

PEMBUATAN DAN KARAKTERISASI *EDIBLE FILM* DARI KOMPOSIT PATI SINGKONG-KITOSAN DENGAN PEMLASTIS GLISEROL

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CHITOSAN; CASSAVA

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ABSTRAK

Penelitian mengenai pemanfaatan bahan-bahan yang tersedia di alam dalam pembuatan *edible film* terus berkembang dengan pesat, karena ramah lingkungan, dan dapat diperbarui. Pada penelitian ini telah dilakukan pembuatan *edible film* dari komposit pati singkong-kitosan dengan pemlastis gliserol. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh variasi komposisi kitosan dan pemlastis gliserol terhadap sifat mekanik dan sifat kimia *edible film*. *Edible film* dibuat dengan metode inversi fasa dengan variasi komposisi konsentrasi kitosan 1%, 2%, 3%, dan 4%, serta konsentrasi pemlastis gliserol 2%, 3%, 4%, 5%, dan 6%. Karakterisasi *edible film* meliputi ketebalan *edible film*, permeabilitas, dan ketahanan terhadap air, uji tarik (*stress*, *strain*, dan *Modulus Young*), uji biodegradasi, uji *swelling*, dan analisis morfologi *edible film* karakteristik optimum menggunakan SEM (*Scanning Electron Microscopy*). *Edible film* dengan karakteristik optimum diperoleh pada komposisi pati singkong 6%, kitosan 4%, dan gliserol 4% dengan karakterisasi ketebalan *edible film* rata-rata 0,028 mm, % *swelling* 9,83 %, *stress* 0,2327 kN/mm², *strain* 0,0541, dan *Modulus Young* sebesar 4,30595 kN/mm², dan positif terhadap uji biodegradasi.

Kata kunci : *Pati Singkong, kitosan, gliserol, edible film*

SYNTHESIS AND CHARACTERIZATION EDIBLE FILM FROM COMPOSITE OF CASSAVA STARCH-CHITOSAN WITH GLYCEROL AS PLASTICIZER

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ABSTRACT

The research of natural material utilization in edible film synthesise have been developed, because enviromental friendliness, and renewable properties. In this research, edible film from Cassava Starch-Chitosan Composite with Glycerol as Plasticizer was synthesized. The purposes of this research are to study and the influence of the variation of material composition towards edible film performance. The edible film was synthesized by phase inversion method with variation of chitosan concentrations 1%, 2%, 3%, and 4% , and glycerol concentrations 2%, 3%, 4%, 5%, dan 6%. Edible film was characterized by the thickness of edible film, biodegradation test, swelling test, permeability and endurance to water, and, tensile strength test (stress, strain, and Modulus Young), and analysis the morphology of optimum edible film showing optimum mechanical properties using SEM (Scanning Electron Microscopy). The result of edible film characterization with optimum performance are 0,028 mm for thickness of edible film, 9,83 % for swelling percentage, 0,2327 kN/mm² for stress, 0,0541 for strain, and 4,30595 kN/mm² for Modulus Young value, and positive toward biodegradation test.

Keywords : *Cassava starch, chitosan, glycerol, edible film*