



EVALUATION OF ANTIBACTERIAL POTENTIAL OF SELECTED CULINARY HERBS AGAINST SOME FOODBORNE PATHOGENIC BACTERIA

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ABSTRACT

Culinary herbs consist of bioactive compounds which play an important role as natural antimicrobial agents. The present study was carried out with the objective of evaluating the antibacterial activity of extracts from selected culinary herbs; *Trachyspermum involucreatum*, *Laurus nobilis*, *Coriandrum sativum*, *Allium tuberosum*, *Allium schoenoprasum*, *Melissa officinalis*, *Origanum majorana*, *Origanum vulgare*, *Rosmarinus officinalis*, *Santolina chamaecyparissus*, and *Satureja hortensis*. Different extraction solvents (sterilized distilled water, hot distilled water (80°C), absolute methanol, and acetone) were used against three foodborne pathogens (*E. coli* NCTC 10418, *E. coli* ATCC 25922, and *Enterococcus faecalis*) using the agar-well diffusion method. Statistical analysis using two-factor factorial completely randomized design in SAS software revealed that all solvent extracts of *Trachyspermum involucreatum* has the highest antibacterial activity ($p < 0.05$) followed by *Rosmarinus officinalis*, *Santolina chamaecyparissus*, *Satureja hortensis*, *Origanum vulgare*, and *Coriandrum sativum* against all tested bacteria with variable potential. Further, hot distilled water (80°C) extract of *Trachyspermum involucreatum* had significant antibacterial activity against *E. coli* NCTC 10418 (14.67 ± 1.53 mm). In particular, organic extracts of *Rosmarinus officinalis*, *Santolina chamaecyparissus* and *Satureja hortensis* had strong antibacterial activity against *E. coli* NCTC 10418 and *Enterococcus faecalis*. Overall, *Enterococcus faecalis* has highly inhibited the growth followed by *E. coli* NCTC 10418 and *E. coli* ATCC 25922 in extracts of the best anti-bacterially active herbs. The minimum inhibitory concentration of above the herb extracts was 0.2 g mL^{-1} against most of the tested pathogens. It can be concluded that culinary herbs are potentially effective as natural antimicrobials against tested foodborne pathogens.