

## Studies on antibacterial, phytochemical and pharmacognostical activities of *Indigofera longiracemosa*

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Antibacterial screening of the crude extracts of *Indigofera longiracemosa* were tested against seven important human pathogenic bacterial strains including gram-negative such as *Escherichia coli*, *Klebsiella pneumoniae*, *Salmonella typhi*, *Vibrio parahaemolyticus*, *Vibrio cholerae* and gram-positive namely *Bacillus subtilis* and *Streptococcus pneumoniae*. The results highlighted that most of the bacterial species exhibited better growth inhibitory activity. Aqueous and hexane extracts exhibited good antibacterial properties than other two extracts. Furthermore studies pertaining preliminary phytochemical and pharmacognostic analysis have been investigated.

**Key words :** Phytochemical and pharmaceutical analysis, Antibacterial tests, Water and solvent extracts, *Indigofera longiracemosa*.

### INTRODUCTION

Now a days several synthetic antibiotics are employed in the treatment of infectious and communicable diseases, caused by microorganisms in human as well as animals throughout world. A number of researches are working seriously to find out substitutes for antibiotics as they cause side effects on the functioning of different parts of the body, organs and systems. Over the last twenty years, intensive efforts have been made to discover clinically useful antimicrobial drugs (Valsaraj *et al.*, 1997; Ahmed *et al.*, 1998; Werner *et al.*, 1999; Perumalsamy *et al.*, 1999; Perumalsamy and Ignacimuthu, 2000). The increasing interest on traditional ethno medicine may lead to discovery of novel therapeutic agents. Branther and Edith Grein (1994) stated that natural products of higher plants may offer a new source of antibacterial agents for external use, e.g., compresses, cataplasms, gargles and ointments.

Antimicrobial drug resistance is also of economic concern with impact on doctors, patients, health care administrators, pharmaceutical companies and the public (Mcgowan, 2001). The development of new antimicrobial drugs has been used to overcome resistance (Monroe and Polk, 2000). However, plant-derived medicines have been part of traditional health care in most part of the world and the antimicrobial properties of plant derived compounds is well documented (Cowan, 1999). There is increasing interest in plants as sources of antimicrobial agents (Charindy *et al.*, 1999; Palmbo and Semple, 2002).

Indian subcontinent is a vast depository of medicinal plants that are used in traditional medical treatments (Chopra *et al.*, 1956; Kirtikar and Basu, 1991; Ambasta, 1992).

Indigo is an important blue dyestuff, extracted from *Indigofera* species and used in the treatment of epilepsy, bronchitis, liver disease, and psychiatric illness (Anand *et al.*, 1979). Recent studies focus on the several *Indigofera* species have been tested for its antimicrobial activity viz. *Indigofera oblongifolia* (Dahot, 1999), *Indigofera sedgewickiana* (Alasbahi *et al.*, 1999), *Indigofera longiracemosa* (Thangadurai *et al.*, 2002) and phytochemical analysis (Hasan *et al.*, 1996; Thangadurai *et al.*, 2001a and b). The aim of this study was to investigate the further antibacterial, phytochemical and pharmacognostical analysis of aqueous and organic solvent extracts of *Indigofera longiracemosa*.

### MATERIALS AND METHODS

#### ***Plant collection and extract preparation:***

Leaves of *Indigofera longiracemosa* Boiv. ex Baill. (Papilionoideae) were collected from the foothills of Kolli Hills, Salem district of Tamil Nadu during the month of October to December 2004. The collected plants were shade-dried and coarsely powdered by using pulverisator. The coarse powders were then subjected to successive extraction in various solvents by gradually increasing the polarity such as hexane, chloroform and methanol by using Soxhlet apparatus. The collected