

ABSTRAK

PENGARUH KONSENTRASI GLISEROL DAN CMC TERHADAP KARAKTERISTIK BIODEGRADABLE FILM DARI DAUN PANDAN (*Pandanus amaryllifolius* Roxb.)

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Biodegradable film menjadi salah satu alternatif pengganti plastik konvensional yang sulit terurai. *Biodegradable film* dapat dibuat dari sumber daya alam seperti selulosa. Daun pandan memiliki komponen selulosa berkisar antara 30-35 %. Tujuan penelitian adalah mengetahui penggunaan konsentrasi gliserol dan CMC (*Carboxy Methyl Cellulose*) serta interaksi keduanya terhadap karakteristik *biodegradable film* dari daun pandan. Penelitian ini disusun dalam Rancangan Acak Kelompok Lengkap (RAKL) dengan 2 faktor dan tiga ulangan. Faktor pertama yaitu penambahan gliserol dengan konsentrasi 0.5% (G1); 1% (G2); 1.5% (G3), dan faktor kedua yaitu penambahan CMC dengan konsentrasi 1% (C1); 2% (C2); 3% (C3). Data dianalisis sidik ragam untuk mengetahui pengaruh antar perlakuan dan data dianalisis lebih lanjut dengan Uji Beda Nyata Jujur (BNJ) pada taraf 5%. Hasil penelitian menunjukkan terdapat interaksi antara gliserol dan CMC dalam menghasilkan *biodegradable film*. *Biodegradable film* dengan perlakuan terbaik yaitu pada formulasi G2C3 (Gliserol 1% dan CMC 3%) dengan nilai kuat tarik sebesar 615,333 MPa, nilai ketebalan sebesar 0,332 mm, nilai elongasi sebesar 3,343 mm, dan biodegradabilitas selama 14 hari.

Kata kunci: Selulosa, Gliserol, CMC (*Carboxy Methyl Cellulose*), WVTR, *Biodegradable Film*

ABSTRACT

EFFECT OF GLYCEROL CONCENTRATION AND CMC ON CHARACTERISTICS OF BIODEGRADABLE FILM FROM PANDAN LEAF (*Pandanus amaryllifolius* Roxb.)

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Biodegradable films are an alternative to conventional plastics that are difficult to decompose. *Biodegradable films* can be made from natural resources such as cellulose. Pandan leaves have cellulose components ranging from 30-35%. The purpose of this study was to determine the use of concentrations of glycerol and CMC (*Carboxy Methyl Cellulose*) and their interaction with the characteristics of the *biodegradable film* from pandan leaves. This study was arranged in a Completely Randomized Block Design (RAKL) with 2 factors and three replications. The first factor is the addition of glycerol with a concentration of 0.5% (G1); 1% (G2); 1.5% (G3), and the second factor is the addition of CMC with a concentration of 1% (C1); 2% (C2); 3% (C3). The data were analyzed by variance to determine the effect between treatments and the data were further analyzed with the Honestly Significant Difference Test (BNJ) at the 5% level. The results showed that there was an interaction between glycerol and CMC in producing *biodegradable films*. *Biodegradable film* with the best treatment was in the G2C3 formulation (Glycerol 1% and CMC 3%) with a tensile strength value of 615.333 MPa, a thickness value of 0.332 mm, an elongation value of 3.343 mm, and biodegradability for 14 days.

Keywords: Cellulose, Glycerol, CMC (*Carboxy Methyl Cellulose*), WVTR, *Biodegradable Film*