

**KARAKTERISTIK LABEL INDIKATOR
BIOPOLIMER KITOSAN-AMONIUM MOLIBDAT
PADA PENYIMPANAN BUAH ALPUKAT
(*Persea americana*)**



**FAKULTAS TEKNOLOGI PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2026**

KARAKTERISTIK LABEL INDIKATOR BIOPOLIMER KITOSAN-AMONIUM MOLIBDAT PADA PENYIMPANAN BUAH ALPUKAT (*Persea americana*)

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ABSTRAK

Label indikator biopolimer berbahan dasar kitosan-amonium molibdat dikembangkan sebagai material yang karakteristiknya dipengaruhi oleh komposisi penyusunnya. Variasi konsentrasi kitosan dan amonium molibdat diduga memengaruhi perubahan warna dan nilai *water vapor transmission rate* (WVTR) label indikator. Penelitian ini bertujuan mengevaluasi pengaruh variasi konsentrasi kitosan dan amonium molibdat terhadap karakteristik label indikator berdasarkan perubahan warna selama penyimpanan buah alpukat varietas *Mega Paninggahan* dan nilai WVTR. Penelitian menggunakan rancangan faktorial dengan dua faktor, yaitu konsentrasi kitosan (1,5% dan 2%) serta amonium molibdat (7,5% dan 10%). Parameter yang diamati meliputi karakteristik label berupa warna (L dan h) serta WVTR. Kekerasan dan TPT buah alpukat juga diukur sebagai parameter pendukung. Data dianalisis menggunakan ANOVA, uji *Kruskal-Wallis*, dan uji korelasi *Pearson*. Hasil penelitian menunjukkan bahwa amonium molibdat berpengaruh nyata terhadap WVTR ($p = 0,007$), sedangkan parameter warna L dan h tidak dipengaruhi secara nyata oleh perlakuan. Nilai h awal (H_0) memiliki korelasi positif yang sangat kuat terhadap WVTR dengan korelasi (r) sebesar 0,806 dan nilai sig. 0,002 ($p < 0,01$). Hasil tersebut menunjukkan bahwa semakin tinggi nilai h awal label indikator, semakin tinggi nilai WVTR film. Hubungan ini mengindikasikan bahwa karakteristik warna awal label berkaitan dengan sifat penghalang uap air film yang dipengaruhi oleh komposisi bahan penyusun label.

Kata kunci: alpukat, amonium molibdat kitosan, label indikator, WVTR.

CHARACTERISTICS OF CHITOSAN-AMMONIUM MOLYBDATE BIOPOLYMER INDICATOR LABELS DURING AVOCADO (*Persea americana*) STORAGE

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ABSTRACT

Chitosan-ammonium molybdate-based biopolymer indicator labels have been developed as materials whose characteristics are influenced by the composition of their constituents. Variations in the concentrations of chitosan and ammonium molybdate are expected to affect the color changes and the water vapor transmission rate (WVTR) of the indicator labels. This study aimed to evaluate the effect of different concentrations of chitosan and ammonium molybdate on the characteristics of indicator labels based on color changes during the storage of Mega Paninggahan avocado fruit and the WVTR value. A factorial experimental design with two factors was employed, namely chitosan concentrations of 1.5% and 2.0% and ammonium molybdate concentrations of 7.5% and 10.0%. The observed parameters included label characteristics, namely color (L and h) and WVTR. Fruit firmness and TSS of avocado were also measured as supporting parameters. The data were analyzed using analysis of variance (ANOVA), the Kruskal-Wallis test, and Pearson correlation analysis. The results showed that ammonium molybdate had a significant effect on WVTR ($p = 0.007$), whereas the L and h color parameters were not significantly affected by the treatments. The initial h value (H_0) showed a very strong positive correlation with WVTR, with a correlation (r) of 0.806 and a significance value of 0.002 ($p < 0.01$). These results indicate that the higher the initial h value of the indicator label, the higher the WVTR of the film. This relationship suggests that the initial color characteristics of the indicator label are associated with the water vapor barrier properties of the film, which are influenced by the composition of the label-forming materials.

Keywords: avocado, molybdate, chitosan, indicator label, WVTR.