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Effect of Drying Temperature on Changes in Volatile Compounds of Longan (*Euphoria longana* Lam.) Fruit

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Abstract

Longan is widely grown in South East Asia and China. It is one of the top ten exported fruits in Thailand with an exported value of about 35 million € in the year 2006. It is mostly exported to China, Myanmar and Lao as dried fruit. Longan flesh is used in Chinese medicine for example as a stomachic, febrifuge and vermifuge. Longan flavor is an important quality attribute influencing customers' acceptance especially that of dried product consumed as tea. Therefore, the impact of drying temperature on volatile compounds of dried longan was investigated using a headspace-solid phase microextraction (HS-SPME) coupled with gas chromatography—mass spectrometry (GC-MS). The solid phase microextraction fiber coated with 100 μm mixture of polydimethylsiloxane/divinylbenzene (PDMS/DVB) was applied for the extraction of the volatile components. Longan fruits with peel were dried at 60, 70, 80 and 90°C using a tray dryer with a through flow mode of drying air. The velocity of drying air is constant at 0.2 m/s. The drying process was carried out until the water activity of longan flesh was approximately 0.55 - 0.60. It was found that major volatile compounds detected in fresh and dried longan were cis-ocimene, beta-ocimene, ethyl acetate and ethanol. Many volatile compounds were produced during drying especially acids, ester and alcohol for instances octanoic acid, ethyl ester, phenylethyl alcohol and 1-octen⁻³-ol. The retention of cis-ocimene and beta-ocimene was found to be the highest in longan flesh dried at 70°C. The higher drying temperature, the more ethanol and ethyl acetate were detected. Drying temperature is, thus, a crucial parameter causing the different flavor profile characteristic of the dried longan fruit which related to customers' acceptance.

Keywords: Flavor, GC-MS, Longan, SPME, volatile compounds