

Biotechnology World Convention

August 15-17, 2016 Sao Paulo, Brazil

Dynamics of different fermentation processes in coffee (*Coffea arabica* L. var Caturra) and its effect on the beverage quality

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Acidity in coffee is an attribute which at appropriate leaves contributes to beverage quality. Arabica coffee processed by the wet method has been classified as better acidity, in this process, the fermentation stage plays an important role to improve this attribute due to the physical, chemical and biological factors involved. Different methods of coffee fermentation can affect the dynamics of the process and influence the final quality. In order to obtain the changes in pH, temperature and organic acid production, several coffee fermentative processes were evaluated. The effect on the final quality was also obtained. A completely randomized design was used, 2×3+2; two fruit fermentation times, three fermentation methods and two controls, one standard (traditional fermentation) and another negative (without fermentation). ANOVA, Duncan and Dunnett tests were used for data analysis. The results showed changes in pH from 5.86 at the beginning of the process to 3.73 at the end. The temperature in was between 21 °C and 19 °C while it increased to 25 °C for the traditional fermentation. The concentrations of lactic and acetic acids increased respect to the processing time while the citric and malic acids tend to decrease. Significant differences in the mean acids concentrations, mainly for acetic and lactic acids, were detected. By contrast, the quinic acid concentration remained constant in all fermentative processes assessed, including controls. Furthermore, the averages of quality values were significantly higher in fermentation processes coffee than the obtained with the controls. Coffee acidity was directly associated with acetic acid concentration. The changes detected in the evaluated variables indicate the metabolic activity of microorganisms involved in the fermentation, which can vary according to the method of coffee fermentation process applied. The coffee fermentation stage has potential which could be used as a strategy to improve product quality varying of the processing method.

Biography

Aida Esther Penuela-Martinez is a PhD candidate of Biotechnology at the Faculty of Sciences of the National University of Colombia, currently developing the thesis on the study of the coffee fermentative processes. She holds a Scientific Research I position in the National Coffee Research Center in Colombia where she has made several investigations related with postharvest of coffee, which she has published as the first author in five scientific articles and two Technical Progress of the institution and one patent development; in addition to being the co-author of four books on fruit and vegetable postharvest and coffee postharvest and 12 academic publications.

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