

Title Abscission of bunch tomatoes during storage: the effect of temperature and relative humidity between harvest and storage

Author O. Dvir, M. Rom, I. Farber, D. Beno-Moualem, S. Meir and A. Lichter

Citation ISHS Acta Horticulturae 858:167-171. 2010.

Keyword *Solanum lycopersicum*; abscission; cherry tomatoes

Abstract

Cherry tomatoes harvested as bunches are sensitive to abscission during storage. Abscission can result from detachment of the fruit from the stem without the calyx or from the 'joint' abscission zone within the pedicel. We have shown that high concentrations of exogenous ethylene are required to trigger abscission and that application of methyl jasmonate can enhance the abscission as well as induction of tomato endo-glucanases. Abscission during storage can be significantly reduced by application of ethylene-action inhibitor, such as 1-methylcyclopropene (1-MCP) and auxin. Abscission through the joint was dominant during the winter season while bunch tomatoes grown in the summer suffered from abscission from the stem-end. This study focuses on the effects of temperature and relative humidity (RH) after harvest and before storage on fruit abscission. It is shown that exposure of bunches to 40°C for 60 min does not induce abscission. Moreover it is also shown that the effect of different environmental conditions after harvest and before storage can have a pronounced effect on type and level of abscission. Finally, it is clearly demonstrated that exposure of bunches to 30°C at low RH for 24-48h can lead to immediate receptacle abscission. These results are well correlated with desiccation as a major cause for postharvest abscission from the receptacle and can explain receptacle abscission of bunch tomatoes grown in hot seasons as well.