



ANTIBACTERIAL ACTIVITY AND PHYTOCHEMICAL SCREENING OF *IMPATIENS CHINENSIS*

VIDYA VISWANAD*, ARYA SUBASH K., M. ANURAG, P. P. ANUPAMA
and ARUN ABHRAHAM

Amrita School of Pharmacy, Elamakkara, COCHIN – 26 (Kerala) INDIA

ABSTRACT

Impatiens chinensis commonly known as wild balsam is used as an antimicrobial agent in folk medicine. According to literature, this plant has been less explored for its antimicrobial activity. In this study, the antibacterial activity of this plant was carried out using chloroform and ethyl acetate extract by agar well diffusion method. Phytochemical study was carried out to find the presence of glycosides, alkaloids and carbohydrates. Zone of inhibition was observed and led to the conclusion that the extracts of *Impatiens chinensis* inhibited the growth of bacteria.

Key words: Phytochemical, Antimicrobial, *Impatiens chinensis*.

INTRODUCTION

This study was designed to investigate antimicrobial activity and phytochemical screening of *Impatiens chinensis* belonging to family balsaminaceae. It is a small succulent annual herb growing during the rainy season and is used for treating burns, inflammations, bacterial infections, gonorrhoea, asthma, etc¹.

It is mainly found in wet forests of Western Ghats and also in wet wastelands throughout India.

EXPERIMENTAL

Collection

The aerial parts of *Impatiens chinensis* were collected from the wet forest of Idukki district of Kerala in the month of October to November. It was then dried under shade and was powdered and subjected to extraction process.

* Author for correspondence; E-mail: vidyavini@yahoo.co.in

Extraction

The shade dried plant was powdered and was extracted using chloroform and later by ethyl acetate by continuous hot percolation method. The excess of solvent was removed by evaporation under reduced pressure and was then stored in a desiccator. The extracts were subjected to preliminary phytochemical studies and antibacterial activity².

Antibacterial activity

The antibacterial activity of the plant was conducted *in vitro* using agar well diffusion method^{3,4}. Muller-Hinton Agar medium was prepared and it was inoculated with bacterial culture of *Proteus Vulgaris*, *S. aureus*, *E. coli* and *K. pneumonia*. Wells were made in each agar plate and the plant extracts were tested in the concentration of 100 mg/mL. The test extracts were prepared by dissolving the plant material extract in dimethylsulphoxide (DMSO). The standard used is levofloxacin in the concentration 10 mg/100 mL. Inhibition of microbial growth was determined by observing the zone of inhibition both in test and standard³⁻⁵.

RESULTS AND DISCUSSION

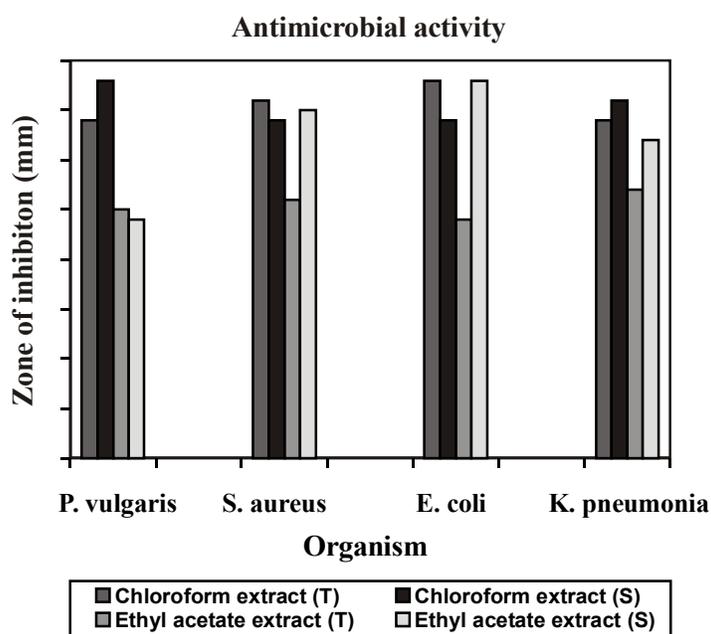
Phytochemical screening of *Impatiens chinensis* confirmed the presence of glycosides, alkaloids and carbohydrates as its major chemical constituents (Table 1). It was observed that tannins, saponins and phenolic compounds were absent in the extracts of the plant⁶. Zone of inhibition was clearly observed in the petri dishes cultured with *Proteus Vulgaris*, *S. aureus*, *E. coli* and *K. pneumonia* both in test and standard (Table 2).

Table 1: Phytochemical screening of plant extracts

Chemical constituents	Chloroform extract of <i>Impatiens chinensis</i>	Ethyl acetate extract of <i>Impatiens chinensis</i>
Glycosides	+	+
Alkaloids	+	+
Tannins	-	-
Saponins	-	-
Phenolic compounds	-	-
Carbohydrates	+	+

Table 2: Antibacterial screening of plant extracts

Organism	Zone of inhibition (mm)			
	Chloroform plant extract		Ethyl acetate plant extract	
	Test	Standard	Test	Standard
<i>Proteus vulgaris</i>	34	38	25	35
<i>Staphylococcus aureus</i>	36	34	26	35
<i>E. coli</i>	38	34	24	38
<i>K. pneumonia</i>	34	36	27	32



The chloroform extract shows comparable antibacterial activity whereas ethyl acetate extract shows moderate antibacterial activity. The observed zone of inhibition were 34, 36, 38 and 34 mm in the test sample of chloroform plant extract for organisms *Proteus vulgaris*, *S. aureus*, *E. coli* and *K. pneumonia*, respectively. Similarly, ethyl acetate plant extract showed a zone of inhibition of 25, 26, 24 and 27 mm for organisms *Proteus vulgaris*, *S. aureus*, *E. coli* and *K. pneumonia*, respectively.

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