatan rasio pati dan konsentrasi *blowing agent* NaHCO₃ berpengaruh signifikan terhadap seluruh karakteristik *biofoam*. Formulasi terbaik diperoleh pada kombinasi *blowing agent* NaHCO₃ 6% dengan rasio 3:1, yang menghasilkan daya serap air sebesar 22,28%, densitas sebesar 0,2857g/cm³ ketebalan 4,90 mm, dan biodegradasi sempurna dalam 18,37 hari. Seluruh karakteristik *biofoam* yang diuji telah memenuhi standar SNI JIS 2-1707:2017 dan, SNI 7188-7:2020

Kata Kunci : *biofoam*, serat bambu, pati singkong, *blowing agent* , baking

ABSTRAK

Making Biodegradable Foam based on cassava starch (*Manihot Esculenta*) with the addition of bamboo fiber (*Bambusoideae*) with variations in the starch:cellulose ratio and the concentration of blowing agent, NaHCO_3

Tata Marcel, 2026, 46 Halaman, 4 Tabel, 13 Gambar, 4 Lampiran

Styrofoam which is widely used as food packaging has a negative impact on the environment and health because it is difficult to decompose and contains hazardous compounds. Therefore, it is necessary to develop environmentally friendly packaging such as biofoam made from natural materials based on pan and cellulose. Indonesia has great potential in utilizing agricultural waste such as bamboo fiber and abundant cassava agricultural products. This study aims to utilize bamboo fiber and cassava starch as raw materials for making biofoam using the baking method with the addition of blowing agent NaHCO_3 as an additive to improve the characteristics of the resulting biofoam. The variables tested include the ratio of cassava starch to bamboo fiber sehylose (1:1, 2:1, 3:1, 4:1, and 5.1) and the concentration of blowing agent NaHCO_3 . (6%, and 8%). The results of the study showed that increasing the starch ratio and the concentration of blowing agent NaHCO significantly affected all characteristics of biofoam. The best formulation was obtained in the combination of blowing agent NaHCO_3 . 6% with a ratio of 3:1, which produces a water absorption capacity of 22.28%, a density of 0.2857g/cm^3 , a thickness of 4.90 mm, and perfect biodegradation in 18.37 days. All biofoam characteristics tested have met the standards of SNI JIS 2-1707-2017 and SNI 7188-7-2020

Keywords: *biofoam, bamboo fiber, cassava starch, blowing agent, baking*