عنوان مقاله:

In Vitro Antimicrobial Activities of Various Essential Oils Against Pathogenic and Spoilage Microorganisms

محل انتشار:

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خلاصه مقاله:

Background: Plant-derived Essential Oils (EOs) have shown remarkable antimicrobial activity against spoilage and pathogenic microorganisms isolated from food products. The objective of the current study was to determine in vitro antimicrobial effects of selected EOs against these microorganisms. Methods: Antimicrobial activity of EOs against food-borne and spoilage microorganisms was screened by disk diffusion assay; then, the Minimum Inhibitory Concentration (MIC) and Minimal Bactericidal Concentration (MBC) were determined. Statistical analysis wasdone using SPSS 23.0 software for Windows. Results: Oregano and thyme EOs showed the highest antimicrobial activity and the lowestMICs, while anise, fennel, garlic, and ginger showed a lower activity with significant differences ($p<0.05$). It was demonstrated that Salmonella Typhimurium, Escherichia coli, Proteus mirabilis, and Yersinia enterocolitica were the most sensitive bacteria to all the EOs tested ($p<0.05$). Among Gram-positive bacteria, Listeria innocua was demonstrated to be the most sensitive to most of the EOs ($p<0.05$). Furthermore, Staphylococcusaureus and Listeria monocytogenes were shown to be more sensitive than Enterococcus spp. ($p<0.05$). Yeasts were significantly ($p<0.05$) more sensitive than bacteria and were inhibited by most of the EOs.Conclusion: The use of the analyzed EOs may be interesting to food processors because of their antimicrobial properties. However, it is necessary to test their use in food products and gauge their sensory implications.

کلمات کلیدی:

Oils, Volatile، Plants، Anti-Bacterial Agents، Food Microbiology