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ETHNOVETERINARY MEDICINAL PLANTS PRACTICES IN DISTRICT PESHAWAR, KHYBER PAKHTUNKHWA PAKISTAN

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Abstract

The present research documents the use of ethnoveterinary medicine for curing various animal diseases. Most of the animal diseases are treated by using the local herbal medicines extracted from the plants. Survey was carried out and information was collected from the locals and farmers to identify the traditional remedies. For extraction of local knowledge about Ethnoveterinary Plants (EVPs) questionnaire method was adopted. A total of 27 animal diseases were reported, and it was concluded that diseases like milk deficiency, foot and mouth, diarrhea, worm infestation and mastitis are the most common diseases. A total of 83 plants within 44 families of which 1 species of fungi and gymnosperm and 81 species of angiosperm were identified for the treatment of various animal diseases. Most frequently plant parts used for ethnoveterinary medicine are fruit 24(28.57%), seed 18(21.42 %), leaf 15(17.85), rhizome 7(8.33), bark 6(7.14), seed oil 5(5.95), whole plant 4(4.76) root 3(3.57), stem and bulb 2(2.380) and flower 1(1.19). The most frequent administration is oral followed by dermal. Information regarding botanical sources, family, local name, part used, method of preparation and application of these crude drugs were investigated in this study. The plant material is used singly or in combination. It is noted that 34 plants were used to treat more than one disease, while 49 plants are used to cure 1 particular disease. The local inhabitants use leaves, fruits, seeds, rhizomes and bulbs for preparation of various remedies and these remedies are used orally and topically.

Keywords: Ethnoveterinary practices, Plant species, Indigenous knowledge, Peshawar, Pakistan

Introduction

District Peshawar covering an area of 1,257 km^2 (485 $mile^2$) can be located on latitudes 33° 44′ to 34° 15′ E and longitudes 71° 22′ to 71° 42′ N. District Nowshera bounding it on East, Khyber and Mohmand Agency on West, Kohat and Tribal areas adjoining Peshawar on South East and District Charsadda on North. The altitude is ranging from 358 meters to 700 meters (Tarakai). Representing a semi-arid climate the District has mild winter (November to March) and hot summer (May-September) with July being the dry and hottest month. It is noted that mean maximum and minimum temperature is 40°C (104 °F) and 25 °C (77 °F) in summer. In winter the mean minimum and maximum temperature is 4°C (39 °F) and 18.35°C (65.03 °F). The winter prevails from December to February. The summer and winter are rainy, although Peshawar is not under monsoon influence. In summer high rainfall occur in months of March and August. The winter rainfall is more than that of summer and 236 mm (9.3 inches) in February 2007 was recorded. In July 2010 about 402 mm (15.8 inches) rainfall was recorded. The overall climatic conditions are of extreme type in the entire District.

According to Mathias-Mundy & McCorkle (1989); Mishra & Patro (2010); Misra & Kumar (2004); Devendrakumar & Anbazhagan (2012); Moreki (2013) and Sindhu *et al*., (2012), the cure of animal diseases is based on local knowledge, remedies preparation and ethnoveterinary practices. As stated by Tabuti *et al*., (2003) and Njoroge & Bussmann (2006), due the low price, availability and accessibility, the ethnoveterinary medicines are frequently used in developing countries. Previous research carried out by McCorkle (1986); Tomboura *et al*., (2000); Jabbar *et al*., (2005); Maine *et al*., (2009) and Shen *et al*., (2010) shows that in rural and isolated areas of many countries ethnoveterinary medicines plays an important role in curing animal ailments due to its availability in the local area. Similarly, Khan *et al.,* (2013) reported that several weeds are good fodder that can improve the health of many animals. Mishra & Patro (2010) concluded that farmers are using EVMs as alternative of western veterinary drugs in various ways in the areas where modern medicines are not available. According to Tabuti *et al*., (2003); Monteiro *et al*., (2011) and Bilal *et al*., (2009), due to change in global climate, environment, technological development, socioeconomic, cultural change and anthropogenic activities the local knowledge of plants has been disappeared. As concluded by Tabuti *et al*., (2003), if this local knowledge is not conserved it will disappear forever. Further, the mortality and morbidity are resulting to severe economic loss to the farmers and affect the income of such groups (McGaw & Eloff, 2008).

According to Ahmad & Sher (2003), in Pakistan the rural communities are using plants both for curing their livestock and human diseases. Mainly these practices are seen in rural areas due to lack of access and availability of modern heath cares. According to Marwat *et al*., (2008), about 70% of population relies upon Unani System of medicines in our country. The botanical origin of such plants is traced in various areas including agricultural fields, forests, gardens, valleys and mountains. This system is preferred by the local due to its low cost and availability in nature.

It is estimated that 53 million people are supporting their livelihood through exploitation of livestock (Sindhu *et al.*, 2012). Pakistan has 31.8 million heads of cattle and 29 million heads of buffalo (*Bubalus bubalis*). Pakistan is among the major dairy products producing countries and 30 million tons of milk is produced annually (Anon., 2007-2008). Therefore, per animal/per day production is 2-3 liters. According to Dilshad *et al.*, (2010), poor nutritional and management practices and genetic problems are affection the milk production. Due to the high price of modern medicines, the poor farmers are unable to pay the cost and they are attracted towards the traditional medicines. Th farmers use the local plants and they consider EVM as the only cheap and easily available source for the solution of their problems (Sindhu *et al.*, 2012).

In Pakistan very little attention has been given on documentation of plants used as veterinary medicines and there is an immense need to document this knowledge (Shah *et al*., 2012). At present the valuable traditional knowledge is disappearing rapidly. Moreover the escalating cost of allopathic medicines and the problem of environmental pollution, this is the time to develop cost-effective and environment friendly medicines for animal diseases. In the study area this is the first attempt to elucidate the ethno medicinal uses of plants as veterinary medicines. There is no proper documented form of such information and they are feared to become disappeared in recent past. Therefore, the endeavor before us is to revive the traditional technologies of livestock health care management by updating documents and validate the practices for the use of farmers and veterinarians (Shah *et al*., 2012). The main objective of the present research is the documentation of ethnoveterinary knowledge regarding various plant species used by the local inhabitants of the area for curing various animal diseases and ailments. It is presumed that the present research will be a base for further studies in ethnoveterinary science, marketability and enterprises development of such valuable ethnoveterinary medicinal plants.

Materials and Methods

Regular field trips were arranged to various localities of the study area from August 2013 to January 2013 for collection of ethnoveterinary data from 30 villages of District Peshawar. The people including local healers, who regularly use the plants, provided important information regarding ethnomedicinal uses of the plants. Information obtained from more than one source has been incorporated; we took interviews, noted down and, recorded their knowledge regarding diverse uses of plants.

While noting ethnoveterinary information, every care was taken to record the local names of the plants, part used, method of drug preparation, dosage and uses. A total of 30 informants were selected for interview and their age ranging from 23 to 90 years, with age percentage 20-30= 6(20%), 30-40= 3(10%),40-50= 8(26.66%), 50-60= 6(20%),60-70= 4(13.33%),70-80= 1 (3.33%) and 80-90= 2 (6,66%). The informants were interviewed in isolation to avoid overlap and repetition of information. Some social factors like age, gender (in the present study only males were interviewed) and education were also recorded during interviews. The preparation methods of medicinal remedies, dosage and application were also collected. A questionnaire was prepared in local language for escorting the indigenous knowledge. Data about treatment of diseases, parts used method of preparation of the remedy, details of administration, dosage and any noticeable side effects were collected. These medicinal plants, as far as possible were collected, processed and dried. The plants were arranged alphabetically along with their scientific name, local name, family name and part used. The available literature i. e. Nasir & Ali (1970-1989); Ali & Nasir (1991-1993) and Ali & Qaiser (1995-2015) was consulted for identification. The voucher specimens were mounted on herbarium sheets and were deposited in Center of Plant Biodiversity/Botanical Garden (UPBG), UoP herbarium.

Results and Discussion

The inhabitants of Peshawar valley used various plants for ethnoveterinary purposes. during the present studies it is concluded that 83 taxa belonging to different plant groups i.e., (1 spice of fungi and gymnosperm each and 81 species of angiosperm) belonging to 44 families, are used for curing 27 animal diseases (Worm infestation, off feed, mastitis, diarrhea, colic, vaginal prolapsed, foot and mouth, tympney, fever and weakness etc.). These diseases were commonly observed in different animals i.e., (Goats, sheep, cows, buffalos and horses). The local inhabitants are collecting plants and their parts (flower, fruit, seed, bark, root, stem, leaf and whole plant) for extraction of various remedies for curing their animals. Most frequently plant parts use are fruit 24(28.57%), followed by seed 18(21.42 %), leaf 15(17.85), rhizome 7(8.33), bark 6(7.14), seed oil 5(5.95), whole plant 4(4.76) root 3(3.57), stem and bulb 2(2.380) and flower 1(1.19).

In majority of case oral administration was followed, although some plants are also used topically. Maize, wheat flour was mixed with plant material and oil for oral administration to the animals. Grinding was carried out and in some cases small pieces were mixed with maize or wheat flour or oil and were then provided to animals. The oil or butter was used for preparation of topical remedies. It was noted that 49 plants are used for curing 1 particular disease and 34 plants are used for treatment of more than 1 disease (Table 1). The old age and illiterate inhabitants were more knowledgeable regarding preparation and usage of the remedies. Similar plants are also used for curing some human ailments and use of plants for both human and animals is a common practice (Tabuti *et al*., 2003). It has already been reported that several plants can be used as antibacterial (Shah *et al.,* 2014). It was also noticed that people living far away from city depend totally on ethnoveterinary medicines. It is justified from this study that people are still using traditional medicine for curing animal ailments. Due to the modern medicines practices the local inhabitants are not aware but to some extent less educated people prefer traditional medicine versus vaccination. The local people are convinced from traditional medicine; however, the major constraint/limitation is the preparation of drugs and the availability of ingredient, as medicinal plants are rare and less explored, due to lack of any facility to evaluate their pharmacological/medicinal properties. Very little work has carried out on traditional medicine practices for livestock ailments by the local communities, which has jeopardized the importance of plants used for various animal ailments.

It was also revealed from the present research that along with local healer, ever elderly person in a particular area had experience in use and preparation of remedies. These remedies are used for worm infestation, off feed, mastitis, diarrhea, colic, vaginal prolapsed, foot and mouth, tympney, fever and weakness etc. The young age people are less knowledgeable regarding local usage of plants, although they believe in use of local plants and their importance. Majority of people prefer consultation with local healers and experts for treatment of their livestock. They believe that the effectiveness of the plants is related to the exact nature of animal diseases. The main problem/difficulty regarding ethnoveterinary medicine was to extract knowledge base, due to the fact that local herbal healer pass little information to the coming generation regarding medicinal plants, even to the family members.

Table 1. Presenting diverse information regarding scientific, vernacular names, part use and uses of ethnoveterinary plants.

S #	Scientific name/Family	Vern. name	Uses	Parts use
Fungi				
1.	**Agaricaceae**			
	Agaricus campestris L.	Mushroom	Milk fever	Whole plant
Gymnosperm				
2.	**Pinaceae**			
	Cedrus deodara (Roxb. ex D. Don) G. Don	Ranzra /Deodar	Worm infestation and off feed	Oil
Angiosperm				
Monocotyledonous				
3	**Alliaceae**			
	Allium cepa L.	Piaz	Mastitis, diarrhea, colic and vaginal prolapse	Bulb
	Allium sativum L.	Lahsun	Mastitis, off feeding, foot and mouth	Bulb
4.	**Araceae**			
	Acorus calamus L.	Sweet flag	Colic, black quarter, gutoo, increase milk	Rhizome
5.	**Poaceae**			
	Cymbopogon citrates (DC.) Stapf	Limon grass	Hepatitis	Leaf
	Hordium vulgare L.	Warbashae	Weakness	Seed
	Oryza sativa L.	Chawal	Diarrhea	Seed
	Sorghum halepensis (L.) Pers.	Dadum	Ecto parasites	Rhizome
	Saccharum officinarum L.	Cane/Ghanna	Hepatitis, Babesiosis	Stem
	Saccharum spontaneum L.	Shalghashay	Retain placenta	Rhizome
	Triticum aestivum L.	Ghanum	Weakness	Seed
	Zea mays L.	Jwar	Dietary diarrhea, weakness, diarrhea and pneumonia	Seed
6.	**Zingiberaceae**			
	Curcuma longa L.	Koorkaman	Vaginal prolapse and external injury	Rhizome
	Elettaria cardemum Maton	SabazLachi	Weakness and babesiosis	Fruit
	Zingiber officinale Roscoe	Sund	Mastitis, coughing, tympney, babessiosis, fever and off feeding	Rhizome
Dicotyledonous				
7.	**Amaranthaceae**			
	Beta vulgaris L.	Chakandar	Increase milk	Root
8.	**Anacardiaceae**			
	Mangifera indica L.	Aam	Diarrhea	Seed
9.	**Apiaceae**			
	Anethum graveolens L.	Soowa	Tympeny	Seed
	Amomum subulatum Roxb.	Toor elachi	Mastitis, tympney, fever and weakness	Fruit
	Bonium persicum (Boiss.) Fedtsch.	Kala zeera	Mastitus	Fruit
	Carum carvi L.	Zeera	Foot and mouth, tympney and gas	Seed
	Coriandrum sativum L.	Dhania	Foot and mouth	Fruit
	Foeniculum vulgare Mill.	Saunf	Mastitus, hepatitis, off feeding and constipation	Seed
	Trachyspermum ammi (L.) Sprague	Ajwain	Tympney, off feeding, colic, pneumonia, fever, constipation and gas	Fruit
10.	**Berberidaceae**			
	Berberis lycium Royle	Ziar largay	Coughing	Bark

Table 1. (Cont'd).

S #	Scientific name/Family	Vern. name	Uses	Parts use
11	**Brassicaceae**			
	Brassica campestris L.	Sharsham	Off feeding, foot and mouth, dietary diarrhea, and blood in milk	Oil
	Eruca sativa (Miller.) Thell.	Jamama	Tympney and off feeding	Oil
	Lepidium sativum L.	Halam/Alam	Tympeny, fever, subnormal temperature, weakness and off feeding	Seed
	Sisymbrium irio L.	Khhobi kalan	Weakness and hepatitis	Seed
	Raphanus sativus L.	Mooli	Hepatitis	Root
12.	**Caesalpinaceae**			
	Cassia fistula L.	Landais/Amaltas	Colic	Fruit
13.	**Canabaceae**			
	Cannabis sativa L.	Bang	Off feeding	Seed
14.	**Convolvulaceae**			
	Convolvulus arvensis L.	Prevatay	Increase milk	Whole plant
15.	**Cucurbitaceae**			
	Citrullus colocynthis (L.) Schard.	Tarkha indwana	Colic	Fruit
	Citrullus vulgaris Schard.	Hadwana	Hepatitis	Fruit
	Cucrbita pepo L.	Kadoo	Vaginal prolapsed	Fruit
16.	**Euphorbiaceae**			
	Mallilotus phillipensis (Lam.) Muell.	Kambela	Worm infestation	Fruit
17.	**Fumariaceae**			
	Fumaria indica Pugsley	Shahtara	Mastitis	Whole plant
18.	**Juglandaceae**			
	Juglan regia L.	Ghuzz	Pneumonia/ Fainting	Bark
19.	**Laminaceae**			
	Mentha longifolia L.	Welany	Off feeding	Leaf
20.	**Lauraceae**			
	Cinnamomum zeylanicum Nees.	Dar cheeni	Weakness	Fruit
21.	**Liliaceae**			
	Polygonatum verticillatum (L.) All.	Noor Alam	Increase milk	Rhizome
22.	**Linaceae**			
	Linum usitatissimum L.	Alsi	Coughing and weakness	Seed
23.	**Malvaceae**			
	Gossypium indicum Lam.	Poomba	Coughing, retain of placenta, pneumonia and fainting	Fruit, Root
	Hibiscus rosa-sinensis L.	Gull Toot	Increase milk	Leaf
24.	**Meliaceae**			
	Azadirachta indica A. Juss.	Neem	Blood in milk	Fruit
	Melia azadarach L.	Shanday	Constipation and blot	Leaf
25.	**Moeaceae**			
	Ficus carica L.	Injeer	Retain placenta	Bark
	Morus alba L.	Toot	Constipation	Leaf
	Morus nigra L.	Toor toot	Coughing	Fruit
26.	**Musaceae**			
	Musa paradisiaca L.	Keela	Retain placenta	Stem juice
27.	**Myristicaceae**			
	Myristica fragrans Houtt.	Zeayfal	Colic	Fruit/ leaf
28.	**Myrtaceae**			
	Myrtus communis L.	Hina	Blood in milk	Leaf

Table 1. (Cont'd).

S #	Scientific name/Family	Vern. name	Uses	Parts use
29.	**Oleaceae**			
	Olea europaea L.	Zeytoon	Colic	Oil
30.	**Papaveraceae**			
	Papaver somniferum L.	Doda	Vaginal prolapsed	Fruit
31.	**Papilionaceae**			
	Cicer arietinum L.	Channa	Weakness	Seed
	Dalbergia sissoo Roxb. ex DC.	Shawa	Hepatitis and constipation	Leaf
	Glycyrrhiza glabra L.	Khwagawali	Coughing and off feeding	Rhizome
	Lens culinaris Medic.	Masoor	Retention of placenta	Seed
	Trigonella foenum-graecum L.	Malkhoozi	Tympeny, off feeding and dietary diarrhea	Seed
32.	**Pedaliaceae**			
	Sesemum indicum L.	Konzali	Vaginal prolapse	Oil
33.	**Piperaceae**			
	Piper belto L.	Paan	Coughing	Leaf
	Piper nigrum L.	Tor mrach	Mastitis, coughing andgas	Seed
34.	**Platanaceae**			
	Platanus orientalis L.	Chenaar	Coughing	Bark
35.	**Plantaginaceae**			
	Plantago ovata Forssk.	Saat	Mastitis	Seed
36.	**Punicacae**			
	Punica granatum L.	Anar	Diarrhea and dietary diarrhea	Bark/peel
37.	**Rosaceae**			
	Prunus persica (L.) Batsch	Shaftalo	Worm infestation	Leaf
	Rosa damascenea Mill.	Gull Qand	Vaginal prolepses	Flower
38.	**Rutaceae**			
	Citrus limon (L.) Osbeck	Limon	Mastitis	Fruit
	Citrus medica L.	Narang	Blot	Fruit
	Zanthoxylum armatum DC.	Dambara	Gas	Fruit
39.	**Solanaceae**			
	Capsicum annum L.	Mirch	Mastitis and off feeding	Fruit
	Capsicum frutescens L.	Sur mirch	Foot and mouth and colic	Fruit
	Nicotiana rustica Comes	Naswar	External injury	Leaf
	Nicotiana tabacum L.	Tambacoo	External injury and colic	Leaf
	Solanum surattense Burm.f.	Maraghooni	Colic and worm infestation	Fruit
	Withania somnifera (L.) Dunal	Kootilal	Off feeding	Fruit
40.	**Tamaricaceae**			
	Tamarix aphylla (L.) Lanza	Ghazz	Dietary diarrhea and milky fever	Leaf and Bark
41.	**Theaceae**			
	Camellia sinensis (L.) Kuntze	Chey	Tympney, coughing, subnormal, fever, temperature, colic, abscess and black quarter	Leaf
42.	**Violaceae**			
	Viola biflora L.	Banosha	Vaginal prolapse	Leaf
43.	**Vitaceae**			
	Vitis vinifera L.	Kishmish	External injury	Fruit
44.	**Zygophyllaceae**			
	Peganum harmala L.	Spelani	Subnormal temperature	Seed
	Tribulus terrestris L.	Azghakay	Dietary diarrhea	Whole plant

INFORMATION ON PLANTS USED AS THE TRADITIONAL VETERINARY MEDICINES IN THE DISTRICT PESHAWAR

Disease No. 1= Abscess

Treatment
Materials: *Camellia sinensis* = ½ kg, Salt = 75 gram and Ghee=250 gram
Preparation: All the ingredients are mixed in water. Half of the preparation is given to the cattle in morning and other half in the evening for rapid cure of abscess of animal.

Disease No. 2=Babessiosis

Treatment
Materials: *Zingiber officinale*= ¼ kg, *Elettaria cardmom*= 65 gram and *Saccharum officinarum* juice = 2 kg
Preparation: The above ingredients are mixed in sugarcane juice and are given orally.

Disease No. 3= Black Quarter

Treatment
Materials: *Acorus calamus* = 125 gram, *Camellia sinensis* =250 gram and Ponstan tablets =3-4
Preparation: Ground dried tea and rhizome of *Acorus* to make powder mixed with 3-4 Ponstan tablets and 5 teaspoons of this powder is administered orally.

Disease No. 4= Blood in Milk

Treatment
Materials: *Azadirachta indica* = ½ kg, *Myrtus communis* = ½ kg, *Brassica campestris*= 1 kg, Butter= 1kg and Glucose = 1 kg
Preparation: All the ingredients are mixed in *Brassica* oil and a paste is prepared. The paste is administered orally.

Disease No. 5= Blot

Treatment
Material: *Citrus medica* = ½ kg and *Melia azadarach* = 1kg
Preparation: *Melia* leaves or *Citrus medica* fruit is given.

Disease No. 6= Constipation

Treatment-1
Materials: *Foeniculum vulgar*= 125 gram, *Trachyspermum ammi*= 125 gram and Soda = ¼ kg
Preparation: All the ingredients are mixed and the mixture is given two times a day for week period to the cattle.

Treatment-2
Materials: *Dalbergia sissoo*= ½ kg, *Morus alba* = ½ kg and *Melia azadarach*= ½ kg
Preparation: Leaves of *Morus*, *Dalbergia* and *Melia* are boiled in 5 liters of water for 1 hour and filtered through a muslin cloth. ½liter of preparation is given to the cattle orally in the morning and ½liter in the evening for 4-6 days.

Disease No. 7= Colic

Treatment-1
Materials: *Olea europaea*= ½ kg
Preparation: Drench ¼ kg olive oil orally to goats and sheep.

Treatment-2
Materials: *Nicotiana tabacum*= 125 gram, *Camellia sinensis* = 65 gram, *Cassia fistula*= 125 gram, *Trachyspermum ammi*= 65 gram and *Allium cepa* = 2 bulbs
Preparation: All the ingredients are mixed and boiled in water for 30 minutes. The decoction is administered orally to the cattle two times a day for 2 to 3 days.

Treatment-3
Materials: *Acorus calamus*= 125 gram, *Myristica fragrans*= 65 gram, *Citrullus colocynthis*= 3-5 fruits and Ghee = ½ kg
Preparation: All ingredients are mixed in ghee to prepare a paste and given orally to the cattle 3 times a day for 3-4 days.

Treatment-4
Materials: *Solanum surattense*= 20-25 fruits, *Capsicum Frutescens*= ¼ kg and Water = 1 Liter
Preparation: Crush *Solanum* and *Capsicum* fruit and then boiled in water. Half of the preparation is drenched to horse twice time a day.

Disease No. 8= Coughing

Treatment-1
Materials: Egg = 6, *Zingiber officinale* = ¼ kg, *Piper nigrum* = 125 gram, *Linum ussititissimum*= ¼ kg and Raw sugar = 1 kg
Preparation: All the ingredients are mixed in raw sugar. The mixture is given to the cattle one time a day for a period of 3-4 days.

Treatment-2
Materials: *Piper belto* = ¼ kg, *Berberis lycium* = 125 gram and *Platanus orientalis* = 65 gram
Preparation: All ingredients are crushed to make powder and mixed in 1 kg water. ¼ kg decoction is given orally for 4 days.

Treatment-3
Materials: *Gossypium indicum* = 125 gram, *Glycyrrhiza glabra*= ¼ kg, *Camellia sinensis*= 125 gram and Raw sugar = ½ kg
Preparation: The above ingredients are mixed in raw sugar and prepared a paste. The paste is administered orally for duration of one week.

Treatment-4
Material: *Morus nigra* = ½ kg
Preparation: 65 gram *Morus* fruit is given orally two times a day.

Disease No. 9= Diarrhea

Treatment-1
Materials: *Mangifera indica*= 125 gram and *Punica granatum*= 125 gram
Preparation: Crush bark of *Punica* and seed of mango to make powder. The powder is mixed in flour of maize and paste is prepared. The paste is administered orally twice a day for 4 days.

Treatment-2
Materials: *Allium cepa* = 250 gram and Ghee = ½ kg
Preparation: Cook cut onion in ghee and is then given to the suffering animal.

Treatment-3
Materials: *Oryza sativa* = ½ kg, Raw sugar = ¼ kg and Salt = 1 teaspoon
Preparation: Boiled rice is mixed in raw sugar and the paste is given orally a day for 3-5 days.

Disease No. 10= Dietary Diarrhea

Treatment-1
Materials: *Punica granatum* = 125 gram and *Tamarix aphylla* = ¼ kg
Preparation: Crushed bark of *Tamarix* and peel of *Punica* into powder. The powder is then mixed in water and decoction is given orally 2 times a day for 3-4 days.

Treatment-2
Materials: *Tribulus terrestris* = 250 gram, *Trigonella foenum-graecum* = 125 gram and *Brassica campestris* oil = ½ kg
Preparation: Grind whole plant of *Tribulus* to make powder, add *Trigonella* and mixed in oil. The decoction is given orally in the morning for 3 days.

Disease No. 11= Ecto Parasites

Treatment
Material: *Sorghum halepensis* = 0.5 kg
Preparation: Grind roots of *Sorghum*. 0.25 kg powders are mixed in 1 kg of water and wash the affected animal with this preparation.

Disease No. 12= Fever

Treatment-1
Materials: *Zingiber officinale*= 125 gram, *Lepidium sativum* = ¼ kg, *Trachyspermum ammi*= 125 gram and Raw sugar= ½ kg
Preparation: Mixed all the above ingredients in raw sugar and paste is prepared. The paste is administered two times a day for 2-4 days.

Treatment-2
Materials: *Zingiber officinale*= 125 gram, *Amomum subulatum*= ¼ kg, *Camellia sinensis* = 125 gram and Raw sugar= ½ kg
Preparation: All the ingredients are mixed and the mixture is administered 2 times a day for a period of 3 days.

Disease No. 13= Foot and Mouth

Treatment-1
Materials: *Brassica campestris* = 250 gram and water ½ Liter
Preparation: Mustard oil is mixed in water and drenched to the cattle.

Treatment-2
Materials: *Capsicum frutescens*= 60 gram, *Allium sativum*= 3-5, *Carum carvi* = 125 gram and Salt = 1 teaspoon
Preparation: Mix the whole ingredients in wheat flour and the mixture is given two times a day for 2-4 day.

Disease No. 14= Gas

Treatment-1
Materials: *Zanthoxylum armatum*= 250 gram, *Trachyspermum ammi*= 125 gram, *Carum carvi* = 125 gram, *Piper nigrum* = 125 gram and Soda = 250 gram
Preparation: All the ingredients are mixed and a paste is prepared. The paste is administered orally to the cattle 2 times a day for 2 to 3 days.

Disease No. 15= Hepatitis

Treatment-1
Materials: *Citrullus vulgaris* = 10 kg
Preparation: Daily 5-10kg watermelon is given for 1 week.

Treatment-2
Material: *Raphanus sativus* = 5 (Five number)
Preparation: 5-6 reddish are given

Treatment-3
Material: *Cymbopogon citrates* =6-7 kg
Preparation: Lemon grass leaves are crushed. Mixed with animal feed and are then given to animal.

Treatment-4
Materials: *Saccharum officinarum* = 10 kg
Preparation: 5kg juice of the plant is extracted and given to the cattle.

Treatment-5
Materials: *Dalbergia sissoo* = ½ kg, *Sisymbrium irio*= ¼ kg and Water = 1 Liter
Preparation: *Dalbergia* leaves are boiled in water for 30-40 minutes and filtered through thin piece of cloth. Mix *Sisymbrium irio* and drench orally twice a day for a week.

Disease No. 16= Increase Milk

Treatment-1
Materials: *Acorus calamus*= 125 gram, *Convolvulus arvensis*= 75 gram, *Hibiscus rosa-sinensis*= 75 gram and *Polygonatum verticillatum*= 125 gram
Preparation: A galactogenic mixture is made with the crushed leaf of *Hibiscus, Convolvulus* and rhizome of *Acorus*, Nooralam and given to the cattle every morning and evening once in a week.

Treatment-2
Materials: *Beta vulgaris*= 1-2 kg
Preparation: Crushed rhizome of *Beta vulgaris*. Mixed with animal feed and is then given to animal for increase of milk yield.

Disease No. 17= Milk Fever

Treatment-1
Material: *Agaricus campestris*
Preparation: After delivery 2 kg mushroom are administered to the sheep and goats.

Treatment-2
Materials: *Tamarix aphylla* = 125 gram and Raw sugar = 250 gram
Preparation: The bark of *Tamarix* is crushed and the powder is mixed in raw sugar. The mixture is given orally to the cattle 3-4 time a day to get relief from milk fever.

Disease No. 18= Mastitus

Treatment-1
Materials: Eggs = 2, Salt = 3 teaspoon, *Capsicum annum* = 125 gram, *Bonium persicum* = 250 gram, *Fumaria indica* = 125 gram, *Allium cepa* = ¼ kg, *Allium sativum* =10-15 and *Piper nigrum* = 125 gram
Preparation: All the ingredients are mixed with wheat flour and prepared a paste. The paste is administered orally to the cattle two times a day.

Treatment-2
Materials: *Citrus limon*= ½ kg, *Plantago ovate* = ¼ kg, *Zingiber officinale* = 125 gram, *Amomum subulatum* = 65 gram and Ghee = 1kg
Preparation: All the ingredients are boiled in ghee. Half of the preparation is given to the cattle in the morning and other half in the evening for a period of 2-4 days.

Disease No. 19= Off Feeding

Treatment-1
Materials: *Cedrus deodara*= ¼ kg
Preparation: *Cedrus* oil is drenched orally.

Treatment-2
Materials: *Zingiber officinale* = ¼ kg, *Withania somnifera*= 125 gram, *Cannabis sativa*= ¼ kg, *Glycyrrhiza glabra*= 125 gram and *Mentha longifolia*= 125 gram
Preparation: All ingredients are mixed with wheat flour and administered orally two times a day for 2-9 days.

Treatment-3
Materials: *Lepidium sativum* = 125 gram, *Capsicum annum*= 10 fruits, *Allium sativum*= 2 bulb, *Foeniculum vulgare*= 125 gram, *Trachyspermum ammi*= 65 gram and *Trigonella foenum-graecum*= 65 gram
Preparation: All the ingredients are mixed with wheat flour and are given orally to the cattle in the evening for 2 days.

Treatment-4
Materials: *Eruca sativa* oil = ½ kg and *Brassica campestris* oil = ½ kg
Preparation: Jamama and brassica oil are drench the cattle 2 days in a week.

Disease No. 20= Pneumonia/Fainting

Treatment 1
Materials: *Juglan regia*= 250 gram, *Trachyspermum ammi*= 250 gram and Water = 1Liter
Preparation: Bark of *Juglan* and *Trachyspermum* fruit are boiled in water. Half of the preparation is drenched to the cattle in the morning and in the evening for 3 days.

Treatment-2
Materials: *Gossypium indicum*= 1 kg, Eggs = 6 and Ghee = 1kg
Preparation: Are mixed and the mixture is given orally two times a day.

Treatment-3
Material: *Zea mays* = 250 gram
Preparation: Maize flour is mixed in water and given to the infected animal.

Disease No. 21= Retain of Placenta

Treatment-1
Materials: *Saccharum spontaneum*= 125 gram, *Ficus carica*= 250 gram and *Gossypium indicum*= 125 gram
Preparation: The dried material is grounded to powder and4-5 teaspoon full of this powder is orally administered two times for early discharge of placenta.

Treatment-2
Material: *Lens culinaris*= 250 gram
Preparation: Lentil is boiled in water and given to the cattle after the delivery to the early removal of placenta.

Treatment-3
Material: *Musa paradisiaca*= 125 gram
Preparation: Juice of plant is extracted and given to the cattle for early discharge of placenta.

Disease No. 22= Subnormal Temperature

Treatment
Materials: *Camellia sinensis =65 gram, Lepidium sativum* = 65 gram, *Peganum harmala* = 65 gram, Paracetamol tablets = 4-5 tab, Raw sugar = ¼ kg and water = 1 kg
Preparation: All the ingredients are mixed and boiled in water and administered orally to the cattle 2 times a day for 2 days to get relief from fever.

Disease No. 23= Tympney

Treatment-1
Materials: *Camellia sinensis* = 125 gram, *Amomum subulatum* = ¼ kg, *Eruca sativa* oil = 1 kg, *Lepidium sativum* = 125 gram

Preparation: All ingredients are poured in to oil and gentleheat is given for 20-30 minutes. The decoction is administered orally 2 times a day.

Treatment-2
Materials: *Zingiber officinale* = 125 gram, *Trachyspermum ammi* = ¼ kg, *Carum carvi* = 65 gram, *Anethum graveolens* = ¼ kg, *Trigonella foenum-graecum* = 125 gram, *Lepidium sativum* = ¼ KG and Wheat flour = 1 kg
Preparation: All are mixed with wheat flour and prepared a paste. The paste is given orally 2 times a day for duration of one week.

Disease No. 24= Vaginal Prolapse

Treatment-1
Materials: *Allium cepa*=125 gram, *Papaver somniferum*= 250 gram and *Rosa damascene*=250 gram
Preparation: The ingredients are boiled in water and the decoction is given orally two times a day for a period of 1-2 days in a week for 2 month.

Treatment-2
Materials: *Viola biflora*= 250 gram, *Curcuma longa*= 125 gram, *Sesemum indicum*= 125 gram and *Cucrbita pepo* = ½ kg
Preparation: Boiled *pepo* is mixed and the mixture is given to the animal which is suffered for prolapsed till the delivery.

Disease No. 25 = Weakness /Weak Animal

Treatment-1
Materials: *Linum usitatissimum* = ¼ kg, *Lepidium sativum*= ¼ kg, *Sisymbrium irio*= 250 gram, *Cinnamomum zeylanicum* = 125 gram, *Amomum subulatum*= 125 gram and *Ghee*= ½ kg
Preparation: All the ingredients are mixedand boiled in ghee. The decoction is given orally 3 times a day for two days in a week.

Treatment-2
Materials: *Cicer arietinum*= ½ kg, *Hordium vulgare*= ½ kg, *Triticum aestivum*= ½ kg*and Zea mays*= ½ kg
Preparation: In summer season 250 gram of wheat and maize are mixed and in winter season 250 gram *Hordium vulgare* and *Cicer arietinum* are given to goats and sheep for two days in a week.

Disease No. 26= Worm Infestation

Treatment-1
Materials: *Solanum surattense*= 8-10 seed and *Mallilotus phillipensis* = 500 gram
Preparation: Seeds of *Solanum* and *Mallilotus* are grinded and mixed with wheat floor. 3 table spoons full of this powder is orally given twice a day for 1 week to kill and removed intestinal worm.

Treatment-2
Material: *Prunus persica*
Preparation: *Prunus* leaves are used as a fodder for removal of intestinal worm.

Treatmeent-3
Material: *Cedrus deodara*= 125 gram
Preparation: *Cedrus* oil is drenched orally.

Disease No. 27=Wound

Treatment-1
Material: *Curcuma longa* =75 gram and *Vitis vinifera* =125 gram
Preparation: *Curcuma* and *Vitis* are grinded into powder and applied on the wound.

Treatment-2
Material: *Nicotiana rustica* = 125 gram and *Nicotiana tabacum* =125 gram
Preparation: *Nicotiana rustica* and *Nicotiana tabacum* are mixed in equal concentration and applied on the wound.

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