



Herbal medicine as a live practice for treating livestock ailments by indigenous people: A case study from the *Konar* community of Tamil Nadu

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ABSTRACT

Konar, an ethnic group of *Yadav* community, with cattle raising as its major occupation, is known for treating its cattle ailments using a wide range of traditional herbal medicines. The use of herbal medicine for human ailments has dwindled over the past few decades with the advent of allopathy, and if it is still being used as a viable practice for livestock ailment is not well known. The present study examines this issue by documenting the herbal plants used in ethno-veterinary practices by the *Konar* community. The study was carried out employing a questionnaire between May 2015 and April 2016 sampling 200 people from the *Konar* community. Data on cattle ailments and ethno-veterinary properties of plant species were analyzed and summarized using descriptive statistics. The study documented that *Konar* community uses 38 plant species belonging to 23 families as medicine for 20 ailments prevailing among the livestock. *Curcuma longa*, *Azadirachta indica*, *Vitex negundo*, *Bambusa arundinacea*, *Justicia adhatoda* and *Zingiber officinale* were the most commonly used plants either independently or in combination. Among them, *Curcuma longa* (30%) and *Azadirachta indica* (21%) had the highest usage. Of the 20 ailments reported, foot and mouth disease was the most common ailment (20%) followed by diarrhea (8%) and horn avulsion (8%).

Documentation of this indigenous knowledge is valuable for the communities for wider use of traditional practices in treating livestock ailments. This study shows that traditional medicine, mainly involving the use of medicinal plants, is playing a significant role in meeting the livestock healthcare needs of the *Konar* ethnic groups in Tamil Nadu, and hence is a viable practice. Easy access to herbal resources and their free or low cost along with acceptance to traditional herbal medicine and lack of modern healthcare facilities in the rural areas are viewed by the community as the reasons for herbal treatment being continued as a viable practice by the *konars* for cattle ailments. The knowledge documented from the livestock producers—*Konar*—could also be used to manage the country's livestock healthcare system, and improve the lives and livelihoods.

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1. Introduction

Millions of people around the world have an intimate relationship with their livestock and they depend on them because they provide food, cloths, labor, fertilizers, cash, and act as a storehouse of wealth (Nigam and Sharma, 2010; Sheikh et al., 2013). Animals play a vital role in the culture and many societies regard them as being equal in status to humans (Saikia et al., 2006; Sheikh et al., 2013; Raikwar and Maurya, 2015). To keep animals healthy, traditional healing practices have been applied for centuries and have been passed down orally from generation to generation. Prior to the introduction of western

medicine, livestock keepers/owners relied on these traditional practices (Upadhyay et al., 2011; Shang et al., 2012; Abbasi et al., 2013; Rao et al., 2014; Raikwar and Maurya, 2015). According to the World Health Organization, at least 80% of the people in developing countries depend largely on these indigenous practices for the control and treatment of various ailments that affect livestock (Jabbar et al., 2005). These traditional healing practices eventually evolved as ethno-veterinary practices (Upadhyay et al., 2011; Abbasi et al., 2013; Rao et al., 2014; Raikwar and Maurya, 2015; Mohammed et al., 2016; Parthiban et al., 2016; Pavela et al., 2016; Ahmad et al., 2017; Kebede et al., 2017).

Veterinary science in India is classified into codified tradition and folk medicine and has a documented history of around 5000 years; codified knowledge has existed in the form of manuscripts on various aspects of veterinary care (Pullaiah et al., 2016). Widespread interest in documenting and validating ethno-veterinary practices has

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developed in the early 1980s. Since then several studies related to ethno-veterinary practices have been carried out in southern India (Selvaraju et al., 2011; Thomas et al., 2011; Muhamed Mubarek et al., 2012; Lakshminarayana and Narasimharao, 2013; Dhanam and Elayaraj, 2014; Santhivimalarani and Pavadai, 2014; Kaladevi and Preetha, 2015; Raveesha and Sudhama, 2015; Vijayakumar et al., 2015; Parthiban et al., 2016; Jayakumar et al., 2017).

Worldwide interest in documenting and validating ethno-veterinary practices arose in the early 1980s as people started to realize that ethno-vet knowledge was disappearing (Raikwar and Maurya, 2015). Elderly community members with this knowledge were dying and the introduction of modern practices made it difficult for the younger generations to appreciate and use the beliefs and practices of their ancestors (Raikwar and Maurya, 2015; Jayakumar et al., 2017). Despite the fact that ethno-veterinary medicine was very important for the animal healthcare, chemical drugs, especially antibiotics, have become popular in animal husbandry. Therefore, the local people have ignored the heritage and the development of ethno-veterinary medicines gradually (Jayakumar et al., 2017).

In India, animal husbandry department is providing veterinary service through veterinary assistance, health care and breeding services to the livestock. In the state of Tamil Nadu, the department through a network of 2679 veterinary centers and 800 sub-centers takes care of 227 lakhs livestock, which contributes 4.4% of the total livestock population in the country. However, facilities in terms of 3479 veterinary centers along with 2739 veterinary assistant surgeons, 4623 animal husbandry assistants and 2761 live-stock inspectors (Tamil Nadu Animal Husbandry Department, 2015) are still inadequate compared to the total livestock of the state. Needless to say, that the surgical facilities and infrastructure available for treating livestock in the state is not anywhere near to those available for human health care system. Further, most of these establishments are placed in the urban environment, while the bulk of the livestock is reared in the rural areas, livestock in rural areas experience inadequate veterinary services.

In rural India, the majority of tribes and livestock producers still rely on their own traditional healing systems and indigenous health-seeking practices in the event of disease and this indigenous knowledge is commonly referred to as the strength or value of the society (Balaji and Chakravarthi, 2010; Devi Prasad et al., 2014). *Konar* is an ethnic group from the Indian state of Tamil Nadu. They are the subset of the *Yadav* community and are known to speak Tamil language. The Tamil word *Ko* can mean king as well as herdsmen (Allchin, 1963; Hildebeitel, 1988). They form 5% of the total population of Tamil Nadu (Census of India, 2011) and are distributed throughout the state, where they are one of the many ancient Tamil castes (Padmaja, 2002). The *Konars* are also called *Ayar* and *Idaiyar* (Richard, 1982). In the early *Sangam* literature, the *Ayars* are described as having occupied the *mullai* or hill forests. Traditionally, *Konar* group is linked to cattle raising and has a strong association with cattle, which has impacted their commonly viewed ritual status (*Varna*) as *Shudra* (a member of the working class in the Hindu caste system). The *Shudra* status is explained by the nomadic nature of the herdsmen, which constrained the ability of other groups in the *varna* system to adhere to practices of ritual purity by their involvement in the castration of the animals along with healthcare management (Allchin, 1963).

Generally, *Konar* community lives in the vicinity of forests and cultivable regions and their villages are vividly described in the *Sangam* literature; they were surrounded by a thorn hedge, full of cow dung, cattle, sheep and goats were tethered to them (Allchin, 1963). The pastoralists themselves cultivated agricultural crops like millets and rice. Their herds grazed in the hill forest and nearby uncultivable lands, and one could encounter their night stations with large herds of bulls and cows, sheep and goats assembled near fires for protection from wild beasts. The herdsman lies on the ground on beds of sewn sheepskin beside the fire (Allchin, 1963). In the present day, the *Konars* live in built houses instead of thorn hedge, but they still follow their traditional way of rearing

large herds of cattle, sheep and goats. As *Konars* are professionally cattle growers for several generations, knowledge about managing the cattle and their diseases are acquired traditionally. The knowledge acquired over generations along with their intimate life with cattle help them to diagnose the majority of the cattle ailments effectively by looking at the symptoms without much difficulty. Livestock raisers in the past used plant-based medicine, as they traditionally acquired the knowledge of classifying, diagnosing, preventing and treating common livestock ailments using herbal resources available easily and free of cost. With the advent of modern veterinary healthcare facilities, while livestock ailments in an urban environment are being treated with allopathic medicine, if *Konars* still use herbal medicine as a viable practice to treat cattle ailments in the rural environments is not as well known. Therefore, through this study, we answer this question by documenting herbal plants used in ethno-veterinary practices by the *Konar* community inhabiting in the Cauvery Deltaic regions of Tamil Nadu.

2. Materials and methods

2.1. Study area

The present study was carried out between May 2015 and April 2016 surveying three districts (Nagapattinam, Thiruvaidaimarudur, Cuddalore) of the Cauvery Deltaic regions of Tamil Nadu (10.00–11.30° N & 78.15–79.45° E) (Fig. 1). The general geography of these districts is plain and they lie on the coastal zone, with Cauvery and its tributaries being the major rivers. Agriculture and fisheries are the primary activities of people in these districts. Animal husbandry is an allied activity of agriculture as well but it could not keep pace with the developmental work undertaken in the field of modern agricultural techniques. Therefore, the cultivators still depend on cattle brought from the neighboring districts. The common livestock found in these districts are cows, buffaloes, sheep, goats, pigs apart from poultry birds, which include fowls and ducks. The state of Tamil Nadu has the most diverse floral distribution among all the states in India. This includes 533 endemic species, 230 red-listed species, 1559 medicinal species and 260 species of wild relatives of the cultivated plants (Tamil Nadu Forest Department, 2017). Tamil Nadu is ethnobotanically a rich state, having a wide variety of medicinal plants (950 spp.), which provide health security to the indigenous people depending upon traditional systems of medicine (Pullaiah et al., 2016).

2.2. Methodology

The survey was conducted following a questionnaire survey interviewing 200 people from the *Konar* community having traditional knowledge (13–50 years of experience) on plant-based medicines, following standard ethno-botanical investigations (Jain, 1964, 1995, 1999). The authors collected the information about the use of medicinal plants interviewing the informants in the local language (*Tamil*) from the community both in their settlements and visiting the remote places, where they graze their cattle. Of the 200 informants, 108 were women, and 92 were men and the mean age of the informants was 51 years. The questionnaire allowed descriptive responses on various ailments prevailing among livestock in the study area, the plant taxa name (vernacular name), and their parts used (leaves, latex, seeds, fruits, bulbs, stem, bark, husk and entire plants), mode of preparation (decoction, paste, powder and juice) and form of use (fresh or dried), ingredients (other plants used), and route of application (oral and external). A sample of plant specimens was collected and preserved following systematic herbarium procured for taxonomic confirmation with experts. The collected plant specimens were identified by taxonomic experts and the voucher specimen deposited at the Department of Botany, A.V.C. College (Autonomous), Mayiladuthurai, India, and also verified with the published literature (Kirtikar and Basu, 1993; Nair and Mohanan, 2005; Khare, 2007) and online websites (<http://www.theplantlist.org>; <http://www.tropicos.org>). The collected information on livestock ailments was

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