

EFFECT OF DIFFERENT FERMENTATION METHODS ON
CHEMICAL COMPOSITION AND CUP QUALITY OF
KENYAN ARABICA COFFEE (*Coffea arabica* L.)

AGNES WAMUYU KINYUA

A Research Thesis Submitted in Partial Fulfillment of the
Requirements for the Award of the Degree of Master of
Science in Food Science and Technology in the Institute of
Food and Bioresource Technology, Dedan Kimathi
University of Technology

OCTOBER, 2017

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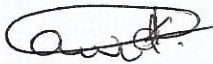
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DECLARATION

This thesis is my original work and has not previously been presented in any University for the award of a degree or for consideration of any certification.


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Date 09/10/2017

Agnes Wamuyu Kinyua

Supervisor's declaration

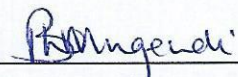
We confirm that the work reported in this thesis was carried out under our supervision and guidance.

Signature 

Date 11/10/2017

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ABSTRACT

In Kenya, coffee is an important export commodity and is the fourth leading foreign exchange earner. The method used during coffee processing affects the final quality produced. Processors undertake fermentation by employing different methods such as using different containers with varying fermentation conditions that may consequently affect the composition and quality characteristics of coffee. This research aimed at determining the effect of different fermentation methods on chemical composition and the sensory quality of coffee. Coffee cherries were pulped and subjected to dry fermentation methods with the use of different containers; plastic bucket with perforations, sack and cement tank with a drain. Wet fermentation was done in a plastic bucket and water was added. After fermentation, the parchment were washed and dried. The green coffee beans obtained were evaluated for proximate composition, titratable acidity, pH, sucrose, caffeine, chlorogenic acids and trigonelline. The green coffee beans were roasted, ground, brewed and analyzed for sensory attributes by a panel of professional cuppers. The results showed that different fermentation methods did not have significant variations in most of the physico-chemical parameters analyzed. The crude protein content of the green beans ranged from 10.62- 10.82% for all the samples while sucrose levels were in the range of 7.76- 8.03% for all the samples. The pH levels varied from 6.00- 6.06. There were significant variations were observed in the levels of pH with the wet fermented coffee samples showing slightly lower levels as compared to dry fermented samples. Sensory evaluation results showed that the wet fermented coffee samples had better color of green beans, least silver skin discoloration and better overall quality compared to dry fermented coffee samples in all treatments. Sensory analysis also showed that there were no significant differences among the coffee samples that were dry fermented using different containers and the convectional cement tank considering color, flavor and overall class attributes. It was concluded that the use of other fermentation containers other than cement tanks do not affect the quality of coffee produced. Hence different containers used during fermentation do not affect coffee quality and processors can adopt inexpensive methods during coffee processing.

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