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Indigenous practice of herbal plants on animals by tribal dwellers of Garudeshwar and Nandod Taluka of Narmada district, Gujarat

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Abstract
Ethnobotany is highly spread all over the world. The main aim of ethnobotanists to collect the indigenous knowledge of culture, tradition, manages of tribal people. Animal and humans have been associated with plants since immemorial time. Folk medicine is used in the various kind of treatment of animal and human diseases. Here the paper represents the ethnic value of indigenous plants used by tribal as ethnomedicine for animals. Ethnoveterinary indicates the value of plants which is used in the various kinds of animal diseases. The study of Ethnoveterinary represents a total number of 25 plant species with 20 families belonging Acanthaceae, Anacardiaceae, Annonaceae, Apiaceae, Arecaceae, Bombacaceae, Caesalpiniaceae, Combretaceae, Euphorbiaceae, Fabaceae, Gentianaceae, Lamiaceae, Lauraceae, Lecythidaceae, Lythraceae, Meliaceae, Moraceae, Oxalidaceae, Poaceae and Zingiberaceae were found to cure a different kind of animal diseases. Details of indigenous herbal plant uses are listed below.

Keywords: ethnoveterinary, medicinal plants, tribal people and culture, Narmada district

Introduction
The Ethnoveterinary word was defined by Mc Corkle, "Proper systematic analysis of theory, practice and indigenous knowledge of veterinary." [1] The practice of treating traditional medicinal plants related to animal health is called Ethnovaterinary [2]. An Ethnovaterinary practice is used by traditional dwellers from ancient times in India. The indigenous knowledge of plants is carried out by word of mouth; herbal remedies are carried out by the text manuscript and implement of practices on diseases [3]. Animal husbandry developed very well during the Rig Veda period in which the cow was considered as Kamadhenu and considered as the best asset of humanity. The 'Atharva-Veda' provides interesting information about the diseases of human cows and horses and herbal medicine. The oldest literature of veterinary medicine in Ayurveda is 'Asvayurvedasiddhanta' (Complete Ayurveda of the horse) [4]. During a long period and due to a mistake and monitoring local animal health care practices have developed in the tribes and villages [5]. Ethno Medicine for animal health care is offered at a lower cost compared to allopathic medicine. According to the WHO, 80% of the people of our fast new developing country mostly all depends on the use of indigenous herbs as medicine for diagnosing various diseases of animals and humans [6, 8]. Cave dwellers in ancient times treated animals using traditional veterinary medicine. But it was only properly recorded in recent times. The knowledge of the use of plants was stored in their memory by the tribal people and then that information is passed down by them from one generation to next generation. Farmers and pastoralists have a wealth of knowledge about these traditional medicines and they have very in-depth knowledge about this and their environment. They have been using herbal plants for animal diseases for centuries and even today most of the tribal areas of the world still use medicinal plants for diagnosing animal diseases [9]. Valuable knowledge about this practice is rapidly disappearing from its facts and interest in understanding the fact and documenting the method began worldwide in the early 1980s and has now recently been a focus on its study in India and other developing countries [10]. The use of ethnoveterinary medicine is gradually declining with the use of modern medicine. Although these drugs have been applied by pharmacy remedies, the costs are undesirable and contribute to the sustainability of other factors allied with the veterinary system, but the traditional and used cultures used to treat animals are declining with environmental degradation [11]. Ethnoveterinary systems are as distinctive as ecosystems and ethnic communities because their characteristics are different in each society, individual and region. Now, however, due to rapid socio-economic environmental and technological changes, it is facing the threat of rapid extinction [12]. Today's veterinary medicine has become very plausible all over the world as the primary factor of primary health care as it has been very blessed for the poor communities. The best reason to use traditional methods for the treatment of veterinary diseases is because of the cost-effectiveness of the development technology, no side effects and lack of accessibility to modern facilities and treatments [13]. The study of medicinal plants used by people has not yet been reported in many areas. Their knowledge is based only on data which makes a very important contribution to the health of animals as the tribal people in the rural area are not highly educated. So if we can collect plant information from the locals and get the experiences of farmers and pastoralists, it will prove to be very valuable [14].

Methodology
Study area
Narmada district is the prefectorial District of Gujarat State. The main headquarter of this district is located in Rajpipla.

Rajpipla is the main urban area of this district. This district is bounded by Vadodara District in the north, Tapi District in the south, the Bharuch District in the West and Maharashtra state in the east. The longitude and latitude of this state are 21º52'14" N and 73º30'10"E. This district has five taluka Sagbara, Dediyapada, Nandod, Garudeshwar and Tilakvada. Satpura range is located in Nandod Taluka. Vegetation of this district is fulfilling by River Karjan and Narmada. It has a dry deciduous forest.

Data Collection

Present work indicates that the collection of plant specimens was obtained from the study area by field trips. [15, 18] Information of indigenous herbal plants useful for veterinary medicine was collected from tribal people, farmers, animal breeders, vaidhya, ojhas, local medicine men, physicians by visiting different areas during the field. [19] The plant specimen was collected with their flower and fruiting for taxonomical identification with the help of standard Gujarat flora [20, 21].

Result

The study of Ethnoveterinary represents a total number of 25 plants with 20 families in different kinds of animal diseases. Representative families are arranged alphabetically as Acanthaceae, Anacardiaceae, Annonaceae, Apiaceae, Arecaceae, Bombacaceae, Caesalpiniaceae, Combretaceae, Euphorbiaceae, Fabaceae, Gentianaceae, Lamiaceae, Lauraceae, Lecythidaceae, Lythraceae, Meliaceae, Moraceae, Oxalidaceae, Poaceae, and Zingiberaceae. Different parts of plants like root, stem, leaf, bark, fruits, seed and latex, etc are used as herbal remedies by tribal people for different kinds of animal diseases. Enumeration of indigenous herbal plant uses is listed below.

Table 1: Details of indigenous ethnomedicine listed below

No	Family	Botanical Name	Local Name	Useful Part	Ethno Medicine
1	Amaranthaceae	*Achyranthes aspera*	Andhedi	Root	When some part of an animal becomes rotten or infested, its root is tied in the neck with a string.
2	Anacardiaceae	*Mangifera indica*	Aambo	Leaves	In animals, its leaves are fed when the foetal sac does not fall off soon after delivery.
3	Annonaceae	*Annona squamosa*	Anasdu	Leaves	Leaf paste is applied on the cutting part of horns for infection.
4	Apiaceae	*Coriandrum sativum*	Dhana	Leaves	In animals, the leaves are fed when the milk fills in the skin front of the breast after delivery.
5	Apiaceae	*Daucus carota*	Gajar	Root	Boiling the roots and feeding them to the cattle increases the milk.
6	Arecaceae	*Cocos nucifera*	Naliyer	Fruit	To give more milk to the cattle, the dry fruit grate and fed to the cattle.
7	Bombacaceae	*Adansonia digitata*	Vihor Amlo	Bark	If the animal foetus does not conceive, the juice of bark is given in the morning. Bark powder is applied over deep wounds for healing.
8	Caesalpiniaceae	*Ceasalpinia crista*	Kanchaka	Leaves	The leaf juice is given to the animals for diarrhoea.
9	Caesalpiniaceae	*Cassia tora*	Kuvandiyu	Root	When the baby is not out soon at the time of delivery, its roots are tied to the horns or legs. Root juice is given for abdominal pain.
10	Combretaceae	*Terminalia arjuna*	Safed sadad	Bark	When cattle have abdominal pain, crushed bark soak in the water and given to the morning.
11	Cuscutaceae	*Cuscuta reflexa*	Amarvel	Stem	Crushed stem soaked in the water and given to the bird and poultry for fever.
12	Euphorbiaceae	*Euphorbia neriifolia*	Thor	Stem	Fumes of stems are used to remove insects from cattle.
12	Fabaceae	*Butea monosperma*	Khakharo	Root	When a bone is broken in animals, the paste of roots and bark is bound over it.
14	Fabaceae	*Vigna aconitifolia*	Math	Entire plant	This plant is fed if the animal foetus does not conceive.
15	Gentianaceae	*Enicostema axillare*	Kadavi nai	Leaves	When the cattle are not grazing, the leaves are crushed and soak at night and given in the morning. Leaf juice is given in the morning for worm infestation.
16	Lamiaceae	*Ocimum canum*	Damaro	Seed	If the animal foetus does not conceive, the seed powder and seeds are soaked in water at night and given an empty stomach in the morning.
17	Lecythidaceae	*Careya arborea*	Gul mahudo	Bark	For compressed veins, the bark is boiled in water and its warm water pours on the compressed parts through cotton or jute clothes.
18	Lythraceae	*Lawsonia inermis*	Mendi	Leaves	For the burst of carbuncle, the leaves paste to apply over it.
19	Meliaceae	*Azadirachta indica*	Limbado	Leaves	Paste of leaves and cumin is given during the stomach swollen.
20	Meliaceae	*Melia azadirach*	Mani limbadi	Leaves	When diarrhoea and urination stopped, the leaf juice is given for drunk.
21	Moraceae	*Ficus racemosa*	Goolar	Seed	Dry seeds feeding to the cattle to increase the milk and calcium.
22	Oxalidaceae	*Biophytum sensitivum*	Lajamani	Entire plant	When the poultry gets sick, the crushed plant dipped in water and drunk in the morning.
23	Poaceae	*Sorghum vulgare*	Jowar	Seed	Boiling the seeds and feeding them to the cattle increases the milk fat.
24	Poaceae	*Saccharum officinarum*	Sherdi	Stem	Feeding cattle the black part of jaggery made from sugarcane increase milk production.
25	Zingiberaceae	*Curcuma longa*	Haldar	Stem	Turmeric with salt mixes with coriander leaf and rubbed on the tongue for psoriasis.

Table 2: Parts of plants Used as medicine are listed below the table

Part of Plant	Entire Plant	Root	Stem	Bark	Leaf	Fruit	Seed
Number	2	4	4	3	8	1	3
Percentage	8%	16%	16%	12%	32%	4%	12%

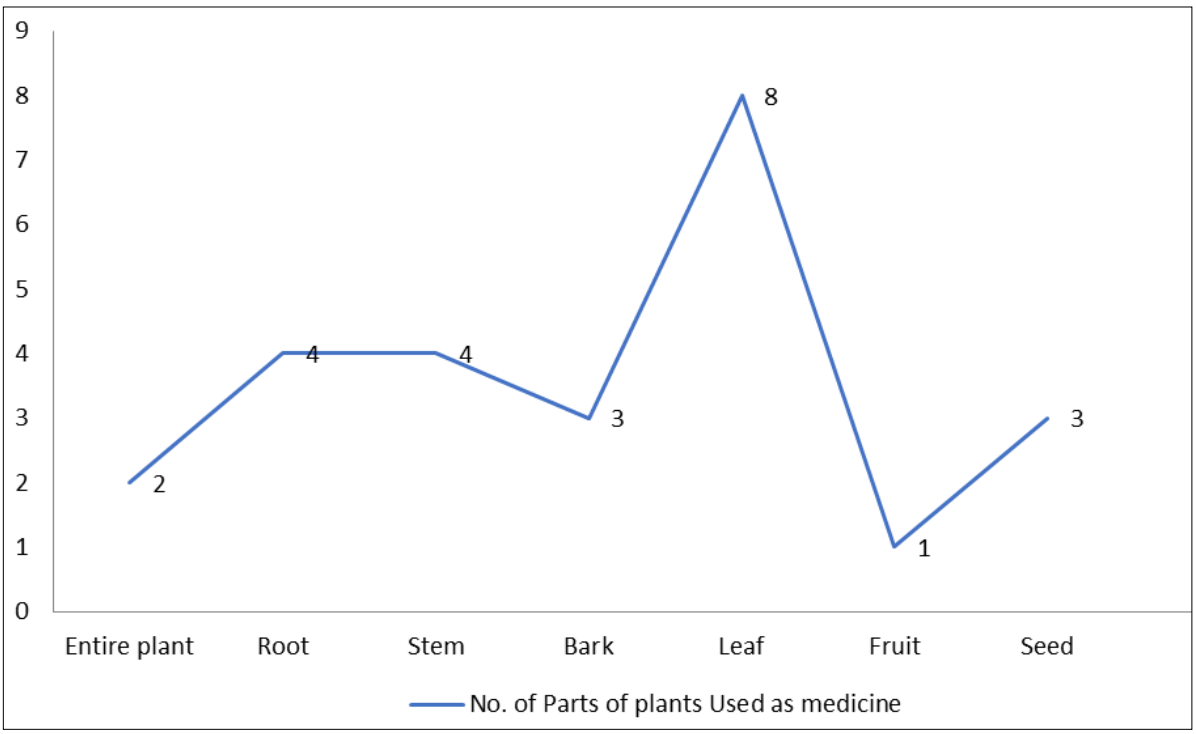

Fig 1: Bar graph indicates the Plants Parts are used as medicine.

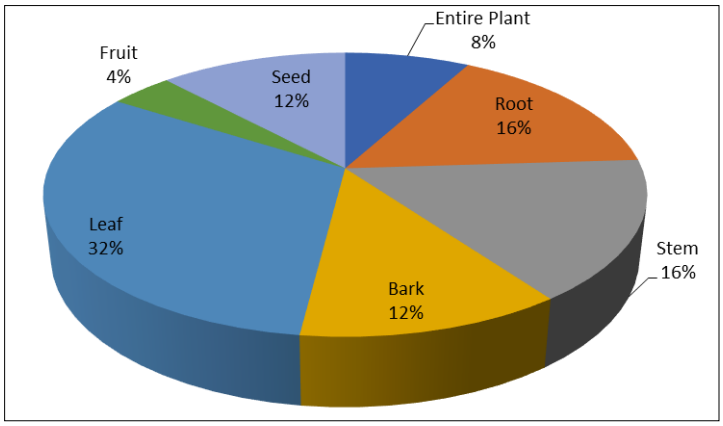

Fig 4: Pie chart indicates the percentages of Plants Parts are used as medicine.

Conclusion

Ethnobotanical values of indigenous plants are spread all over the world. Due to the advantage of modern Allopathic medicines, the indigenous remedies of plants used by local tribal people are being vanished. But in some villages, the tribal people refuse the allopathic medicine due to their high cost and used their remedies of plants which have been practiced since ancient times. If we get knowledge of indigenous plants from tribal people, we can get some important information of chemical constitutes which is present in medicinal plants. This may prove to be very beneficial in the future.

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