PENGARUH KONSENTRASI *CARBOXY METHYL CELLULOSE* (CMC) TERHADAP KARAKTERISTIK BIOPLASTIK KOLANG-KALING (*Arenga pinnata*)

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui pengaruh konsentrasi CMC terhadap karakteristik bioplastik kolang-kaling dan mengetahui konsentrasi CMC terbaik berdasarkan karakteristik bioplastik kolang-kaling. Penelitian ini menggunakan Rancangan Acak Lengkap dengan 5 perlakuan dan 3 kali ulangan. Data dianalisis menggunakan *Analysis of Varian* (ANOVA) dan jika berbeda nyata dilakukan uji lanjut dengan *Duncan's New Multiple Range Test* (DNMRT) pada taraf 5%. Perlakuan pada penelitian ini adalah perbedaan konsentrasi CMC (0,47%, 0,63%, 0,79%, 0,94%, dan 1,1%). Pengamatan terhadap karakteristik bioplastik yang dilakukan adalah kadar air, pengukuran ketebalan, kuat tarik, perpanjangan putus, daya serap air, dan uji biodegradasi. Hasil penelitian menunjukkan bahwa perbedaan konsentrasi CMC terhadap karakteristik bioplastik kolang-kaling berpengaruh terhadap ketebalan, perpanjangan putus, dan daya serap air tetapi tidak berpengaruh terhadap kadar air dan kuat tarik. Perlakuan terbaik yang diperoleh yaitu pada penambahan konsentrasi CMC sebesar 0,94% dengan kadar air 24,07%, ketebalan 0,145 mm, kuat tarik 8,97 MPa, perpanjangan putus 127,01%, daya serap air 478,17%dan terurai sempurna dalam waktu 6 hari.

Kata kunci: **Bioplastik, CMC, Kolang-Kaling**

THE EFFECT OF CARBOXY METHYL CELLULOSE (CMC) CONCENTRATIONS ON THE CHARACTERISTICS OF *KOLANG-KALING* (*Arenga pinnata*) BIOPLASTIC

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ABSTRACT

This research aims to determine the effect of CMC concentrations on the characteristics of *kolang-kaling* bioplastic and to know the best CMC concentration based on the characteristics of *kolang-kaling* bioplastic. This research used a completely randomized design with 5 treatments and 3 replications. Data were analyzed using Analysis of Variance (ANOVA) and if it significantly different continued with Duncan's New Multiple Range Test (DNMRT) at 5% level. The treatments in this research were the differences in CMC concentrations (0,47%, 0,63%, 0,79%, 0,94%, and 1,1%). The observations on the characteristics of bioplastic were water content, thickness measurements, tensile strength, elongation at break, water absorption, and biodegradation tests. The results showed that the differences in CMC concentrations on the characteristics of *kolang-kaling* bioplastic had a significant effect on thickness, elongation at break, and water absorption but not significantly effect on moisture content and tensile strength. The best treatment obtained was the addition of CMC concentration of 0,94% with moisture content 24,7%, thickness 0,145 mm, tensile strength 8,97 MPa, elongation at break 127,01%, water absorption 478,17% and completely decomposes within 6 days.

Keywords: Bioplastics, CMC, *Kolang-Kaling*