ABSTRACT

Nowadays, the demand for daily consumption of tomato fruit is increased immensely. Nevertheless, the fruit exposed to mechanical damage, shrinking, and softening as the maturity stages, handling, and storage are inappropriate and the texture affected. The study was aimed to assess the texture profile and pectinase enzyme activity on tomato fruit through harvesting maturity stages and storage conditions as well as their physicochemical parameters. The fruits were pick up at 1-4 weeks after pollination and stored at a temperature of 16 ºC and 25ºC. The color lightness (L) of tomato fruits were displayed a decreasing remark, while the redness (a*) was shown a significant increasing remark throughout maturity and storage conditions. The TSS content of the fruit was increased, whereas pH and TA were decreased with an increase in maturity during the storage conditions. The higher increasing trend in weight loss, respiration rate, and ethylene production were presented over-harvesting maturity stages and storage conditions. The sharp decrease in hardness was at 25ºC, while the firmer was demonstrated at 16 ºC. The hardness was supposed closely related to the Polygalacturonase (PG) and Pectin methylesterase (PME) activity. The higher PG and PME enzyme activities were exhibited at 25 ºC than 16 ºC. It was confirmed that pectinase enzyme activity extremely affected the texture profile. For commercial purposes, it suggests that to store tomatoes at a temperature of 16 °C and harvesting at maturity stages of 2nd and 3rd weeks is suitable for distance transportation as well as harvesting at 4th week is good quality for fresh consumption.*

ABSTRAK

Saat ini, permintaan akan konsumsi buah tomat setiap hari meningkat pesat. Namun demikian, buah akan mengalami kerusakan mekanis, menyusut, dan melunak saat tahap kematangan, penanganan, dan akibat penyimpanan tidak sesuai dan teksturnya akan terpengaruh. Penelitian ini bertujuan untuk mempelajari profil tekstur dan aktivitas pektinase buah tomat selama tahap kematangan dan suhu penyimpanan serta parameter fisikokimia mereka. Buah dipetik pada 1-4 minggu setelah penyerbukan dan disimpan pada suhu 16ºC dan 25ºC. Terjadi peningatan warna kemerahan (a), kadar TSS, susut berat, laju respirasi, dan produksi etilena buah tomat, sedangkan kekerasan, warna terang (L*), pH, dan TA menurun sejalan dengan peningkatan tingkat kemasakan (umur petik) dan suhu penyimpanan. Aktivitas enzim Polygalacturonase (PG) dan Pectin methylesterase (PME) yang lebih tinggi ditunjukkan pada suhu 25 ºC daripada suhu 16 ºC. Dapat dipastikan bahwa aktivitas pektinase sangat memengaruhi profil tekstur. Untuk tujuan komersial, disarankan untuk menyimpan tomat pada suhu 16 °C dan panen pada usia minggu ke-2 dan ke-3 setelah penyerbukan untuk transportasi jarak jauh, serta panen pada minggu ke-4 untuk konsumsi segar.*