Title Effect of variety and harvest time on respiration rate of broccoli florets and wild rocket salad using a novel O_2 sensor

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Abstract

The impact of temperature and gas composition on respiration rates of postharvest produce is well understood, but only a few studies have documented variation in respiration rates of different varieties and at different harvest times of the growing season. Most studies rely on discrete determinations of respiration rates and do not depict the dynamic nature of respiration. The aim of this study was to determine the respiration rates in broccoli florets and wild rocket salad at different harvest times during the season, and of different varieties. Storage temperature and respiration rates were determined using a novel wireless sensor for continuous and non-invasive measurements of O_2 concentrations and temperature in close proximity to the plant material. Respiration rates differed between broccoli varieties. Seasonal differences in respiration rate were found for broccoli and wild rocket salad. The response of respiration rate to storage temperature was distinct and differed between harvest times. These differences could be related to differences in dry matter content. Biological differences in respiration rates prompt empirical determinations when used in models for product-designed MAP.