

Title Aroma volatiles emissions from mango fruit: A closer look at various pre- and post-harvest regulatory

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Abstract

Flavour is comprised of aroma and taste. Volatile compounds are the major constituents of fruit aroma, which are important in defining fruit quality and influencing consumer preferences. This paper will present the information on fundamental and applied aspects of aroma volatile production in mango fruit. The aroma volatiles found in mangoes may be classified according to various groups including monoterpenes, sesquiterpenes, lactones, aromatics, alcohols, esters, ketons, organic acids and aliphatic hydrocarbons. Aroma volatile compounds have been reported to be influenced by various factors including the mango species, cultivars, location, fruit maturity at harvest, ripening conditions, processing and storage. For about a decade, my research group has been exploring the effects of various pre and postharvest factors on aroma volatiles production in mango fruit. We have identified sixty one aroma volatile compounds from the Kensington Pride mango fruit pulp, using a head space solid phase micro-extraction (SPME) technique with gas chromatography (GC) and GC combined with mass spectrophotometry (GC-MS). Effects of rootstock, harvest maturity, ripening temperature, plant growth regulators, edible coatings, storage conditions and various postharvest disease control methods on aroma volatile production will also be discussed. Low temperatures during storage induced chilling injury and reduced the production of aroma volatile compounds during fruit ripening and in fully ripe fruits. Controlled atmosphere storage has also been shown to reduce aroma volatile production in Kent, Kensington Pride, R2E2 mango. The aroma volatiles profiles of these commercial cultivars of mango may be a baseline for developing new quality standards in future as the 'quality' expands beyond the common parameters. Mango industry needs to consider and review its postharvest procedures affecting this flavour component to maintain and/or build the consumer confidence.