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## Traditional Use of Plants against Snakebite in Sugali tribes of Yerramalais of Kurnool district, Andhra Pradesh, India

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### ABSTRACT

**Objective:** To conduct ethnobotanical survey in Yerramalais forest among Sugali tribes and collect information on medicinal plants to used to in the treatment of snake bite. Snakebite has been a major cause of mortality of tribals and their livestock. **Methods:** The study was conducted during 2009–2011 visiting regularly Sugali Thandas and Lobais. Following the method of Jain and Goel. First hand information on their traditional medicine was recorded, repeated enquiries were made to understand their knowledge, methods of diagnosis and treatment. Data were collected on the specific part of the plants used collection, method of usage of the drug and dosage of the drug ,dosage of administration. **Results:** The paper provides information about Ehanobotanical and Scientific evidences of 23 medicinal plants which are used by sugalis as antidote for snake bite. **Conclusion:** Traditional medicine remains an integral part of the health system in this area Antidote medicinal plants play an important role in health and livelihood of Sugali Tribal people.

## 1. Introduction

Nature has provided a complete storehouse of remedies to cure ailments of mankind. Medicinal plants have been used for centuries as remedies for poisonous bites because they contain component of therapeutic values. Traditional healing system plays an important role in the maintaining the physical and psychological well being of the vast majority of tribal people in India. Traditional medicine include all kinds of folk medicine, unconventional medicine and indeed any kind of therapeutic method that had been handed down by the tradition of a community or ethnic group. Snake-bite is an important and serious medicolegal problem in many parts of the world, especially in South Asian countries. Almost 80% of people in developing countries depend on traditional medicines for primary health care, most of which are derived from the plants. The village folk, especially the sugali tribal people are still using the natural resources available in their surroundings to treat accidental hazards like snake bites and anomalies.

Ethnobotany, the interaction between plants and people involves traditional use of medicinal plants by indigenous communities and management of plant diversity by the aboriginals[1]. Traditional herbal medicine is readily available in rural areas for the treatment of snakebite. Application of the plant or its sap onto the bite area, chewing leaves and bark or drinking plant extracts or decoctions are some procedures intended to counteract snake venom activity. Plants are used either single or in combination, as antidotes for snake envenomation by rural populations in India and in many parts of the world [2]. Traditional people of Seshachalam hills, Andhra Pradesh, India use this plant with pepper and garlic against snakebite [3]2009]. In most of the societies the medical system coexists with several traditional systems. These traditional medical systems are generally based on the uses of natural and local products which are commonly related to the people's perspective on the world and life[4]. Several ethnobotanical reports indicate the plant as a potent anti snake venomous [5,6].Its use against snakebite with another traditional anti snakebite plant Rauvolfia serpentina has been reported in a review [7] indicating certain plants' increased effectiveness when administered in combination [8]. Since ancient

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times, snakes have been worshipped, feared, or loathed in South Asia. Cobras appear in many tales and myths and are regarded as sacred by both Hindus and Buddhists. Unfortunately, snakes remain a painful reality in the daily life of millions of villagers in this region. Snake bite is an important occupational injury affecting farmers, plantation workers, herders, and fishermen. Open-style habitation and the practice of sleeping on the floor also expose people to bites from nocturnal snakes. Bites are more frequent in young men, and generally occur on lower limbs. Snake-bites are the common cause of morbidity and mortality in tropical countries. In India, there are 216 species of snakes, of which only four are venomous snakes (cobra, krait, Russell's viper and saw scaled viper). In India, mostly in rural areas, health centers are inadequate and the snake bite victims mostly depend on traditional healers and herbal antidotes, as an alternative treatment. Use of AA against snake envenomation has been mentioned by [9] in their review on herbs and herbal constituents active against snakebite. The incidence of snake bites is higher during the rainy season and during periods of intense agricultural activity [10] Recent trend shows a decline in the number of traditional health practitioners in the region since the younger generation is not interested to continue this tradition [11].

*Embica officinalis* root extract is used as folk medicine to neutralize effectively the snake venom of cobra and viper [12]. The tribal inhabitants of this area are Chenchus, Sugalis, Yerukulas and Yanadis. tribal groups. They have been living in thick forest zones from immemorial days and frequently met with snake bites. To overcome these accidental hazards, generation to generation they strived hard to evaluate the therapeutic efficacy of many herbs and the successful stories passed on to the successors. Now these tribes have the treasure of good therapeutically valuable information for snakebites. These tribal people of this area also have the knowledge to recognize the bite whether it is poisonous or not. For this they give *Tamarindus indica* L. fruits juice orally to the patient, if he tastes it as sour then the tribes decide the bite as non poisonous. If the patient is unable to taste it then the bite is confirmed as poisonous and suitable drug is used as antidote. The tribes wander in the wild forest are exposed to poisonous snakes. They depend purely on herbal medicine for the treatment as they are away from the modern treatments. In case of snake bite, they first time a knot with the available tying plant material like peelings of stem or bark, twiners, tendrils, piece of cloth just above the injured area that poison does not spread into the entire body. The skin around the wound is peeled off with the help of thorn of available plant and the blood is allowed to ooze out. They apply the paste of *Moringa oleifera* Lam. root bark mixed with root of *Thephrosia purpurea* (L.) on the affected part. They carry the mixture of plants along with them tied in a cloth along with the eatables. Some carry the seeds of *Strychnos nux-vomica* L. and root of *Aristolochia indica* L. with them. In case of the snake bite,

patient is brought in time into thanda, the treatment is very peculiar and interesting. They take a live hen and remove skin on the leg and put blood oozing leg of the hen on the affected part of the patient. After few minutes, the hen will die and another hen's leg is kept in the same manner and this process will be continued up to the neutralization of the snake poison. At the end they apply the seed of *Strychnos nux-vomica* L. on the affected part. The tribal belief is that if the seed sticks on affected part then it indicates the patient is out of danger. Hence they always carry with them the seed of *Strychnos nux-vomica* L. tied to their waist thread. (Molathadu). Medicinal plants therefore represent an important opportunity to rural communities in India, as a source of affordable medicine and as a source of income. The Eastern Ghats are a series of discontinuous low ranges running generally northeast-southwest parallel to the coast of the Bay of Bengal. The Nallamalais forms a series of parallel ranges in the Eastern Ghats of Andhra Pradesh, India. The region falls under tropical monsoon climate rainfall from both south-west monsoon and north-east retreating monsoon. Kurnool district is situated between eastern longitudes of 76° 58'–78° 56' and northern latitudes of 14° 54'–16° 14'. Yerramalai forest (Fig.1) show deciduous forest at Racherla, North Dhone, Gani and Lanjabanda. Quite a handful of tribes reside in every nook corners of Eastern Ghats of the state Andhra Pradesh. Sugalis tribal community is one of the nomadic tribes who have settled down in villages called Thandas (Fig.2) like Gummitham thada, Sugali Lobai. The historical evidences reveal that they associated themselves with the forest which provides them all their day-to-day requirements. The present paper deals with the Sugalis (also called as Banjaras or Lambadies), one of the largest and advanced tribes of Andhra Pradesh, inhabiting the Yerramalais range of Eastern Ghats of Kurnool District of Andhra Pradesh (Fig.3). Kurnool district is the gate way of Rayalaseema. The district is situated between eastern longitudes of 76° 58'–78° 56' and northern latitudes of 14° 54'–16° 14'. Kurnool district (Fig.4) is the third biggest district in Andhra Pradesh and is the second biggest in Rayalaseema region. The main objective of this paper is to analyse how these tribal pastoralists and peasants, agriculturists have interacted with the forest resources in utilizing them as antidote for scorpion and snake poison. Sugalis are still using the natural resources available in their surrounding to treat many diseases and accidental derangements. They believe in mantras and tantras also, in the view of snake bites, they are using the old tradition of treatment, i.e. by mantras along with the administration of particular plant drugs. However, the Kurnool part of Yerramalais is relatively unexplored and little work has been done in context of ethnobotany. So the present study was undertaken on information of ethnobotanical plants used by Sugalis of Kurnool district, for the various poisonous bites are recorded by the authors during field trips has been documented in the study.



Fig.1 Yerramalai Forest



Fig.2 Sugali Thanda



Fig.3 Andhra Pradesh

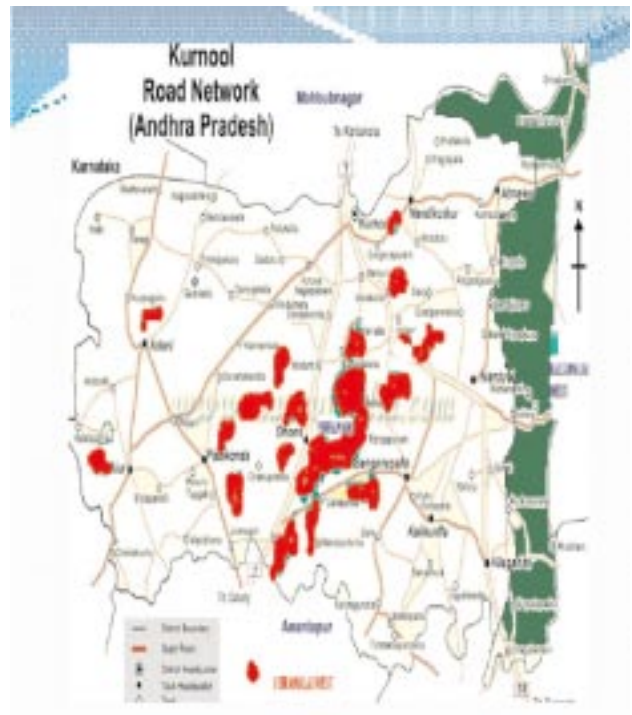


Fig.4 Kurnool Forest Map

### Material and methods

The study was conducted during 2009–2011 visiting regularly Sugali thandas and Lobais. Following the method of [13], the information regarding the usage of antidote medicinal plants available in the local thandas for treating various poisonous bites was collected directly by contacting the herbal doctors called local Vaidhyas or traditional healers, villagers and house wives. About 15 thandas were interviewed. During the interview the 10 informants whose age ranged from 50–80 years old, displayed specimens of antidote medicinal plants. Some informants were taken to the forest to locate the plants. First hand information on their traditional medicine was recorded, repeated enquiries were made to understand their knowledge, methods of diagnosis and treatment. Data were collected on the specific part of the plants used collection, method of usage of the drug and dosage of the drug, dosage of administration. The medicinal plants are identified with the help of the flora and finally confirmed with the herbarium of S.K.University, Anantapur. The collected plants are stored in the herbarium Osmania college, Kurnool.

### Results

The paper provides information about Ehanobotanical and Scientific evidences of 23 medicinal plants which are used by sugalis as antidote for snake bite. Plant species are enumerated with Botanical name, (Table.1), Family, Local

**Table 1**

List of Medicinal plants used for snake bite by Sugali tribes

S.No	Scientific name,family	Local Name	part used	Mode of administration
1	Alangium salvifolium (L.f.) Wangerin Family: Alangiaceae	Uduga	root bark	Oral administration of root bark infusion
2	Achyranthes aspera Family:Amaranthaceae	Uttareni	root	Oral administration of root infusion
3	Alstonia venenata Apocyanaceae		stem bark	decoction taken orally to snake bite
4	Ammannia baccifera L. Family Lythraceae	Agni Vendrapaku	whole plant	Whole plant powder administered orally, orally, for every 4 hours with hot cow milk
5	Amaranthus viridis Linn Family:Amaranthaceae	tootakura	Stem	Stem is used as antidote against snakebite
6	Bacopa monnieri (L.) Pennell Family: Scrophulariaceae	Sambrani	Leaf	Intaking of leaf powder decoction antidote for Cobra bite.
7	Barleria prionitis Family:Acanthaceae	moullla gorinta	Root	decoction taken orally to snake bite
8	Calotropis gigantea Family : Asclepiadaceae	jeeladu	Leaves/root	2 to 4 leaves of this plant is chewed well by the patient. by rubbing firmly over the bitten area.
9	Cassia occidentalis L. Family: Caesalpinaceae	Kasinda	root	Oral administration of root paste good remedy for Cobra bite.
10	Cassia tora Linn. Family: Caesalpinaceae	Pedda kasinda	Root	Roots antidote against snakebite
11	Ceiba pentandra (L.) Gaertn Family: Malvaceae	Tella Buruga	Root	Oral administration of root paste best remedy for Cobra bite.
12	Cissampelos parieraFamily:Menispermaceae	Adavi Bankateega	root	Dried, powdered and given orally with water
13	Corallocarpus epigaeus Rottl. and Wild Family: Cucurbitaceae	Naga Donda	tuberous root	Dried tuberous root of this plant, root of Aristolochia indica and andrographis paniculata whole plant of powder is
14	Habenaria roxburghii (Peers) R.Br. Family:Orchidaceae	Ratibadanica	rootuber	Dried, mixed with pepper and Garlic , ground, infusion given orally.
15	Helicteres isora L. Family:Sterculiaceae	Gubatada	root	Extract given orally and paste applied externally
16	Holarrhena pubescens (Buch–Ham.) Family:Apocynaceae	Palakodisa	stembark	Decoction given orally.
17	Lantana indica Roxb. Family: Verbenaceae	Makkadambu	leaves	Leaf juice administered orally work as an antidote for Russell Viper bite.
18	Luffa cylindrica (L.) Roem Family: Cucurbitaceae	Gutti Beera)	leaves	Leaf juice, about10–15 ml, is administered orally antidote for Pit viper bite.
19	Murraya paniculata (L.) Jack Family: Rutaceae	Golimi	leaves/root	infusion prepared from shadily dried root powder is administered orally
20	Tylophora indica Wt. and Arn Family: Asclepiadaceae	Mekameyani aaku	leaves	Leaf juice,root paste are administered orally
21	Rhinacanthus nasutus Family:Acanthaceae		Leaves	Juice given orally for snake bite
22	Strychnos nux–vomica L. Family:Loganiaceae	Musti	rootbark	Along with that Calotropis gigantea, Zinger, powdered, given orally.
23	Wattakaka volubilis (Linn. f.) Family: Asclepiadaceae	Bandiguri–ginja	leaf	Leaf juice,and root paste are administered orally Extract given orally and the paste as application.

name, Part used and mode of administration.

## Discussion

The main theme of this study is to protect the people from hazardous snake bites with in a reliable time. The sugali tribal inhabitants of Yerramalais area have authentic knowledge on antidotes for snake bites based on their ancient culture and ethnic practices. The present study brought to light the immense hidden knowledge of Tribal people on poisonous bites of Cobra, *Bungarus fasciatus*, *Bungarus caeruleus*. They have been employing all these plants in the form of paste, powder, juice, decoction, infusion and also in crude form. Some of these tribal pockets claim no deaths of snake bites, till date, by administering their ethnic medicines. The majority of antidotes taste bitter, suggesting the presence of alkaloids, glycosides and saponins. Based on the present study and field experiences it can be concluded the detailed scientific experiments are urgently needed to evaluate the efficacy of these antidotes. Yerramalais forest have a variety of Medicinal plants which are used by the Sugali tribals for their primary healthcare. The present study identified that Sugali traditional healers or Vaidhyas used 23 species of ethnomedicinal plants used as antidote to poisonous snakes bites. The collected data about antidote medicinal plants collected from inhabitants in and around Yerramalais forest were pooled and analysed. The investigation revealed that 23 medicinal plant species belonging to 22 genera and 16 families commonly used for poisonous bites by sugali tribes in the survey of Yerramalais forest. The enumeration and usage of antidote medicinal plants are described below.

## Conclusion

Traditional medicine remains an integral part of the health system in this area. Antidote medicinal plants play an important role in health and livelihood of Sugali Tribal people. The above results deal with correlation between reported ethnobotanical uses of medicinal plants from different part of Yerramalais. The present study has revealed the authenticity of traditional knowledge of the sugali tribal of Yerramalais.

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