Synergistic effect of gamma (γ)-irradiation and microencapsulated antimicrobials against *Listeria monocytogenes* on ready-to-eat (RTE) meat

Tanzina Huq*, Khanh Dang Vu*, Bernard Riedl®, Jean Bouchard®, Monique Lacroix*.

Highlights

- Microencapsulation was found to be an effective technology.
- γ-Irradiation showed a synergistic effect with microencapsulated antimicrobials.
- Microencapsulated antimicrobials reduced the growth rate of *Listeria monocytogenes*.
- Microencapsulated cinnamon EO and nisin showed the best antimicrobial effect.

Abstract

Oregano essential oil (*Origanum compactum*; 250 μg/ml), cinnamon essential oil (*Cinnamomum cassia*; 250 μg/ml) and nisin (16 μg/ml) were used alone or in combination to evaluate their efficiency to inhibit the growth of *Listeria monocytogenes* on RTE ham. Microencapsulation of the antimicrobial formulations was done to verify the potential effect of the polymer to protect the antimicrobial efficiency during storage. Combined treatments of antimicrobial formulation with γ-irradiation were done to verify