

Title First attempts of linking modelling, postharvest behaviour and melon genetics

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Citation ISHS Acta Horticulturae 802:401-408. 2008.

Keywords *Cucumis melo* L.; near-isogenic lines; fruit quality; fine mapping; biological variance; quantitative trait loci; hardness; weight loss; colour

Abstract

The onset of climacteric is associated with the end of melon fruit shelf-life. The aim of this research was to develop practical and applicable models of fruit ripening changes (hardness, moisture loss) also able to discriminate between climacteric and non-climacteric behaviour. The decrease in firmness was measured non-destructively by flat-plate compression; moisture loss was measured by weight loss. A set of 13-15 near-isogenic lines (NILs) derived from the climacteric line SC3-5 was used to verify the relationship among the climacteric behaviour and ripening related changes (weight loss, softening and color) during two consecutive seasons. The biological variance models for moisture loss and firmness followed a simple exponential behaviour that explained more than 90% of the total variance. Results of the analyses using these models could not be linked to properties of near-isogenic lines like climacteric behaviour, ethylene production or skin thickness. The results suggest that the phenotype is more important than genotype, when considering mean values. These results seem to suggest that relations may exist between the different processes and properties of NILs on an individual basis, not on mean values.