

Title Aroma compounds in minor citrus species grown in Australia
Author P.S.M. Lim, G. Srzednicki, and J.D. Craske
Citation Book of Abstracts, Southeast Asia Symposium Quality and Safety of Fresh and Fresh Cut Produce Greater Mekong Subregion Conference on Postharvest Quality Management in Chains, August 3-5, 2009, Radisson Hotel, Bangkok, Thailand.
Keyword aroma compounds; citrus species; Australia

Abstract

The volatile components in the peel oil and juice of three citrus species, Buddha's hand citron (*Citrus medica* var. *sarcodactylus*), kaffir lime (*Citrus hystrix*) and Persian lime (*Citrus latifolia*), were analysed in this research. The aroma compounds present in the juice of the citrus fruits were isolated by low temperature vacuum distillation. This was conducted at a temperature of 28°C. The volatile compounds were condensed in three cold traps which were held at temperature of -12°C, -79°C and -192°C respectively. These temperatures were achieved by using frozen 20% NaCl solution, dry ice in ethanol and liquid nitrogen respectively. The volatiles were combined together and further extracted with the simultaneous distillation extraction (SDE) technique, using dichloromethane as the extracting solvent. The concentrated extract was then analysed by gas chromatography-mass spectrometry (GC-MS). In the case of the peel oils, the aroma compounds were extracted with SDE before analysing with GC-MS. The components which were identified from the peel oils and juice include monoterpenes, oxygenated monoterpenes and sesquiterpenes. The major components were limonene, γ -terpinene, β -pinene, 4-terpineol and α -terpinol. It was observed that the volatile components found in the peel were of higher concentration as compared to their concentration in the juice. The efficiency of the vacuum distillation was also investigated in this research. Aroma profiles of the volatile compounds present in Mexican lime oil were identified through a direct injection into GC-MS and also after the lime oil had undergone vacuum distillation and SDE. The vacuum distillation technique was optimized and a comparison of the aroma profiles obtained prior to and after optimization of the vacuum distillation.