

Organic acids in specialty soluble Arabic coffee from Cerrado Mineiro: Indicators of quality and sensory potential

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Introduction

- The demand for specialty coffee is increasing, driving the search for products with convenience and greater sensory complexity;
- Industrial soluble coffee processes degrade compounds responsible for sweetness, acidity, and aroma, lowering quality;
- This study compares organic acid concentrations in soluble coffee made from specialty Cerrado Mineiro beans with commercial Brazilian instant coffees



Figure 1: Convenience of soluble/instant coffee

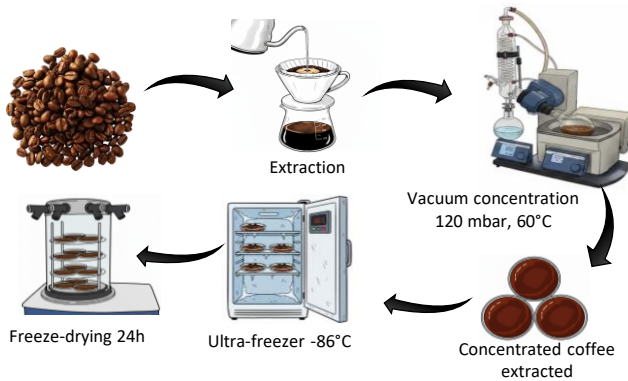


Figure 2: Instant coffee production process

Materials/Methods

- Five samples were analyzed: one specialty coffee and four commercial soluble coffees (traditional, decaffeinated and premium) with medium or dark roasts.
- Organic acids (citric, malic, acetic, lactic) were quantified by HPLC (High Performance Liquid Chromatography), and results were compared using Tukey's test ($p < 0.05$).

Results/Discussion

- The specialty soluble coffee exhibited the highest concentrations of citric, malic, lactic, and acetic acids among all samples analyzed;
- Percentage differences compared to commercial soluble coffees were substantial: +90.4% (citric), +97.0% (malic), +92.7% (lactic), and +98.8% (acetic);
- These results demonstrate that the processing method used effectively preserved organic acids typically lost in industrial production.

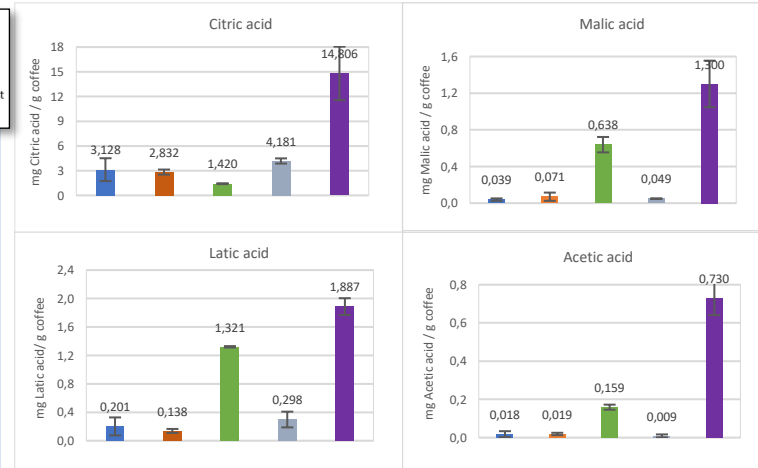


Figure 3: Comparative between organic acids

Conclusion/Perspectives

- The specialty soluble coffee showed higher organic acid concentrations than commercial samples.
- Hot extraction, vacuum concentration, and freeze-drying effectively preserved key sensory compounds.
- Higher acid retention-maintained sweetness, brightness, and cup complexity.
- The process demonstrates potential for producing instant coffee meeting specialty quality standards with convenience.

References:

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Acknowledgements

