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 breacteate* Retz were extracted with petroleum ether, chloroform and alcohol. The concentrated crude leaf extracts of *Aristolochia bracteate* Retz were tested against *Bacillus subtilus*, *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 analgesic[1,2]. 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 goats[3] and antibacterial activity of *Aristolochia bracteata* root extract was reported[4]. Therefore the present study has been undertaken to investigate the antibacterial activity of leaf extract of *Aristolochia bracteate* by disc diffusion method[5,6].

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. Shade dried coarsely powdered leaves of *Aristolochia bracteate* (0.5 kg) was subjected to successive extraction with petroleum ether (80°), chloroform (50.5-51.5°) and alcohol (54-55.5°) for 24-36 h using a Soxhlet extractor separately. These crude extracts were concentrated under vacuum. The concentrated crude petroleum ether, chloroform and alcohol extracts were stored in desiccator until use.

In vitro antibacterial activity of the different extracts of *Aristolochia bracteate* was studied by disc diffusion method using different bacterial strains such as *Bacillus subtilus* (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

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TABLE 1: ANTIBACTERIAL ACTIVITY OF LEAF EXTRACTS OF *ARISTOLOCHIA BRACTEATE* RETZ

Extract/antibiotic	Diameter of zone of inhibition (mm)				
	Streptococcus faecalis	*Lactobacillus plantarum*	*Escehichia coli*	*Pseudomonas aeruginosa*	*Bacillus subtilus*
Petroleum ether	NI	NI	7	10	NI
Chloroform	9	11	11	13	8
Alcohol	18	15	20	13	17
Rifampicin	23	25	27	24	22

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 recorded[7-9].

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.

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