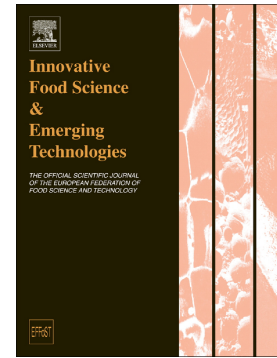


Accepted Manuscript

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PII: S1466-8564(17)30379-X
DOI: doi:[10.1016/j.ifset.2017.09.021](https://doi.org/10.1016/j.ifset.2017.09.021)
Reference: INNFOO 1859

To appear in: *Innovative Food Science and Emerging Technologies*

Received date: 31 March 2017
Revised date: 5 September 2017
Accepted date: 28 September 2017

Please cite this article as: Érica Sayuri Siguemoto, Jorge Andrey Wilhelms Gut, Antonio Martinez, Dolores Rodrigo , Inactivation kinetics of *Escherichia coli* O157:H7 and *Listeria monocytogenes* in apple juice by microwave and conventional thermal processing. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Innfoo(2017), doi:[10.1016/j.ifset.2017.09.021](https://doi.org/10.1016/j.ifset.2017.09.021)

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Inactivation kinetics of *Escherichia coli* O157:H7 and *Listeria monocytogenes* in apple juice by microwave and conventional thermal processing

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Abstract

The inactivation kinetics of *Escherichia coli* O157:H7 (CECT 4972) and *Listeria monocytogenes* (CECT 4032) inoculated in apple juice were evaluated under conventional isothermal treatments at four temperatures (55, 60, 65 and 70 °C) and microwave heating at four power levels (400, 600, 800 and 1000 W). For both thermal treatments, it was possible to achieve a 5-log₁₀ reduction, as recommended by the FDA. The survival curves were non-log-linear and were well described by the Weibull model. To compare treatments, the survival ratio was calculated over the time temperature history of the microwaved samples based on the Weibull parameters for conventional heating and the it was compared with the experimental data. Results show that microwave microbial inactivation was more efficient than predicted in 18 out of 28 tests, which suggests the existence of enhanced inactivation under microwave heating.

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