Antibacterial Activity of Leaf Extracts of *Aristolochia bracteate* Retz

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*Aristolochia bracteate* Retz, family, *Aristolochiaceae* is a common annual herb widely distributed in India and widely used in indigenous system of medicine. The objective of the present study was to investigate the antibacterial activity of crude extracts of *Aristolochia bracteate* Retz leaves by disc diffusion method. The leaves of *Aristolochia bracteate* Retz were extracted with petroleum ether, chloroform and alcohol. The concentrated crude leaf extracts of *Aristolochia bracteate* Retz were tested against *Bacillus subtilis*, *Lactobacillus plantarum*, *Escherichia coli*, *Staphylococcus aureus*, *Streptococcus faecalis* and *Pseudomonas aeruginosa*. Alcoholic extract showed significant antibacterial activity as compared to that of other extracts.

*Aristolochia bracteate* Retz, is commonly called as ‘Aadutheendaapaalai’ in Tamil. It is a shrub widely distributed in India. In the indigenous system of medicine, it is reported that, the decoction of the leaves were used for treating skin diseases, rheumatism and as analgesic1,2. Ethnomedical information of *Aristolochia bracteolate*, which is closely related species of *Aristolochia bracteate* obtained through Napralert reports that, it is used as an emmenagogue, vermifuge, anthelmintic, purgative and abortifacient. It is also used to treat wounds, scorpion bites, dental caries and scabies. Toxicity of *Aristolochia bracteata* in goats3 and antibacterial activity of *Aristolochia bracteata* root extract was reported4. Therefore the present study has been undertaken to investigate the antibacterial activity of leaf extract of *Aristolochia bracteate* by disc diffusion method5,6.

The leaves of *Aristolochia bracteate* were collected in black cotton soil areas during post monsoon period in and around Kailasapuram, Tirunelveli district, Tamil Nadu, India and is authenticated by botanists of Government Siddha Medical College, Palayamkottai, Tamil Nadu and a specimen sample (plant No:761) is kept in our institution.

In vitro antibacterial activity of the different extracts of *Aristolochia bracteate* was studied by disc diffusion method using different bacterial strains such as *Bacillus subtilis* (NCIM-2063) *Lactobacillus plantarum* (NCIM-2083), *Escherichia coli* (NCIM-2079), *Staphylococcus aureus* (NCIM-2079), *Streptococcus aureus* (NCIM-2080) and *Pseudomonas aeruginosa* (NCIM-2200). The cultures were obtained from National Collection of Industrial
TABLE 1: ANTIBACTERIAL ACTIVITY OF LEAF EXTRACTS OF ARISTOLOCHIA BRACATEA REDTZ

<table>
<thead>
<tr>
<th>Extract/antibiotic</th>
<th>Streptococcus faecalis</th>
<th>Lactobacillus plantarum</th>
<th>Escherichia coli</th>
<th>Pseudomonas aeruginosa</th>
<th>Bacillus subtilis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum ether</td>
<td>NI</td>
<td>NI</td>
<td>7</td>
<td>10</td>
<td>NI</td>
</tr>
<tr>
<td>Chloroform</td>
<td>9</td>
<td>11</td>
<td>11</td>
<td>13</td>
<td>8</td>
</tr>
<tr>
<td>Alcohol</td>
<td>18</td>
<td>15</td>
<td>20</td>
<td>13</td>
<td>17</td>
</tr>
<tr>
<td>Rifampicin</td>
<td>23</td>
<td>25</td>
<td>27</td>
<td>24</td>
<td>22</td>
</tr>
</tbody>
</table>

NI - No inhibition

Microorganisms, Pune. These different extracts were loaded (1 mg/ml) on a sterile Whatman No 1 filter paper disc with 5 mm diameter and dried aseptically. Control disc received standard rifampicin antibiotic solution (1 mg/ml) in methanol. 24 h old bacterial suspension (10^8 cells/ml) was taken in a sterile Petri dish and sterile nutrient agar was poured at 40-45° and mixed well and allowed to solidify. After 4 h, the extract loaded and control drug (rifampicin) loaded disc were placed on the solidified nutrient agar media and incubated at 37±1° in an incubator for 24 h. After incubation the plates were observed and the diameter of the zone of inhibition were measured and recorded7-9.

Table 1 shows the antibacterial activity of the petroleum ether, chloroform and alcohol extracts from the zone of inhibition produced by the extracts. It was observed that E. coli, Streptococcus faecalis were most sensitive to the alcoholic extract and Lactobacillus plantarum, Pseudomonas aeruginosa and Bacillus subtilus were moderately sensitive to the alcoholic extract. Chloroform extract exhibited significant antibacterial activity against Streptococcus faecalis, Lactobacillus plantarum, E. coli, Pseudomonas aeruginosa and Bacillus subtilus.

Thus the alcoholic extract exhibited moderate to significant antibacterial activity against all the tested bacterial strains. The chloroform extract exhibited moderate antibacterial activity. The petroleum ether extract was devoid of any antibacterial activity.

REFERENCES