

COFFEE AROMA INVESTIGATION: A CHEMOMETRIC COMPARISON OF THE INFORMATION PROVIDED BY THREE HCC SAMPLING TECHNIQUES ABLE TO CHEMICALLY DESCRIBE THE SENSORY PROPERTIES OF THE CUP

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This study is part of a wider project aiming to correlate the chemical composition of the volatile fraction of coffee to its sensory properties, in order to develop an instrumental analytical method complementary to human sensory profiling [1][2]. The proposed investigation strategy compares the chemical information on coffee aroma and flavor obtained by sampling the matrix with three different HCC sampling techniques coupled on-line or off-line with GC-MS [3].

HS-SPME of the ground coffee and *in-solution* SBSE/HS-SPME sampling of the coffee brew were considered for a reliable aroma and flavor characterization and profiling [4] to evaluate their compatibility with the cupping evaluation in coffee selection for quality control purposes [5]. Eight roasted coffee samples with particular sensory properties were analyzed. Chemical results obtained by three sampling techniques were compared through multivariate analysis, and related to the samples' sensorial attributes. PCA revealed different direct discriminant compounds describing the sample distribution related to the sampling technique used; this difference is linked to the particular physico-chemical properties of the coffee aroma and flavor compounds that are differently exploited by the three sampling techniques. Chemometric results showed the same sample distribution, suggesting that the sampling techniques under study provide the same chemical information about the samples. The sensorial description of samples was in agreement with the chemical results obtained by each sampling approach, despite their differences, highlighting their interchangeability.

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References

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