



# ETHNOMEDICINE FOR BITES BY THE PRIMITIVE AND VULNERABLE TRIBAL GROUPS (PVTGS) OF NORTH COASTAL ANDHRA PRADESH

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## ABSTRACT

*The paper deals with 44 species of plants covering 33 families used by the PVTGs of North Coastal Andhra Pradesh for curing a variety of bites. The methodology and mode of approach is adapted from the classical works. With 5 species Asclepiadaceae is the dominant family followed by Liliaceae (3), and others. Herbs are dominant with 18 species followed by shrubs (8 spp), and others. Root is used in 24 practices followed by leaf (20), and others. Millettia racemosa and 20 practices were found to be new.*

**KEY WORDS:** Ethnomedicine, Bites, Tribals, Andhra Pradesh

## INTRODUCTION

There are 550 tribal communities in India of which 75 were recognized as Primitive and Vulnerable Tribal Groups (PVTGs) by the Government of India as per Dhebar Commission (1961). They live in inaccessible habitat in the hilly terrains with low literacy rate, stagnant or decreasing populations and practicing *podu* or shifting cultivation. In Andhra Pradesh, 10 communities viz., *Bodo Gadaba, Chenchu, Dongria Khond, Bondo Porja, Gutob Gadaba, Khond Porja, Konda Reddi, Konda Savara, Kutia Khond* and *Parengi Porja* are recognized as PVTGs and except *Chenchu* and *Konda Reddi* the rest are present in the study area. It falls in between 81° 51' and 84° 46' of Eastern longitude and 17° 45' and 19° 40' Northern latitude with a total area of 10,860 sq km covering 23 mandals of Srikakulam, Vizianagaram and Visakhapatnam districts with a total population of 42,88,113 of which the tribals are 6,18,500 (14.42%) and the Primitive and Vulnerable Tribal Groups (PVTGs) constitutes 1,76,324 (4.11%) as per 2011 census. Though there are publications on bites by different tribes in different parts of India (1-3) exclusive studies on the PTGs are not undertaken necessitating the present study.

## MATERIALS AND METHODOLOGY

The methodology and mode of approach for ethnomedicinal enumeration is adopted from the classical works of Croom (Croom, 1983), Jain (Jain, 189), Bellany (Bellany, 1993). Emphasis was given mainly to intensive field work in the

selected tribal pockets. The tribal pockets were identified with the help of Divisional Forest Officers, Srikakulam, Vizianagaram and Visakhapatnam and Project Officers, Integrated Tribal Development Agency, Seethampeta, Parvathipuram and Paderu and Census of India (2011) is also referred. Interviews were conducted with PVTGs at their dwellings during 2008-2011 covering all seasons of an year. During oral interviews specific questions were asked and the information supplied by the informants was noted. The knowledgeable informants were taken to the field and along with the collection of plants for the voucher specimens, the use of plants as given by the tribal informants was noted. In 95 pockets of the study area, 139 *vaidhyas* and practitioners were consulted. Each medicinal practice was cross checked with at least 3-4 informants. The plants were identified with the help of Flora of the Presidency of Madras (Gamble, 1915-1936). Voucher specimens were collected and deposited in the Herbarium of the Department of Botany, Andhra University, Visakhapatnam (AUV).

## ENUMERATION

The plants are arranged in an alphabetical order with their botanical name along with family name, vernacular name, locality, collector, voucher specimen number, method, mode and duration of treatment and resented in Table 1. Practices marked with an asterisk (\*) are considered to be new or less known (Table.1).



Table 1. Plants used for bites by the PVTGs of North Coastal Andhra Pradesh

S. No.	Botanical Name/ Vernacular Name	Family/ Locale/ V.No.	Type of Ailment	Method of practice
1	<i>Acalypha indica</i> L. / Kuppinta	Euphorbiaceae/Bokk elu/SP 8124	Insect bite	Fresh leaf juice along with quick lime is applied on the bitten area till cure.
2	<i>Achyranthes aspera</i> L. / Kukkurudhanthi	Amaranthaceae/Ellip alem/SP 8121	Dog bite & Centipede bite  Insect bite  Scorpion sting  Snake bite  Snake bite & Scorpion sting	Leaf paste is made into pills of 1 g and 1 pill is administered with water 2-3 times a day. Simultaneously root paste is applied on the bitten area.  Leaf juice is applied on the bitten area. Leaves are crushed and rubbed on the sting area. 2 g of root paste mixed with 30 ml of water is administered twice a day. Seed paste is applied on the bitten and sting areas. Leaf juice is instilled into the ears.
3.	<i>Adiantum philippense</i> L. / Challi	Adiantaceae/Modapu t/SP 8126	*Scorpion sting	Rhizome paste is applied on the sting area.
4.	<i>Aegle marmelos</i> (L.) Correa/Maredu	Rutaceae/ Gamparai/SP 8119	Mad dog bite  Snake bite	Root is made into paste with few black pepper seeds and taken with water or root is boiled and the decoction is taken orally. Roots are ground with 7 black pepper seeds and taken orally with water. Root bark powder is applied on the bitten area.
5.	<i>Alangium salvifolium</i> (L. f.) Wang. /Uduga	Alangiaceae/Pedaba yalu/SP 8003	Mad dog bite & Fox bite  *Snake bite	Root and black pepper seeds are ground into paste and taken with water as well as applied externally. Root bark powder is applied externally on the bitten area.
6.	<i>Allium cepa</i> L./ Neerulli	Liliaceae/Medaragud a/SP 8276	*Rat bite	3 spoonful of bulb juice is given thrice a day.
7.	<i>Allium sativum</i> L./ Tellagadda	Liliaceae/Poojaripak alu/ SP 8235	*Mad dog bite & *Honey bee bite	Clove paste is applied on the bitten area and one clove is taken orally daily till cure.
8.	<i>Alternanthera sessilis</i> (L.) R.Br. ex DC. / Ponnaganti koora	Amaranthaceae/Gad aparai/JKR 9137	Snake bite	50 g of root paste mixed with 30 ml of water is taken orally.
9.	<i>Aristolochia indica</i> L. / Gadida gadapa	Aristolochiaceae/Kot aguruva/SP 8133	Scorpion sting Snake bite	Root paste is applied on the sting area. Root is ground with water and the extract is administered in doses of 2-4 spoonful till cure and paste is also applied on the bitten area.
10.	<i>Benincasa hispida</i> (Thunb.) Cogn. / Budida gummadi	Cucurbitaceae/Thota lagondi/SP 8284	*Centipede bite	Fruit stalk is made into paste and rubbed on the bitten area.
11.	<i>Bidens pilosa</i> L. /Aggi chettu	Asteraceae/Ellipalem /JKR 9055	*Snake bite	Root paste along with that of <i>Cassia occidentalis</i> is applied on the bitten area and also given orally once a day.
12.	<i>Boerhavia diffusa</i> L./ Atukamamidi	Nyctaginaceae/Chatr aiputt/SP 8136	Scorpion sting	Leaves are ground into paste and applied on the sting area twice a day till cure.
13.	<i>Calotropis gigantea</i> (L.) Dryand. / Nalla jilledu	Asclepiadaceae/Dab balapdu/JKR 9348	Mad dog bite Snake bite & Scorpion sting	Latex mixed with ghee and sesame oil is applied on the bitten area. Leaves are ground with latex and made into pill of 2 g and 1 pill is taken for every half an hour.
14.	<i>Calotropis procera</i> (Aiton) Dryand./ Tellajilledu	Asclepiadaceae/Ma mpa/SP 8139	Snake bite & Scorpion sting Snake bite	Root paste is applied on the bitten area. Latex is applied on the bitten area immediately after bite.



15.	<i>Cassia occidentalis</i> L. /Tentapu	Caesalpiniaceae/Kujjali/SP 8101	Scorpion sting Snake bite	Root is chewed and juice is instilled into the ears. 20 g of leaves along with 12 black pepper seeds are ground with water and 10 ml of juice is taken 2-3 times a day. At the same time 3 leaves are made into paste and bandaged on the bitten area.
16.	<i>Cissampelos pareira</i> L. /Chiru boddhi	Menispermaceae/Digumodhuputt/ SP 8014	Snake bite &*Scorpion sting	Root juice is applied on the bitten area.
17.	<i>Crateva magna</i> (Lour.) DC. / Ulimiri	Capparaceae/Jamniguda/SP 8299	Mad dog bite	100 g of stem bark along with 10 g of mustard seeds are powdered and 5 g of powder is administered with hot water thrice a day for 3 days.
18.	<i>Cuminum cyminum</i> L. /Jeelakarra	Apiaceae/Bokkelu/SP 8017	Scorpion sting	Seeds are made into paste with rock salt and little ghee is added to it, warmed and applied on the sting area.
19.	<i>Datura metel</i> L. / Nalla umetha	Solanaceae/Marriputtu/SP 8208	Dog bite	10 g of roots are ground with 5 g of roots of <i>Boerhavia diffusa</i> and 5 g of paste is taken with cold water for 5 days.
20.	<i>Dioscorea pentaphylla</i> L. / Pindidumpa	Dioscoreaceae/Chintalaveedhi,/JKR 9443	*Snake bite	Root paste is applied on bitten parts.
21.	<i>Elytraria acaulis</i> (L.f.) Lindau / Dhodhchettu	Acanthaceae/Gurupalli, JKR 9321	*Snake bite	Root paste mixed with water is administered twice a day.
22.	<i>Embelia ribes</i> Burm. f. /Vayu vidangam	Burseraceae/Mahasinghguda/ SP 8201	Snake bite	5 g of roots are ground with rice washed water and taken orally as well as applied externally.
23.	<i>Euphorbia nivulia</i> Buch.-Ham/Akujamudu	Euphorbiaceae/Kothapoipalli/JKR 9191	Snake bite	Root paste mixed with 30 ml of water is administered twice a day and also applied on the bitten area.
24.	<i>Gloriosa superba</i> L./ Vankavajram	Liliaceae/Poojaripakalu/SP 8023	Centipede & Scorpion sting Snake bite & Scorpion sting	Tuber paste is applied on the bitten area. Tuber paste is applied on the bitten area.
25.	<i>Grewia rothii</i> DC. / Peddacheepuru	Tiliaceae/Sundarayyagud/SP 8312	*Centipede bite	Leaf juice is applied on the bitten area.
26.	<i>Gymnema sylvestre</i> (Retz.) R. Br. ex Sm./ Podapathri	Asclepiadaceae/Jargula/SP 8313	Snake bite	Leaf paste is rubbed on the bitten area.
27.	<i>Gyrocarpus americanus</i> Jacq. / Kosemchettu	Hernandiaceae/Balesuguda/SP 8354	*Snake bite	Tender leaf paste is applied on the bitten area.
28.	<i>Heliotropium indicum</i> L. / Naga danti	Boraginaceae/Gurupalli/SP 8083	Scorpion sting	Leaf juice is applied on the sting area.
29.	<i>Kalanchoe pinnata</i> (Lam.) Pers./ Poddo osso	Crassulaceae/Dabbal apadu/JKR 9108	*Dog bite	5 leaves warmed on fire are applied around the abdomen once a day for 5 days. Root paste mixed with root paste of <i>Achyranthes aspera</i> is administered with 30 ml of water once a day for 5 days.
30.	* <i>Millettia racemosa</i> (Roxb.) Benth. / Naga vishamchettu	Fabaceae/Rajupakalu /JKR 9266	Snake bite	Root paste mixed with 30 ml of water is administered soon after bite.
31.	<i>Mimosa pudica</i> L./ Kunukurodda	Mimosaceae/Chinthalaveedh/JKR 9338	Snake bite	Root and leaf paste mixed with water is administered twice a day and also applied on the bitten area immediately after bite.
32.	<i>Momordica charantia</i> L. / Adavi Kakara	Cucurbitaceae/Geddamputt/SP 8032	*Dog bite	Leaf paste is bandaged on the bitten area.
33.	<i>Moringa oleifera</i> Lam. /Munaga	Moringaceae/Pilliputtu/SP 8075	*Dog bite Snake bite	5 g of leaf, 2 black pepper seeds and 1 clove are made into paste and taken orally daily once for 5 days.



				Root paste is applied on the bitten area.
34.	<i>Mucuna pruriens</i> (L.) DC./ Duladama	Fabaceae/Devarapalli/SP 8169	Scorpion sting	Crushed seed paste is applied on the bitten area.
35.	<i>Ocimum tenuiflorum</i> L. / Krishna tulasi	Lamiaceae/Kappada/ SP 8073	*Insect bite Scorpion sting Snake bite	Leaves are crushed and the juice is applied on the bitten area. Root powder/paste is applied on the sting area. Roots are chewed and swallowed. Leaves are crushed and the juice is applied on the bitten area.
36.	<i>Oroxylum indicum</i> (L.) Kurz / Pampenga	Bignoniaceae/Gadap arai/SP 8172	*Dog bite	100 g of stem bark facing east and west is collected. <i>Phoenix lureirii</i> dried leaf is burnt. The bark and ash are ground into paste and 1 g of paste mixed with water is taken twice a day for 1 week before meals (Smoking, drinking and non-vegetarian food are strictly prohibited for a month).
37.	<i>Saccharum officinarum</i> L. / Cheraku	Poaceae/Donubayi/S P 8336	*Scorpion sting	30 to 50 g of jaggery is eaten for the poison to come down and ¼ Kg is taken for complete relief.
38.	<i>Sansevieria roxburghiana</i> Schult. &Schult.f. / Nela kithalu	Agavaceae/Edulagar uvu/JKR 9181	Snake bite	Root paste mixed with 30 ml of water is administered twice a day till cure. It is also applied on bitten area.
39.	<i>Sapindus emarginatus</i> Vahl / Kunkudu	Sapindaceae/Pandira ikothagudem/SP 8182	*Insect bite	Stem bark is made into paste and applied on the bitten area.
40.	<i>Sida acuta</i> Burm. f./ Nagabala	Malvaceae/Edulagar uvu/ JKR 9458	Snake bite	Root paste mixed with 30 ml of water is administered twice a day.
41.	<i>Strychnos nux-vomica</i> L. / Mushidi	Loganiaceae/Gedda mput/SP 8189	*Mad dog bite	1 - 3 g of seed powder is taken with ghee once a day for 5 days.
42.	<i>Tiliacora acuminata</i> Miers / Tivvamushini	Menispermaceae/See thampeta/SP 8057	Snake bite	Root paste is applied on the bitten area soon after bite.
43.	<i>Tylophora indica</i> (Burm. f.) Merr./ Mekameyanaku	Asclepiadaceae/Raju pakalu/JKR 9030	*Snake bite	Leaf paste mixed with 30 ml of water is administered twice a day.
44.	<i>Wattakaka volubilis</i> (L. f.) Stapf / Bandigurajaku	Asclepiadaceae/Som agandi/SP 8350	Snake bite	5 leaves and 5 black pepper seeds are ground and the juice is taken twice a day. If the patient is unconscious, leaf juice is directly poured into the mouth. Later when he becomes conscious, then the normal dosage is administered for 8 days. Depending upon the toxicity, the interval of dose is maintained.

## RESULTS AND DISCUSSION

The paper deals with 44 species of plants covering 42 genera and 33 families used by the PVTGs of North Coastal Andhra Pradesh for curing a variety of bites viz., centipede, dog, fox, honey bee, insect, mad dog, rat, scorpion, and snake. Habit-wise analysis showed the dominance of herbs with 18 species followed by shrubs (8 spp), trees and climbers (9 spp each). Asclepiadaceae is the dominant family with 5 species followed by Liliaceae (3), Amaranthaceae, Euphorbiaceae, Cucurbitaceae, Menispermaceae, Fabaceae (2 spp each), and others with one species each. Morphological analysis showed the maximum utilization of root in 24 practices followed by leaf (20), seed (4), stem bark (3), tuber and latex (2 each) and bulb, root bark, stem, rhizome, fruit stalk and clove in one practice each. They are administered either in the form of juice, paste, powder, or extract, along with either water, lime, ghee or sesame oil. A maximum of 23 practices were observed for snake bite followed

by scorpion sting (10), dog bite and snake bite & scorpion sting (5 each), insect bite and mad dog bite (4 each), centipede bite (2), and rat bite, dog bite & centipede bite, mad dog bite & honey bee bite, mad dog bite & fox bite, and centipede bite & scorpion sting (1 each). *Millettia racemosa* and 20 practices were found to be new (Jain 1991; Kirtikar & Basu 2003). Some species with similar usage recorded in different parts of India and Pakistan are: *Achyranthes aspera*, *Alangium salvifolium*, *Aristolochia indica*, *Calotropis gigantea*, *Calotropis procera*, *Cissampelos pareira*, *Gloriosa superba* for snake bite by the *Bhil*, *Damor*, *Garsia*, *Kathoda*, *Meena*, *Sahariya* tribes of Rajasthan (Jain *et al.*, 2011); *Achyranthes aspera* for scorpion sting by the people of Nawabganj Bird Sanctuary, Uttar Pradesh (Garg, 2016); *Achyranthes aspera* for scorpion sting and snake bite, *Calotropis gigantea* for scorpion sting, *Calotropis procera* and *Cissampelos pareira* for snake bite, *Gloriosa superba* for scorpion sting and snake bite and *Mucuna pruriens* for scorpion





sting by the tribes of Madhya Pradesh (Jadhav, 2017); *Achyranthes aspera*, *Datura metel* for dog bite; *Calotropis procera*, *Gloriosa superba*, *Gymnema sylvestre*, *Mimosa pudica* for snake bite by the Baiga tribe of Dindori district, Madhya Pradesh (Ahirwar, 2017); *Achyranthes aspera* for scorpion sting by the people of Haridwar district, Uttarakhand (Balakrishna *et al.*, 2019); *Calotropis procera* for snake bite in Arid Regions of Northern Punjab, Pakistan (Ashfaq *et al.*, 2019); *Sida acuta* for snake bite by Pnar and War communities of West Jaintia Hills district of Maghalaya (Langshiang *et al.* 2020) and *Aristolochia indica* for snake bite by the people of Noida (Dogra *et al.*, 2020). The promising plants be subjected to phytochemical analysis.

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