

ABSTRAK

KARAKTERISTIK *BIODEGRADABLE FILM* BERBASIS SELULOSA KELOBOT JAGUNG (*Zea mays*) DENGAN PENAMBAHAN GLISEROL DAN *CARBOXY METHYL CELLULOSE* (CMC)

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Biodegradable film merupakan suatu bahan mirip plastik konvensional yang lebih mudah terdegradasi di alam. Kelobot jagung mengandung selulosa sebesar 42,31% berpotensi digunakan untuk pembuatan *biodegradable film*. Tujuan dari penelitian ini untuk mengetahui pengaruh penambahan gliserol dan penambahan CMC terhadap karakteristik *biodegradable film* berbasis selulosa kelobot jagung, serta mengetahui pengaruh interaksi antara gliserol dan CMC terhadap karakteristik *biodegradable film* berbasis selulosa kelobot jagung. Penelitian ini menggunakan RAKL dua faktor dan tiga ulangan. Faktor Pertama yaitu konsentrasi gliserol (1,5%, 2%, dan 2,5%). Faktor kedua yaitu CMC (2%, 2,5%, dan 3%). Hasil penelitian menunjukkan bahwa konsentrasi gliserol dan CMC berpengaruh nyata terhadap nilai kuat tarik, persen pemanjangan, ketebalan, dan laju transmisi uap air. Hasil terbaik diperoleh pada konsentrasi gliserol 2,5% dan CMC 2% dengan nilai kuat tarik 284,94 MPa, nilai persen pemanjangan 27,53%, ketebalan 0,23 mm, dan laju transmisi uap air 2,05 g/m²/hari. *Biodegradable film* berbasis selulosa kelobot jagung dapat bertahan di suhu ruang selama enam minggu dan terurai di dalam tanah selama lima minggu.

Kata Kunci : *biodegradable film*, kelobot jagung, selulosa, gliserol dan CMC

ABSTRACT

CHARACTERISTICS OF BIODEGRADABLE FILM BASED ON CORN HUSK CELLULOSE (*Zea mays*) WITH THE ADDITION OF GLYCEROL AND CARBOXY METHYL CELLULOSE (CMC)

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Biodegradable film is a material similar to conventional plastic which is more easily degraded in nature. Corn husk contains 42.31% cellulose which has the potential to be used for making biodegradable films. The purpose of this study was to determine the effect of the addition of glycerol and the addition of CMC on the characteristics of biodegradable films based on corn husk cellulose, and to determine the effect of the interaction between glycerol and CMC on the characteristics of biodegradable films based on corn husk cellulose. This study used two-factor complete randomized block design and three replications. The first factor is the concentration of glycerol (1.5%, 2% and 2.5%). The second factor is CMC (2%, 2.5%, and 3%). The results showed that the concentration of glycerol and CMC significantly affected the value of tensile strength, elongation, thickness, and water vapor transmission rate. The best results were obtained at a concentration of 2.5% glycerol and 2% CMC with a tensile strength value of 284.94 MPa, a percent elongation value of 27.53%, a thickness of 0.23 mm, and a water vapor transmission rate of 2.05 g/m²/day . Corn husk cellulose-based biodegradable film can be stored at room temperature for six weeks and decomposes in the soil for five weeks.

Keywords : biodegradable film, corn husk, cellulose, glycerol, CMC