

Scientific Proof Essential Oils Fight Infection

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A selection of research articles condensed version on essential oils effectiveness against MRSA.

Microbios. 2001;106 Suppl 1:31-9.

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Inhibition by the essential oils of peppermint and spearmint of the growth of pathogenic bacteria. Imai H, Osawa K, Yasuda H, Hamashima H, Arai T, Sasatsu M. Functional Foods Section, Central Laboratory, Lotte Company Ltd, Urawa, Saitama, Japan. The effects of the, essential oils of peppermint (*Mentha piperita* L.), spearmint *Mentha spicata* L.) and Japanese mint (*Mentha, arvensis* L.), of four major constituents of the essential oil of peppermint, and of three major constituents of the essential oil of spearmint, on the proliferation of *Helicobacter pylori*, *Salmonella enteritidis*, *Escherichia coli* O157:H7, methicillin-resistant *Staphylococcus aureus* (MRSA) and methicillin sensitive *Staphylococcus aureus* (MSSA) were examined. The essential oils and the various constituents inhibited the proliferation of each strain in liquid culture in a dose-dependent manner. In addition, they exhibited bactericidal activity in phosphate-buffered saline. The antibacterial activities varied among the bacterial species tested but were almost the same against antibiotic-resistant and antibiotic-sensitive strains of *Helicobacter pylori* and *S. aureus*. Thus, the essential oils and their constituents may be useful as potential antibacterial agents for inhibition of the growth of pathogens.
PMID: 11549238 [PubMed - indexed for MEDLINE]

J Agric Food Chem. 2003 Jan 1;51(1):76-81.

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Bioactivity of *Backhousia citriodora*: antibacterial and antifungal activity. Wilkinson JM, Hipwell M, Ryan T, Cavanagh HM. School of Biomedical Sciences, Charles Sturt University, Locked Bag 588, Wagga Wagga, NSW 2678, Australia. *Backhousia citriodora* products are used as bushfoods and flavorings and by the aromatherapy industry. The antimicrobial activity of 4 samples of *B. citriodora* oil, leaf paste, commercial tea (0.2 and 0.02 g/mL), and hydrosol (aqueous distillate) were tested against 13 bacteria and 8 fungi. Little or no activity was found to be associated with the leaf tea and hydrosol, respectively. Leaf paste displayed antimicrobial activity against 7 bacteria including *Clostridium perfringens*, *Pseudomonas aeruginosa*, and a hospital isolate of methicillin resistant *Staphylococcus aureus* (MRSA). The 4 essential oils were found to be effective antibacterial and antifungal agents; however, variation was apparent between oils that did not correlate with citral content. The antimicrobial activity of *B. citriodora* essential oils was found to be greater than that of citral alone and often superior to *Melaleuca alternifolia* essential oil. *B. citriodora* has significant antimicrobial activity that has potential as an antiseptic or surface disinfectant or for inclusion in foods as a natural antimicrobial agent.
PMID: 12502388 [PubMed - indexed for MEDLINE]

Comment in:

* J Hosp Infect. 2004 Sep;58(1):86-7.

A randomized, controlled trial of tea tree topical preparations versus a standard topical regimen for the clearance of MRSA colonization.

Dryden MS, Dailly S, Crouch M.

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Two topical MRSA eradication regimes were compared in hospital patients: a standard treatment included mupirocin 2% nasal ointment, chlorhexidine gluconate 4% soap, silver sulfadiazine 1% cream versus a tea tree oil regimen, which included tea tree 10% cream, tea tree 5% body wash, both given for five days. One hundred and fourteen patients received standard treatment and 56 (49%) were cleared of MRSA carriage. One hundred and ten received tea tree oil regimen and 46 (41%) were cleared. There was no significant difference between treatment regimens (Fisher's exact test; $P = 0.0286$). Mupirocin was significantly more effective at clearing nasal carriage (78%) than tea tree cream (47%; $P = 0.0001$) but tea tree treatment was more effective than chlorhexidine or silver sulfadiazine at clearing superficial skin sites and skin lesions. The tea tree preparations were effective, safe and well tolerated and could be considered in regimens for eradication of MRSA carriage. PMID: 15066738 [PubMed - indexed for MEDLINE]

Burns. 2004 Dec;30(8):772-7. Related Articles, Links

The effect of essential oils on methicillin-resistant *Staphylococcus aureus* using a dressing model.

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Patchouli, tea tree, geranium, lavender essential oils and Citricidal (grapefruit seed extract) were used singly and in combination to assess their anti-bacterial activity against three strains of *Staphylococcus aureus*: Oxford *S. aureus* NCTC 6571 (Oxford strain), Epidemic methicillin-resistant *S. aureus* (EMRSA 15) and MRSA (untypable). The individual essential oils, extracts and combinations were impregnated into filter paper discs and placed on the surface of agar plates, pre-seeded with the appropriate strain of *Staphylococcus*. The effects of the vapours of the oils and oil combinations were also assessed using impregnated filter paper discs that were placed on the underside of the Petri dish lid at a distance of 8mm from the bacteria. The most inhibitory combinations of oils for each strain were used in a dressing model constructed using a four layers of dressings: the primary layer consisted of either Jelonet or TelfaClear with or without Flamazine; the second was a layer of gauze, the third a layer of Gamgee and the final layer was Crepe bandage. The oil combinations were placed in either the gauze or the Gamgee layer. This four-layered dressing was placed over the seeded agar plate, incubated for 24h at 37 degrees C and the zones of inhibition measured. All experiments were repeated on three separate occasions. No anti-bacterial effects were observed when Flamazine was smeared on the gauze in the dressing model. When Telfaclear was used as the primary layer in the dressing model compared to Jelonet, greater zones of inhibition were observed. A combination of Citricidal and geranium oil showed the greatest-anti-bacterial effects against MRSA, whilst a combination of geranium and tea tree oil was most active against the methicillin-sensitive *S. aureus* (Oxford strain). This study demonstrates the potential of essential oils and essential oil vapours as antibacterial agents and for use in the treatment of MRSA infection. PMID: 15555788 [PubMed - indexed for MEDLINE]