



**International Journal of Biology, Pharmacy
and Allied Sciences (IJBPAS)**

'A Bridge Between Laboratory and Reader'

www.ijbpas.com

**ETHNOMEDICINAL USE OF DIFFERENT WILD PLANTS USED BY
THE FOLKLORE PRACTITIONERS OF TRIPURA IN THE
TREATMENT OF SNAKE BITE**

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Received 5th June 2020; Revised 8th July 2020; Accepted 6th Aug. 2020; Available online 1st April 2021

<https://doi.org/10.31032/IJBPAS/2021/10.4.5443>

ABSTRACT

Due to remoteness, inaccessibility and closed culture tradition, vast body of ethnobotanical knowledge has remained largely unexplored. The folklore practitioners of Tripura were studied for the use of different wild plant species in their herbal formulations for the treatment of snake bite. Snake bite is a global problem and more acute in the tropical region of the world including Tripura. Snake bite is a serious issue in rural health due to their high mortality. The venomous snakes are responsible for serious damage of local tissues and sometimes fatal in victims. The ethnomedicinal information includes the use of various wild plant species along with their mode of administration which is extensively used by the folklore practitioners of this region. The present investigation makes an effort to accumulate necessary information on ethnic plant species that are available in wild and used for snakebite treatment in Tripura. From continuous literature survey and on the basis of available information collected during the study have been compiled with emphasis on the plants, botanical name, family, parts used, mode of application, mode of treatment etc., which might be a platform for the budding stat ups working towards the modernization of traditional methodologies in health care to explore opportunities in synergy with advanced medicine delivery depending on the acquired knowledge.

**Keywords: Folklore Practitioner, Snake bite, herbal formulation, Ethnomedicinal use,
Wild plants, Tripura**

INTRODUCTION

India has a long history of using medicinal plants in traditional medicine systems. The traditional systems of Indian medicines depend solely on herbal and plant products of various forms such as powder, extracts, decoctions practiced since the Vedic period. The ancient Indian script the Atharvaveda (1600-1000 BC) describes various traditional herbal drugs. The folklore or traditional practitioners of curing snakebite are called as visha vaidyas in India [1]. Apart from conventional traditional use, the importance of medicinal plants has increased tremendously in last few years throughout the world. World Health Organization estimates that about 80% of the world's population in developing countries depends on plants for the management of a variety of diseases, because of the lack of modern healthcare services [2-4]. Documentation of indigenous medicinal knowledge of plant species has contributed to a number of modern drug formulations for basic healthcare [5, 6]. Scientists realize its value in health sector and have developed feasible protocol for identification of their bioactive components and technology for large scale synthesis suitable for modern pharmaceutical industry.

Tripura is bestowed with different agro-climatic zones and very rich in regards to

its floral and faunal genetic resources which make the region as one of the mega biodiversity hot spot in the country. At the same time due to the destructive activities of humans like rapid deforestation of these forests for urbanization, over exploitation of forest products, expansion of agricultural activity etc dramatically influenced the environment and these often create human animal conflict. Environmental issues are central to the political, social, economic and moral challenges of the 21st century; therefore, a complete knowledge about these issues is necessary for administrators as well as for the common man, not only for their proper understanding but also for the planning and sustainable development.

There are numerous species of venomous and non venomous snakes found in the forest as well as semi urban areas of Tripura. Snakebites represent a severe medical, social, and economic challenge in this region as there are large numbers of venomous snakes are found in the forest and mountain region where access to the treatment is limited. Folklore medicine practice is very popular among the ethnic people of Tripura for health care system including snake bite. The most common poisonous snakes are Keute saap (*Bungarus caeruleus*), Shankhamoni (*Bungarus fasciatus*), Fanok (*Ophiophagus hannah*),

Jinlapura saap, Gokhera saap (*Naja naja*), Darash (*Ptyas mucosus*), Laudanga saap (*Trimeresurus albolabris*), etc. Venomous snake bites can cause local tissue injury, coagulopathy, cardiotoxicity, systemic paralysis, hemorrhage, renal damage and failure to the patient. Even venomous snake bites can be fatal if it is not treated immediately. Snakelores and snakebite antidotes are integral part of indigenous practices [7]. The folklore practitioners are owned the knowledge on the use of various wildy available medicinal plants in the treatment of snakebite from their ancestor. Use of wild medicinal plants has always been popular remedy against snakebite [8]. They have a deep belief in their native traditional medicine for remedies and depend exclusively on their own herbal cure.

METHODS AND METHODOLOGY

The study was conducted among the ethnic people of Tripura mainly inhabitant of Barmura hills and nearby area like Ampinagar, Taidu, Gamakupara village, Tetoibari, Karvu, Jantranapara, Baishamani. The length of Jampui hill is 74 k.m and the length of Barmura-Devatamura hill is 47 km. The main inhabitants of this area are Lushai tribes, Reang, Molsom, Debberma, Kaipeng, Chakma and Uchoi tribes.

Traditional uses of ethno botanical plants information was obtained by oral interviews from folklore practitioners of the study area. A total of 15 selected folklore practitioners were interviewed, 13 were male and 2 female. The age of the healers was between 50 - 90 years. The plant specimens were identified according to different references concerning the medicinal plants of Tripura and North East India and further confirmed by the taxonomist from Botany Department of Assam Down Town University.

RESULT AND DISCUSSION

This investigation will help students, future researchers to understand various approaches to treat snakebites. Data obtained from the present study are recorded in **Table 1**. A total of 29 wild plant species are belonging to 17 families have been reported and documented for the treatment of snakebite. However, this effort applies only an attempt to compile the important medicinal plants which are available in wild and are frequently used in the treatment of snakebite poisoning in Tripura. *Acoraceae*, *Fabaceae*, *Liliaceae*, *Aristolochiaceae*, *Meliaceae*, *Asclepiadaceae*, *Caesalpiniaceae*, *Vitaceae*, *Zingiberaceae*, *Araceae*, *Solanaceae*, *Liliaceae*, *Lamiaceae*, *Musaceae*, *Apocynaceae*, *Piperaceae*, *Euphorbiaceae*, *Verbenaceae* are the most significant families from where the plants were reported during the study. The

folklore practitioners used to apply paste of these medicinal plants on the injured area

or oral application of plant extracts and leaves juice as an antidote to the patient.



Figure 1: Interaction with the Folklore practitioners



Figure 2: Interaction with the village people



Figure 3: Study area

Table 1: List of indigenous plants used in the treatment of snake bite

Serial No.	Botanical Name	Family	Parts used	Mode of Treatment	Mode of Application
1	<i>Acorus calamus</i> Linn	Acoraceae	Rhizome	External	Paste
2	<i>Adhatoda vasica</i>	Acanthaceae	Inflorescence	External/Internal	Paste/ Juice
3	<i>Albizia chinensis</i> (Osbeck) Merr	Fabaceae	Bark	External	Paste
4	<i>Aloe vera</i> L.	Liliaceae	Whole Plant	Internal	Juice
5	<i>Andrographis paniculata</i> (Burm F) Wall.	Acanthaceae	Leaves	External	Decoction
6	<i>Aristolochia indica</i> L	Aristolochiaceae	Leaves	External	Paste
7	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Flower	Internal	Decoction
8	<i>Bombax ceiba</i> Linn.	Bombacaceae	flowers/fruits/leaves	External	Paste
9	<i>Calotropis gigantean</i> L.R.Br	Asclepiadaceae	Roots	Internal and External	Paste
10	<i>Cassia fistula</i> Linn	Caesalpiniaceae	Bark, Leaves	External	Paste
11	<i>Cassia tora</i> L.	Caesalpiniaceae	Seeds	Internal	Decoction
12	<i>Cissus quadrangularis</i> L.	Vitaceae	Leaves	Internal	Paste

13	<i>Curcuma angustifolia</i> Roxb	Zingiberaceae	Rhizome	External	Paste
14	<i>Colacasia</i>	Araceae	Stem	Internal	Juice
15	<i>Datura metal</i> L.	Solanaceae	Roots	Internal	Paste
16	<i>Gloriosa superba</i> L	Liliaceae	Tuber	External	Paste
17	<i>Hemidesmus indicus</i> L.	Asclepiadaceae	Root	Internal	Juice
18	<i>Homalomena aromatica</i>	Araceae	Root /Leaves	Internal	Juice
19	<i>Leucas aspera</i> (Willd) Link.	Lamiaceae	Leaves	Internal	Juice
20	<i>Moringa oleifera</i> Lam	Moringaceae	Bark, Root	Internal and External	Extracts
21	<i>Musa paradisiaca</i> Linn.	Musaceae	Whole plant	Internal	Extract
22	<i>Nerium oleander</i> L.	Apocynaceae	Seeds	External	Paste
23	<i>Piper nigrum</i> L.	Piperaceae	Seeds	Internal	Juice
24	<i>Rauvolfia serpentina</i> L.	Apocynaceae	Roots	External	Paste
25	<i>Rauvolfia tetraphylla</i>	Apocynaceae	Fruits	External	Paste
26	<i>Ricinus communis</i> L.	Euphorbiaceae	Seeds	Internal	Paste
27	<i>Salvia officinalis</i> L	Lamiaceae	Flower	External	Paste
28	<i>Typhonium trilobatum</i>	Araceae	Leaves	Internal	Juice
29	<i>Vitex trifolia</i> L.F	Verbenaceae	Leaves	Internal	Juice

CONCLUSION

We reported - species namely *Acorus calamus*, *Adhatoda vasica*, *Albizia chinensis*, *Aloe vera*, *Andrographis paniculata*, *Aristolochia indica*, *Azadirachta indica*, *Bombax ceiba*, *Calotropis gigantean*, *Cassia fistula*, *Cassia tora*, *Cissus quadrangularis*, *Curcuma angustifolia*, *Colacasia* sps, *Datura metal*, *Gloriosa superb*, *Hemidesmus indicus*, *Homalomena aromatic*, *Leucas aspera*, *Moringa oleifera*, *Musa paradisiacal*, *Nerium oleander*, *Piper nigrum*, *Rauvolfia serpentine*, *Rauvolfia tetraphylla*, *Ricinus communis*, *Salvia officinalis*, *Typhonium trilobatum*, *Vitex trifolia* etc which are used in the treatment of snake bite. The present paper deal with the ethnomedicinal information includes 29 wild plants, useful parts of plants and mode

of administration practiced by the folklore practitioners. Many people still depend on herbal formulations and relay on folklore practitioners for the cure of snake bite poisoning and hardly consult a physician or a recognised Practitioner. But the folklore practitioners are on the decline because the younger members of the tribe have started moving towards the urban areas and are not willing to practice this form of medicine. There is danger that the knowledge of these wild medicinal plants will also die with them. It is therefore, necessary to document the plants and take efficient steps to conserve them. The budding start ups can take it to the lab testing and explore if the chemical compound of the plans is efficient enough to treat snake bite patients and establish as an alternative or main stream medicine to cure snake bite patients.



Figure 4: (A. Inflorescence of *Musa paradisiaca* B. Leaves of *Centella asiatica* C. Flowers of *Adhatoda vasica* D. Fruits of *Piper nigrum* E. Stem of *Androgaphis paniculata* F. Stem of *Alocasia* G. *Typhonium trilobatum* plant H. *Rauvolfia serpentina* plant I. *Acorus calamus* plants J. Rhizomes of *Gloriosa superba* K. Fruits of *Rauvolfia tetraphylla* L. *Homalomena aromatica* plants)

ACKNOWLEDGEMENTS

I am very much grateful to Assam down town University, Panikhaiti, Guwahati, Assam and State Drug Testing Laboratory, AYUSH, Govt. of Assam and Govt. Ayurvedic College, for providing necessary laboratory facilities for carrying out this research work.

CONFLICT OF INTEREST

Authors declare that they do not have any conflicts of interest.

REFERENCE

- [1] Toxicology Centre, Snakes Treatment in Ayurveda, 2012. <http://www.toxicologycentre.com/english/myths.html>
- [2] Calixto J.B. Twenty five years of research on medicinal plants in Latin America: a personal review. J Ethnopharmacol. 2005; 100: 131–134. [PubMed] [Google Scholar]
- [3] WHO, World Health Organisation; Geneva, Switzerland: 2002. Traditional medicine strategy 2002–2005. WHO/EDM/TRM/2002.1. [Google Scholar]
- [4] WHO, Guidelines for the Production, Control and Regulation of Snake Antivenom Immunglobulins, WHO Press, Geneva, Switzerland, 2010.
- [5] Cox P.A. Will tribal knowledge survive the millennium. Science. 2000; 287: 44–45. [PubMed] [Google Scholar]
- [6] Bibi S., Sultana J., Sultana H., Malik R.N. Ethnobotanical uses of medicinal plants in the highlands of Soan Valley, Salt Range, Pakistan. J Ethnopharmacol. 2014; 155:352–361. [PubMed] [Google Scholar]
- [7] Jain, A., S.S. Katewa, S.K. Sharma, P. Galav and V. Jain, 2011. Snakelore and indigenous snakebite remedies practiced by some tribals of Rajasthan. Indian J. Trad. Knowl., 10: 258-268.
- [8] Daduang, D., N. Sattayasai, J. Sattasai, P. Tophrom, A. Thammathaworn, A. Chaveerach and M. Konkchaiyaphum, 2005. Screening of plants containing *Naja naja siamensis* cobra venom inhibitory activity using modified ELISA technique. Anal. Biochem., 341: 316-325.