Comparison of mate tea aromatic profiles by means of a descriptive panel and gas chromatography

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Abstract

Mate teas are beverages prepared with Yerba Mate that have gained popularity as a result of their energy and healthy properties. The aim of this study was to investigate 18 different mate teas for their perceived flavors and to conduct aromatic volatile analysis to match compounds with sensory sensations. The study was conducted using 5 trained panelists, each of whom were experienced with descriptive evaluation, and a scale from 0 to 15 was used to evaluate intensity of attributes within the samples. The descriptive panel utilized attributes encompassing aroma, flavor, aftertaste, mouthfeel, and appearance through the use of 38 items. The teas were also analyzed using a gas chromatograph mass spectrometer to differentiate the aromatic compounds in each sample. For both aroma and flavor, the straw-like attribute was found to be the most intense, followed by smoky. There were 21 volatile compounds that were shared among the 18 different teas. These compounds gave the base character of the teas, including 6,10,14-trimethyl- 2-pentadecanone, nonanal, and hexanal, that gave the teas herbal, waxy, woody, floral, and oily notes. Also, 1-Tetradecene, 1-Dodecanol, and 1-Nonadecene were the most concentrated volatiles found in the collection of teas. Eugenol played a role in one of the samples as it imparted a higher brown spice characteristic which was not found in any other sample. These results help understand the chemical composition of flavors in the product's profile. Future research should aim to build off of the lexicon that was developed in this study and also investigate consumer acceptance.