



Medicinal plant resources used for traditional Ethno-veterinary Phytotherapy in Washim district (Maharashtra).

Undal V.S. and Idhole S. S.

Ghulam Nabi Azad Arts, Commerce and Science College, Barshitakali Dist. Akola (Maharashtra), India

Abstract

The medicinal plants are valuable for the management of range of ailments to man and also animals. The number veterinary therapeutic plants are found in Washim district of Maharashtra. The diversity of medicinal plant in and around the study region is rich, and the ethnic inhabitants as well as other using veterinary plants parts for the treatment of various disorders in domesticated animals. The Washim district is region of Amravati division in Maharashtra state. The account focused ethno-veterinary information on 20 medicinal plant species belonging to 16 families, documented using local practitioners. The information is accessible through evaluation, meeting, group discussion and field work while numerous field visits. The highest (3) plant species were using from Euphorbiaceae and Liliaceae family of the entire region by village residents. It accounted that majority of herbs species are more (35%) utilizing as compared to tree (30 %), shrubs (25 %) and climber (10%). The concerned systematic names along with their common name, family, element used and specific disorders cured by remedial plants of the study area have been documented. Evaluation indicated that leaves, root/tuber, seed, pod/fruits, whole plant, bark, flowers, rhizome and bulb for food supplement/use as a phytotherapy. Out of 21 overall ailment, preliminary documented from whole Washim district region with indigestions, diarrhea, dysentery, cough, fever and various infections etc were the widespread incidence. As in Indian farming, livestock is plying key role in the agricultural subsistence, hence preservation and cultivation of medicinal plant is crucial for sustaining ethno-veterinary therapeutic and cultural reserve of mankind.

Key words: Ethno-Veterinary, Medicinal plants, Livestock, Washim district, Maharashtra

Introduction

Since olden period, abundant progress have resorted to nature, mainly on plants as a source of medicine. Presently, a significant percentage of the world residents, predominantly that of emerging country, utilize plants as a crucial source of therapeutic support (Tene *et al.*, 2007). Therapeutic plants are the foundation of resources (raw material) for both conventional systems and current medicine (Asimwe *et al.*, 2013). According to early therapeutic and veterinary knowledge, resident information of herdsman concerning the handling of therapeutic plants in animal and human disorders is described as ethnoveterinary medicine (EVM). The EVM considers that traditional practices of veterinary remedy are legitimate and seeks to legalize them. The supply of curative plants and pharmaceuticals in several nations such as Iran, China, ancient Greece, India, and Egypt have long been used in the management and diagnosis of different diseases (Ghasemi Pirbalouti 2009; Ghasemi Pirbalouti *et al.* 2009).

In selected study region, domestic animals production remains essential and represents a foremost asset among resource deprived smallholder agriculturist by supplying milk, meat, skin, fertilizer and traction. However, the profitable assistance of farm animals populations stay marginal due to prevailing livestock ailments which are among the primary bottle necks of livestock performance and causes high financial losses of the resource underprivileged farmers (Mesfin and Lemma, 2001).

The research workers have given importance to traditional knowledge pertaining to ethno veterinary from different regions and states. The work on Ethno veterinary medicine from Jalna district of Maharashtra state was conducted by Deshmukh *et al.*, (2011); Pandey, *et al.*, (2000) recorded 27 ethno-veterinary plants from Gonda region; use of Ethno-Veterinary medicines (EVM) from Vidarbha Region (MS) India by Kulkarni *et al.*, (2014); Swaminathan, *et al.*, (2016) also noted ethno veterinary plants of Sherwaroy Hills of Eastern Ghats, India.

The present investigation is fundamentally highlighted the used of different plant parts for the wellness over the diseases. In Indian subcontinent, the practices of ethnobotany has familiar to all the inhabitants. So many assessment were carried out on the same approach. But, apart from the other studies, the subjected work is revealed the ethnobotanical procedure and its efficacy to overcome the humanity wellness. However present assessment has exposed that there is an serious requirement for a extremely comprehensive study, for dual motivations. First because of insufficiency of documentation of the knowledge, there is a threat of it's being vanished in course of time due to just in words transmit form old to new person of infrequently from a instructor to believer. The other for plant species identity and protection pose another difficulty, since several plants are only periodically accessible. Keeping the aforesaid data in observations, the current assessment were undertaken to trace the prospective use of folk plants as prominent substitute remedy for livestock to treat various ailments in the Washim and connected region.

Material and Methods

Study Area

Washim is one of the 11 districts of Vidarbha and was carved out of Akola district on 1st July, 1998. It is located in the north eastern branch of the state abutting Madhya Pradesh and lies between north latitudes 19°61' and 21°16' and east longitude 76°07' and 77°14' and falls in parts of Survey of India degree sheets 55 D, 55 H, 56 A and 56 E. The region has a geographical area of 5140 sq. km. The district headquarters is situated at Washim city. The region is divided in 6 talukas viz, Washim, Karanja, Malegaon, Mangrulpir, Manora and Risod (Fig. 1) for the administrative convenience. Penganga River is the major stream flowing through the district. The mean lowest temperature is 12°C and means highest temperature is 43°C. The typical annual rainfall over the district varies from 872 mm (Risod) to about 966 mm (Washim). The financial system of district is mostly reliant on agricultural sector, more than 83 percent people are engaged in agricultural activity. Moreover numerous people in the region are dependent on milk production, meat production, apiculture, poultry farming, goat farming, fishing and many more.

Data collection

The investigation was conducted along with local citizens counting traditional healers and practitioners with awareness of curative medicinal plants; were preferred for the collection of ethno medicinal details. To the completion of survey, several field trip in the year 2017-2019 will be organized along with informers for obtaining photograph and further authentication. The present information on phytotherapy were documented through an opinion, meeting, consultation and field job. The investigation incorporates facts regarding the scientific and household name of the medicinal plant approved, portion of the plant applied, process of preparation (decoction, paste, powder or extract etc) and therapeutic benefits. The information was verified throughout discussions with respondents who experienced the exercise of the known plant purposes. Throughout the examination, each plant was enlisted, photographed in the field location with image number. The documented curative plant specimens from the field along with captured image and field clarification for additional processing were utilized in order to taxonomical identification. The Botanical identification of plant species was prepared with the help of floras and also captured images, were cross-verified with the help of few published and digital authentic herbarium specimens. Moreover the help was obtained with proficient taxonomist and expert, based on morphological descriptions.



Fig. 1. General map of Washim district for collecting information on medicinal plants

Results and discussion

The current evaluation was carried out based on the communication with the conventional medicine practitioners. It has been observed that medicinal plants in the Washim district region were used to cure different ailments such as Fever, indigestion, stomach disorder, helminthiasis, dysentery, diarrhea, tooth and eyes infection, wounds injuries, insecticide and herbicides poisoning, jaundice, cough, swelling of feet, treatment of lumbago, asthma, pneumonia, minimization of external parasites and many more in animals.

Table 1. Washim district at a glance

S. N.	Particulars	Measure
1	Latitude [N] -	19°61' and 21°16'
2	Longitude [E]-	76°07' and 77°14'
3	Total area	5140 sq. km.
4	Temperature	12°C-43°C
5	Average annual rainfall (mm)	872 - 966
6	Total population	1,281,018
7	Number of taluka	06
8	Population in rural area %	82.34
9	Villages included	789
10	Population engaged in agricultural conduct %	83
11	Literates (2011)	81.7
12	Forest area %	6.43

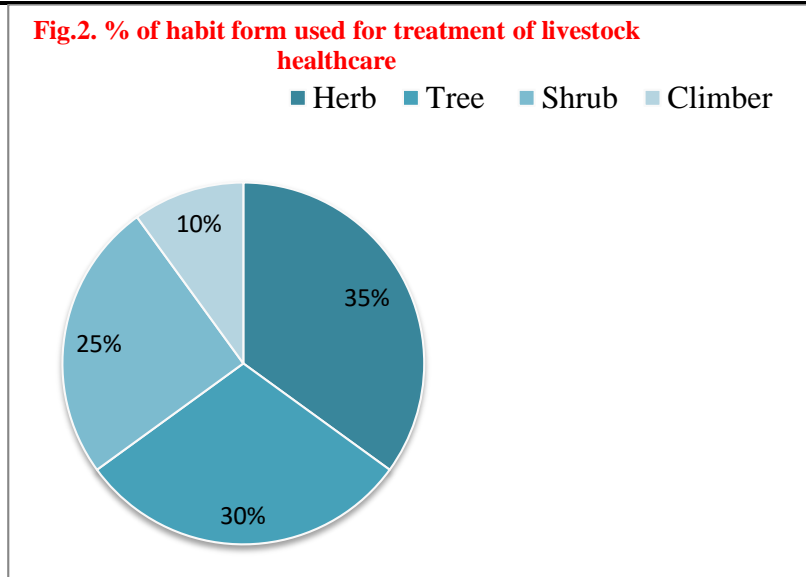


Fig.2. % of habit form used for treatment of livestock healthcare

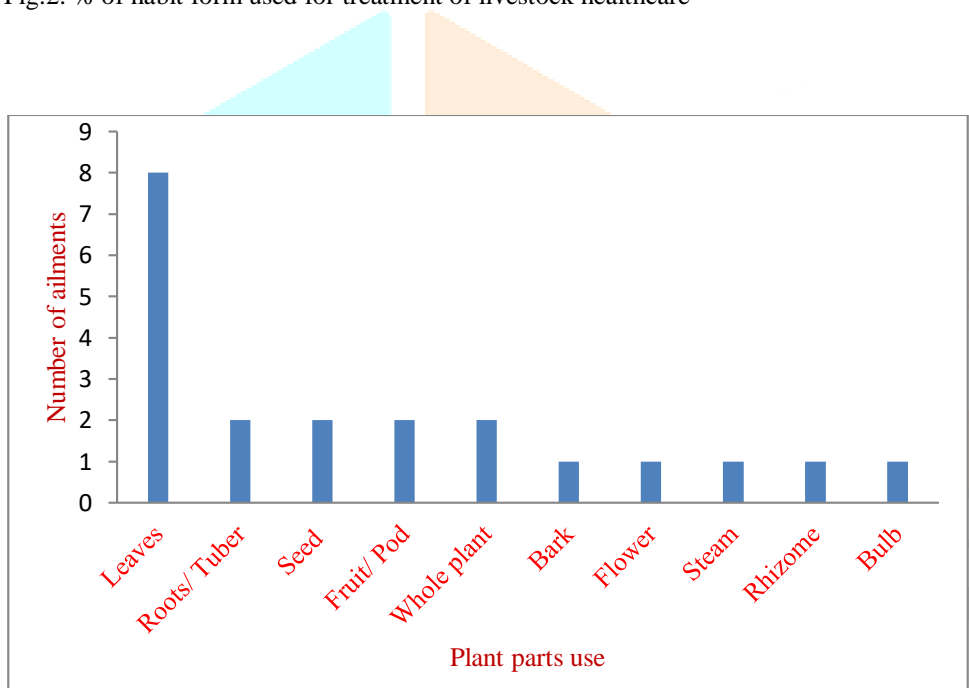


Figure 3: Plant parts used for the treatment of different disorders

Table 2 shows the details of folk medicine and their scientific with common names, families of medicinal plants, various part uses, types of diseases and disorders and modes of preparation with uses. The documentation focused ethano information on 20 medicinal plants species belonging to 16 different families accounted by gathering of information with local practitioners. The maximum (3) plant species were using from Euphorbiaceae and Liliaceae family of the area by villagers. The scientific names of concerned therapeutic plant along with their vernacular name, family, part used, specific disease/disorder with modes of administration/ were uses to treatment diverse ailment/disease have been summarized (Table 2). It found that majority of herbs species were more (35%) utilizing as compared to tree (30%), shrubs (25 %) and climber (10%) (Fig. 2). The medicinal plant elements using were leaves, root/tuber, seed, pod/fruits, whole plant, bark, flowers, rhizome and bulb for food supplement/use as a phytotherapy. Investigation indicated that leaves (8), root, tuber, seed, pod, fruits and whole plant, plant as mainly chosen curative purpose, however less utilization were found with bark, flowers, rhizome and bulb (Fig. 3). The out of 21 overall ailment preliminary documented from whole Washim district region with indigestions, diarrhea, dysentery, cough, fever and infections etc were the widespread incidence (Table 1, 2). It prominent that because of restriction in the

seasonal accessibility of certain medicinal plants, for which farmers have acquired diverse traditions to maintain them in off period exercise and most frequent method of maintenance was sun drying.

Table 2: Ethno veterinary medicinal plants utilized by rural farmers for livestock healthcare in Washim district (Maharashtra), India.

S.N.	Scientific and local name of plant	Family and Habit	Plant part used	Ailment/Disease	Modes of administration/ Uses
1	<i>Cyperus rotundus</i> (L.) (Nutsedge/ Nutgrass)	Cyperaceae Herb	Rhizome	Fever, indigestion, stomach disorder and helminthiasis	Rhizome extract for lowering heat, beneficial for treating stomach disorder, also significant against worm infestation.
2	<i>Moringa oleifera</i> (L.) (Shewaga)	Moringaceae Tree	Leaf	Dysentery, diarrhoea	Leaves paste is given two times daily upto 5 d to cattle for rapid relief.
3	<i>Zingiber officinale</i> (Roscoe)	Zingiberaceae Herb	Steam	Tooth, eyes infection and allied disorders	Chewing for tooth with water and salt and residues drop for eyes infection relief.
4	<i>Allium sativum</i> L. (Garlic)	Liliaceae Herb	Bulb	Wounds and injuries	Prepare a cream with beeswax and a some cloves of "A. sativum" and apply to the udder and injures of animals.
5	<i>Tectona grandis</i> L.F. (Sagwan)	Verbenaceae Tree	Seed	Indigestions, insecticide and herbicides poisoning.	Seed powder infusion is given orally for curing indigestions; also it helpful, if animal shows symbols of insecticide and herbicides poisoning.
6	<i>Acacia nilotica</i> (L.) Del (Babul)	Mimosaceae Tree	Flower	Jaundice	Flower dried crush of plants mixed with water and specified orally to animal twice a day for curing disorder.
7	<i>Adhatoda vasica</i> Nees. (Adusa)	Acanthaceae Shrub	Leaves	Cough	Crush mixer decoction of A. vasica leaves with <i>Pepper nigrum</i> leaves and given to animal for curing disorder.
8	<i>Aloe vera</i> L. (Ghorpad)	Liliaceae Herb	Leaves	Wounds, swelling of feet	Leaf mash combine with turmeric powder and apply over wound for healing. Applying over swelling, reduces difficulty gradually.
9	<i>Cardiospermum helicacabum</i> Linn. (Kapalaphoti)	Sapindaceae Climber	Leaves or whole plant	Fever, indigestion, stomach disorder	The leaf or some time whole plant used to treat the problem efficiently.
10	<i>Mangifera indica</i> (Mango)	Anacardiaceae Tree	Leaves/ Bark Roots	Diarrhoea	Grind leaves/ bark, mix with proper amount of water and give directly to animal for minimizing trouble.
11	<i>Psidium guajava</i> L. (Guava)	Myrtaceae Shrub	Leaves	Diarrhea, cough, dysentery	Decoction with salt is given to animals . It will efficiently benefited against such disorders.
12	<i>Cleome viscosa</i> Linn. (Hulhul, wild/ dog mustard)	Capparidaceae Herb	Seeds	Diarrhea and dysentery	The seed paste of 50 gm C. viscosa is given with water through tube , three times per day for the relief.
13	<i>Euphorbia hirta</i> Linn. (Dudhi)	Euphorbiaceae Herb	Whole plant	Diarrhea, fever	About 25 gm paste of whole plant is given with water through tube only single time to cure Diarrhea. However along with fodder, about 10 gm of plant leaves given only once in a day for 2-3 days to treat fever.
14	<i>Gloriosa superba</i> Linn. (Kallawi/Bachnag)	Liliaceae Climber	Tuber	Foot and mouth disease	Tuber paste of plant about more than 250 gm is applied over hooves for solving disorder.
15	<i>Withania somnifera</i> (L.) (Ashwagandha or winter cherry)	Solanaceae Shrub	Tuber	Treatment of lumbago	Decoction of near 1 kg tubers and more than 2 L of <i>Sesamum</i> oil is specified to the animal.
16	<i>Terminalia chebula</i> L. (Hirda)	Comberetaceae Tree	Leaves and dried fruit	Wounds, cough	Leaf paste utilized as wound remedial inside the wound of footwear of animal. The dried fruit powdered with water; past for cure cough.

17	<i>Ricinus communis</i> L. (Erand)	Euphorbiaceae Shrub	Leaves	Indigestion, constipation	Leaf extract is given orally to cure or otherwise pieces of leaf given directly along with wheat atta.
18	<i>Cassia fistula</i> L. Monkey-pod (Tree/Bhava)	Caesalpiniaceae Tree	Pod	Asthma and pneumonia	Dried out pod powder is given orally to animal for curing asthma and pneumonia.
19	<i>Brassica campestris</i> L. (Mohari)	Brassicaceae Herb	Seed oil	Pneumonia	A little drops of seed oil are poured into the nasal opening of animal to lubricate the nasal route to enhances inhalation in severe pneumonia.
20	<i>Jatropha curcas</i> L. (Mogali errand)	Euphorbiaceae Shrub	Twigs /Roots	External parasites	Some branches with fodder are familiar remedy for tympani. Roots are tagged to the tail of goat and sheep for removing exterior parasites.

The veterinary diseases/disorders such as mastitis, foot and mouth disease, diarrhea, ephemeral fever, indigestion and parasitic infection extensively influence the farmer's economical earnings. Therapeutic plants play a key role in the development and progression of current research work by serving as a preparatory point for the expansion of novelties in medicine. Herbal remedy has been broadly formulated and used as an essential element of crucial health care in Nigeria, China, Ethiopia and Argentina (Ogbuewu *et al.*, 2015). However ethno-veterinary practices have immense prospective to address these as EVP has decentralized local resource-based appliances that are protected, competent and cost effective. It also can lead to decrease of use of antibiotics and other chemical medicines and related residues in the animal products and microbial resistance (Balakrishnan, *et al.*, 2017). The major route of administration for EVM plants was oral-based. The oral administration was a simple and noninvasive form of systemic treatment. The way allocates for the speedy absorption and sharing of the prepared remedy and allowing for satisfactory therapeutic power to be distributed (Chakale *et al.*, 2021). In the current study, common of the conventional medicines were taken orally, followed by dermal with accounting (Table 2). The outcome were parallel to the conclusion of earlier investigators (Ketema *et al.*, 2013; Getu, *et al.*, 2015). It documented that oral administration was found to be the principal route of treatment administration. Furthermore oral application was the mainly repeatedly employed, this conclusion were in accordance with the finding of Yineger, *et al.*, (2007), who expressed that oral route of management was the most prevalent (72.41%).

Based on inclusion and exclusion criteria, a total of 37 studies on EVM plants used against cattle disease conducted throughout South Africa were identified. In the last 10 years, it observed an increase in publications related to EVM plants used against cattle diseases, indicating an escalating attention in the field (Chakale *et al.*, 2021). During communications with local residents of selected region, many old age people were responded with enthusiastic experience, however very less concerned and conscious involvement of young minds in such activities. The less therapeutic awareness in relation to young age might be attributed to the fact that conventional knowledge was built with years of familiarity (Awas, 2007). The rapid era of globalization, express transformations in cultural circumstances and communication services accessible have very much altered in the rural life of India. This changed situations were causing threat to ethnoveterinary information and there is urgent need to documentation the information prior to it is missing forever (Deshmukh *et al.*, 2011). Frequency of many ailment/ disorders in current study were in analogous with the report published by Luo *et al.*, (2022). From the account it recommended that investigation and encouragement for the information with rural community inhabitant especially older practitioners on use of therapeutic plant for management of different diseases/ disorders is nowadays prerequisite for strengthening opportunity in ethno veterinary competence.

Conclusion

The extreme utilization of modern veterinary medicine usually shows capable consequences for a short time, but in the extensive time, they can cause diverse harmful effect (Clement *et al.*, 2019). However, plant-based veterinary remedy usually do not have any side effects; as a result, they were considered harmless. The small-scale farmers apply both conventional and nonconventional therapy to treat domestic animals diseases/disorders, in order to improvement livestock production. In the selected district, leaves were the most

frequently used plant element while most widespread process of preparation were infusions and decoctions. Many villages in the district were long located from available facility for the modern and rapid treatment, was one of the reason for use of homemade phytotherapy. Not only it required rapid understanding on use of ethno veterinary medicines in the villages, but also documentation and strengthening of these knowledge with experts respondents is benefiting in order to increase the productivity of livestock.

References

Asiimwe S., Kamatenesi-Mugisha M., Namutebi A., Borg-Karlsson A.K. and Musiimenta P. (2013) Ethnobotanical study of nutri-medicinal plants used for the management of HIV/ AIDS opportunistic ailments among the local communities of western Uganda. *J Ethnopharmacol*, 150(2):639-648.

Awaw T. (2007) Plant diversity in western Ethiopia: Ecology, ethnobotany and conservation. Ph.D. Dissertation, faculty of Mathematics and Natural Sciences, University of Oslo, Norway.

Balakrishnan, Nair M.N., Punniamurthy N. and Kumar S.K. (2017) Ethno-veterinary practices for animal health and the associated medicinal plants from 24 locations in 10 states of India Research & Reviews. *Journal of Veterinary Sciences*, (3)1: 25-34.

Biswas S. K. (2001) Director of Census Operations, Maharashtra Village and Townwise primary census abstract, Director of Census of India-2001, Series-28, district Census Handbook part -A & B, Washim district.

Clement M., Olabisi M., David E. and Issa M. (2019) Veterinary pharmaceuticals and antimicrobial resistance in developing countries. In Bekoe S.O, Saravanan M, editors. *Veterinary Medicine and Pharmaceuticals*. London: IntechOpen Limitd. <https://doi.org/10.5772/intechopen.84888>.

Chakale M.V., Mwanza M. and Aremu A.O. (2021) Ethnoveterinary knowledge and biological evaluation of plants used for mitigating cattle diseases: A critical insight into the trends and patterns in South Africa. *Front. Vet. Sci.* 8:710884.

Deshmukh R.R., Rathod V.N. and Pardeshi V.N. (2011) Ethenoveterinary medicine from Jalna district of Maharashtra state. *Indian Journal of traditional Knowledge*, 10(2): 344-348.

Dhore, M.A. and Joshi, P.A. (1988) Flora of Melghat Tiger Reserve. Technical series no.1, Directorate, Project Tiger Melghat, Paratwada; Maharashtra, India.

Dongre K. (2013) Ground Water Information Washim district Maharashtra, Govt of India Ministry of water resources central ground water board, central region Nagpur, 1-22.

Ghasemi P.A. (2009) The third list plants, traditional medicine and ethnoveterinary, 1st edn. Medicinal and aromatic plant. Shahrekord: Saman-Danesh Pub, 158–190.

Ghasemi P.A., Bahmani M. and Avijgan M. (2009) Anti-Candida activity of some of the Iranian medicinal plants. *E J Bio*, 85–88.

Getu, Alemayehu, Zemedede Asfaw and Ensermu, Kelbessa. (2015) Ethnobotanical study of medicinal plants used by local communities of Minjar-Shenkora District, North Shewa Zone of Amhara Region, Ethiopia. *J. Med. Plant Stud.*, 3(6): 01-11.

Ketema T., Etana D., Athanasiadou S., Tolera A., Ganga G. and Houdijk G.J. (2013) Ethno-medicinal study of plants used for treatment of human and livestock ailments by traditional healers in South Omo, Southern Ethiopia. *J. Ethnobiol. Ethnomed.*, 9:1-5.

Kulkarni S., Kulkarni D.K., Deo A.D., Pande A.B. and Bhagat R.L. (2014) Use of Ethno-Veterinary medicines (EVM) from Vidarbha Region (MS) India. *Bioscience Discovery*, 5(2):180-186.

Luo B., Hu Q., Lai K., Bhatt A. and Hu R. (2022) Ethnoveterinary Survey Conducted in Baiku Yao Communities in Southwest China. *Front. Vet. Sci.* 8:813737. <https://doi.org/10.3389/fvets.2021.813737>

Mesfin T. and Lemma M. (2001) The role of traditional veterinary herbal medicine and its constraints in animal health care system in Ethiopia. In : Biodiversity conservation and sustainable use of medicinal plants in Ethiopia. 23-33.

Naik, V.N. and Associates. (1998) Flora of Marathwada. Volume I (First edition), Amrut Prakashan, Aurangabad, India.

Ogbuewu I.P., Okechukwu K.C., Emenalom O.O. and Okoli I.C. (2015) Diversity of plants used in animal reproduction in Enugu State Nigeria. *Glob. J. Anim. Sci. Res.*, 3:234-238.

Pandey, H.P., Varma, B.K. and Narain, S. (2000) Ethnoveterinary plants of Gonda region, U.P. India. In *Ethnobotany and Medicinal plants of Indian subcontinent* (Ed. J.K. Maheshwari) Scientific Publisher, Jodhpur, 199- 203.

Swaminathan U., Chandrasekaran R. and Ramamoorthy S. (2016) Ethnoveterinary medicine of the Shervaroy Hills of Eastern Ghats, India as alternative medicine for animals. *Journal of Traditional and Complementary Medicine*, 6:118-125.

Tene V., Malagon O., Finzi P.V., Vidari G., Armijos C. and Zaragoza T. (2007) An ethnobotanical survey of medicinal plants used in Loja and Zamora- Chinchipe, Ecuador. *J Ethnopharmacol*, 111(1):63-81.

Yineger H., Kelbessa E., Bekele T. and Lulekal E. (2007) Ethnoveterinary medicinal plants at Bale Mountains National Park, Ethiopia. *Journal of Ethnopharmacology*, 112: 55–70.

