

ABSTRAK

THE EFFECT OF ADDING CARRAGEENAN AND USED COOKING OIL ON THE CHARACTERISTICS OF BIOPLASTIC PACKAGING BASED ON COCONUT PULP CELLULOSE

BY

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Bioplastics can replace synthetic plastic polymers and were more environmentally friendly. This study aims to determine the effect of adding carrageenan concentration on the characteristics of coconut pulp cellulose-based bioplastics to determine the effect of adding used cooking oil concentration on the characteristics of coconut pulp cellulose-based bioplastics to determine the effect of interaction between the concentration of carrageenan addition and coconut pulp cellulose-based used cooking oil to determine the best treatment according to JIS (Japanese Industrial Standard). This research was conducted using a factorial Complete Randomized Block Design (RAKL) with 2 factors and 3 replications. The first factor is the concentration of carrageenan (K) consisting of 3 levels, namely 0.6%, 0.8%, 1% (w/v), the second factor is the concentration of used cooking oil consisting of 3 levels, namely 0%, 0.3%, 0.6% (w/v). The addition of carrageenan affects the tensile strength, percent elongation, thickness, water vapor transmission rate, room temperature resistance and biodegradability of bioplastics based on coconut pulp cellulose, the addition of used cooking oil affects the tensile strength, percent elongation, thickness, water vapor transmission rate of bioplastics based on coconut pulp cellulose, The interaction between carrageenan and coconut pulp cellulose-based used cooking oil affects the tensile strength value of 3.01 MPa, the elongation percentage of 14.85%, the thickness of 0.20 mm, the water vapor transmission rate of 0.30 g/m²/day, resistance to room temperature for 3 weeks and biodegradability for 2 weeks. All treatments are in accordance with Japanese Industrial Standard (JIS) 1707.

Kata Kunci : bioplastic, coconut pulp, carrageenan, used cooking oil

ABSTRAK

PENGARUH PENAMBAHAN KARAGENAN DAN MINYAK JELANTAH TERHADAP KARAKTERISTIK KEMASAN BIOPLASTIK BERBASIS SELULOSA AMPAS KELAPA

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Bioplastik dapat menggantikan polimer plastik sintetik dan bersifat lebih ramah lingkungan. Penelitian ini bertujuan untuk mengetahui pengaruh penambahan konsentrasi karagenan dan minyak jelantah terhadap karakteristik bioplastik berbasis selulosa ampas kelapa serta mengetahui pengaruh interaksi antara konsentrasi penambahan karagenan dan minyak jelantah berbasis selulosa ampas kelapa. Penelitian ini dilakukan menggunakan Rancangan Acak Kelompok Lengkap (RAKL) faktorial dengan 2 faktor dan 3 kali ulangan. Faktor pertama adalah, konsentrasi karagenan (K) yang terdiri dari 3 taraf, yaitu 0,6%, 0,8%, 1% (b/v), faktor kedua yaitu konsentrasi minyak jelantah terdiri dari 3 taraf, yaitu 0%, 0,3%, 0,6% (b/v). Penambahan karagenan berpengaruh terhadap nilai kuat tarik, persen pemanjangan, ketebalan, laju transmisi uap air, ketahanan suhu ruang dan biodegradabilitas bioplastik berbahan dasar selulosa ampas kelapa, penambahan minyak jelantah berpengaruh terhadap nilai kuat tarik, persen pemanjangan, ketebalan, laju transmisi uap air bioplastik berbahan dasar selulosa ampas kelapa, interaksi antara karagenan dan minyak jelantah berbasis selulosa ampas kelapa berpengaruh terhadap nilai kuat tarik yaitu sebesar 3,01 MPa, persen pemanjangan sebesar 14,85%, ketebalan 0,20 mm, laju transmisi uap air sebesar 0,30 g/m²/hari ketahanan terhadap suhu ruang selama 3 minggu dan biodegradabilitas selama 2 minggu. Seluruh perlakuan telah sesuai dengan *Japanese Industrial Standar (JIS) 1707*.

Kata Kunci : bioplastik, ampas kelapa, karagenan, minyak jelantah.