INTRODUCTION

Achyranthes aspera L.
Taxonomic classification[21]
Kingdom – Plantae
Subkingdom - Tracheobionta
Super Division - Spermatophyta
Division - Mangolioiphyta
Class - Mangoliosphida
Subclass - Caryophyllidae
Order - Caryophyllales
Family - Amaranthaceae
Genus - Achyranthes
Species - Aspera

ABSTRACT
The Plants are known for their diverse pharmacological activities including antimicrobial activity. Plant products work as a substitute to synthetic products because of easy availability. In the present work an attempt has been made to find out the antibacterial activity of various solvent extracts of Achyranthes aspera Linn. (Amaranthaceae). The Diethyl ether, Ethyl acetate and Acetone solvent extracts of leaves of the plant were screened for anti bacterial activity. The anti bacterial activity was done by agar well diffusion method against Bacillus Subtilis, Escherichia coli, Pseudomonas aeruginosa and Enterobacter cloacae. The present study revealed that Diethyl ether extracts showed significant Antibacterial activity against Escherichia coli, Pseudomonas aeruginosa and Enterobacter cloacae. Among the all bacteria screened Enterobacter cloacae was found to be more susceptible and Bacillus subtilis more resistant.

KEYWORDS: Achyranthes aspera L., anti bacterial activity, solvent extracts.

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round at the base, sub-cylindric, truncate at the apex, endospermic, brown coloured.

**Figure 1: Achyranthes aspera L. Plant.**

**MATERIALS AND METHOD**

**Plant material**

*Achyranthes aspera* L. plants were collected from the region of Nizamabad, Telangana, India, in the month of October. The plant was authenticated by Dr. Vidvartini, HOD, Department of Botany, Telangana University.

**Preparation of extracts**

*Achyranthes aspera* L. leaves were washed in water, shade dried, broken into coarse powder, grinded to fine powder using mechanical grinder and stored in air tight containers at room temperature. The powdered plant material was then sequentially extracted with Dichloromethane and Hexane solvents separately. Each solvent extract was prepared by soaking 100 g of dried fine leaf powder in 200 ml of the solvent (Dichloromethane and Hexane) for 4 days at room temperature with occasional shaking. The extracts were filtered using Whatman filter paper and then concentrated. The residual extracts were stored in refrigerator till further use.

**Anti bacterial Activity Test by Agar well Diffusion Method**

In this study, one gram positive (*Bacillus subtilis*) and three gram negative bacteria (*Escherichia coli, Pseudomonas aeruginosa* and *Enterobacter cloacae*) were tested. The Anti antimicrobial assay was performed by agar well diffusion method.[24-25] The sterilized nutrient agar (HiMedia) was inoculated with 200 µl of the bacterial inoculum and poured into the sterilized Petri plates. Three wells of 6 mm diameter were made on sterilized nutrient agar with a sterile borer. The prepared concentration of 100 mg/ml of each solvent extracts were transferred into the wells. The plates were incubated overnight at 37 ºC. Anti bacterial agent Gentamicin and amoxycillin (10 µg) were used as positive control and DMSO solvent as negative control. The diameter of clear zone of inhibition was measured.

**RESULTS AND DISCUSSION**

The antibacterial activity of plant extracts is shown in Table 1. Among the all the bacteria screened *Enterobacter cloacae* was found to be more susceptible and *Escherichia coli* most resistant.

Table 1: Antibacterial activity of leaves extracts of Cassia occidentalis L. zone of inhibition in mm diameter.

<table>
<thead>
<tr>
<th>Extract</th>
<th>Bacillus subtilis</th>
<th>Escherichia coli</th>
<th>Pseudomonas aeruginosa</th>
<th>Enterobacter cloacae</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dichloromethane</td>
<td>8</td>
<td>-</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Hexane</td>
<td>7</td>
<td>-</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>+ve ctrl</td>
<td>40</td>
<td>38</td>
<td>38</td>
<td>31</td>
</tr>
<tr>
<td>-ve ctrl</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

DMSO 50µl/disc taken as negative control; Amoxycillin 10mcg/disc taken as positive control for *Enterobacter cloacae* and Gentamicin 10mcg/disc taken as positive control for the remaining three bacteria.

Each solvent extract concentration at 100 mg/ml

(-) Value indicates no activity.

**CONCLUSION**

The present study reveals the antibacterial property of Dichloromethane and Hexane solvent extracts of *Achyranthes aspera* L. leaves. The data of this study may just enrich the existing comprehensive data of antimicrobial activity of *Achyranthes aspera* L. leaves.

**ACKNOWLEDGEMENTS**

I gratefully acknowledge my sincere thanks to Head of Department of Botany, Telangana University for the identification of plant.

**REFERENCES**


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