

Title: In vitro antimicrobial activity of six Ethiopian medicinal plants against *Staphylococcus aureus*, *Escherichia coli* and *Candida albicans*.

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Abstract

Introduction: Traditional herbal medicines are attracting significant attention in global health debates with various traditional herbal remedies being used as the basis for modern medicines. The aim of this research was to explore the potential antimicrobial activity of six medicinal plants.

Methods: In vitro antimicrobial activity of essential oils extracted from *Lavandula angustifolia*, *Cymbopogon citratus*, *Mentha piperita* as well as extracts from *Chenopodium ambrosioides*, *Aloe ankoberensis* and *Aloe pulcherima* were determined using an agar diffusion technique. The minimum inhibition zone concentration (MIZC) was determined by a twofold serial dilution using a modified agar dilution method. **Results:** Results demonstrated that 50 µL of the essential oils from three plants had antimicrobial activity. The MIZC of essential oil from *L. angustifolia* for the growth of *Staphylococcus aureus*, *Escherichia coli* and *Candida albicans* ranges from 12.5 % (v/v) to 25 % (v/v). Whereas, the MIZC of essential oils from *C. citratus* and *M. piperita* for the growth of these pathogens ranged from 6.25 % (v/v) to 12.5 % (v/v). The MIZC of ethanol extract of *C. ambrosioides*, *A. ankoberensis* and *A. pulcherima* for both *S. aureus* and *E. coli* were 250 mg/mL and 125 mg/mL, respectively. However, petroleum ether and chloroform extracts (1000 mg/mL) of *C. ambrosioides*, *A. ankoberensis* and *A. pulcherima* failed to inhibit these organisms.

Conclusion: These findings suggest that the herbal essential oils and extracts had activity against *S. aureus*, *E. coli*, and *C. albicans*. Ethanol extracts appear to have a better antimicrobial activity than petroleum ether and chloroform extracts.

Keywords: Essential oils, Herbal extracts, Antimicrobial activity, *Lavandula angustifolia*, *Cymbopogon citratus*, *Mentha piperita*, *Chenopodium ambrosioides*, *Aloe ankoberensis*, *Aloe pulcherima*

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