

Optimized Coffee Beans Degasifier

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Introduction

Problem Statement

Develop a coffee beans degasifier that quantifies the degassed CO₂ and accelerates the process of degassing without affecting the taste.

Constraints

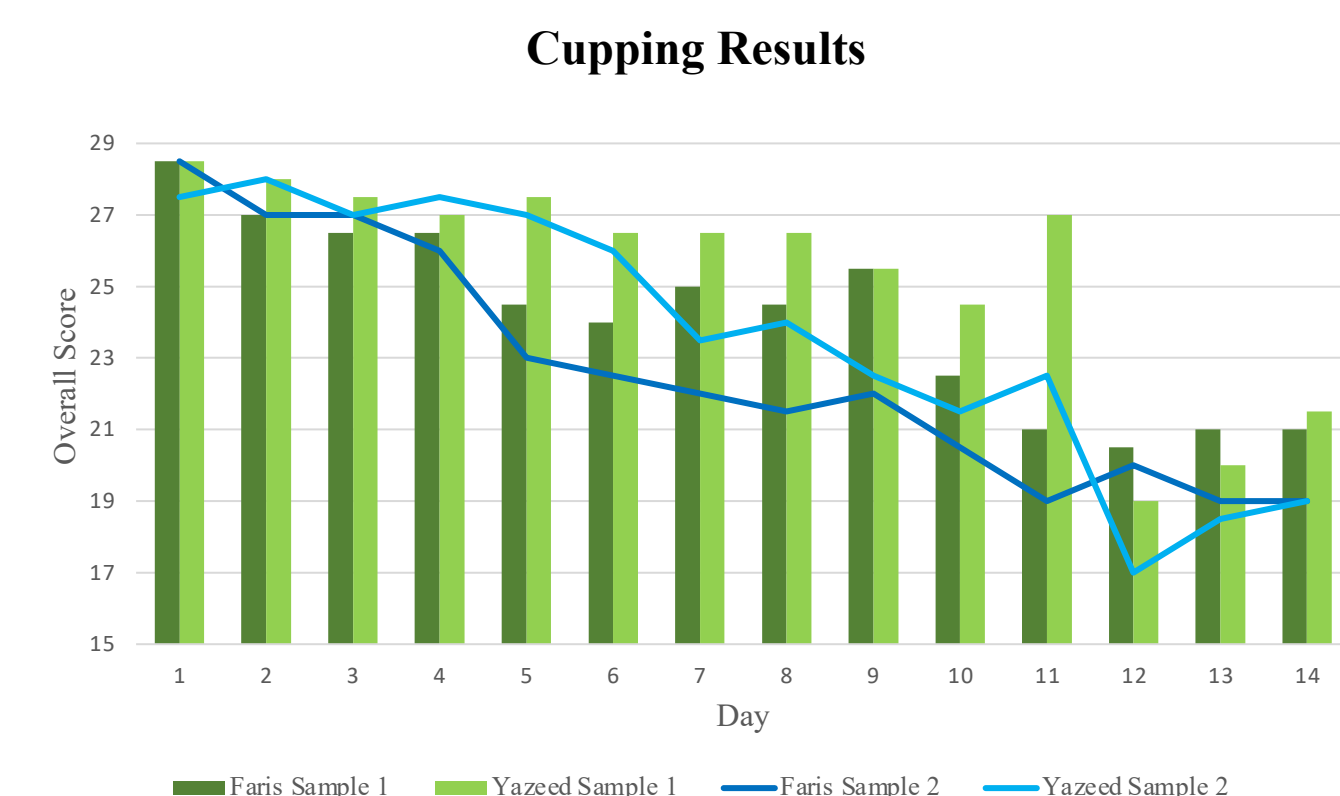
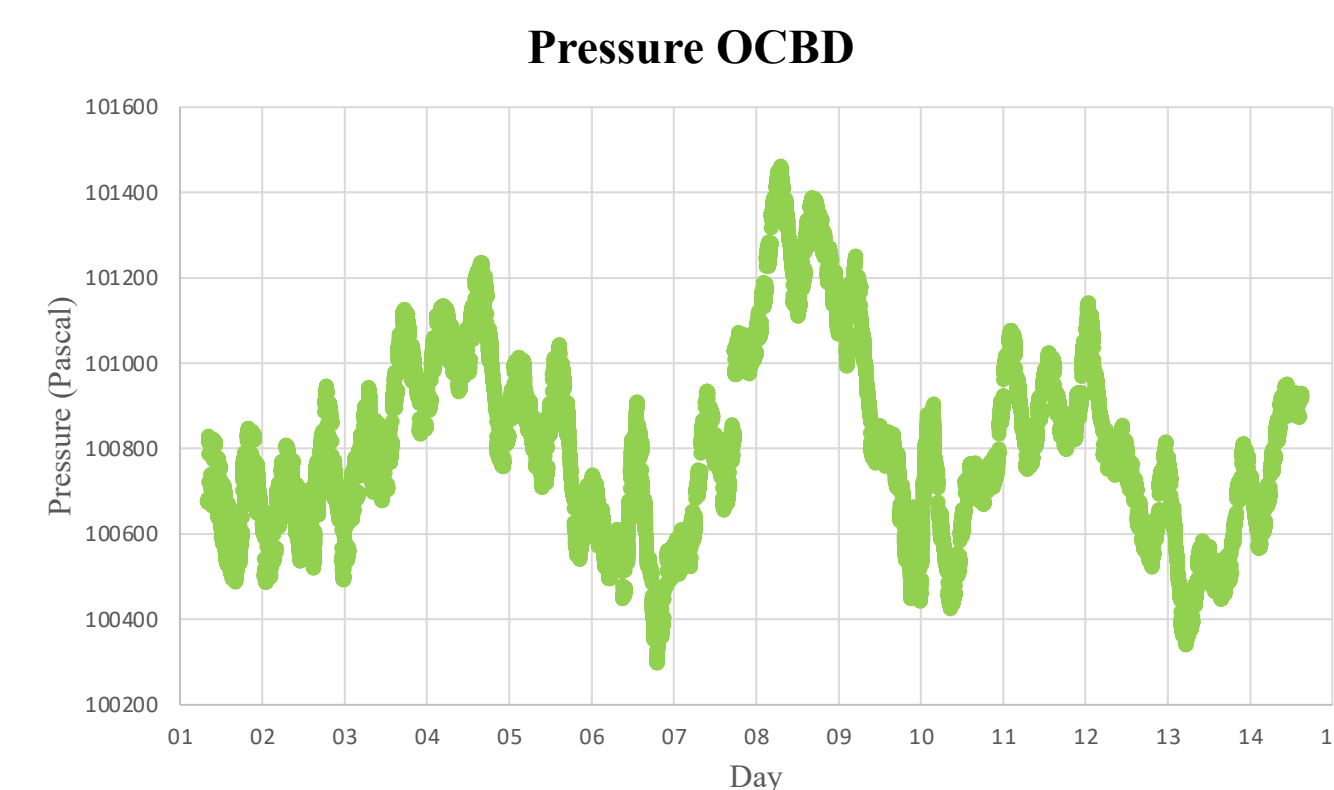
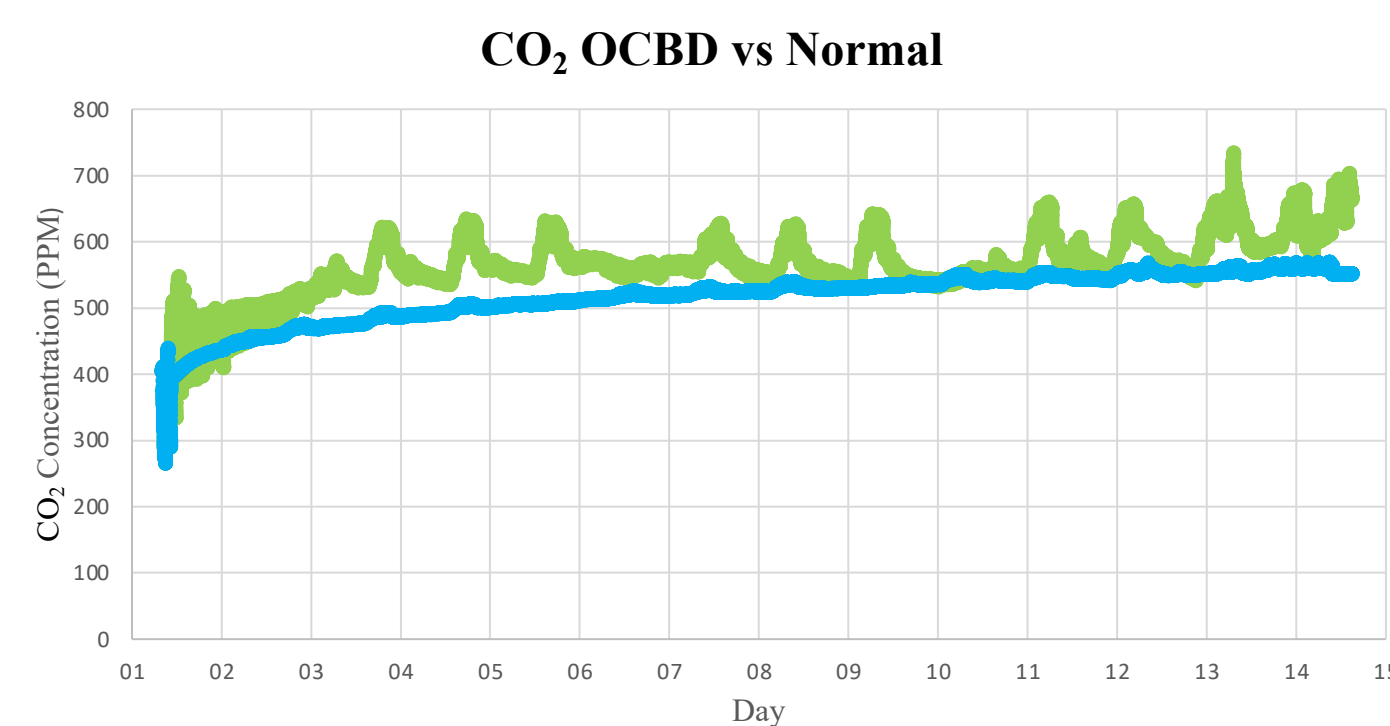
- Room temperature
- Volume ≤ 1 Kg
- Vibrator Limitation:
 - Limited Agitation Range.
 - Non-Uniform Agitation

Specifications

- Pressure (< 1 atm or 101325 pascal)
- Vibrating Period (45 min / 90 min)
- Humidity (10-12%)
- Temperature (32°C to 37°C)
- Taste Evaluation (20 - 23 out of 30)
- Ideal CO₂ Concentration Percentage.

Testing & Validation

Proof that specifications were met.



Conclusion

Results

- Reducing the time of the degassing process.
- Generating optimal CO₂ concentration.
- Achieving the required taste.
- Activated Carbon works as semi-CCU.

Future Enhancement

- Customize container that include mixer and sustain low pressure.
- Larger vacuumed pump.
- Temperature controller.
- Develop machine learning model to analyze complex patterns.
- Add a menu system to choose from different processing types

Prototype & Procedure

