



# Documentation of ethnoveterinary practices used by livestock owners in Shri Maha Shivaratri Cattle Fair, Karauli, Rajasthan, India

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## Abstract

The present study documents ethnoveterinary practices used by livestock owners and traditional healers at the Shri Maha Shivaratri Cattle Fair, Karauli, Rajasthan. Data were collected through field visits, interviews and questionnaires administered to livestock owners and traditional healers. A total of 25 medicinal plant species belonging to 23 genera and 18 families, were recorded to treat 39 different livestock ailments. The documented plant species were used to treat common cattle ailments such as digestive disorders, respiratory infections, skin diseases, bone fractures, reproductive problems and lactation related issues. This study highlights the relevance of the Indian knowledge system in animal healthcare and aims to document comprehensively the indigenous veterinary practices employed by cattle owners participating in the fair.

**Keywords:** Cattle diseases, Ethnoveterinary medicine, Medicinal plants, Traditional knowledge

## 1. Introduction

Animal husbandry is an integral part of India's rural economy, and a large proportion of the rural population depends on livestock for their livelihood (Department of Animal Husbandry and Dairying, 2019). It not only supports livelihoods but also plays a crucial role in sustainable agricultural practices. Rajasthan, being one of the largest states in India, has a diverse population of domesticated animals including buffaloes, cows, camels, donkeys, goats, horses and sheep, which are essential for milk production, transportation and agricultural activities. For rural communities, livestock serves as a primary source of income, especially for small-scale farmers who depend on dairy products, wool, meat, leather and animal labour.

The Shri Maha Shivaratri Cattle Fair, held annually in the Karauli district of Rajasthan, is one of the most significant traditional fairs dedicated to livestock trade and exhibition. This historic fair starts on Magh Purnima (the full moon day of the month of Magh in the lunar calendar) and continues until the Saptami Tithi of the

Krishna Paksha in the month of Phalgun. The event dates back to the principality period and has continued as a vital platform for livestock owners, traders and buyers from various parts of India.

This fair is renowned for the buying and selling of high-quality indigenous cattle breeds. Farmers and traders from different regions gather here to trade cattle, camels, horses and other livestock species. Various animal competitions are organized to showcase the best breeds and winners are awarded by the administration. Apart from trade, the fair also serves as a cultural hub, where traditional music, folk performances and rural art forms are displayed. The administration ensures proper safety, veterinary care and security arrangements for livestock owners and buyers.

The fair is not just a commercial event but also a rich representation of Rajasthan's traditional livestock management practices and indigenous knowledge systems. It provides a unique opportunity to document the ethnoveterinary practices of livestock owners and local healers for treating various animal diseases.

Ethnoveterinary medicine is defined as the folk knowledge, skills, methods and practices used for animal healthcare (McCorkle, 1986). Several studies have documented the use of plant-based remedies in livestock management across India. For instance, Pande *et al.* (2007) documented 23 household plants species used for treating animal diseases in Uttarakhand. While Galav *et al.* (2013), reported 43 plant species employed against 30 livestock ailments. Traditional practices associated with livestock fairs have also been explored, with Yadav and Gupta (2014) documenting ethnoveterinary practices at the Pushkar Cattle Fair in Rajasthan. In Rajasthan, region-specific studies have been conducted. Dudi *et al.* (2015) documented ethnoveterinary practices in arid region, whereas Gupta *et al.* (2015) focused on traditional remedies used for camel healthcare and Meena and Kumar (2015) recorded such practices in Karauli. More recently, Meena *et al.* (2019) identified 156 ethnoveterinary practices employing medicinal plants and discussed their scientific relevance. Sheep farmers in Karauli district follow specific feeding and healthcare management practices Singh *et al.*, (2018). Sundharakumar *et al.* (2020) reported ethnoveterinary plants for treating livestock diseases in the Theni and Madurai districts.

These chronological studies reflect the growing recognition of ethnoveterinary knowledge across India, demonstrating its importance for rural livestock health and the need for scientific validation. However, documentation of such traditional practices associated with livestock fairs in Rajasthan remains limited and much of this traditional knowledge is transmitted orally

from generation to generation and is gradually disappearing, highlighting the urgent need for proper systematic documentation. The present study aims to explore and document ethnoveterinary practices involving medicinal plants used by livestock owners at the Shri Maha Shivaratri Cattle Fair, Karauli, emphasizing their significance in the Indian Knowledge System and their relevance in modern livestock healthcare.

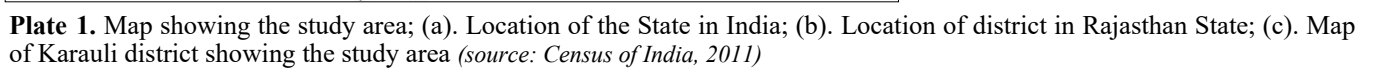
## 2. Materials and methods

Karauli district is in the eastern part of Rajasthan and was officially designated as a district on 19<sup>th</sup> July 1997 and lies between 26°03' to 26°49' North latitude and 76°35' to 77°26' East longitude. The total geographical area of Karauli district is 5,524 km<sup>2</sup> (Plate 1).

The Shri Maha Shivaratri Cattle Fair is held annually in Karauli and is the most significant livestock fair in the state. This traditional fair attracts numerous livestock owners, traders and healers from across the region, making it an ideal site for studying ethnoveterinary practices. This Fair was selected as the primary site for data collection. This fair attracts livestock owners, traders and traditional healers from various districts of Rajasthan and neighboring states, many of whom possess indigenous knowledge of ethnoveterinary practices.

Field visits were made during the fair, and data were collected using a combination of face-to-face interviews, semi-structured questionnaires (Appendix 1) and direct observations. Interviews were conducted with selected livestock owners, tribal communities and traditional healers presented at the fair with their animals. The





sampling method was non-random, focusing on informants who provided relevant information on the use of medicinal plants for treating livestock ailments. Prior Informed Consent was obtained from all participants before recording any information (Plate 2, Table 1). The questionnaire covered details such as local names of plants, growth form, availability in natural habitats, plant parts used, diseases treated, methods of drug preparation, storage practices and mode of administration with dosage. Interviews were conducted in the local language to ensure clarity and accuracy of responses.

Extensive field surveys were conducted across various camps of livestock owners during the Shri Maha Shivaratri Cattle Fair, Karauli, held from 5–13 February 2023 and 24 February to 3 March 2024. Field surveys were conducted during the Shri Maha Shivaratri Cattle Fair in 2023 and 2024, during which a large number of livestock owners and traditional healers were interviewed. Among them, 17 informants provided reliable ethnoveterinary information. However, detailed profiles of 6 key informants have been presented in the manuscript as representative examples. Overall, information on 25 plant species used for treating 39 livestock ailments was documented.

The main objective was to document medicinal plant species used by traditional healers and livestock owners for the treatment of animal diseases. The plant species were identified with the help of local traditional healers based on their vernacular names and morphological characteristics such as leaf, root, stem and flower. The identification was further confirmed by using relevant taxonomic literature, particularly Flora of Rajasthan (Vol. I–III) (Shetty and Singh, 1987–1993) and by comparing with available literature and online databases. The botanical names of the plant species were verified according to the accepted nomenclature available in Plants of the World Online (<https://powo.science.kew.org>) and with Botanical survey of India, 2024. These ethnoveterinary practices, deeply rooted in Indian Knowledge Systems (IKS), have been passed down through generations and continue to play a crucial role in livestock healthcare.

### 3. Results and discussion

Representative ethnoveterinary practices observed during the Shri Maha Shivaratri Cattle Fair are presented in Plate 3 (a–f), complementing the detailed species information provided in Table 2.

In the present ethnoveterinary survey conducted, a total of 25 plant species were recorded belonging to 23 genera distributed across 18 families. Out of the 25 recorded species, 7 were trees, 2 were shrubs, 15 were herbs and 1 was a climber indicating the predominance of herbaceous plants in ethnoveterinary practices of the region (Fig. 1).

The analysis revealed that some families and genera were represented by more than one species. For example, the family Poaceae was represented by *Oryza sativa* L. and *Saccharum officinarum* L., the family Brassicaceae by *Brassica campestris* L. and *Lepidium sativum* L. and the family Moraceae by *Ficus racemosa* L. and *F. religiosa* L. Similarly, the genus *Allium* included two species (*Allium cepa* L. and *A. sativum* L.). Overall, the families Fabaceae, Poaceae, Brassicaceae and Moraceae were found to be predominant in the ethnoveterinary practices of the region, contributing multiple genera and species. This dominance indicates the cultural and medicinal importance of these families in traditional veterinary healthcare. Each plant species was reported to have specific therapeutic properties and was used to treat a variety of common cattle ailments such as digestive disorders, respiratory infections, skin diseases, bone fractures, reproductive issues and milk production disorders. The strong dependence of livestock owners on herbal remedies highlights the significance of traditional knowledge in maintaining animal health and productivity (Fig. 2).

In the present study, a total of 25 different plants were reported to be used in ethnoveterinary practices. Among them, fruits (28%) and seeds (28%) were the most frequently utilized plant parts, followed by leaves (12%), bark (8%) and bulbs (8%). Other plant parts such as stem, rhizome, resin, whole plant and roots were reported

**Table 1.** Socio-demographic profile of key informants

| Sl. No. | Informant Id | Age | Gender | Occupation                                        | Education        | Role in Fair                                                        | Residents       |
|---------|--------------|-----|--------|---------------------------------------------------|------------------|---------------------------------------------------------------------|-----------------|
| 1       | I1           | 61  | Male   | Animal husbandry                                  | Matric           | Provider of Ethnoveterinary medicine knowledge to livestock owners. | Sapotra         |
| 2       | I2           | 75  | Male   | Camel husbandry                                   | Primary          | Cattle seller/ Buyer                                                | Dafalpur        |
| 3       | I3           | 45  | Male   | Animal husbandry                                  | Primary          | Caretaker of livestock, Cattle buyer                                | Katkad          |
| 4       | I4           | 70  | Male   | Camel husbandry                                   | Primary          | Caretaker of livestock, Cattle buyer/ Seller                        | Kodar           |
| 5       | I5           | 35  | Male   | Camel husbandry                                   | Primary          | Caretaker of livestock, Cattle seller                               | Bareda, (Niwai) |
| 6       | I6           | 83  | Male   | Agriculture work, Animal husbandry & Rtd. soldier | Higher secondary | Caretaker of livestock, Cattle buyer/ Seller                        | Meenabaroda     |

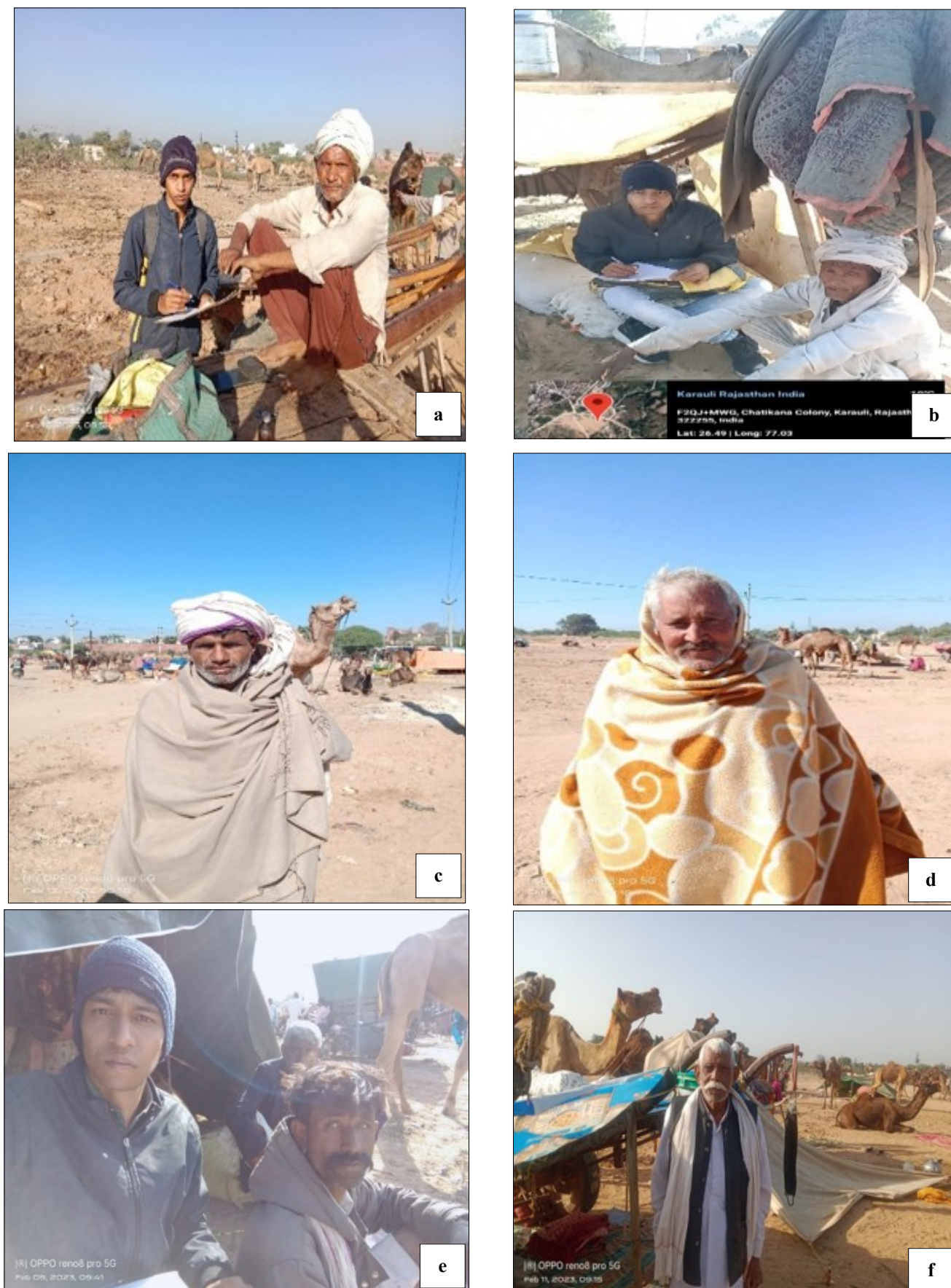


**Plate 2.** Key informers at the cattle fair (a-f)



**Plate 3.** a-f. Ethnoveterinary practices documented during the Shri Maha Shivaratri Cattle Fair, Karauli

Table 2. Enumeration of ethnoveterinary medicinal plants

| Sl. No. | Botanical name & Field Voucher No./ RUBL No.                      | Family         | Habit | Local name    | Plant part (s) used | Treated animals                                   | Diseases                                | Mode of preparation/ route of administration                                                                                                                                                                                                                                     |
|---------|-------------------------------------------------------------------|----------------|-------|---------------|---------------------|---------------------------------------------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1       | <i>Acacia nilotica</i> (L.) Delile. AKJ- 81/19506                 | Mimosoideae    | Tree  | <i>Babul</i>  | Bark                | Buffalo, Cow, etc.                                | Bone fracture                           | The bark is boiled in water, applied to the affected area, and bandaged over the fractured bone to promote healing and provide relief.                                                                                                                                           |
| 2       | <i>Aegle marmelos</i> L. Corr. AKJ- 7/19977                       | Rutaceae       | Tree  | <i>Bel</i>    | Fruit               | Buffalo & Cow                                     | Uterine prolapse                        | The pulp is administered orally to cattle to treat uterine prolapse.                                                                                                                                                                                                             |
| 3       | <i>Allium cepa</i> L.                                             | Amaryllidaceae | Herb  | <i>Pyaj</i>   | Bulb                | Camels                                            | Soil eating (Pica)                      | Bulbs of <i>A. cepa</i> and <i>Allium sativum</i> L. are processed into a paste and administered orally to camels to prevent geophagia (soil eating).                                                                                                                            |
| 4       | <i>Allium sativum</i> L.                                          | Amaryllidaceae | Herb  | <i>Lehsun</i> | Bulb                | Buffalo, Cow, Goats, Sheep, etc.<br>Buffalo & Cow | Foot-and-mouth disease<br>Mastitis      | Bulbets are ground into a paste with milk and administered orally to cattle to treat foot-and-mouth disease.<br>Bulbets are crushed with water and administered orally to cattle to treat udder swelling and mastitis.                                                           |
| 5       | <i>Balanites aegyptiaca</i> (L.) Delile. (Plate 4a) AKJ- 79/19568 | Zygophyllaceae | Tree  | <i>Hingot</i> | Fruit               | Buffalo, Cow, Goats, Sheep, etc.                  | Cold                                    | Fruits of <i>B. aegyptiaca</i> and <i>Terminalia chebula</i> Retz., along with powdered dry <i>Zingiber officinale</i> Roscoe, are soaked in water overnight in an earthen pitcher, then ground, filtered, and administered orally to cattle to treat colds.                     |
| 6       | <i>Brassica campestris</i> L.                                     | Brassicaceae   | Herb  | <i>Sarson</i> | Seed                | Buffalo & Cow                                     | Galactagogue                            | Seeds of <i>B. campestris</i> , <i>Eruca sativa</i> L., <i>Lepidium sativum</i> L., <i>Cicer arietinum</i> L., <i>Triticum aestivum</i> L., and <i>Pennisetum typhoides</i> L. are coarsely ground, cooked into a porridge, and fed to cattle to enhance milk production.        |
| 7       | <i>Capsicum annuum</i> L.                                         | Solanaceae     | Herb  | <i>Mirchi</i> | Fruit               | Buffalo, Cow, Goats, Sheep, etc.<br>Camels        | Food and mouth diseases<br>Throat ulcer | Dried fruit is fried in <i>B. campestris</i> oil, processed into a paste, and applied topically to treat foot-and-mouth disease.<br>A paste of green <i>C. annuum</i> is applied to blisters using a twig of <i>Calotropis procera</i> (Aiton) W.T.Aiton to treat throat ulcers. |

|    |                                                               |               |         |                     |            |                                               |                                      |                                                                                                                                                                                               |
|----|---------------------------------------------------------------|---------------|---------|---------------------|------------|-----------------------------------------------|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8  | <i>Cicer arietinum</i> L.                                     | Fabaceae      | Herb    | <i>Gram / Chana</i> | Seed flour | Buffalo, Cow, Goats, Sheep, etc.              | Galactagogue & diarrhoea             | Gram flour is mixed with whey and administered orally to cattle to treat diarrhoea and enhance milk production.                                                                               |
|    |                                                               |               |         |                     |            | Buffalo & Cow                                 | Uterine prolapse                     | Gram flour mixed with buttermilk is administered orally to cows and buffaloes to manage uterine prolapse.                                                                                     |
|    |                                                               |               |         |                     |            | Goats, Sheep, etc. and Calf                   | Intestinal worm                      | Gram flour is cooked with whey to prepare a traditional gravy ( <i>kadhi</i> ), which is administered orally to cattle to treat intestinal worms.                                             |
| 9  | <i>Cissus quadrangularis</i> L.<br>AKJ- 91/19993              | Vitaceae      | Climber | <i>Hadhijod</i>     | Stem       | Buffalo, Cow, Goats, Sheep, etc. Cow, Buffalo | Bone fracture                        | Stem paste is mixed with milk, administered orally, and also applied topically to the fractured bone.                                                                                         |
| 10 | <i>Citrullus colocynthis</i> L.<br>Schrader.<br>AKJ- 55/19999 | Cucurbitaceae | Herb    | <i>Anaarni</i>      | Fruit      | Buffalo, Camels, Cow, Goats, Sheep, etc.      | Digestive problems                   | Dried fruit powder is mixed with black salt and rock salt, then administered orally to treat tympany and other digestive disorders.                                                           |
| 11 | <i>Curcuma longa</i> L.                                       | Zingiberaceae | Herb    | <i>Haldi</i>        | Rhizome    | Buffalo, Camels, Cow, Goats, Sheep, etc.      | Dysentery, Stomachache               | Powdered dried rhizome is mixed with whey and administered orally to sheep to treat dysentery and stomach-ache.                                                                               |
|    |                                                               |               |         |                     |            |                                               | Enhance fertility                    | Dried rhizome powder is mixed with water and administered orally to enhance fertility.                                                                                                        |
|    |                                                               |               |         |                     |            |                                               | Retention of placenta                | Dried rhizome powder is mixed with jaggery and administered orally to manage retained placenta.                                                                                               |
| 12 | <i>*Ferula asafoetida</i> L.                                  | Apiaceae      | Herb    | <i>Hing</i>         | Resin      | Buffalo, Cow, Goats, Sheep, Donkey, etc.      | Common cold                          | Rhizome powder is boiled with tea leaves, filtered, and administered orally to cattle to treat the common cold.                                                                               |
|    |                                                               |               |         |                     |            |                                               | stomach-ache                         | Resin and baking powder are mixed with water, boiled, and administered orally to cattle to treat stomach-ache.                                                                                |
| 13 | <i>Ficus racemosa</i> L.<br>AKJ- 13/19579                     | Moraceae      | Tree    | <i>Gular</i>        | Fruits     | Buffalo, Cow, Goats, Sheep, etc.              | Retention of placenta after delivery | Crushed fruits of <i>F. racemosa</i> and coarsely ground <i>P. typhoides</i> are cooked into a porridge with jaggery and administered orally to facilitate placental expulsion post-delivery. |
| 14 | <i>Ficus religiosa</i> L.<br>AKJ- 15/20083                    | Moraceae      | Tree    | <i>Peepal</i>       | Bark       | Buffalo & Cow                                 | Retention of placenta                | Stem bark is boiled in water to prepare a decoction, which is administered orally to cattle to facilitate post-delivery placental clearance.                                                  |

|    |                                            |               |                  |               |              |                                                        |                       |                                                                                                                                                                                                                     |
|----|--------------------------------------------|---------------|------------------|---------------|--------------|--------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 15 | <i>Lepidium sativum</i> L.                 | Brassicaceae  | Herb             | <i>Sagaa</i>  | Seeds        | Buffalo, Cow, Goats, Sheep, etc.                       | Galactagogue          | Seeds of <i>L. sativum</i> and coarsely ground <i>P. typhoides</i> are cooked into a porridge with jaggery and fed to cattle to boost milk production.                                                              |
| 16 | <i>Musa paradisiaca</i> L.                 | Musaceae      | Herb             | <i>Kela</i>   | Fruits       | Buffalo, Camels, Cow, Goats, Sheep, etc.               | Enhance fertility     | Raw fruits are fed to cows and buffaloes to enhance fertility.                                                                                                                                                      |
|    |                                            |               |                  |               |              |                                                        | Diarrhoea             | A paste prepared from the fruits is administered orally to cattle to treat diarrhoea.                                                                                                                               |
| 17 | <i>Oryza sativa</i> L.                     | Poaceae       | Herb             | <i>Rice</i>   | Seeds        | Buffalo, Camels, Cow, Donkey, Goats, Horse, Sheep, etc | Body heat/heat stress | Grains are soaked in water overnight in an earthen pitcher, ground the following morning, and mixed with buttermilk. This mixture is administered orally to cattle for four consecutive days to manage heat stress. |
|    |                                            |               |                  |               |              |                                                        | Dysentery             | Grains soaked overnight are ground with water and administered orally to cattle to treat dysentery.                                                                                                                 |
| 18 | <i>Ricinus communis</i> L.<br>AKJ- 9/20022 | Euphorbiaceae | Shrub/Small tree | <i>Arandi</i> | Seeds        | Buffalo, Cow, Goats, Sheep, etc.                       | Galactagogue          | Castor oil is administered orally to sheep and goats by the Rebari community to enhance milk production.                                                                                                            |
|    |                                            |               |                  |               |              |                                                        | Stomach aches         | Castor oil is mixed with milk and administered orally to cattle to treat stomach-ache.                                                                                                                              |
| 19 | <i>Saccharum officinarum</i> L.            | Poaceae       | Herb             | <i>Ganna</i>  | Leaves, Stem | Buffalo, Cow, Goats, Sheep, etc.                       | Retention of placenta | Exactly two and a half leaves are fed to cattle to facilitate placental expulsion post-delivery.                                                                                                                    |
|    |                                            |               |                  |               |              |                                                        | Retained placenta     | A decoction of jaggery is administered orally to treat uterine prolapse. However, if excessive quantities are given, diarrhoea may occur in sheep.                                                                  |
| 20 | <i>Sesamum indicum</i> L.                  | Pedaliaceae   | Herb             | <i>Til</i>    | Seeds        | Buffalo, Cow, Goats, Sheep, etc.                       | Cough and cold        | Seed oil is administered orally to cattle to treat coughs and colds.                                                                                                                                                |

|    |                                                                                       |                |       |                     |             |                                                                  |                                        |                                                                                                                                                                                                                                                           |
|----|---------------------------------------------------------------------------------------|----------------|-------|---------------------|-------------|------------------------------------------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 21 | <i>Terminalia chebula</i><br>Retz                                                     | Combretaceae   | Tree  | <i>Harr</i>         | Fruits      | Buffalo, Camels,<br>Cow, Donkey,<br>Goats, Horses<br>Sheep, etc. | Heat stress &<br>excessive<br>sweating | Fruit powder is mixed with <i>F. asafetida</i> powdered dry <i>Z. officinale</i> , common salt, and black salt, then boiled in water to prepare a decoction. This decoction is administered orally to camels to treat heat stress and excessive sweating. |
| 22 | <i>Tribulus terrestris</i> L.<br>(Plate 4b)<br>AKJ- 33/20031                          | Zygophyllaceae | Herb  | <i>Gokhru</i>       | Whole plant | Buffalo, Camels,<br>Cow, Donkey,<br>Goats, Horses,<br>Sheep      | Heat stress                            | The whole plant is soaked in water overnight in an earthen pitcher. The following morning, the infusion is filtered and administered to cattle to alleviate heat stress.                                                                                  |
| 23 | <i>Tridax procumbens</i> L.<br>(Plate 4c)<br>AKJ- 1/20032                             | Asteraceae     | Herb  | <i>Khoon datani</i> | Leaves      | Buffalo, Cow,<br>Goats, Sheep, etc.                              | Uterine prolapse                       | A paste prepared from the leaves is administered orally to cattle to treat uterine prolapse.                                                                                                                                                              |
| 24 | <i>Vigna mungo</i> (L.)<br>Hepper                                                     | Fabaceae       | Herb  | <i>Urad dal</i>     | Seeds       | Buffalo & Cow                                                    | Galactagogue                           | Pulses cooked with jaggery and milk are fed to cattle to boost milk yield.                                                                                                                                                                                |
| 25 | <i>Ziziphus nummularia</i><br>(Burm. f.) Wight. &<br>Arn. (Plate 4d)<br>AKJ- 19/20038 | Rhamnaceae     | Shrub | <i>Jharber</i>      | Leaves      | Buffalo, Cow,<br>Goats, Sheep, etc.                              | Galactagogue                           | Leaves ( <i>pala</i> ) of <i>Z. nummularia</i> are used as fodder to increase milk production in dairy cattle                                                                                                                                             |
|    |                                                                                       |                |       |                     | Roots       | Buffalo & Cow                                                    | Retained placenta                      | The roots are boiled in water and filtered; the resulting decoction is then administered to cattle to facilitate placental expulsion post-delivery.                                                                                                       |

\*Non-indigenous plant



**Plate 4.** Some ethnoveterinary medicinal plants: (a). *Balanites aegyptiaca* L.; (b). *Tribulus terrestris* L.; (c). *Tridax procumbens* L.; (d). *Ziziphus nummularia* (Burm. f.) Wight. & Arn.

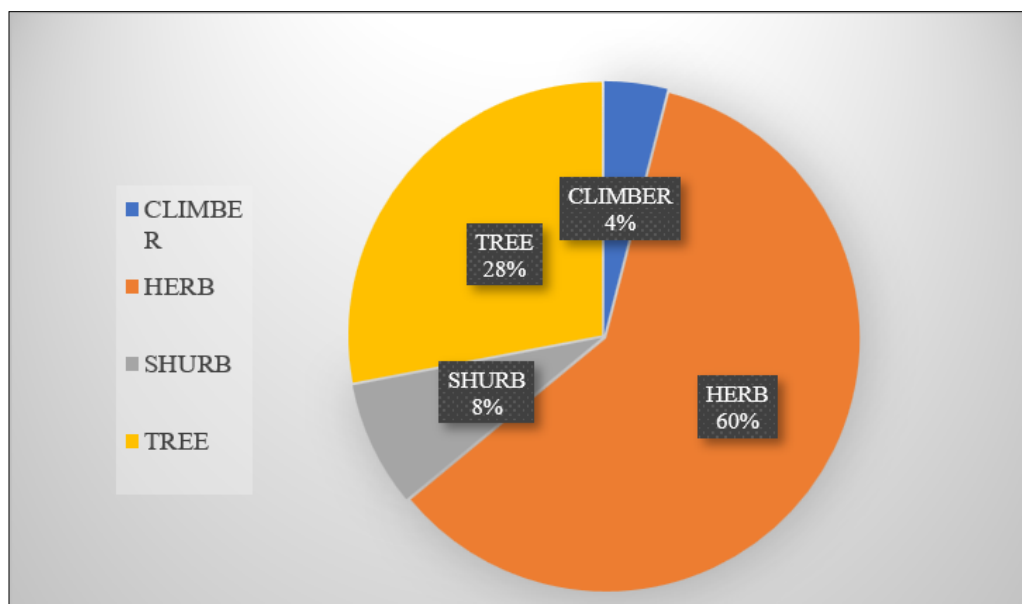


**Fig. 1.** Diversity of plant habits

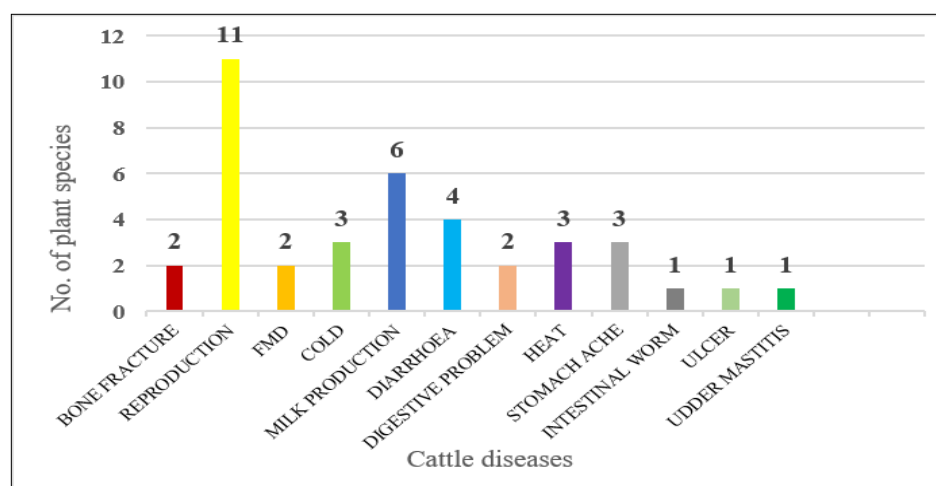


**Fig. 2.** Number of plant species used for curing cattle diseases at the Shri Mahashivratri cattle fair

bark (8%) and bulbs (8%). Other plant parts such as stem, rhizome, resin, whole plant and roots were reported occasionally (4% each). The predominance of fruits and seeds indicates the reliance of local communities on easily available and sustainable plant parts for treating livestock ailments (Fig. 3).

The use of *Tribulus terrestris* L. for reducing body heat in cattle, as recorded in the present study, is consistent with earlier reports from the Sariska region of Rajasthan, where the whole plant is used as fodder (Upadhyay *et al.*, 2011). The availability of these medicinal plant species in the local environment highlights their accessibility and importance in ethnoveterinary practices. However, there is a lack of scientific validation and standardization of these treatments, indicating the need for further biochemical and pharmacological studies.

The present study revealed that livestock owners follow a variety of ethnoveterinary practices, particularly for managing digestive and post-delivery disorders. The use of *Curcuma longa* L. and *Ricinus communis* L. for treating dysentery, stomach-ache and constipation is consistent with previous findings (Satapathy, 2009). Similarly, *Vigna mungo* (L.) Hepper is used as a galactagogue to enhance milk production (Phondani *et al.*, 2010), while

*S. officinarum* leaves and root decoctions are used for facilitating the expulsion of placenta (Nigam and Sharma, 2010; Upadhyay *et al.*, 2011). These findings indicate that such plant-based remedies are widely practiced across regions with minor variations in preparation.

The use of *Cissus quadrangularis* L. stem for bone fracture treatment agrees with earlier reports (Singh, 2021), although the method of administration varies. In contrast, the use of *Cicer arietinum* L. seeds for intestinal worms differs from earlier reports where leaf extracts are used for tympany (Kulkarni *et al.*, 2014), indicating variation in plant part usage. Similarly, *Allium sativum* L. is used for treating foot and mouth disease, which aligns with reports of *A. cepa* used for similar conditions (Sundharakumar *et al.*, 2020). In addition, species belonging to the family Moraceae, such as *F. racemosa* and *F. religiosa*, show diverse ethnoveterinary applications. Previous studies from the Pushkar Animal Fair reported their use in treating diarrhoea and urinary disorders (Galav *et al.*, 2010), whereas in the present study they are used for placenta-related conditions. This highlights the diverse therapeutic potential of these species in traditional veterinary practices.

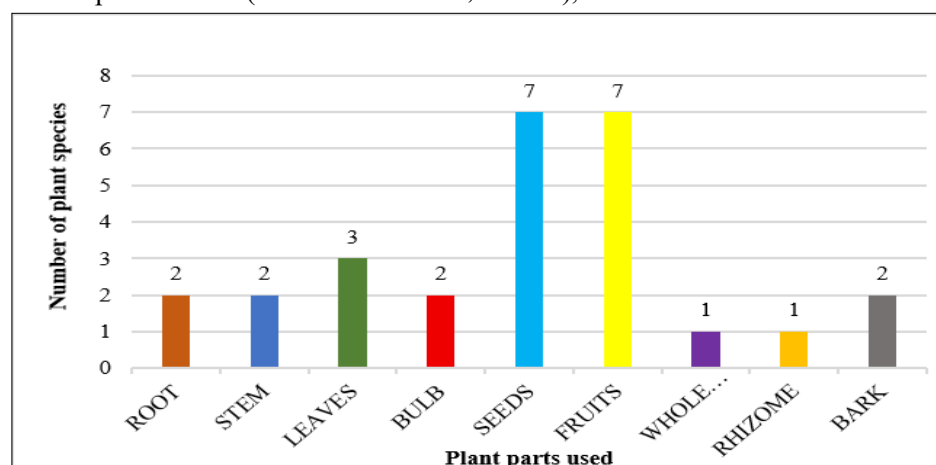


**Fig. 3.** Utilization of plant parts in ethnoveterinary practices at Shri Maha Shivaratri Cattle Fair, Karauli

The use of *Ziziphus nummularia* (Burm.f.) Wight & Arn. for enhancing milk production and facilitating the expulsion of retained placenta, as recorded in the present study, highlights its dual ethnoveterinary importance. The leaves are used as a galactagogue, while root decoction is administered for post-delivery conditions. Such multipurpose use of a single species indicates its significant role in traditional livestock healthcare systems.

#### 4. Conclusion

The present study documents the ethnoveterinary knowledge practiced by livestock owners and traditional healers at the Shri Maha Shivaratri Cattle Fair, Karauli, Rajasthan. The study recorded 25 medicinal plant species belonging to 23 genera and 18 families, used in the treatment of 39 different livestock ailments. The findings reveal a rich repository of traditional knowledge and highlight the close relationship between rural communities and locally available plant resources for animal healthcare. Despite the widespread use of these practices, documentation in this field remains limited, particularly in the context of the Karauli district of Rajasthan, indicating a significant scope for further ethnoveterinary research. The gradual decline in interest among younger generations poses a challenge to the preservation of this valuable knowledge. Therefore, proper documentation and awareness are essential to safeguard these traditions. Furthermore, the documented information may serve as a basis for future scientific validation and could contribute to the development of cost-effective, eco-friendly veterinary treatments. Promoting sustainable use and conservation of medicinal plants is also crucial to ensure their availability for future generations and to support traditional animal healthcare systems.

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#### Declarations

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### Appendix 1. Questionnaire used to collect the information

#### A. Information about the ethnoveterinary healer or informant.

Name.....,

Gender.....

Age.....,

Education.....

Caste/Tribe.....,

Clan.....

Village/ Locality

.....

Occupation.....

Date of interview

...../...../.....

How many years of experience do you have in EVM and healing? .....

How did you get knowledge about the EVM plants and their curative properties? From ancestors/ experience/ books/ any other sources: .....

#### B. Treatment provider's knowledge of ethnoveterinary medicines?

Vernacular Name/Local name

.....

Availability.....

Rare/Endangered.....

Their uses

.....

Plants parts used

.....

Mode of preparation and uses

.....

What is the cost of veterinary service? Do you offer free service yes/no....

If yes: how much

.....