

TAL 797 – Seminário

Data: 07/05/2025

**Ultrasound as an Innovative Technology for Enhancing Functional Properties and Quality of Fruit Juices**

**Pós-graduando:** Blenda de Souza Costa

**Orientador:** Paulo Cesar Stringheta (Departamento de Tecnologia de Alimentos)

**Nível:** (x ) MS ( ) DS

Fruit juices are among the most widely consumed products worldwide, recognized as excellent sources of bioactive compounds such as polyphenols, vitamins, and anthocyanins. These compounds possess antioxidant and anti-inflammatory properties that promote significant health benefits. Growing consumer demand for higher nutritional and sensory quality has driven the need for advanced processing methods that overcome the limitations of conventional techniques. Traditional thermal pasteurization, while ensuring microbiological safety, often leads to degradation of heat-sensitive nutrients and negatively impacts color, aroma, and flavor. In this context, non-thermal technologies like High-Intensity Ultrasound (HIUS) have emerged as promising alternatives to preserve and even enhance the functional properties of juices. High-Intensity Ultrasound operates through acoustic cavitation, which disrupts cellular structures to improve bioactive compound extraction while simultaneously inactivating enzymes and microorganisms. Research demonstrates this technique enhances the stability of processed fruits and vegetables, maximizing nutrient retention while maintaining sensory characteristics. Furthermore, HIUS promotes homogenization, reduces sedimentation, and eliminates the need for aggressive thermal treatments, resulting in more natural and nutritious juices. As such, ultrasound technology stands out as a sustainable and efficient solution, capable of improving both functionality and quality in fruit juices perfectly aligning with consumer expectations for minimally processed foods rich in health-promoting compounds.

### **Referências bibliográficas:**

JULIATO, R. A.; BRITO, I. P. C.; SILVA, E. K. Ultrasound-driven chemical and biochemical changes in jaboticaba juice: Phenolic compounds, volatile profile and inactivation of polyphenol oxidase, peroxidase and pectin methylesterase. **Food Chemistry**, v. 481, p. 144037, 30 jul. 2025.

NOORISEFAT, F. et al. Investigation of nutritional and microbial properties of ultrasound pretreated sour cherry juice. **Applied Food Research**, v. 5, n. 1, p. 100638, 1 jun. 2025.

ROOBAB, U. et al. An updated overview of ultrasound-based interventions on bioactive compounds and quality of fruit juices. **Journal of Agriculture and Food Research**, v. 14, p. 100864, 1 dez. 2023.

ZHANG, M. et al. Influence of ultrasound on the microbiological, physicochemical properties, and sensory quality of different varieties of pumpkin juice. **Heliyon**, v. 10, n. 6, p. e27927, 30 mar. 2024.

---

**Orientador**

---

**Orientada**