

BioMicroWorld2017 Conference

VII International Conference on Environmental, Industrial and Applied Microbiology
Madrid, Spain, 18 - 20 October 2017

Book of Abstracts

VII International Conference on Environmental Industrial and Applied Microbiology – BMW2017

Madrid (Spain), 18 – 20 October 2017



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Antimicrobial properties of oregano oil (*Origanum vulgare*) against *Listeria monocytogenes* in “alheira”

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Fermented meat products are part of the daily diet in rural areas of Portugal and have become very popular in urban centers. “Alheiras” are traditional, slightly smoked, naturally fermented meat sausages typical of the Northern regions (Trás-os-Montes) in Portugal. Essential oils (EOs) have been shown good antimicrobial properties, becoming a good natural alternative to the use of chemical preservatives. Oregano EO already demonstrated, *in vitro*, a good antimicrobial activity, essentially against *Listeria monocytogenes*. The aim of this study was to evaluate the ability of oregano EO to inhibit a cocktail of *L. monocytogenes* strains in paste of “alheira”, during 21 days. A cocktail of *L. monocytogenes* was inoculated at 10^7 CFU/mL in “paste of alheira” with different concentrations of oregano EO (4%, 1.5%, 0.5%, 0.195% and 0.0975%). Control samples without *L. monocytogenes* were also evaluated. Microbiological analyzes and determination of water activity and pH values were performed after 0, 3, 7, 15 and 21 days of storage at 4 °C. The experiment was done in triplicate. The results showed that *L. monocytogenes* decrease gradually over time and at day 15, a 2-3 log decrease was observed for all concentrations investigated. When a concentration of 4% of oregano EO was used, *L. monocytogenes* was not detected after 7 days of storage. The lowest concentrations used (0.195 and 0.0975%) showed a good inhibition, with ~5 log reduction after 21 days. Counts of lactic acid bacteria were $\sim 10^9$ CFU/mL for all samples. No differences in the values of pH and a_w were detected between samples. Although this EO have shown anti-listeria properties in low concentrations, sensory evaluation is necessary in order to guarantee its acceptance by the consumer.

Keywords: Fermented meat; “alheira”; essential oils; oregano; *Listeria monocytogenes*.