P-242 - ANTIMICROBIAL PROPERTIES OF OREGANO OIL (ORIGANUM VULGARE) AGAINST SALMONELLA ENTERITIDIS, STAPHYLOCOCCUS AUREUS AND LISTERIA MONOCYTOGENES IN "ALHEIRA"

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Background

"Alheiras" are traditional, slightly smoked, naturally fermented meat sausages typical of the Northern regions (Trás-os-Montes) in Portugal and have become very popular in urban centers. Essential oils (EOs) show good antimicrobial properties, becoming a good natural alternative to the use of chemical preservatives. Oregano EO already demonstrated, *in vitro*, antimicrobial activity, against *Salmonella* Enteritidis, *Staphylococcus aureus* and *Listeria monocytogenes*. The aim of this study was to investigate the antimicrobial effect of oregano EO against *Salmonella* spp., *L. monocytogenes* and *St. aureus* in paste of "alheira" during storage.

Method

The experimental conditions were: i) not inoculated paste as control; ii) paste inoculated with cocktail of *L. monocytogenes* (c*Lm*); iii) paste inoculated with c*Lm* with 4% EO; iv) paste inoculated with c*Lm* with 1.5% EO; v) paste inoculated with c*Lm* with 0.5% EO; vi) paste inoculated with c*Lm* with 0.195% EO; vii) paste inoculated with c*Lm* with 0.0975% EO. The same was done for *S.* Enteritidis and *St. aureus*. Each trial was performed in triplicate. Microbiological analyzes and determination of water activity and pH values were performed after 4h, 3, 7, 15 and 21 days of storage at 4 ºC.

Results & Conclusions

For *S*. Enteritidis and *St. aureus* at 4%, ocurred a reduction of ~ 3 log at the beginning of the storage time and, after 7 days, *L. monocytogenes* were not detected. At 1.5% only *S.* Enteritidis was not detected after 15 days. At 0.5%, 0.195% and 0.0975%, the reduction (~1-2 log) was only observed at the end storage, for *S.* Enteritidis and *St. aureus*. *L. monocytogenes* decreased slowly over time and a 2-3 log reduction was observed for all concentrations investigated after 15 days and, for the lowest concentrations used, there was ~5 log reduction after 21 days. Counts of lactic acid bacteria were ~10^9 CFU/ml for all samples and no significant differences in the values of pH and a_w were detected. Utilization of EOs could be used as a natural technique to improve the safety of meat and fermented meat products. These results could be useful for the meat industry as a food safety tool; however, the concentration required to achieve an antimicrobial effect in foods might be incompatible with their organoleptic acceptance. This needs to be further investigated.

References & Acknowledgments

This work was supported by FCT - through project 'UID/Multi/50016/2013' and financial support for H. Albano was provided by the project bio – n2 – value, nº NORTE-01-0145-FEDER-000030, funded by FEDER, under Norte2020.

Keywords: Fermented meat, alheiras, essential oils