

Title Postharvest firmness behaviour of near-isogenic lines of melon

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Abstract

In two consecutive seasons the firmness of 13–15 near-isogenic lines (NILs) of melons (*Cucumis melo* L.) was followed during storage at 21 °C. Firmness was measured using non-destructive compression of whole melon fruit to a predefined compression distance of 2 mm. The same individuals (about 6 per near-isogenic line) were repeatedly measured over time. Integral statistical analysis of all individuals using non-linear mixed effects regression analysis revealed that the rate constant of the exponential firmness decrease was the same for all NILs irrespective of their differences in introgression in linkage III or in the other two linkage groups. The only difference observed was found in the (asymptotic) end value of softening. That would imply that the process of softening is very similar, although over a different range for each melon. Melons from some NILs were firmer and showed a higher end value of softening than those of other NILs. The percentage variance accounted for (R^2_{adj}) was 94% (523 observations) for the 2005 season and 85% (829 observations) for the 2006 season. A small variation in asymptotic end value together with a low end value as to ascertain edibility could be a good indication of the usefulness of certain NILs for commercial application.