

Phytopharmacological evaluation of leaf extracts of *Hemidesmus indicus* (L)

B.T. KAVITHA* AND Y.L. RAMACHANDRA

Department of Biotechnology and Bioinformatics, Kuvempu University, SHIMOGA (KARNATAKA) INDIA

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For centuries, indigenous medicinal plants have been used against bacterial-induced pathogenesis. *Hemidesmus indicus* is a pharmacologically important plant. The *in vitro* experiment by the agar well diffusion assay showed the presence of bioactive components in *H. indicus* leaf extract through zone of inhibition. In different ratios of petroleum ether and ethyl acetate test have shown significant zone of inhibition against gram positive and gram negative bacteria: *Bacillus subtilis* (54 mm), *Escherichia coli* (70 mm) and *Pseudomonas aeruginosa* (50 mm).

Key words : Antibacterial activity, *H. indicus*, Medicinal plants, Bioactive components.

INTRODUCTION

Finding healing powers in plants is an ancient idea. Since the advent of antibiotics in the 1950s the use of plant derivatives as antimicrobials has been virtually nonexistent. *Hemidesmus indicus*, commonly called Indian Sarsaparilla a climbing vine found throughout India which belongs to family Asclepiadaceae. *H. indicus* has been used as a folkloric medicine and found to be an ingredient in Ayurvedic and Unani preparations which are usually prescribed against inflammation, diarrhoea, respiratory disorders, skin diseases, syphilis, fever, bronchitis, asthma, eye diseases, urinary disorders, loss of appetite, burning sensation, rheumatism and especially for epileptic fits in children (Lakshman *et al.*, 2006). Considerable research on pharmacognosy, chemistry, pharmacology, and clinical therapeutics has been carried out on Ayurvedic medicinal plants of India (Patwardhan, 2005). Herbal medicines generally have fewer side effects than synthetic compounds, and their effectiveness can be improved by modern pharmacological methods (Wilasrusmee *et al.*, 2002). Clinical microbiologists have two reasons to be interested in the topic of antimicrobial plant extracts. Worldwide spending on finding new anti infective agents is expected to increase 60% from the spending levels. New sources, especially plant sources, are also being investigated, secondly the public is becoming increasingly aware of the problems with over prescription and misuse of antibiotics. Moreover, plant based medicines being effective and cheaper are responsible for the fast growth of industries of herbal medicines (Rojas *et al.*, 1992). In view of the alarming incidence of antibiotic resistance in

bacteria and fungi there is a need to identify new antimicrobial formulations (Cowan, 1999).

H. indicus extract is also found to inhibit lipid peroxidation and scavenge hydroxyl radicals *in vitro* (Amirghofran *et al.*, 2000). It was observed that the cell culture extract of *H. indicus* had prevented hypercholesterolemia in rats (Bopanna *et al.*, 1997). *In vitro* culture of this species might offer an alternative method for production of these important pharmaceuticals which would reduce the collection pressure on this plant (Neeta *et al.*, 2005). As there is a growing world wide demand for alternative medicine, in our continuing search for antimicrobial agents from plants, number of secondary metabolites have been characterized as active principles. *P. aeruginosa* and *E. coli* are opportunistic pathogens that cause variety of infections, usually in immune compromised host. The aim of the present study was to screen for the antibacterial property of leaf extracts of *H. indicus in vitro* against *E. coli*, *B. subtilis* and *P. aeruginosa*.

MATERIALS AND METHODS

Collection and processing of plant material :

The fresh plant leaves of *H. indicus* were collected from Western Ghats of Karnataka. The material has been processed for extraction. Leaves were washed in tap water for two to three times and then rinsed in distilled water. The clean leaves were shade dried for 15-20 days. Further, the leaves were finely powdered with the help of blender and stored for further utilization.

* Author for correspondence.