EFFECT OF PLANT-BASED ADDITIVES ON PHYSICOCHEMICAL AND SENSORY PROPERTIES OF KOMBUCHA DURING PRIMARY AND SECONDARY FERMENTATION

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Kombucha is a fermented tea beverage produced by a symbiotic culture of yeasts and acetic acid bacteria. The use of plant-based additives during secondary fermentation is a promising approach to improve its functional and sensory properties. The aim of this study was to produce kombucha beverages with different plant-based additives and to evaluate the changes in physicochemical parameters during fermentation, as well as the impact of additives on the final product quality and consumer acceptability.

Kombucha base was prepared using sweetened tea and a liquid starter culture and fermented for 18 days at 25 °C. During primary fermentation, soluble solids, relative density, pH, and titratable acidity were monitored periodically. Secondary fermentation was carried out for five days using four formulations: control, blueberry juice, pumpkin syrup, and a combination of blueberry juice and pumpkin syrup. The final beverages were evaluated for physicochemical properties and sensory characteristics.

During primary fermentation, soluble solids and density decreased, while titratable acidity increased nearly fourfold, indicating normal fermentation progress. Secondary fermentation results showed that blueberry juice significantly increased acidity, whereas pumpkin syrup exhibited a buffering effect and resulted in a milder taste. Sensory analysis revealed that plant-based additives enhanced color, aroma, and flavor intensity. The highest overall acceptability was observed in kombucha with pumpkin syrup, while blueberry kombucha was characterized by the most intense flavor and aroma.

The study demonstrates that plant-based additives can effectively modify kombucha properties and improve consumer acceptance, enabling the development of diversified functional beverages.