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Research Article

## Ethnoveterinary study of floral therapeutics for livestock health in different communities of district Rewari, Haryana.

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### Abstract:

Domestic animals have been essential to the advancement of human civilization. Just as humans use plants for medicinal purposes, these plants also serve as remedies for various domestic animals. Conventional and native knowledge is increasingly recognized globally for its principles of coexistence and sustainable resource use. In this study our aim was to catalogue ethnoveterinary plants utilized by local groups in Rewari, Haryana. In all 142 informants were chosen using a non-probability sampling technique. Comprehensive data were collected for the medicinal plants employed in ethnoveterinary practices, covering their growth habit and habitat, parts used, methods of preparation, use of any additive, dosages, and routes of administration. In total, 67 plant species from 63 genera and 34 families were recorded, these This documentation comprised 40 herbs, 15 trees, eight shrubs and four climbing plants. with the Asteraceae family being the most prevalent, followed by Fabaceae, Amaranthaceae, and Solanaceae. Practicing traditional knowledge of medicinal plants can serve as a valuable approach for more scientific investigate, potentially in the lead of discovery and development of new drug and research into ethnoveterinary plants, may offer valuable insights for isolating and identifying beneficial compounds that could be developed into medicinal drugs for animal health.

**Key words:** Ethnoveterinary, Traditional knowledge, Documentation, Animal health, Rewari

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### Introduction:

The relationship between human and animal ages back to the emergence of civilization. People rely on livestock to meet a variety of needs, including food, milk, clothing, agricultural support, fertilizers, labour, and even income. The practice of plants in medicine is an ancient tradition that persists in many regions around the globe. In contemporary society, the knowledge of traditional plant uses and botanical practices is valuable not only for academic or historical purposes but also for the preservation and sustainable usage of plants. This

knowledge plays an essential role in the advancement of modern pharmaceuticals. Herbal healing is primarily based on empirical knowledge, often passed down verbally from one generation to next (Singh et. al., 2017). Unfortunately, written records of herbal therapy practices are inconsistent. In certain areas, the urgent need to document these practices arises, as this knowledge faces the risk of disappearing (Masika et al., 2000). Ethnoveterinary medicine is rooted in the study of local acquaintance, including the skills, practices, opinions, general practitioners, and communal structures

related to the health care of food, work and other income-generating animals. In recent times, there has been a growing attention in researching medicinal plants and their traditional claims across various regions of India. Numerous studies have recognized the routine usage of these plants in traditional remedial practices by groups of local peoples throughout the country. In India, the practice of ethnoveterinary medicine traces to ancient times about 5000 years old. Notably, the Atharva Veda serves a significant source of traditional medical knowledge, including remedies for animal ailments. Ancient texts, such as the Agni, Devi, Garuda, Matsya, Skand, Linga, Charaka, Susruta, and Shalihotra Purana, also provide insights into treating animal diseases with medicinal plants (Raikar et al., 2015). In the Mahabharata also, Pandav son Nakul and Sahadev are recognized as the veterinarians for horses and cows, respectively.

Farmers care for their livestock using ethnoveterinary practices, these are widely employed and have proven effective for maintaining the health and productivity of domestic animals. In far-off areas people continue to depend significantly on herbal and common household remedies to address veterinary issues (Parthiban et al., 2015). Over centuries, traditional communities have developed a deep understanding of ethnoveterinary practices and its significance. In regions where modern veterinary healthcare is limited or in poor condition, traditional treatment methods are vital.

Local herbalists, known as Pashu Vaidya's pass their acquaintance of veterinary attention vocally from one generation to the next. While documenting this ethnoveterinary knowledge could provide insights for drug development, there is still insufficient data evaluating and validating these traditional practices through modern scientific methods (Phondani et. al., 2010). A promising strategy is reverse pharmacology, a multidisciplinary approach that bridges traditional knowledge with cutting-edge research techniques, tools, technologies, and innovations, key role of this method is the integration of insights from folk treatment with cutting-edge technology to ensure more effective and safer outcomes (Raut et. al., 2016 & Patwardhan & Mashelkar, 2009).

In Rewari, livestock farming and crop cultivation are closely intertwined within mixed crop-livestock systems. This combined approach not only promotes sustainable family income but also plays vital role in the rural or farm-based economy of the district. There is a deep-rooted belief in traditional herbal medicine for healthcare, making these plants culturally and medicinally significant in the region. Haryana hosts various rural communities, but in Rewari, which mostly borders to Rajasthan, The Gujjars, Meo, Khati, Nai, Chamar, Valmiki, Bawaria, Sapera, and Yadav groups predominantly reside in rural areas and rely on cattle farming for their livelihoods, with cattle constituting major part of the population. They typically graze their livestock in low-lying areas and often turn to herbal remedies meant for treating animal ailments.

This knowledge of medicinal plants passes down orally through generations (Nair, 2006; Pushpangadan *et al.*, 2016), but a lack of interest from younger community members has led to debility in this valued knowledge, rendering it increasingly outdated. While several researchers have documented ethnoveterinary plants, there have been few efforts to record the traditional knowledge of veterinary herbal practices, keeping these and added considerations, there is a growing interest in ethnoveterinary research and development (Kone and Atindehou, 2008; Masika *et al.*, 2000; Masika and Afolayan, 2003; Tabuti *et al.*, 2003 and Yineger *et al.*, 2007). To address this gap, the present study was aimed compile current information on medicinal plants used for treating animal diseases among rural populations through assessable ethnobotanical study. The research also seeks to confirm these remedies through ongoing interactions with local residents at various times.

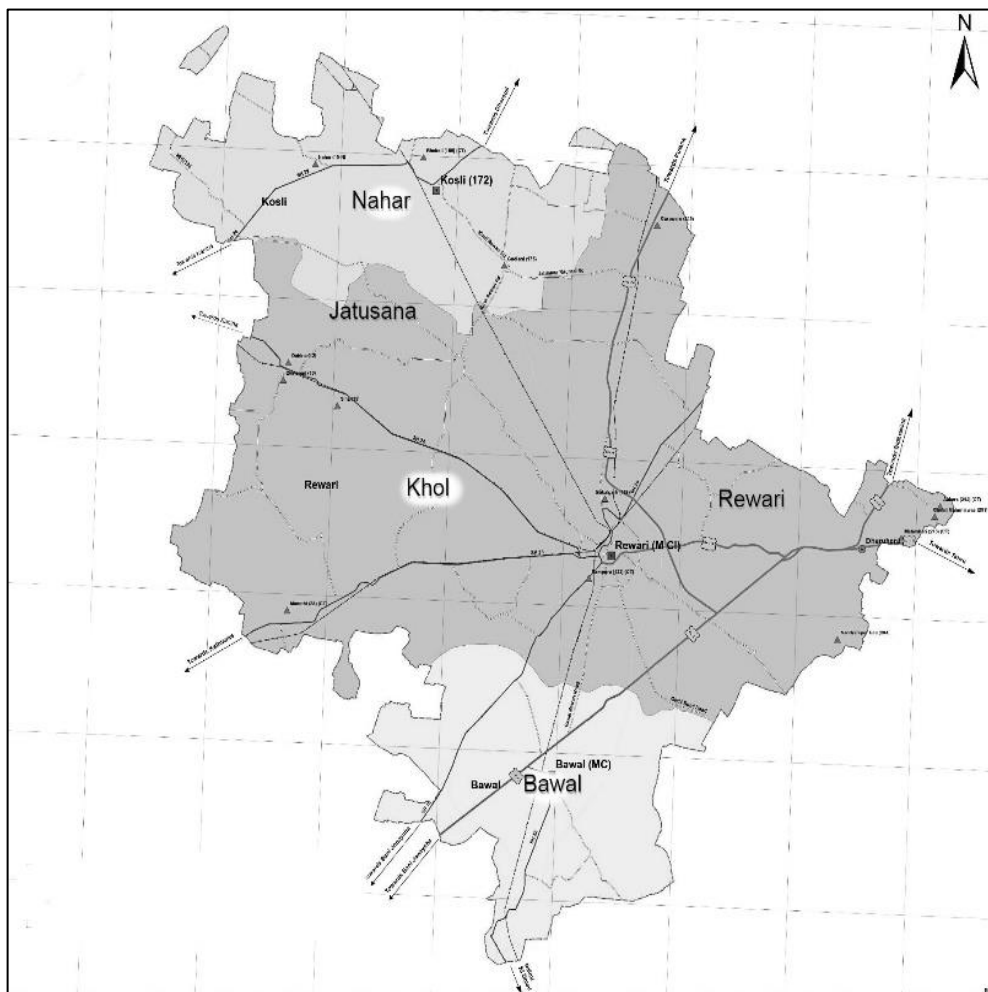
### **Study Site:**

The survey was conducted in the district Rewari, [Figure 1.] Haryana, India, focused on exploring the ethnoveterinary uses of plants in this region. Rewari lies within the geographical coordinates of 28.18°N and 76.62°E latitude and longitude respectively, boasting average height from sea level is 245 meters. Established on November 1, 1989, Rewari was previously part of the Mahendergarh district. Spanning an area of 1594 square kilometers, Rewari shares its borders with Jhajjar to the north, Mahendergarh to the west, and Gurugram to the east and northeast. Additionally, it shares a state boundary with Rajasthan to the southeast. As a part of the National Capital Region (NCR), Rewari is strategically positioned 84 kilometers from Delhi and the state capital, Chandigarh is 332 kilometers.

Administratively, Rewari is divided into three subdivisions; Rewari, Kosli and Bawal along with five community development blocks: Rewari, Bawal, Jatusana, Khol and Nahar. The district comprises 412 villages and have total population of 900,332 with literacy of 80.99%. Characterized by the hilly landscapes of the Aravalli patches, Topographically Rewari is diverse, featuring valleys, rolling landscapes, dune fields and alluvial flatlands. The Aravalli's, renowned as the world's oldest folded mountain ranges, dominate the southern and western parts of the district, significantly influencing its agro-climatic conditions and biodiversity.

Rewari experiences extreme temperature fluctuations, with summer temperatures soaring up to 46°C and winter temperatures dropping to 0-2°C. The area also encounters frequent dust storms during summers. The climate is predominantly dry, with usual rainfall ranging from 300 to 500mm. The monsoon months of July, August, and September witness heavy rainfall in the region. Given its unique landscape and climatic conditions, Rewari's rural populace primarily relies on agriculture and animal husbandry for livelihoods. The influence of the Aravalli ranges shapes not only the district's physical environment but also its socio-

economic dynamics, making it a focal point for exploring traditional medicinal plant knowledge and its significance in local communities.



**Figure 1. Map showing demographic details of district Rewari.**

**Data Collection:**

A comprehensive field study was conducted in Rewari district, Haryana, spanning from 2022 to Aug. 2024. This timeframe was strategically chosen as it coincided with the flowering stage of most plants, facilitating their easy identification. Ethnobotanical data was methodically gathered using a pretested questionnaire approved by Baba Mastnath University, Rohtak (Yadav et. al., 2024). The survey proforma was thoughtfully designed and pretested with local informants, and later refined based on their feedback, direct observations, discussions, and interviews.

The majority of respondents were within the age bracket of 40 to 70 years, with individuals possessing extensive traditional knowledge selected through the snowball method. Before collecting data, the study's purpose was clearly explained to the informants, who then gave their consent. It was emphasized that participation was

voluntary, and informants had the freedom to withdraw from the interviews at any point. Local residents played a crucial role as guides during the field study, facilitating access to key locations and providing valuable insights. Significant plants specimens were methodically collected, and local identity of each plant confirmed by informants. These collected plant specimens were carefully dried and pasted on standard herbarium sheets, accompanied with detailed information regarding the time and method of collection. To ensure accuracy in plant identification, all collected specimens were verified by botanists exclusively involved in field of Taxonomy and also confirmed from flora of Haryana, Sultanpur lake and Flora of Rajasthan. Voucher specimens were then placed to the herbarium for further reference and documentation. This thorough process ensured the reliability and validity of the ethnobotanical data collected during the survey, laying the groundwork for future research and conservation efforts in the region.

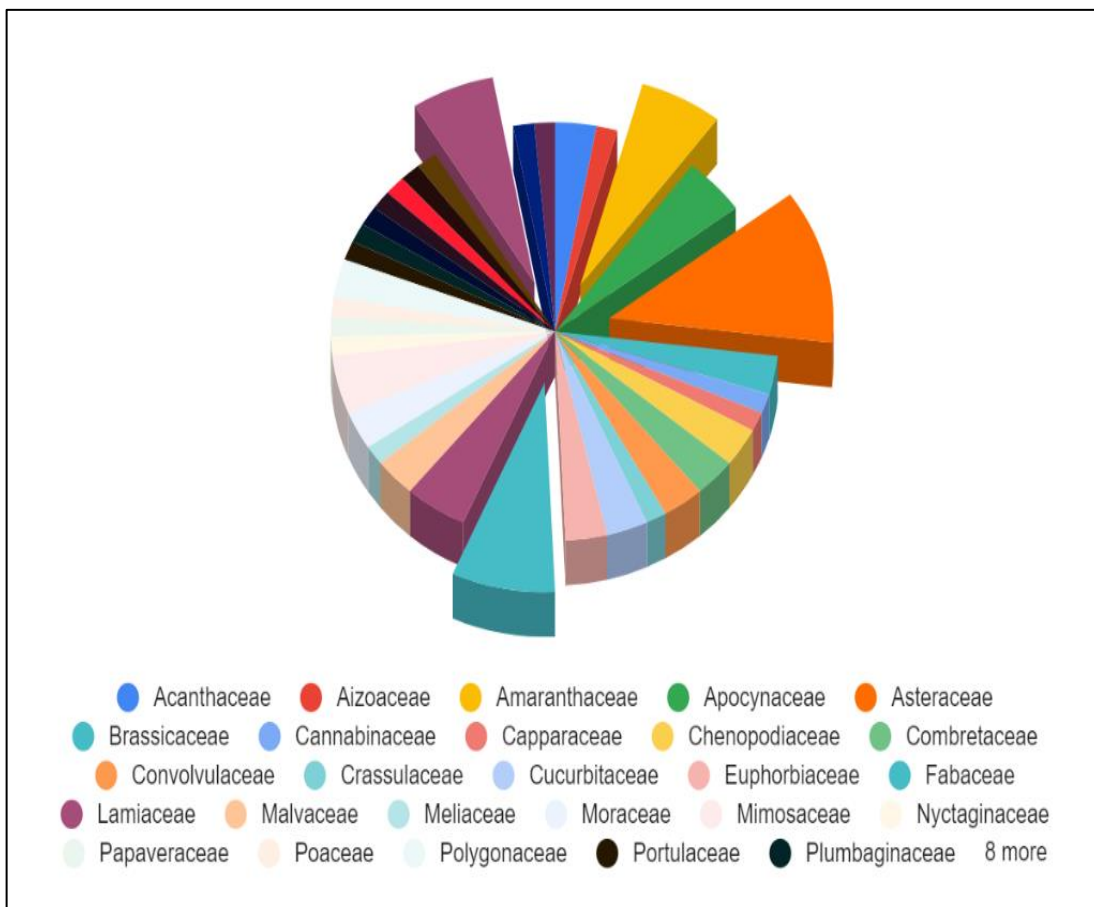


Figure 1. Diagram showing number of plants in various families.

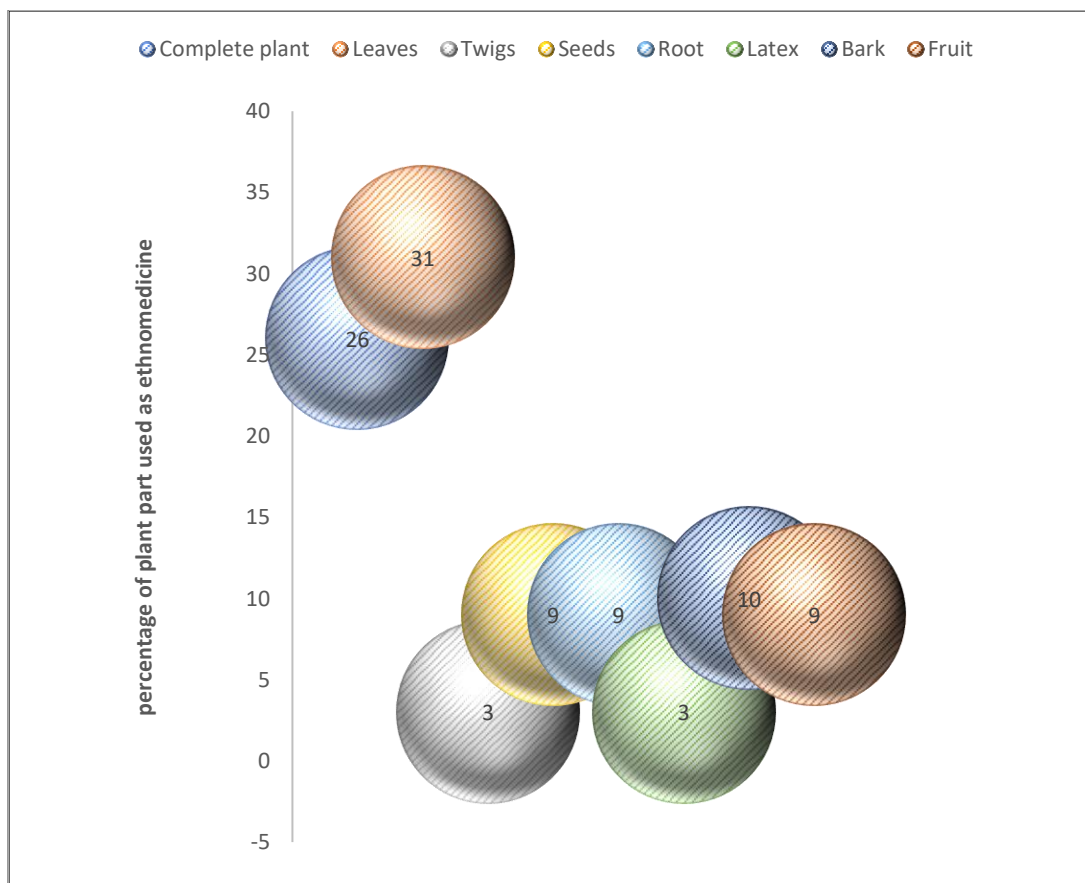
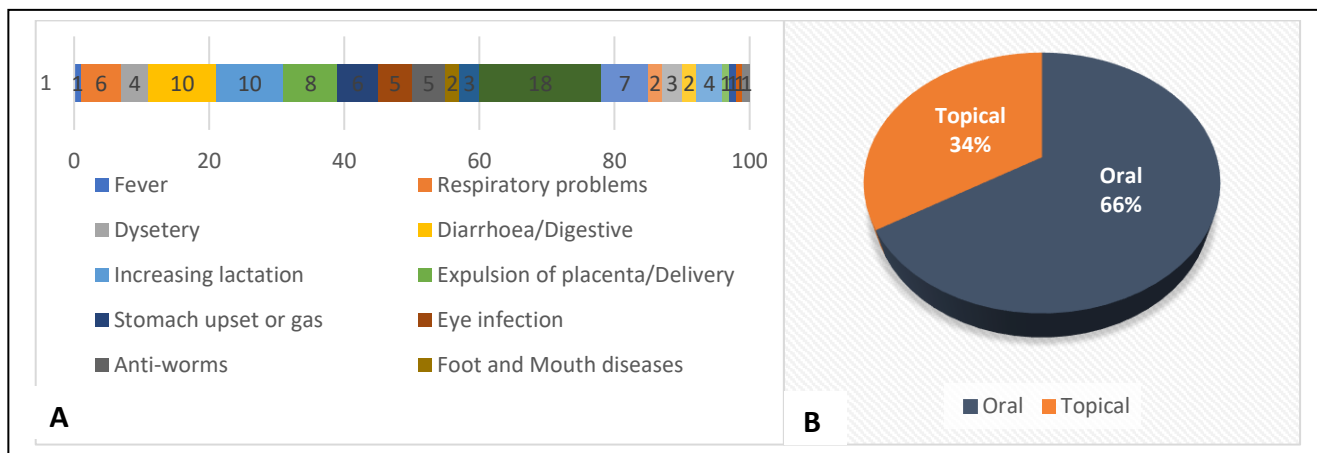
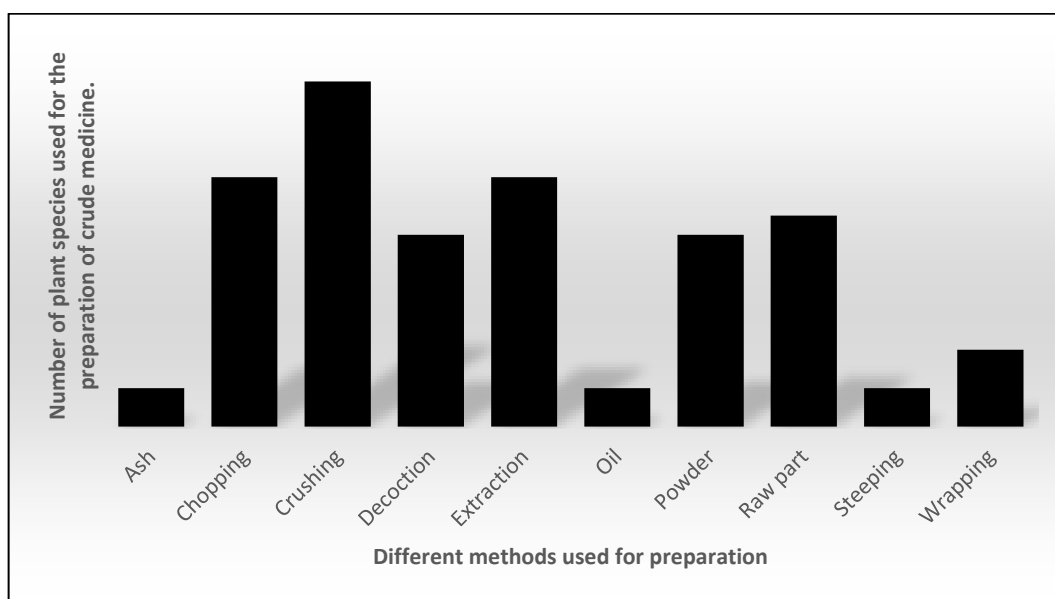


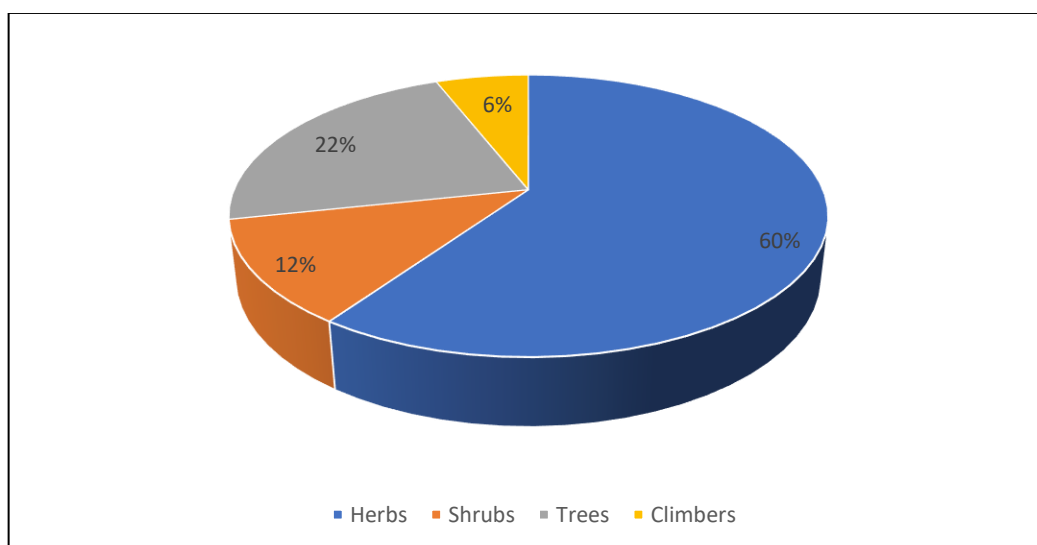
Figure 2. Diagram showing percentage of plant parts used as ethnoveterinary medicine.



**Figure 3(A).** Diagram showing no. of plant species used for various animal ailments. **(B)** Proportion of different methods of administering plant-based ethnoveterinary medicine.



**A**



**B**

**Figure 4 (A).** Diagram showing different plant type used as ethnoveterinary medicine. **(B)** Number of plant species used by various methods of extraction.

**Table 1. Information about the informants who consented to participate in the ethnoveterinary survey conducted in the study area:**

Informant details	No. of informers (142)	Percentage (%)
Occupation for livelihood		
Hakims/ Vaidyas	35	24.65
Farmers	64	45.07
Local healers	32	22.53
Shopkeepers	11	7.75
Age groups		
40-55	48	33.80
56-65	77	54.22
>65	17	11.98
Educational status		
illiterate	38	26.76
Primary	67	47.18
Middle	19	13.38
Secondary	16	11.27
Graduate	02	1.41

**Results:**

In an all 142 respondents were questioned. Out of these majority of respondents were male (91.50%) compared to female (8.50%). Many were aged over 65 years (11.98%), between 56 and 65 years (54.22%), and 40 to 55 years (33.80%). Due to the availability of ethnic knowledge mainly to older peoples in the region, a significant portion of the respondents were primary educated (47.18%, Table 1). However, some were more educated and completed middle, secondary and Graduation level of education, indicating a recognition of the importance of education (13.38, 11.27 and 1.41%) respectively. Many respondents were illiterate particularly of old age. All of the respondents were communicated in Hindi and local dialect of Haryanvi.

In the present survey, 67 plants from 34 families (Table 2) were recorded as being utilized for the treatment of 21 distinct major illnesses by herders, farmers, and peoples in the villages of Rewari, Haryana. The findings gathered during the study were summarized, offering the resulting information for each plant species: scientific name, family name, common name, habitat, part utilized, and condition treated. During this study we found that herbs were the most frequently utilized life form by the residents, with 40 species (59.70%; Figure 3.), this was followed by trees and shrubs, each comprising 15 (22.39%) 08 (11.94%) species respectively. The widespread use of plants in the area for preparing remedies is largely due to their abundance and easy accessibility in the wild, compared to other living organisms. The family with the greatest number of plant species used in traditional ethnoveterinary medicine by local communities was Asteraceae, comprising 8 species., (11.94%), Fabaceae represented 05 species (7.46 %) followed by Amaranthaceae and Solanaceae 04 species (5.97%) each. Apocynaceae, Lamiaceae and Momosaceae each contributed 3 species (4.48% each), while the other families like Acanthaceae, Brassicaceae, Chenopodiaceae, Combretaceae, Convolvulaceae, Cucurbitaceae, Euphorbiaceae, Malvaceae, Moraceae and Polygonaceae remained by 02 species (2.99% each), rest contributed about 1.49% each, as shown in [Figure

1]. Among the 21 major ailments identified in the study area, local people and informants reported that healing of wounds or abscess was the most frequently addressed issue, using 18 plant species for treatment. This was followed by digestive problems and increased milk production with 09 species, and expulsion of placenta managed with 07 species. Inflammation in body neutralized by 06 species. Respiratory problems and upset of stomach particularly with gas cured with 05 plant specimens. Eye infection and intestinal worms treated with 04 species, while dysentery, increase in appetite, mastitis and induction of heat also managed by three species each. Nevertheless, all remaining eight illnesses were treated by lesser than three species each [Figure 3A].

Various plant parts were utilized to formulate ethnoveterinary medicine recipes for treating a range of ailments, as summarized in [Figure 2]. Among the various plant parts studied, leaves were the most frequently utilized in herbal formulations (27 species, 30.34%), followed by complete plant (23 species, 25.84%), bark (09 species, 10.11%), fruits, roots and seeds (08 species, 8.99%). Aerial parts such as young twigs and latex were each represented by 03 species (3.37% each). The collection of leaves and their use in remedy preparation is notably easier, which contributes to their status as the most utilized plant part for addressing livestock ailments. For the treatment of 21 different illness, about ten distinct formulation types were made using different plants [Figure 4B]. The majority of ethnoveterinary remedies were prepared as crushing of plant specimens (18 species, 21.18%), followed by chopping and extraction preparations (13 species, 15.29%), decoction and powdered forms each accounted for 10 species (11.76%), while wrapping were represented by 3 species (4.71% each). Additionally, ash, oil, and steeping methods were used for 2 species each (2.36%). Overall, the predominant method for remedy preparation was in powdered form, which was primarily employed for the care of animal diseases. In the current study, predominant method of use for crude drug was oral administration (53 species, 66.25%),

followed by topical application (27 species, 33.75%) (Fig. 3B). The majority of the treatments in the field were taken orally to treat various common illnesses

**Table 2. showing the details of various plants are being used as ethnoveterinary plants.**

S.No.	Local Name & Habit*	Scientific Name	Plant used for Ethnoveterinary importance			Veterinary Use	Method of use
			Family	Part in Use	Route of application		
1	Kalmegh, H	<i>Andrographis paniculata</i> (Burm. f.) Nees	Acanthaceae	Leaves	Oral	Fever and Cough of cattles	Water decoction is given to cattles in fever and cough.
2.	Arusa, H	<i>Justicia adhatoda</i> L.	Acanthaceae	Leaves	Oral Topical	Wound healing anti-inflammatory.	Leaf powder is given with jiggery and leaf paste is applied over inflamed area.
				Twig	Oral	Dysentery and diarrhoea.	Extract of twigs mixed with jamun bark powder and given to cattles in diarrhoea.
3.	Saanti, H	<i>Trianthema portulacastrum</i> L.	Aizoaceae	Whole plant	Oral	Improving digestion	Chopped plants are given with feed to the cattles.
4.	Kanta Chaulai, H	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Whole plant	Oral	Lactation, Delivery problems	Paste of whole plant is given to cattles for smooth delivery and enhanced lactation.
5.	Jangli Chaulai, H	<i>Amaranthus viridis</i> L.	Amaranthaceae	Seeds	Oral	Tympanatic problems	Seeds are blended with water and give to livestock to get rid of from air or gas in stomach.
6.	Aula kanta, H	<i>Achyranthes aspera</i> L.	Amaranthaceae	Root	Oral	Respiratory ailments	Root paste or powder is given with hing in respiratory problems.
				Leaves	Oral	Stomach pain and bloating	Juice extracted from leaves with saffron is given to get relief in bloating.
7.	Safed Bui, H	<i>Aerva javanica</i> (Burm. f.) Juss. Ex Schult.	Amaranthaceae	Whole plant	Oral	Purgative, antidiarrheal and anthelmintic medicine in cattle.	Uprooted plants are given to cattles along with feed
				Seeds		Foot and Mouth disease	Boiled seeds are fed to animals with foot and mouth disease.
				Roots	Topical	Eye Infection	Roots extract is used to treat eye infection in goats.
8.	Aakda, H	<i>Calotropis procera</i> (Aiton) W.T. Aiton	Apocynaceae	Bark	Topical	Expulsion of placenta in cows and buffaloes	Tail is soaked in latex for few minutes.
				Leaves	Oral	Gut Anti-worm in Sheeps Increase milk productivity in goats	Feed is made up of fresh leaves. Dried powdered leaves given orally to the cattles for augmenting milk production.
9.	Safed Aakda, H	<i>Calotropis gigantea</i> (L.) W.T. Aiton	Apocynaceae	Leaves	Topical	Bone fracture in legs	Leaves of calotropis and Butea are heated and tied over fractured area.
10.	Kaner, H	<i>Nerium oleander</i> L.	Apocynaceae	Seeds	Topical	Wound healing	Ash of seeds mixed with mustard oil and applied over wound area.
11.	Gokharu, H	<i>Acanthospermum hispidum</i> DC.	Asteraceae	Leaves	Oral	Health tonic	Extract from leaves is given to cow and buffaloes for their overall health during rainy season.
12.	Jangli pudina, H	<i>Ageratum conyzoides</i>	Asteraceae	Whole plant	Topical	Cut and wound healing	Plant paste applied topically to the wound and cut.
				Leaves	Oral		Juice extracted from leaves is given to cattles for fast healing of injury.
13.	Bhrangraj, H	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Whole plant	Topical	Healing of wounds and swelling	Paste is made of twig and applied topically over cut or swollen area.

				Leaves	Oral	Bronchitis	Juice is extracted from leaves and given orally in cold.
14.	Surajmukhi, H	<i>Helianthus annuus</i> f. <i>Annuus</i>	Asteraceae	Seeds	Oral	Smooth parturition in cattles	100 ml of seed oil is given to cattles in last trimester.
15.	Galobi, H	<i>Launaea procumbens</i> (Roxb.) Ramayya & Rajagopal.	Asteraceae	Whole plant	Oral	Increasing lactation	complete plant is mixed with fodder during lactating period of cattles.
16.	Ghamra, H	<i>Tridax procumbens</i> L.	Asteraceae	Leaves	Topical	Healing of cuts and wounds	Paste of leaves is applied over cuts and wounds till heals in cattles.
17.	Chirchita, H	<i>Xanthium strumarium</i> L.	Asteraceae	Leaves	Topical	Wounds healing	Paste of leaves applied over wounds generally over neck region.
18.	Kali Jiri, H	<i>Vernonia cinerea</i> (L) Less.	Asteraceae	Seeds	Oral	Helps in increasing appetite and hence milk production	A mixture containing 1 kg of kali jiri, 10 g of garlic, 50 g of onion, and 10 g of ginger, combined with 100 g of jaggery, is administered orally once daily to enhance appetite in cattle.
19.	Roheda T	<i>Tecoma undulata</i> (Sm.) Seem	Bignoniaceae	Roots	Oral	Purification of blood in camels and Buffaloes	Equal amount of root extract with root extract of jharber along jaggery given to camels and buffaloes.
				Bark	Topical	treating abscess	Paste of bark applied over abscess.
20.	Leshwa T	<i>Cordia dichotoma</i> G. Forst.	Boraginaceae	Leaves	Topical	Nipple fissures	Warmed leaves are covered over cracks on nipples in cattles.
21.	Sarishapa T	<i>Eruca sativa</i> Mill.	Brassicaceae	Whole plant	Oral	Curing of mastitis	Plants in kilograms are given as feed to cows and Buffaloes.
22.	Khubkaln H	<i>Sisymbrium irio</i> L.	Brassicaceae	Shoot	Topical	Reduce swelling and wound cleaning.	Emulsion of plant is applied over wound area on skin.
23.	Bhang, H	<i>Cannabis sativa</i> L.	Cannabinaceae	Leaves	Oral	Diarrhoea	Leaf powder mixed with whey and given to cattles.
24.	Kair, S	<i>Capparis decidua</i> (Forsk.) Edgew	Capparaceae	Whole plant	Topical	Helps in relieving form conjunctivitis	Extract from above ground part with water used for washing eyes.
				Root		Curing inflammation over neck	Paste of root is applied over inflamed part.
25.	Bathua H	<i>Chenopodium album</i> L.	Chenopodiaceae	Whole plant	Oral	A good source of iron and vitamin used for quality milk production.	Plant leaves are utilized as feed to improve the quality of milk in cows and buffaloes.
26.	Khartwa H	<i>Chenopodium murale</i> L.	Chenopodiaceae	Whole plant	Oral	Helps in tolerance of chilling temperature.	Plant leaves provided as fodder along with gur for increasing tolerance power to low temperature in cattles.
27.	Arjun T	<i>Terminalia arjuna</i> (Roxb.) Wight & Arn	Combretaceae	Bark	Oral	Expulsion of perinatal placenta in cows and buffaloes	Paste of bark is provided to cows and buffaloes before feed.
28.	Harad T	<i>Terminalia chebula</i> Retz.	Combretaceae	Fruit	Oral Decoction	Digestion related problems of cattles	Fruit decoction with methi in boiling water is given for a week.
29.	Ratlam H	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Whole plant	Oral	Increase lactation	Chopped plant is given with fodder for increasing lactation.
30.	Amarbel Cl	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Whole plant	Topical Decoction	Against bite of poisonous worms	Boiling water decoction is applied topically over inflamed area of bite mark.
31.	Amarpoi, Patherchat H	<i>Kalanchoe pinnata</i> (Lam.) Pers.	Crassulaceae	Leaves	Oral	Urinary Infections	Leaves are given to cattles twice a day for curing urinary tract infections.



32.	Gadumba Cl	<i>Citrullus colocynthis</i> (L.) Schrad.	Cucurbitaceae	Fruit	Oral	Digestive problems  Improving digestion	Fruits with the leaves of <i>Solanum surratense</i> in 2:1 is given to cattles Chopped fruits are given with the food for enhancing their digestion.
33.	Kachri Cl	<i>Cucumis callosus</i> (Rottb.) Cogn.	Cucurbitaceae	Fruit	Oral	Stomach related issues such as pain and irregular bowl habit	50-100g mixture of fruit paste and buttermilk given twice daily for 4-5 days.
34.	Arand S	<i>Ricinus communis</i> L.	Euphorbiaceae	Seed	Oral	Gastro-intestinal problems	50-70 ml of diluted seed oil is given orally twice a day for cleaning of intestine after recovery from intestinal infection.
35.	Dudhi H	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Latex	Topical	Treatment of skin infections.	Plant latex applied directly on skin for curing skin problems.
36.	Amaltas T	<i>Cassia fistula</i> L.	Fabaceae	Fruit	Oral	Relives symptoms of gastro-intestinal problems	Fruit decoction is given to cattles in diarrhoeal problems
				Stem bark	Topical	Used during insect bite and swollen area.	Stem bark paste applied over bite or inflamed area over body on cattles.
				Leaves	Oral	Indigestion, improves appetite and used as purgative during severe constipation.	Leaf paste after mixing with mustard oil given to cattles.
37.	Aprajita Cl	<i>Clitoria ternatea</i> L.	Fabaceae	Root	Topical	Prevention of inflammation after poisonous sting.	Paste of root powder is applied over inflamed area of sting.
38.	Gwar H	<i>Cyamopsis tetragonoloba</i> (L.) Taub.	Fabaceae	Seeds	Oral	Induction of period of heat	Kilogram fried seeds are served to cows and buffaloes for inducing period of heat.
39.	JangliMethi H	<i>Medicago polymorpha</i> L.	Fabaceae	Whole plant	Oral Decoction	Digestion related issues	Decoction obtained after boiling fresh water, given 2-3 times daily for a week
40.	Jaanti T	<i>Prosopis cineraria</i> (L.) Druce	Fabaceae	Bark	Topical	Healing of cuts and wounds	Bark powder is sprayed over cuts and wound and applied bandage over the affected area.
				Fruit	Oral	Induction of period of heat	Paste of fruit boiled in water and given to cattles for inducing estrous cycle.
41.	Rantil H	<i>Anisomeles indica</i> (L.) Kuntze	Lamiaceae	Leaves	Topical	Curing of inflammation or wounds	Topical application of crushed leaves to the neck of a bullock is employed to alleviate inflammation induced by cart pulling.
42.	Satavar H	<i>Asparagus recomosus</i> Willd.	Lamiaceae	Whole plant	Oral	Induction of period of heat	About half kilogram of plant part is given daily for inducing period of heat.
43.	Gophaa H	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Whole plant	Topical	Repellent for ticks and mites in cattles	Plant is steeped in water which is used for bathing animals.
44.	Kanghi H	<i>Abutilon indicum</i> (L.) Sweet	Malvaceae	Leaves	Oral	Diarrhoea and Dysentery	Leaf powder or paste is given orally during uneven bowl conditions.
45.	Binola S	<i>Gossypium hirsutum</i> L.	Malvaceae	Seeds	Oral	For the improvement of quantity and quality of milk	Boiled seeds mixed with daily feed for few months
46.	Neem T	<i>Azadirachta indica</i> A. Juss.	Meliaceae	Leaves	Topical	Healing of wounds	A paste consisting of crushed leaves intermingled with hairs and mustard oil applied over fractured horns for smooth healing.
47.	Peepal T	<i>Ficus religiosa</i> L.	Moraceae	Bark Leaves	Oral decoction	Expulsion of retained placenta	Bark decoction prepared in boiling water in 1:4 if

						Curing of upset stomach in sheep and goats.	placenta is retained by buffalo and cows. Young leaves are given as feed for curing upset stomach.
48.	Kikar T	<i>Acacia nilotica</i> (L.) Delile	Mimosaceae	Young Twigs Fruits Leaves	Oral	Anti-diarrheal  Deworming practice  Smooth delivery after gestation period.	Yong twigs are given to goat, sheep and buffaloes for curing diarrhoea. Fruits are given to get rid of worms in young ones of cattles. Powdered leaves mixed with ghee and sugar in the last trimester of gestation period
49.	Siras T	<i>Albizia lebbek</i> (L.) Benth.	Mimosaceae	Latex	Eye drop	For curing conjunctivitis	Latex is mixed with milk of sheep and used as eye drop in cattles.
50.	Punarnava H	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Whole plant	Oral	Removal of retained placenta  Improves vitality	Raw plants are given to cattles after delivery for smooth expulsion of placenta. Plant is used as feed along with chaff for horses and bullocks.
51.	Satyanashi H	<i>Argemone Mexicana</i> L.	Papaveraceae	Whole plant	Oral decoction	Curing of constipation	Decoction prepared by plant in boiling water in ratio of 1:10
52.	Jhunda (Sarkanda) H	<i>Triplidium bengalense</i> (Retz.) H. Scholz	Poaceae	Leaves	Oral	Increasing milk production in cattles	Chopped 0.5 kg leaves are given with feed to lactating cattles for increasing production of milk.
53.	Phog S	<i>Calligonum polygonoides</i> L.	Polygonaceae	Whole plant	Oral	For the treatment of urinary issues in cattles	About one kg of plant weight used as feed along with fodder on daily basis for a week.
54.	Jangli palak H	<i>Rumex dentatus</i> L.	Polygonaceae	Whole plant	Oral	Extract of leaves known to cure mouth sore	Plant is used as fodder for the curing of mouth sore and ulcers.
55.	Ghotica H	<i>Portulaca oleracea</i> L.	Portulacaceae	Whole plant	Oral	For stoppage of bleeding during and following delivery.	Whole plants are given as feed with fodder.
56.	Chitrak H	<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Leaves	Oral	Improvement of appetite.	Dried twigs powdered with baking soda are administered orally for a period of 2-3 days to enhance appetite.
57.	Jonkmari H	<i>Anagallis caerulea</i> L.	Primulaceae	Whole plant	Oral	Helps in removal of leeches from animals.	used as cattle feed to expel out leeches from nostrils.
58.	Jhar Ber S	<i>Ziziphus nummularia</i> (Burm. f.) Wight & Walk-Arn.	Rhamnaceae	Twigs and Leaves Fruit Root	Oral  Decoction	For the removal of intestinal worms.  To cure diarrhoea in cattles and young ones For curing of foot and mouth disease.	About half kilograms of young twigs and leaves are given to treat worms.  200g of crushed fruits are given to cattles for the treatment of diarrhoea. Decoction in boiling water with jaggery given in the treatment of foot and mouth diseases of cattles.
59.	Bel T	<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Fruit	Oral	Treatment of diarrhoea.	500 grams of fruit paste with 50 grams of ginger given orally for one week.
60.	Jaal T	<i>Salvadora persica</i> L.	Salvadoraceae	Leaves	Oral	Used for increasing milk production in goat and Sheep.	Leaves are used as feed twice a day during lactating period.
61.	Ullu Neem, T	<i>Ailanthus excelsa</i> Roxb.	Simaroubaceae	Leaves	Oral	Good appetizer for goats and Sheeps.	Leaves are directly provided for grazing or chopped leaves given with fodder.

				Bark	Topical	Removal of flies and maggots from wounds.	Bark paste applied over wound area for protection from flies and others.
62.	Kala Dhatura H	<i>Datura metel</i> L.	Solanaceae	Leaves	Topical	Used in treatment of wounds	Leaf paste applied over wounds.
				Root	Oral	Treats cough and dysentery and also stops bleeding over wound.	Root powder given in chapatti for the treatment of dysentery and cough.
				Fruit	Topical	Heals wounds over body.	Fruit paste in mustard oil applied over wound.
63.	Janglikanta S	<i>Lycium edgeworthii</i> Dunal	Solanaceae	Bark	Oral	Curing of respiratory ailments in horses	Paste or powder of bark used for the treatment of bronchitis in horses.
64.	Makoi H	<i>Solanum nigrum</i> L.	Solanaceae	Whole plant	Topical	Treats eyes malfunctioning	Juice is extracted by maceration of plants and few drops are put in the eyes of cattles.
65.	Ashwagandha S	<i>Withaniasomnifera</i> (L.)Dunal	Solanaceae	Root	Oral	Used in treatment of respiratory problems.	Root decoction is given to buffaloes and camels for the treatment of respiratory issues.
66.	Jhau or Phiransh T	<i>Tamarix aphylla</i> (L.) H. Karst.	Tamaricaceae	Bark	Topical	Healing of cracks in nipples of cow and buffaloes.	Ash from the bark, mixed with Vaseline, applied over cracked nipples and burn injuries in buffaloes.
67.	Saptrangi S	<i>Lantana camara</i> L.	Verbenaceae	Leaves	Topical	Quick blood clotting on wounds and cuts.	Juice extracted from the leaves applied topically to cuts and wounds.

Habit\* types include H- Herbs, S- Shrubs, T- Trees and Cl- Climbers.

### Discussion:

Livestock raising, a vital source of income for rural societies in the Rewari district of Haryana. Multiple findings in the present study indicate that farmers in the area utilize plants not only as feed for their animals but also as medicinal treatments for livestock diseases. We documented 67 plant species from 34 families. Yadav et. al., 2014 identified and reported 54 plants from 37 families used for addressing various livestock ailments in the Tosham block of Bhiwani, Haryana. Similarly, Sangwan et. al., 2023 recorded 45 medicinal plants from 31 families that helps in treating 10 different livestock diseases in the Charkhi Dadri district of Haryana. While traditional remedies are not widely known among the younger generation, the elders possess extensive knowledge of livestock care. These findings align with those of Zerabruk and Yirga; 2012, who observed that most respondents were aged, with few young individuals participating in traditional livestock treatment practices. The potential of plants utilized in Indian ethnoveterinary practices are documented in different parts of Haryana earlier, but not in Rewari. One such study has highlighted 37 plants from 25 families that are used for treating domestic animals, particularly focusing on folk herbal veterinary practices in Southern Rajasthan. Additionally, research has been conducted on traditional herbal remedies from the Shekhawati region of Rajasthan (Takhar, 2004 & Jain, 2000, 2007), which is in southwest of Rewari.

The plant family with the greatest number of species utilized in indigenous ethnoveterinary medicine is Asteraceae (5 species, 11.94%), trailed by Amaranthaceae and Solanaceae (4 species, 5.97% each). This abundance in distribution and diversity of plants from these families may be attributed to their prevalence

in the region, like the other studies of area by Yadav et. al., 2024. Additionally, the extensive use of these species could be related to the presence of beneficial bioactive compounds that provide protection for livestock against various diseases (Gazzaneo; 2005; El Saadony, 2021). Moreover, it was found that herbs were the frequently utilized growth form among the local population, comprising 40 species (59.70%), followed by trees (22.39%), shrubs (11.94%) and climbers (5.97%). Herbs are the most common life forms, followed by trees, shrubs, and climbing plants. Similar studies have also noted a dominance of herbaceous plants. This prevalence of herbs in both traditional and indigenous therapeutic systems can be attributed to their easy accessibility, significant therapeutic benefits, and the occurrence of biologically active phytochemicals. Additionally, the soft tissues of these plants facilitate straightforward extraction and preparation methods (Wani et. al., 2022) Indigenous healers primarily favoured herbs for medicinal purposes due to their natural abundance, utilizing them to treat different animal diseases, including wounds, bone injuries, colic, indigestion, retained afterbirth, constipation, milk production, foot-and-mouth disease, mastitis, and diarrhoea. These conditions are commonly observed in various livestock, such as buffaloes, cows, goats, horses and sheeps.

Indigenous communities gathering various plant parts—such as roots, stem, bark, leaves, aerial parts, fruits, seeds and whole plants—for use in different remedies. However, several important plant species, while present, are facing severe threats due to overharvesting, and grazing pressures. The most commonly used plant parts were leaves (27 species), followed by complete plants (23 species,), bark (09 species), fruits, roots and seeds

(08 species each), and roots and twigs (03 species) with 3.37%. Globally, ethnic communities frequently use leaves for preparing herbal ethnoveterinary medicines. Similar observations were made by Kanther and Gena, 2012, who noted that the local tribes in Tadgarh-Raoli wild life sanctuary predominantly utilized leaves for their ethnoveterinary remedies. (Poffenberger et al., 1992) indicated that the collection of leaves stances less of a threat to plant survival compared to harvesting underground parts such as stems, bark, or entire plants. The choice of certain plant parts suggests they possess significant therapeutic potential, although biochemical analysis and pharmaceutical screening are necessary to confirm their efficacy. Traditional knowledge regarding indigenous ethnomedicine is primarily passed down vocally from generation to generation, lacking written documentation. This practice remains prevalent among rural and local communities in many regions worldwide. Typically, older, less-educated individuals are more knowledgeable about the preparation and application of these remedies. Integrating precisely validated ethnoveterinary practices in rural areas can contribute to improving livestock quality and enhancing production and hence, their economy.

The primary method of application for remedies was oral administration, accounting for 53 species (66.25%). Most treatments in the study area were delivered orally for various ailments. Other studies have reported similar findings as well (Ayyanar & Ignacimuthu, 2011 and Yabesh et. al., 2014). Moreover, administering ethnoveterinary methods presents significant challenges in the region due to the lack of standardized measurement units for plant remedies. While dosages are typically gauged using glasses, cups, and portions of plant materials such as seeds, the actual amount administered often varies based on the animal's age, the severity of the condition, and the size of the animal. The predominant method for preparing remedies was in crushing form, commonly used for treating animal diseases, corroborating results from earlier studies (Yabesh et. al., 2014). Crushing is a widely used method of preparation in ethno-medicinal practices because they are easy to prepare and handle. Additionally, pastes due to crushing preserve the original and pure characteristics of the plant material, as no heat or other treatments are applied, thereby maintaining the phytochemical composition and enhancing their biological activity. Moreover, the procedure for remedy preparation often varies from one distinct to another, with traditional veterinary practitioners using the same plant to treat the same disease in different ways. The approach to dosage measurement is generally inadequate, leading to dissatisfaction among veterinarians regarding the use of ethnoveterinary medicines. A more practical and potentially profitable approach would be to conduct pharmacological research and development to create an optimized preparation along with the encouragement of documentation of indigenous knowledge and uses. The resulting medication could then be reintroduced to society, providing added benefits.

#### **Conclusion:**

The survey revealed that the study area has good medicinal flora capable of treating both simple and complex animal ailments. Many local traditional practitioners in Rewari district continue to rely on these plants, as knowledgeable healers foster strong relationships with their patients, enhancing the overall quality of healthcare. There is a need for further focus on plant species with high reliability levels. The plants with significant use value identified in this study suggest their potential as ethnoveterinary remedies, offering researchers a quantitative framework to explore the connections among taxonomic groups based on their medical applications. The 67 documented plant species hold promise for discovering new uses, highlighting the necessity for in-depth scientific investigations into their phytochemical, biological, and clinical properties. This research underscores the importance of prioritizing projects aimed at the pharmacological valuation and conservation of the region's medicinal plants.

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