



Full Length Article

Use of Ethno-Veterinary medicines (EVM) from Vidarbha Region (MS) India

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ABSTRACT

Rural tribal people generally depend on plants for curing their livestock due to inadequate facilities provided by Government agencies. The field survey was carried out in 3 clusters of Nagpur, Chandrapur and Gadchiroli of Maharashtra State. Local people were using 46 plants to cure certain veterinary diseases commonly occurring in region. Sixty people are experienced in giving plant based herbal drugs and the doses are very effective in treatments. The present study deals with different ethno-veterinary practices performed by local farmers and *Vaidus* to treat their livestock. The enumerations of different veterinary diseases and their plant resources are listed along with their parts used, local use and local name from study area.

Key words: EVM, livestock diseases, Vaidus, Chandrapur, Nagpur and Gadchiroli.

INTRODUCTION

India has ancient roots of utilizing plant resources for curing diseases of horses and cow herds. In the ancient India, Rigveda is one of the old literature mentioning cattle and their management. Several texts like Krishi-Parashara (400 BC) described a cattle shed and more emphasis given on cleanliness of the shed. Cattle sheds were regularly fumigated with dried plant products that contained volatile compounds. The Kautilya in his Artha-Sastra specially mentioned that government officer called the superintendent of cattle, his exclusive duty was to supervise livestock in the country, classification of livestock according to as calves, tame steers, draft oxen, bulls stud bulls, buffaloes, female calves, heifers, pregnant cows, milch kine, barren livestock, etc. He also knew treatments for curing livestock diseases such as those affecting the horns, teeth, buccal cavity, sore throat, lumbago, acute dysentery, plasters used to treat bone fractures, etc. (Tamboli and Nene, 2005). Elephants were used for different services in ancient India. Elephant doctors were appointed to take care of elephant stables and apply necessary medicines for suffering from

diseases, overwork and old age (Shammasastry, 2004). The cow herd's people have the knowledge of many animal diseases from which cattle might suffer and also knew the plant based remedies like garlic (*Allium sativum* L.) Pipali Mula (*Piper longum* L.) Nagkeshara (*Mesua ferrea* L.) Ginger (*Zingiber officinalis* Rosc), etc. (Raychaudhuri, 1964).

Ethno-veterinary practices are especially used for ruminants such as cattle and other large animals. Livestock owners from Cameroon have an amazing good knowledge of ethno-botany; most of medicines are prepared from plants parts. They have a good understanding of the plant parts and quantities needed and the methods of harvesting, processing, storing, preserving and utilizing medicinal plants to ensure good drug efficacy and to enhance the survival of plant germplasm (Toyang *et al.*, 1995).

In recent years research workers have given importance to traditional knowledge pertaining to ethno-veterinary from different states. Pandey *et al.*, (2000) recorded ethno-veterinary plants from Gonda region, U. P. and 27 plants reported.

Reddy and Raju (2000) mentioned 35 plants for ethno-veterinary use in Anantpur district. A.P. Chitralkha and Jain (2006) reported ethno-veterinary practices from tribal region of Jhabua District, M.P. Ravikumar et al., (2004) validation of ethno-veterinary plant resources from Dindigul District of Tamil Nadu. Ramdas and Ghotge have formed ANTHRA group a non-government organization and made valuable contribution in ethno-veterinary survey from Andhra Pradesh and Maharashtra. (Ramdas et al., 2000; Ramdas and Yaksi, 2001). Kulkarni and Kumbhojkar (2002) have made contribution in ethno-veterinary medicinal practices among Mahadeokoli tribe and 128 plant resources were used for different ailments. Ramalah and Patil (2005) recorded EVM studies from Nandurbar district and Deshmukh et al., (2011) reported plants used to treat animals from Jalna district. Bhor region of Pune district surveyed for utilization of ethno-veterinary plants (Kamble and Kulkarni 2013) The area of Bhor has been exploited to understand the use of deworming medicinal plants for livestock (Deo et al., 2013). Some plants were validated for wound healing and maggoty wounds (Kamble et al., 2014).

Flora of Nagpur District was documented by several workers like Bhuskute (1990), Thakre and Shrinivasu (2012) and Kamble et al., (2013). Kamble et al., (2013) reported 10 new plants from Nagpur district. Chandrapur region recently evaluated for microbiological safety of Indian chutneys by Wadhai and Khobragade (2012). This

indicates that Vidarbha region has great potential for multi-dimensional research approach. Present work carried out in the region of Chandrapur, Nagpur and Gadchiroli to understand traditional knowledge of 60 tribal people in 3 clusters. First hand information on 46 plants used by local people or Bhagat and Vaidus has been collected in prescribed format.

MATERIAL AND METHODS

Study area

The area of Gadchiroli, Chandrapur and Nagpur have thick forests and locally known as Zadipatti districts – an area of forests and trees. 72% area being under Southern Tropical Dry Deciduous Forests, including tree varieties like Sag, Halda, Tinsa, Shisham, Mahua, bamboo and soil derived from Deccan Trap is Regur or black cotton containing high alumina and carbonate of calcium and magnesium with variable amount of potash, low nitrogen and phosphorus. The soil is generally porous and swells considerably on addition of water and dry up with cracks on losing the moisture. The rocks of the Archaean age on weathering give rise to Red soil which is most common in the area. Major rivers are Wainganga, Wardha, Gadhvi and Kathani flowing through these districts. The cereal crops like Rice, Sorghum, Wheat, Maize and Kodo millets are cultivated and used as staple food, cash crops like cotton and soya bean are cultivated. The following table gives detail about geography and climate of three districts.

Table 01: Geography & Climate of study area

Particulars	Districts		
	Gadchiroli	Chandrapur	Nagpur
Latitude	18.43 to 21.50 N	18° 41' & 20° 50' N	21° 09' 23.58" N
Longitude	79.45 to 80.53 E	78° 48' & 80° 55' E	79° 05' 16.99" E
Height from sea level.	217 meter	189.90 meter	339 m
Geographical Area	16517.590 sq. km.	11443 sq. km.	9892 sq. km
AVG. Maximum temperature °C	42°C	43°C	48°C
AVG. Minimum temperature °C	5°C	7°C	4°C
Average rainfall(mm)	1428	1420	1082.1

Table 0-2: Area covered under survey

Districts	Tahsil	Villages
Chandrapur	Pombhurna, Chimur	Chek Khapri, Mohala, Bhimani, Chekthanewasla, Palasgaon.
Gadchiroli	Chamorshi	Kadholi, Rampur, Chandankheda, Ankhoda.
Nagpur	Ramtek	Belda, Jamunia, Tuyyapar, Ghoti, Usripaar.

The main occupation of Gondia tribe is agriculture as well as they collected forest produce like fruits of Moha, Charoli , Gum, Honey, Medicinal plants from surrounding forest. They have an accurate knowledge of the environment, including species and ecological relations that exist among them by their long association with nature. The livestock for each family depend upon their agricultural holdings. Generally this tribe have one buffaloes fulfill the milk need and 3-4 cows. Two bullocks are required for agricultural practices. Very few women are interested in keeping sheep and goat. Well known herbalists are giving herbal medicines to infected animals.

The data on ethno-veterinary has been collected from field visits and personal interviews and questionnaire.Local government health care facilities are not available to poor people from remote hilly areas. They are depends on herbalist to cure livestock in adverse conditions. The doses are given by herbalists based on their long experience. Most of them are illiterate and long association with nature. Their traditional knowledge is a part of their living and they never charge to plant based medicines.

Extract of the plant part is prepared by crushing or pressing by addition water or without water, decoction is prepared by boiling plant part in water; powder is prepared by drying plant part and grinding. Paste is prepared by rubbing plant part in few drops of water. Ash is prepared by burning plant parts. Some combinations was made for healing purpose like butter milk, jaggery, turmeric powder, coconut oil, castor oil, salt, etc. The data on ethno-medico-botany has been identified and confirmed with the help of regional flora and relevant scientific literature. The specimens were also confirmed by comparing them with authentic specimens of herbaria.

ENUMERATION OF PLANTS USED FOR ETHNO-VETERINARY TREATMENT

plants are arranged according to ailments,local name,botanical name, part used and ethno-veterinary uses are given in table form. 60 herbalist's knowledge of 46 plant parts used for the treatment is given in Table -1.

RESULTS AND DISCUSSION

Ethno-veterinary remedies are found to be effective against a wide range of common disease conditions, are not a panacea for all disease conditions, particularly contagious diseases and

emergent diseases such as peste des petits ruminants and blue tongue. There is no substitute for a comprehensive State public healthcare system.Veterinary doctors in rural areas have to play a critical role in preventive and curative healthcare system of livestock (Ghotge and Ramdas, 2008).

Local people from three regions of Chandrapur, Nagpur and Gadchiroli are surveyed and 46 plants for common diseases in their territory.These people reside in very remote areas and there is no any communication with veterinary doctor during the adverse condition of animal's health. In this situation, they are depend on locally available plant resources to treat diseases, cuts & wounds, dysentery, cough, bloat, control of maggots from wounds, etc. Young generation is not aware about their traditional knowledge and life style of herbal healers. Documentation of 60 local people and knowledge of traditional practices of herbal medicines for cattle health care is recorded and following table gives information regarding how many people treat ethno-vet ailment.

The classification of plants parts used are given below:

Name of plant part	No of users
Roots	3
Stem	1
Bark	2
Leaves	30
Flowers	0
Fruits	4
Seeds	3
Pods	1
Latex	1
Gum	1

It is very interesting to note that 60 people know the treatment of maggoty wound by using *Gardenia gummifera*. L. f. Fruits of *Semicarpus anacardium* L. f. were used for dental treatment, *Cayratia trifolia* (L.) Domin leaves and bark were used for wound healing, Bark of *Acacia leucophloea* (Roxb.) Willd. Used to control diarrhoea.

58 farmers used *Cleistanthus collinus* Roxb. as insecticides, 48 local people used *Datura metel* L. for wound healing purpose, 45 people well known use of *Cissus quadrangularis* L. and 30 farmers use *Viscum angulatum* Heyne ex DC.for

bone fracture healing. On the other hand 8 farmers use leaves of *Chloroxylon swietenia* DC. for fumigation to control flies and insects. 5 farmers use *Ficus bengalensis* L. roots for dental treatment. Four people use leaves of *Holoptelia*

Major diseases in the study area:

Diseases	Plants recorded for each disease
Bone fracture	5
Improvement in lactation	5
Wounds	5
Tympany	4
Dental treatment	3
Hemagorria septicema	2
Eye problem	2
Vermicide	3
Snake bite	2
Abortion	2
Dog bite	2
Maggoty wound	1
Ticks and lice	1
FMD	1
Scorpin bite	1
Fever	1
Diarrhoea	1
Fumigation in cattle shade	1
Stomach disorder	1

Flora of Vidarbha region is different while comparing with Western Maharashtra. Some plants are common like *Madhuca longifolia* (Coel) Macbr and their EVM used are different, fruits used for shivering fever in Vidarbha region in Western Maharashtra flower liquor for prolapse of uterus. Fumigation is an age old method used to repel insects in cow shed is still performed by local people with leaves of *Artemisia vulgaris* L. and *Pogostemon benghalensis* (Burm.f.) O. Ktze in western Maharashtra. In Vidarbha region *Chloroxylon swietenia* DC is used to control flies and insects due to fumigation. For the treating dysentery and diarrhea in animals they prefer 7 plants out of which *Gmelina arborea* Roxb and *Bambusa arundinace* (Retz.) Willd. are commonly used. Wound healing plants like *Tridax procubens* L. *Emblica officinalis* Gaertn. *Momordica charantia* L. etc. are natural plant sources Leaves of *Annona squamosa* L. are used for wound healing and insect repellent. It is observed from the interview of the

integrifolia (Roxb.) Planch to control blood dysentery leaves of 30 plant resources are used for different treatments. Followed by fruits (4), roots and seeds (3), bark (2) and stem, pods, latex and gum each (1).

farmers and Gondia tribes that 80 % believe on traditional treatment. Some farmers regularly treating their livestock from herbalist due to low cost treatment and without side effects.

CONCLUSION

Modern veterinary drugs/medicines are very expensive due to chemically produce. The parallel use of two systems like allopathic and traditional veterinary medicines in remote areas will reduces dependency on expensive veterinary drugs. The traditional knowledge of local people needs to be standardized and reuse in remote hilly areas. Many multinational corporations spend millions of dollars on research investigating the medicinal properties of various plants. The plants mentioned in the present work need to be actively used for the treatment of EVM.

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REFERENCES

- Bhuskute S.M, 1990.** New Plant Records for Nagpur District (M.S.)-II. *Ind. Bot. Rep.*, 9(2):61-65.
- Chitralkha K and Jain AK, 2006.** Plants used in ethno-veterinary practices in Jhabua District, M.P. *Ethnobotany* 18: 149-152.
- Deo Avinash, Kulkarni DK and Kamble PB, 2013.** EVM for deworming in the ruminants for sustainable health. Paper presented at International Conference on Inclusive and sustainable growth conducted by Institute of Management Technology, Nagpur and BAIFF Development Research Foundation, Pune on Oct. 4-6, 2012 held at BAIFF campus, Pune. Online publication- 142-463.
- Deshmukh RR , Rathod VN and Pardeshi VN, 2011.** Ethno-veterinary medicines from Jalna District of Maharashtra State. *Indian Journal of Traditional Knowledge* 10(2) : 344-348.

Table 1: EVM practices in Chandrapur region

local name	Botanical name	Part use	Etno-vet. use	family	No of people
Haddijod	<i>Cissus quadrangularis</i> L.	stem	Bone fractures	Vitaceae	45
Samoka	<i>Miliusa tomentosa</i> (Roxb.) Sinclair	roots	Improves lactation, Galactogauge	Annonaceae	9
Kosum	<i>Schleichera oleosa</i> (Lour.) Oken.	leaves	Improves lactation/fodder in summer	Sapindaceae	18
Nasweli Kanda	<i>Lagerstroemia microcarpa</i> Wt.	root	Tiks and lice prevention/Insecticide	Lythraceae	10
Garadi	<i>Cleistanthus collinus</i> Roxb.	leaves	Insecticide	Euphorbiaceae	58
Lenja	<i>Holoptelia integrifolia</i> (Roxb.) Planch.	leaves	Blood dysentry	Ulmaceae	4
Dikamali	<i>Gardenia gummifera</i> L.f.	gum/ leaves	Maggots wound healing	Rubiaceae	60
Rohin	<i>Soymidia febrifuga</i> (Roxb.) Juss.	leaves and fruits	Improves lactation, feed in summer, blood dysentery	Meliaceae	16
Lokhandi	<i>Ixora brachiata</i> Roxb.	leaves	Improves lactation, feed in summer	Rubiaceae	16
Bhira	<i>Chloroxylon swietenia</i> DC.	leaves	Fumigation against flies and insects	Flindersiaceae	8
Chinch	<i>Tamarindus indica</i> L.	leaves	Tympany	Caesalpiniaceae	60
Khale ajan	<i>Viscum angulatum</i> Heyne ex DC.	leaves/ stem	Fractures	Viscaceae	30
Ashta	<i>Ocimum gratissimum</i> L.	seeds	Tympany, vermicide	Lamiaceae	17
Velya palas	<i>Butea Superba</i> Roxb. ex Willd	leaves and stem	Fractures	Fabaceae	20
Pitondi	<i>Indigofera linifolia</i> (L.f.) Retz.	leaves	Dehairing of tail	Fabaceae	18
Datrangi	<i>Eheatia laevis</i> Roxb.	leaves	Dental treatment	Boraginaceae	20
Getla	<i>Sapindus laurifolius</i> Vahl.	leaves(with tamarind)	Tympany	Sapindaceae	20
Futondi	<i>Phyllanthus reticulatus</i> Poir	leaves	Tympany and blood dysentery	Euphorbiaceae	20
Gopanbhaji	<i>Merremia gangetica</i> (L.) Cuford.	leaves and stem	Fractures	Convolvulaceae	20
Mowaee	<i>Lannea coromandelica</i> (Houtt) Merr	leaves and stem	Fractures	Anacardiaceae	17
Ran-tambakhu	<i>Nicotiana plumbaginifolia</i> Viv.	leaves and seeds	Vermicide	Solanaceae	20
Bahwa	<i>Cassia fistula</i> L.	leaves	Haemorrhagic septicaemia	Caesalpiniaceae	20
Chana	<i>Cicer arietinum</i> L.	watery secretions on young leaves	Tympany	Fabaceae	2
Kawath	<i>Limonia acidissima</i> L.	leaves	Haemorrhagic septicaemia	Rutaceae	20
Ruee	<i>Calotropis gigantea</i> (L.) R.Br.	latex(with snail	Snakebite, dogbite	Asclepiadaceae	20

		secretions)			
Bel	<i>Aegle marmelos</i> (L.) Corr.	leaves	Snakebite	Rutaceae	20
Amervel	<i>Cascula reflexa</i> Roxb.	leaves	Abortion	Cuscutaceae	13
Jawas	<i>Linum usitatisimum</i> L.	seeds	Abortion	Linaceae	20
Chandan	<i>Santalum album</i> L.	leaves	Eye injury	Santalaceae	20
Bibba	<i>Semicarpus anacardium</i> L.f.		Dental treatment	Anacardiaceae	60
Wad	<i>Ficus bengalensis</i> L.	roots	Dental treatment	Moraceae	5
Sambar	<i>Euphorbia ligularia</i> Roxb.	leaves	Insecticide	Euphorbiaceae	20
Maharukh	<i>Ailanthus excelsa</i> Roxb.	leaves	FMD	Simaroubaceae	18
Apta	<i>Bauhinia racemosa</i> Lamk.	friuts	Scorpion bite	Caesalpiniaceae	18
Ranbhendi	<i>Abelmoschus esculintus</i> (L.) Moench.	roots	Burns and injuries	Malvaceae	20
Moha	<i>Madhuca longifolia</i> (Koen.) Machbr.	fruits	Shivering fever	Sapotaceae	20
Hiwar	<i>Acacia leucophloea</i> (Roxb.) Willd.		Diarrhoea	Mimosaceae	60
Tarota	<i>Cassia tora</i> L.	leaves and seeds	Dog bite	Caesalpiniaceae	27
Dhotra	<i>Datura metel</i> L.	leaves and fruits	Wounds	Solanaceae	48
Amba	<i>Mangifera indica</i> L.	bark with lime	Dysentery	Anacardiaceae	30
Arjun	<i>Terminalia cuneata</i> Roth.	bark	Wounds	Combretaceae	28
Kambarmodi	<i>Cayratia trifolia</i> (L.) Domin.	leaves	Wounds	Vitaceae	60
Sitaphal	<i>Annona squamosa</i> L.	leaves	Wounds	Annonaceae	34
Kena	<i>Commelina benghalensis</i> L.	leaves	Eye problem	Commelinaceae	22
Palas	<i>Butea monosperma</i> (Lamk.) Taub.	roots	Tympany	Fabaceae	40
Maka	<i>Eclipta prostrata</i> (L.) L.	leaves	Wound healing/ stomach disorder	Asteraceae	30

Ghotge N and Ramdas SR, 2008. *Plants used in animal care.* Pub by theAnthraColletive, N.D.A. Road, Bavdhan, Pune -411021. pp. 1-515.

Kamble PB and Kulkarni DK, 2013. Utilization of Traditional medicinal plants for Ethno-veterinary Medicines from Bhor region, Pune district, Maharashtra, India. *International Journal of Multidisciplinary Research*, 2, 7(5) : 82-85.

Kamble PB, Deo A and Kulkarni DK, 2014. Social Validation of Ethno-Veterinary Medicines for wound healing in Cattle. *Asian Agri-History*, 18(1) 63-68..

Kamble RB, Hate S and Chaturvedi A, 2013. Some new plant reports to the Flora of Nagpur District, Maharashtra-III. *Science Research Reporter* 3(2): 124-128.

Kamble RB, Hate S, Mungole A and Chaturvedi A, 2013. New Record of Some Rare Plants to the Flora of Nagpur District, Maharashtra. *J. New Biol. Rep.*, 2(2): 103-107.

Kulkarni DK and Kumbhojkar MS, 2002. Ethno-veterinary Medicinal practices in Mahadeokoli tribe. *J. Maharashtra agric. Univ.*, 27(2): 172-176.

Pandey HP, Varma BK and Narain S, 2000. Ethno-veterinary plants of Gonda region, U.P. India. In *Ethnobotany and Medicinal plants of Indian subcontinent* (Ed. J.K. Maheshwari) Scientific Publisher, Jodhpur, and pp. 199-203.

Ramalah PV and Patil MB, 2005. Ethno – veterinary Plants of Nadurbar district of Maharashtra, India. *Ancient Science of Life* 24 (3) 119 – 125.

Ramdas SR and Yaksi S, 2001. Changing livelihoods, livestock and local knowledge systems: women stake

- their claims in Andhra Pradesh and Maharashtra. *Indian Journal of Gender Studies*: 8(2):175-194. **Ramdas SR, Ghotge NS, Ashalata S, Mathur NP, Bromme VG and Rao S, 2000.** Ethno-veterinary remedies used in common surgical conditions in some districts of Andhra Pradesh and Maharashtra, India. *Ethnobotany* 12: 100-112.
- Ravikumar RK, Rao BS, Bose SC and Sudhakar K, 2004.** Validity of ethno-veterinary practices adopted by farmers in Dindigul District of Tamil Nadu. *J. Asian Agri-History*, 8(1): 55-61.
- Raychaudhuri SP, 1964.** *Agriculture in Ancient India*. ICAR, New Delhi.
- Reddy KN and Raju RRV, 2000.** Plants in ethno-veterinary practices in Anantpur Dist., A.P. In *Ethnobotany and Medicinal plants of Indian subcontinent* (Ed. J.K. Maheshwari) Scientific Publisher, Jodhpur, pp.347-357.
- Shamasastry R, 2004.** Kautily's Artha-sastra- Elephants. *J. Asian Agri-Histroy*, 8(1): 67-71.
- Tamboli PM and Nene YL, 2005.** Science in India with special reference to Agriculture. *J. Asian Agri-Histroy*, 9(1): 27-49.
- Thakre MT and Srinivasu T, 2012b.** New plant records of Nagpur district. *M.F.P. News*, XXII(3):6-10.
- Toyang NJ, Django CN, Nuwanyakpa M and Kinyuy WC, 1995.** Ethno-veterinary medicine practices in the Northwest Province of Cameroon. *Indigenous Knowledge and Development Monitor*, 3 (3): 20-22.
- Wadhai VS and Khobragade KD, 2012.** Evaluation of microbiological safety of Indian Chutneys: a case study of Chandrapur city, India. *Science Research Reporter*, 2(1): 56- 58.

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