

DETERMINATION OF ALPHA-PINENE AND
LIMONENE IN ORANGE, POMEGRANATE AND
MANGO JUICE SAMPLES USING SOLID - PHASE
MICROEXTRACTION AND GAS
CHROMATOGRAPHY - MASS SPECTROMETRY
DETECTOR

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ABSTRACT

DETERMINATION OF ALPHA-PINENE AND LIMONENE IN ORANGE, POMEGRANATE AND MANGO JUICE SAMPLES USING SOLID – PHASE MICROEXTRACTION AND GAS CHROMATOGRAPHY – MASS SPECTROMETRY DETECTOR

In order to ensure the consumer's right is protected, an analysis of fruit juices regarding their volatile compounds content was done. In this study, the analysis of volatile compounds in fresh and processed fruit juice samples, specifically α -pinene and limonene, were carried out using solid – phase microextraction and gas chromatography – mass spectrometry detector to detect and quantify the concentration of both volatiles in all of the fruit juice samples. The conditions of SPME were optimized. Six mins of desorption time, 10 mins extraction time and 40 °C extraction temperature were the optimized conditions for SPME. The retention time (t_R) for α -pinene and limonene in this study were 6.24 and 8.22 min, respectively. The volatile compound α -pinene was only detected in orange juice samples. There were 19.5 ± 2.59 ppm and 18.0 ± 4.21 ppm of α -pinene in fresh and processed orange juice, respectively. It was found that limonene was present in all six samples. Fresh orange juice has the highest concentration of limonene which was 11404 ± 9.61 ppm, while fresh pomegranate juice has the lowest amount of limonene which was 23.1 ± 0.43 ppm.