

ABSTRAK

PEMANFAATAN SERAT DAUN NANAS (*Ananas comusus L.Merr*) DAN PATI SINGKONG PADA PEMBUATAN *BIODEGRADABLEFOAM* DENGAN ADITIF GLISEROL DAN KITOSAN

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Penggunaan *styrofoam* sebagai bahan kemasan banyak menimbulkan permasalahan lingkungan akibat sifatnya yang sulit terurai. Oleh karena itu, diperlukan alternatif kemasan ramah lingkungan seperti *biodegradable foam* berbahan dasar alami. Serat daun nanas yang kaya akan selulosa serta pati singkong yang melimpah di Indonesia menjadi bahan potensial dalam pembuatan *biofoam*. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan gliserol dan kitosan terhadap sifat mekanik *biofoam*, serta menentukan komposisi optimum yang memenuhi standar *biodegradable plastic* SNI 7188.7:2016 dan JIS Z-1707:2017. Pembuatan *biofoam* dilakukan melalui metode eksperimen dan dengan rancangan acak lengkap dengan variabel komposisi gliserol (0–25%) dan konsentrasi kitosan (0% dan 2%). Komposisi optimum yang diperoleh dari pengujian sifat mekanik *biofoam* diperoleh pada konsentrasi kitosan 2% dan komposisi gliserol 5% dengan nilai kuat tarik sebesar 4,087 Mpa, Daya serap air sebesar 14,89%, biodegradasi sebesar 60,89% yang memenuhi standar *biodegradable* plastik SNI 7188.7:2016 dan Standar JIS Z-1707,2017). Temuan ini mendukung potensi biofoam berbasis serat daun nanas dan pati singkong sebagai alternatif kemasan yang ramah lingkungan.

Kata kunci: biofoam, serat daun nanas, pati singkong, gliserol, kitosan

ABSTRACT

UTILIZATION OF PINEAPPLE LEAF FIBER (*Ananas comusus L. Merr*) AND CASSAVA STARCH IN THE PRODUCTION OF BIODEGRADABLE FOAM WITH GLYCEROL AND CHITOSAN ADDITIVES

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The use of styrofoam as a packaging material causes many environmental problems due to its difficult to decompose nature. Therefore, environmentally friendly packaging alternatives are needed, such as biodegradable foam made from natural materials. Pineapple leaf fibers, which are rich in cellulose, and cassava starch, which is abundant in Indonesia, are potential materials for making biofoam. This study aims to determine the effect of adding glycerol and chitosan on the mechanical properties of biofoam, as well as to determine the optimum composition that meets the biodegradable plastic standards SNI 7188.7:2016 and JIS Z-1707:2017. Biofoam production was carried out through an experimental method and with a completely randomized design with variables of glycerol composition (0%–25%) and chitosan concentration (0% and 2%). The optimum composition obtained from testing the mechanical properties of biofoam was obtained at a chitosan concentration of 2% and a glycerol composition of 5% with a tensile strength value of 4.087 Mpa, water absorption of 14.89%, biodegradation of 60.89% which meets the biodegradable plastic standards SNI 7188.7:2016 and JIS Standard Z-1707,2017). These findings support the potential of pineapple leaf fiber and cassava starch-based biofoam as an environmentally friendly packaging alternative.

Keywords: *biofoam, pineapple leaf fiber, cassava starch, glycerol, chitosan*