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Ethnoveterinary practices by local people of Raigad district Maharashtra

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Abstract

A field research extensive survey was undertaken during the years 2021-2023. This kind of to learn about medicinal plants advantages. The Palghar district of this study has provided the use of 38 plant species under 35 genera belonging to 28 families. Plant species, local names, families' usable parts and ethnoveterinary remedies are listed alphabetically. The members of Fabaceae and Euphorbiaceae lead with three each, followed by Annonaceae, Caesalpinaceae, Asteraceae, Lamiaceae, Moraceae, and Zingiberaceae with two each and the remaining with one to each. The traditional medicinal practitioners and the local people of the Raigad area of Maharashtra used plants and to cure diarrhoea, dysentery arthritis, eye damage, skin diseases, milk problem, wounds, bone fractures, fever, and other illnesses in animals.

Keywords: Ethnobotany; Ethnomedicine; Ethnoveterinary; Raigad district; Maharashtra

1. Introduction

Ethnoveterinary medicine (EVM) is a method that combines botanical knowledge, traditional knowledge, experience, approaches, and technology to keep animals healthier. Because governmental veterinary services are only available in major towns, farmers and livestock farmers in remote areas rely heavily on EVM as a feasible alternative to modern veterinary techniques. EVM studies are significant since plants contain a variety of phytochemicals. McGaw and Eloff (2008).

The farming of livestock is a significant source of income for many people, especially in rural areas like India. This vital source of income is crucial for Indian males, regardless of their location. The human-animal ties represent economic, cultural, social, and religious collaboration, and the advancement of veterinary science and medicine has been influenced by these unique views on animal health and management. (Tyagi and Sohal, 1984). In general, ethnoveterinary deals with a wide range of disciplines that encompass all aspects of people knowledge and practices in animal healthcare, productivity, and performance, including diagnostic and ethological understandings; preventive, protective, and therapeutic skills and treatment and a variety of health-related management techniques (Lans et al., 2007).

Indigenous knowledge may be defined as distinctively, historically produced and known practices or information that are existed with a single individual or group and have developed around the special conditions of a group of people or become indigenous to a certain geographic place (Grenier, 1998). Ethnoveterinary medicine is a more specialized word for animal healthcare that refers to a person's entire knowledge and expertise in traditional methods of animal health management that have been passed down through the centuries. Seeland (2000), highlights the importance of ethnoveterinary refers to the methodical approach to animal management, based on traditional beliefs and expertise

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passed down from generation to generation. This system replaces traditional animal healthcare procedures, incorporating indigenous knowledge, skills, and techniques, and is often referred to as folk knowledge, local knowledge, or elder wisdom.

Effective investigations in ethnoveterinary medicine are crucial for the growth of cattle and should involve professionals in related subjects. Mundy and McCorkle, 1989, emphasize the importance of addressing non-traditional behaviors and their awareness in research to ensure the betterment of rural communities. Ethnomedicine knowledge passed down through generations can serve as a valuable resource for long-term animal health management systems.

The current research focused on tribal livestock producers in the Raigad district of Maharashtra and their indigenous and traditional animal management and treatment techniques. Little attempt has been made in the Raigad district to document the richness and significance of ethnoveterinary medicinal plants and practices. The residents of the study region are mostly farmers, with most of them owning domestic animals cows, goats, sheep, buffaloes and bulls. However, the area has not received of ethnoveterinary study by the any funding, veterinarian colleges, hospitals, and other similar institutions dispensaries. Ethnoveterinary healers of the study area provide several essential resources of the medicinal herbs which are used indigenous systems of treatment for the remedy of different diseases and disorders and maintain animal healthcare.

The primary objective of this ethnoveterinary study in Raigad district is to document and assess traditional knowledge and practices related to animal treatment and management in local communities. The investigation will undertake interviews and field surveys to find indigenous medicinal plants, remedies, and treatment procedures used by traditional healers and livestock care providers in the region. The objective of this research is to evaluate the safety and effectiveness of ethnoveterinary methods in treating common animal diseases while also boosting overall animal health and well-being via systematic documentation and analysis. Furthermore, this study attempts to help preserve traditional knowledge, promote sustainable livestock management practices, and investigate prospects for incorporating ethnoveterinary medicine into mainstream veterinary healthcare services in the Raigad region.

2. Materials and Methods

2.1. Study Area

Raigad district, the current investigation region, is located between latitudes 18.51°N and 73.18°E. The survey was carried out in some of the selected localities for the course of the 2021-2023 season. The documentation of indigenous knowledge has benefited from this research era. The Konkani district of Raigad is well renowned for its natural resources, which include an abundance of greenery and traditional knowledge of Relating to Rainfall Prediction. The Sahyadri hills encircle Raigad district to the east, while to the south-east lie Satara district and Pune. Alibag, Pen, Murud, Karjat, Khalapur, Panvel, Uran, Mangaon, Tala, Roha, Sudhagad, Mahad, Poladpur, Mhasala, and Shirwardhan are the tahsils that together make constitute Raigad.

2.2. Identification of plants

Specimens were identified using local floras following standard procedures and with the supporting information for ethnomedical uses as provided in different works of literature, books, etc., (Almeda, 2003, Jain and Rao, 1977, Cook, 1908, Jain and Srivastava, 1999; Naik, 2004; Shah, 1978). Specimens were dried and prepared as herbarium specimens as supporting documents and kept permanently in the herbarium of the Department of Botany V.P. M'S B N Bhandodkar College of Science, Thane Maharashtra.

2.3. Survey

25 survey visits to 25 villages in the Raigad district were arranged during 2021-2023. The information were gathered from rural residents who were informed experienced and elderly farmers, village elders and traditional healers and practitioners. They were questioned for ethnoveterinary data. They had to respond to Marathi's survey questions. The questions are commonly about the types of ailments, treatment systems, remedial rate, times or duration of the treatments etc., The information were cross-verified with proper and specific uses of plants and plant parts

3. Results and Discussion

Raigad district is home to a diverse range of plant species, including ethnoveterinary medicinal plants, which are used to treat various ailments such as milking, diarrhea, arthritis, eye damage, wounds, bone fractures, fever, and other

illnesses. Traditional healers, who are present in the Thane district, have extensive indigenous knowledge of animal ailments and herbal therapies. The study conducted in Raigad aimed to investigate and collect data on ethnoveterinary herbs used in these treatments. The list of ethnoveterinary medicinal plants identified includes 38 plant species, with three species of Fabaceae and Euphorbiaceae, followed by Annonaceae, Caesalpiniaceae, Asteraceae, Lamiaceae, Moraceae, and Zingiberaceae.

Herbal medicine is given in various ways, such as soaking, force-feeding, medicine combined with feed and water, topical treatment, fomentation, nasal application, vaginal application, fumigation, and anal application. Eye disorders are a common issue, and Phytomedicines can treat various disorders such as foot and mouth disease, ulcers, and eye problems. The interaction between human and ethnoveterinary medicine in Raigad district is parallel, demonstrating the mutual benefits of both disciplines. The findings of recent studies supported the findings of the previous researchers by Satapathy, 2012 from Jaipur district of Odisha, Bharti and Sharma, 2010 from Sikkim, Naik. *et al.*, 2012 from Chitradurga district, Rajakumar *et al.*, 2012 from Shimoga district, Karnataka Kiruba *et al.*, 2006 from Cape Comorin, Dar *et al.*, (2011) from Jhansi district Bundelkhand, Selvaraju *et al.* 2012 from Salem district Tamil Nadu's, Muley *et al.* 2012 from Ahmednagar district Maharashtra and Pragada and Rao 2012 from the tribal region of the Andhra Pradesh.

Table 1 List of medicinal plants used in ethnoveterinary

Sr No.	Botanical names	Local names	Family	Ethnoveterinary uses
1	<i>Abelmoschus manihot</i> L. Medik.	Ranbhendi	Malvaceae	Fruits are used to treat blood dysentery.
2	<i>Abrus precatorius</i> L.	Gunj	Fabaceae or Leguminosae	Leaf paste is applied to the affected areas to a tiny amount of powder administered to those suffering from gastrointestinal troubles.
3	<i>Acacia catechu</i> L. Willd.	Khair	Mimosaceae	Bark employed in the crack of cow and buffalo breasts. Bark extract, along with heartwood is used to treat the horn fractures of domestic animals.
4	<i>Adhatoda vasica</i> (L.) Nees	Adulsa	Acanthaceae	Decoction of the leaves and stems is used to treat fever.
5	<i>Aegle marmelos</i> L. Corr.Serr.	Bel	Rutaceae	A paste of fresh leaves combined with half the amount of Castor oil administered to cow skin burns.
6	<i>Amaranthus spinosus</i> L.	Kantebhaji	Amaranthaceae	Leaf shoots are given to cows and buffaloes to increase lactation.
7	<i>Annona squamosa</i> L.	Sitaphal	Annonaceae	Leaf paste massaged to cow to remove lice.
8	<i>Annona reticulata</i> L.	Ramphal	Annonaceae	Seeds and leaves crushed in water and the paste given externally to eradicate ticks and mites of animals. A leaf poultice used to cure wounds.
9	<i>Azadirachta indica</i> A. Juss.	Neem	Meliaceae	In skin illnesses, the body of cattle is cleaned with a leaf decoction once a day for three days.
10	<i>Bryophyllum pinnatum</i> (Lam.) Kurz) Syn. <i>Kalanchoe pinnata</i>	Panfuti	Crassulaceae	Leaf paste is used to treat urinary and gastrointestinal troubles.
11	<i>Caesalpinia bonduc</i> (L.) Roxb.	Sagargoti	Caesalpiniaceae	Seeds are used for the treatment of intestinal worms.
12	<i>Calotropis procera</i> (Willd.) R.Br.	Rui	Asclepiadaceae	Flower paste mixed with double the amount of jaggery used for quite good and easy delivery.

13	<i>Cassia fistula</i> L.	Bahawa	Caesalpiaceae	Legume paste is used in the treatment of digestive troubles for cats and goats.
14	<i>Cissus quadrangularis</i> L.	Kandwel	Vitaceae	Stem fragments are employed in the treatment of bone fractures and muscle pains for goats, buffaloes, and cows.
15	<i>Cocos nucifera</i> L.	Naral	Aracaceae	Green coconut water used twice a day for the remedy of diarrhoea and dysentery.
16	<i>Coriandrum sativum</i> L.	Dhania	Apiaceae	Whole plant paste used in foot and mouth diseases seed used to treat diarrhoea and dysentery
17	<i>Curcuma aromatica</i> L. Salisb.	Jangli Halad	Zingiberaceae	Rhizome powder used to treat wounds and skin disorders caused by damage.
18	<i>Curcuma longa</i> L.	Haldi	Zingiberaceae	Rhizome paste used as a poultice to treat wounds.
19	<i>Cyamopsis tetragonoloba</i> (L.) Taub.	Gawar	Fabaceae Leguminosae	or Seeds feed to cows for increasing milk volume.
20	<i>Cynodon dactylon</i> (L.) Pers.	Durva	Poaceae	Whole plant fed to cow and buffaloes to produce lactation milk.
21	<i>Dioscorea bulbifera</i> L.	Kadukarand	Dioscoreaceae	Bulbils and tubers are used to treat wounds and interior injuries.
22	<i>Euphorbia hirta</i> L.	Dudhi	Euphorbiaceae	Leaves fed to increase lactation.
23	<i>Ficus benghalensis</i> L.	Wad	Moraceae	Latex utilized in bone fractures.
24	<i>Ficus religiosa</i> L.	Pipal	Moraceae	Juice of bark and leaves use to treat troubles urinogenital.
25	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp	Undirmari	Fabaceae Leguminosae	or To eradicate external parasites, the leaves are crushed and a paste is made, which is then used to treat animals. Green leaves are burned in cattle shadow to prevent insects.
26	<i>Jatropha curcas</i> L. Kalanchoe	Chandrajyoti	Euphorbiaceae	Stem bark extract is administered to treat skin sores of cows and buffaloes.
27	<i>Mentha spicata</i> L.	Pudina	Lamiaceae	Leaves used to treat diarrhoea and dysentery.
28	<i>Momordica dioica</i> Roxb. ex Willd.	Kartule	Cucurbitaceae	Fruits and black pepper crushed and mixed together and combined with egg white before being scrubbed and put to treat mouth ulcer.
29	<i>Moringa oleifera</i> Lam.	Shevga	Moringaceae	Leaf paste used twice a day to provide immediate relief from diarrhoea and dysentery.
30	<i>Mucuna pruriens</i> (L.) DC.	Khajkui	Papilionaceae	Seed paste used as a poultice for treatment of wound.
31	<i>Musa paradisiaca</i> L.	Keli	Musaceae	Fruits offered to feed to promote prolong the lactating time.
32	<i>Ocimum tenuiflorum</i> L.	Tulas	Lamiaceae	Leaf paste used to treat wound
33	<i>Phyllanthus amarus</i> L. Sehum. & Thorn.	Bhuiawali	Euphorbiaceae	Plants given to feed to treat dysentery.

34	<i>Plumeria rubra</i> L.	Sonchapha	Apocynaceae	Boiling pods beneficial to increase milk in cows and buffaloes and seeds used to treat snake bites.
35	<i>Tagetes erecta</i> L.	Zendu	Asteraceae	Leaf juice applied as a poultice or bandage to treat wound.
36	<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Beheda	Combretaceae	Bark decoction with Nilgiri oil fed to goats to treat blood dysentery.
37	<i>Tinospora cordifolia</i> (Willd.) Miers ex Hook.f & Thoms.	Gulvel	Menispermaceae	Leaf decoction of the whole plant taken to treat fever.
38	<i>Tridax procumbens</i> L.	Ekdandi	Asteraceae	Leaf extract applied externally on wounds.

4. Conclusion

Documenting traditional medicinal plant knowledge among the indigenous tribes of Raigad district, the Maharashtra state is essential in the context of socioeconomic and cultural change. As our knowledge of plants grows more efficient, there is an urgent need to document and preserve this essential knowledge for the benefit of current and future generations. This documentation not only helps to preserve the cultural heritage but also allows for scientific evaluations of traditional knowledge in bioprospecting and veterinary therapy. Traditional medicinal plant remedies are popular among local people because of their low cost and perceived without side effects, making them an essential component of veterinary healthcare in the region. The availability of indigenous medicinal plant knowledge in the Raigad area provides enormous possibilities for future research and the development of novel therapies to treat animal diseases. However, it is critical to realise the importance of keeping track of this information before it is lost or completely transformed. As a result, concerted efforts must be undertaken to continue recording indigenous medicinal plant knowledge and incorporating it into larger research and veterinary healthcare practices for the benefit of both animals and residents in the Raigad area.

Compliance with ethical standards

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Disclosure of conflict of interest

No conflict of interest to be disclosed.

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