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***Research Article***



International Journal of Pharmacy and Industrial Research

**ISSN Print 2231 – 3648**

**Online 2231 – 3656**

***IN VITRO* ANTIBACTERIAL ACTIVITY OF LEAF EXTRACT OF**

***SPHAERANTHUS INDICUS* LINN**

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## Abstract

The antibacterial activity of chloroform and methanolic extracts of *Sphaeranthus indicus* Linn leaves were studied against gram – positive, gram – negative bacteria by disc diffusion method. Both the extracts exhibited antimicrobial activity.

**Key words:** Antibacterials, Doxycycline, chloroform extract.

## Introduction

*Sphaeranthus indicus* (Astraceae) the plant is a small herbaceous, branched herb, with purple colour flower. It’s seen especially in the paddy field after harvest1. The leaves, roots and seeds of this herb ethnomedically cure indigestion, bronchitis, anemia, convulsion, asthma, dysentery, vomiting and leucoderma2. Externally the paste is applied to cure piles and swollen glands3. The antibacterial activity has been reported from the essential oil of Sphaeranthus indicus4.

## Materials and methods

The leaves of *Sphaeranthus indicus* Linn was collected from Triunelveli District of Tamilnadu during the month of May 2011 and authenticated by the Department of Forensic and Toxicology, Government Siddha Medical

College, Palayamkottai. The leaves were washed with tap water and dried in shade and made into coarse powder.

### Preparation of Extract

The coarse powdered materials were soxhleted separately using chloroform and methanol followed by solvent removal under reduced pressure to obtain dried extracts5.

### Evaluation of Antimicrobial Activity

The antimicrobial activity of the extracts was evaluated by agar diffusion method using the paper disc6. The paper impregnated with both extracts at 50µg/ml, 100µg/ml (dissolved in DMSO) respectively. Nutrient agar media was used for this study. Doxycycline. (30µg/disc) was used as standard. An average of three

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independent determinations was recorded. The observed zone of inhibition is presented in table 01.

## Result

**Table No. 01: Antimicrobial Activity of *Sphaeranthus indicus* Linn Leaves**

**Zone of inhibition (mm)**

**Microorganism**

**Chloroform extract Methanol extract**

**Doxycyline 30µg/disc**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | 50µg/ml | 100µg/ml | 50µg/ml | 100µg/ml |  |
| *Pseudomonas aeruginosa* | - | 16 | - | 21 | 30 |
| *Escherichia coli* | - | 18 | - | 20 | 28 |
| *Bacillus subtilis* | - | 19 | 14 | 25 | 28 |
| *Staphylococus aureus* | - | 17 | - | 16 | 26 |

## Discussion

It was observed that the chloroform and methanolic extract of Sphaeranthus indicus shows excellent antibacterial activity at 100µg/ml against the bacteria such as Pseudomonas aeruginosa, Escherichai coli, Bacillus subtilis and Staphylococus aureus using against standard drug Doxycycline (30µg/disc). But chloroform and methanolic extracts 50µg/ml not posses any inhibition except methanolic extract against the bacteria Bacillus subtilis.

## Acknowledgement

The authors are very grateful to Mr. Nepolean, Thanthai Roever College of Pharmacy, Perambalur to give an encouragement and guide us to carry out the work. We extend our thanks to the Management Thanthai Roever College of Pharmacy, Perambalur for précising laboratory facilities.

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