KARAKTERISASI STROBERI KERING BEKU (*FREEZE DRIED STRAWBERRY*) YANG DILAPISI KITOSAN DALAM KEMASAN DI LINGKUNGAN TROPIS

INTISARI

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Pada lingkungan tropis, teknologi pengeringan beku dapat menjadi metode pengeringan terbaik yang dapat mempertahankan kualitas produk. Pelapisan kitosan pada stroberi kering beku yang didukung dengan penggunaan kemasan yang tepat dapat mengurangi tingkat rehidrasi dan penurunan kualitas akibat peningkatan porositas pada produk hasil dari proses pengeringan beku. Tujuan dari penelitian ini adalah untuk menganalisis perubahan karakteristik fisik (warna dan tekstur), kimiawi (kadar air, brix, dan pH), mikrobiologi (aw) dengan berbagai kemasan serta menganalisis kemasan terbaik dalam menjaga karakteristik stroberi kering beku yang dilapisi kitosan. Stroberi varietas 'Mencir' diberi perlakuan awal berupa dehidrasi osmotik dan pelapisan kitosan yang kemudian dilanjutkan dengan proses pengeringan kering beku. Penelitian disusun dalam rancangan acak lengkap (RAL) dengan perlakuan penggunaan 3 jenis kemasan meliputi Alumunium foil (100 mikron), MPET (80 mikron), dan PP (100 mikron). Penyimpanan dilakukan pada suhu ruang ($27 \pm 2\ ^oC$) dan kontrol ($17 \pm 2\ ^oC$) lingkungan tropis dengan masing-masing perlakuan dilakukan 2 kali ulangan. Pengujian stroberi kering beku berlapis kitosan meliputi karakteristik fisik (warna dan tekstur), kimiawi (kadar air, brix, dan pH), dan mikrobiologi (aw). Uji normalitas dan homogenitas digunakan pada data sebagai prasyarat dalam pemilihan metode analisis statistik. Berdasarkan hasil uji prasyarat, diketahui bahwa data tidak memenuhi asumsi homogenitas, sehingga analisis statistik dilakukan menggunakan Welch ANOVA dan uji lanjut Games-Howell. Hasil penelitian menunjukkan bahwa penggunaan ketiga jenis kemasan pada masing-masing kondisi penyimpanan, stroberi kering beku berlapis kitosan mengalami peningkatan nilai ΔE, tekstur, kadar air, pH, dan aw serta penurunan nilai brix selama penyimpanan. Namun, hanya tekstur dan aw yang dipengaruhi signifikan oleh jenis kemasan. Penyimpanan di suhu kontrol ($17 \pm 2\ ^oC$) menggunakan kemasan MPET 80 mikron paling baik dalam menjaga kualitas produk stroberi kering beku berlapis kitosan.

Kata Kunci: Kemasan, Kering Beku, Kitosan, Kualitas, Stroberi.

CHARACTERIZATION OF FREEZE-DRIED STRAWBERRY COATED WITH CHITOSAN IN PACKAGING UNDER TROPICAL ENVIRONMENT

ABSTRACT

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In tropical environments, freeze-drying technology can be the best drying method for maintaining product quality. Coating freeze-dried strawberries with chitosan, supported by the use of appropriate packaging, can reduce rehydration rate and quality degradation caused by increased porosity in the product resulting from the freeze-drying process. The study aims to analyze changes in physical (color and texture), chemical (moisture content, brix, and pH), and microbiological (aw) characteristics with various packaging types and to determine the best packaging for maintaining the characteristics of freeze-dried strawberries coated with chitosan. 'Mencir' strawberries were initially treated with osmotic dehydration and chitosan coating, followed by freeze-drying. The study was designed as a completely randomized design (CRD) with three types of packaging treatments, including Aluminum foil (100 microns), MPET (80 microns), and PP (100 microns). Storage was conducted at room temperature (27 ± 2 °C) and control temperature (17 ± 2 °C) in a tropical environment, with each treatment repeated twice. The testing of freeze-dried strawberries coated with chitosan included physical characteristics (color and texture), chemical characteristics (moisture content, brix, and pH), and microbiological characteristics (aw). Normality and homogeneity tests are used on the data as a prerequisite for selecting statistical analysis methods. Based on the results of the prerequisite test, it was found that the data did not meet the assumption of homogeneity, so statistical analysis was performed using Welch ANOVA and Games-Howell post hoc test. The results showed that the use of the three types of packaging in each storage condition, freeze-dried strawberries coated with chitosan, experienced an increase in values of ΔE, texture, moisture content, pH, and aw, as well as a decrease in the brix value during storage. However, only texture and aw were significantly affected by the type of packaging. Storage at the control temperature (17 ± 2 °C) using MPET 80 micron packaging was found to be the best in maintaining the quality of the freeze-dried strawberries coated with chitosan.

Keywords: Chitosan, Freeze-Dried, Packaging, Quality, Strawberry