

**ETHNOVETERINARY MEDICINAL PLANTS: A BLESSINGS TO TRIBAL
COMMUNITIES OF INDIAN SOCIETY: A REVIEW****Neha Raj* and Dr. Anil Kumar**

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ABSTRACT

Ethnoveterinary medicinal (EVM) plants have been known from the time immemorial for the treatment of various veterinary ailments. It deals with some of the medicinal plants which are used by the tribal community, rural people, and farmers to cure their veterinary diseases. In this plant with their medicinal importance and plant parts which are used to treat various diseases. Some of the treated diseases are skin infection, wounds, dysentery, fever, insect bite, bone fracture, weakness, indigestion etc. the most important plant parts used is leaf then followed by rhizome, bark, fruits, seeds, latex. This paper describes medicinal plants for the ethnoveterinary practices which are used to treat various diseases of livestock with botanical name, common name, family, plant parts used, mode of preparation and its administration.

KEYWORDS: Ethnoveterinary Medicinal Plants, Livestock, Tribal community, Traditional Knowledge, Diseases, Botanical name, India.

INTRODUCTION

In terms of biodiversity, India is one of the richest countries in the world having its agro-climatic zones. More than 17,000 species are flowering plants out of which more than 7,000 are of medicinal usage. These are documented in Indian system of medicine such as Ayurveda, unani, siddha and Homoeopathy (AYUSH).

According to Schillhorn (1996), the practices which are based on the traditional knowledge, beliefs, experiences, skills, methods with cost alternatives and are used to cure diseases and to keep the animal healthy is known as Ethnoveterinary Medicine (EVM).^[1]

EVM was practiced from the era of King Hamurabi of Babylon in 1800 BC. He articulated a rule for the veterinary fees and charged for the treatment of cattle and donkeys. The knowledge of Ethnomedicinal plants which is used for the treatment of animal has been accumulated from the centuries on different medicinal systems such as Ayurveda, Unani and Siddha.

According to UNESCO now a days there is a tremendous growth in the field of these EVM as they are gaining notoriety both in developing and developed countries because of its natural origin and having less side effects.^[2]

Livestock farming plays an important role and it is an integral part of tribal community, farmers, rural people and semi-urban people as animals are the good source of

proteins, calories in the form of milk, meat and some other derivatives and also provides fuels, manures etc. Livestock farming generates employment to these peoples. Livestock play a vital role in the national economy of India as preponderance of people in India is relying on agriculture and livestock production.

The dependency of man and animals lives has been revolving in an around the plants in the form of foods, shelters, fibers as well as to control the disease which is an ancient and authentic practice. The owners of livestock have to rely on the herbal medicinal plant recipes as it is inherited by their forerunner from down through the generations by means of speech.

Traditional practices which are used for healing the diseases have been applied for centuries and it is passed from down through the generations by means of speech (Balaji and Chakravarthi, 2010; kaur *et al*, 2015). All the livestock keepers are completely dependent on these traditional practices but towards the middle of 20th century the benefaction of medicinal plant to medicine is almost reduced to one fourth because the research and development favored allopathic drugs. But now, this trend reverse once again and people start using this method because this method serves as an effective and alternative way to synthetic and modern concept of treatment (Pandey *et al*; 2007).

India, china, and Pakistan are the chief users of medicinal plants. According to W.H.O around 80% of

the people in developing countries are still largely dependent on these traditional practices for the treatment and control of various diseases which affects both human beings and their animals. EVM is the knowledge, belief, practices, skills which are gain through experiences by livestock keepers while, allopathic veterinary medicine is inculcated in veterinary colleges / universities. These EVM are cheap, easily available, with no side effects, time tested methods than those of allopathic veterinary medicine.

Ethnoveterinary Medicine (EVM)

The EVM are easily available, affordable and very effective cures innumerable diseases with no side effects. Allopathic veterinary medicine requires very complicated technology for its pharmaceutical formulation but these EVM does not requires any complicated technology for its preparations.

The livestock keepers, farmers, tribal's, rural and sub-urban people practices this traditional system of methods from a very long time. They have acquired this knowledge from their experiences, beliefs, practices, skills, trial and error methods. The knowledge of these medicinal plants are transferred from down through the generations by means of speech^[3] but it leads to its extinction or endangered due to environmental changes. Therefore the proof of this knowledge is very critical before its extinction in future developments.

Some of the Ethnoveterinary medicinal plants are *Azadirachta indica*, *Annona squamosa*, *Alstonia scholaris*, *Cannabis sativa*, *Acacia leucophloea*, *Catharanthus roseus*, *Curcuma amada*, *Dalbergia sissoo*, *Embelia ribes*, *Desmodium grans*, *Syzygium cumini*, *Tinospora cordifolia* etc.

India has been using these herbal medicines for animal treatment from a very long time.^[4] The farmers, livestock keepers, tribes themselves never dependent on the distant veterinary hospital because of some economic reasons or due to limitation of resources they rather dependent on their herbal medicine for their animal treatment.^[5] Above are the reasons which offer a lean response over the field of ethnoveterinary research and development.^[6]

Importance of Ethnoveterinary medicinal plants in India

More than 3,000 plants is identified by India which are having medicinal properties in them. According to Pei (2001) in India about 2500 plant species are used by the traditional healers while 100 species of plants are directly used as a medicine in our day to day life.^[7]

In India with the advancement of new science and technology, development in the field of medicine also people are still reliant on these medicinal plants and traditional healing practices. Especially in rural areas, semi-urban areas ethnoveterinary medicine is given much more importance and their practices because of

lack of veterinary centre. Although if any veterinary hospitals exists in that area the livestock owners treat their animal diseases by themselves because of the poor communication and infrastructure and if the charge of treatment is very expensive.

In India EVM is especially preferred by villagers, tribal people, and livestock owners. Therefore a serious attempt should be taken to consider the importance of veterinary Ayurveda for the treatment of animal health care in India as well as in the world.^[8]

Medicinal Plants parts used for the treatment of diseases

According to Hooker(1884)^[9] and Gamble (1956)^[10] the ethnoveterinary medicinal plants species are arranged alphabetically with their Scientific name, Common name, Family, Plant part used, Method of preparation and administration.

The common diseases which are treated by these medicinal plants are Dysentery, foot and mouth disease, fever, bone fracture, wounds, insect bites, indigestion, weakness, skin burn, stomach ache, tongue sores, conjunctivitis, increasing lactation, loose motion, easier delivery, snake bites, tonsils, ulcers etc. The ethnoveterinary medicinal plants were collected from garden, ponds side, river side, wasteland, agricultural land.

The plant parts which were used by the traditional healers to treat their animal disease were mainly leaves, root, stems, rhizoids, seeds, fruits, latex and pod. In some cases aerial parts of the plant or either whole plant parts are used. The most repeatedly plant part used for the treatment is leaves^[11, 12, 13] in different part of India. Tribal communities mostly used leaves part for the preparation of their medicine all over world (Ullah *et al*; 2013; Morvin Yabesh *et al* ; 2014, Prabhu *et al*; 2014; Vijayakumar *et al*; 2015).^[14] The reason behind why leaves part is mostly used by the tribal communities because it is easily collected in comparison to underground plant parts (Giday *et al*; 2009) and from scientific point of view leaves are the site where photosynthesis takes place and they also produce metabolites (Ghorbani, 2005).

According to Reddy *et al* (2006)^[15], Girach *et al* (1998)^[16], Sathys *et al* (2009)^[17] and Harsha *et al* (2005)^[18] the tribal communities of India have immense knowledge of ethnoveterinary medicinal plants for the treatment of diseases. The medicinal plant which are used for the treatment of diseases by the farmers, tribal community, livestock owners in this review paper, some of these plants were already used by previous researchers in different state of India.^[19, 20, 21, 22, 23, 24] In India insufficient research work on ethnoveterinary medicinal plant has been done.^[25,26,27,28]

Preparation of Ethnoveterinary Medicine and its administration

It can be prepared in the form of juice, paste, powder, decoction, raw, fumes. Among all of these majorities of the plant remedies are prepared by paste, followed by juice, raw, decoction, boiled, powder, seed oil both dried and roasted. Paste is often used for the treatment of most

of the disease because it can be prepared easily with mortar and pestle with or without adding water.^[29]

EVM can be taken either orally, or through inhalation, ocular, tie on or it can be applied directly on their affected body parts.

Enumeration

S.No.	Scientific Name	Common Name	Family	Part Used	uses	Aliments Treated
1.	<i>Acorus Calamus L.</i>	Sweet flag	Acoraceae	Rhizome	Fresh rhizomes of <i>Cyperus rotundus</i> and <i>Acorus calamus</i> is taken in equal amount and a paste is made from it by using water and applied externally to the skin of cattle. ^[30]	Skin infestation.
2.	<i>Adenia hondala (Gaertn.) W. J. de Wil</i>	Hondala	Passifloraceae	Leaf	The powders are made by using fresh leaf by using water and make a juice from it. The juice is given orally to the cattle. ^[30]	Stomach ache.
3.	<i>Acacia leucophloea Willd.</i>	Reonja	Fabaceae	Stem bark	The stem bark of <i>Acacia leucophloea</i> , <i>Terminalia arjuna</i> and seeds of <i>Cuminum cyminum</i> is grinded well by adding small amount of cow milk and make a juice from it. The juice so obtained is given to cattle. ^[30]	Insect bite.
4.	<i>Azadirachta indica</i>	Neem	Meliaceae	Leaves	The leaves are given in the form fodder. It is given to goat unless and until its worms become clear. ^[31]	Worm Infestation.
5.	<i>Andrographis paniculata</i>	Green Chiretta	Acanthaceae	Leaves	The leaves are given in the form of fodder to the goat. ^[31]	Worm Infestation.
6.	<i>Adhatoda vasica Nees.</i>	Adathoda	Acanthaceae	Leaves, Bark	The leaves are dried, grind and make a paste by using water and given orally to the cow and goat. The bark is used to make decoction. ^[32]	Cough, Diarrhea, Dysentery.
7.	<i>Butea monosperma</i>	Palash	Dioscoreaceae	Charcoal dust	After the removal of the testicles of male animal, the charcoal dust is applied on the scrotum of male animals. ^[31]	Castration.
8.	<i>Cyperus rotundus</i>	Nut grass	cyperaceae	Rhizome	The rhizome is grinded and makes a paste and it is mixed with coconut oil and applied it to the body of animals. ^[31]	Pain Removal and Restlessness.
9.	<i>Calotropis gigantea L.</i>	Crown flower	Asclepiadaceae	Root, Latex	The root or latex is grind and a paste is made and applied on the affected body part of cow and horse. ^[32]	Running nose and Wounds on legs.
10.	<i>Cassia auriculata L.</i>	Matura tea tree, avaram	Caesalpiniaceae	Stem	The stem is grind and makes a paste by adding butter milk and jaggery and given it to the goat orally. ^[32]	Dysentery.
11.	<i>Cassia fistula L.</i>	Golden shower tree	Caesalpiniaceae	Bark, Leaves, Ripe pod	The bark is grind and makes a paste by adding pepper and garlic and given it to the cow orally. The leaves are dried and a paste is made by using mustard oil and given orally to the cow. ^[32]	Fever, Improve appetite, Constipation.
12.	<i>Cynodon dactylon</i>	Scutch grass	Poaceae	Leaves	The leaves are dried, grind and made a juice by adding water to it and given it to the cow orally. ^[32]	Increasing lactation, Conjunctivitis.
13.	<i>Coccinia indica L.</i>	Ivy gourd, tindora	Cucurbitaceae	Leaves	The leaves are dried, grind and made a juice by adding water to it and given it to the horse and goat orally. ^[32]	Running nose.
14.	<i>Datura metel L.</i>	Thorn apple, Hindu Datura	solanaceae	Fruit, Leaves, Root	The fruit is given either roasted, or as a raw to the horse, cow orally. The leaves are dried, grind and made a paste by using	Dysentery, Lack of appetite,

					gingerly oil and applied it to the affected body parts. The root is also given orally in the form of raw. ^[32]	Bleeding wounds, Skin disease.
15.	<i>Eclipta prostrata</i> L.	False daisy	Asteraceae	Leaves	The leaves are dried, grind and made a paste by using mustard oil and it is applied on the affected body parts to all the animals. ^[32]	Wounds.
16.	<i>Euphorbia hirta</i> L.	Asthma plant	Euphorbiaceae	Latex	The latex is applied as a raw to the affected body parts of horse and hen. ^[32]	Wounds.
17.	<i>Ficus benghalensis</i> L.	Banyan	Moraceae	Latex, Root	The root are dried and made a paste by adding oil to it and applied it to the affected body parts of horse. The latex is given in the form of raw orally to the horse. ^[32]	Maggot wound, Stomach ache.
18.	<i>Ficus religiosa</i> L.	Sacred fig	Moraceae	Leaves	The leaves are dried, grind and made a juice by adding water to it and given orally to the cow and sheep. ^[32]	Tonsils problem.
19.	<i>Hibiscus rosa-sinensis</i> L.	Shoeblack plant	Malvaceae	Bark	The paste is made by using bark and given it to the orally to sheep. ^[32]	Twitching.
20.	<i>Mangifera indica</i> L.	Mango	Anacardiaceae	Leaves, Fruit	The leaves are dried, grind and made a paste and given it to the orally or the fruit is given as a raw to the cow, sheep and horse. ^[32]	Placenta, Indigestion.
21.	<i>Moringa oleifera</i>	Drum stick, Sahjan	Moringaceae	Seeds	The dried seed is given to the animals orally. ^[33]	Wound healing, Anti-inflammatory, Antipyretic.
22.	<i>Musa paradisiaca</i>	Banana	Musaceae	Fruit	The fruit is given either raw or as a roasted to the animals. ^[33]	Diarrhea, Dysentery, Food poisoning, Sterility, Heat stroke, Post partum complaints.
23.	<i>Mimosa pudica</i>	Shy/touch me not/shrinking plant	Mimosaceae	Leaf	Leaf is grind by using peeper, onion, saffron and given it to the barren cow. ^[33]	Fever.
24.	<i>Oryza sativa</i>	Rice, chawal	Poaceae	Fermented rice	If an animal is suffering from mouth ulcers, then the mouth is dipped in fermented rice soup for 2-3 days. ^[31]	Mouth ulcers.
25.	<i>Ocimum sanctum</i>	Tulsi, Holy basil	Lamiaceae	Leaves	The leaves are dried and grind and made a juice by adding water to it and given it to the animals. ^[33]	Wound healing, Antistressor, Cures cold, Constipation, Immunomodulator.
26.	<i>Phoenix acaulis</i> Roxb.	Date palm	Palmaceae	Leaf	The decoction is made by using leaf and it is given orally to the calf, goat and sheep. ^[34]	Stomach worm.
27.	<i>Piper nigrum</i> L.	Black pepper	Piperaceae	Leaf and Seed	The paste is made by using leaf and seed and it is given orally to the poultry and birds. ^[34]	Chickenpox.
28.	<i>Punica granatum</i>	Anar	Punicaceae	Fruit	The fruit is given as a fodder orally to the goat and cow. ^[34]	Stomach worm.
29.	<i>Ricinus communis</i> L.	Castor bean, castor oil	Euphorbiaceae	Leaf	The whole leaf is given as a fodder orally to the goat and sheep. ^[34]	Dysentery.

30.	<i>Rouwolfia serpentina L.</i>	Devil pepper, Indian snakeroot	Euphorbiaceae	Root	The paste is made by using root and given orally to the cow. ^[34]	Dysentery.
31.	<i>Semecarpus anacardium L.</i>	Bhelwa	Anacardiaceae	Dried seeds	3-5 dried seeds are hanged in the neck. ^[31]	Sukha Rog (It means animal becomes very weak and show symptoms of muscular wasting).
32.	<i>Triticum aestivum L.</i>	Gehu	Poaceae	Dried seeds	Dried seeds are given to the animals orally. ^[35]	Infertility.
33.	<i>Vitex altissima L.f</i>	Peacock chaste tree	verbenaceae	Leaf	Leaf of <i>Vitex altissima</i> and leaf of <i>Wrightia tinctoria</i> is shade, dried, and make powder. Make a paste by adding water to it and applied externally to the skin of animal. ^[30]	Lice infestation
34.	<i>Zingiber officinale</i>	Ginger, adarak	zingiberaceae	Rhizome	Boil the rhizome and make a juice from it by adding cow milk in small quantity and given to it the donkey orally. ^[32]	Conjunctivitis, Physical Strength.
35.	<i>Zizyphus jujuba</i>	Jamun	Rhamnaceae	Fruit, Leaves	The leaves are dried, grind and make a paste by adding water and given orally to the goat or the fruits is also given to the goat as a raw. ^[32]	Cough, Burns.

Advantages / Strength of EVM

- According to Zschocke *et al* (2000)^[36], Masika(2003)^[37], Tabuti (2003)^[38], Yinegar^[39] (2007) and Kone *et al*^[40] (2008) the EVM is very cheap as compare to allopathic veterinary medicine.
- They are easily available and accessible.
- They are very effective with no side effects.
- They are user friendly.
- They are very useful in fever, cough, wounds, nutritional deficiencies, mild diarrhea, as they are readily available and cheaper in comparison to those of expensive allopathic drugs.
- They are developed by farmers or barns rather than on labs.
- They are time tested methods.

Disadvantage / Limitations of EVM

- Preparations and uses of some of the remedies are very difficult.
- Some plant species are seasonal so they are available in their growing season only.
- Some practices are likely to cause harm to the animals.
- Some of the dosages are unknown and some of the remedies are non standard.
- Some diagnosis may be insufficient.
- Ethnomedicines does not act/ works as fast as allopathic drugs and does not show instant results in case of endemic and epidemic infectious disease.

CONCLUSION

The study suggests that there is enough knowledge of ethnoveterinary medicinal plants and this knowledge

play an important role in the treatment of different animal diseases. Many of the traditional healthcare interpreter they share their ethnoveterinary knowledge to their children, family through oral communications.

As this traditional knowledge of EVM are in the stage of danger or in the verge of extinction because they are describe or explain via orally. Therefore it is very imperative to archive all these traditional knowledge of ethnoveterinary practices, so that the knowledge could be sustain and make use of it in research and future use.

As younger generation does not have much more knowledge about these practices, so it is our responsibility to provide them knowledge and builds their skill before their extinction. Because of the low cost, easily availability, no side effects it makes the tribal community, rural people choose them to use these traditional preparation with medicinal plants.

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