

Texture diversity in melon (*Cucumis melo* L.): Sensory and physical assessments

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Postharvest Biology and Technology, Volume 159, January 2020, 111024

Abstract

Melon (*Cucumis melo* L.) is a commercially important horticultural crop worldwide that exhibits extensive phenotypic and genetic variation. Texture is one of the key attributes defining melon fruit quality and overall consumer preference. The aim of this research was two-fold: first, to characterize and compare differences in fruit sensory and instrumental textural properties among a diverse panel of melon fruit genotypes (to determine if each methodology is capable of discriminating among genotypes independently); and secondly, to assess the correlations between texture-related sensory attributes and instrumental parameters. During two production seasons, fruit from 10 melon genotypes with diverse textural characteristics were harvested at optimal commercial maturity and stored for six days at 5 °C plus one day at room temperature, then analyzed for textural instrumental and sensory properties. Both methodologies detected significant and reproducible differences in texture among the assayed melon genotypes. Furthermore, texture-related sensory attributes of firmness, crunchiness, and juiciness significantly correlated with several parameters obtained through the instrumental assessment of texture by using different probes of the texture analyzer instrument, independently. Our results indicate that texture-related attributes and overall fruit quality improvement could be accelerated significantly by the application of instrumental measurements to select for phenotypes that highly associate with consumer perception, decreasing costs and time investments.