

عنوان مقاله:

Antimicrobial activity of poly lactic acid films incorporated with Trachyspermum ammi essential oil and ethanolic extract of propolis on the growth of some bacterial foodborne pathogens

محل انتشار:

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خلاصه مقاله:

Background and Aim: Using active antimicrobial packaging reduce the risks of growth of pathogenic or spoilage microorganisms in foods. In this study, antimicrobial activity of poly lactic acid (PLA) films containing different concentrations (0, 0.5, 1 and 1.5%) of Trachyspermum ammi essential oil and ethanolic extract of propolis (0, 1 and 2%) was evaluated against *Listeria monocytogenes*, *Staphylococcus aureus*, *Escherichia coli* O157:H7 and *Vibrio parahaemolyticus* by using disk diffusion assay. **Materials and Methods:** Circular discs of poly lactic acid films incorporated by essential oil and ethanolic extract of propolis, prepared by casting method on glass petri dishes, were placed on Muller-Hinton agar plates that previously inoculated by tested bacteria. Diameters of inhibition zones were measured after 24 h incubation of plates at 37°C, by using Digital Caliper and Digimizer software. **Results:** Result of this study showed that the inhibition zone was increased with increasing concentration of essential oil for all tested bacteria. Also, gram positive bacteria were more sensitive to the poly lactic acid films containing essential oil than gram negative bacteria. The results revealed that *L. monocytogenes* was the most sensitive bacteria against films containing Trachyspermum ammi essential oil alone or in combination by ethanolic extract of propolis. Also, poly lactic acid films containing ethanolic extract of propolis showed no inhibitory effects against all tested bacteria. **Conclusions:**

Poly lactic acid films containing Trachyspermum ammi essential oil have a high potential for antimicrobial food packaging applications to enhance the safety of food products

کلمات کلیدی:

Disk Diffusion, Antimicrobial, Poly lactic acid, Essential oil, Propolis انتشار

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