

Thermosonication applied to kiwi peel - a mild technology for quality preservation

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Introduction

- Finding strategies to add value to waste parts of fruits for the development of healthy and affordable food products is important.
- Consumer trends are shifting towards healthier, minimally processed, and nature-friendly ingredients.
- Industries are also investing in novel processing technologies, which retain quality as much as possible.

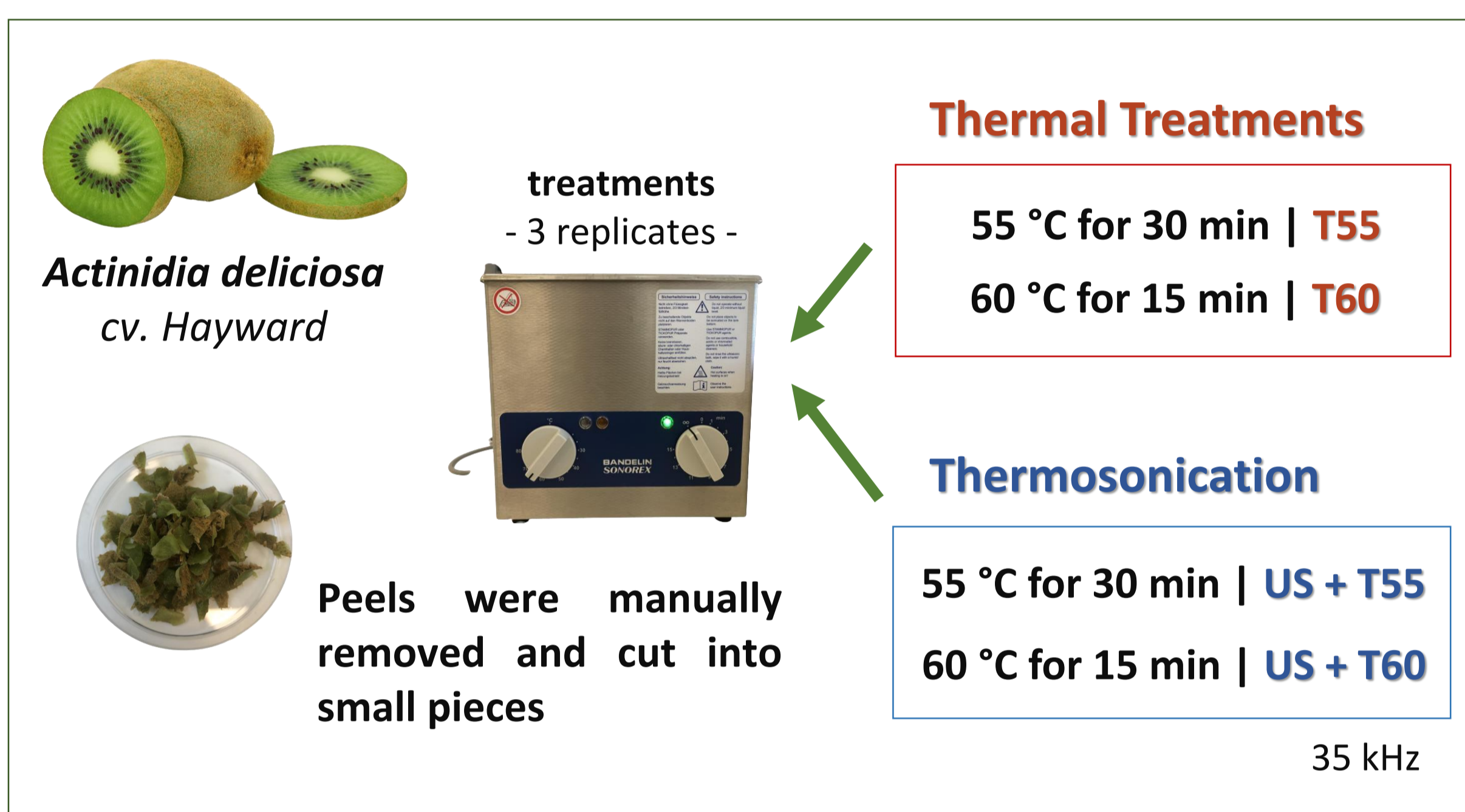
Objectives

To develop a safe, high-quality kiwi peel product by applying thermosonication as a preservation treatment.

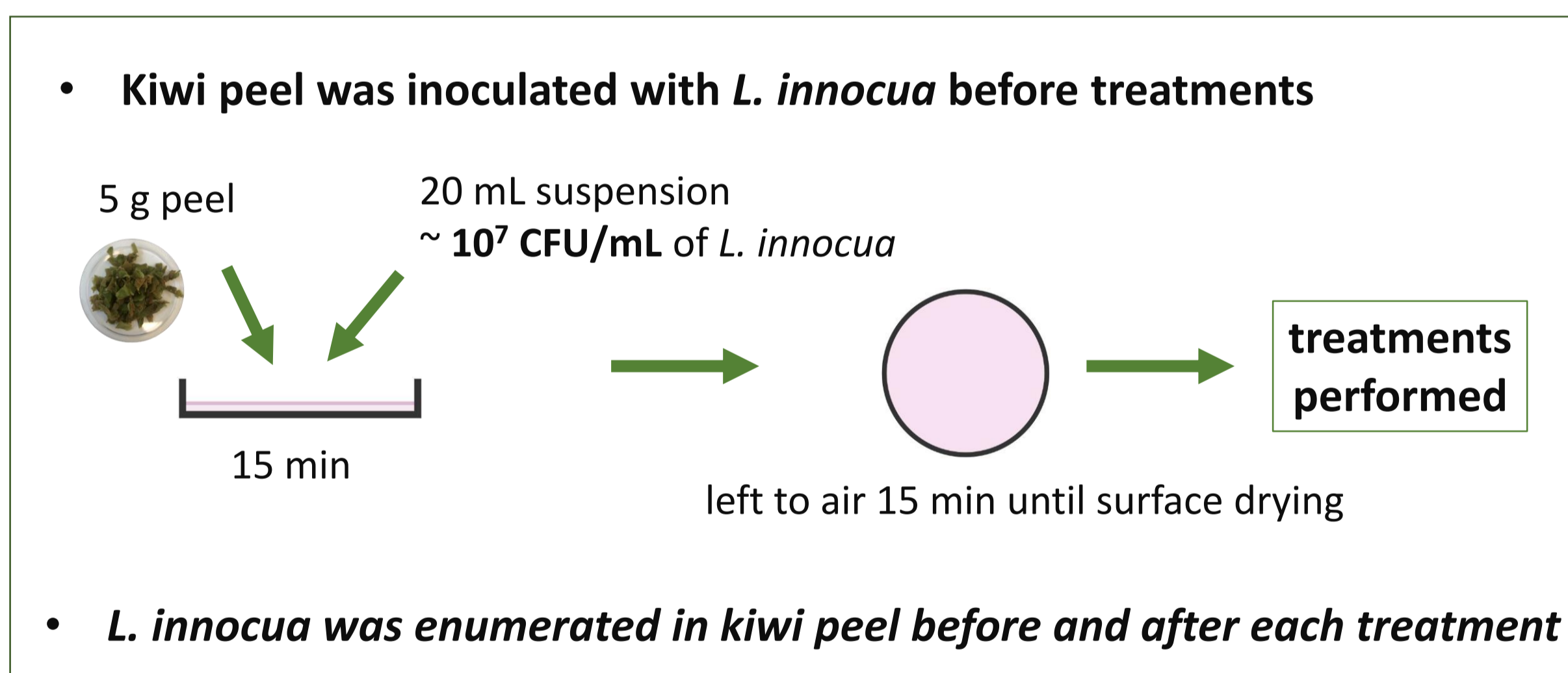
- Safety indicator - *Listeria innocua*, a non-pathogenic surrogate of *L. monocytogenes*
- Quality indicators - total chlorophylls and phenolic content

Materials & Methods

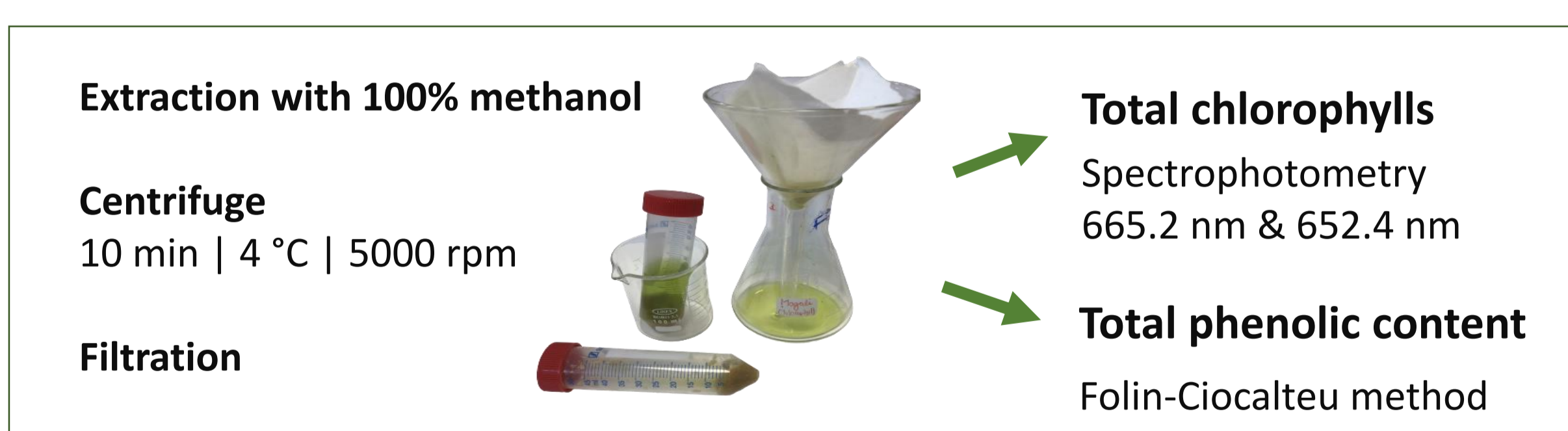
1 - Sample Preparation and Treatments



2 - Microbiological Analysis



3 - Bioactive Compounds Analysis

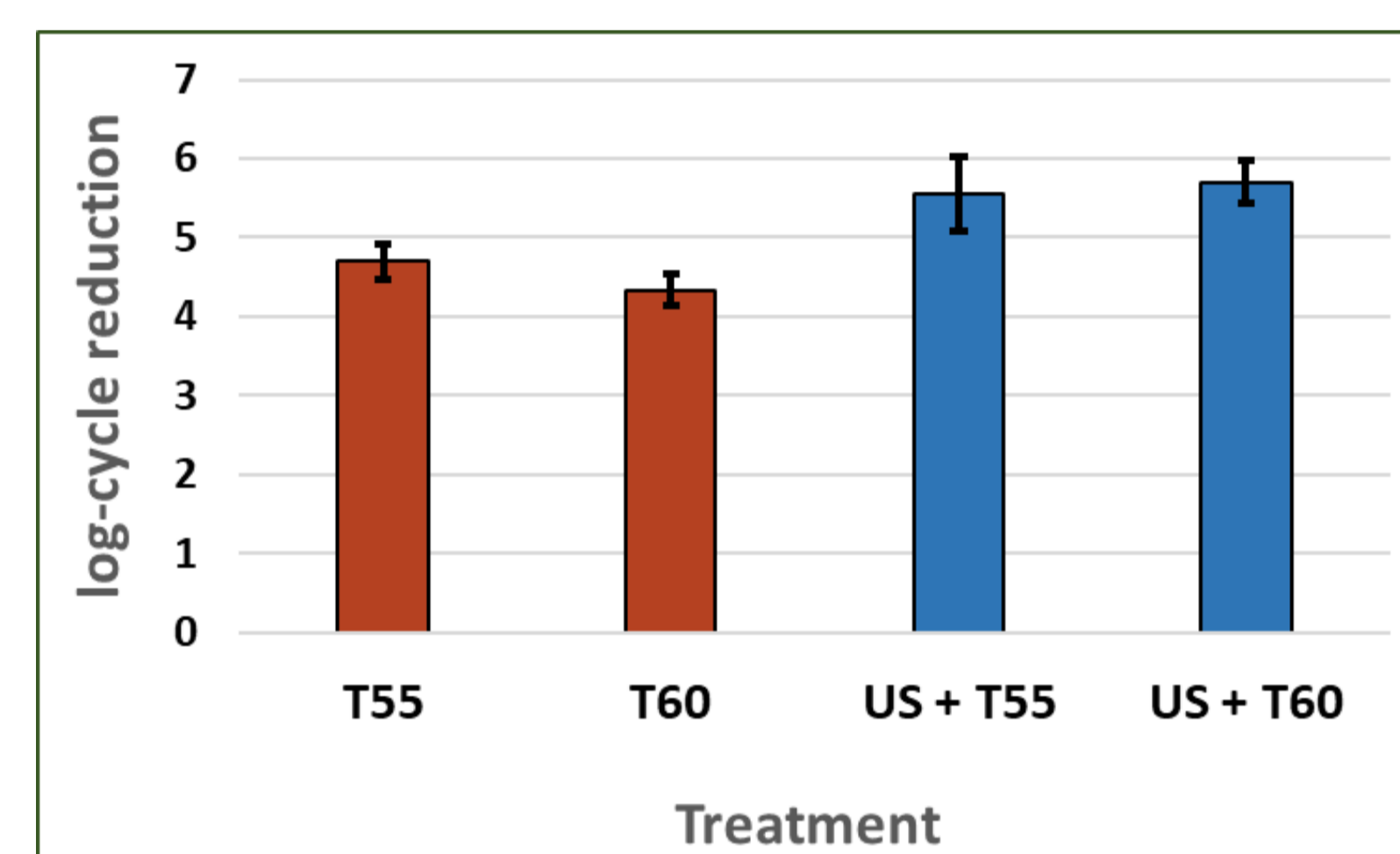


4 - Statistical Analysis

One-way ANOVA + Post-Hoc tests | treatment effects

Results

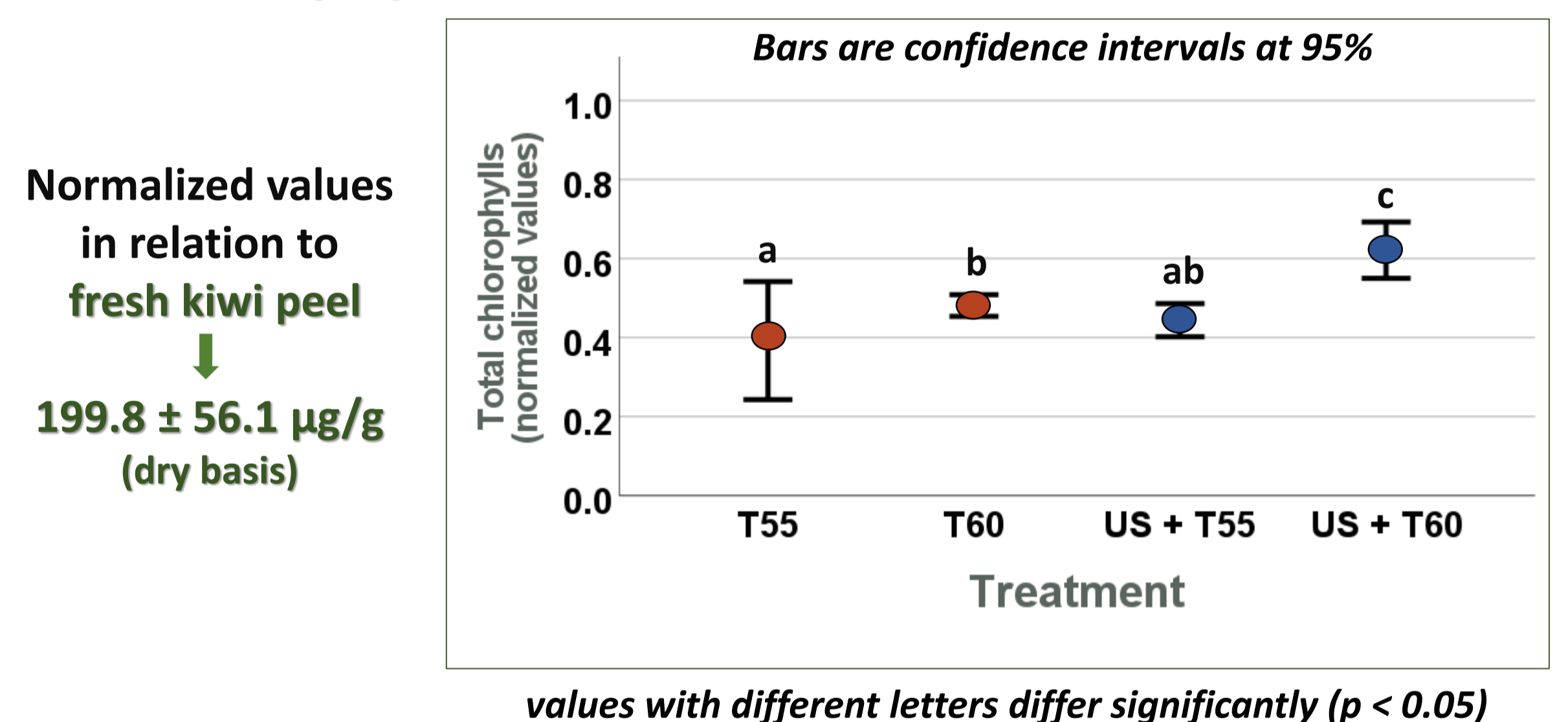
• *L. innocua* inactivation



Coupling temperature to ultrasound had a synergistic effect in *L. innocua* inactivation.

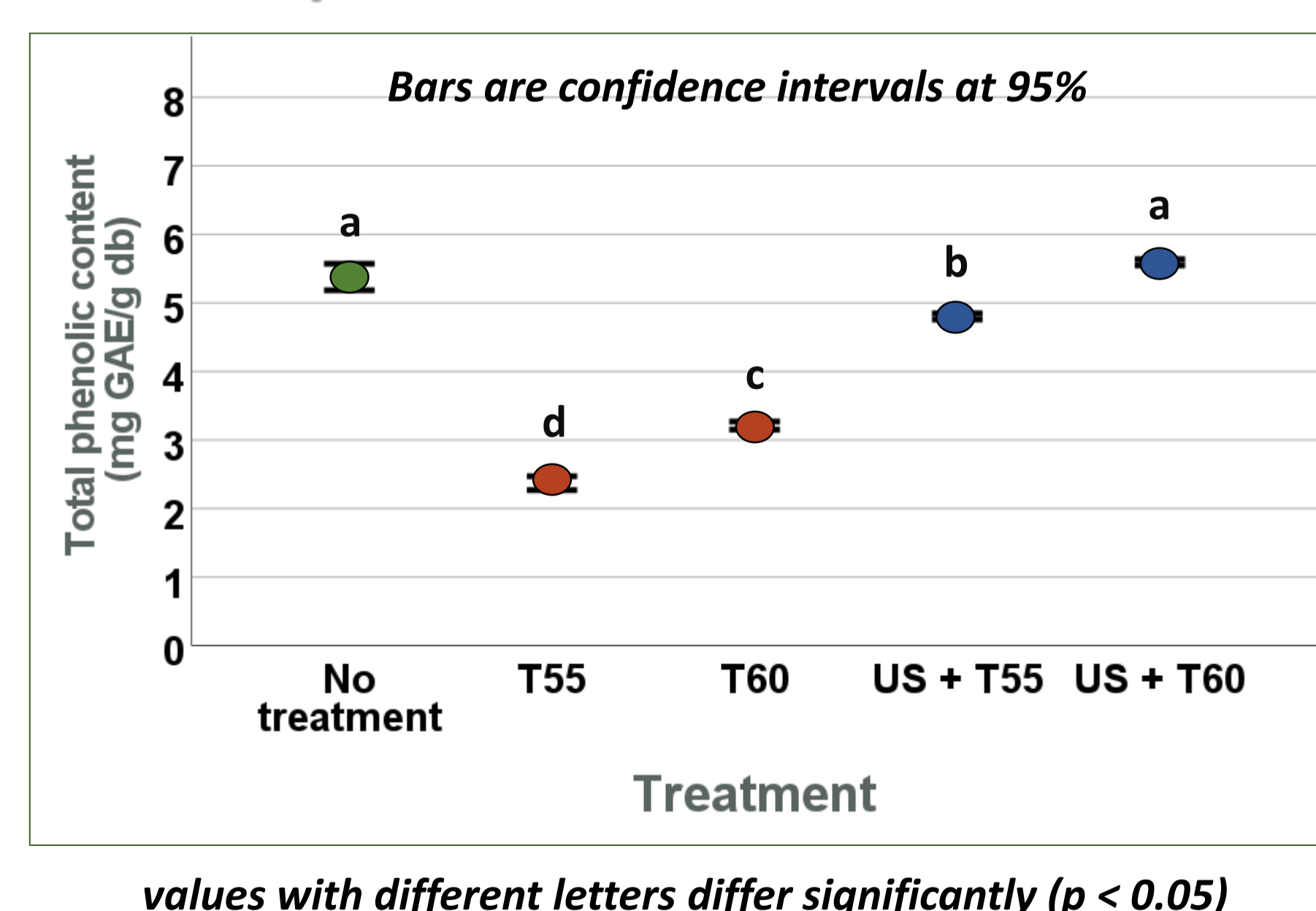
~ 1 log-cycle more for both temperatures

• Chlorophylls



Total chlorophylls content decreased significantly after all treatments. US + T60 allowed the highest retention, 62%.

• Total phenolic content



US + T60 allowed total retention of phenolics.

Decreases of 11, 40, and 56% were observed after US + T55, T60, and T55, respectively.

Conclusions

- Thermosonication is effective in microbial inactivation, allowing the retention of some bioactive compounds in kiwi peel.
- It can be considered a potential strategy to add value to fruit wastes.