



Mint Freshness

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ABSTRACT

The qualitative differences between fresh mint and mint that was harvested the previous day were analyzed. The volatile profile of the two mints were very similar overall, but the fresh mint had more low molecular weight/low boiling point compounds and the day old mint was higher in the late eluting compounds.

INTRODUCTION

Quality is a primary driver at Sensus. Given this mandate, the question of freshness of raw ingredients is always examined in order to provide the highest quality product. Therefore, during a mint trial, the question arose if processing the mint the same day of harvest is worth the extra effort and cost as compared to obtaining day old mint. A sample of day old mint was collected along with the fresh mint for comparison in the lab. A GC-MS fingerprint analysis, suggests that overall the make-up of the mint was the same, the relative amounts of various compounds varied.

MATERIALS AND METHODS

A Gerstel MultiPurposeSampler (MPS-2) (Baltimore, MD) was used with a 1-cm 3-phase (divinylbenene, Carboxen, Polydimethylsiloxane) for sample preparation. A 10-min incubation followed by a 40-min exposure was used to capture the volatiles on the fiber for injection into the GC. The sample was stirred using a 3x12mm stirbar in the 20mL vial. The fiber was desorbed for 5-min in the GC injector for 5 min. An Agilent 7890A gas chromatograph (Palo Alto, CA) was used for the analysis. Analysis was performed in the splitless mode with a helium flow rate of 1.25mL/min through a 60mx0.25mmx0.25 μ m RTX-5ms column. The initial oven temperature was 50°C immediately followed by a 4°C/min temperature ramp to 170°C which was followed by a 100°C/min ramp to 250°C and held for 5min in order to ensure no sample to sample contamination. The transfer line to the Leco TruTOF MS (St. Joseph, MN) was held at 240°C. Data was collected for 30-250 m/z at an acquisition rate of 10 spectra per sec. Identification was based on a combination of MS library matching along with reported retention indices.

Raw mint leaves (fresh and day old) were placed in 20mL headspace files with approximately 0.35g of chopped leaves.

RESULTS AND DISCUSSION

Figure 1 is an overlay of the chromatograms from the fresh and day old mint leaves. There are clear differences in the samples. Mainly the fresh mint is higher in early eluting compounds while the day old mint is higher in less volatile, later eluting compounds. This is not surprising as the early eluting compounds are more volatile and therefore will be lost first from the mint leaves leaving behind relatively higher concentrations of the less volatile compounds. The differences are present, but it was not determined if they were significantly different on a sensory level or preference level.

Figure 1. Fresh and day old mint chromatograms.

