

Title Influence of Water Deficit on the Physiology and Physico-chemical Characteristics of Mango (*Mangifera indica* L. cv. *Tommy atkins*) Fruit Part II – Postharvest Behaviour

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Abstract

This study involved characterization of the physical, physiological and biochemical changes that take place during mango (*Mangifera indica* L. cv. *Tommy atkins*) fruit from irrigated and non-irrigated trees during postharvest storage at ambient conditions. Fruit were sample from a farm in Yatta Division, a semi-arid area of Machakos District, Kenya. Percent fruit weight loss increased with increase in time and was more pronounced in fruit from non-irrigated trees. Individual sugars (sucrose, fructose and glucose) increase up to climacteric peak and started to decline with corresponding changes in total soluble solids content. Fruit from non irrigated trees had higher sugar contents. Starch content was initially significantly higher ($p<0.05$) in fruit from non-irrigated trees and decreased with storage time for both treatments. β -Carotene content increased steadily with increase in time, decreasing on the ninth day of storage. Fruit from non-irrigated trees had significantly higher ($p<0.05$) anthocyanin content and were significantly firmer ($p<0.05$). Firmness and anthocyanin and ascorbic acid contents decreased with storage time in both fruits. Fruit from non-irrigated trees had significantly ($p<0.05$) lower respiration rate compared to those from irrigated trees. Indeed fruit from irrigated trees reached respiratory climacteric peak five days earlier than those from non-irrigated trees and even spoilt faster. These results indicate that irrigation affects postharvest storage life of mango fruit among other quality characteristics. The results are discussed in relation to quality implications of irrigation.