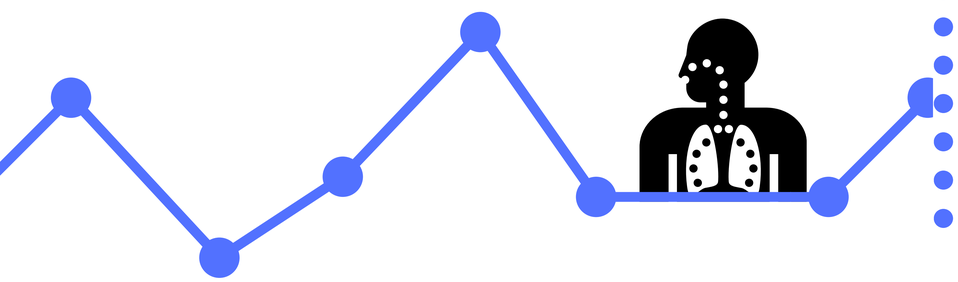
Antibacterial Effectiveness of Essential Oils Against Common Pathogens

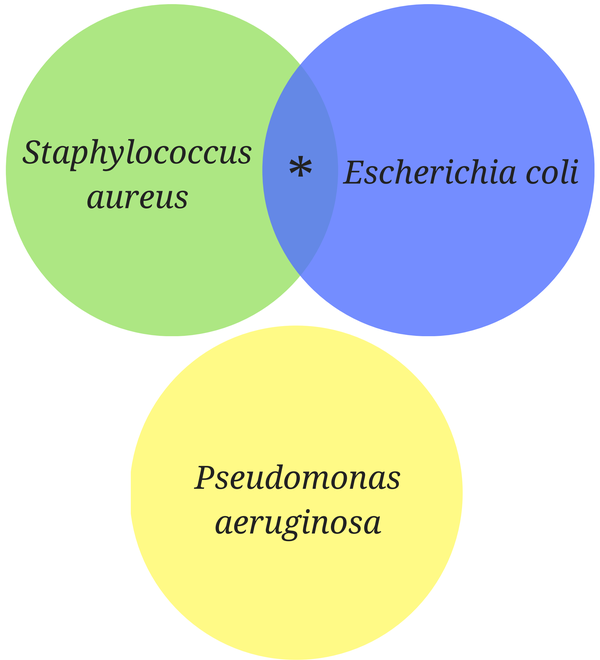
Introduction

The use of aromatherapy and essential oils as an alternative to prescription drugs is not a new idea. Sources state that these essential oils have actually been used for nearly six thousand years in therapy (Erlich). This study evaluates the effectiveness of Tea Tree Oil, Lavender Oil, and Eucalyptus Oil against three common bacterial pathogens: *Staphylococcus aureus*, *Escherichia coli,* and *Pseudomonas aeruginosa*. These bacteria commonly cause skin infections which may be treated with topical antibiotics.

Materials & Methods

Blank filter paper soaked in 1mL of each essential oil at room temperature for two hours. Three blood agar plates (BAP) were inoculated with each organism. The disks from each essential oil tube were placed approximately equadistant on the lawned plates. Plates were incubated in ambient air at 37 degrees Celsius for twenty four hours, then read for zones of inhibition around the disks. The zone of inhibition, if present, was recorded in mm.





* All essential oils had an effect in reducing bacterial growth

Results

Pseudomonas aeruginosa demonstrated resistance to all essential oils tested. Tea tree oil consistently recorded the largest zone of inhibition with *S. aureus* and *E. coli*. Lavender oil recorded the second largest zones of inhibition followed by eucalyptus oil.

	Tea Tree Oil	Eucalyptus Oil	Lavender Oil
S. aureus	22	7	15
E. coli	28	9	14
P. aeruginosa	0	0	0

Discussion

Based on the results of this study, tea tree oil has shown again to be most effective in preventing growth of bacteria. Lavender showed exemplary inhibition of bacterial growth as well. Eucalyptus oil, however, did not show the inhibition that sources have claimed. Other notable oils that were not tested in this study include lemon grass oil, peppermint oil, and chamomile oil.

S. aureus, E. coli, and P. aeruginosa (although not in this study) have shown susceptibility to essential oils in many in-vitro studies. It is only natural the next step be clinical studies. If essential oils prove to be effective against bacteria, pass human trials, and are approved for use by the FDA, they may perhaps be used as a natural topical antibiotic in place of common pharmaceutical drugs.