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## Ethno-veterinary practices of goat farmers in different districts of Vindhyan Zone of Uttar Pradesh

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**Abstract**

Ethno-Veterinary Medicine (EVM) is the use of medicinal plants, surgical techniques and traditional management practices to prevent and treat spectrum of livestock diseases. Ethnoveterinary practices used by goat farmers in different districts of Vindhyan zone were studied for rhinitis, bronchitis (coughing), pyrexia of unknown origin, enteritis, skin disorders, mouth ulcer and udder abnormality, and information collected from 120 respondents. In case of Rhinitis commonly used ingredients were neem oil, mustard oil, ajwain (*Trachyspermum ammi*), ginger (*Zingiber officinale*), jaggery, garlic (*Allium sativum*) and asafoetida. For treatment of Bronchitis, mostly respondents used neem oil and ajwain. Neem oil, mustard oil, ajwain, Salt, ginger and garlic were used to treat pyrexia. Heeng, Sesam leaves and neem oil were used for treatment of enteritis. Local application of neem oil and neem leaf paste was the most common practice for treatment of skin disorders. For treatment of mouth ulcer, maximum respondents used neem oil and 40% respondents used neem leaf. Alum, salt, neem oil and amla were used to treat udder abnormality in different districts of Vindhyan Zone.

**Keywords:** Ethnoveterinary practices, goats, Vindhyan Zone, Uttar Pradesh

**Introduction**

Traditional veterinary medicine is very important in developing countries where conventional remedies for animal health care are inaccessible or unaffordable to poor rural farmers (Nguyen *et al.*, 2005; McGaw *et al.*, 2007) [19, 16]. About 80% of people in the world today rely on folk (or traditional) medicine for treating both human and animal diseases (Iqbal *et al.*, 2003; Muhammad *et al.*, 2005) [11, 17]. According to the United Nations Food and Agricultural Organization (FAO), the lack of drugs to treat diseases and infections results in losses of 30–35% in the breeding sector of many developing countries, where poor animal health remains the major constraint to increased production (FAO, 2002) [8]. The use of animals for medicinal purposes is part of a body of traditional knowledge that is increasingly becoming more relevant to discussions on conservation biology, public health policies, sustainable management of natural resources, biological prospection and patents (Alves and Rosa, 2005; Alves *et al.* 2010a, b, c and Souto *et al.*, 2009) [3, 6, 5, 4, 22].

Small scale farmers reported that use of commercial drugs is effective in reducing parasites that cause diseases (Iqbal *et al.*, 2005; Mathias, 2007; Mwale and Masika, 2009) [12, 15]. However, their use causes harm if not used properly (McGaw *et al.*, 2007) [16]. Since they are expensive (Maphosa and Masika, 2010) [14], rural farmers prefer ethno-veterinary medicine' on the other hand, other small scale farmers have been found to combine remedies (Githiori *et al.*, 2003; Nalule *et al.*, 2011; Tyasi and Nkohla, 2015) [9, 18, 25]. Farmers mostly use medicinal plants, which is a component of EVM, in controlling diseases (McGaw *et al.*, 2000). Conventional medicine is a remedy or drug used for diagnosis, treatment of disease and for maintenance of health of an animal (Tyasi *et al.*, 2015) [25]. Many diverse conventional products are available to control or treat livestock diseases (Papadopoulos *et al.*, 2007) [20].

**Materials and Methods**

Ethnoveterinary practices used by goat farmers in different districts of Vindhyan zone were studied for rhinitis, bronchitis (coughing), pyrexia of unknown origin, enteritis, skin disorders, mouth ulcer and udder abnormality. Based on the nature of research problem, Ex-post facto research design was followed in the present study. The Vindhyan zone of Uttar Pradesh comprises the districts of Sant Ravidas Nagar, Mirzapur and Sonbhadra. From each selected district, two blocks were selected on the basis of highest goat population. From each block

two villages were selected. Further, from each village twenty respondents having five or more goats were selected to make a total sample size of 120 respondents (40 from each district). Each selected respondent was personally interviewed by the researcher, using the developed structured interview schedule during the survey period. GPS enabled android App Epicollect 5 was used to collect data. Data from secondary sources and through observations were also collected.

## Results

Ethnoveterinary practices used by goat farmers in different districts were studied for commonly encountered problems. The information regarding ethno veterinary practices used to treat these ailments was collected from 120 respondents. Based on the clinical observations described by the farmers the information was collected for following diseases district wise.

**Rhinitis:** The commonly used ingredients were neem oil, mustard oil, ajwain (*Trachyspermum ammi*), ginger (*Zingiber officinale*), jaggery, garlic (*Allium sativum*) and asafoetida. Neem oil was used by all the respondents. Percent respondents using neem oil however varied between these districts (table 1). In Abholi block of Santravidas Nagar district, % respondents using Neem oil, Mustard oil, Ajwain and Ginger were 30, 30, 20 and 20 respectively. The percent respondents in Manakpur block of Santravidas Nagar district using Neem oil, Ajwain, Mustard oil and Garlic was 30, 30, 20 and 20. In Sermadh block 30% respondents used Neem oil and Mustard oil respectively and 20% respondents used Ajwain and Ginger respectively for treatment of rhinitis. In Imbrahimpur block of Santravidas Nagar district, 60% respondents used Mustard oil followed by use of Neem oil (20%) and Ginger (20%) respectively. The proportion of farmers using Neem oil, Ginger, jaggery, Mustard oil and Ajwain in Jhilwarbizar block of Mirzapur district was 30, 30, 20, 10 and 10%. In Durgaraha block of Mirzapur district Neem oil, Jaggery and Ginger was used by each by 30% respondents and 10% respondents used Mustard oil for treatment of Rhinitis. In Husenipur block of Mirzapur district, Mustard oil, Ajwain, Jaggery and Ginger were used each by 10% respondents respectively and 60% respondents used Neem oil for treatment of Rhinitis. Most of the respondents (40%) used ginger followed by Mustard oil (30%), Neem oil (10%), ajwain (10%) and Garlic (10%) Mahangipur block of Mirzapur district, 10% respondents used respectively, 30%. In Lodhi block of Sonebhadra district, 30% respondents used Neem oil and Ajwain each respectively and 20% respondents used Mustard oil and Garlic each respectively for treatment of Rhinitis. In Sukrit block of Sonebhadra district, 50% respondents used Neem oil, followed by use of heeng (40%) and garlic (10%) respondents. In Patwadh block of Sonebhadra district, 20% respondents each used Neem oil, Ginger and Garlic respectively and 30% respondents used Mustard oil and 10% respondents used Ajwain for treatment of Rhinitis. In Kanchh block of Sonebhadra district, 20% respondents Neem oil and Jaggery was used by 20% each. Ten% respondents used Ajwain and Garlic each and 40% respondents used Mustard Oil for treatment of Rhinitis.

**Bronchitis (Coughing):** For treatment of Bronchitis, in Ablohi block of Santravidas Nagar district, 90% respondents used Neem oil and 10% respondents used Ajwain. In Manakpur block of Santravidas Nagar district, 60% respondents used Neem oil followed in decreasing order by

20% respondent using Ajwain and 10% respondents each using Jaggery and Garlic. In Sermadh block of Santravidas Nagar district, 50% respondents used Neem oil, 30% respondents used Mustard oil and 20% respondents used Ajwain for treatment of Bronchitis. Mustard oil was most commonly used as 50% respondents used Mustard oil in Imbrahimpur block of Santravidas Nagar district. Remaining 50% respondents used respondents used Neem oil (20%), Ginger (20%) and Ajwain (10%). Respondents used neem oil (30%), ajwain (30%), salt (10%) and jaggery (20%) in Jhilwarbizar block of Mirzapur district. In Durgaraha block of Mirzapur district, 60% respondents used Neem oil, 20% respondents used Salt, and 10% respondents used Ginger and Jaggery each to treat coughing in goats. Seventy% respondents used Ginger for treatment of Bronchitis in Husenipur block of Mirzapur district. Similar ginger was also used by majority (60%) of the respondents in Mahangipur block of Mirzapur district. In Lodhi block of Sonebhadra district, 60% respondents used Ajwain followed by use of Neem oil (30% respondents) and Garlic (10%). In Sukrit block of Sonebhadra district, 50% respondents used Neem oil and garlic respectively for treatment of Bronchitis. In Patwadh block of Sonebhadra district, 20% respondents used Mustard oil, Salt and Garlic respectively, 30% respondents used Neem oil and 10% respondents used Ajwain for treatment of Bronchitis. In Kanchh block of Sonebhadra district, 20% respondents each used Neem oil and Garlic respectively, 10% respondents used Ajwain and Jaggery respectively and 40% respondents used Mustard Oil for treatment of Bronchitis.

**Pyrexia of unknown origin:** Goat farmers from different districts used neem oil, mustard oil, ajwain, salt, ginger and garlic to treat pyrexia. The percent respondents however varied. In Ablohi block and Manakpur block of Santravidas Nagar district, 100% respondents used Mustard oil. In Sermadh block of Santravidas Nagar district, 50% respondents used Neem oil, 30% respondents used Mustard oil and 20% respondents used Salt for treatment of PUO. In Imbrahimpur block of Santravidas Nagar district Neem oil and mustard oil, Ajwain, Jaggery and salt were used. 50% respondents used Neem oil in Jhilwarbizar block of Mirzapur district. Majority of respondents (50%) used Neem oil in Durgaraha block of Mirzapur district. Ginger was most commonly used by 70% goat farmers in Husenipur block of Mirzapur district. In Mahangipur block of Mirzapur district, 80% respondents used ginger and 20% respondents used Salt for treatment of PUO. In Lodhi block of Sonebhadra district, 80% respondents used Neem oil and 20% respondents used Jaggery. In Sukrit block of Sonebhadra district, 90% respondents used Neem oil and 10% respondents used garlic for treatment of PUO. In Patwadh block of Sonebhadra district, 20% respondents used Mustard oil, Ginger and Garlic respectively and 30% respondents used Neem oil and 10% respondents used Ajwain for treatment of PUO. Mustard oil, Neem oil, Ajwain, Garlic and Jaggery were commonly employed by goat farmers in Kanchh block of Sonebhadra district

**Enteritis:** Enteritis characterised by loose faeces was a common problem of goat farmers. For treatment of enteritis in Ablohi block of Santravidas Nagar district, 80% respondents used Heeng and 10% respondents used Sesam leaves and Neem Oil for treatment of Enteritis. Sesam leaves was commonly used by farmers of Semradh (60%), Imbrahimpur

(70%) and patwadh (60%). Ghee was used by farmers in in Semradh and Imbrahim Pur. Similarly, Neem oil was used only in Abholi and Semradh (10% respondents in each). Rakh was administered orally by respondents in Jhilwarbazar and Patwadh. The percent respondents using salt in different blocks were 50% (Jhilwarbazar), 30% (Dugaraha) and 20% (Mahangipur). Jackfruit, Barkan, Guava and garlic were also used.

**Skin Disorders:** For treatment of Skin Disorders, local application of neem oil and neem leaf paste was the most common practice adopted in all districts of Vindhyan Zone. 100% respondents used Neem oil for treatment of Skin Disorders in Imbrahimpur block of Santravidas Nagar district, in Husenipur block and Mahangipur block of Mirzapur district and in Lodhi block of Sonebhadra district. In Ablohi block of Santravidas Nagar district, Sukrit block of Sonebhadra district and Jhilwarbazar block of Mirzapur district, 90% respondents used Neem oil and 10% respondents used Neem Leaf. Percent respondents using neem oil and neem leaf were 70 and 30% respectively in Manakpur block of Santravidas Nagar district. In Durgaraha block of Mirzapur district, 80% respondents used Neem oil and 20% respondents used Neem Leaf for treatment of Skin Disorders. In Patwadh block of Sonebhadra district, 60% respondents used Neem oil and 40% respondents used Neem Leaf for treatment of Skin Disorders. Neem oil and Neem Leaf was used by 40% respondents and 60% respondents in Kanchh block of Sonebhadra district.

**Mouth Ulcer:** For treatment of Mouth Ulcer in Ablohi block of Santravidas Nagar district 60% respondents used Neem oil and 40% respondents used Neem Leaf. In Manakpur block of Santravidas Nagar district and in Patwadh block of Sonebhadra district, 60% respondents used Neem oil and 40% respondents used Neem Leaf for treatment of Mouth Ulcer. Neem oil was applied locally by 100% respondents in Sermadh block, Imbrahimpur block of Santravidas Nagar, Jhilwarbazar, Durgaraha, Husenipur and Mahangipur of Mirzapur district and in Lodhi and Sukrit block of Sonebhadra district. In Kanchh block of Sonebhadra district, 70% respondents used Neem oil and 30% respondents used Neem Leaf for treatment of mouth ulcer.

**Udder Abnormality:** Alum, Salt, Neem oil and Amla were used to treat udder abnormality in different districts of Vindhyan Zone. Majority of respondents used alum followed by salt, amla and neem oil.

## Discussion

Adedeji *et al.* 2014<sup>[1]</sup> studied ethno veterinary practices in goat production in Boriipe local government area of Osun state and reported that 94% of the respondents treat their animal with local concoction, 2% treat with the help of veterinary doctor and 4% were engaged in using both. About 40% of the animals having pneumonia treated with local herb survived, 14% having diarrhoea survived, 16% having mastitis survived and 30% having mange survived. 60% of the respondents used bitter leaf, 20% used sand paper leaf, 6% used cassava soaked, 6% used sulphur cake, 4% engine oil and 4% palm oil. Medicinal herbs contain essential oil which modify rumen microbial fermentation and may allow treatment of rumen fermentation to enhance animal performance and feed utilization. Abdelhamid *et al.*, (2011) also recorded slight increase in body weight gain by adding medicinal herbs at 90 days of post kidding (weaning) in Zaraibi goats. The positive effect of feeding local herbs on blood biochemical indices has also been studied, Tawfik *et al.*, (2005)<sup>[23]</sup>. A significant decrease in blood cholesterol and triglyceride was reported by feeding aniseed (Iftikhar *et al.*, 2017)<sup>[10]</sup>.

*Azadirachta indica*, commonly known as neem, a major component in siddha medicine and Ayurvedic and Unani medicine and is particularly prescribed for skin diseases. In Indian system of medicine, *Trachyspermum ammi* or *ajwain* is administered for curing stomach disorders, a paste of crushed fruits is applied externally for relieving colic pains; and a hot and dry fomentation of the fruits is applied on chest for asthma Singh *et al.* (2003)<sup>[21]</sup>. *T. ammi* has been shown to possess antimicrobial, hypolipidemic, digestive stimulant, Vasudevan *et al.* (2000)<sup>[26]</sup> anti-hypertensive, hepatoprotective, antispasmodic, broncho-dilating, antilithiasis, diuretic, abortifacient, galactogogic antiplatelet-aggregatory, antiinflammatory, Thangam and Dhananjayan (2003)<sup>[24]</sup> antitussive, antifilarial, gastroprotective, nematocidal, anthelmintic, detoxification of aflatoxins, and ameliorative effects. Therapeutic uses of *T. ammi* fruits include; stomachic, carminative and expectorant, antiseptic and amoebiasis, antimicrobial.

Ginger is a tonic and stimulant. It is known to help reduce fever and cleanse the body of toxins. It also has blood thinning properties, inhibits cell-clotting enzymes in your blood stream, lowers cholesterol, and reduces migraine headaches. Garlic (*Allium sativum*) has been reported to be a parasiticide, amoebicide, acarifuge, vermifuge, larvicide, fungicide, and immuno-stimulant besides other properties (Duke, 2002)<sup>[7]</sup>.

**Table 1:** Ethno-veterinary practices of goat farmers in different districts of Vindhyan zone

Attribute	Santravidas Nagar				Mirzapur				Sonebhadra			
	Abholi	Makanpur	Semradh	Imbrahimpur	Jhilwarbazar	Dugaraha	Husenipur	Mahangipur	Lodhi	Sukrit	Patwadh	Kanchh
<b>Rhinitis</b>												
Neem oil	30	30	30	20	10	30	60	10	30	50	20	20
Mustard oil	30	20	30	60	30	10	10	30	20	0	30	40
Ajwain	20	30	20	0	30	0	10	10	30	0	10	10
Ginger	20	0	20	20	10	30	10	40	0	0	20	0
Jaggery	0	0	0	0	20	30	10	0	0	0	0	20
Garlic	0	20	0	0	0	0	0	10	20	10	20	10
Asafoetida heeng	0	0	0	0	0	0	0	0	0	40	0	0
<b>Coughing (bronchitis)</b>												
Neem oil	90	60	50	20	30	60	10	20	30	50	30	20
Mustard oil	0	0	30	50	0	0	0	0	0	0	20	40
Ajwain	10	20	20	10	30	0	0	0	60	0	10	10
Salt	0	0	0	0	10	20	10	20	0	0	20	0
Ginger	0	0	0	20	20	10	70	60	0	0	0	0
Jaggery	0	10	0	0	10	10	10	0	0	0	0	10
Garlic	0	10	0	0	0	0	0	0	10	50	20	20

<b>P.U.O</b>												
Neem oil	0	0	50	30	50	50	10	0	80	90	30	20
Mustard oil	100	100	30	30	0	0	0	0	0	0	20	40
Ajwain	0	0	0	10	20	20	0	0	0	0	10	10
Salt	0	0	20	20	20	30	0	20	0	0	0	0
Ginger	0	0	0	0	0	0	70	80	0	0	20	0
Jaggery	0	0	0	10	10	0	20	0	20	0		20
Garlic	0	0	0	0	0	0	0	0	0	10	20	10
<b>Enteritis</b>												
Heeng	80	100	20	10	10	40	60	30	0	60	20	30
Sesam Leaves	10	0	60	70	0	0	0	0	0	0	60	30
Ghee	0	0	10	20	0	0	0	0	0	0	0	0
Neem oil	10	0	10	0	0	0	0	0	0	0	0	0
Rakh	0	0	0	0	30	0	0	0	0	0	10	0
Salt	0	0	0	0	50	30	0	20	0	0	0	0
Jack fruit	0	0	0	0	10	10	20	0	30	0	10	10
Barkan	0	0	0	0	0	0	20	0	30	0	0	20
Guauava	0	0	0	0	0	0	0	0	20	40	0	10
Garlic	0	0	0	0	0	0	0	50	20	0	0	0
<b>Skin Disorders</b>												
Neem oil	90	70	100	100	90	80	100	100	100	90	60	40
Neem leaf	10	30	0	0	10	0	0	0	0	10	40	60
<b>Mouth Ulcer</b>												
Neem oil	60	60	100	100	100	100	100	100	100	100	60	70
Neem leaf	40	40	0	0	0	0	0	0	0	0	40	30
<b>Udder abnormality</b>												
Alum	80	80	60	80	80	0	100	100	80	0	40	80
Salt	20	20	30	20	20	100	0	0	0	0	0	0
Neem oil	0	0	10	0	0	0	0	0	20	20	0	0
Amla	0	0	0	0	0	0	0	0	80	60	20	

## Conclusion

In India, at least 2500 plants, out of 18,000 recorded in the country are utilized for medicinal purposes. 65% of the population in rural areas in India use the Ayurveda medicine system and medicinal plants to help meet their primary health care needs. In treatment of rhinitis (neem oil, mustard oil, ajwain, ginger, jaggery, garlic, asafoetida), bronchitis (neem oil and ajwain), pyrexia (neem oil, mustard oil, ajwain, salt, ginger, garlic), enteritis (heeng, sesam leaves and neem oil), skin disorder (neem oil), mouth ulcer (neem oil, neem leaf) and udder abnormality (alum, Salt, neem oil and amla), Ethnoveterinary practices is very well documented, cost effective and utilised for treatment of goat diseases.

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