

Abstract

The Aromatic Fingerprint of Fermented *Coffea liberica* [†]

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[†] Presented at the International Coffee Convention 2023, Mannheim, Germany, 30 September–3 October 2023.

Abstract: *Coffea liberica* presents the smallest proportion of cultivated coffee worldwide. Its taste varies highly from *C. arabica* spp. or *C. canephora* spp. As the unfermented taste of *C. liberica* is often described as lactic, and animalic with aromatics of blue cheese, fermentation experiments of *C. liberica* coffee cherries were conducted. Coffee cherry fermentation is carried out to modify and enhance the sensory profile of green and roasted coffee beans. Various microorganisms change the composition of organic precursor compounds, reducing off-flavours during green bean coffee processing and roasting. For the comparison of the sensory properties of fermented coffee beans, SCA-trained experts grade the coffees by specific sensory attributes. Roasted and ground coffee powder, as well as ground raw coffee samples, were analysed by headspace-gas chromatography–mass spectrometry/ion mobility spectrometry (GC-MS/IMS) to determine the volatile fingerprint of unfermented and fermented *C. liberica* coffee. Eight different unfermented *C. liberica* samples were analysed and the volatile profiles compared to those of *arabica* spp. and *canephora* spp. The unfermented coffee beans differ in origin and processing. Furthermore, single-origin *C. liberica* fermented with two different wine yeasts was compared to unfermented *C. liberica*. The fermented coffee beans share the same variety, processing, and profile of roasting and differ only in their origin and fermentation inoculum. This study presents the direct comparison of the aromatic fingerprint measured in the instrument. Compound regions in the spectra associated with different coffee species and ferments are shown. The potential of GC-IMS for fast comparison of the aromatic fingerprint is demonstrated.



Citation: Kiefer, C.; Schwarz, S.; Rohn, S.; Weller, P. The Aromatic Fingerprint of Fermented *Coffea liberica*. *Proceedings* **2023**, *89*, 4. <https://doi.org/10.3390/ICC2023-14838>

Academic Editor: Dirk W. Lachenmeier

Published: 14 August 2023



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Keywords: volatilomics; coffee fermentation; aromatic fingerprint; GC-IMS; multivariate statistics

Author Contributions: C.K.: formal analysis, investigation, data curation, writing—original draft; S.S.: Conceptualization, resources; S.R.: writing—review and editing; P.W.: Conceptualization, supervision, funding acquisition, writing—review and editing; All authors have read and agreed to the published version of the manuscript.

Funding: This research was funded by the BMBF FH Kooperativ project “DeepAuthent”.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Data available on request due to restrictions eg privacy or ethical The data presented in this study are available on request from the corresponding author. The data are not publicly available due to preliminary results. Data will be published once the project is completed.

Conflicts of Interest: The authors declare no conflict of interest.

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