The in vitro antimicrobial activity of Lavandula angustifolia essential oil in combination with other aroma-therapeutic oils

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Abstract

The antimicrobial activity of Lavandula angustifolia essential oil was assessed in combination with 45 other oils to establish possible interactive properties. The composition of the selected essential oils was confirmed using GC-MS with a flame ionization detector. The microdilution minimum inhibitory concentration (MIC) assay was undertaken, whereby the fractional inhibitory concentration (ΣFIC) was calculated for the oil combinations. When lavender oil was assayed in 1 : 1 ratios with other oils, synergistic (26.7%), additive (48.9%), non-interactive (23.7%), and antagonistic (0.7%) interactions were observed. When investigating different ratios of the two oils in combination, the most favourable interactions were when L. angustifolia was combined with Cinnamomum zeylanicum or with Citrus sinensis, against C. albicans and S. aureus, respectively. In 1 : 1 ratios, 75.6% of the essential oils investigated showed either synergistic or additive results, lending in vitro credibility to the use of essential oil blends in aroma-therapeutic practices. Within the field of aromatherapy, essential oils are commonly employed in mixtures for the treatment of infectious diseases; however, very little evidence exists to support the use in combination. This study lends some credence to the concomitant use of essential oils blended with lavender.