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Characterization of Flavor Compounds Released During Grinding of Roasted Robusta Coffee Beans

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The characteristic volatile compounds released during the grinding of roasted coffee beans are as attractive for coffee-flavored products as the aroma of fresh-brewed coffee itself. In this study, the volatile compounds released during the grinding of various roasted robusta coffee beans (originating in Vietnam and Indonesia ; roasting degree L26, L23, and L18) were collected by exposing a solid-phase microextraction (SPME) fiber to nitrogen gas discharged from a glass vessel in which the electronic coffee grinder was enclosed. Identification and characterization of the volatile compounds were achieved using gas chromatography/mass spectrometry (GC/MS) and GC/olfactometry (GC/O), and by applying principal component analysis (PCA) to the GC/O results. The variation in volatile compounds released during grinding, based on origin, roasting degree and species, is described and compared with the results of a previous study on the compounds released during grinding of roasted arabica coffees.

Keywords: volatiles, grinding, robusta coffee, dynamic headspace, solid-phase microextraction (SPME), gas chromatography/olfactometry (GC/O), principal component analysis (PCA)

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