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Ethnoveterinary Medicinal Plants used in the Treatment of Livestock Diseases in Kolli Hills, Eastern Ghats of Namakkal District, Tamil Nadu, India

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Abstract: *The present study deals with the medicinal plants used by people of Kolli Hills for treatment and prevention of various ailments. For this study, field visits were organized frequently from April 2014-March 2015 to Kolli hills, Eastern Ghats of Namakkal District, Tamil Nadu. The present investigation provides ethno botanical information of various medicinal plants used by village peoples, herbal medicine practitioners and other traditional healers of kolli hills. This report deals with some significant medicinal plants utilized by tribal and rural people to cure ethno veterinary diseases in this district. A total of 40 plants from 32 families were enumerated with their medicinal importance and parts of those plants used to treat various ailments. Popularly treated ailments were scabies, ulcers, glossitis, body weakness, rhinitis, ring worm, indigestion, warts in nipple, urinary tract infection, enteritis, bone fractures, skin infection, chronic wound, dysentery, ephemeral fever, maggot wound and insect bite. The most useful part is rhizome, leaf, stem bark, fruit and seed. The present investigation pointed out the tribal people in Namakkal District have traditional information to manage medicine have been reported for the first time in India. Scientific names along with, local/vernacular name, family, plant parts used, mode of medicine preparation and administration, doses have been documented.*

Keywords: *Ethno veterinary medicinal plants, Indigenous Knowledge, Kolli Hills, Scientific names.*

I. INTRODUCTION

Ethnoveterinary medicine is a holistic interdisciplinary study of the local knowledge and the socio cultural structure and environmental associated with animal health care and Husbandary. Plants are important source of therapeutic drugs and play a significant role in the survival of the tribal and ethnic communities. India is rich in cultural and floristic diversity and also a store house of ethno botanical knowledge. In recent years there has been an exponential growth in the field of herbal medicine and these drugs are gaining popularity both in developing and developed countries because of their natural origin and less side effects suggested by UNESCO 1996 [1].

India officially recognizes over 3000 plants for their medicinal value. It is generally estimated that over 6000 plants in India are use in traditional, folk and herbal medicine, representing about 75% of the medicine needs which was viewed by Rajshekharan 2002 [2]. The knowledge of medicinal plants has been accumulated in many centuries based on different medicinal system such as Ayurveda, Unani and Siddha. According to Pei 2001 [3], in india, it is reported that traditional healers use 2500 plant species and 100 species of plants serve as regular sources of medicine.

The relationship between humans, plant and animals has been since time immemorial- Ancient men had discovered natural products to satisfy his needs, including relief from his personal ailments as well as of his fellow domestic animals. It is an established fact that plants serve a potent medicine for curing various diseases of local people as well as livestock. This practice, which is based on folk beliefs, traditional knowledge, skills, methods and practices, used curing diseases and maintaining health of animals is known as ethnoveterinary medicine and was suggested by Schillhorn 1996 [4]. It provides a major source for the treatment of diseases in livestock throughout the world.

The EVM provides valuable alternatives to Western-style ethnoveterinary medicine which was explained by Iqbal 2005 [5]. According to Zschocke et al 2000 [6], Masika 2003 [7], Tabuti 2003 [8], Yinegar 2007 [9] and Kone et al 2008 [10], ethano veterinary medicinal plants also often provides cheap options than comparable Western drugs, and products are locally available and

more easily accessible. There is increasing interest in the field of ethnoveterinary research and development. The wealth of ethnobotanical knowledge from various parts of India have been documented by Katewa et al 2005 [11], Udhayan et al 2005 [12], Das et al 2006 [13], Dabagar 2006 [14] and Samy et al 2008 [15]. In this report, an attempt has been made to collect and document the traditional medicinal plant knowledge of local herbal healers of different castes and communities in the Kolli hills.

II. MATERIALS AND METHODS

Description of study Area: Kolli hills of the study was conducted in the Namakkal District. The Kolli hills lying between 11°30'00'' N latitude and 78°15'00''E longitude. It is situated in the Namakkal District of Tamil Nadu above the river Cauvery, covering an area of about 503 km². Physiographically, it is a hilly region with altitude ranging from 180m at the foothill to 1415m at the plateau which was reported by Henry et al 1987 [16]. The slop of this region varies from gentle to very steep. Geologically, the study area occupied by the hill is highly undulating, cut by a network of streams flowing in all directions, But mostly in the Eastern and Southeastern directions and ultimately draining into river.

III. METHODOLOGY

In this present study, field visits were organized frequently from April 2014-March 2015 to different locations in Kolli hills of Namakkal District. During field visits, attempts were made to develop good relationship with the villagers. The presented information was gathered through questionnaire, personal interviews and a discussion among the village elder's peoples, the herbal medicine practitioners and other traditional healers in their local language. The questionnaire allowed descriptive response on the plant prescribed, such as documented as to vernacular names parts used and medicinal uses. Plant parts that was collected and compressed. The collected plant materials were preserved by making Herbaria and all the specimens vouchers were carefully numbered and deposited in research department of Botany, Pachaiyappa's College, Chennai. as suggested by Matthew 1983 [17]. for further reference. Hooker 1884 [18] and Gamble 1956 [19] explained that the ethnoveterinary medicinal plants species were enumerated alphabetically with their scientific Name, Vernacular Name, family, part used methods of medicine preparation and administration .

IV. RESULTS AND DISCUSSION

The present investigation showed that the local people of Namakkal District use of various ethnoveterinary practices for treating animal disorders. This study reveals that more than 75% of the Kolli Hills peoples depend for their primary healthcare on folk medicine, mainly on natural medicine.

This present investigation provides an ethnobotanical information of the medicinal plants used by the village elder peoples herbal medicine practitioners and other traditional healers of Kolli Hills.

Totally 40 plants belonging to 320 families were enumerated with their ethnoveterinary medicinal importance. All the 40 species have medicinal uses such as *Acorus calamus*, *Chloroxylon swietenia*, *Basella alba*, *Curcuma amada*, *Desmodium gyrans*, *Hibiscus cannabinus*, *Memexylon umbellatum*, *Naraveli zeylanica*, *Syzygium cumini*, *Vitex altissima* etc. The most useful part of EVM plant is rhizome, leaf, stem bark, seed, fruit etc are frequently used for EVM practices. The leaves are the predominant part utilized in the treatment of veterinary diseases and most of the plants are used to treat maggot wound, skin infection etc. diseases in livestock.

The most common diseases of livestock treated using medicinal plants are skin infestation, Insect bite, Chronic wound, tick bitten, lice infestation, Maggot wound, Body weakness, Bone fracture, Dysentery, ephemeral fever, removal of ectoparasites, ulcers, glossitis, urinary tract infection, enteritis, snake bite, etc.

Different types of preparation made from medicinally important plants included paste, juice, decoction, and the whole plant of extract. Most of the reported plants in the different types of tribal people in India for the treatment of various diseases in livestock and was reported by Reddy et al 2006 [20], Girach et al 1998 [21], Sathys et al 2009 [22] and Harsha et al 2005 [23].

People still rely on traditional healing practices and medicinal plants for their daily healthcare needs, in spite of the advancement in modern medicine.

The low cost and almost no side effects of this traditional preparation with medicinal plants make them adaptable by the local community. The documentation of this knowledge is valuable for further generation and for scientific consideration of wider uses of traditional knowledge in treating livestock animals.

This study revealed treat, most of the medicinal plants used by the community of study area consist phytochemical in the leaf, stem, bark and rhizome. Therefore, there is a necessary to generate awareness among the local population towards the sustainable utilization and conservation of ethno veterinary medicinal plants.

Table.1 List of Ethnoveterinary medicinal plants for treatment of livestock ailments in Kolli Hills of Namakkal District.

S. No	Botanical Name	Family	Vernacular Name	Part Used	Methods of Medicine preparation and administration
1.	Acorus calamus L.	Acoraceae	Vashambu	Rhizome	The equal quantity of fresh rhizomes of this plant and <i>Cyperus rotundus</i> are ground well with water and made into paste and applied externally to treat the skin infestation in cattle
2.	Adenia hondala (Gaertn.) W.J.de Wil	Passifloraceae	Malaipirandai	Leaf	Fresh leaves are ground with water and the juice obtained is given orally to cure stomach problems in cattle
3.	Acacia leucophloea Willd.	Fabaceae	Vel-velam	Stem bark	The stem bark is ground with the stem bark of <i>Terminalia arjuna</i> and seeds of <i>Cuminum cyminum</i> along with little amount of cow milk. The juice thus obtained is given to cure insect bite in cattle.
4.	Alpinia galangal (L.) Sw.	Zingiberaceae	Perarathai	Rhizome	The rhizome is mixed with cumin seeds, pepper and pork muscle oil. The paste is mixed with neem oil and given orally to cure foot and mouth disease in cow.
5.	Alstonia scholaris R. BR.	Apocynaceae	Mukampalei	Latex	Latex is applied on the surface of the wound thrice a day and the chronic wound quickly in cow and goat
6.	Annona squamosal Linn.	Annonaceae	Seetapalam	Seeds	Seeds grind with the leaves of <i>Lawsonia inermis</i> and <i>Nicotiana tobaccum</i> applied externally to cure tick bitten in cattle.
7.	Azadirachta indica A.Juss.	Meliaceae	Vembu; Veppamaram; Veppam	Leaf and seeds	Leaf juice is added with 50 ml leaf juice of <i>Datura metal</i> , 50 ml leaf juice of <i>Cissus quadrangularis</i> . The mixture is mixed with water and made a paste. The paste is applied externally to cure lice infestation in cattle.
8.	Azima tetraacantha Lam.	Salvadoraceae	Sungam – Chedi	Leaf	Juice of leaf is mixed with equal amount of coconut milk, boiled and applied externally to cure maggot wound in cattle.
9.	Basella alba L.	Basellaceae	Pasalikkerai	Leaf	Leaf is mixed with the leaves of <i>Justicia adhatoda</i> , pepper and garlic and made into paste. The mixture is given to cure debility and body weakness in cow and goat.
10.	Cadaba fruticosa (L.) Druce.	Capparaceae	Vizhuthi	Leaf	Leaf of parte applied depending on the bone fracture. Once in 3days with an interval of 15days.
11.	Cannabis sativa L.	Cannabaceae	Ganja	Leaf and inflorescence	Dried leaves and inflorescence of the plant are given internally along with banana fruits to cure dysentery in cow and goat

12.	Carrisa carandas Linn.	Apocynaceae	Kalaka	Root and leaf	Root and leaf are ground with leaves of Dodonaea angustifolia, ginger, pepper and pork muscle oil. The paste is given orally to cure ephemeral fever in cow.
13.	Catharanthus roseus (L.) G.Don.	Apocynaceae	Sudukattumalligai	Leaf	Fresh leaves in a cupful of water is mixed with a small amount of fruit in Citrus medica and applied externally at the site of bitten region to cure dog bitten in cattle
14.	Chloroxylon swietenia DC.	Rutaceae	Purasu	Leaf	Leaves are ground with the rhizome of Curcuma longa and applied externally for the removal of ectoparasites in cow, goat and hen.
15.	Cissampelos pareira L.	Menispermaceae	Ponmoototai	Leaf and root	A handful of roots of the plant is added with the roots of Polygala chinensis and Rauvolfia serpentine ground into paste and taken orally for scorpion stings in cattle
16.	Coldenia procumbens L.	Boraginaceae	Seruppada	Leaf	Leaves of this plant are mixed with the flowers of Ixora coccinea, leaves of Centella asiatica and stem bark of Madhuka longifolia and boiled with water. The decoction thus obtained is applied topically along with coconut oil on affected places to heal wounds in cattle.
17.	Curcuma amada Roxb.	Zingiberaceae	Mangl ingi	Rhizome	Rhizome is dried, powdered and stored. A small amount of powder is taken, mixed with little amount of coconut oil, made into paste and applied to treat scabies in cattle.
18.	Dalbergia sissoo Roxb.	Fabaceae	Irupoolai	Stem bark	A handful of fresh stem bark is cut into pieces, boiled in half liter of water and the decoction is taken orally for ulcers in cattle.
19.	Desmodium grans DC.	Leguminosae	Tholukkani	Leaf	Leaves are ground with leaf of Sida glutinosa and Mimosa pudica and made into juice and given orally to treat glossitis in cattle
20.	Diospyros ebenum Koen.	Ebenaceae	Acha	Fruit	Fruit powder is mixed with honey and the fruits of Tinospora zeylanicus, Terminalia bellirica, Phyllanthus emblica and rhizome of Curculigo orchoides and taken orally to cure debility and body weakness in cow.
21.	Drosera burmannii Vahl.	Droseraceae	Alukanni	Whole Plant	Whole plant paste is given to cure urinary tract infection in cow
22.	Embelia ribes	Myrsinaceae	Vayavidangam	Root	A handful of roots ground in lemon juice

	Burm.				or butter milk and juice are taken orally with sugar/jiggery to cure rhinitis in cattle.
23.	Hibiscus cannabinusL.	Malvaceae	Pulichaikeerai	Leaf and flower	Leaves ground with little amount fruit of Tamarind indica is applied on ring worm in cattle.
24.	Impatiens balsamina L.	Balsaminaceae	Kasithumbai	Leaf	Leaves are ground with Coccinia indica and little amount of salt and the paste thus obtained is applied on nipple region to remove wartr in nipple in cattle
25.	Lepisanthes tetraphylla Radlk.	Sapindaceae	Karadippongan	Stem bark	Stem bark of this plant is mixed with stem bark of Albizia amara, Pterocarpus santalinus, pepper and garlick. The mixture is boiled with water and the decoction obtained is given to cure haemorrhagi septicaemia in cow.
26.	Manikara hexandra (Roxb.) Dubard	Sapotaceae	Ulakkai-p-palai	Stem bark	Stem bark is mixed with fruits of Solanum nigrum and made into powder. The powder is mixed with pork muscle oil and applied orally to cure indigestion in cow.
27.	Memexylon umbellatum Burm.f	Melastomataceae	Kayampuvuchedi	Leaves	Young leaves crushed with black gram (Vigna mungo) and with egg albumin and butter to cure enteritis in cattle.
28.	Mucuna pruriensDC.	Fabaceae	Poonaykali	Seed	Seeds are ground into a paste with water and tied with cloth in affected places to cure bone fracture in cattle.
29.	Naraveli zeylanica (L.)DC.	Ranunculaceae	Vatakotti	Leaf and Root	Powder of leaf and root is mixed with the stem bark of Crataeva adansonii stem of Coscinium fenestratum, and seed of Abrus precatorius. The mixture is heated with castor, coconut and gingelly oil and applied externally on affected places to treat scabies.
30.	Naringi crenulata (Roxb.)	Rutaceae	Kattunaragam	Root	Root are mixed with pepper and garlic and given to cure snake bite in cow and goat.
31.	Nerium oleanber L.	Apocynaceae	Kanaveeram	Leaf	The leaves are made into paste with castor oil and applied over the infected area to treat scorpion bite in cattle
32.	Premna tomentosa Willd.	Verbenaceae	Kollaycottaynelly	Leaf and stem	Shade dried leaves and stem are made into powder. The powder is mixed with coconut oil applied to cure maggot wound
33.	Rubia cordifolia L.	Rubiaceae	Manjitti	Leaf and stem	Leaf and stem of this plant, fruit of Curcuma parviflorum with seeds of Azadirachta indica are ground and mixed with cow drug and applied on the chronic wound.

34.	Shorea roxburghii G.Don.	Dipterocarpaceae	Kungiti	Root	Roots are mixed with the leaves of Pergularia daemia, Flesh of Aloe vera along with garlic and pepper and boiled with water. The decoction is given orally to cure bloat in cow and goat.
35.	Smilax zeylanica L.	Liliaceae	Periyakkanni	Rhizome	Rhizome of this plant, Asparagus racemosus, Aristolochia indica, leaves of Ocimum basilicum and Elephantopus scaber are shade dried and powdered. The fine powder is applied externally to treat scabies.
36.	Syzygium cumini (L.)Skeels.	Myrtaceae	Naval	Stem bark	Handful of stem bark is made into juice added with a pinch of pepper powder, along with cow milk, and applied externally to cure ectoparasites in cattle.
37.	Terminalia chebula Retz.	Combretaceae	Kadukkai	Fruit	Fruit of this plant, leaves of Chloroxylon swietenia and stem of Cissus quadrangularis are mixed with water. The juice is applied externally to cure tick infestation
38.	Tinospora cordifolia (Willd.) Miers ex Hook.f. & Thomas	Menispermaceae	Seenthal	Leaf	Leaf is ground with ginger and lime powder. The paste is applied over affected place for maggot wound in cow and goat.
39.	Trachyspermum ammi(L.)Spreng.	Apiaceae	Omum	Seed	Seed of this plant and leaf of Cryptolepis buchananii are shade dried, powdered and mixed with water. The paste is applied externally to cure maggot wound in cow and goat.
40.	Vitex altissima L.f	Verbenaceae	Mailadi	Leaf	Leaf of this plant and leaf of Wrightia tinctoria are shade dried, powdered and mixed with water. The paste is applied externally to remove the lice infestation.

V. CONCLUSION

The study suggests that there is a vast amount of indigenous knowledge on ethnoveterinary medicinal plant and this knowledge plays an important role for the treatment of different animal ailments in the study area. The healers have a very high intention to keep their traditional knowledge secret and none of them was ready to transfer their knowledge to other people. The indigenous knowledge is passed from generation to generation in an oral manner. Hence, the reported plant species need to be analyzed for their in vitro and scientific validation of their active phytoconstituents in order to recommend effective preparations and treatments to their society.

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