



(RESEARCH ARTICLE)



Ethno veterinary practices for cattle amongst traditional veterinary health care practitioners in palayamkottai, tirunelveli, tamilnadu

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Abstract

In the Palayamkottai, tirunelveli in tamilnadu, people make extensive use of medicinal plants to treat a number of diseases in cattle. The aim of the study was to identify the medicinal plants used to treat various ailments in cattle. Ethno veterinary survey was carried out using questionnaire and individual interviews from June to July 2024 in Palayamkottai, Tirunelveli district, Tamilnadu. The study identified total of 53 plants species divided into 31 families used in the various cattle ailments such as Foot and Mouth Disease, Dysentery, Mastitis, wound, bleeding horns, abscess, to improve milk production, pain and contusion due to trauma in Cattle by traditional veterinary health care practitioners. 16 internal and external applications are prepared by using these species. Species from the Fabaceae, Poaceae and Lamiaceae families are the most widely represented. Leaves, seeds, fruits and roots are the most commonly used parts. The results of the study provided all relevant information, particularly Ingredients, mode of preparation and route of administration.

Keywords: Ethno Veterinary; Cattle Ailments; Traditional Veterinary Health Care Practitioners; Tamilnadu

1. Introduction

Millions of people around the world have an intimate relationship with their livestock. Animals are a vital part of culture and in many societies are regarded as equal to humans. To keep animals healthy, traditional healing practices have been applied for centuries and have been passed down orally from generation to generation. These traditional healing practices are called ethno veterinary medicine. Medicinal plants have been widely used as a primary source of prevention and control of livestock diseases in the local communities for several centuries, as the inhabitants have learned the medicinal usage of plants growing in their close vicinity. Furthermore, these ethno veterinary medicine are very dynamic and multipurpose as they can treat several different types of livestock disorders, along with being readily available in the remote areas and cheapest as compared to the synthetic drugs [1]. This precious indigenous knowledge has usually been disseminated from one generation without any proper documentation and preservation. The specific objective of the study to document the important ethno veterinary applications of local plant species of the Palayamkottai region used to treat the cattle ailments by the traditional veterinary health care practitioners of the area.

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2. Materials and methods

2.1. Sampling

With the support of traditional practitioners in the region of Palayamkottai, the contacts of traditional veterinary health care practitioners were obtained. Only those with knowledge of the plants used in the cattle treatment and who had freely consented to be interviewed were included in the study. Based on these criteria, 10 people were interviewed.

2.2. Ethno veterinary survey

Ethno veterinary survey was carried out among traditional veterinary health care practitioners, in Palayamkottai. The survey involved a sample of 10 people made up of traditional veterinary health practitioners. The target localities were visited over a period of 45 days spread over two months (June to July 2024). Semi-structured interviews were conducted with traditional practitioners. The vernacular name, scientific name, botanical and ethno botanical characteristics of the plants used, their used parts, the methods of preparation and route of administration were noted. The vernacular names of the species were collected in their own language (Tamil).

2.3. Data processing

Microsoft Excel was used to process the data collected. It was used to enter the data collected, make calculations and construct histograms, diagrams and tables. The analyses focused mainly on the methods used to prepare the recipes and the contribution of each species (CPr), which makes it possible to assess the frequency of involvement of each species in the recipes. It was determined for each species using the formula: $CPr = (Nr/Nt) \times 100$ [%]. Where Nr: number of recipes involving the plant, Nt: total number of recipes.

3. Results and discussion

The ethno veterinary survey made it possible to interview 10 practitioners of traditional veterinary medicine (Fig1).

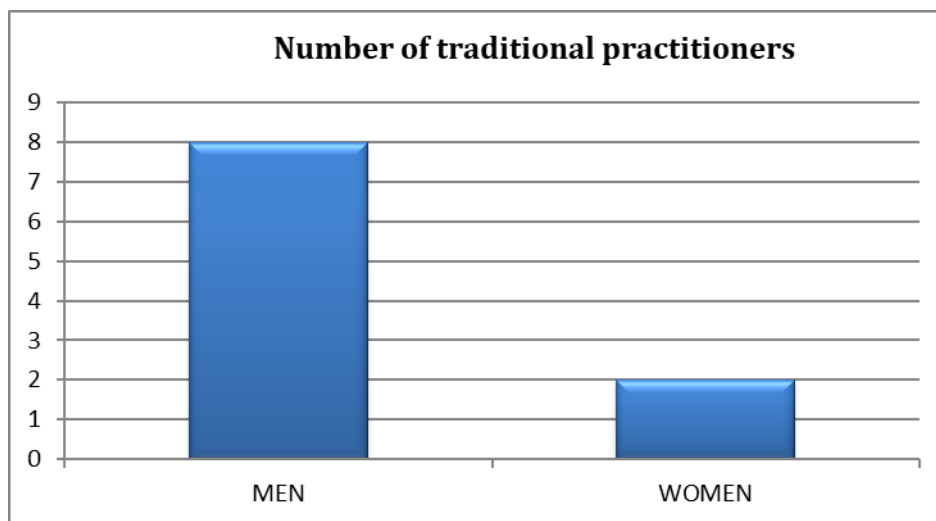


Figure 1 Number of traditional practitioners interviewed (n=10)

The Fig shows that there were 10 traditional practitioners, 8 of whom were Men.

3.1. Life forms and parts of plants used for ethno veterinary purposes

The survey found that among the 53 plant species, herbs accounted for the largest proportion with 27 species (51%), followed by twelve trees (23%), 8 shrubs (15%), four climbers (7%) and 2 creepers (4%) as shown in Fig.2. This distribution is closely related to local climatic conditions. Herbaceous plants have a short growth cycle and large growth, which are sufficient to meet the demand and are easy to harvest and process.

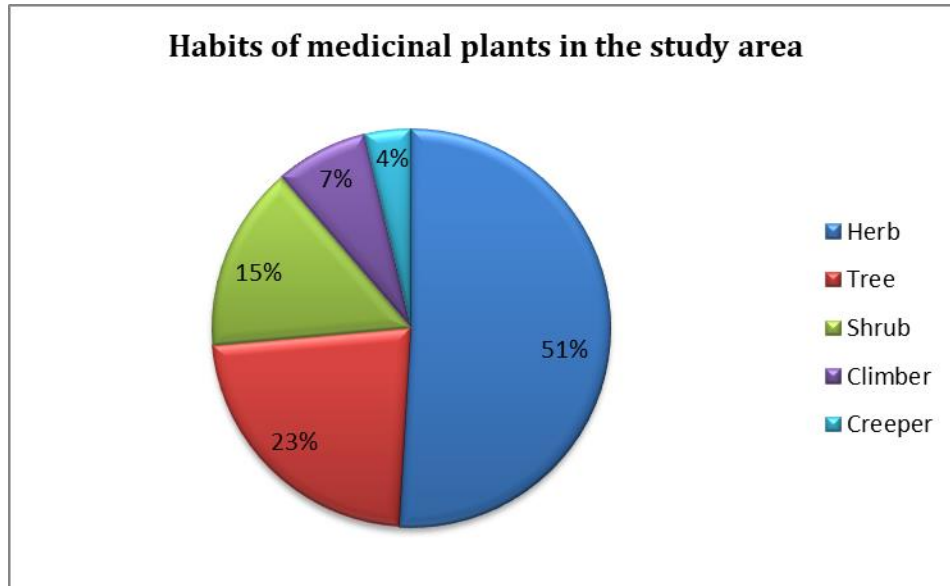


Figure 2 Ethno veterinary medicinal plant life form

The total number of medicinal parts was 55 (some plants contained multiple medicinal parts). Leaves and seeds were the most frequently used plant parts, constituting 56%, followed by fruits (9%), roots (7.27%), Woods (5.5%) (Fig.3). Leaf and seed were used more frequently.

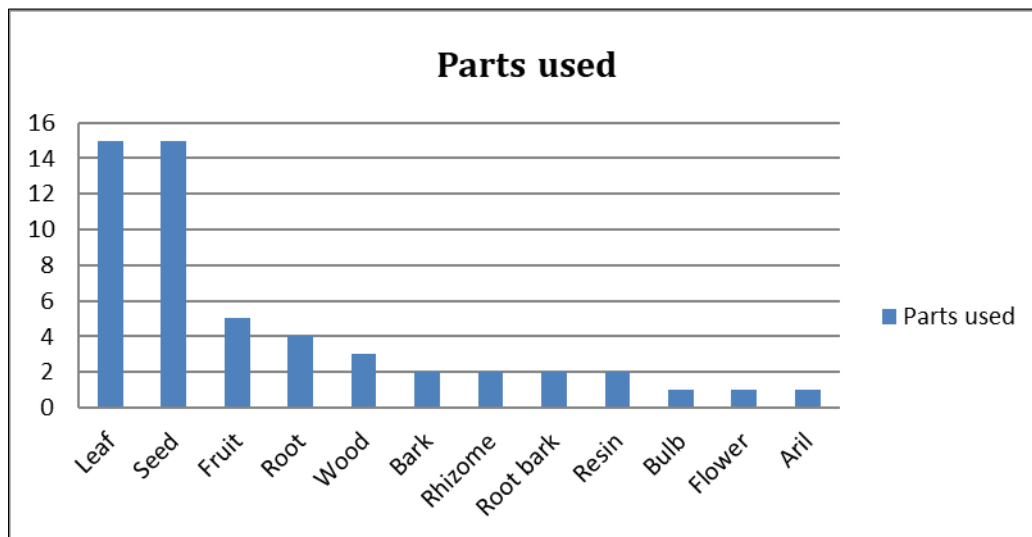


Figure 3 Distribution of plants used in the ethno veterinary practice according to the frequency of plant part

3.2. List of plants used to treat Cattle ailments in Palayamkottai, Tirunelveli

The ethno veterinary study in the Palayamkottai identified a total of 53 species belonging to 31 families (table 1).

Table 1 List of plants used to treat Cattle ailments

S.no	Vernacular name	Scientific name	Family	Parts used
1.	Aalam viluthu	<i>Ficus benghalensis</i>	Moraceae	Aerial roots
2.	Aadutheendapalai	<i>Aristolochia bracteolata</i>	Aristolochiaceae	Leaf
3.	Kuppaimeni	<i>Acalypha indica</i>	Euphorbiaceae	Leaf

4.	Chinna Vengayam	<i>Allium cepa</i>	Liliaceae	Bulb
5.	Elumichai	<i>Citrus limon</i>	Rutaceae	Fruit
6.	Karpoora pattai	<i>Cinnamomum camphora</i>	Lauraceae	Bark
7.	Kadukkai pinju	<i>Terminalia chebula</i>	Combretaceae	Fruit
8.	Nathaichoori	<i>Spermacoce hispida</i>	Rubiaceae	Whole plant
9.	Karunjeeragam	<i>Nigella sativa</i>	Ranunculaceae	Seed
10.	Milagu	<i>Piper nigrum</i>	Piperaceae	Fruit
11.	Nalvelai	<i>Cleome gynandra</i>	Capparaceae	Leaf
12.	Kinatradi Poondu	<i>Tridax procumbens</i>	Asteraceae	Leaf
13.	Kondakadalai	<i>Cicer arietinum</i>	Fabaceae	Seed
14.	Kanam	<i>Macrotyloma uniflorum</i>	Fabaceae	Seed
15.	Kambampul	<i>Pennisetum glaucum</i>	Poaceae	Seed
16.	Kalippakku	<i>Areca catechu</i>	Arecaceae	Seed
17.	Kovai	<i>Coccinia grandis</i>	Cucurbitaceae	Leaf
18.	Omavalli	<i>Coleus aromaticus</i>	Lamiaceae	Leaf
19.	Moongil	<i>Bambusa vulgaris</i>	Poaceae	Leaf
20.	Makka cholam	<i>Zea mays</i>	Poaceae	Seed
21.	Kayanthakarai	<i>Eclipta alba</i>	Asteraceae	Leaf
22.	Vazhai	<i>Musa paradisiaca</i>	Musaceae	Fruit, Flower
23.	Eswaramooli	<i>Aristolochia indica</i>	Aristolochiaceae	Leaf
24.	Sangankuppi	<i>Clerodendrum inerme</i>	Lamiaceae	Leaf
25.	Kaarbogarisi	<i>Psoralea corylifolia</i>	Fabaceae	Seed
26.	Paruthi kottai	<i>Gossypium herbaceum</i>	Malvaceae	Seed
27.	Pacharisi	<i>Oryza sativa</i>	Poaceae	Seed
28.	Seenthil	<i>Tinospora cordifolia</i>	Menispermaceae	Leaf
29.	Sukku	<i>Zingiber officinale</i>	Zingiberaceae	Rhizome
30.	Sirupayaru	<i>Vigna radiata</i>	Fabaceae	Seed
31.	Vilamichamver	<i>Plectranthus vettiveroides</i>	Lamiaceae	Root
32.	Soya mochai	<i>Glycine max</i>	Fabaceae	Seed
33.	Thumbai	<i>Leucas aspeara</i>	Lamiaceae	Leaf
34.	Thulasi	<i>Ocimum sanctum</i>	Lamiaceae	Leaf
35.	Thengai poo	<i>Cocos nucifera</i>	Arecaceae	Grated coconut
36.	Jathikkai	<i>Myristica fragrans</i>	Myristicaceae	Seed
37.	Vempadam Pattai	<i>Ventilago madraspatana</i>	Rhamnaceae	Bark
38.	Karunjeeragam	<i>Nigella sativa</i>	Ranunculaceae	Seed
39.	Velipparuthi	<i>Pergularia daemia</i>	Apocynaceae	Leaf
40.	Jathipatthiri	<i>Myristica fragrans</i>	Myristicaceae	Aril
41.	Seeragam	<i>Cuminum cyminum</i>	Apiaceae	Seed

42.	Ulunthu	<i>Vigna mungo</i>	Fabaceae	Seed
43.	Santhanum	<i>Santalum album</i>	Santalaceae	Wood
44.	Kostam	<i>Costus speciosus</i>	Cosatceae	Rhizome
45.	Vellaikungiliyam	<i>Shorea robusta</i>	Dipterocarpaceae	Resin
46.	Etti	<i>Strychnos nux vomica</i>	Loganiaceae	Root bark
47.	Devadarum	<i>Cedrus deodara</i>	Pinaceae	Wood
48.	Milagaranai	<i>Toddalia asiatica</i>	Rubiaceae	Root bark
49.	Arugampul	<i>Cynodon dactylon</i>	Poaceae	Whole plant
50.	Athimathuram	<i>Glycyrrhiza glabra</i>	Fabaceae	Root
51.	Kayam	<i>Ferula asafoetida</i>	Apiaceae	Oleo gum resin
53.	Kandankatthiri	<i>Solanum xanthocarpum</i>	Solanaceae	Fruit
53.	Murungai	<i>Moringa oleifera</i>	Moringaceae	Flower

3.3. Internal medicines and external applications for various cattle ailments

3.3.1. Topical application for mastitis

Ingredient

- *Tinospora cordifolia* – Leaf

Method of preparation

Make paste of *Tinospora* leaves and apply over the affected area.

Ingredients

- Lemon – 2 nos
- Small onion -250 gram

Method of preparation

Grind the small onion. Mix them with lemon juice. Make them into paste. Apply it over the affected area.

3.3.2. Internal medicine for uterine prolapse

Table 2 Ingredients of internal medicine used for uterine prolapse

S.no	Vernacular name	Scientific name	Part used
1.	Valaipoo	<i>Musa paradisiaca</i>	Flower
2.	Kadukkai pinju	<i>Terminalia chebula</i>	Fruit

Method of preparation

Make fine powder of fruit. Clean the banana flower and grind the both Ingredients.

3.3.3. Pouch fomentation for traumatic swelling

Table 3 Ingredients of pouch used for fomentation in traumatic swelling

S.no	Vernacular name	Scientific name	Part used
1.	Sukku	<i>Zingiber officinale</i>	Rhizome
2.	Murungai	<i>Moringa oleifera</i>	Flower
3.	Thengai poo	<i>Cocos nucifera</i>	Grated coconut
4.	Thengaiennai	Coconut oil	-

Method of preparation

Make coarse form of first three Ingredients. Wrap it into a cloth. Heat coconut oil in a vessel. Dip the pouch in the oil vessel till the water content is absorbed. Use it for fomentation (in tolerable heat).

3.3.4. Wound oil – external application

Ingredients of wound oil

- Aadutheendapalai – *Aristolochia bracteolata* – Leaf
- Veppennai - Neem oil

Method of preparation

Boil 200 ml juice of *Aristolochia bracteolata* leaves with ½ litre neem oil. Filter the oil and store it. Use the oil externally on the affected part.

3.3.5. External application of oil for pain and contusion due to trauma

Kayathirumeni thylum

Table 4 Ingredients of Kayathirumeni thylum

S.no	Vernacular name	Scientific name	Part used
1.	Kuppaimeni	<i>Acalypha indica</i>	Leaf
2.	Nathaichoori	<i>Spermacoce hispida</i>	Whole plant
3.	Seenthil	<i>Tinospora cordifolia</i>	Leaf
4.	Nalvelai	<i>Cleome gynandra</i>	Leaf
5.	Kovai	<i>Coccinia grandis</i>	Leaf
6.	Omavalli	<i>Coleus aromaticus</i>	Leaf
7.	Kayanthakarai	<i>Eclipta alba</i>	Leaf
8.	Eswaramooli	<i>Aristolochia indica</i>	Leaf
9.	Sangankuppi	<i>Clerodendrum inerme</i>	Leaf
10.	Velipparuthi	<i>Pergularia daemia</i>	Leaf
11.	Kaarbogarisi	<i>Psoralea corylifolia</i>	Seed
12.	Devadarum	<i>Cedrus deodara</i>	Wood
13.	Vilamichamver	<i>Plectranthus vettiveroides</i>	Root
14.	Karunjeeragam	<i>Nigella sativa</i>	Seed

15.	Jathipaththiri	<i>Myristica fragrans</i>	Aril
16.	Seeragam	<i>Cuminum cyminum</i>	Seed
17.	Santhanum	<i>Santalum album</i>	Wood
18.	Vellaikungiliyam	<i>Shorea robusta</i>	Resin
19.	Jathikkai	<i>Myristica fragrans</i>	Seed
20.	Etti	<i>Strychnos nux vomica</i>	Root bark
21.	Milagaranai	<i>Toddalia asiatica</i>	Root bark
22.	Thengaiennai	Coconut oil	-

Method of preparation

Take each 400 ml juice of first 10 Ingredients and mix well. Take each 10 grams of raw drugs in no 11-21. The powder form of raw drugs grinded with the above mixed juice and make it in to ball. Take 1 litre coconut oil and mix it with the juice. Heat the oil after adding ball. Store the oil in a sterile container. Apply it over the affected area.

Aalamapal thylum

Table 5 Ingredients of Aalamapal thylum

S.no	Vernacular name	Scientific name	Part used
1.	Aalam viluthu	<i>Ficus benghalensis</i>	Aerial roots
2.	Vempadam Pattai	<i>Ventilago madraspatana</i>	Bark
3.	Karpoora pattai	<i>Cinnamomum camphora</i>	Bark
4.	Thanneer	Water	-
5.	Nallennai	Gingelly oil	-

Method of preparation

Make a decoction with aerial roots of banyan tree and water. Add gingelly oil and barks with the decoction and boil it. Filter the oil in the vessel.

3.3.6. External application to stop bleeding from horns

Ingredients

- Kinatradi Poondu - *Tridax procumbens* – Leaf
- Thengaiennai – Coconut oil

Method of preparation

Make plaster with *Tridax procumbens* leaves paste and apply it around the horn for 30 minutes. Then apply coconut oil on it.

3.3.7. Internal medicines for dysentery

Ingredients

- Valaipoo - *Musa paradisiaca* – Banana flower
- Kadukkai pinju - *Terminalia chebula* - Fruit

Method of preparation

Make fine powder of *Terminalia chebula*. Clean the banana flower and grind the both Ingredients. Give them to cattle orally.

Ingredients

- Thulasi – *Ocimum sanctum* - 3 to 5 leaves
- Thumabai – *Leucas aspeara* - 3 to 5 leaves
- Kalipakku - *Areca catechu* – 4 to 5 nos
- Karuppatti – Palm jaggery

Method of preparation

Grind all the Ingredients. Mix it with jaggery.

3.3.8. To improve milk production – oral administration

Ingredients

- Pacharisi – *Oryza sativa* – Unboiled rice
- Karuppatti – Palm jaggery
- Thengaipoo - *Cocos nucifera* – Grated coconut

Method of preparation

Grind the rice with palm jaggery. Then add some amount of grated coconut.

Ingredients

Table 6 Ingredients to improve milk production

S.no	Vernacular name	Scientific name	Part used
1.	Paruthi kottai	<i>Gossypium herbaceum</i>	Seed
2.	Kondakadalai	<i>Cicer arietinum</i>	Seed
3.	Sirupayaru	<i>Vigna radiata</i>	Seed
4.	Kanam	<i>Macrotyloma uniflorum</i>	Seed
5.	Ulunthu	<i>Vigna mungo</i>	Seed
6.	Kambampul	<i>Pennisetum glaucum</i>	Seed
7.	Soya mochai	<i>Glycine max</i>	Seed
8.	Makka cholam	<i>Zea mays</i>	Seed
9.	Pacharisi	<i>Oryza sativa</i>	Seed

Method of preparation

Take equal quantity of all Ingredients and soak with water for 2 hours. Grind them and mix with water. Give it cattle after delivery for the period of 10-15 days (Morning & Evening).

3.3.9. Internal medicines for foot and mouth disease

Ingredients

- Pork ghee 31-50 ml
- Nattu vazhaipazham(Country Banana)- *Musa paradisiaca* - 4 or 5

Method of preparation

Pieces of Banana soak with pork ghee. Give them to cattle orally.

Ingredients

Table 7 Ingredients of internal medicine used for Foot and Mouth Disease

S.no	Vernacular name	Scientific name	Part used	Quantity
1.	Milagu	<i>Piper nigrum</i>	Fruit	35 gram
2.	Kayam	<i>Ferula asafoetida</i>	Oleo gum resin	10 gram
3.	Kandankatthiri	<i>Solanum xanthocarpum</i>	Fruit	One handful
4.	Thumbai	<i>Leucas aspeara</i>	Leaf	One handful

Method of preparation

Grind all the Ingredients and mix it with warm water.

3.3.10. External application for abscess

Ingredient

- Eru varatti sambal – Ash of Cow’s dung

Ash of cow’s dung externally applied over the abscess.

3.3.11. Oil for skin condition

Table 8 Ingredients of skin oil

S.no	Vernacular name	Scientific name	Part used	Quantity
1	Arugampul	<i>Cynodon dactylon</i>	Whole plant	100 ml
2	Athimathuram	<i>Glycyrrhiza glabra</i>	Root	50 gram
3	Thengaiennai	-	Coconut oil	200 ml

Method of preparation

Mix juice of *Cynodon dactylon* with coconut oil and add powder form of *Glycyrrhiza glabra*. Boil it and store in sterile container.

3.3.12. Internal medicine for anorexia

Ingredient

- Moongil - *Bambusa vulgaris* - Leaf

Method of preparation

Grind bamboo leaves and orally administer to cattle.

The results of this study show that 16 recipes are prepared from 53 species. The most commonly used method of administration is external applications. 7 recipes are administered by the oral route.

3.4. Classification of plants by therapeutic potential.

The contribution of each species (CPr) makes it possible to assess the frequency of involvement of this species in the recipes. It will be determined for each species by the formula: $CPr = (Nr/Nt) \times 100$, where Nr: number of recipes using the plant, Nt: total number of recipes (Table 9).

Table 9 List of plants used to treat Cattle ailments and their contribution to recipe preparation (CPr)

S. NO	Family	Scientific name	Number of recipes involving plants (Nr)	CPr
1.	Moraceae	<i>Ficus benghalensis</i>	1	1.6%
2.	Aristolochiaceae	<i>Aristolochia bracteolata</i>	1	1.6%
3.	Euphorbiaceae	<i>Acalypha indica</i>	1	1.6%
4.	Liliaceae	<i>Allium cepa</i>	1	1.6%
5.	Rutaceae	<i>Citrus limon</i>	1	1.6%
6.	Lauraceae	<i>Cinnamomum camphora</i>	1	1.6%
7.	Combretaceae	<i>Terminalia chebula</i>	2	3.94%
8.	Rubiaceae	<i>Spermacoce hispida</i>	1	1.6%
9.	Ranunculaceae	<i>Nigella sativa</i>	1	1.6%
10.	Piperaceae	<i>Piper nigrum</i>	1	1.6%
11.	Capparaceae	<i>Cleome gynandra</i>	1	1.6%
12.	Asteraceae	<i>Tridax procumbens</i>	1	1.6%
13.	Fabaceae	<i>Cicer arietinum</i>	1	1.6%
14.	Fabaceae	<i>Macrotyloma uniflorum</i>	1	1.6%
15.	Poaceae	<i>Pennisetum glaucum</i>	1	1.6%
16.	Arecaceae	<i>Areca catechu</i>	1	1.6%
17.	Cucurbitaceae	<i>Coccinia grandis</i>	1	1.6%
18.	Lamiaceae	<i>Coleus aromaticus</i>	1	1.6%
19.	Poaceae	<i>Bambusa vulgaris</i>	1	1.6%
20.	Poaceae	<i>Zea mays</i>	1	1.6%
21.	Asteraceae	<i>Eclipta alba</i>	1	1.6%
22.	Musaceae	<i>Musa paradisiaca</i>	3	5.1%
23.	Aristolochiaceae	<i>Aristolochia indica</i>	1	1.6%
24.	Lamiaceae	<i>Clerodendrum inerme</i>	1	1.6%
25.	Fabaceae	<i>Psoralea corylifolia</i>	1	1.6%
26.	Malvaceae	<i>Gossypium herbaceum</i>	1	1.6%
27.	Poaceae	<i>Oryza sativa</i>	2	3.94%
28.	Menispermaceae	<i>Tinospora cordifolia</i>	2	3.94%
29.	Zingiberaceae	<i>Zingiber officinale</i>	1	1.6%
30.	Fabaceae	<i>Vigna radiata</i>	1	1.6%
31.	Lamiaceae	<i>Plectranthus vettiveroides</i>	1	1.6%
32.	Fabaceae	<i>Glycine max</i>	1	1.6%

33.	Lamiaceae	<i>Leucas aspeara</i>	2	3.94%
34.	Lamiaceae	<i>Ocimum sanctum</i>	1	1.6%
35.	Arecaceae	<i>Cocos nucifera</i>	2	3.94%
36.	Myristicaceae	<i>Myristica fragrans</i>	1	1.6%
37.	Rhamnaceae	<i>Ventilago madraspatana</i>	1	1.6%
38.	Ranunculaceae	<i>Nigella sativa</i>	1	1.6%
39.	Apocynaceae	<i>Pergularia daemia</i>	1	1.6%
40.	Myristicaceae	<i>Myristica fragrans</i>	1	1.6%
41.	Apiaceae	<i>Cuminum cyminum</i>	1	1.6%
42.	Fabaceae	<i>Vigna mungo</i>	1	1.6%
43.	Santalaceae	<i>Santalum album</i>	1	1.6%
44.	Cosatceae	<i>Costus speciosus</i>	1	1.6%
45.	Dipterocarpaceae	<i>Shorea robusta</i>	1	1.6%
46.	Loganiaceae	<i>Strychnos nux vomica</i>	1	1.6%
47.	Pinaceae	<i>Cedrus deodara</i>	1	1.6%
48.	Rubiaceae	<i>Toddalia asiatica</i>	1	1.6%
49.	Poaceae	<i>Cynodon dactylon</i>	1	1.6%
50.	Fabaceae	<i>Glycyrrhiza glabra</i>	1	1.6%
51.	Apiaceae	<i>Ferula asafoetida</i>	1	1.6%
53.	Solanaceae	<i>Solanum xanthocarpum</i>	1	1.6%
53.	Moringaceae	<i>Moringa oleifera</i>	1	1.6%

CPr: Contribution of each species; Nr: number of recipes using the plant; Nt: total number of recipes

The table shows that *Musa paradisiaca*, cited 3 times, is used most in the preparation of recipes, i.e. CPr=5.1%, followed by species such as *Terminalia chebula*, *Oryza sativa*, *Tinospora cordifolia*, *Cocos nucifera*, *Leucas aspeara* cited 2 times (3.94%), Came second. Other species were cited 1 time, with CPr corresponding to 1.6%. These species may be of interest in the treatment of cattle ailments. In these areas, practitioners have a lack of technical resources for harvesting, preparing recipes and preserving them; and limited access to credit to support their activities. Another constraint is the use of pesticides by people living in harvesting areas (rural areas), most of whom are farmers.

4. Conclusion

Traditional veterinary medicine is easy to master and perform and is inexpensive. It plays an important role in the development of animal husbandry and is the first choice for the prevention and treatment of animal diseases in remote and poor areas [2]. However, with the passing on of the older generation, traditional knowledge of ethno veterinary medicines (EVMs) may disappear. In this study, we collected and sorted traditional knowledge about medicinal plants used in veterinary practice in Palayamkottai. We obtained information on 53 plant species and their corresponding treatment types for cattle ailments and studied the life form, drug preparation, and mode of administration of EVMs. Traditional knowledge of ethno veterinary medicine is related to the local social-cultural characteristics of the people and plays a pivotal role in livestock production. Plants are the carriers of traditional culture, and traditional culture nourishes plant culture. Cultural diversity and biodiversity depend on each other. The traditional community also has extremely rich traditional knowledge related to the improvement of people's health and environmental hygiene conditions.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

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