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# TERROIR OF COFFEA CANEPHORA: GEOGRAPHICAL AND GENETIC INFLUENCES ON THE CHEMICAL COMPOSITION OF BRAZILIAN COFFEES

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For decades, *Coffea canephora* was regarded as a commodity coffee, associated with low sweetness and acidity and primarily used in blends and instant coffee. However, its growing share of global production (approximately 44%), climate resilience, and increasing quality demands have challenged this perception. Studies have demonstrated substantial genetic variability among Conilon, Robusta, and Amazonian hybrids, resulting in distinct physicochemical profiles involving sugars, lipids, proteins, and phenolic compounds. These characteristics are influenced by terroir conditions and interactions with native soil and fruit microbiota, which affect nutrient uptake and fruit development. Furthermore, post-harvest technologies, particularly spontaneous and starter-culture fermentations involving *Saccharomyces cerevisiae* and *Lactobacillus brevis*, modify bean composition and contribute to the development of distinctive aroma precursors. From a sensory perspective, the development of a species-specific flavour wheel using the RATA methodology identified 103 descriptors, highlighting sweet, fruity, and umami-related attributes and challenging traditional perceptions of bitterness and sensory neutrality . Additionally, spectroscopic techniques, including FTIR and NIR, combined with chemometrics and machine learning, provide promising approaches for discriminating genotypes and geographical origins and predicting beverage quality, complementing conventional sensory assessment. Overall, advances in genetic improvement, terroir management, fermentation biotechnology, and analytical methods show *C. canephora* potential to produce high-quality coffees with distinctive sensory identities, contributing to product valorization and transforming the global coffee value chain.

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