Anti-microbial Effects


  This is the first report on antimicrobial activity of the major components of rosemary oil against oral pathogens. The essential oil of *Rosmarinus officinalis* L. (rosemary) was obtained by hydro-distillation and analysed by gas chromatography-mass spectrometry. Sixty-two constituents were identified, representing 98.06% of the total oil content. Among all the microorganisms tested, the pathogen *S. mitis* was the most susceptible and *E. faecalis* was the most resistant to the evaluated samples.


The research studied the antibacterial properties of five essential oils (EO) on *Escherichia coli* O157:H7. The results show that oregano and thyme EO have significant in vitro colicidal and colistatic properties and are exhibited in a broad temperature range. The effects were
greatly improved by the addition of agar as stabilizer. Bay and clove bud EO are shown less active in reducing the number of E.coli O157:H7.


The antibacterial activity of fourteen essential oils and their major constituents in the gaseous state were evaluated against four different bacteria by Inouge and Yamaguchi (2001). The authors found *H. Influenzae* to be most susceptible to most essential oils examined. The research also indicated that the antibacterial action of essential oils was most effective when at high vapour concentration for a short time.


The single case clinical report described the use of a polytoxinol (PT) antimicrobial, a complex mixture whose major components are tea tree oil and eucalyptus to cure an intractable methicillin-resistant *Staphylococcus aureus* (MRSA) infection of the lower tibia in an adult male. The study introduced a cheap, simple technique as a possible alternative to long-term systemic antibiotic therapy when administered percutaneously.


The study tested the antiviral activity of sandalwood oil, the essential oil of *Santalum album* L against Herpes simplex virus type 1 (HSV-1) and 2 (HSV-2). Results demonstrated dose-dependent effect of sandalwood oil in inhibiting the replication of virus, and more significantly against HSV-1. The results also indicate a possible chemopreventive action of sandalwood oil against carcinogenesis.


Hammer et al. investigated 52 plant oils and extracts for their antimicrobial activity(1999). They found that the essential oils extracted from lemongrass, oregano and bay inhibited all organisms at concentrations of <=2.0% (v/v). The study also found the antimicrobial effect of thyme oil against *C. albicans* and *E. coli* at the lowest minimum inhibitory concentration of 0.03% (v/v).


Chinou et al (1996) studied the antibacterial activity of the essential oils obtained from the aerial parts of two Helichrysum species. The authors collected the plants during their
flowering period and thirty-nine constituents were identified and quantified from the total oil. Six bacterial strains were tested. It was found that oils exhibited significant antibacterial activity against the six Gram (±) bacteria.


The anti-inflammatory activities of the water extract of dried plants of Houttuynia cordata was investigated by Hayashi et al (1994). The authors found the essential oils (Saururaceae) to have direct inhibitory activity against herpes simplex virus type 1 (HSV-1), influenza virus, and human immunodeficiency virus type 1 (HIV-1) without showing cytotoxicity, although it was not shown to have direct impact against poliovirus and coxsackie-virus.