

Pengaruh Jenis Kemasan dan Waktu Simpan terhadap Perubahan Kualitas *Dehydrated Strawberry*

The Effect of Types of Packaging and Storage Time on the Quality Changes of Dehydrated Strawberry

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Abstrak – *Dehydrated strawberry* merupakan alternatif olahan stroberi yang mampu meningkatkan umur simpan serta memberikan nilai tambah. *Dehydrated strawberry* relatif stabil dikarenakan memiliki kadar air dan aktivitas air (*Aw*) yang rendah namun sensitif terhadap cahaya, kelembapan, dan oksigen yang dapat mempengaruhi kualitas fisik, kimiawi, dan mikrobiologi buah kering. Pengemasan diperlukan untuk meminimalkan penurunan kualitas buah selama penyimpanan. Penelitian ini bertujuan untuk menganalisis pengaruh jenis kemasan dan waktu simpan terhadap perubahan kualitas *dehydrated strawberry*.

Stroberi varietas *Mencir* diberi praperlakuan dehidrasi osmotik dan dilanjutkan dengan pengeringan pada suhu 70°C selama 9 jam menggunakan *tray dryer*, kemudian disimpan pada suhu ruang dengan jenis pengemasan antara lain *Metalized Polyethylene Terephthalate* (MPET) *film* 90 mikron (T1), plastik *emboss vacuum nylon + Linear Low Density Polyethylene* (LLDPE) 90 mikron (T2), kemasan primer menggunakan plastik *monolayer nylon* 75 mikron tanpa vakum dan kemasan sekunder MPET *film* 90 mikron (T3), dan kemasan primer menggunakan plastik *monolayer nylon* 75 mikron dengan vakum dan kemasan sekunder MPET *film* 90 mikron (T4), serta perlakuan kontrol (tanpa kemasan). Pengamatan dilakukan pada minggu ke-0 (sesaat sebelum dikemas), minggu ke-1, minggu ke-3, dan minggu ke-5. Pengujian kualitas yang diamati meliputi pengujian kualitas fisik (*hardness* dan warna), kimiawi (kadar air, total padatan terlarut, vitamin C, total fenol, total asam, dan proksimat), dan mikrobiologi (aktivitas air dan *total plate count* bakteri). Desain penelitian menggunakan rancangan acak lengkap (RAL) faktorial 5x4. Analisa data menggunakan *Two Way Repeated Measure* ANOVA dan dilanjutkan dengan uji lanjut menggunakan pendekatan *bonferroni* dengan tingkat signifikansi 0,05.

Hasil uji *Two Way Repeated Measure* ANOVA menunjukkan jenis kemasan berpengaruh secara signifikan terhadap perubahan nilai *hardness*, kadar air, total padatan terlarut, vitamin C, dan total fenol. Hasil juga menunjukkan waktu simpan berpengaruh secara signifikan terhadap perubahan nilai *hardness* (tingkat kekerasan), warna, kadar air, total padatan terlarut, vitamin C, dan total fenol stroberi kering. Secara keseluruhan penggunaan kombinasi kemasan primer: plastik *monolayer nylon* 75 mikron dan kemasan sekunder: MPET *film* 90 mikron (perlakuan T3 dan T4) lebih baik dalam mempertahankan kualitas buah stroberi kering. Hasil pengujian menunjukkan jenis kemasan ini lebih baik dalam menjaga tingkat kekerasan, kadar air, vitamin C, dan TPC bakteri stroberi kering dibanding jenis kemasan lain. Seluruh jenis kemasan (T1, T2, T3 dan T4) mampu mempertahankan kualitas *dehydrated strawberry* selama penyimpanan 5 minggu berdasarkan parameter *total plate count* bakteri yang mengacu pada Standar Nasional Indonesia (SNI) 3710:2018 tentang Buah Kering.

Kata kunci: *dehydrated strawberry*, kemasan, kualitas, waktu simpan.

Abstract – Dehydrated strawberry is an alternative to processed strawberries that can increase shelf life and provide added value. Dehydrated strawberry is relatively stable because it has low moisture content and water activity (A_w) but is sensitive to light, humidity, and oxygen which can affect the physical, chemical, and microbiological quality of dried fruit. Packaging is necessary to minimize the loss of fruit quality during storage. This study aims to analyze the effect of packaging type and storage time on changes in the quality of dehydrated strawberries.

Strawberries (var. Mencir) were pre-treated with osmotic dehydration and continued with drying at 70 °C for 9 hours using a tray dryer, then stored at room temperature with packaging treatments including Metalized Polyethylene Terephthalate (MPET) film 90 micron (T1), embossed plastic vacuum nylon + Linear Low Density Polyethylene (LLDPE) 90 micron (T2), primary packaging using 75 micron monolayer nylon plastic without vacuum and 90 micron MPET film secondary packaging (T3), and primary packaging using 75 micron monolayer nylon plastic with vacuum and packaging secondary MPET film 90 microns (T4), as well as control treatment (without packaging). Observations were made at week 0 (shortly before being packaged), week 1, week 3, and week 5. The quality tests observed included testing for physical quality (hardness and color), chemical (moisture content, total dissolved solids, vitamin C, total phenol, total acid, and proximate test), and microbiology (water activity and total plate count of bacteria). The study design used a factorial 5x4 completely randomized design (CRD). Data analysis used a two way repeated measure ANOVA and continued with a further test using the Bonferroni approach with a significance level of 0,05.

The results of the two way repeated measure ANOVA test showed that packaging treatment had a significant effect on changes in hardness values, water content, total dissolved solids, vitamin C, and total phenol. The results also showed that storage time had a significant effect on changes in hardness, color, moisture content, total dissolved solids, vitamin C, and total phenol of dried strawberries. In general, the combination of primary packaging: 75 micron nylon monolayer plastic and secondary packaging: 90 micron MPET film (T3 and T4 treatments) was better in maintaining the quality of dried strawberries. The test results show that this type of packaging is better at maintaining the level of hardness, moisture content, vitamin C, and TPC of dry strawberry bacteria than other types of packaging. All types of packaging (T1, T2, T3 and T4) were able to maintain the quality of dehydrated strawberries for 5 weeks of storage based on the total bacterial plate count parameter which refers to the Indonesian National Standard SNI 3710:2018 Dried Fruit.

Keywords: dehydrated strawberry, packaging, storage time, quality.