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Abstract

Sensorial and Aroma Profiles of Coffee By-Products—Coffee Leaves and Coffee Flowers †

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Abstract: The utilization of coffee leaves and flowers has been underestimated over the years. Both by-products can be obtained from coffee trees without adversely affecting the production of coffee beans. To gain fundamental knowledge of their sensorial and aroma profiles, it becomes essential to reintroduce them into the food chain. Accordingly, 24 different coffee leaf samples generated from diverse processing as well as 38 varied species of coffee flowers were analyzed for their sensory characteristics by descriptive analysis and liking tests, and their corresponding aroma profiles were decoded by means of gas chromatography–mass spectrometry–olfactometry. For the coffee leaves, a wide range of different flavors could be detected in the sensory evaluation. The fermented coffee leaf samples clearly showed more sweetish and fruity aroma notes compared to the intense green and vegetable aroma of the non-fermented samples. β-Ionone (honey-like), decanal (citrus-like, floral), α-ionone (floral), octanal (fruity), and hexanal (green) were identified as key volatile compounds but distributed in different ratios. In the predominant coffee flowers, hay-like, hop-like, sage-like, dried apricot-like, and honey-like impressions were identified as major aroma descriptors in addition to a basic floral note. 2-Heptanol (fruity), 2-ethylhexanol (green), nerol (floral), and geraniol (floral) were identified as representative aroma compounds. All in all, a great variety of flavors was detected from the coffee leaves and flowers, which will not only provide an insight into the potential applications for the food market (i.e., coffee leaf tea and coffee flower tea) but will also help make coffee growing more sustainable.

Keywords: coffee by-products; coffee leaves; coffee flowers; sensory; aroma profile

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