Title Ripeness and rot evaluation of 'Tommy Atkins' mango fruit through volatiles detection

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Abstract

An ultra fast GC (zNose™), based on an uncoated surface acoustic wave sensor, was employed to detect the volatiles of 'Tommy Atkins' mango fruits. The detected volatile signals were used to identify rot occurrence and evaluate mango ripeness during shelf life. Respiration rate, color, and total soluble solids (TSS) were measured accordingly to indicate mango quality status. Two peaks detected with the zNose™ predicted rot occurrence with 90% and 87% accuracy, respectively, while another peak was 80% accurate in predicting ripeness with respect to a reference color index. Partial least squares (PLS) regression combined with variable importance for projection (VIP) was used to select the peaks important in prediction. The rot prediction methods could have potential applications in the mango industry for the diagnosis of the occurrence of mango rots.