INTISARI

KAJIAN TEKNIS PROSES *DEGREENING* PADA JERUK SIAM (*Citrus Nobilis*) DENGAN VARIASI KONSENTRASI DAN WAKTU PEMAPARAN ETILEN (C_2H_4)

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Kualitas jeruk dapat dinilai melalui warna kulit. Konsumen cenderung memilih jeruk yang berwarna kuning atau jingga. Proses *degreening* dapat merombak klorofil pada kulit jeruk dan membentuk warna kuning atau jingga tanpa merubah kualitas internal buah. Penelitian ini bertujuan untuk menentukan konsentrasi dan waktu pemaparan yang optimum untuk jeruk siam serta mengkaji pengaruhnya terhadap laju respirasi dan perubahan kualitas buah jeruk siam. Perlakuan *degreening* dikaji dengan variasi konsentrasi 0 ppm, 50 ppm, 100 ppm, dan 150 ppm serta waktu pemaparan 24 jam, 48 jam, dan 72 jam. Setelah pemaparan jeruk kemudian disimpan di suhu ruang. Parameter yang diamati pada penelitian ini meliputi laju konsumsi O_2, laju produksi CO_2, susut bobot, *citrus color index* (CCI), *hue angle*, chroma, *total color difference* (TCD), total padatan terlarut, dan tekstur. Data yang diperoleh kemudian dianalisis secara statistik dan analisis kinetika. Interaksi konsentrasi etilen dan waktu pemaparan berpengaruh terhadap nilai tekstur, CCI, hue angle, TCD, dan susut bobot. Perlakuan konsentrasi etilen berepengaruh terhadap laju konsumsi O2, laju produksi CO2, tekstur, CCI, chroma, *hue angle*, TCD, dan susut bobot sedangkan perlakuan waktu pemaparan berpengaruh terhadap semua parameter. Hasil penelitian menunjukkan bahwa kombinasi paling optimum adalah pada konsentrasi etilen 150 ppm dengan waktu pemaparan 48 jam.

Kata kunci: Analisis matematis, *citrus nobilis*, *degreening*, konsentrasi etilen, kualitas fisik, waktu pemaparan

ABSTRACT

STUDY OF *DEGREENING* PROCESS OF SIAM ORANGE (*Citrus nobilis*) WITH VARIATION OF CONCENTRATION AND EXPOSURE TIME DURATION OF ETHYLENE (C_2H_4)

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The quality of oranges can be judged through the peel color. Consumers tend to choose oranges that have orange peel color. The *degreening* process can degradate the chlorophyll in the orange peel and form a yellow or orange color without changing the internal quality of the fruit. This study aims to determine the optimum concentration and exposure time for siam oranges and to assess their effect on respiration rate and changes in the quality of oranges. The *degreening* treatment was studied with various concentrations of 0 ppm, 50 ppm, 100 ppm, and 150 ppm and exposure time duration of 24 hours, 48 hours, and 72 hours. After exposure time finished, the oranges were stored at room temperature. The parameters observed in this study included the rate of O_2 consumption rate, CO_2 production rate, weight loss, citrus color index (CCI), hue angle, chroma, total color difference (TCD), *brix,* and texture. The data were then analyzed statistically and kinetics. The interaction between ethylene concentration and exposure time affected the value of texture, CCI, hue angle, TCD, and weight loss. Treatment of ethylene concentration affected the rate of O_2 consumption, CO_2 production rate, texture, CCI, chroma, hue angle, TCD, and weight loss, while the exposure time treatment affected all parameters. The results showed that the optimum combination was at 150 ppm ethylene concentration with an exposure time of 48 hours.

Key words : *Citrus nobilis*, *degreening*, ethylene concentration, exposure time, mathematical analysis, physical quality