A C G publications

Rec. Agric. Food. Chem. 4:SI (2024) PP:62-62

records of agricultural and food chemistry

Investigation of Analytical Data and Sensory Profiles of Flavour Components of Mandarin Fruit from Different Regions

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Mandarin (*Citrus reticulata*) is a fruit species belonging to the *Citrus* family (Rutaceae) that grows in temperate climates. It is characterized by its thin peel and easy peeling. Mandarin, which is orange and yellow in color, has a fleshy and juicy structure. Relatively little is yet known about the unique fruit quality traits of tangerines or the great variation in these traits among various natural subgroups and mandarin cultivars. For this reason, tangerines from different regions were used in our study. There are many varieties of mandarin grown in different regions, such as tangerina, nova, kinnow, fremond, klausellina, robinson, okitsu, satsuma, ankor, clementine, fortune, local, lee, fairchild marisol, minneola, ortanik, black, ovari. Each of them has different tastes and characteristic structures. In this study, Murcott, Okitsu and Satsuma mandarin varieties, which are more preferred for consumption, were examined and 23 different compounds were analyzed using the GC-MS/SPME method. SPME, or solid phase microextraction, is an analysis method that can be used in the determination of volatile flavour substances that are generally found in trace amounts in food products. The loss of these volatile substances can be observed in analyzes performed by various separation methods such as distillation and extraction. SPME analysis does not use solvents, and it is a method that can provide a single-step analysis by bypassing procedures that require multi-stage and complex equipment such as sample preparation, extraction, and concentration. When the analysis data were examined, it was seen that Okitsu mandarin had the highest limonene amount compared to Murcott and Satsuma mandarin, and Satsuma mandarin had the highest gamma terpinene amount compared to Okitsu and Murcott mandarins. Within the scope of this data, Satsuma has a more citrus profile, while Okitsu has a sweeter profile. Murcott mandarin has a higher amount of Valencene and beta-elemene, so it has a peely and sweet note. The analysis results were supported by sensory analysis. Panelists cited the intensity of each feature using a scale of 0 to 10. With this method, a detailed analysis of the peely, citrus, sweet, herbal, terpenic, floral taste and odor parameters and profiles of the tangerine fruit was conducted with 20 trained panelists.

Keywords: Mandarin; flavor; chemicals.

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The meeting abstract was published by ACG Publications
https://www.acgpubs.org/journal/records-of-agricultural-and-food-chemistry EISSN:2792-0763
DOI: http://doi.org/10.25135/rfac.2024.3rd.3079
TCS, 3rd. International Food Chemistry Congress February 29 –March 03,2024 Antalya Türkiye