

Antimicrobial, Antioxidant and Free Radical Scavenging Activities of Essential Oils Extracted from Six Eucalyptus Species

Authors : Sanaa K. Bardaweel, Mohammad M. Hudaib, Khaled A. Tawaha, Rasha M. Bashatwah

Abstract : Eucalyptus species are well reputed for their traditional use in Asia as well as in other parts of the world; therefore, the present study was designed to investigate the antimicrobial and antioxidant activities associated with essential oils from different Eucalyptus species. Essential oils from the leaves of six Eucalyptus species, including: Eucalyptus woodwardi, Eucalyptus stricklandii, Eucalyptus salubris, Eucalyptus sargentii, Eucalyptus torquata and Eucalyptus wandoo were separated by hydrodistillation and dried over anhydrous sodium sulphate. DPPH, ferric reducing antioxidant power, and hydroxyl radical scavenging activity assays were carried out to evaluate the antioxidant potential of the oils. The results indicate that examined oils exhibit substantial antioxidant activities relative to ascorbic acid. Previously, these oils were evaluated for their antimicrobial activities, against wide range of bacterial and fungal strains, and they were shown to possess significant antimicrobial activities. In this study, further investigation into the growth kinetics of oil-treated microbial cultures was conducted. The results clearly demonstrate that the microbial growth was markedly inhibited when treated with sub-MIC concentrations of the oils. Taken together, the results obtained indicate a high potential of the examined essential oils as bioactive oils, for nutraceutical and medical applications, possessing significant antioxidant and anti microbial activities.

Keywords : antimicrobial, antioxidants, essential (volatile) oil, Eucalyptus

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