RESEARCH PAPER

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In-vitro antibacterial activity of some medicinally important plants against plant and human pathogens

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Medicinal plants represents rich source for antimicrobial agents and thus widely used in different countries and are a source of potent and powerful drugs. Considering the vast potentiality of medicinal plants as antibacterial agents, a systematic investigation was undertaken to screen the antibacterial activity of five medicinal plants *viz. Solanum torvum, Adhatoda vasica, Terminalia chebula, Asparagus racemosus and Simarouba glauca* against bacterial pathogens *Bacillus subtilis, Staphylococcus aureus, Escherichia coli* and *Pseudomonas aeruginosa*. The ethanol leaf extracts of five plants showed variable zone of inhibition ranging from 3 to 11 mm against *B. subtilis, S. aureus, E. coli* and *.P aeruginosa*. The methanol extracts of all five plants failed to show zone of inhibition. However, hot water extract of *S. torvum* showed zone of inhibition about 6 mm against *B. subtilis* and *P aeruginosa* and about 7 mm against *S. aureus* and *E. coli.* The highest zone of inhibition was measured about 12 mm for ethanol + methanol extracts of *A. vasica* against *E. coli*. Thus, it reveals that bioactive compounds like alkaloids, flavonoids, terpenoids etc. may be the cause of inhibition and can easily be isolated in presence of ethanol, methanol, ethanol + methanol and hot water.

Key words : Medicinal plants, Antibacterial activity, Zone of inhibition, Bioactive compounds

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INTRODUCTION

The use of plant parts and products as a source of relief from diseases and illness could be traced as back as the beginning of human civilization .The documents written between 4500-1600 B.C. it is Ayurveda, the foundation medicinal science of Hindu culture, in its eight divisions deals with specific properties of drugs and art of healing (Rastogi and Mehrotra, 2005). The potential of higher plants as a source of new drugs is still largely unexplored. Among the estimated 5, 00,000 plant species, only a small percentage has been investigated phytochemically. Medicinal plants represents rich source for antimicrobial and antifungal agents. Plants are used medicinally in different countries and are a source of potent and powerful drugs (Srivastava *et al.,* 1996). India is rich in biodiversity of medicinal plants which are the source of great economic value all over the world. A wide range of various plant parts are used for the preparation of extracts as raw drug possessing vary in medicinal properties.

The different parts used are roots, stem, leaves, fruits, and modified organs. Some of these are collected by local communities for treating illness or wound healing; many other raw drugs are collected in large quantities and traded in the market as raw materials for many herbal industries (Uniyal *et al*., 2006). Although 100 of plant species have been tested for antimicrobial properties, the vast majority of have not been adequately evaluated (Balandrin *et al*., 1985).

Considering the vast potentiality of medicinal plants as antibacterial agents, a systematic investigation was undertaken to screen the antibacterial activity of five medicinal plants *viz., Solanum torvum, Adhatoda vasica, Terminalia chebula, Asparagus racemosus*