

Effects of Controlled Storage on the Lipid Fraction of Green Arabica Coffee Beans

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SUMMARY

Since there exist distinct indications that some components of the coffee lipids constitute the precursors of the woody off-flavour of the coffee beverage, changes in the free fatty acids and the diterpenes have now been analysed systematically for the first time. Responsible for these changes was the coffee lipase, which was still active after a storage time of 18 months. Low storage temperature or a reduction of water content of the green beans inhibited lipase activity.

Whereas the oxygen content in the bags' atmosphere has apparently no effect, an increase in the moisture content of the coffee beans and an increase in the temperature support hydrolysis of fatty acid esters and the decomposition of diterpenes (up to 35%), combined with negative sensory properties. The decomposition of the diterpenes is connected to the detection of a new peak in the HPLC chromatograms of the diterpene fraction. This compound was analysed in the green coffee beans and also in the related roasted coffees. The beverages prepared from these coffees exhibited a "marjoram" off-flavour. The results of these investigations demonstrate that storage conditions may deteriorate coffee quality.