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Use of Ethnoveterinary Practices by Dairy Farmers in Faisalabad

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ABSTRACT

To document ethnoveterinary practices (EVPs) practiced by dairy farmers in Faisalabad and categorize significant plant-based remedies. A one-year survey of 295 livestock owners was conducted using Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA). Open-ended interviews and plant taxonomy verification were conducted. Fifty-eight remedies were documented through taxonomic validation: 41 plant-based, 11 plant–animal formulations, and 6 non-plant-based. Thirty-nine medicinal plants across 26 families were taxonomically classified. Commonly treated ailments included diarrhea, bloat, mastitis, ectoparasites and zeharbad (toxins). Remedies were predominantly formulated by decoction or pulverization and administered orally or topically. EVPs have played a fundamental role in the healthcare of rural dairy animals. Scientific validation and dosage standardization protocols, along with formal veterinary systems, are crucial to ensure safety and efficacy.

Keywords: Ethnoveterinary, medicinal plants, livestock, ailments & remedies

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Introduction

Ethno-veterinary practices (EVPs) refer to the traditional community-based knowledge systems used to prevent and treat animal diseases through natural remedies, primarily derived from plants and organic materials [1]. These practices are cost-effective, locally accessible, and free from chemical residues, offering a sustainable alternative to allopathic treatments, which have limitations such as antimicrobial resistance (AMR) and adulteration of primary dairy animal products, like milk and its byproducts [2]. However, EVP knowledge is diminishing rapidly due to innovations, socioeconomic shifts, and the lack of cultural facts transmission [3]. In Pakistan, where farmers have relied on EVP for millennia, scientific documentation remains minimal despite its continued use [4]. This study was conducted in Faisalabad to record existing EVP knowledge among dairy farmers and appraise its applications.

Materials and Methods

This study was conducted in Faisalabad, Pakistan—a region recognized for its agricultural productivity due to fertile soil and an efficient irrigation system. Despite the presence of thirty-five veterinary hospitals, forty dispensaries and one hundred sixteen centers, traditional ethno-veterinary practices remained widely used for livestock healthcare [5,6]. In 2007, Faisalabad had approximately 26,500 cattle and 76,700 buffalo, primarily managed by smallholder farmers for milk production and household income [7]. Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA) techniques were used for data collection [8]. The initial RRA (Feb–June 2007) helped identify livestock owners within 25–30 km of the city. A total of 295 key respondents were randomly selected from all four directions of the metropolitan boundary. Each trained team included a veterinarian, a supporting assistant, and a local community representative, conducted open-ended interviews, emphasized group deliberations and made surveys. Information on traditional remedies was collected using a structured questionnaire. Plant species mentioned by respondents were authenticated by a taxonomist and voucher specimens were submitted to the Ethno-veterinary Research and Development Centre, University of Agriculture, Faisalabad.

Results & Discussion

A cumulative total of fifty-eight (58) ethno-veterinary practices were compiled from dairy farmers in Faisalabad. Among these, 41 remedies were derived predominantly from medicinal plants, 11 were formulated using a combination of plant and animal-based materials or chemical substances and 6 comprised completely of non-plant materials. The most frequently targeted conditions included *zeharbad* (toxins) (n=128), diarrhea (n=84), and bloat (n=80), demonstrating the high prevalence of these ailments in the study population. In total, 39 plant species belonging to 26 botanical families were classified. These remedies were primarily administered either orally or topically. Preparation techniques encompassed pulverization, soaking and decoction, frequently utilizing carriers such as jaggery, milk, or water to facilitate administration. Detailed distributions of plant use, ailment frequency and treatment modalities are presented in the following tables [9].

Table 1: Medicinal Plant Species, Ailments Treated and Traditional Preparation Methods in Dairy Animals [9]

Plant Species	Common Name	Primary Ailment(s)	Route of Administration	Preparation Method
Capsicum frutescens	Surkh Mirch	Zeharbad, Mastitis	Oral	Grated/Pulverized
Foeniculum vulgare	Saunf	Diarrhea, Bloat, Anorexia	Oral	Pulverized
Brassica campestris	Sarson	Bloat, Mastitis, Diarrhea	Oral/Topical	Oil, Cake, Drench
Allium sativum	Lahsan	Mastitis, Anorexia, Zeharbad	Oral	Decoction/Pulverized
Punica granatum	Anar	Diarrhea	Oral	Peel/Seed Paste
Amomum subulatum	Bari Illaichi	Bloat, Anorexia, Fever	Oral	Pulverized
Trachyspermum ammi	Ajwain	Bloat, Fever, Endoparasites	Oral	Pulverized/Mixed
Zingiber officinale	Sonth	Zeharbad, Fever	Oral	Pulverized
Eruca sativa	Taramira	Ectoparasites, Zeharbad	Oral/Topical	Oil/Mixture
Piper nigrum	Kali Mirch	Mastitis, Zeharbad, Anorexia	Oral	Grated/Pulverized

The findings indicated a complementary use of ethno-veterinary and allopathic treatments, with traditional remedies commonly employed for routine ailments and allopathy reserved for severe or epidemic conditions. Several EVPs aligned with existed ethnopharmacological reports of *Foeniculum vulgare*, *Withania coagulans* and *Punica granatum* recognized applications in treating digestive and parasitic ailments [10]. Correspondingly, decoctions for foot-and-mouth disease were documented in other regions [11]. The continued reliance on community healers highlighted the need for scientific validation and dosage standardization of EVP remedies to ensure their safety and efficacy [12].

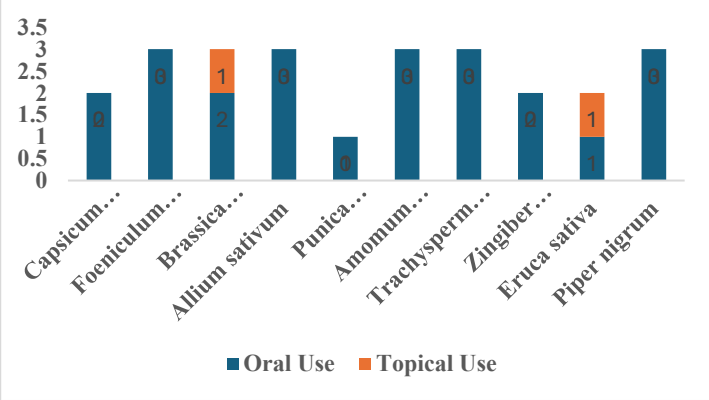

Fig. 1: Mode of administration (oral & topical) commonly used ethnoveterinary plant species

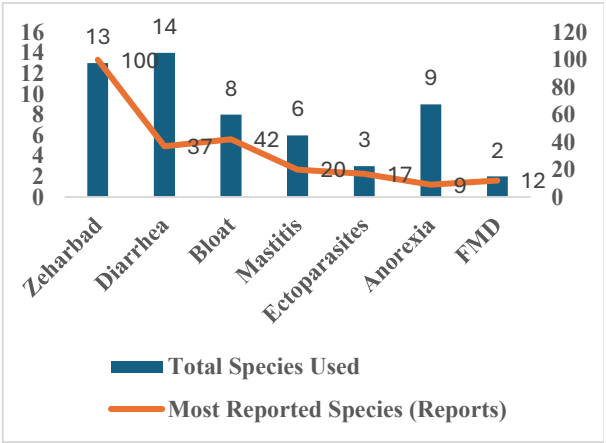

Fig. 2: Frequency of total and most reported plant species used for treating livestock ailments

Table 2: Common Medicinal Plant Species Reported for Specific Livestock Ailments [9]

Ailment	Most Frequently Used Plants	Most Commonly Reported Species	Species Used
Toxins (zeharbad) (n=128)	*Capsicum frutescens*, *Eruca sativa*, *Allium cepa*, *Lepidium sativum*	*Capsicum frutescens* (100 reports)	13
Diarrhea (n=84)	*Punica granatum*, *Foeniculum vulgare*, *Syzygium cumini*	*Punica granatum* (37 reports)	14
Rumen bloating (n=80)	*Brassica campestris*, *Trachyspermum ammi*, *Foeniculum vulgare*	*Brassica campestris* (42 reports)	8
Mastitis (n=51)	*Allium sativum*, *Capsicum frutescens*, *Piper nigrum*	*Allium sativum* (20 reports)	6
Ectoparasites (n=30)	*Eruca sativa*, *Brassica campestris*	*Eruca sativa* (17 reports)	3
Inappetence (n=29)	*Amomum subulatum*, *Foeniculum vulgare*, *Piper nigrum*	*Foeniculum vulgare* (9 reports)	9
FMD (n=22)	*Acacia arabica*, *Hordeum vulgare*	*Acacia arabica* (12 reports)	2

Table 3: Comparative Use of EVP, Allopathy and Their Combo in Managing Livestock Ailments [9]

Ailment	EVP Alone	Allopathy Alone	Combined Use
Toxins (zeharbad) (total=128)	95	27	6
Diarrhea (total=84)	56	11	17
Rumen bloating (total =80)	57	14	9
Mastitis (total =51)	13	17	21
Respiratory issues (total =63)	33	21	9
Ectoparasites (total =30)	13	10	7
FMD (total =22)	4	2	16
Endoparasites (total =10)	3	4	3
Inappetence (total =29)	16	12	1

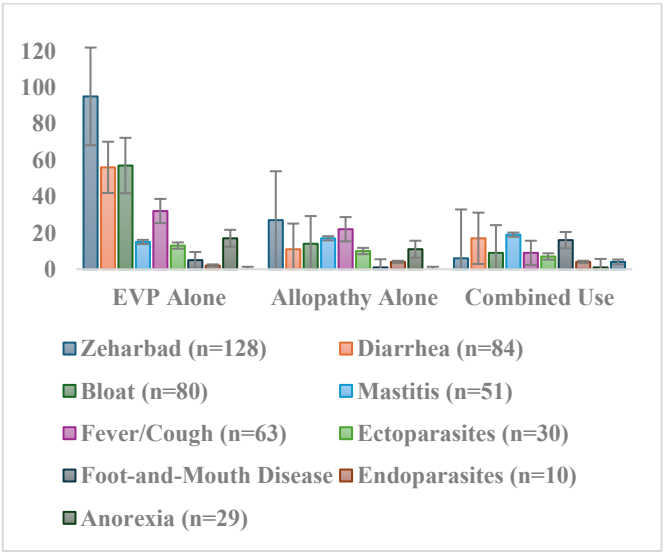

Fig. 3: Comparative use of EVP, allopathy, and combined therapies for livestock ailments

Conclusion

This study underscored the value of ethno-veterinary practices (EVPs) as affordable and accessible solutions for managing common livestock ailments. Community-held knowledge played a pivotal role in sustaining these practices. The integration of traditional remedies with modern veterinary systems alongside scientific validation and dose standardization was considered essential for improving animal healthcare outcomes.

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