

**Title** Texture dynamics during postharvest cold storage ripening in apple (*Malus × domestica* Borkh.)

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### **Abstract**

Texture is a principal quality factor and represents one of the main priorities in apple postharvest management and breeding programs designed for the creation of new ideotypes defined by a better fruit quality and extended storability. The apple panorama is characterized by a great variability of texture performance due to specific functional regulation and genetic control of the physiological machinery devoted to the degradation of the polysaccharide architecture of the middle lamella/cell wall structure. In this work we present an investigation of texture dynamics in apple, in terms of variation of several texture components dissected over two months of postharvest storage. Apple texture was assessed at harvest and after storage, by acquiring both mechanical and acoustic profiles in a collection of 83 apple cultivars. The general texture variability, illustrated over the reduced hyperspace defined by principal components, revealed a different variety distribution between the two stages. Time evolution plots and the novel storage index presented here highlighted that each single texture component behaves differently, as seen by some cultivars (i.e. ‘Fuji’) having a more favourable acoustic response after postharvest. The dissected fruit texture dynamics assessed in a set of reference apple cultivars are discussed.