CUP QUALITY PROFILE OF KENYAN COFFEE PROCESSED BY INNOVATIVE METHODS

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Introduction

Coffee was introduced to Kenya by French Missionaries around 1900 A.D. and is currently a major agricultural cash crop in the country after tea and horticultural products. Kenya produces largely Arabica coffee, which is mainly fully washed with a small proportion of naturals, commonly known as buni. However, there is an increasing market demand for diversified coffee products offered globally. The objective of this study was to process Kenyan coffee using different methods and evaluate their impact on beverage quality.

Materials/methods

The test coffee variety was mature SL 28 planted in a commercial plot at KALRO-Coffee Research Institute (CRI). Ripe coffee cherries were harvested during the peak period in December 2022. The cherries were manually sorted after harvesting and subjected to floatation. Sensory evaluation procedure described by Lingle (2001) was followed in assessing the sensory quality of the samples.

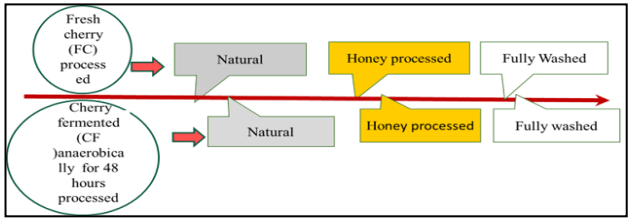

Figure 1: Cherry processing procedures undertaken

Table 1: Mean sensory variables of coffee processed using different methods

Treatment	Fragrance	Flavour	Aftertaste	Acidity	body	Balance	Overall
FC-Naturals	8.08 a	8.17 ab	8.00 ab	8.08 b	8.08 a	8.00 ab	8.08 b
FC-Honey processed	7.50 a	7.42 c	7.33 c	7.58 c	7.58 b	7.67 b	7.42 e
FC-Fully washed	7.50 a	7.75 bc	7.58 bc	7.83 bc	7.83 ab	7.67 b	7.75 cd
CF48-Natural	7.83 a	8.33 a	8.17 a	8.50 a	8.16 a	8.08 a	8.416 a
CF48- Honey Processed	7.75 a	7.83 abc	7.75 abc	8.08 b	7.83 ab	7.75 ab	8.00 bc
CF48- Fully washed	7.58 a	7.83 abc	7.75 abc	7.58 c	7.75 ab	7.75 ab	7.58 de
LSD 0.05	NS	**0.37**	**0.37**	**0.31**	**0.33**	**0.26**	**0.26**
CV %	3.08	2.57	2.61	2.12	2.32	1.81	1.83

Means within a column not sharing a letter are significantly different at P<0.05. (Student-Newman-Keuls test.)

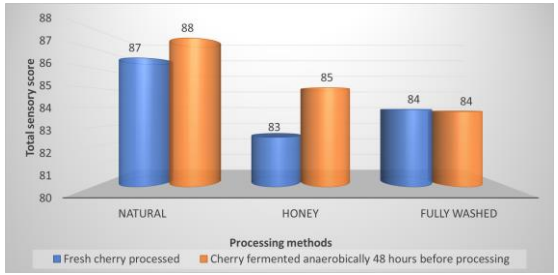

Figure 2: Total sensory score of coffee processed using different methods

Results/discussion

The cup quality profile of the coffee samples processed by the different methods are shown in Table 1. The coffee samples showed significant differences at (P<0.05) for the sensory variables assessed except fragrance. The impact of the innovative processing was apparent in the flavor, aftertaste, acidity, body, balance, and overall score attributes especially for the naturals. The coffees attained specialty grade (80 points and above) with naturals from 48 hour anaerobically fermented cherry attaining the highest total sensory score (Figure 2). After harvesting, coffee fermentation occurs spontaneously, regardless of the processing method applied. In some studies, yeast inoculations in coffee have been reported to modify the cup profile positively (Matinez *et al*., 2017) or negatively (Febrianto and Zhu, 2023). The coffee fermentations in this study were spontaneous.

Conclusion/perspectives

Innovative coffee processing techniques can be rewarding in attaining excellent cup profiles. Anaerobic fermentation was unveiled as an area of unexploited potential in enhancing sensory quality of coffee.

References:

Lingle, T.R. The Cuppers Handbook. Systematic Guide to the Sensory Evaluation of Coffees flavor, 2001, Specialty Coffee Association of America, Long Beach, California Fourth edition pp71

Martinez S.J., Bressani, A.P.P., Maria Gabriela da Cruz Pedrozo Miguel, Dias D. R. and Schwan, R F., (2017). Different inoculation methods for semi-dry processed coffee using yeasts as starter cultures, Food Research International, Volume 102, 2017