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Introduction

Nowadays, consumers tend to prefer more natural and minimally processed food products [1]. Ohmic heating, a novel technology, is gaining interest for its advantages over traditional heating methods, providing fast and uniform heating while preserving food quality and ensuring safety [2]. This study aimed to investigate the long-term stability and inherent quality of a novel Chickpea & Carob plant-based drink pasteurized by ohmic heating and conventional pasteurization.

Methods

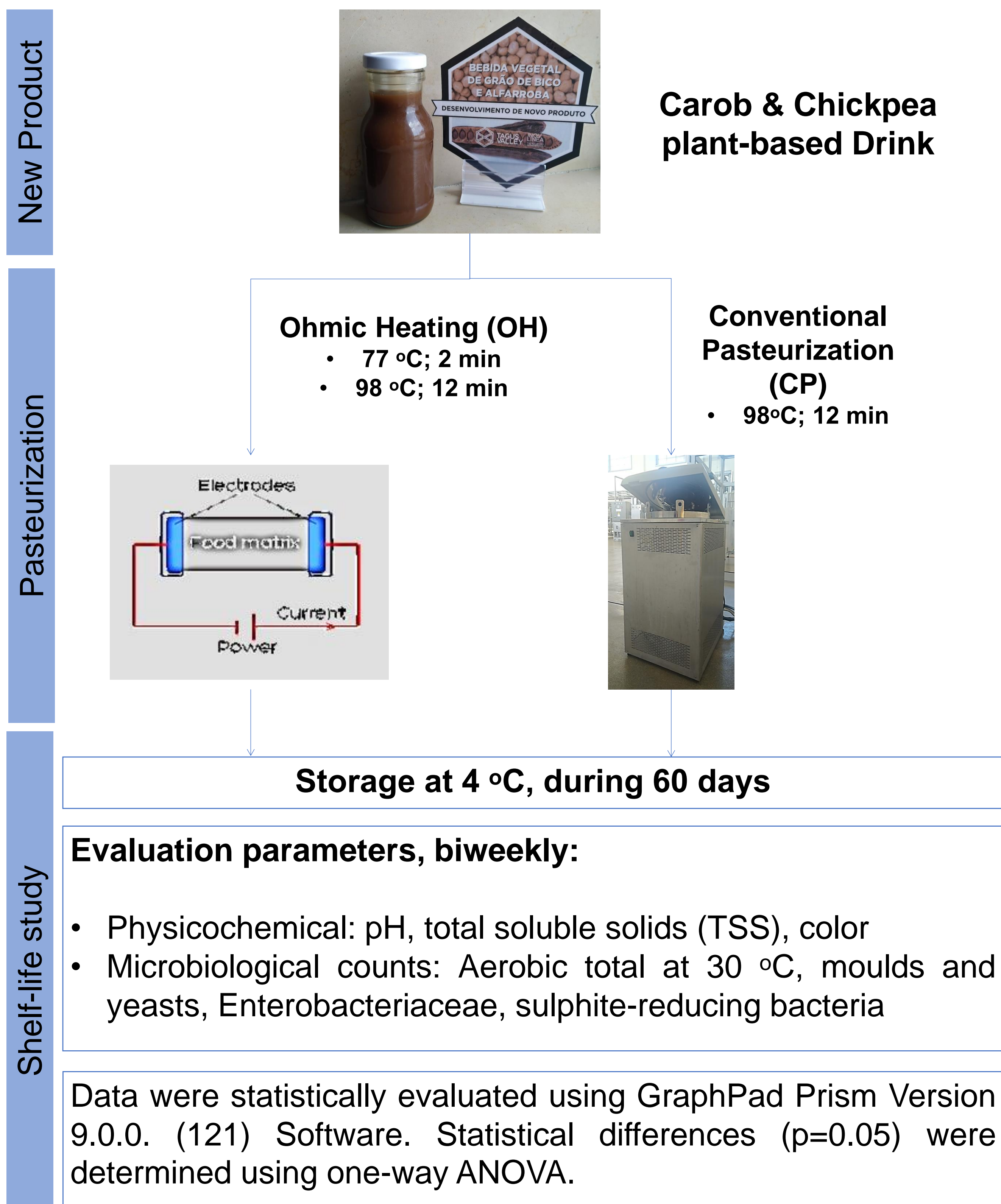


Figure 1. Ohmic heating and conventional pasteurization applied in a new product developed in TAGUSVALLEY. Shelf-life assessment.

Results

Physicochemical: Both technologies were able to ensure all physicochemical parameters and stability throughout the observation period.

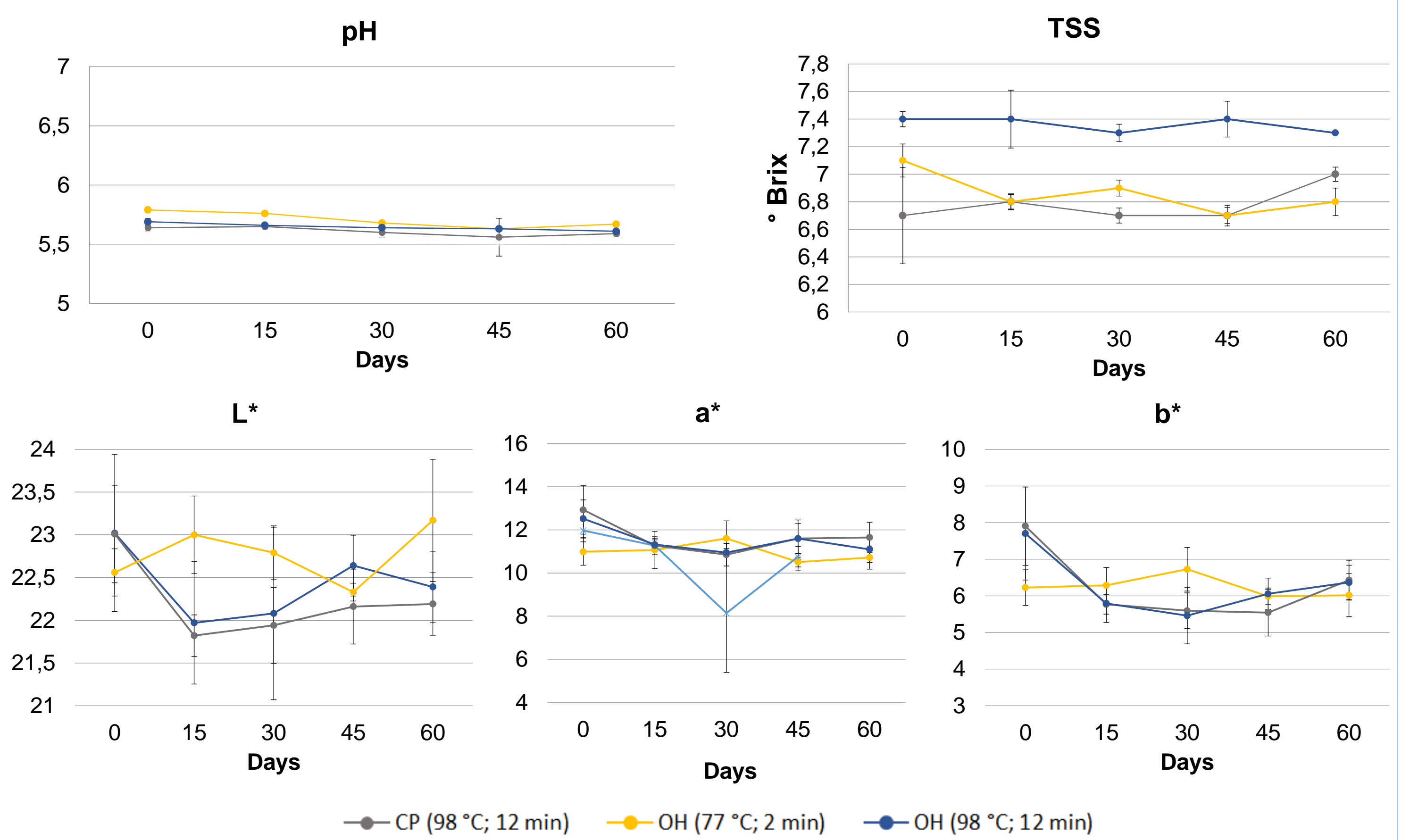


Figure 2. Physicochemical results along shelf-life at 0, 15, 30, 45 and 60 days.

Microbiological All applied treatments, including the OH treatment (77 °C; 2min) successfully maintained microbiological counts below the recommended threshold. These results reveal that it is possible to reduce the treatment temperature by 21 °C while assuring the product food safety by at least 60 days in refrigeration.

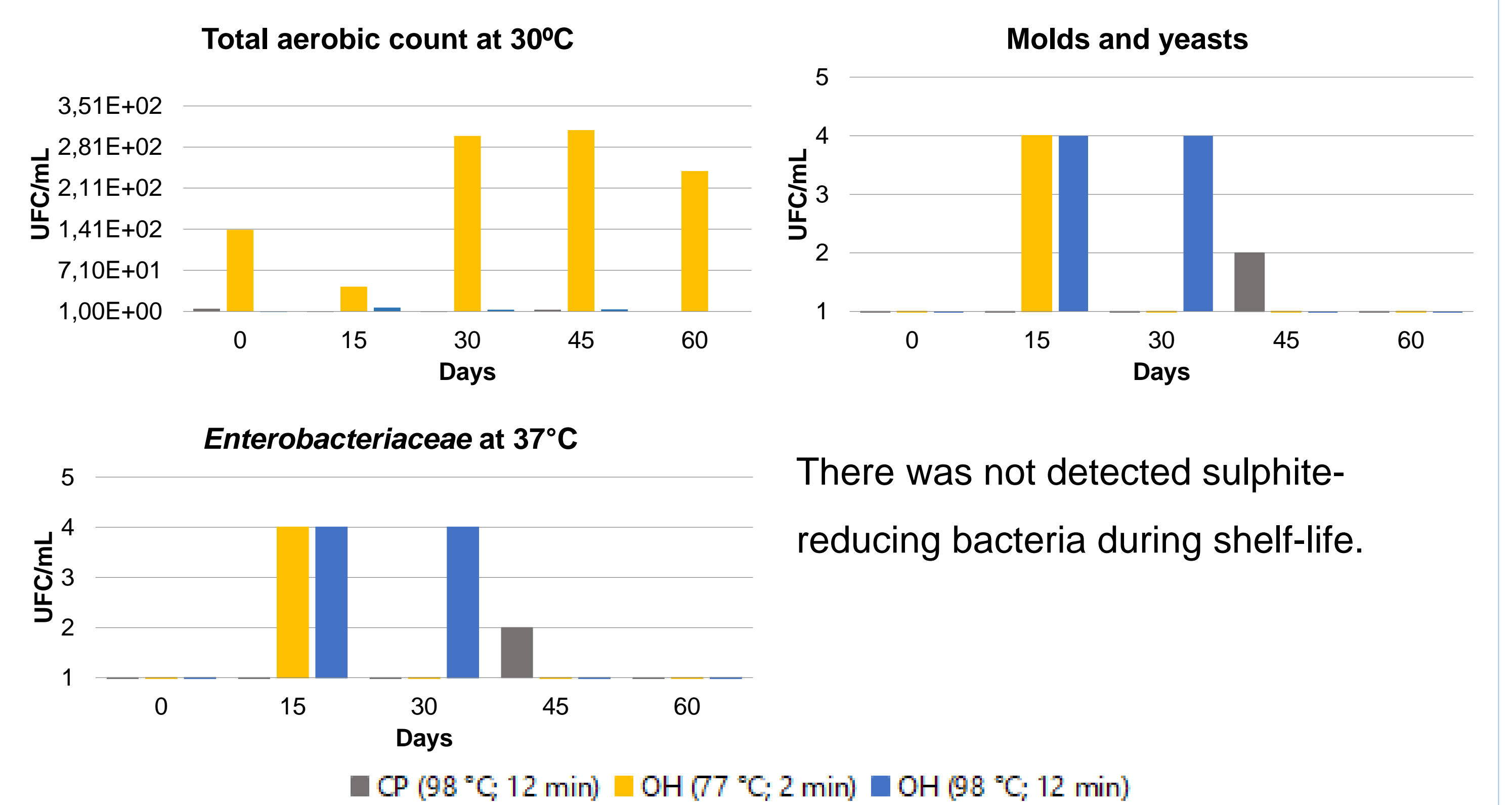


Figure 3. Microbiological counts along shelf-life at 0, 15, 30, 45 and 60 days. Recommended threshold: Total aerobic count <math><10^3</math> UFC/mL; Molds and yeasts <math><10^3</math> UFC/mL; Enterobacteriaceae <math><10^2</math> UFC/mL.

There was not detected sulphite-reducing bacteria during shelf-life.

Conclusions

This study demonstrates that OH clear advantages compared to CP since thermal load can be reduced, allowing considerable energy savings. However, its industrial application should be adequately investigated based on the promising results obtained at laboratorial scale.

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References: [1] FoodDrinkEurope. (2022). Data and trends EU food and drink industry. [2] Alkanan, Z. T., Altemimi, A. B., Al-Hilphy, A. R. S., Watson, D. G., & Pratap-Singh, A. (2021). Ohmic Heating in the Food Industry: Developments in Concepts and Applications during 2013–2020. Applied Sciences, 11(6), 2507. <https://doi.org/10.3390/app11062507>