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Efficacy of plant essential oil constituents against most common foodborne pathogens

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Food safety and discovering natural sources to control foodborne diseases is an increasingly important public health issue. Herbs, spices and several extracts of them are widely used in food and pharmaceutical industries for their flavour, colour, aroma and antimicrobial properties. Volatile constituents of spices (oregano, thyme, mints, black cumin seed, sage, rosemary etc.) are primarily responsible for the aroma and antimicrobial properties. Especially mono-and sesquiterpenoids are the main bioactive constituents of the essential oils, which are complex mixtures of volatile compounds produced by living organisms and generally isolated by water distillation from a whole plant or individual parts. Besides antibacterial effects, essential oils and their constituents have been shown antiviral, insecticidal, antifungal, antiparasitic and antitoxigenic properties. In the present study 68 most common essential oil constituents such as monoterpene hydrocarbons and oxygenated monoterpenes with their (+) and (-) isomers were evaluated for their growth inhibitory properties against six foodborne pathogens by using CLSI broth dilution methods. Furthermore, for the evaluation of inhibitory effects of the constituents in vapor phase, disc volatilization method was performed against same microorganisms. Carvacrol, thymol, cumic alcohol and thymoquinone were demonstrated strongest inhibitory effects against *Listeria monocytogenes, E. coli O157:H7, Staphylococcus aureus, Salmonella typhimurium, Bacillus cereus and B. subtilis.*

Biography

Gokalp Iscan is a Pharmacognosist at Anadolu University, Turkey. He is Associate Professor in Department of Pharmocognosy, Faculty of Pharmacy. He has been in his current position as Lecturer and Researcher since December 1999. He has his expertise in microbial transformations of aroma chemicals, bioactive metabolites, essential oils, natural products and bioactivity assays. He has published more than 35 research papers in refereed international journals. He worked in 15 national and international research projects.

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