

Research Article – Ethnoveterinary Medicine

Ethnoveterinary Usage of Medicinal plants in Pachamalai Hills, Tamil Nadu, India

M. Manoranjotham^{1*}, M. Kamaraj²

¹PG and Research Department of Botany, Periyar E.V.R. College, (Autonomous), Tiruchirappalli- 620023, Tamil Nadu, India

²PG and Research Department of Botany, Jamal Mohammed College, Ticuhirappalli - 620 020, Tamil Nadu, India

Abstract

Medicinal plants played an important role in the healthcare of domestic animal around the world for several thousand years. The traditional medical systems are generally based on the uses of natural and local medicinal plants. Non accessibility of modern health facilities necessitate that the practice traditional medicines for their common day ailments of various animals. Relationship animals by the human beings have always been associated with a specific relation with the quality of patient's daily life and personal hygiene. For the present study, a total number of 50 plants belonging different family are reported that are used by the local people to treat various animal disease. The study also suggests that need to adopt appropriate measures that are used in documenting the ethnoveterinary medicinal practices in Pachamalai Hills, Tiruchirappalli District, Tamil Nadu.

Key words: Ethnoveterinary, Medicinal Plants, Animal Disease and Pachamalai Hills

Introduction

Plants, basically played a vital role for human and animals' sustainable life in the mother earth. Ethnoveterinary is a branch of science deals with the study of traditional knowledge, methods, skills and practices are used for treating various ailments of animals (McCorkle, 1986). Studies have proved that medicinal plants are important source of therapeutic drugs administration in the survival of tribal and ethnic communities (Ganesan *et al.*, 2004). In most rural areas the usage of medicinal plants are considered as an important source of therapeutic administration of the tribal and ethnic communities. The craving of medicinal plant to treat animal include the belief, knowledge, skills, method and training. The people also believe that the usage of the medicinal plants is affordable,

more effective and able to fulfil social and cultural needs of the rural and tribal (Dhanam and Elayaraja, 2014). Interestingly, most of the medicinal plant parts are also used in curing various disease of domestic animals productive and healthy.

It is also recorded that at present considering the healing value of medicinal plants over 35,000 plants are used to treat various animal ailments (Jain, 2000; Yineger *et al.*, 2007). All parts of the plant including leaves, bark, fruits, rhizome, latex, seeds and whole plant are used in medicinal preparations. Herbal medicine is one of the oldest forms of medicinal treatment and forerunner of the modern pharmaceutical trade. It is also evident that ethnoveterinary indigenous knowledge of the veterinary health care system acquired by the traditional herbal healers is orally transformed from one generation to another orally by the livestock owners (Geetha *et al.*, 2016). Livestock owners also believed that documentation regarding traditional practices of ethnoveterinary is unnecessary (Manoj and Ekta, 2014).

Received: 08-09-2016; Accepted 06-10-2016; Published Online: 11-10-2016

*Corresponding Author

M. Manoranjotham, PG and Research Department of Botany, Arignar Anna Government Arts College, Musiri - 621 211 Tamil Nadu, India

In India, the people who are live poor and remote areas generally dependent on the medicinal plants for the primary health care of animals. The data generated in this study is useful for making the maximum and sustainable use of medicinal plants as well as animal resources. It is also proved that the disappearance of the traditional practices to treat animals will not only affect the poor villagers and their livestock but also the permanent loss of traditional culture, heritage and biodiversity (Kaur *et al.*, 2015). In the present study an attempt was made in evaluating the importance of medicinal plants in Pachamalai hills, Tiruchirappalli District, Tamil Nadu.

Study Area

The present study is carried in Pachamalai hills, located between the districts of Salem and Tiruchirappalli, Tamil Nadu, South India. The hills lie between East 78.31' longitude and 11.28' North latitude at an altitude of 2000 to 3000 feet above mean sea level. The Pachamalai Hills spread over two districts namely, Salem and Tiruchirappalli in Tamil Nadu is about 75km away from Tiruchirappalli city. Total geographical area of hill Pachamalai is 14,277 ha. This hill is situated in the southern parts of the Eastern Ghats. The forest comprises of tropical thorny, dry deciduous and moist deciduous types of vegetation. The survey covers Kombai (Tiruchirappalli district) and Pachamalai (Salem district).

Material and Method

Relevant information on the usage ethnoveterinary of the area has been collected from the herbalists in some villages of Pachamalai hills. Selection of respondent is solely dependent upon having fundamental knowledge about medicinal plants and their usage for treating various animal diseases. The herbalists were required inform the details about the medicinal plants they know and to show the plant species in that locality. They also believe that dissemination of the knowledge of medicinal property would improve the socioeconomic status of the local people and herbalists. For the purpose of the present study data were collected from 25 resource persons average of 40-65 of the study area who have much knowledge on medicinal plants with unstructured interview. The interviews were conducted in the local language, i.e., tamil. Ethnoveterinary

information included with the local name, parts used and mode of administration.

Result and Discussion

In the present investigations there are 50 medicinal plants belonging to 32 families are identified as traditional folklore medicinally used species. An ethnoveterinary knowledge on medicinal plants of the survey are presented in Table 1 and the families of the plants are arranged as following botanical identity, family, local name, habitat, parts used, uses and preparations. Asclepadaceae and Euphorbiaceae are dominant families with 4 species each. Next dominant families are Fabaceae, Liliaceae and Zingiberaceae with 3 species each. Astraceae, Caesalpinaceae, Lamiaceae and Verbaceae with 2 species each. 22 families represented by single species.

It is also reported that most of the medicinal plants are used as a single plant parts or a combination of several plant parts. Some of the medicinal plants parts are also used with non-medicinal property include oil, common salt, ghee and sugar. Most of the medicinal plant parts are used to treat various ailments include constipation, mulching disorder, breast swelling, infertility, bone fracture, removing placenta of animals, such as, cow, goat, sheep, dog, pig, hen and cattle.

The common disease is a global problem and considered as a major obstacle in the health and product performance of animals. These may be due to endo parasites that live inside the body of animal which attack the body surface of animals (Alagesaboopathi, 2015). These parasites generate direct effect on cattle in terms of milk production and reduce weight gain in the animals (Hostis and Seggers, 2002). The potential of indigenous ethnoveterinary knowledge of high altitude populations in general and pastoralism in particular is unknown. It is also believed that the loss of traditional strategies and knowledge of medicinal plant materials by herders, shepherds and others associated with animals as these ways of life disappear due to population shifts and economic insecurity of remote societies (Deepa *et al.*, 2014).

Preservation of animal is one of the essential economic sources forming integral part of the traditional tribal and rustic community (Knight-

Table 1. List of ethno-veterinary medicinal plants for treatment of livestock ailments

Sl. No.	Botanical Name	Family	Local Name	Disease	Part Used	Animal	Mode of Administration
1.	<i>Adhatoda zeylanica</i>	Acanthaceae	Adathoda	Fever	Leaf	Cow and Goat	Decoction of leave and stem are given
2.	<i>Andrographis paniculata</i> Nees.	Acanthaceae	Chiriyangai	Fever and Cough	Whole plant	Cow and Goat	Decoction of whole plant is applied
3.	<i>Areca catechu</i> L.	Acanthaceae	Pakku	Corneal opacity	Nut	Cattle	Nut with water is given orally
4.	<i>Achyranthes aspera</i> L.	Amaranthaceae	Nayuruvi	Eyes	Leaf	Cow, Goat and Chick	Leaf is ground with saffron and the
5.	<i>Coriandrum Sativum</i> L.	Apiaceae	Kottamalli	Constipation	Fruit	Cow	Fruits are powdered and given after immediate pregnancy for 3 - 4 times to facilitate conception
6.	<i>Aristolochia indica</i> L.	Aristolochiaceae	Perumadundukodi	Insect bite	Leaves	Cow and Goat	Leaf is made into paste along with pepper and given to cattle
7.	<i>Gymnema sylvestre</i> (Retz.) R.Br.	Asclepiadaceae	Sirukurunjan	Fever	Leaf	Cow and Goat	Leaves are ground with pepper and garlic and made into a decoction.
8.	<i>Pergularia daemia</i> (Fors.) Chiov	Asclepiadaceae	Veliparuthi	Fever	Leaf	Cow	Decoction of leave is used
9.	<i>Calotropis gigantea</i> (L.) Ait.	Asclepiadaceae	Erukku	Wound	Whole plant	Dog	whole plant parts are crushed and the latex is applied
10.	<i>Wattakaka volubilis</i> (L.f) Stapf.	Asclepiadaceae	Perukurinjan	Swellings	Leaves	Cow and Goat	Leaf paste is mixed with common salt and applied externally to treat all types of wounds.
11.	<i>Asparagus racemosus</i> Willd	Asparagaceae	Thannirvitan Kilangu	Milching disorder	Root	Cattle	Roots are dried and powdered, the 100 gm of powdered root given once in a day
12.	<i>Tridax procumbens</i> Linn.	Asteraceae	Vettukayapoondur	Wound	Leaf	Cow	Leaf paste is applied
13.	<i>Tagetes erecta</i> L.	Asteraceae	Jamandi poo	Foot ulcer	Whole Plant	Cattle	Thick paste prepared from whole plant, the paste applied
14.	<i>Cassia auriculata</i> L.	Caesalpinaceae	Avarai	Dysentery	Tender shoot	Cow	Tender shoot tips are ground with butter milk and jaggery given
15.	<i>Cassia fistula</i> L.	Caesalpinaceae	Konnai	Fever	Stem bark	Cow and Goat	Stem bark is ground with pepper and garlic and the mixture is given to cattle
16.	<i>Coccinia grandis</i> (Linn.) Voigt	Cucurbitaceae	Kovai	Running nose	Leaf	Cow and Goat	Leaf is ground with ghee and the extract obtained is poured into nostrils to cure
17.	<i>Acalypha indica</i> L.	Euphorbiaceae	Kuppaimani	Wounds	Leaf	Cow, Goat and Chick	Leaf paste is mixed with common salt and applied externally to heal wounds.

Continued....

18.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Amman pacharisi	Skin disease	Latex	Cow and Goat	Latex is applied externally on wounds
19.	<i>Eclipta alba</i> L.	Euphorbiaceae	Karisalankanni	Skindisease	Leaf	Rabbit	Fresh leaves are ground and applied to the skin disease in rabbit.
20.	<i>Phyllanthus niruri</i> auct.Non L.	Euphorbiaceae	Keelanelli	Cough and fever	Root	sheep	Decoction of root is given in two times a day to cure cough and fever.
21.	<i>Abrus precatorius</i> L.	Fabaceae	kundumani	Breast swellings	Leaf	Cow and Goat	Leaf paste is applied.
22.	<i>Pongamia pinnata</i> (L.) Pierre.	Fabaceae	Pungamaram	Dysentery	Stem bark	Cow and Goat	Decoction of stem bark is given orally
23.	<i>Arachis hypogaeae</i> L.	Fabaceae	Nilakkadalai	Infertility	Seeds	Cow	The raw nuts are ground with fresh milk. This mixer is drenched milk. The mixer is drenched to cow once a day for 3-5 days.
24.	<i>Ocimum sanctum</i> L.	Lamiaceae	Thulasi	Snake bite	Leaf	Cattle	Paste of entire plant is given orally twice a day for three days to snakebites in cattle.
25.	<i>Allium cepa</i> L.	Liliaceae	Vengayam	Skin disease	Bulb	Cow and Goat	2 Bulbs of <i>Allium cepa</i> Linn. is ground to paste and mixed with 100ml. mustard oil to form an ointment and applied topically over the infected part.
26.	<i>Allium sativum</i> L.	Liliaceae	Poondur	Skin disease	Bulb	Cow and Goat	20-25grams ground garlic of little amount of water crushed with hand/locally available stone mortar for extraction of the sap with the help of a clean fine cloth paste is applied topically. ⁷
27.	<i>Aloe vera</i> (L.) Burm.f.	Liliaceae	Sothukattalai	Unconscious	Leaves	Cow	The leaf pulp is made into a paste and given to cattle
28.	<i>Leucas aspera</i> (L.) R.Br. ex Vatke	Lamiaceae	Thumabai	Wound	Leaf	Cow	Leaf juice is used to cure cut and wounds
29.	<i>Strychnos potatorum</i> L.	Loganiaceae	Thethankottai	Sexual stimulant.	Seeds	Cattle	Seeds are grinded with water and a juice of 150 ml is given orally
30.	<i>Abutilon indicum</i> L.	Malvaceae	Thuththi	Dysentery	Leaf	Cow and Goat	Leaves ground with butter milk and the extract given to cure dysentery
31.	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Vembu	Skin disease	Leaf	Cow and Goat	Neem leaves and turmeric powder in ratio 2;1 is used in ringworm infection.
32.	<i>Mimosa Pudica</i> L.	Mimosaceae	Thottasiningi	Fever	Leaf	Cow	Leaves are ground with pepper and garlic and onion.
33.	<i>Ficus bengalensis</i> L.	Moraceae	Alamaram	Bone fracture	Leaf	Goat	Paste of leaf is applied externally for bone fracture to goat.
34.	<i>Musa paradisiaca</i> L.	Musaceae	Vaazhai	Worms	Root	Cow	The root juice is given to swallow
35.	<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Navalmaram	Dysentery	Stem bark	Cow and Goat	Stem bark is mixed with curd and made into paste to cattle
36.	<i>Pedaliu murex</i> L.	Pedaliaceae	Perunerunjil	Fever	Leaves	Cow	Leaf is ground with ginger and common salt and given to cattle
37.	<i>Pipera betal</i> L.	Piperaceae	Vettilai	Bloat	Leave	Cattle	Leaves with milagu given thrice in a day orally

Continued....

38.	<i>Bambusa arundinacea</i> [Retz]Wild.	Poaceae	Moongil	Diarrhea	Leaf	Cow	Leaf is given internally for diarrhoea in cow
39.	<i>Zizyphus mauritiana</i> Linn.	Rhamnaceae	Ilandai	Cuts and wounds	Root	Cattle	Root paste is applied
40.	<i>Chloroxylon swietenia</i> DC	Rutaceae	Purasu	Knee pains.	Stem	Cattle	Wood ash mixed with coconut oil, is applied
41.	<i>Azima tetracantha</i> Lam	Salvadoraceae	Sankilai	Knee pains	Root	Cattle	Roots grinded and given with rice soaked water
42.	<i>Cardiospermum halicacabum</i> L.	Sapindaceae	Mudakathan	Fever	Leaf	Cow and Goat	Leaves are ground with pepper and garlic and made into a decoction.
43.	<i>Datura metel</i> L.	Solanaceae	Omathai	Dysentery	Fruit	Cow and Goat	Roasted fruits are given once a day to treat
44.	<i>Vitex negundo</i> L.	Verbenaceae	Nochi	Ring worm and itch	Leaf	Cow	Decoction of leaf js given two times
45.	<i>Lippie nodiflora</i> (L.) A.Rich	Verbenaceae	Poduthalai	Anorexia	Leaf	Goat and cattle	Leaf decoction is one time ,three days for anorexia and digestion to goat and cattle.
46.	<i>Cisus quadrangularis</i> L.	Vitaceae	Pirandai	Bone fracture	Stem	Dog	Paste is applied for healing of fractured bones
47.	<i>Curcuma domestica</i>	Zingiberaceae	Manjal	Wound	Rhizome	Cat	Dried Rhizome is ground with the help of water and made into paste.
48.	<i>Zingiber officinale</i> Rosc	Zingiberaceae	Ingi	Constipation	Rhizome	Cow and Goat	Crushed rhizome is given with wheat flour
49.	<i>Curcuma aromatica</i> Salisb.	Zingiberaceae	Kasthuri manjal	mastitis	Rhizome	Cow	Add water to ground dried rhizome and applied to the inflammation of the udder [mastitis] in cow.
50.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Nerungil	Removing placenta	Whole Plant	Cattle	Whole plant is crushed and boiled along with Mango leaves in one litre of water and given orally

Jones and Rushton, 2002). Animal keeping also gives direct income for the herders, shepherds and others associated with animals (Farooquee, 2000). Interestingly, the farmers and tribal people of the locality not only depending on wild plants to get fodder for their animals but also utilise various plants to treat several health ailments of animals.

Conclusion

Medicinal plants are the most commonly used ingredients in the preparation of ethnoveterinary medicines. These medicinal plants belonging different families have property of healing and preventing various diseases for livestock. It is also discovered that ethnoveterinary medicines are often not as potent as modern allopathic medicines, especially to cure disease like rinderpest, anthrax and rabies. However, these plants are used to treat common diseases such as cough, cold, worms, wounds, nutritional deficiencies and diarrhoea. These disease are cured because of the chemical substances of the medicinal plants. The search for herbal alternatives is important in the present pharmaceutical era as necessary use of antibiotics and other chemical drugs lead to kill animal irrespective of saving the life of them.

The present generation is estimated with responsibility to carry the knowledge on the usage of medicinal plants for treating various health ailments. It is also the need of the hour to initiate considerable progress to document the usage of medicinal plants to treat various animal ailments forever.

References

Alagesaboopathi, C. (2015) Medicinal plants used in the treatment of Livestock diseases in Salem District, Tamil Nadu, India. *World Journal of Pharmaceutical Research*, 2015; 4 (4): 829-836.

Deepa, P., S. Murugesan, K. Soundhararajan, P. Manikandan. Plants used in ethnoveterinary medicine by Malayali Tribals of Melur, Bodha Hills, Southern Eastern Ghats, Namakkal District, Tamil Nadu, India. 2014; 3 (6): 831-843.

Dhanam, S., B. Elayaraja (2014) Ethnoveterinary practices in Villupuram District, Tamil Nadu,

India. *International Letters of Natural Sciences*. 24:1-7.

Farooquee N.A. (2000) Indigeneous ethnoveterinary knowledge and livestock management amongst transhumant pastoralists of Central Himalaya. *Journal Human Ecology*. 11: 319-322.

Ganesan, S., N. Suresh, L. Kesavan. (2004) Ethnomedical survey of lower Palani Hills of Tamil Nadu. *Indian Journal of Traditional Knowledge*. 3 (3):299-304.

Geetha, S., G. Lakshmi, P. Ranjithkani (2006) Ethnoveterinary medicinal plants of Kollihills, Tamil Nadu. *Journal of Economic and Taxonomic Botany*. 12: 284-291.

Hostis M, Seggers H. (2002) Tick bone parasites disease in cattle; current knowledge and prospective risk analysis related to the ongoing evolution in French cattle farming systems: *Veterinary Research*, 33:599-611.

Jain, S. K. (2000) Plants in Indian ethno veterinary medicine: Status and Prospectus, *Indian Journal of Veterinary and Animal Sciences Research*, 20.

Kaur, D., K. Jaiwal, S. Mishra. Ethnoveterinary practices in India, *European Journal of Pharmaceutical and Medical Research*. 2015; 2 (7): 139-143.

Knight-Jones, T.J.D. Rushton J. (2002) The economics of foot and mouth disease: *Preventive Veterinary Medicine* 3: 637-644.

Manoj, Y. G. Ekta (2014) Ethnoveterinary practices by Livestock owners in Animal Fair at Pushkar, Rajasthan, India. *International Research Journal of Environmental Sciences*. 3 (4): 1-4.

McCorkle, C.M. (1986) An Introduction to ethnoveterinary research and development. *Journal of Ethnobiology*. 6:129-149.

Yineger, H., Kelbess, E., Bekele, T., Luleka, E (2007) Ethnoveterinary medicinal plants at Bale mountains National Park, Ethiopia. *Journal of Pharmacology*. 112: 55-70.