

Título: ALGINATE FILM INCORPORATED WITH EUGENOL AND LIMONENE: EVALUATION AGAINST *Listeria monocytogenes* IN SALAMI.

Autores Igarashi, Maria Crystina ¹ ; Landgraf, Mariza ¹

Instituição ¹ FCF-USP - Faculdade de Ciências Farmacêuticas da Universidade de São Paulo (Av. Prof. Lineu Prestes, 580 Bloco 14, Cep: 05508-000 São Paulo-SP)

Resumo:

The incorporation of antimicrobial substances in packages aims at reducing food microbial contamination among which phenolic compounds extract from essential oils have received special attention, being natural and attending consumers demand. However, little is known about the synergistic actions between fractions of essential oils and their incorporation in packaging materials. Alginate-based films were prepared by mixing glycerin (2%) in distilled water prior to the eugenol (0.3%) and limonene (0.6%) emulsion addition. The sodium alginate (3%) was then added under agitation and as a first crosslinking step the CaCl₂ was added and homogenized. After drying, the second crosslinking step with CaCl₂ was performed. The *in situ* evaluation of the antimicrobial activity was performed with the eugenol and limonene combination that showed synergism and the highest inhibition values *in vitro*. Samples of sliced salami (Italian type) were spiked with the pool of three *L. monocytogenes* strains (10⁴ CFU.g⁻¹) and then covered (primary packaging) with the antimicrobial alginate film in both sides. Afterwards, the sample was placed in a plastic bag, vacuum packaged and storage at 7°C. Positive control consisting of the inoculated sliced salami without the antimicrobial film was used. The microbiological analyses were performed up to 30 days of storage at 7°C. By and large, the use of the antimicrobial film as primary packaging controlled *L. monocytogenes* growth in sliced salami. While the control sample showed a significant increase (p>0,05) of 4 log CFU.g⁻¹ in *L. monocytogenes* population, the sample in which the antimicrobial film was used decreased 2 log CFU.g⁻¹ and remain constant after 30 days of storage at 7°C. The results showed that besides being an alternative to replace non-recyclable packaging materials, the use of alginate-based films incorporated with eugenol and limonene plays an important role in antimicrobial packaging in controlling *L. monocytogenes* growth.

Palavras-chave: alginate, eugenol, limonene and *Listeria monocytogenes*

Agência de fomento: FAPESP, CNPq