

## Ethnoveterinary healthcare practices in southern districts of Tamil Nadu

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The southern districts of Tamil Nadu has a predominantly livestock based economy and social welfare. However, economic dependence on livestock, lack of effective veterinary infrastructure, etc. have forced the local farmers to apply their indigenous knowledge to look after and maintain their livestock population. The indigenous knowledge and practice based on locally available bioresources are effective to cure diseases, do not have financial cost and are easily administrable. In the paper, ethnoveterinary medicine for the treatment of 44 veterinary health hazards is enumerated. A total of 113 plant species belonging to 100 genera and 46 families are used by rural peoples in the treatment of anthrax, bone fracture, bloat, bronchitis, blackquarter, corneal opacity, dog bite, enteritis, foot and mouth diseases, etc. The medicinal plants are listed with their scientific name, family, local name (Tamil) and mode of utilization.

**Keywords:** Ethnoveterinary medicine, Southern districts, Tamil Nadu

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The interest in medicinal plants has been shown all over the world because of safe and effective constituents of plant products and in particular the presence of active principles of medicinal plants. The southern districts of Tamil Nadu, has a predominantly livestock based economy and social welfare. However, economic dependence on livestock, lack of effective veterinary infrastructure, etc. have forced the local farmers even today to apply their indigenous knowledge to look after and maintain their livestock population. Ethnoveterinary practices from different regions of India have been reported but there is no detailed information from Tamil Nadu. Hence, the present work is perhaps the first detailed record on ethnoveterinary practices in southern districts of Tamil Nadu. The study covered the districts of Sivagangai, Madurai, Virudhunagar, Ramanathapuram and Tuticorin in Tamil Nadu state lying between 10° 05' N and 78° 16' E approximately 100 m above sea level. Average annual precipitation ranges between 500-800 mm, mainly during July-December and temperature ranges from 28-38°C. The climate is sub humid to semiarid. Variations in the altitude and rainfall always have a bearing on the vegetation in general. An ethnoveterinary medicine survey was made in remote villages like Kaluvankulam-

Sivagangai district; Thotiyankulam, Avarankulam-Virudhunagar district; Samanatham, Pallapatty, Vellalapatty, Vikkiramangalam, Lingavadi-Madurai district; Sivagnanapuram, Kulathuvaipatty-Tuticorin district and Parthipanoor-Ramnad district of Tamil Nadu.

### Methodology

The survey was carried during 2003-2004. Ethnoveterinary information was gathered from all categories of village people by contacting the medicineman, headman, elderly persons and the person having a through knowledge of veterinary practices. Some of the commonly occurring veterinary diseases were listed and the existence of these diseases were cross checked and confirmed with the officials of the local veterinary department. The information gathered from one place was confirmed by different communities of village people, tribal and ethnic groups in different places of investigation. The disease wise classification of ethnoveterinary data has been followed in the enumeration<sup>1,2</sup>. The voucher plant specimens were collected and identified by referring standard local flora<sup>3-7</sup>. All the voucher specimens in the form of herbarium were deposited in the Research Centre and PG Department of Botany, Thiagarajar College, Madurai.

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### Observation

In the paper, ethnoveterinary medicine for the treatment of 44 veterinary health hazards is enumerated. A total of 113 plant species belonging to 100 genera and 46 families are used by rural peoples in the treatment of anthrax, bone fracture, bloat, bronchitis, blackquarter, corneal opacity, dog bite, enteritis, foot and mouth diseases, etc. Villagers use various plants and some times some animal products like, pig fat, dried fishes, cow ghee, birds' feathers, cattle bones, hen flesh, ass faeces, cattle urine, cows milk, etc. and few minerals like, black salt, copper sulphate, sodium chloride, ash and calcium carbonate, etc. The plants are applied in the form of extract, paste, infusion, smoke, etc. These plants are used individually or in combination with other plants. The prepared medicine is given orally, applied on eyes, nose, and ears. *Allium cepa* L., *Allium sativum* L., *Cuminum cyminum* L., *Curcuma longa* Auct. non L., *Piper nigrum* L., *Piper betel* L., *Leucas aspera* (Willd.) Link., *Aristolochia indica* L., *Azadirachta indica* A. Juss., *Aloe vera* (L.) Burm. f., *Daemia extensa* L., *Coccinia indica* Wight & Arn., *Ricinus communis* L., *Sesamum indicum* L., *Borassus flabellifer* L. and *Corallocarpus epigaeus* (Rottler) C.B. Clarke., are commonly used ethnoveterinary medicinal plants of villagers. *Tylophora indica* is used to cure pyrexia. In some places, tying whole plant of *Abrus precatorius* around the neck of cattle and *sangu* (whelk shell) using black rope on horn, legs and neck is used for relieving some evil spirit. The ethnoveterinary data serve as a base for new compounds with active principles for phytochemical, pharmacognostical, pharmacological and clinical research. Such information collected from natives for various ailments and diseases cannot be claimed to be fully correct. Only detailed pharmacological, chemical and clinical investigations will give confirmation of their usefulness. Coordinated efforts should be made to study the drug plant in the field and in the laboratory.

### Enumeration

#### Anthrax (*Adaippan*)

Paste of a palm size leaves of *Aristolochia bracteolata* Lam., (*Aaduthinnapalai*), *Nicotiana tabacum* L. (*Pugai elai*), *Zingiber officinale* Rose. (*Ingi*), *Solanum xanthocarpum* Schrader & Wendl. (*Kandakathari*), five fruits of *Capsicum annum* L. (*Milagai*) and teaspoonful of *Piper nigrum* L.

(*Milagu*) is given to cattle orally for three days or a week to cure anthrax.

#### Bone fracture (*Elumbu murivu*)

Paste of *Dodonaea angustifolia* L.f. (*Virali*) is applied on bone fracture wounds of the cattle for three days. Paste of *Vigna mungo* (L.) Hepper (*Uzhunthu*) seed powder (50 gm) mixed with egg empyro is applied on bone fracture part. *Bambusa arundinacea* (Retz.) Willd. (*Moongil*) stick is tied on the bones for fifteen days. Paste of *Vigna mungo* (L.) Hepper. (*Uzhunthu*) seed powder (50 gm), a palm size leaves of *Dodonaea angustifolia* L.f. (*Virali*), one teaspoon of black stone powder mixed with water is applied on bone fracture part. *Bambusa arundinacea* (Retz.) Willd. (*Moongil*) stick is tied on the bones for fifteen days.

#### Bloat (*Vayitru porumal*)

A teaspoon of *Piper nigrum* L. (*Milagu*) folded with five leaves *Piper betel* L. (*Vettilai*) is orally given to the cattle thrice daily to cure bloat (*Par*). Paste of leaves of *Cissus vitiginea* L. (*Cempirandai*), 50 gm bulb of *Allium cepa* L. (*Chinnavengayam*) and spoonful salt is given orally for three days. Extract of equal amount of leaves of *Bambusa arundinacea* (Retz.) Willd. (*Moongil elai*) and *Coccinia indica* Wight & Arn. (*Kovai elai*) is given orally for two days to cattle. Whole plant of *Sesamum indicum* L. (*Ellu*) ground and mixed with *Tamarindus indica* L. (*Puli*) fruit juice is given orally three times. Root piece of *Calotropis gigantea* (L.) R.Br. (*Erukku*) is given orally along with the grass for two days. Paste prepared from *Aristolochia indica* L. (*Thalaisuruli*) roots, *Clitoria ternatea* L. (*Sangupu*) leaves and spoonful of *Piper nigrum* L. (*Milagu*) is given orally to cattle to cure bloat.

#### Bronchitis (*Elappu*)

Paste of *Musa paradisiaca* L. (*Vazhai*) fruits (5 nos) and *Sesamum indicum* L. (*Ellu*) oil (25 ml) is given orally for a week. Root of *Withania somnifera* (L.) Dunal. (*Asvakantha*) mixed with grass is fed to the cattle for a week to cure bronchitis. Five bird feathers (*Kadai*) and leaves of *Bambusa arundinacea* (Retz.) Willd. (*Moongil*) mixed with grass is fed to the cattle for three days. Paste prepared from 50 gm *Phoenix dactylifera* Roxb. (*Peritchai*) seedless fruits, 50 gm *Cocos nucifera* L. (*Thennai*) kernel and 50 gm sugar of *Borassus flabellifer* L. (*Panai*) are given orally for three days. Paste of five fruits of *Musa*

*paradisiaca* L. (Vazhai), 25 gm *Papaver somnifera* L. (Kasakasa) seeds and 25 ml *Sesamum indicum* L. (Ellu) oil is given orally for three days. Paste of palm size leaves of *Dodonaea angustifolia* L. f. (Virali), 25 gm rhizome of *Zingiber officinale* Rose (Ingi), and *Curcuma longa* Auct. non L. (Manjal), 25 gm kernel of *Cocos nucifera* L. (Thennai), 50 gm *Vigna mungo* (L.) Hepper. (Uzhunthu) seeds, 50 gm *Allium cepa* L. (Chinna vengayam) bulb and 50 ml *Sesamum indicum* L. oil is given orally for three days to cattle. Paste of 50 gm palm sugar *Borassus flabellifer* L., 25 gm *Curcuma longa* Auct. non L. (Manjal) and 50 gm *Allium cepa* L. (Chinnavengayam) bulbs is given orally once a day. Faeces of the ass (50 gm) and 500 gm boiled seeds of *Pennisetum typhoides* (Burm.f.) Stapf & C.E. Hubb. (Kambu) is fed to the cattle to cure bronchitis. Paste of leaves of *Dodonaea angustifolia* L.f. (Virali), *Cadapa indica* Lam. (Veeli) and roots of *Citrullus colocynthis* (L.) Schrader (Kumatti) is given orally for three days. Extract of equal amount leaves of *Leucas aspera* (Willd) Link. (Thumbai), *Vitex negundo* L. (Nochi elai) and bulbs of *Allium cepa* L. is applied once a day on the nose of the cattle to cure bronchitis. Extract of palm size leaves of *Vitex negundo* L. (Nochielai) and *Croton bonplandianus* Baillon. (Venapundu) mixed with cow urine is applied on the nose of the cattle to cure bronchitis. Extract of equal amount *Tribulus terrestris* L. (Nerunchil) fruits, leaves of *Daemia extensa* L. (Veliparuthi elai), leaves of *Tinospora cordifolia* (Willd.) Miers. ex Hook. (Seenthil elai), root of *Coralocarpus epigaeus* (Rottler) C.B.Clarke (Kollankovai kizhangu) mixed with cattle urine is applied once weekly on ears and nose of affected cattle. Paste of equal amount *Zingiber officinale* Rosc. (Ingi), *Allium sativum* Linn. (Vellaipoondu), *Ferula asafoetida* L. (Perungayam), *Allium cepa* L. and sugar of *Borassus flabellifer* L. is given twice a week orally to cure bronchitis.

#### **Black quarter (Kulaimutti)**

Milk of *Euphorbia antiquorum* L. (Pothakalli) is applied on the neck and joints of the cattle to cure black quarter. Mixture of pig fat (100 gm) and 500 gm boiled rice, *Oryza sativa* L. var. *sativa*, (Nellu) is given orally to the cattle to cure black quarter. Paste of 50 gm dried fruit of *Capsicum annum* L. (Milagai), handful leaves of *Acalypha indica* L. (Kuppaimeni), *Leucas aspera* (Willd.) Link. (Thumbai) with cow milk (100 ml) is given orally to the cattle for thrice a day to cure black quarter. The cattle are not allowed

to sneeze. Paste of equal amount of *Piper nigrum* L. (Milagu) fruits, *Gossypium hirsutum* L. (Paruthi) seeds, *Allium cepa* L. bulbs, *Cuminum cyminum* L. (Seeragam) fruits, *Curcuma longa* Auct. non L. (Manjal) rhizome, *Musa paradisiaca* L. (Vazhai) flower (without petals and spathe), *Piper betel* L. (Vettilai) leaves and sugar of *Borassus flabellifer* L. is given orally to the cattle for three days.

#### **Constipation (Malachikkal)**

Paste of equal amount of *Albizia lebbek* (L.) Benth. (Vakai) root, sliced fruit of *Citrullus colocynthis* (L.) Schrader (Kumatti), leaves of *Piper betel* L. (Vettilai) and spoonful of *Piper nigrum* L. (Milagu) fruits is given once daily orally to cattle.

#### **Conjunctivitis (Kanpurai)**

Leaf of *Piper betel* L. and small amount *Nicotiana tabacum* L. (Pugai elai) is chewed and spit forcibly into the eyes of the cattle to cure conjunctivitis. Milk of *Euphorbia antiquorum* L. (Pothakalli) is applied near the eyes of the cattle to cure conjunctivitis.

#### **Corneal opacity (Kannil pooviluthal)**

Extract of five leaves of *Coccinia indica* Wight & Arn. (Kovai elai), 5 gm of *Cuminum cyminum* L. (Seeragam), five bulbs of *Allium cepa* L. is filtered through a pure white cloth and applied on the eyes of the cattle to cure corneal opacity. Leaf extracts of *Clausena dendata* L. (Anaa) and *Argyrea cymosa* (Roxb.) Sweet. (Onanthalai) is applied to the eyes of sheep and goats to cure corneal opacity. Leaf extracts of *Albizia lebbek* (L.) Benth. (Vakai), small amount of salt and water is applied on the eyes of the cattle to cure corneal opacity. Paste of *Eleusine coracana* (L.) Gaertner (Kelvaragu) seed flour, latex of *Euphorbia antiquorum* L. (Pothakalli) and *Ficus benghalensis* L. (Aal) is applied near the eyes of the cattle to cure corneal opacity. Extract of leaves of *Vitex negundo* L. (Nochi elai), *Leucas aspera* (Willd) Link. (Thumbai), *Zingiber officinale* Rose. (Ingi), *Allium cepa* L., seeds of *Cajanus cajan* (L.) Millsp. (Thuvarai) and *Piper nigrum* L. is applied as eye drops. Paste of the succulent leaves of *Aloe vera* (L.) Burm f. (Chothukathalai) and 5 gm *Areca catechu* L. (Pakku) nut with water is given orally to the cattle to cure corneal opacity.

#### **Contusion (Rathakattu)**

Paste of *Cadapa indica* Lam. (Veeli) leaf ground with cows' milk is applied on the affected part of the cattle to cure contusion.

**Chronic wound (*Natpatta pun*)**

Palm size leaves of *Wrightia tinctoria* (Roxb) R.Br. (*Veppalai*) is soaked in *Cocos nucifera* L., (*Thennai*) oil (250 ml) for 10 days in the sunlight and the infusion is applied on the wound. Paste prepared from equal amount of *Santalum album* L., (*Sandanam*) powder and *Allium cepa* L. (*Chinnavengayam*) bulb is applied on the wound.

**Diuretics (*Adikadi neerpothal*)**

Equal amount (Palm size) of leaf extracts of *Gossypium hirsutum* L. (*Paruthi*) and *Gymnema sylvestre* (Retz.) R.Br. ex Roemer & Schultes., (*Sirugurunjan*) mixed with the urine of the healthier cattle is given orally to the affected cattle as diuretic. Infusion of palm size leaves of *Piper betel* L., (*Vettilai*) and *Cassia fistula* L. (*Sarrakkonnai*) is given orally to the cattle.

**Dog bite (*Naikadi*)**

Paste of handful leaves of *Achyranthes aspera* L., (*Nayuruvi*) and *Allium cepa* L., (*Chinnavengayam*) is given orally to the cattle to cure dog bite for a week.

**Debility and general weakness (*Nonjan madukal*)**

Palm size leaves of *Dodonaea angustifolia* L.f., (*Virali*), *Adhatoda zeylanica* Medikus. (*Aadathodai*) and *Sesbania grandiflora* (L.) Poiret., (*Agathi*) mixed with grass is fed to cattle to cure debility and general weakness. Paste of an equal quantity of leaves of *Medicago sativa* L., (*Kuthiraimasalpul*) and *Withania somnifera* (L.) Dunal. (*Aswakantha*) is given orally to horse for a week. Leaves of *Daemia extensa* L., (*Veliparuthi*) and *Aristolochia bracteolata* Lam., (*Aduthinnapalai*) mixed with grass is fed to the cattle for a week. Paste of whole plant of *Tribulus terrestris* L., (*Nerunchil*) is given orally to the sheep and goats for a week. Palm size roots of *Solanum surattense* Burm.f. (*Kandakathari*) and *Citrullus colocynthis* (L.) Schrader. (*Kumatti*) mixed with grass is fed to the cattle once a week. Mucilage of the *Aloe vera* (L) Burm.f. (*Chothukathalai*) mixed with salt and water is given orally thrice per week or month to the cattle. Paste prepared from an equal amount of *Allium cepa* L., (*Chinnavengayam*) bulb, *Cuminum cyminum* L., (*Seeragam*) fruits; *Cadapa furuticosa* (L.) Druce., (*Viguli*) leaves, *Cocos nucifera* L., (*Thennai*) kernel and *Borassus blafellifer* L., (*Panai*), sugar (*Karuppatti*) is given orally to the cattle.

**Dystochia (*Kanruvilamal erukkira madu*)**

Infusion of palm size leaves of *Jantania roxburgiana* L., (*Nallathali*) and *Ricinus communis*

L., (*Amanakku*) oil (50 ml) is given orally to cow once a day to cure dystochia.

**Dyspepsia (*Thannir kudikkamai*)**

A succulent leaf of *Aloe vera* (L.) Burm. f., (*Chothukathalai*) is given orally to cattle to cure dyspepsia. Paste of equal amount of *Cissus quadrangularis* L., (*Pirandai*) stem, leaves of *Leucas aspera* (Willd.) Link., (*Thumbai*), *Tephrosia purpurea* (L.) Pers., (*Kozhunji*), *Azadirachta indica* Adr. Juss., (*Veambu*), bulb of *Allium cepa* L., (*Chinnavengayam*), *Cuminum cyminum* L., (*Seeragam*) fruits and *Curcuma longa* Auct. non L., (*Manjal*) rhizome is given orally to the cattle once or twice a day.

**Enteritis (*Kalichal*)**

*Phyla nodiflora* (L.) E. Greene., (*Poduthalai*) plant mixed with grass is fed to sheep and goats for three days. Equal amount of *Cadapa fruticosa* (L.) Druce. (*Viguli*) leaves, *Allium cepa* L., (*Chinnavengayam*) bulb and *Cuminum cyminum* L., (*Seeragam*) fruits ground and mixed with milk is given orally to cattle for two days to cure enteritis. Paste of *Aegle marmelous* (L.) Corr. Serr. (*Vilvam*) leaves, *Allium cepa* L., (*Chinnavengayam*) bulb and *Cuminum cyminum* L., (*Seeragam*) fruits is given orally for two days to cattle. Paste of equal amount of *Aegle marmelous* (L.) Corr. Serr., (*Vilvam*) leaves, *Allium cepa* L., (*Chinna vengayam*) bulb, *Cuminum cyminum* L., (*Seeragam*) fruits and *Ficus mollis* Vahl., (*Kallithikai*) fruits is given orally for once a day to the cattle. Flowers of *Musa paradisiaca* L., (*Vazhai*) (excluding petal and spathe); *Cuminum cyminum* L. (*Seeragam*) fruits and *Allium cepa* L., (*Chinnavengayam*) bulbs are ground and mixed with milk is given orally to cattle once a day. Paste of equal amount of *Dichrostachys cinerea* (L.), (*Vidathalai*) leaves, *Cuminum cyminum* L., (*Seeragam*) fruits and *Allium cepa* L., (*Chinna vengayam*) bulb is given orally to cattle once a day. Paste of equal amount of flour of *Eleusine coracana* (L.) Gaertner (*Kelvaragu*), *Dichrostachys cinerea* (L.), (*Vidathalai*) leaves and *Cuminum cyminum* L., (*Seeragam*) is given orally to sheeps and goats for three days. Seven or nine leaves of *Datura metal* L., (*Umathai*) mixed with grass is fed to cattle once a day. Mixture of fruit extract (25 ml) of *Citrullus colocynthis* (L.) Schrader, (*Kumatti*) mixed with *Azadirachta indica* A. Juss., (*Veambu*) oil and *Ricinus communis* L., (*Amanakku*) oil in the ratio of 1:3:4 is

given orally to cattle once a day. An equal amount of *Coccinia indica* Wight & Arn., (*Kovai elai*) leaf extract and *Ricinus communis* L., (*Amanakku*) oil (25 ml) is given orally to young goats and sheep once a day. 50 ml extract of *Acorus calamus* L., (*Vasambu*) is given orally to calves to cure enteritis. Few drops of *Ricinus communis* L., (*Amanakku*) oil is given orally to hens and cocks to cure enteritis.

#### **Ephemeral fever (*Kunthu kanal*)**

Paste of leaves of *Aristolochia indica* L., (*Thalaisuruli*), *Acalypha indica* L., (*Kuppaimeni*), *Leucas aspera* L., (*Thumbai*) and flesh of hen (5 gm) ground with *Azadirachta indica* A. Juss., oil (25 ml) is given orally to cattle once a day to cure ephemeral fever. Leaves of *Chloroxylon swietenia* DC., (*Mammarai*), fruits of *Trachyspermum ammi* Sprague. (*Omam*), gum of *Canarium strictum* Roxb. (*Sampirani*) and seed coat of *Azadirachta indica* A. Juss., (*Vembu*) are burnt and fumigated to cattle in early morning for three days. Paste prepared from leaves of *Solanum nigrum* L. (*Manathakkali*) and a fruit of *Cuminum cyminum* L. (*Seragam*) is given orally to cattle for three days.

#### **Facial palsy (*Mugavai channy*)**

The cattle is allowed to immersed in a pond and few drops of *Calotropis procera* L. (*Vellaerukku*) milk is applied on nose of cattle once a day.

#### **Foot and mouth disease (*Komari*)**

Paste of palm size leaves of *Andrographis paniculata* (Burm.f.) Wallich ex. Nees., (*Chiryanangai*), *Peristrophe paniculata* (Forsskal) Brummitt., (*Periyanangai*), fruits of *Cuminum cyminum* L. (*Seeragam*) and bulb of *Allium cepa* L., is given orally to cattle for three days. Paste of a handful leaves of *Cleistanthus collinus* (Roxb.) Benth. ex Hook.f., (*Oduvanelai*), *Leucas aspera* (Willd.) Link., (*Thumbai*) and a spoon of calcium carbonate powder is given orally to sheep and goats once a day. Boiled seeds of *Vigna unguiculata* (L.) Walp., (*Kanaipayaru*) is fed to cattle for a week. Paste of *Abutilon indicum* (L.) Sweet. (*Thuthi*) leaves with a spoon of calcium carbonate powder is applied externally on sheep and goats. An infusion of dry fish (150 gm with 5 L water) mixed with *Sesamum indicum* L., (*Ellu*) oil (100 ml), *Ricinus communis* L., (*Amanakku*) oil (100 ml) and *Azadirachta indica* A. Juss. Meliaceae oil (100 ml) is applied externally for a week. Boiled seeds of *Pennisetum typhoides* (Burm.f.) Stapf &

C.E.Hubb. (*Kambu*) ground with water is fed to cattle. Paste prepared from five fruits of *Musa paradisiaca* L. (*Vazhai*) with *Ricinus communis* L. (*Amanakku*) oil (25 ml) is given orally two times to cattle. Handful mucilage of *Aloe vera* (L.) Burm. f. is given orally to cattle for three days. Leaves of *Azadirachta indica* A. Juss. mixed with few pieces of bone is burnt and fumigated to cattle for three days. Mixture of five fruits of *Musa paradisiaca* L. and 100 gm pig fat is given orally to cattle once a day.

#### **Haematuria (*Rattha kalichal*)**

Paste of equal amount of *Aloe vera* (L.) Burm. f. succulent leaf, bark of *Syzygium cumini* (L.) Skeels. (*Naval*), bulb of *Allium cepa* L. and fruits of *Cuminum cyminum* L. (*Seeragam*) is given orally to cattle for three days. Paste of *Cocculus hirsutus* (L.) Diels. (*Vellakattukodielai*) leaves, *Allium cepa* L. bulbs and *Cuminum cyminum* L. fruits is given orally to cattle for three days. Paste of equal amount of *Canthium purviflorum* Lam. (*Karaiveru*) root, *Cuminum cyminum* L. fruits, *Allium cepa* L. bulbs mixed with cow's milk is given orally to cattle for three days. Paste of taproot (*vizhuthu*) of *Ficus benghalensis* L. (*Aal*) and flower of *Cocos nucifera* L. (*Thennai*) with cow milk is given orally to cattle twice a day. Paste of equal amount of young fruit of *Gossypium hirsutum* L. (*Paruthi*) and *Ficus glomerata* L. (*Athi*) with buttermilk is given orally to cattle for three days. Leaf juice (100 ml) of *Pedaliium murex* L. (*Anainerunchi*) is given orally to cattle for two days.

#### **Heat disease (*Vekkai*)**

Whole plant of *Phyllanthus amarus* (L.) Schum & Thonn. (*Keelanelli*) mixed with grass is fed to cattle. Flower of *Cassia auriculata* L. (*Aavarai*), whole plant of *Enicostema axillare* (Lam.) A. Raynal. (*Vellarugu*) and fruit of *Cuminum cyminum* L. (*Seeragam*) mixed with grass is fed to cattle for three days. Paste of *Tamarindus indica* L. (*Puli*) leaves and *Allium cepa* L. bulbs is given orally to cattle for three days. The cattle allowed immersing in a pond and 50 ml of *Cocos nucifera* L. oil is given orally for three days. Leaf extract of *Coccinia indica* Wight & Arn. (*Kovai*) mixed with boiled rice is fed to hens and cocks for three days. Leaves of *Amaranthus viridis* L. (*Arakkeerai*) and *Basella alba* L. (*Pasali*) is fed to hens and cocks for three days. Boiled rice mixed with butter milk is fed to hens and cocks for three days.

**Horn fracture (*Kompu murivu*)**

Paste prepared from leaves of *Boerhavia diffusa* L. (*Mookkarattai*), camphor (5 gm) and a spoon of calcium carbonate is applied on the affected area.

**Horn ablation (*Kompu kalaruthal*)**

Paste prepared from *Aristolochia indica* L. leaves mixed with neem oil (25 ml) is applied on the affected horn of cattle for a week. Leaves of *Aristolochia indica* L. boiled with neem oil (100 ml) is applied on the affected horns of cattle for a week.

**Inflammation (*Veekam*)**

Paste prepared from equal amount of extracts of *Daemia extensa* L. (*Veliparuthi*) and *Zingiber officinale* Rosc. (*Ingi*) mixed with *Ferula asafoetida* L. (*Perungayam*) is applied externally in warm condition to cattle.

**Infertility (*Malatu thanmai*)**

Seeds of *Cicer arietinum* L. (*Kondakkadalai*), leaves of *Ocimum sanctum* L. (*Thuzhasi*) mixed with embryo of the egg are given orally to cow for three days. Paste prepared from leaves of *Aristolochia bracteolata* Lam. with a spoonful of salt is given orally once a day to cow. Paste prepared from *Phyllanthus emblica* L. (*Nelli*) fruit, *Saussurea lappa* L. (*Kostam*) root and *Withania somnifera* (L.) Dunal. (*Aswakantha*) is given orally to cow once a day. Paste of *Cymbapogan citratus* Stapf. (*Sukkunaripul*) leaves and *Allium cepa* L. bulb is given orally to cow for three days or a week.

**Indigestion problem (*Semiyamai*)**

Paste of *Aerva lanata* (L.) Juss. (*Kannupelai*) whole plant and *Bambusa arundinacea* (Retz.) Willd. (*Moongil*) leaves mixed with grass is fed to cattle once a day. *Cocos nucifera* L. oil (100 ml) is given orally to the cattle for once a day. Paste of *Gynandropsis pentaphylla* DC. (*Thaivelai*) whole plant is given orally to cattle once a day.

**Lactation problem (*Palsurappu noi*)**

Paste of *Vigna unguiculata* (L.) Walp. (*Kanai payar*), *Vigna mungo* (L.) Hepper. (*Uzhunthu*), *Gossypium hirsutum* L. (*Paruthi*), fruits of *Musa paradisiaca* L. and kernel of *Cocos nucifera* L. is fed to cow for a week. Paste of whole plant of *Asparagus racemosus* Willd. (*Thannirvitan kizhangu*) is given orally for 3 days to cow.

**Lung emphasiema (*Muchadaippu*)**

Paste of equal amount of leaves of *Cardiospermum halicacabum* L., (*Mudakkathan*), *Tephrosia purpurea* (L.) Pers. (*Kozhunji*), *Tinospora cordifolia* (Willd.) Miers ex. Hook. (*Seenthil*), *Daemia extensa* L. (*Veliparuthi*) and *Gymnema sylvestre* (Retz.) R.Br. ex. Roemer & Schultes. (*Sirugurunjan*) is given orally for three days to cattle. Paste of *Cyperus rotundus* L. (*Koraikizhangu*) rhizome with cattle urine and cow ghee is given orally to cattle.

**Mouth blister (*Vayilratham vadithal*)**

Leaf extracts of *Adhatoda zeylanica* Medikus. (*Aadathoda*) mixed with honey is given orally to cattle for three days.

**Maggot wound (*Puluthalluthal*)**

Paste prepared from *Datura metal* L. (*Umathai*) leaves and copper sulphate (*Mayilthutham*) mixed with neem oil is applied externally on the wound of cattle. Paste of *Santalum album* L. powder and bulb of *Allium cepa* L. is applied on wound of cattle.

**Mastitis (*Madi veekam*)**

Mixture prepared from *Aloe vera* (L.) Burm f. mucilage, boiled rice and calcium carbonate in an equal quantity is fed to cow once a day. Paste prepared from leaves of *Coccinia indica* Wight & Arn. (*Kovai elai*) and *Momordica charantia* L. (*Pavai*), rhizome of *Curcuma longa* Auct. non. L. (*Manjal*) is applied on the nipple of cow. Leaf paste of *Abrus precatorius* L. (*Kundumani*) is applied externally on nipple of cow. Boiled leaf extracts of *Jatropha curcus* L. (*Kattamanakku*) and *Coccinia indica* Wight. & Arn. (*Kovaielai*) is applied on the affected area of sheep and goats to cure mastitis. Mixture prepared from seeds of *Gossypium hirsutum* L. (*Paruthi*), *Vigna unguiculata* (L.) Walp. (*Kanaipayaru*), and *Trigonella foenum-graecum* L. (*Venthayam*) soaked in water with *Cocos nucifera* L. flower is given orally to sheep and goats for three days.

**Pyrexia (*Laical*)**

Leaves of *Tylophora indica* (Burm. f.) Merr. (*Nanjaruppan*) mixed with grass is fed to cattle once a day. Whole plant of *Abrus precatorius* L. is tied around the neck of cattle by female child. Equal amount of *Allium cepa* L. bulb, fruits of *Cuminum cyminum* L. (*Seragam*) and *Piper nigrum* L. (*Milagu*) mixed with hot water is given orally to cattle.

**Paralytic disease (*Sappa noi*)**

Paste prepared from equal amount of *Piper nigrum* L. (*Milagu*) fruits, *Cardiospermum halicacabum* L. (*Mudakkathan*) whole plant, *Piper betel* L. (*Vetrilai*) leaves and *Ferula asafoetida* L. (*Perungayam*) gum is given orally to goats, and sheep three times per week or month. Infusion of *Aristolochia indica* L. root, *Piper nigrum* L. with urine of female child is given orally to cattle once a day.

**Retention of placenta (*Elangodi thankiruthal*)**

Paste prepared from whole plant of *Sesamum indicum* L. (*Ellu*) and *Borassus flabellifer* L. (*Panai*) and sugar is given orally to cattle once a day. Equal amount of sandal powder and *Allium cepa* L. bulb mixed with milk is given orally to cow to remove the retained placenta.

**Snake bite (*Pambu kadi*)**

Leaves of *Daemia extensa* L. (*Veliparuthi*), *Azima tetrachantha* Lam. (*Mulsangu elai*) and *Croton bonplandianus* Baill. (*Venapundu*) mixed with grass is fed to cattle for three days. Paste of leaves of *Ocimum basilicum* L. (*Pachalai*) and *Aristolochia indica* L. is given orally to cattle for three days.

**Scabies (*Padai*)**

Leaves of *Cassia angustifolia* Vahl. (*Surathnilavirai*) and *Ocimum basilicum* L. (*Pachalai*), *Aristolochia bracteolata* Lam. root mixed with neem oil, boiled for an hour and cooled is applied externally on the affected part of the cattle. Paste of root of *Corallocarpus epigaeus* (Rottler) C.B. Clarke. (*Kollan kovai*), *Aristolochia indica* L., fruit of *Piper nigrum* L. and bulb of *Allium cepa* L. is given orally to cattle for three days or a week. Paste prepared from equal amount of *Curcuma longa* auct. non. L. (*Manjal*) rhizome and *Leucas aspera* (Willd.) Link. (*Thumbai*) leaf mixed with neem oil is applied on the affected area of cattle. Paste prepared from root of *Corallocarpus epigaeus* (Rottler) C.B. Clarke. (*Kollankovai*), fruits of *Piper nigrum* L. and leaves of neem in an equal amount is fed orally to cattle for three days or a week. Paste of *Corallocarpus epigaeus* (Rottler) C.B. Clarke. (*Kollan kovai Kizhangu*) root, *Andrographis paniculata* (Burm.f.) Wallich ex. Nees, (*Chiryanganagai*) leaves and *Aristolochia bracteolata* Lam. (*Aduthinnapalai*) mixed with neem oil is given orally and applied externally to cattle for three days or a week.

**Sprain & Swelling (*Sulukku*)**

Cooled infusion of *Cissus quadrangularis* L. (*Pirandai*) extract, *Tamarindus indica* L. (*Puli*) fruit juice with a spoon of salt is applied on the affected area of the cattle.

**Smallpox (*Ammai*)**

Paste prepared from equal amount of *Curcuma longa* Auct. non L. (*Manjal*) rhizome and of *Azadirachta indica* A. Juss. (*Vembu*) leaves is given orally to goats and sheep for three days. Extract of *Allium cepa* L. (*Chinnavengayam*) is applied on the eyes of the hens and cocks. Rhizome powder of *Curcuma longa* L. (*Manjal*) mixed with water (10 ml) is given orally to hen and cock.

**Stillbirth (*Vayitril erantha kanru*)**

Equal quantity (50 gm) of *Ferula asafoetida* L. (*Perungayam*) powder and black salt (*Induppu*) mixed with hot water is given orally to cow for three days.

**Tympany (*Uthuvalai*)**

Whole plant of *Citrullus colocynthis* (L.) Schrader (*Kumatti*) is tied around the horns of the cattle and the same time, paste of roots of *Citrullus* sp. and *Aristolochia indica* L. (*Thalaisuruli*), *Piper betel* L. (*Vetrilai*) leaves, *Piper nigrum* L. (*Milagu*) fruits and *Ferula asafoetida* L. (*Perungayam*) burnt gum is given orally to cattle once a time. Two young fruit cotton of *Ceiba pentandra* (L.) Gaertner var. *pentandra* (*Elavam*) mixed with *Ricinus communis* L. (*Amanakku*) oil (25 ml) is given orally to cattle for three days. Infusion of *Acalypha indica* L. (*Kuppaimeni*) and *Solanum surattense* Burm.f. (*Kandakathari*) leaves, *Acorus calamus* L. (*Vasambu*) rhizome and *Allium cepa* L. bulb is given orally to cattle once a day. *Sesamum indicum* L. (*Ellu*) oil (50ml) is given orally to cattle. Gum powder (25 gm) of *Ferula asafoetida* L. (*Perungayam*) mixed with water (200 ml) is also given orally to cattle.

**Tongue disease (*Nakku pun*)**

Hot water extract of five seeds of *Pongamia glabra* Vent. (*Pungamaram*) is given orally to cattle.

**Poisonous bites (*Visakadi*)**

Paste prepared from equal amount of *Azima tetrachantha* Lam. (*Mulsangu elai*) leaves, *Piper nigrum* L. fruits, *Allium cepa* L. bulb is given orally to cattle for three days or a week (for any poisonous bites). Paste prepared from equal quantity of

*Andrographis paniculata* (Burm.f.) Wallich ex. Nees. (*Chiryangai*) leaves and *Corallocarpus epigaeus* (Rottler) C.B. Clarke. (*Kollankovai*) tuber is given orally to cattle for three days. Paste prepared from equal amount of *Azadirachta indica* A. Juss root, leaves of *Calotropis gigantea* (L.) R.Br. (*Erukku*), *Acalypha indica* L. (*Kuppaimeni*), *Ricinus communis* L. (*Amanakku*), *Madhuca longifolia* (J.Koenig) Macbr. (*Eluppai*) seed cake and urine of the affected cattle is given orally to the same cattle for three days. Leaves of *Leucas aspera* (Willd.) Link. (*Thumbai*), fruits of *Cuminum cyminum* L. (*Seeragam*), bulb of *Allium cepa* L. are chewed and forcibly spit into the eyes and ears of the affected cattle once a day. Paste prepared from equal amount of *Cassia angustifolia* Vahl. leaves and *Corallocarpus epigaeus* (Rettler) C.B. Clarke Hook.f. (*Kollan kovai*) root is given orally to cattle for three days.

#### Wart (*Maru*)

Paste of leaves of *Basella alba* L. (*Pasali*) and *Amaranthus viridis* L. (*Arakeerai*) mixed with cow ghee is applied on affected area of cattle.

#### Yoke gall (*Kaluthu kalalai*)

Paste prepared from equal amount of *Luffa acutangularis* (L.), (*Peerkai*) leaves and *Curcuma longa* Auct. non. L. (*Manjal*) rhizome is applied on affected area of bullock. *Kadalai* (*Arachis hypogea* L.) oil is applied on the swelling of bullock neck. Rhizome of *Curcuma longa* Auct. non. L. ground

with salt is applied on the bullock neck. Paste prepared from equal amount of *Curcuma longa* Auct. non. L. rhizome, *Pennisetum typhoides* (Burm.f.) Stapf. & C.E. Hubb. (*Kambu*) flour boiled *Sesamum indicum* L. (*Ellu*) oil with one tea spoon of salt is applied warmly on the neck of bullock. Leaf paste of *Coccinia indica* Wight & Arn. (*Kovai elai*) and *Tephrosia purpurea* (L.) Pers. (*Kozhunji*) is applied on the neck of the bullock.

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