



TAL 797 – Seminário

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INNOVATIONS IN SPECIALTY COFFEE PROCESSING: IMPACT OF DIFFERENT FERMENTATION METHODS ON THE BEVERAGE QUALITY ATTRIBUTES

Pós-graduando: João Paulo de Melo Lins

Orientador: Dr. Pedro Henrique Campelo Felix (Departamento de Tecnologia de Alimentos)

Nível: (X) MS () DS

The term “specialty coffee” was introduced to the market with the aim of classifying coffees that meet higher quality criteria than those found in commodity-type coffees, standing out for their authentic sensory and physicochemical profiles. Regarding the production methods of these high-value products, fermentation naturally begins post-harvest, driven by the action of the microbiota present on the fruit. However, it can intentionally be intensified to enhance the production of substances beneficial to the beverage’s quality. During fermentation, microorganisms transform the fruit’s compounds into a variety of metabolites. For instance, polysaccharides, proteins, lipids, and chlorogenic acids are degraded into simple sugars, amino acids, fatty acids, and phenolic compounds, resulting in alcohols, organic acids, esters, lactones, and sulfur compounds. These metabolites directly contribute to the formation of the beverage’s sensory profile, thereby increasing its commercial value, as price is directly linked to the sensory quality assessed. In this context, it is possible to highlight that different fermentation processes have a significant effect on the coffee’s quality attributes. Process variables — such as temperature, time, oxygen availability, microorganism type, and the maturation stage of the fruit — are considered critical control factors that directly influence the fermentation outcomes. Key examples include the environmental conditions applied to Self-Induced Anaerobic Fermentation (SIAF), the presence or absence of water addition, the use of specific starter cultures, and methods that involve the formation of conical heaps to create microenvironments conducive to the biotransformation of the beans. Therefore, these approaches reinforce new paradigms that position fermentation as a key element in the innovation and differentiated production of specialty coffees, contributing to the expansion of market niches and strengthening the coffee industry’s economy.

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