

## Ethnoveterinary medicine for treating livestock in eastern Ghats of Andhra Pradesh<sup>†</sup>

K N Reddy\*<sup>1</sup>, G V Subbaraju<sup>1</sup>, C S Reddy<sup>2</sup> & V S Raju<sup>3</sup>

<sup>1</sup>Laila Impex R&D Centre, Unit-1, Phase-3, Jawahar Autonagar, Vijayawada 520 007, Andhra Pradesh

<sup>2</sup>Forestry & Ecology Division, NRSA, Balanagar, Hyderabad 500 037, Andhra Pradesh

<sup>3</sup>Department of Botany, Kakatiya University, Warangal 506 009, Andhra Pradesh;

E-mail: reddykamasaninr@rediffmail.com

Received 16 March 2005; revised 31 May 2005

The paper highlights some commonly used ethnomedicines for domestic animals such as cattle, sheep and goat to treat anthrax, ephemeral fever and trypanosomiasis. The plant crude drugs used belong to 35 species of 35 genera representing 28 families of Magnoliophyta. The phytomedicine usually consisted of a sole drug or occasionally a principal drug with 2-4 aids. The species, family and vernacular names, plant-part used, drug preparation, mode and duration of administration, etc. gathered from the ethnic people of *Chenchu*, *Koya*, *Konda reddy*, *Lambadas*, *Nukadora*, *Pojras*, *Savaras*, *Valmiki* and *Yanadis* are reported. The information is expected to be of use for veterinary practices and herbal drug industry.

**Key words:** Ethnoveterinary medicine, Medicinal plants, Eastern Ghats, Livestock

**IPC Int. Cl.<sup>8</sup>:** A61K36/00, A61P13/00, A61P15/00, A61P29/00, A61P31/00, A61P33/00, A61P43/00

Over a long period of time and through trial and error, the ethnic and rural folk have developed a wealth of domestic animal healthcare practices. Such indigenous knowledge is based on experience, while the practices are time-tested<sup>1</sup>. In the past, great importance was given to the use of indigenous medicines for treatment of animal ailments. One third of the population of eastern Ghats region of Andhra Pradesh lives in remote areas and are in possession of a wealth of domesticated animal stock, which they maintain largely, using the traditional medicine<sup>2-5</sup>. *Chenchu*, *Koya*, *Konda reddy*, *Lambadas*, *Nukadora*, *Pojras*, *Savara*, *Valmiki* and *Yanadis* are major tribes in the eastern Ghats of Andhra Pradesh. Their knowledge of ethnoveterinary medicine can be used elsewhere to cure common diseases of the livestock.

The available information on ethnoveterinary medicine in Andhra Pradesh is scanty<sup>3,5-12</sup>. The present paper enumerates plant-based ethnoveterinary curative techniques found in eastern Ghats region of Andhra Pradesh for anthrax, ephemeral fever and trypanosomiasis. *Anthrax* is an acute infective disease caused by the bacterium *Bacillus anthracis* in both wild and domesticated vertebrates like camels, cattle, goats, sheep, and other herbivores. It is infectious to

humans as well. The ephemeral fever (three day sickness) is a viral disease, and its symptoms are short fever, shivering, lameness and muscular stiffness, drool saliva, stringy nasal discharge and watery eyes. Trypanosomiasis is a protozoal disease, resulting in various symptoms such as anaemia, high temperature, marked depression, dullness, and loss of condition.

The eastern Ghats along the Peninsular India are divisible into three zones, the northern eastern Ghats, the middle eastern Ghats and the southern eastern Ghats, extending over 1750 km with an average width of about 100 km and covering an area under 76° 56' and 86° 30' E longitudes and 11° 30' and 22° 00' N latitudes. The area covers parts of Orissa (South of river Mahanadi), Andhra Pradesh, Tamil Nadu (North of river Vaigai) along the East Coast. The eastern Ghats forming a chain of discontinuous range of hills along the coast. Geographically, the eastern Ghats occupy the 2,08,906 sq km in Andhra Pradesh. The eastern Ghats are one of the richest floristic and phyto-geographical regions of India (Fig. 1). The rich and diversified flora provides a most valuable store-house of medicinal plants.

### Methodology

Several field trips were under taken during the period 1996-2004 to the ethnic villages along eastern

\*Corresponding author

<sup>†</sup>Laila Impex Communication#47

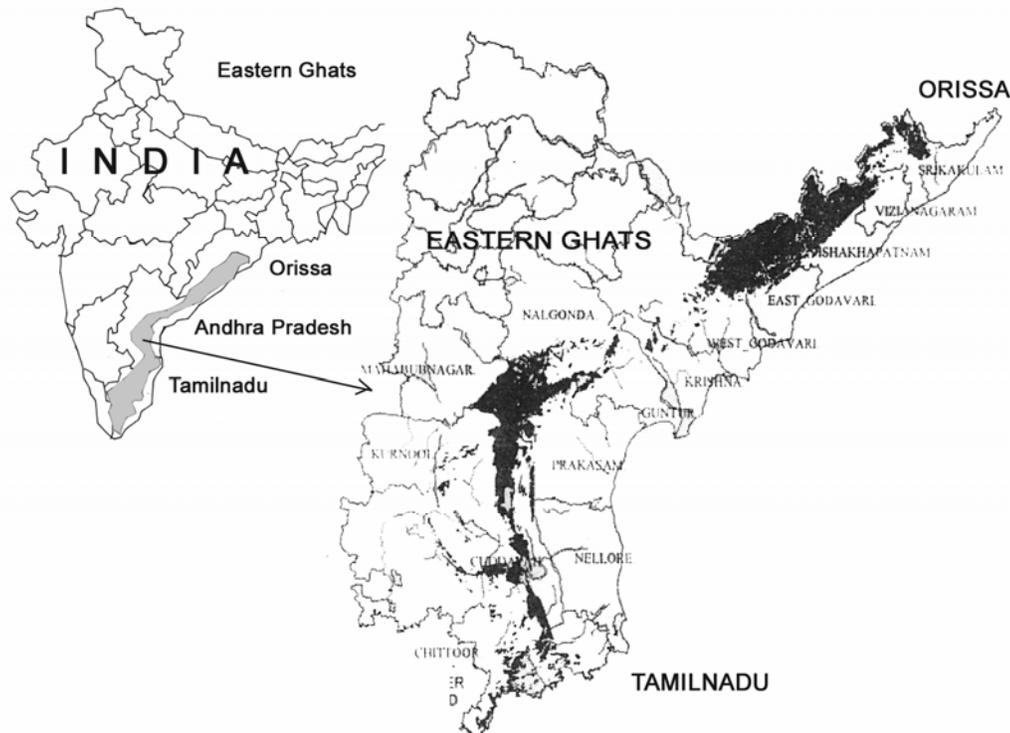


Fig. 1. Location Map of Eastern Ghats

Ghats region of Andhra Pradesh. The data have been collected personally from the tribal pockets and pastoral villages of non-tribes also. The resource persons included aged ethnic male cum owners of cattle, goat and sheep, besides the local *Vaidyas*. The botanical specimens of all folk drug plants were collected, identified with the help of local floras and deposited at the herbarium of Laila Impex Research Centre, Vijayawada for further reference<sup>13</sup>.

### Enumeration

The information gathered on ethnoveterinary medicine employed for anthrax, ephemeral fever and trypanosomiasis, in the eastern Ghats region of Andhra Pradesh by the local tribal inhabitants and herbal practitioners are presented alphabetically under the scientific name of the species, plant family, vernacular names, reproductive period, habit and habitat, and the ethnoveterinary treatment.

#### **Anthrax (*Dommapundu, Dommarogam*)**

*Atalantia malabarica* Tanaka syn. *A. monophylla* (Linn.) Correa (Rutaceae), Local name: *Konda nimma*  
Fl & Fr: September – May; Densely foliaceous armed tree.

Uses: Stem bark (250 gm) paste with sufficient quantity of pepper and garlic is administered daily twice for a week.

*Dillenia pentagyna* Roxb. (Dilleniaceae), Local names: *Kalinga, Revadi*

Fl & Fr: February – May; Deciduous tree up to 20 m tall. Occasionally in moist deciduous forests.

Uses: Fistful of stem bark paste is fed to cattle daily twice for 3-4 days by *Konda reddis*.

*Eulophia epidendreaea* Fischer (Orchidaceae), Local names: *Segadomma gaddalu*; Fl & Fr: October – March; Terrestrial herb. Often found in rock crevices in humus heaps.

Uses: Paste of fistful of pseudobulbs crushed with sufficient quantity of pepper and garlic is administered daily once for a week by *Koyas* and local *Vaidyas*.

*Lannea coromandelica* (Houtt.) Merr. (Anacardiaceae), Local names: *Gumpena, Dumpidi*; Fl & Fr: February – May; Large deciduous tree, common in deciduous forests.

Uses: Stem bark decoction (250 ml) is administered daily twice by *Chenchus* until cured.

*Ziziphus xylopyra* (Retz.) Willd., (Rhamnaceae), Local name: *Gotti*; Fl & Fr: March – August;

Sparsely armed small deciduous tree, occasionally in deciduous and open forests.

Uses: Roots crushed with *Calotropis gigantea* (Linn.) R.Br. (*Jillaedu*) stem barks, *Erythroxylum monogynum* Roxb. (*Devadaari*) and *Pterocarpus marsupium* Roxb. (*Yegisha*), and 10-12 dry chilies is administered for 2-3 days with one L of water once daily by *Lambadas*.

### Ephemeral Fever (Three-day sickness, *Kurram*)

*Acacia chundra* Willd., (Mimosaceae), Local name: *Sandra*;

Fl & Fr: October – March; Medium sized deciduous tree, common in scrub forests and laterite soils.

Uses: Stem bark (3-4 tumblers) decoction is administered once daily for 3-4 days by *Yanadis*. Extract of fistful stem bark crushed with 10-15 garlic cloves is given daily twice for 4-5 days by *Savaras*.

*Anisomeles indica* (Linn.) Kuntze (Lamiaceae), Local name: *Chinna ranabheri*; Fl & Fr: Throughout the year; Aromatic bushy under shrub. Occasionally along roadsides and wastelands of moist areas.

Uses: Leaf decoction (2-3 glasses) is administered once daily for three days by local *Vaidyas*.

*Cipadessa baccifera* (Roth) Miq. (Meliaceae), Local names: *Pesangi*, *Renda bharam*; Fl & Fr: October-April; Small deciduous tree up to 6 m tall. Common in scrub and open mixed forests.

Uses: Stem bark extract (100-120 ml) is administered twice daily for three days by *Koyas*. Stem bark decoction (2-3 glasses) is administered with a pinch of pepper powder once daily for 3-4 days by *Pojras* and *Savaras*.

*Delonix regia* Raf. (Caesalpiniaceae), Local names: *Turayi*, *Yerra sunkesula*; Fl & Fr: March – September; Deciduous tree up to 15 m tall. Widely planted in gardens as avenues.

Uses: Stem bark extract with pepper and garlic is administered by local *Vaidyas* twice daily until cured.

*Dolichandrone atrovirens* (Roth) Sprague (Bignoniaceae), Local name: *Neeruddi*; Fl & Fr: May – June; Deciduous tree. Occasionally in dry deciduous forests.

Uses: Stem bark extract with *Anogeissus latifolia* (DC.) Guill. & Perr. (*Tirmaan*, *Yelama*), (1:1 ratio) is given twice or thrice a day for two days by *Chenchus*.

*Euphorbia fusiformis* Ham. ex G. Don. Prodn., (Euphorbiaceae), Local names: *Paala gaddalu*, *Sepu gaddalu*; Fl & Fr: February- September; Herb, stem

reduced to a stout underground rootstock. Rare in open dry deciduous forests.

Uses: Tuber paste (200 gm) with sufficient quantity of pepper and garlic powder is administered twice daily for three days by *Koyas* and local *Vaidyas*.

*Fioria vitifolia* (Linn.) Mattei., (Malvaceae), Local names: *Adavi benda*, *Kaaru patti*, Fl & Fr: July – February; An erect under shrub; common in outskirts of the forests and in open places.

Uses: Fistful of stem bark soaked in two L of buttermilk for three days with sufficient quantity of pepper and garlic is administered twice daily for three days by *Yanadis*.

*Gardenia latifolia* Ait., (Rubiaceae), Local name: *Pedda Karinga*; Fl & Fr: April – October; Densely foliaceous, deciduous tree; common in deciduous forests along the streams.

Uses: Stem bark (100-120 gm) extract with 10-12 pepper and garlic is given twice daily for two days by *Konda reddis*.

*Geodorum densiflorum* Schltr., (Orchidaceae), Local name: *Donthula dumpa*, Fl & Fr: June – September; A terrestrial herb with underground, tuberous pseudobulbs. Occasionally in dry deciduous forests undergrowth.

Uses: Tuber (200 gm) extract with 10-15 gm of pepper and garlic is administered once daily for three days by *Koyas* and *Nukadoras*.

*Gnaphalium polycaulon* Pers. (Asteraceae), Fl & Fr: Oct. – Feb; Annual white woolly slender herb. Occasionally in dried up tanks and margins of riverbanks.

Uses: Whole plant (200-300 gm) extract with sufficient quantity of pepper and garlic is administered once daily for three days by local *Vaidyas*.

*Lindernia parviflora* (Roxb.) Haines, (Scrophulariaceae), Fl & Fr: October – December; Erect herb up to 25 cm tall; common near margins of tanks.

Uses: Fistful of plants crushed with 10-12 pepper and garlic is administered once daily for three days by *Nukadoras*.

*Polyalthia cerasoides* (Roxb.) Bedd., (Annonaceae), Local name: *Chilka duddi*, Fl & Fr: February – July; Semi-evergreen tree. Common in hilly slopes, plains along ravines in dry deciduous forests.

Uses: Stem bark crushed with *Capparis sepiaria* Linn. (*Nalluppi*) (150 gm), 10-12 pepper and garlic is administered twice daily for two days by local *Vaidyas*.

*Radermarchera xylocarpa* (Roxb.)K. Schum., (Bignoniaceae), Local name: *Iska raasi*,

Fl & Fr: April – December; Large deciduous tree. Occasionally in dry deciduous forests.

Uses: Fistful of stem bark crushed with 15-20 pepper and garlic is fed to cattle twice daily for two days by *Konda reddy*.

*Vitex altissima* Linn.f., (Verbenaceae), Local name: *Nemaladugu*, Fl & Fr: February – April; Densely foliaceous large tree up to 20 m tall. Occasionally in forests along streams.

Uses: Stem bark and that of *Anogeissus latifolia* (DC.) Guill. & Perr. (*Chirumaanu*) (1:1 ratio) besides 12-15 pepper and garlic crushed is administered twice daily for two days by *Yanadis*.

### **Trypanosomiasis (*Tikkalu rogam, Kundu, Gurrapu vyadhi, Gorla tikkalu*)**

*Caesalpinia crista* Linn. Syn *C. bonducella* Flem., (Caesalpinaceae), Local name: *Gaccha*, Fl & Fr: December – April; Scandent armed shrub. Occasionally hedges of dry disturbed sites and fields.

Uses: Leaves along with leaves of *Dendrocalamus strictus* (Roxb.) Nees (*Kuttu veduru*) 20 gm each, crushed and mixed in 100 ml of water is administered thrice a day by *Konda reddy*.

*Commelina diffusa* Burm.f., (Commelinaceae), Local name: *Adavi enaadri*, Fl & Fr: October – December; A creeping herb. Rare in moist shady areas of the forest.

Uses: A fistful of leaves crushed with sufficient quantity of pepper, garlic and onion, extract is used as a nasal drops thrice in two hrs; and mixture is given twice daily for three days by *Nukadoras* and *Koyas*.

*Diospyros lotus* Linn. syn *D. malabarica* Desr., (Sapotaceae), Local name: *Adavi sapota*, Fl & Fr: April – June; Evergreen tree up to 15 m tall. Rare along the streams of hill forests.

Uses: Stem bark decoction (400 ml) is given every hour by *Konda reddy*.

*Hedyotis corymbosa* (Linn.) Lam., (Rubiaceae), Local name: *Tikka chettu*; Fl & Fr: July – January, An annual, erect, scaberulous herb. Common as a weed in forests and waste fields.

Uses: Whole plant decoction (1-2 L) is administered with a pinch of pepper and garlic powder; is also used as nasal drops by local *Vaidyas*.

*Milium tomentosum* (Roxb.) Sinclair, (Annonaceae), Local name: *Barre duddi*, Fl & Fr: February – June;

Large deciduous tree up to 20 m tall. Occasionally in hilly areas of deciduous forests.

Uses: Stem bark decoction (200-250 ml) is given twice daily for three days by *Koyas*.

*Sansevieria roxburghiana* Schult. f. (Agavaceae), Local names: '*Chagodishi, Chapagodithi*, Fl & Fr: August – December, Stout, rhizomatous herb. Rare in open forests and hedges as undergrowth.

Uses: Slightly warmed leaf juice is used as nasal drops thrice in a period of two hrs and paste is also applied over the body by local *Vaidyas*.

*Soymida febrifuga* A. Juss. (Meliaceae), Local name: *Somi, Soy midi*; Fl & Fr: March – August; Medium sized tree with persistent leaf scars. Common in dry deciduous forests.

Uses: Stem bark extract with those of *Terminalia alata* Roth (*Nalla maddi*), *Dichrostachys cinerea* (Linn.) Wt. & Arn. (*Velturu*) and roots of *Solanum xanthocarpum* Schrad. & Wendl. (*Naela vaakudu*) (100 gm each) is administered twice daily for two days by local *Vaidyas*.

### **Discussion**

The plant crude drugs used as medicine for veterinary diseases in eastern Ghats of Andhra Pradesh include 35 species of 35 genera representing 28 families of Magnoliophyta. Twenty-six plant species are used as sole drugs, 9 are principal drugs combined with 2-4 aids.

Earlier, use of 32 Magnoliophyta plants as the veterinary medicine for livestock healthcare from the eastern Ghats region in Andhra Pradesh has been reported<sup>3</sup>. Four plants as source of ethnoveterinary medicine for anthrax and ten for ephemeral fevers and also 26 Magnoliophyta plants for curing anthrax alone have also been reported<sup>6, 9</sup>. Use of 14 principal drugs and two species as ingredients, reported for ephemeral fever in the present study are new reports. Five principal drug species and three species reported as adjuncts in the present study are all new reports for anthrax. With respect to trypanosomiasis, use of only three Magnoliophyta (*Acacia chundra* Willd., *Curculigo orchioides* Gaertn. and *Derris scandens* Benth.) have been reported<sup>6</sup>. Therefore, the present study reports for the first time ethnoveterinary use for anthrax and trypanosomiasis; and 16 species are new reports for ephemeral fever.

Mostly plants are given in the form of an extract or decoction except in few cases. The efficacy of the

various reported indigenous veterinary practices need further research for pharmacological validation.

### Acknowledgement

Authors thank Shri G Ganga Raju, Chairman, Laila Group and Mr G Rama Raju, Director, Laila Impex, for their encouragement, Dr K Hemadri, Advisor, Taxonomy Division, for a helpful discussion, Dr B Kanaka Raju, and Dr C Subbaiah, Veterinary Assistant Surgeons, for their help during the technical terms of veterinary diseases, and the Andhra Pradesh Forest Department personnel, for their assistance during the fieldwork.

### References

- 1 Warren D M, Indigenous knowledge: A definition, *CIKARD News*, 1 (1989) 5.
- 2 Sudarshanam G, Reddy B R & Nagaraju N, Veterinary crude drugs of Rayalaseema, Andhra Pradesh, India, *J Pharmacog*, 33 (1995) 52.
- 3 Ramarao N & Henry A N, *The Ethnobotany of Eastern Ghats of Andhra Pradesh, India*, (Botanical Survey of India, Calcutta), 1996.
- 4 Hemadri K, *Shastravettalanu Akarshistunna Girijana Vaidyam* (Tribal Pharmacopoeia). (Tribal Cultural Research and Training Institute, Hyderabad), 1994.
- 5 Reddy K N, Bhanja M R & Raju V S, Plants used in ethnoveterinary practices in Warangal District, Andhra Pradesh, India, *Ethnobot*, 10 (1998) 75.
- 6 Jain S K, *Dictionary of Ethnoveterinary plants of India*, (Deep Publications, New Delhi), 1999.
- 7 Reddy K R & Sudarshanam G, Plants used as veterinary medicine in Chittoor district of Andhra Pradesh, India, *Int J Crude Drug Res*, 25 (1987) 145.
- 8 Saiprasad P & Pullaiah T, Folk veterinary medicinal plants of Kurnool district, Andhra Pradesh, India, *Ethnobot*, 8 (1996) 71.
- 9 Reddy R V, Lakshmi N V N & Raju R R V, Ethnomedicine for ephemeral fevers and anthrax in cattle from the hills of Cuddapah district, Andhra Pradesh, India, *Ethnobot*, 9 (1997) 94.
- 10 Raju V S, Ethnoveterinary medicine in Andhra Pradesh, National Symp. '21<sup>st</sup> Century Perspectives in Plant Sciences', July 29-31, 2001, Andhra University, Waltair, India.
- 11 Reddy K N & Raju R R V, Plants in ethnoveterinary practices in Anantapur district, Andhra Pradesh, *J Econ Tax Bot*, 23 (1999) 347.
- 12 Reddy C S, Nagesh K, Reddy, K N & Raju V S, Plants used in ethnoveterinary practices by Gonds of Karimnagar district, Andhra Pradesh, India, *J Econ Tax Bot*, 27 (2003) 631.
- 13 Gamble JS & Fischer, CEC (1915-1935) *Flora of Presidency of Madras*, (Adlard & Sons Ltd., London), 1915-1930; Reprinted. edn (Botanical Survey of India, Calcutta), 3 Vols, 1957.