

EFFECT OF SOAKING COFFEE CHERRIES ON GREEN BEANS
CHEMICAL COMPOSITION AND COP QUALITY OF COFFEE
(*Coffea arabica* L.)

PAULINE WAIRIMU IKUMU

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 Food and Bioresources Technology,
Dedan Kimathi University of Technology

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DECLARATION

This thesis is my original work and has not been previously submitted to any other university either in whole or in part for the award of any degree.


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ABSTRACT

In Kenya, some coffee processing factories lack sufficient capacity to process coffee cherries immediately after harvest, especially during the peak season. Such processing delays lead to undesirable fermentation of coffee cherries that may affect the quality of the coffee. To mitigate this problem, soaking of coffee cherries may be adopted in an attempt to preserve the cherries but information on the effects of this practice on chemical composition of green coffee beans and subsequently sensory quality is limited. Therefore, this study aimed at determining the effect of soaking coffee cherries on the chemical composition of green coffee and cup quality of coffee from Ruiru 11 cultivar cherries. Treated samples included coffee cherries soaked for a period of seven and ten days with either daily change of soaking water or without change of soaking water. The control composed of freshly processed coffee cherries. After soaking, the coffee cherries were subjected to wet processing followed by sun drying. The green coffee beans were analyzed to determine the moisture content, fats and crude ash by standard methods. Caffeine, chlorogenic acids, sugars and trigonelline were determined using High Performance Liquid Chromatography. The cup quality was determined by the use of three trained coffee cuppers. Soaking of coffee cherries had a significant effect on the percentage crude fat ($p \leq 0.05$) whereby the coffee samples soaked for 7 days with daily change of water revealed higher percentage of crude fat of 15.23% as compared to that soaked for 10 days without change of water with 15.12%. However, soaking did not have any significant effect on the levels of trigonelline, chlorogenic acids, caffeine, sucrose, calcium, potassium, magnesium and phosphorus. Sensory analysis revealed significant variations ($p \leq 0.05$) in terms of raw bean color (2.67), flavor (4.78) and class (4+) of the coffee brew for the freshly processed coffee cherries with the cup from the freshly processed coffee cherries giving the best results. Discrimination function analysis placed the freshly processed coffee cherries further distinctively from other soaked coffee cherries signifying better quality. In conclusion, coffee from freshly harvested coffee cherries was of better quality than that from soaked cherries. Therefore, soaking of coffee cherries by coffee processors is not a good practice.