ABSTRAK

PENGARUH UKURAN TERHADAP TINGKAT TRANSLUSENSI BUAH NANAS *(Ananas Comosus L.)* MD2 DENGAN *CROWN* SELAMA PENYIMPANAN

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Nanas segar memiliki umur simpan pendek, yakni hanya 4-6 hari. Jika ada luka atau memar, nanas yang disimpan pada suhu ruang akan terfermentasi dan segera membusuk. Translusensi pada buah nanas berarti daging buahnya berwarna bening akibat kerusakan fisiologis. Penelitian ini mengusulkan pengamatan translusensi pada buah nanas yang berbeda ukuran dan perubahannya sebagai fungsi waktu simpan. Penelitian menggunakan nanas MD2 yang diperoleh dari PT Great Giant Peneapple PG4 Lampung Timur. Sampel buah nanas yang digunakan dengan 2 ukuran yang berbeda yaitu klasifikasi buah Besar (ukuran 6-9 dengan berat antara 1,36-2,25 kg) dan klasifikasi Kecil (ukuran 10-12 dengan berat antara 1,00-1,35 kg). Sampel buah nanas disimpan dengan boks kardus dalam cold storage bersuhu 7 ^{o}C selama 35 hari. Perubahan mutu buah diamati seminggu sekali. Model Jaringan Saraf Tiruan (JST) dikembangkan untuk mengetahui hubungan antara warna daging buah dengan Total Asam Tertitrasi (TAT), kekerasan, persen translusensi, dan Total Padatan Terlarut (TPT). Hasil penelitian analisis pengaruh ukuran dan lama penyimpanan terhadap tingkat translusensi menunjukkan hasil sebagai berikut: Area translusensi buah nanas selama penyimpanan 35 hari menunjukkan kecenderungan naik secara perlahan selama simpan, tidak ada perbedaan nyata

persentase luasan translusensi antara buah nanas kategori besar dan kecil. Kadar air buah menunjukkan perubahan yang tidak konsisten, ada perbedaan nyata kadar air pada buah nanas kecil dan besar. Selama 35 hari penyimpanan, susut bobot buah berkisar pada 12-16%, buah nanas yang terkena translusen cenderung memiliki susut bobot yang lebih tinggi dibandingkan buah normal. Sebagaimana telah digunakan sebagai penduga keterjadian translusensi, berat jenis buah nanas translusen cenderung lebih tinggi dibandingkan dengan buah nanas normal. Terjadi kenaikan berat jenis selama penyimpanan. Sementara itu, kekerasan menunjukkan tren menurun selama simpan. Buah nans normal memiliki kekerasan yang lebih tinggi dibandingkan dengan buah nanas yang terkena translusen. Serupa dengan kekerasan, Total Padatan Terlarut (TPT) menunjukkan penurunan selama penyimpanan untuk semua kategori buah. Namun, buah nanas normal menampakkan kecenderungan memiliki TPT yang lebih tinggi dibandingkan dengan buah nanas translusen. Sebaliknya, Total Asam Tertitrasi (TAT) menunjukkan perubahan yang cenderung naik selama penyimpanan, tidak ada pengaruh ukuran buah terhadap nilia TAT, namun TAT dipengaruhi oleh keberadaan translusen pada buah. Buah nanas normal memiliki TAT lebih tinggi dibandingkan buah nanas translusen. Suhu buah nanas menunjukkan perubahan yang cenderung fluktuatif dan suhu antara buah nanas kecil dan besar menunjukkan pengaruh yang nyata. Intensitas warna kulit buah (*Ired* dan *Igreen*) menunjukkan kenaikan selama simpan, sebaliknya *Iblue* menurun. Buah nanas besar cenderung berubah warna lebih cepat dibandingkan buah nanas kecil. Warna daging sedikit mengalami perubahan selama simpan. Intensitas warna daging buah nanas pada *Ired* dan *Igreen* menunjukkan perubahan yang cenderung fluktuatif, sedangkan *Iblue* menunjukkan perubahan yang cenderung turun. Antara buah nanas kecil dan besar menunjukkan perubahan intensitas warna daging yang berbeda nyata. Pengembangkan model Jaringan Saraf Tiruan (JST) untuk memprediksi parameter mutu destruktif berdasarkan parameter non-destruktif (RGB daging buah) dilakukan dan hasilnya cukup baik (R^2 mendekati 1 dan RMSE mendekati nol).

Kata Kunci: Nanas, Translusensi, Thermal and visible images, Jaringan Saraf Tiruan

ABSTRACT

EFFECT OF SIZE ON TRANSLUCENT RATE OF CROWNED PINEAPPLE FRUIT (*Ananas Comosus* L.) MD2 DURING STORAGE

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Fresh pineapple has a short shelf life, of only 4-6 days. If there is a wound or bruise, pineapple stored at room temperature will ferment and soon rot. Translucency in pineapples means that the flesh is clear due to physiological damage. This study proposes the observation of translucency in pineapples of different sizes and its change as a function of storage time. The study used pineapple MD2 obtained from PT Great Giant Peneapple PG4 Lampung Timur. The pineapple fruit samples used were of two different sizes: Large (6-9 sizes weighing between 1.36-2.25 kg) and Small (10-12 sizes weighing between 1.00-1.35 kg). Samples of pineapple are stored with cardboard boxes in cold storage at 7 ^{o}C for 35 days. Changes in the quality of the fruit were observed once a week. The Artificial Neural Network (ANN) model was developed to determine the relationship between the color of the flesh of the fruit and the Total Titrated Acid (TAT), hardness, percentage of translucency, and Total Dissolved Solids (TPT). Results of the study analysing the effect of storage size and length on the level of translucency showed the following results: The translucency area of pineapple during storage 35 days showed a tendency to rise slowly during storage, there is no apparent difference in the percentage of translucency area between large and small pineapple categories. The water content of the fruit shows inconsistent changes, there is a noticeable

difference in the water content of small and large pineapples. During 35 days of storage, the weight loss of the fruit ranges from 12-16%, pineapples that are exposed to translucency tend to have a higher weight loss than normal fruits. As it has been used as a predictor of the occurrence of translucency, the weight of translucent pineapples tends to be higher than that of normal pineapples. There's been a slight increase in weight during storage. Meanwhile, violence showed a downward trend during the stockpile. The normal pineapple has a higher firmness compared to the pineapple exposed to translucency. Similar to firmness, Total Soluble Solids (TSS) showed a decrease during storage for all fruit categories. However, normal pineapples tend to have a higher TPT compared to translucent pineapples. Conversely, Total Titrated Acid (TTA) shows a change that tends to rise during storage, there is no effect of fruit size on TTA levels, but TTA is affected by the presence of translucency in the fruit. The normal pineapple has a higher TTA than the translucent pineapple. The temperature of the pineapple shows a change that tends to be fluctuating and the temperature between the small and large pineapple shows a noticeable influence. The intensity of the color of the fruit skin (Ired and Igreen) shows an increase during storage, whereas Iblue decreases. Large pineapples tend to change color more quickly than small ones. The colour of the meat changes slightly during storage. The intensity of the color of the pineapple flesh in Ired and Igreen shows a change that tends to be fluctuating, while Iblue shows a change that tends to be decreasing. Between the small and large pineapple fruits the intensity of the color of the flesh changes markedly. The development of a JST model to predict destructive quality parameters based on non-destructive parameters (RGB fruit flesh) was performed and the results were quite good (R^2 approaching 1 and RMSE approaching zero).

Keywords: Pineapple, Translusency, Thermal and visible images, Artificial Neural Networks