



## Volatile biomarkers for Mango quality

In GreenCHAINge an innovative “smart chain” is being developed. Overall goal is to improve the intrinsic quality of the product on the shelf.

### Objective

Obtain uniform and RTE (Ready to Eat) mangos on the shelf.  
Obtain a non-destructive method to detect ripening/internal browning.  
Correlate volatiles to the mango ripening or internal browning stage.  
Use volatiles associated with internal browning as a biomarker.

### Results

Volatile measurements of 36 Keitt mangos during the ripening process indicate that the profile of produced volatiles changes during ripening, particularly for volatiles of the ester family (known to cause fruity odours).

Measuring volatile production, internal color and internal defects of 50 Keitt mangos with low and high chances of internal defects shows that:

- Internal defects can be quantified using image analysis.
- The percentage of internal browning correlates with the production of volatile esters.

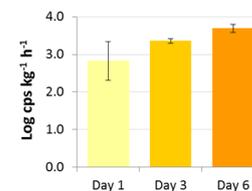
### Conclusion

Ripe mangos produce more volatile esters and mangos that produce more esters show more internal breakdown.

### Relevant for industry

Volatile esters may be used as a non-destructive biomarkers to detect over-ripe or brown mangos.

*“Volatile esters may serve as biomarkers to detect internal defects”*



Volatile analyses show an increase of esters during ripening (respectively 1, 3 and 6 days at 20 °C).

For detailed information about this project result please visit [www.wur.eu/greenchainge](http://www.wur.eu/greenchainge).





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