

Water loss of fresh fruit: Influencing pre-harvest, harvest and postharvest factors

Robert Lufu, Alemayehu Ambaw and Umezuruike Linus Opara

Scientia Horticulturae 272: 109519. (2020)

Abstract

Physiological water loss is one of the many postharvest disorders in the fresh fruit industry. Water loss initiates wilting, shrivelling, browning, loss in fruit texture, flavour, and saleable weight and accelerates senescence. Currently, the water loss characteristics of many commercially important fruit are not adequately studied, therefore, a knowledge gap exists in understanding their mechanisms of losing water. A clear understanding of the factors influencing water loss is crucial in optimising the control strategies. This knowledge is also required to design and operate storage facilities to ensure the extension of the shelf life of fresh fruit and vegetables. This paper systematically identifies, interprets and discusses the major research works and findings relating to the pre-harvest, harvest and postharvest factors influencing the water loss in commercially important fresh fruit. The review acknowledges that postharvest water loss varies greatly among fresh produce given the multitude of factors discussed in this review. The environmental factors (temperature and humidity) have a strong influence on fruit water loss. The rate of water loss also differs among species and even among cultivars of the same species as this determines the fruit factors (the fruit surface-area-to-volume ratio, the surface structure of the fruit, including the number and size of stomata and lenticels, and the thickness and composition of the cuticle). Yet the large biological difference among fruit types makes it difficult to extrapolate such knowledge.