

## RESEARCH ARTICLE

## Phytochemical investigation of *Aristolochia indica* L. An Ethno-medicine on Snake Bite

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Manuscript details:	ABSTRACT
<p>Date of publication 18.10.2014</p> <p>Available online on <a href="http://www.ijlsci.in">http://www.ijlsci.in</a></p> <p>ISSN: 2320-964X (Online) ISSN: 2320-7817 (Print)</p> <p><b>Editor: Dr. Arvind Chavhan</b></p>	<p><i>Aristolochia indica</i> L. a threatened medicinal plant belongs to the family Aristolochiaceae used traditionally as an antidote on snake bite and other diseases. However, the present study is the Ethnobotanical survey and the major reasons for the low populations of <i>Aristolochia indica</i> were documented. Preliminary phytochemical analysis of <i>Aristolochia indica</i> gave positive test for various compounds, also qualitatively analyzed with the help of thin layer chromatographic techniques.</p> <p><b>Keywords:</b> <i>Aristolochia indica</i>, survey, phytochemical screening, Bhandara.</p>
<p><b>Cite this article as:</b> Bawankule Devesh and Chaturvedi Alka (2014) Phytochemical investigation of <i>Aristolochia indica</i> L.- An Ethno-medicine on Snake Bite. <i>Int. J. of Life Sciences</i>, Special issue, A2 :172-174.</p> <p><b>Acknowledgements:</b> Authors are thankful to Dr. N.R. Ugemuge UGC Emertus fellow for their guidance during work. Authors also thankful to Head of the Department and other faculties P.G Botany RTM Nagpur University for providing me necessary facility during work.</p> <p><b>Copyright:</b> © Author(s), This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derives License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p>	<p><b>INTRODUCTION</b></p> <p>Snakebite is a common medical emergency encountered in the rural area. About 35,000 to 50,000 people died of snakebite every year in India. Antivenom is a Specific antidote for snakebite envenomation. Antivenomic medicines against snakebites are lacking in the many remote area of India. Antiserum being the only therapeutic agent, its development from animal source is time consuming and expensive. Although use of plants against snakebite has been long recognized. Many Indian medicinal plants are recommended by traditional people use for the treatment of snakebite. As they vary from place to place, present study was taken to study the plant used by locals of Bhandara district (Maharashtra).</p> <p><i>Aristolochia indica</i> L. a threatened medicinal plant belongs to the family Aristolochiaceae commonly called as Duck weed, Niroki (vaidus) is a threatened medicinal plant. Root and leaves of <i>Aristolochia indica</i> is used medicine in a number of diseases such as fever, dry cough, cholera, ulcers, leprosy and also used as antimicrobial activity. In Bonde village of Bhandara district traditional people give aqueous extract of fruits part of <i>Aristolochia indica</i> as a antidote for snake bite. However, there is no scientific work report of this plant fruit part having traditional use as an antidote for snake bites, and so it has been selected to Phytochemical Investigation of fruit on <i>Aristolochia indica</i> an Ethnomedicine in snake bite.</p> <p><b>MATERIAL AND METHODS</b></p> <p><i>Aristolochia indica</i> L. is a threatened medicinal plant. It is a twining herb, semiwoody; leaves are broadly ovate, exstipulate. Fruit are capsule and Seedsdeltoid-ovate, acute, flat, and winged.</p>

**Collection of plant material:** Fruits of *Aristolochia indica* L. were collected from wild state in Bonde village of Bhandara district and shade dried for about 10-15 days. The shade dried plant material was further analysis.

**Preliminary Phytochemical Analysis:** For preliminary detection of Phytochemical constitutes, 2g powder material of fruit part was taken and crude extracted with chloroform for about 3 days by maceration. The chloroform extract (1a) was distilled off and the residue (1a) was dried overnight on filter paper. This chloroform extract was tested for the presence of alkaloid, steroid, anthocyanins, anthocyanidins, Anthraquinones, caretonoid, Coumarins, emodins, flavonoids, polyuronoids, tannins, triterpenoids, volatile oils, saponins. Same procedure was repeated with Petroleum ether, Methanol and Water.

Fresh material of various plant parts under study were used for screening of anthraquinones. Similarly 70% ethanol extract was tested for presence of cardiac glycosides.

## RESULTS AND DISCUSSION

### Ethnobotanical survey:

Vidharbha region having one of the richest tribal culture in India. Bhandara district having maximum

tribal population in the region which includes Gond, Gowari, Pradhan, Dhiwar tribes. Ethnobotanical information was gathered through several visits, group discussion in the study area. An attempt has been made to expose traditional medicinal knowledge about the selected plant *Aristolochia indica* which were used by local tribal peoples from Sakoli region of Bhandara district. They give medicine after confirmation of the poisonous snake bite in the form of aqueous extract of the fruits of *Aristolochia indica*. First dose will be of one or two complete fruits. After treating person with first dose, if the person does not get relief, they again treated with the second dose after 15 to 30 minutes. The patient gets completely relief in two-three hours.

### Threat analysis:

The major reasons for the low population of *Aristolochia indica* were documented under the threat analysis study. The complete defoliation of leaves and flower because of larval attack on this plant causes the early death of this plant. The larval stage is identified as *Pachliopta aristolochiae* commonly called as Common rose butterfly. The caterpillar is velvety colour and has a white band on a segment on its middle reminiscent of a belt or collar. It has a numerous fleshy red-tipped white protuberance on the body. It is bulky and slow in its movement. Over exploitation of fruits and other parts is also one of the reason for low population.

**Table 1: Phytochemical analysis of fruits extract.**

Sr. No.	Phytochemical	Chloroform	Petroleum ether	Methanol (Alcohol)	Water
1	Wagner reg.	+	+	+	-
	Mayer reg.	+	-	-	+
	Dragondrof reg.	+	+	-	+
2	Anthocyanins	-	-	+	+
	Anthocyanidins	-	-	+	+
3	Anthracene glycosides	-	-	-	+
4	Anthraquinones	+	+	-	-
5	Cardiac glycosides	+	+	-	+
6	Caretenoide	+	+	+	-
7	Coumarins	+	+	+	+
8	Emodins	-	+	-	+
9	Flavonoides	-	-	+	+
10	Polyuronoids	+	+	+	+
11	Saponoids	-	-	-	-
12	Steroids	+	+	+	-
13	Tannin	-	+	+	+
14	Triterpenoids	+	+	-	+
15	Volatile oil	-	+	-	+

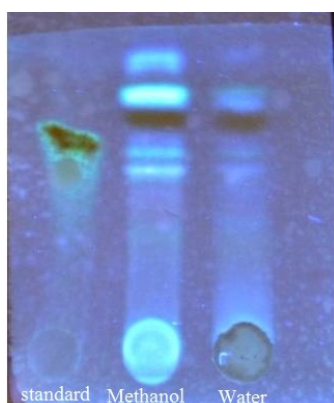
**Phytochemical screening:**

The plants for preliminary phytochemical analysis of *Aristolochia indica* fruits gave positive test for 14 compounds, Chloroform extract gave positive test for 8 compounds, Petroleum extract gave positive test for 12 compounds, Methanol extract gave positive test for 9 compounds and water extract gave positive test for 12 compounds (table 1).

**Thin layer Chromatography of Fruit:**

In qualitative analysis, in which Thin-Layer Chromatography were done the various compound like alkaloids, anthraquinones and anthracene derivative, flavonoids, coumarins was observed with different bands of different Rf values, alkaloids 0.85 and 0.93, anthraquinones and anthracene derivative range from 0.70 to 0.97, coumarins were range from 0.82 to 0.90 and flavonoids shows 0.70.

After the conformation of Rf value of standard flavonoid (Kaempferal) with the sample extract it is concluded that the flavonoid type (Kaempferal) is present in the sample (fig-1).



**Fig-1. TLC of Flavonoid(Kaempferal)**

**CONCLUSION**

A vast knowledge of forest aboriginal people of how to use plant against different illness as well as infectious diseases having a great importance. The finding of the present study will serve as a reference in the preparation of medicinal monograph of *Aristolochia indica*. In future it is necessary to conserve this plant for medicinal uses for example tissue culture technique may be more useful in the conservation point of view to make the drug available throughout the year. Further investigations are needed for identification and purification of the active

components involve in the neutralization of snake venom.

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