ETHNOVETERINARY PRACTICES- A REVIEW ON PHYTOTHERAPEUTICAL APPROACHES IN TREATMENT OF ANIMALS

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ABSTRACT

Health and economy are the key features of our life. Livestock are the important part of our economy and therefore their health perspectives are equally important. Healthy animals yield healthy and nutritious products. But the task of keeping animals healthy is not easy as the veterinary facilities are very meager in many of the states of India including Madhya Pradesh. Majority of the dairy personnel and cattle rearers deal with their traditional procedures of healing and treatment for their livestock. Such traditional procedures include the use of ethnoveterinary knowledge i.e. use of plants for the treatment of pet animals. The present paper deals with the review on use of these ethnoveterinary practices in different parts of India as well as abroad by various authors and found to be very effective and reliable.

KEYWORDS: Ethnoveterinary, treatment, traditional, livestock, documentation.

INTRODUCTION

India is agro-based country having agriculture and livestock husbandry and management as main occupation. As agriculture is one of the major source of Indian economy, similarly animal keeping and maintenance of quality and quantity of animal products are also essential aspects of our economy. Major consumable products of animals include milk and milk products and the responsible animals are cattle. In today’s period of modernization, pollution and environmental degradation, livestock are also affected. They get suffered by various ailments which affect their health and productivity. Medical facilities are available but are very costly and having side effects. The dairy persons, farmers and livestock rearers mostly refuse to use allopathy drugs and prefer their own traditional practices of ethnoveterinary.

To farmers, livestock is source of cash income as cropping is seasonal while livestock can provide a regular source of income. They must, therefore, be protected from diseases. Attention must be paid for the maintenance of health and working conditions of the cattle. The common farmers can not afford costly modern and new methods of disease management. Hence, majority of villagers use herbal formulations for the treatment of various diseases of their cattle.

METHODOLOGY

By going through the literature, it had been found out that almost all workers had adopted the method of documentation by surveying and interviewing the experts as well as dairy men through the set questionnaire and monitoring the cattle during treatment. The questionnaire included the questions regarding the diseases of animals, their causative agents, treatment strategies of using parts of various plants and the mode of administration of medicine. Even the plants used in the treatment were collected, identified and kept in herbarium.

ETHNOVETERINARY PRACTICES

Ethnoveterinary is the traditional knowledge of people’s belief and faith regarding use of plants and plant products for treatment of animals. This traditional knowledge is precious and confined to few persons which need to be documented and applied in the society. The use of plants and their parts and products in the treatment has great advantages, as they are cheap, easily available and having no side effects.

A lot of work has been done to evaluate and document this hidden knowledge in different parts of India and abroad, but still the information is rare and unacquainted to others. The Rigveda, the Atharveda and Ayurveda are the pioneer documents giving information about curative properties of plants as veterinary medicines. Hence, from Vedic period (3500 B.C. to 200 B.C.), Indian physicians
(Vaidya) and herbalists Dhanvantari, Atreya, Nagarjuna, Patanjali, Bhagabhata, Shushruta and Hindu hippocrates. Charak appeared as legendary figures who practiced traditional Indian medicine for the welfare of the society.

Although a lot of work had been continuously taken place in this field but the present article emphasizes the documenting of knowledge of this science through the centuries. Informations regarding use of herbal treatment had been reported from Kangra valley, Andhra Pradesh and Maharashtra for various surgical as well as several severe disorders of cattle.\textsuperscript{1-3}

A valuable information regarding use of medicinal plants had been evaluated in north- east region and other areas even in the form of dictionary.\textsuperscript{4,5} Use of Calotropis, Citrullus and Salvadora, etc. had been observed as herbal remedies in arid regions of Rajasthan.\textsuperscript{6}

Western coast of Western India also utilized Achyranthes, Annona, Carcuma, etc. in treatment of their cattle.\textsuperscript{7} Folk herbal medicine for the treatment ailments of skin, tumors, swelling, wound, etc. had been worked out in Southern Rajasthan.

Use of herbal medicine among tribal of Central India were reported to emphasis role of ethnoveterinary practices.\textsuperscript{8} A number of animal diseases like indigestion, foot and mouth disease and the role of plants and their parts in their treatment were observed in Jhabua district of Madhya Pradesh.\textsuperscript{9}

The Dharni people of Dharma valley of Uttaranchal had huge knowledge of animal husbandry and veterinary practices. They cure their animals by use of plants, animals and minerals found there.\textsuperscript{10}

A good number of medicinal plant species used in ethnoveterinary practices of Koya tribe inhabiting in Pakhal wild life Sanctuary, Warangal district of Andhra Pradesh include Casearia elliptica, Cloroxylon swietenia, Diospyros montana for the treatment of cattle ailments.\textsuperscript{11} Plants like Acacia sinuata; Acalypha indica, Albizia amara, Aloe vera, Boswellia serrata, Cassia fistula, Dilonix elata, Trigonella foenum- graecum and 62 plant species with other ingredients were recorded for the treatment of ailments of cattle in Anantpur, Andhra Pradesh.\textsuperscript{12}

Ethnomedicinal uses of some plant species by some local communities of Chitrakoot like Cissus quadrangularis for bone fracture; Holarrhena pubescens for arthritis and diarrhoea; Madhuca longifolia for worms in stomach.\textsuperscript{13} Ethnoveterinary practices and socio-cultural values associated with animal husbandry and use of ethnoveterinary practices in foot and mouth disease (FMD), abortion and dysentery in cattle, pox in duck and chick were carried out in Sunderbans of West Bengal.\textsuperscript{14}

Survey of Pancharamalai hills had been done to document indigenous knowledge, management and use of plant species to cure animal, human and crop pest by Malayali tribals.\textsuperscript{15}

Use of lot of herbal medicines were also reported in Gwalior district of Madhya Pradesh, specially the use of Brassica campestris, Azadirachta indica, Trachyspermum ammi, Allium sativum found to be very prevalent among the farmers and cattle rearers of this area.\textsuperscript{16-20}

Ethnoveterinary practices and use of herbal medicines for treatment of skin diseases in cattle were also documented. A total of 12 ethnoveterinary preparations were studied in which 24 plant species belonging to 20 families were documented in the area. The most frequently used plant parts were leaves, followed by oils and rhizomes. Most of the medicinal species were collected from the nearby areas of the locality of Ganj district Orissa.\textsuperscript{21}

Plants used in ethnoveterinary medicine by native people of Nawarangpur, Odisha had been surveyed for treatment of constipation, cough and cold, diarrhoea, lactation, FMD, etc. They reported use of fresh materials for medicine preparation and skin was found to be frequently used route for drug administration.\textsuperscript{22}

Ethnoveterinary practices of domesticated animals and birds were also documented in Malda district of West Bengal. They recorded 70 phyotherapeutic practices involving 60 plants used to treat 34 disorders of livestock. Leaves were most frequently used parts.\textsuperscript{23}

In Jawalamukhi shakti peeth of Kangra district in Himachal Pradesh, an attempt had been made to document some locally available plants utilized traditionally by the tribal community of this area. The study included plant species, belonging to families commonly employed in ethnoveterinary practices by community.\textsuperscript{24}

A field survey had been conducted in 3 clusters in Nagpur, Chandrapur and Gadchiroli of Maharashtra to document the use of 46 plants for curing veterinary diseases and found to be very effective and prevalent among farmers and tribes.\textsuperscript{25} A data on ethnoveterinary practices used by Gond and Korku tribes in Betul district of Madhya Pradesh were collected and found that leaf was the most common part used as treatment, followed by stem, bark, rhizome, fruit, root, etc.\textsuperscript{26}

During the survey, it was noted that ten plants were traditionally used by Toda tribes to treat various human and veterinary diseases such as basic first aid for food poison, snake bite, indigestion, physio-therapeutic treatment for bone fracture, antibacterial, antifungal activity over cuts and wounds, insect repellent,
deworming in cattle, diarrhoea and increases cattle lactation.[29]

Ethnoveterinary practices and phytochemical analysis of some selected medicinal plants from north coastal Andhra Pradesh had been carried out and 30 species were selected for phytochemical analysis on crude extracts of plants, their composition and metabolites which were helpful in curing animals of the area.[28]

Traditional knowledge of ethnoveterinary medicine had found to be confined only among the surviving older people and a few practitioners in the tribal communities of the Shervaroy Hills. Unfortunately, no serious attempts had been made to documented and preserve this immense treasure of traditional knowledge. A total of 21 medicinal plants belonging to 16 families were used to cure various diseases such as mastitis, enteritis, arthritis, stomatitis, salivation from the mouth, wounding, and conjunctivitis in animals.[29]

ETHNOVETERINARY PRACTICES IN ABROAD
In other countries also, people are aware regarding use of herbal medicinal practices for the treatment of their livestock.

The knowledge of medicinal plants had been already elaborated in Northern provinces of Cameroon.[30] A survey on ethnoveterinary plants for the treatment of ruminants had been done in northern and south eastern Nigeria.[31,32]

Ethnoveterinary deworming preparations and the methods against helminth parasites of ruminants had been developed in developing countries.[33] A survey in poultry and goat areas in north and central Uganda had been done to document medicinal plants used to treat helminthiosis and coccidiosis including Haemonchus, Trichostrongylus, Bunostomum and Oesophagostomum.[34]

Ethnoveterinary practices were observed in Southern Italy for the use of Citrus incanus, Colutea arborescens, Daphne laureola and Erigeron acer for improving animal health.[35] The fish farmers of Niger state, Nigeria also used ethnoveterinary practices in pond disease prevention and control. They worked on ectoparasites, fungal growth and skin infections of fishes.[36]

A lot of work had been done on the treatment of parasitic diseases in livestock in Cholistan desert (Pakistan) and observed 18 plant species used for treating parasitic diseases like Aerva javanica, Erica sativa, Solanum surattens, etc.[37] Plants belonging to family Arecaceae, Linaceae, Poaceae and Malvaceae had been found to be more effective in the reproductive disorders in cattle and buffalo in Sargodha district, Pakistan.[38]

Ethnoveterinary practices were also utilized for wound healing practices of animals in North east Brazil.[39] In Botswana also, ethnoveterinary practices were used for poultry disorders and parasite management.[40] In Romania, 26 wild and cultivated plants were used to treat ailments like mastitis, skin ailments etc. of cattle, horses, pigs and sheeps.[41]

DISCUSSION AND CONCLUSION
Different herbal medicines are used in different regions of our country, but some herbal ingredients are common in many regions of our country. Like Reddy and Raju[3] reported used of Aegle marmelos with butter to heal wounds, while Mokat and Deokule[7] suggested use of Annona leaves extract and Rao et al.[12] enumerated use of leaves of Annona and Nicotiana tabacum with lime to cure wound. However my findings (Shrivastava et al.[17,18]) reported use of Achyranthes aspera and Tridax procumbens for healing wounds. Similarly, Mokat and Deokule[7] reported use of Curcuma longa with Triticum aestivum for rejuvenating milk production in cattle of Ratnagiri, Maharashtra. While villagers of the Gwalior region use jaggery and Sesamum oil and husk of Cajanus cajan and Lens culinaris with mustard oil cake for increasing milk production in cattle. Milk enhancing formulations of different areas are variable according to availability of lactogenic materials. In the same way, Patil and Deshmukh[26] reported use of Cissus quadrangularis in bone fracture correlates with observations of other workers. The use of herbal medicine varies with the availability of plants in the area, some findings were found to be correlated while others were different.

In due course of time due to increased mechanisation and modern trends of treatment in various systems, knowledge and uses of wonder herbs have been largely forgotten, but still our traditional knowledge has survived with aboriginals (adhivasis), farmers and folk men. Knowledge about ethnoveterinary medicine is rather unsystematic and less formalized. It is usually transferred through generations by word of mouth rather than in writing. Ethnoveterinary information is in danger and needs to be conserved. Folklore herbal veterinary medicines offer enormous scope for further research. Based on these age old practices, pharmaceutical industries may formulate novel prescriptions or upgrade older ones to cure livestock ailments. This knowledge is very precious and confined among the few people of society, which needs to be documented in scientific format and should be popularized for the conservation of medicinal plants. There is need to grow such medicinally important plants in our vicinity so they can be easily available to our society.

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