E2 – 05

Changes in volatile constituents during ripening of avacados

Aroma components of ripe and unripe avocados were isolated by adsorption on to Tenax trap and identified by GAS Chromatography – Mass Spectrometry. In total 64 compounds were detected as avocado volatiles of which 62 compounds accounting over 99% of the samples were positively identified. In ripe fruits, the aroma isolates mainly contain C-6 alcohols and aldehydes but terpenes are abundant (volatile) in unripe avocados.

The levels of C-6 alcohols and aldehydes remarkably increased from 19.2% to 65.7% during ripening. The predominant alcohol is trans-hex-2en-l-ol which comprised over 22% in ripe fruits. The geometric isomer, trans-hex—2-en-l-ol is present was about 17%. In unripe fruits, these two compounds are present of the extent of about 8% and 4% respectively. The C-6 aldehyde, hexanal accounted to about 6% of the aroma isolate prepared from the ripe fruits. The level of acetaldehyde increased from 0.78% to 3.94% with progressive ripening. Methyl acetate and ethyl acetate are the only two esters identified from both isolates.

In unripe fruits, terpenes comprise about 60% of the total volatiles. One monoterpene, limonene and nine sesquiterpene hydrocarbons were identified from both isolates. The predominant terpene identified in this study was β-Caryophllene which accounts to about 14% in unripe fruits and the level decreased to 0.12% with progressive ripening. Softening results in a considerable decrease in the concentration of α-Cubebene and β-Farnesane. A greater number of alcohols and carbonyl compounds identified in avocdo aroma are classic are volatile products derived from fatty acid oxidation and degradation.