

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

K.P.V.R. Karunanayake<sup>1</sup>, D.W.M.M.M. Kumari<sup>1</sup> and P.N. Yapa<sup>2</sup>

<sup>1</sup>Department of Animal and Food Sciences, Faculty of Agriculture, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka.

<sup>2</sup>Department of Biological Sciences, Faculty of Applied Sciences, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.

Culinary herbs consist of bioactive compounds which play an important role as natural antimicrobial agents. Present study was carried out with the objective of evaluating the antibacterial activity of extracts from selected culinary herbs, *asamodagam* (*Trachyspermum involucreatum*), bay leaves (*Laurus nobilis*), coriander (*Coriandrum sativum*), garlic chives (*Allium tuberosum*), onion chives (*Allium schoenoprasum*), lemon mint (*Melissa officinalis*), marjoram (*Origanum majorana*), oregano (*Origanum vulgare*), rosemary (*Rosmarinus officinalis*), santolina (*Santolina chamaecyparissus*) and savory (*Satureja hortensis*) against foodborne pathogens; *E. coli* NCTC 10418, *E. coli* ATCC 25922 and *Enterococcus faecalis*. Different extraction solvents; sterilized distilled water, hot distilled water (80 °C), absolute methanol and acetone were used. Antibacterial activity of herb extracts was assessed by standard agar-well diffusion method. Statistical analysis using two factor factorial Completely Randomized Design in SAS software, revealed that all solvent extracts of *asamodagam* has the highest antibacterial activity ( $p < 0.05$ ) followed by rosemary, santolina, savory, oregano and coriander against all tested bacteria with variable potential. Further, hot distilled water (80 °C) extract of *asamodagam* had significant antibacterial activity against *E. coli* NCTC 10418 ( $14.67 \pm 1.53$  mm). In particular, organic extracts of rosemary, santolina and savory had strong antibacterial activity against *E. coli* NCTC 10418 and *Enterococcus faecalis*. Overall, *Enterococcus faecalis* was highly inhibited the growth followed by *E. coli* NCTC 10418 and *E. coli* ATCC 25922 in extracts of best antibacterial herbs; rosemary, santolina, savory, oregano and coriander. Minimum inhibitory concentration of above herb extracts was  $0.2 \text{ gmL}^{-1}$  against *E. coli* NCTC 10418. It can be concluded that culinary herbs are potentially effective as natural antimicrobials against tested foodborne pathogens.

**Keywords:** Antibacterial activity, Culinary herbs, Foodborne pathogens, Minimum inhibitory concentration