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The effect of *Thymus algeriensis* essential oil on the microbial shelf-life of marinated pork meat

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INTRODUCTION

In this study, the shelf-life, quality, and safety of vacuum-packed pork loin meat in two marinades (extra vergine olive oil/red wine (Sangiovese) and extra vergine olive oil, beer (O' Hara's) and lemon) with and without the addition of thyme essential oil (*Thymus algeriensis*) were investigated.

MATERIAL AND METHOD

The tests were carried out on loin slices marinated in vacuum bags and thyme essential oil was added during the preparation of the marinade. To assess the safety, a challenge test was performed in the presence of *Listeria monocytogenes*, *Salmonella enteritidis* and *Staphylococcus aureus.* Samples for shelf-life assessment and challenge test were stored at 4°C and analyzed for pH, colour, microbial counts and sensorial tests during 15 days of storage.

DISCUSSION

The results of the challenge tests showed a strong inhibitory effect of the marinade on the growth of *L. monocytogenes*, *S. enteritidis* and *St. aureus*. The addition of thyme essential oil of to the marinade solution accelerated the deactivation kinetics of *Listeria*, *Salmonella and Staphylococcus.* In addition, the marination process allowed to reduce meat pH increasing its water holding capacity. Sensory tests showed that marinated samples, in particular with the addition of thyme essential oil, were the most positively perceived by the panelists.

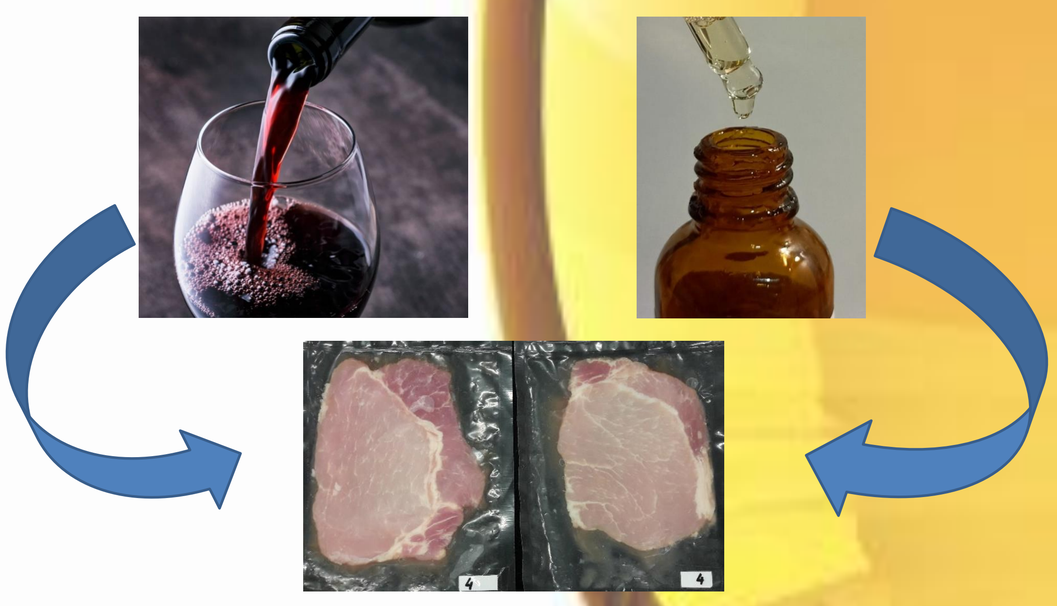

Figure 3. Marination and vacuum packaging of pork loin in two types of marinade

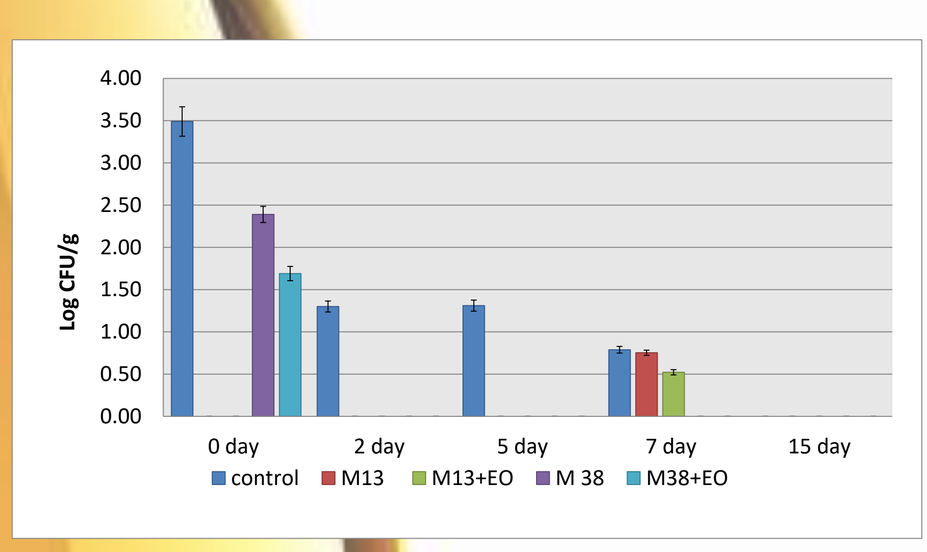

Figure 1. Cell load (log CFU/g ± SD), during refrigerated storage, of *Listeria monocytogenes* in different pork loin samples: Control (C), Marinated (M13, M38), marinated with essential oils (M13 + EO, M38+EO).

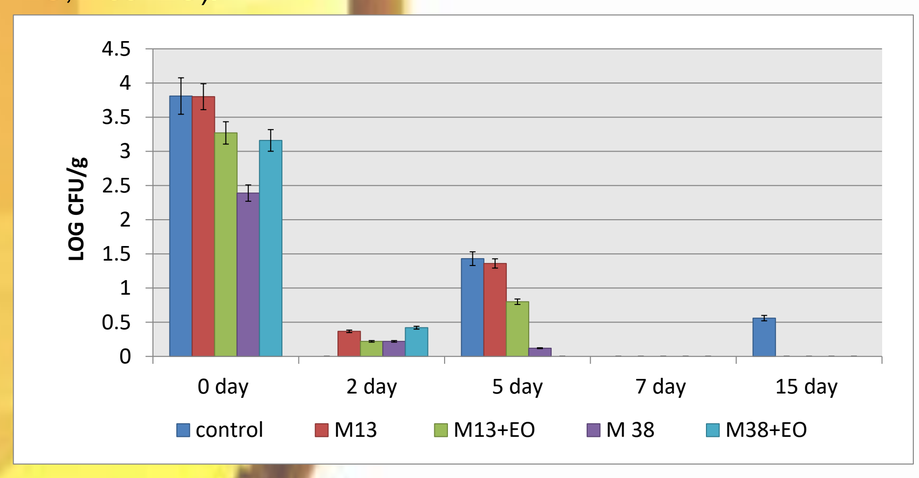

Figure 2. Cell load (log CFU/g ± SD), during refrigerated storage, of *Staphylococcus* aureus in different pork loin samples: Control (C), Marinated (M13, M38), marinated with essential oils (M13 + EO, M38+EO).

CONCLUSION The data obtained indicate that the proposed marinade solution added with thyme essential oil might represent an encouraging strategy to increase shelf-life and safety of meat products.

Key words: essential oil, natural preservatives, marinated meat

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