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EDUCATIONAL TRAINING ON ETHNO VETERINARY: USES AND APPLICATION OF MEDICINAL PLANTS OF TRADITIONAL LIVESTOCK HEALERS

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ABSTRACT
An educational training program me to give energy to the ethno veterinary traditions was initiated in 2003 by BIRD-K at Tiptur in collaboration with government veterinary department and many non-governmental organizations in southern India. The livestock healers of the project sites covered eight villages within three semi-arid districts Anantapur and Mahabubnagar in Andhra Pradesh and Tumkur in Karnataka in southern India. From each cluster, 1-2 persons who are already involved in the livestock treatment of diseases were identified and were trained in order to hone their skills and capacity. In the training documented about forty three plant species used for nearly 33 health disorders of livestock. The plants used for the treatment with their botanical names, local name, mode of administration, status of plants are listed in the form of table 3.The interviewed healer groups use plant parts either single or in combined form to treat health disorders like pneumonia abdominal pain, diarrhoea, dysentery, worm, and stomach pain, Foot rot fever etc. So the study, training and documentation and conservation of the knowledge are essential. The approach was to take advantage of traditional livestock healer's knowledge and the capacity of farmers to experiment and solve their own problems. It is learned in the process that this model if promoted widely can be of immense use for rural communities.

KEYWORDS: Ethno veterinary, Ethno botany, Healer, Livestock, Traditional animal medicine, Training knowledge.

INTRODUCTION

Traditional animal healers have provided ethno veterinary services to rural area communities. Able to be made use of veterinary services is a major constraint in the semi arid tropic areas of south India [1]. However, in contrast to their counter parts in human ethno medicine, such healers and their roles have been widely essential for remote village areas. Moreover, they are readily accessible to the local poor farmers[2]. Ethno veterinary and ethno herbal knowledge is acquired through practical experience and has traditionally been passed down orally from generation to generation[7]. These activities have saved ethno veterinary knowledge from extinction. Most knowledge resided with elderly community members and disappeared as they died. The introduction of modern practices also made it difficult for the younger generations to appreciate and use the beliefs and practices of their fore fathers. Despite recent efforts to promote the use of ethno veterinary knowledge worldwide, much information is only documented in field reports and scientific publications. Few practical manuals have been written to help animal healthcare workers, farmer leaders and farmers to actively train others in the use of effective and validated ethno veterinary practices [3].

According to the World Health Organization, at least 80% of people in developing countries depend largely on indigenous practices for the control and treatment of various diseases affecting both human beings and their animals [4]. The ethno veterinary techniques include treatment and prevention of disease, extensive material medica preparation, ecto and endo parasite control, fertility enhancement, bone setting and poor mothering management [5]. This approach offers sustainable strategies directed towards developing sound and appropriate animal health care systems suitable and relevant to rural communities in improving livestock performance and production and hence, livelihood. In addition, there would be environmental conservation and management strategies for achieving sustainability, availability, accessibility and affordability of existing ethno remedies and ethno practitioners [6].

The main objective of this paper is to identify traditional livestock healer's, from three semi-arid districts who are already involved in the livestock treatment of diseases were identified and were trained in order to hone their skills and capacity and help traditional livestock healer's agents and farmers' leaders integrate and promote the use of ethno veterinary medicine practices in animal healthcare, focusing on use and application of medicinal plants, cattle diseases etc. Table 3 contains lists of information on useful medical plants for different animal diseases.

MATERIALS & METHODS

Study Area

The Educational training on Ethno-veterinary uses and application of meditational plants for traditional livestock healers is a new intervention being carried out at BIRD-K training centre. It is located in Karnataka and lies between north latitude 13^0 $11^{'}$ $55^{''}$ N, and 76^0 23^0 $41^{''}$ east

longitudes. The livestock healers of the project sites covered eight villages within three semi arid districts Anantapur and Mahabubnagar in Andhra Pradesh and Tumkur in Karnataka in southern India. This project was sponsored by UK department for international Development, National Resource Systems Program me and executed by CRIDA in collaboration with two State Agricultural Universities, Hyderabad, UAS, Bangalore, ICRISAT and a reputed NGO, BIRD-K.

Ethno-veterinary survey

Participatory rural appraisal and rapid rural appraisal:

Participatory Rural Appraisal (PRA) and Rapid Rural Appraisal (RRA) techniques are widely used in gathering information with stakeholder, village farmers in the selected clusters. The approach was to take advantage of traditional livestock healer's knowledge and the capacity of farmers to experiment and solve their own problems. The approach begins with in depth participatory diagnosis by a broad cross section of the community, including men and women from the different wealth and age groups. From each cluster 1-2 persons who are already involved in the livestock treatment of diseases were identified and were trained at BIRD-K training centre in order to hone their skills and capacity.

Documentation:

The first priority to documentation, the consent of the traditional healers is sought to document his knowledge on traditional health practices. This was done in written form called the prior informed consent. Documentation is done in groups to facilitate the documentation process. Each group ideally consists of 4-5 folk healers, a veterinary doctor, doctor of indigenous system of medicine, a botanist and a documenter. Assessment training is conducted in a local community healers, community members, Folk healers, veterinarians and ayurveda doctors along with other subject experts. Different experts who participate in the training comment on a particular health condition and practice based on the data available from their own respective knowledge systems. After the collection of data related to traditional ecological knowledge related to plants, their botanical names, family, local names and parts used, new information collected was compiled and documented. The photographs of the plants have been maintained in the softcopy. The plants and plant parts were air dried under shade and preserved as herbariums and dried specimens. Herbariums of all the plants are deposited in the BIRD-K training centre [8].

RESULTS & DISCUSSION

TABLE 1: Training programme profile of the three clusters

No.	Cluster and village name	Place of training center	Training on	Selection techniques adapted	No. of farmers attended
	CLUSTER: Ananthapur				
1	Pampanur	Tiptur	Ethnoveterinary	PRA/RRA	2
2	P. thanda	Tiptur	Ethnoveterinary	PRA/RRA	2
3	Y. kothapalli	Tiptur	Ethnoveterinary	PRA/RRA	1
	CLUSTER:Mahabubnagar				
4	Zamisthapur	Tiptur	Ethnoveterinary	PRA/RRA	1
5	Bokkalonipalli	Tiptur	Ethnoveterinary	PRA/RRA	1
6	Dharmapur	Tiptur	Ethnoveterinary	PRA/RRA	2
7	chowdanapalli	Tiptur	Ethnoveterinary	PRA/RRA	1
	CLUSTER: Tumkur				
8	K. Shankaranahalli	Tiptur	Ethnoveterinary	PRA/RRA	2
	Total				12

TABLE 2. Ethno medicinal plants used for different diseases used in Ananthapur and Mahaboobnagar in Andra Pradesh and Tumkur in Karnataka

No.	Animal disease	Botanical name	Local name	Family	Habit	Parts used	Mode of Administration
1	Pneumonia	*Acacia sinuata* Auct. *Acacia concinna* (Willd.)	K: Seegekayi T: Seekaya	Fabaceae	tree	bark	Take 100 g fresh stem barks grinds it and make a pill. Feed animals to cure pneumonia twice daily for three days.
2	Constipation	*Acalypha indica*	K: Pippi aku T: Murakunda	Euphorbiaceae	tree	leaves	Collect handful leaves and squeeze out the juice, add 5 g of engu in it. Drench this medicine to the animal to get relief from constipation.
3	Black Quarter disease	*Ailanthus excelsa* Roxb.	K:Doddamara T:Peddamanu	Simaroubaceae	tree	bark	Grind 1 kg stem bark and squeeze out the juice and add 5 ml garlic juice into it. Apply externally on affected part soon after diagnosed Black Quarter disease.
4	Eye discharges	*Albizia amara* (Roxb.) *Boivin*	K: Chigare T: Chigara	Mimosaceae	tree	bark	Soak the pounded stem bark in 10% salt water for 2 hours and filter it, wash the affected eye with this water to cure eye discharges twice daily for two

							days. Leaf juice applies 2 drops into eye to control eye discharge for one time only.
5	Ticks and Lice	*Aloe vera* *Aloe barbadensis*	K: Lolesara T: Kalabanda	Liliaceae	herb	leaves	Apply leaf juice externally to control ticks and lice, wash with warm water after 3-4 hours.
6	Bloat.	*Zingiber officinalis* Rosc.	K: Shunti T: Sonti	Zingiberaceae	stem	rhizome	Grind about 50 g of dried rhizome boil them in 500 ml of water for 10 minutes, filter it after become cool. Drench twice daily for two days to cure bloat.
7	Diarrhea.	*Trigonella foenumgraecum*	K: Menthe T: Menthulu	Fabaceae	herb	seeds	Take 25 g of seeds soak them in 200 ml water for half an hour and grind it. Given orally twice daily until cured for control diarrhea.
8	Convulsive seizures	*Withania somnifera* L. *Physalis somnifer*	K: Aswagandha T: Dommadollu gadda	Solanaceae	herb	rhizome	Squeeze out the juice from roots. Put 2-3 drops each in nasal and ear twice daily for 3 days to cure convulsive seizures.
9	Sprains	*Wattakaka volubilis*	Pedda kadithiri	Asclepiadaceae	tree	leaves	Apply leaf juice by adding little lime on affected part to cure sprains once day till cured.
10	Maggot wounds	*Annona squamosa*	K: Seethaphala T: Seethapala	Annonaceae	plant	leaves	Collect handful leaves and add 4 black pepper and 3 cloves of garlic and grind together to make a paste. Apply this medicine externally for maggot wounds once daily until cured.
11	Foot abscess	*Azadirachta indica*	K: Bevinamara T: Vepachettu	Meliaceae	tree	leaves	Collect leaves, grind and prepare paste. Apply leaf paste externally for foot abscess twice daily till cured.
12	Snake bite	*Aristolochia indica L. Syn: Aristolochia lanceolata W.*	K: Kettagida T: Gabbu usili/Nalla eswari	Aristolochiaceae	plant	leaves	Feed leaves for snake bite for one time.
13	Convulsive seizures	*Bambusa arundinaceae*	T: Adike hele T: Veduraku	Poaceae	tree	leaves	Collect fresh leaves, the same quantity of leaves of *Clerodendrum phlomidis* and *Clerodendrum inerme* grind all together and add 5 g black pepper powder. Given orally twice daily to cure convulsive seizures.
14	Yoke gall	*Citrullus colocynthis* (L.) *Cucumis colocynthis*	K: Paparigida T: Peddapapara	Cucurbitaceae	plant	leaves	Collect the juice from the leaves and apply on affected part twice daily for 3 days to cure yoke gall.
15	Colic	*Clerodendrum inerme* (L.) Gaertn.	K:Visamdare T: Vishamari	Verbanaceae	plant	leaves	About 50 g leaves to be fed to the animal which is suffering from colic once daily for two days.
16	Tripnosomiasis	*Clerodendrum multiflorum* (Burm.f.) *Volkameria multiflorum* Burm.	K: Takkali T: Thakkali	Verbenaceae	tree	leaves	About 50 g leaves to be fed to the animal to cure colic twice daily for two days. 50 g leaves, 10 seeds of pepper grind together and make a 50 g bolus. Feed twice against Tripnosomiasis until cured.
17	Diarrhea	*Butea monosperma* (Lamk.) Taub. Syn., *Butea frondosa* Roxb. Ex Willd., *Erythrina monosperma* Lam.	K: Modugadamara T: Mothuga	Fabaceae	tree	bark	Grind 50 g fresh bark by adding 5 g black pepper and 2 cloves of garlic and make into a bolus. Feed twice daily for two days to cure diarrhea.
18	Bloat	*Capsicum annuum* L.	K: Mensinkai T: Mirapa	Solanaeceae	plant	fruit	Grind 5 fried dry fruits by adding 1 g salt and mix it into 200 ml water. Given twice daily for two days to cure bloat.
19	Diarrhea	*Cassia auriculata*	K: Kadu tangadi T: Nela thangedu	Caesalpiniaceae	plant	root	Collect 200 ml of root juice. Administer orally twice daily for three days to cure diarrhea.
20	Smelly Diarrhoea	*Ficus benghalens* *Ficus indica*	K: Aralimara T: Marri chettu	Moraceae	tree	bark	Collect 50 g of fresh stem bark, add same quantity of Azadirachta indicia bark grind together and make bolus. Feed twice daily for 3 days to cure smelly diarrhea.
21	Blood in	*Gmelina arborea*	K: Bettada	Verbenaceae	plant	leaves	Grind 50 g fresh leaves and 5 g sugar.

	urine	Roxb.	kumbale T: Konda gummudu				Boil it in 500 ml water for 30 minutes, filtered and cool it, given orally twice daily for 2-3 days to cure blood in urine.
22	Eye discharge	*Gymnema sylvestre*	T: Padapathre K: Podapathri	Asclepiadaceae	herb	leaves	Apply leaf juice 2 or 3 drops into affected eye twice daily for two days to cure eye discharge.
23	Eye discharges	*Jasminum sambac*	K: Mallige T: Malle teega	Oleaceae	plant	flowers	Sundry the flowers and make fine powder apply this powder into the eye to cure eye discharges twice daily for two days
24	Ephemiral fever	*Cassia fistula* L.	T: Rela	Caesalpiniaceae	plant	leaves	Fumigate with leaves near the sick animal once in the morning for three days to cure.
25	Diarrhea	*Cassia siamea* Lam.	K: Seemetangadi T: Seemathangdi	Caesalpiniaceae	plant	bark	100 ml fresh stem bark juice mix into 200 ml water. Given orally twice daily to cure.
26	Diarrhea	.*Datura metel* *Datura fastuosa*	K: Datthura T: Ummetha	Solanaceae	herb	seeds leaves	Burn 2 fresh fruits and make a powder, 5 g pepper powder, two bulbs of garlic and make bolus. Administer orally twice daily for two days to cure diarrhea. Feed 3 fresh leaves twice daily for three days to cure diarrhea
27	Colic	*Delonix elata* (L.)	K: Sunkesula T: Gamble	Caesalpinaceae	tree	bark	Grind 50 g stem bark and put it in boil water (200 ml) for 10 minutes. Administer this mixture orally twice daily morning and evening for two days to cure colic.
28	Bone dislocated part	*Dodonea viscose*	K: Bandre T: Bandai	Sapindaceae	plant	leaves	Grind the leaves and make paste, apply this paste on bone dislocated part and tie with sheep wool tightly. Keep it for 1 month.
29	Blood diarrhea	*Terminalia chebula* *Myrobalanus chebula*	T: Karakachettu	Combretaceae	plant	fruits	Grind two dry fruits and mix it in 200 ml water. Given twice daily for two days to cure diarrhea. 10 fruits powder and add half kg ghee, 500 ml moon dhal and 25 g sugar. Feed twice daily for 3-4 days to cure bloody diarrhea.
30	Diarrhea	*Psidium guajava* L.	K: Seebekayigida T: Jamachettu	Myrtaceae	tree	bark	Make juice out of fresh stem bark and add 150 ml fresh water. Given orally twice daily for 2 to 3 days to control diarrhea.
31	Eye discharge	*Solanum virginianum* L. *Solanum surattense* Burm.	K: Menasinakayi T: Mirapa	*Solanaceae*	plant	fruits	Collect juice from fruits and apply 1-2 drops on affected eye, twice daily for two days to cure eye discharge.
32	Foot rot	*Tamarindus indica* L.	K: Hunase T: Chintha chettu	Caesalpiniaceae	tree	fruit	Prepare juice from fruit pulp and add 5 g of sweet soda (Calcium carbonate) administer orally for colic once daily till cured. Boil the fruit pulp and apply on the affected hooves when it is slightly hot to control foot rot.
33	Anorexia	*Tylophora indica*	K: Adumuttadasoppu T: Mekameyani teega	Asclepiadaceae	herb	leaves	Collect 50 g leaves, 50 g garlic and 10 g black pepper, grind all together and feed to the animal which is suffering from anorexia thrice daily until cured.
34	Foot rot	*Macrotyloma uniflorum* (Lam.) Verdc.	K: Huruli (horsegram) T: Ulavalu	Fabaceae	plant	leaves	Leaf juice to be applied externally on affected hooves to cure foot rot.
35	Bloody diarrhea	*Piper betel* L.	K: Veelyadahele T: Thamalapakulu	Piperaceae	plant	leaves	Collect 10 g leaves, 10 g tamarind fruit pulp and 10 g jiggery, grind all together and make bolus. Feed twice daily for 2-3 days to cure bloody diarrhea.
36	Bloat.	*Piper nigrum* L.	K: Menassu T: Miriyalu	Piperaceae	herb	seeds	Grind 10 g seeds and 25 g of *Brasica nigra*, mix it into 500 ml warm water and drench once to cure bloat.
37	Bloat	*Pongamia pinnata*, *Pongamia glabra*	K: Honge T: Kanuga	Fabaceae	tree	seeds	Grind half seed by adding little salt. Feed once to reduce bloat.
38	Fever,	*Alangium*	Karulu bene	Alangiaceae	herb	bark	Stem bark is crushed in cow's milk and

	intestinal disorders	*salvifolium* (L.) Wang	gida, Ankole Huchchu				is given to dogs in the treatment of fever madness and intestinal disorders (for 1 week).
39	Rinderpest	*Alseodaphne semecarpifolia* Nees.	T: Mase	Lauraceae			About 20 g stem bark is crushed in buttermilk and given for three days to treat Rinderpest disease (*Dodda roga*) and dysentery (*Athisaara*) in cattle.
40	Poisonous bites	*Vitex negundo* L. *Leucasaspera* (Willd.) Spreng.	K: Lakkigida T: Lakkiyaku	Verbenaceae, Lamiaceae	plant	leaves	3-4 drops of leaf juice with *Tumbe* (*Lucas aspera* (Willd.) Spreng. Lamiaceae) is put in the nostrils in the treatment of poisonous bites in cattle.
41	Hemorrhagic	*Capsicum frutescens* L.	K: Sannamenasinakayi T: Chinnamirapakayi	Solanaceae	plant	fruit	About 100 g fruits ground with the central pith of *Baalemara* (*Musa pardisiaca* L., Musaceae) and common salt are given orally 2-3 days to treat hemorrhagic septicemia in cattle.
42	Bone fractures (*Elubu murita)*	*Machillus macrantha* Nees.	K: Kulamaavu	Lauraceae	tree	bark	Mixture of equal quantity of bark of the plant crushed with *Tamaalapathre Cinnamomum wightii* Meissn., Lauraceae is poulticed to treat bone fractures in cattle.
43	Foot and mouth disease	*Curcuma longa* L.	K: Arisina T: Pasupu chakka	Zingeberaceae	herb	rhizome	250 g of Rhizome crushed with 100 g of whole plant of Coriander (*Coriandrum sativum* L. -Apiaceae) in groundnut oil and is given for five days to treat foot and mouth disease in cattle.
44	Snakebite	*Cryptolepis buchanani* Roem.	K: Karibantana balli	Periploaceae	plant	leaves	About 100 g leaves crushed in buttermilk are given twice in the treatment of cattle.
45	Dengue fever *(Kuntu roga*)	*Cucurbita maxima* Duch.	K: Kumbala T: Gummadi	urbitaceae	herb	fruit	Paste of the fruit stalk in lime juice or rice washed water is applied to joints of the legs in the treatment of dengue fever (for a week) in cattle.
46	Wounds (*Hulu beeluvudu*).	*Terminalia bellirica*	K: Taare	nbretaceae	tree	bark	A piece of stem bark is tied around the neck of the cattle using thread made of *Kavarige* (*Helicteres isora* L., Sterculiaceae) to cure wounds with maggots. A little paste of the former is applied externally to the wound.
47	Wounds (*Hotteyubbara)*	*Ficus glomerata* Roxb.	K: Attimara T: Pattimanu	raceae	tree	bark	100 g bark ground in buttermilk is given in the treatment of tympanites for two days in cattle wounds.
48	Round worm/ tape worm	*Azardictia indica*	K: Bevinamara T: Vepachettu	iaceae	tree	oil	10 drops of neem oil mix in water make the animal drink it and remove insect from eyes.
49	Lice	*Asparagus racemosus* (Willd.)	K: Shathavari T: Sathavari	haragceae	climber	rhizome	Rhizome paste is applied externally on skin to kill the lice on the body of cattle.

Presently local NGO like BIRD-K and others, working in Ananthapur, Mahabubnagar district of Andhra Pradesh, and tumkur in Karnataka have courage to encourage the ethno herbal medicines for animals in the remote villages shown in table1. The volunteers first learn the skill and knowledge of ethno-veterinary medicine from the local medicine man, then identify the medicinal plants, prepare medicines with the help of the local medicine men. There is also an attempt to train the local rural youth in ethno veterinary practices by giving them all facilities for transmission of this dying practice. In training documented about 43 plant species used against different health disorder or diseases of livestock. The ethno medicinal plants used for the treatment with their botanical names, local name, mode of administration, are listed in the form of table 2. For finding out the best practices was developed and tested in three geographical locations in southern India. Nearly 43 plant resources for nearly 33 health conditions were studied during this study training. About 70% of the remedies had positive evidence from various systems of medicine and practical experience. The interviewed healer groups use plant parts either single or in combined form to treat health disorders like pneumonia, abdominal pain, diarrhoea, dysentery, worm and intestinal disorders, stomach pain, foot rot fever etc. So the study, training, documentation and conservation of the knowledge are essential.

CONCLUSION

Formerly, ethno-veterinary practices are recorded for wider circulation. Since the concepts of alternate medicine and plural medical practices are gradually being recognized and getting government encourage, it is imperative to examine the pharmacological import of these medicines and encourage the ethnic healers to standardize their knowledge and make a living out of it. The approach

was to take advantage of traditional livestock healer's knowledge and the capacity of farmers to experiment and solve their own problems. The BIRD-K in Karnataka, BAIF in India has now successfully implemented this training programme. It is learned in the process that this model if promoted widely can be of immense use for rural communities. So the study documentation and conservation of the knowledge are essential for future research and development.

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