

## **Promotion of Ethnoveterinary Medicine in Dakshina Kannada District, Karnataka**

**G. Hariramamurthi**, *Foundation for Revitalization of Local Health Traditions, 74/2, Jarakbande Kaval, Yelahanka BG, Via Attur P.O, Bangalore – 560 064*  
Email: g.hari@frlht.org

### **Abstract**

*The Indian economy has been demonstrating an impressive overall growth in recent years. However, the agricultural sector has been growing at the negligible rate of less than 2% per annum. The GDP share of the agricultural sector that was around 35% in early eighties has now come down to 23% (Belavadi, 2005). This dismal growth is especially a matter of great concern given the fact that 58% of the population depends on agriculture for its livelihood. It is however a matter of consolation that the GDP share of the livestock sub-sector within the agricultural sector has grown marginally from 4.8% in the early eighties to 5.5% in 2004.*

*The livestock subsector has a significant role in the rural economy. Dairying especially is of vital importance to the livelihood security of rural poor. Around 80% of bovine owners in India belong to the below poverty level (BPL) population. They consist of landless, marginal and small farmers. For the dairy farmer, cattle feed accounts for more than 70% of the total cost of milk production. Animal disease continues to be a major drain on a farmer's income. Public veterinary healthcare reaches only 20% of livestock owners in the country, leaving a big gap between the demand and supply of healthcare services (Hariramamurthi and Udupa, 2005). High treatment costs, inaccessibility and side effects such as high antibiotic and hormonal residues in the milk are the serious issues of present day veterinary care. Any effort made to improve incomes from livestock has a direct bearing on increasing equitable distribution of rural incomes*

*In this context, promotion of ethnoveterinary medicine was attempted from 2001-5 in Dakshina Kannada, Karnataka by the Foundation for Revitalisation of Local Health Traditions. This was considered by the National Dairy Development Board to be one of the measures to reduce the cost of milk production to dairy members on the one hand and to improve the quality of milk for consumers on the other. The Dakshina Kannada District Coop. Milk Producers Union extended its full support and co-operation to FRLHT for the implementation of the programme.*

*The methods of intervention included documentation, rapid assessment of ethnoveterinary cost-effective measures, such as the home herbal gardens maintained by dairy members, and promotion of herbal veterinary products for improving livestock health, productivity as well as returns from livestock from the community owned enterprise, Parampara Herbal Producers Company Limited. Women self-help group (SHG) members and leaders were trained in growing and using ecosystem specific medicinal plants to meet the primary healthcare needs of their family members and milch animals, leading to savings in primary healthcare related expenses. In the last three years, the use of allopathic drugs to meet a number of veterinary health conditions has drastically reduced (Kboda, 2005). A few of the*

*home remedies that proved to be effective were developed into cost-effective and licensed herbal products, produced and marketed to dairy members by the Parampara Herbal Producer Company to meet veterinary healthcare needs for problems such as mastitis, bloat, maggot wounds etc.*

## **Background**

The Indian economy has been demonstrating an impressive overall growth in recent years. However, the agricultural sector has been growing at the negligible rate of less than 2% per annum. The GDP share of the agricultural sector that was around 35% in the early eighties has now come down to 23% (Belavadi, 2005). This dismal growth is especially a matter of great concern given the fact that 58% of the population depends on agriculture for its livelihood. It is however a matter of consolation that the GDP share of the livestock sub-sector within the agricultural sector has grown marginally from 4.8% in the early eighties to 5.5% in 2004.

The livestock subsector has a significant role in the rural economy. Dairying especially is of vital importance to the livelihood security of rural poor. India's total milch bovine population is reported to be one of the largest in the world at 115 million (Anonymous, 2003). Milk production during 2002–03 was reported to be 86 million tones (Anonymous, 2004). The value of the output from the livestock sector is reported to be Rs. 1561 billion at current prices and constitutes 5% our national GDP (Anonymous, 2002). Yet, around 80% of the livestock owners of the country happen to belong to the below poverty level (BPL) population. They consist of landless, marginal and small farmers. For the dairy farmer, cattle feed accounts for more than 70% of the total cost of milk production. Animal disease continues to be a major drain on a farmer's income. In India, public veterinary healthcare reaches only 20% of livestock owners, leaving a big gap between the demand and supply of healthcare services (Hariramamurthi and Udupa, 2005). High treatment costs, inaccessibility and side effects such as high antibiotic and hormonal residues in milk are the serious issues of present day veterinary care. Any effort made to improve incomes by saving on livestock health expenses has a direct bearing on increasing equitable distribution of rural incomes. In this context, documentation, assessment and promotion of ethnoveterinary medicine does offer the possibility of a solution in reducing the increasing costs of meeting livestock healthcare needs.

Ethnoveterinary medicine is generally referred to as folk knowledge, beliefs, practices, skills and methods pertaining to the healthcare of animals. These cover the areas of breeding, maintenance and care of livestock. In India, we have had the benefit of the presence of thousands of ethnoveterinary practitioners and of codified traditional health systems such as Ayurveda, Siddha, Unani and Swa-rig-pa (Tibetan) for more than 3000 to 4000 years. Yet, we continue to ignore their relevance while learning veterinary medicine in our veterinary colleges, even though it is nearly six decades after our independence.

Millions of households in India have been using indigenous health knowledge and local health traditions for ensuring human, veterinary and plant health. In India, both the folk and codified systems of medicine use around 8000 species of medicinal plants (Shankar and Geeta, 1998). Ethnoveterinary healers are carriers of local health traditions. They are the grass-root providers of veterinary healthcare services in the

rural parts of the country, especially in the most remote, inaccessible areas. More often, animal owners and keepers are themselves ethnoveterinary healers. These healers are skilled and specialized in the treatment of simple to complex conditions such as bloat, maggot wounds, repeat breeding, retention of placenta, mastitis, poisonous bites, eye diseases and fractures. They are well versed in the use of locally available medicinal plants and other resources from the local raw drug stores.

Mostly, the healers are above 45 to 60 years old. Some of the healers also treat human beings. Most of the medicinal plants commonly used for the treatment of a number of conditions suffered by human beings are also used for similar conditions affecting animals. For example, *Asparagus racemosus* is used to increase milk secretion and *Punica granatum* is used in the treatment of diarrhoea in both human beings and animals. The dosage of medicine varies according to the type and weight of the animal. The names of plants used by healers differ from one area to another, even within the same vernacular region. They are named according to their use, taste, smell, shape or form etc. Even the names of diseases are referred to differently across areas within the same vernacular region.

The remedies from medicinal plants are often given in crude forms such as in the form of coarse powders and pastes mixed along with cattle feed. Sometimes, they are mixed with a specific number of additives such as garlic, pepper or betel leaves before they are given.

Ethnoveterinary medical traditions are especially carried forward by specific ethnic communities across the country such as the *Kurubas* (Karnataka), the *Konars* (Tamil Nadu) and the *Yadavas* (Uttar Pradesh) that are traditionally known as cattle rearing and livestock keeping communities. Most of the ethnoveterinary knowledge is transmitted orally from one generation to the next through a family lineage or *guru-shishya parampara* cutting across families and ethnic communities.

A limited number of texts of classical literature of Indian systems of medicine, namely, Ayurveda, Siddha, Unani and Swa-rig-pa, dealing specially with veterinary care are reportedly available as reference materials in the country. The discipline of Ayurveda that pertains to veterinary care is referred to as *Mrig-ayurveda*. Some of these texts are specific to a particular species of animal, such as horses and elephants. In Siddha, several books, namely, *Mattu vagadam* and palm leaf manuscripts, are known to be available exclusively for veterinary care.

At the same time, medicinal plants are increasingly becoming economically important because of the growing demand for herbal products in domestic and global markets, and they are coming under increased threat because of unsustainable levels of harvesting. Over 95% of the medicinal plants used for trade and industry are from the wild, with more than 70% being harvested in an unsustainable manner. Habitat loss and overexploitation of wild populations are the major concerns related to the conservation of medicinal plants. On the basis of the global rates of species extinction, it is anticipated that around 800 to 1000 medicinally important species will face various degrees of threat across different bio-geographic regions. The International Union for the Conservation of Nature (IUCN) has identified and categorized about 200 species of medicinal plants as being rare, endangered or threatened (RET) in the wild (Uma Shankar, Ganeshiah and Nageswara Rao, 1998).

Ethnoveterinary medical traditions, like other local health traditions and related customs, are prevalent in millions of households. But, they are unfortunately eroding

for economic, cultural and political reasons and not on account of medicinal inefficiency. The erosion of local health traditions is a very serious matter. It has civilizational consequences (Shankar and Geeta, 1998). The government both at the centre and state levels as well as in the union territories has yet to allocate any resources to promote research, development, education, training and use of traditional Indian systems of medicine in veterinary care, including ethnoveterinary care medicine.

Similarly, there is not a veterinary college or university in India that has initiated any course content for promoting the use of ethnoveterinary medicine as a part of their regular course curriculum in their undergraduate, postgraduate or doctoral courses. However, recently, there has been a continuous increase in the interest amongst veterinary scientists and research institutions seeking to undertake more research in the area of ethnoveterinary medicine, with limited funding support from the government and non-governmental institutions. Despite the threat of erosion, the value and role of ethnoveterinary medical traditions are not likely to diminish in the future because they are culturally viable and are expected to remain affordable, while the modern veterinary healthcare service is both limited and increasingly becoming more expensive. With a growing interest in the west for viable biomedicines for veterinary applications, it is likely that more research in ethnoveterinary research is waiting to happen soon in India too.

A number of NGOs in India have focused their efforts on the promotion of ethnoveterinary medicinal traditions through community-based approaches and organizations, such as SEVA (Tamil Nadu), ANTHRA (Andhra Pradesh and Maharashtra), BAIF (Karnataka and Maharashtra) and FRLHT (Bangalore). The Foundation for Revitalisation of Local Health Traditions (FRLHT), Bangalore initiated in 1993 a pioneering and concerted programme to revitalize local health traditions and conserve medicinal plants in a few Indian states. It is coordinating implementation of programmes in collaboration with community-based organizations (CBOs), NGOs and State Forest Departments in Andhra Pradesh, Chattisgarh, Orissa, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Rajasthan, Tamil Nadu and West Bengal. In the above states, FRLHT is promoting programmes for the documentation, assessment and promotion of local health traditions as well as for the conservation and sustainable use of medicinal plants in the light of their continuing social and cultural relevance. On the one hand, the growing economic importance of this bio-cultural resource and, on the other hand, threats to its survival necessitated the launching of these programmes.

According to our understanding,

- Biodiversity and cultural diversity go hand in hand and the erosion of local health cultures hastens the loss of biodiversity.
- Revitalization of medicinal plant-based local health cultures holds the key to re-establishing the “health security” of resource poor rural people, their livestock and crops.
- Use of ecosystem specific medicinal plants is a very important poverty alleviation strategy for health and livelihood security.

An essential feature of our programmes is the benefit sharing with stakeholder communities so that they also gain from the programme for conservation of medicinal plants and revitalization of local health traditions. It is based on the understanding that rural communities, women and tribals are the key custodians of medicinal plants and indigenous knowledge and that they stand to benefit from their conservation and revitalization.

In order to meet the primary healthcare (PHC) needs of their household members, livestock and crops, FRLHT instituted a community driven outreach programme, i.e., the Home Herbal Garden (HHG) programme.

In a few areas, the plants in home herbal gardens are also used to treat the common health problems of cattle. The promotion of ethnoveterinary medical traditions through the HHG programme was undertaken with the support of the District Milk Unions (DMUs) in select districts of Karnataka and with the support of the National Dairy Development Board (NDDB), Southern Regional Office, Bangalore.

Before the above programme was initiated, a total of around 116 plant species for nearly 19 health conditions that are commonly seen in cattle were documented and taken for assessment in different geographical locations: Tiptur, Dharmapuri, Madurai and Wayanad. The basic principle of this assessment is to get a consensus of opinion among different medical systems about the management of a health condition. It was found that nearly 70% of the practices had supporting evidence in Ayurveda and modern pharmacology on their prescribed uses. It was also found that 55% of those positively assessed plants are easily available locally in each of the bio-geographical locations and can be grown in homestead gardens.

FRLHT initiated the promotion of ethnoveterinary medicine from 2001 to 2005 in Dakshina Kannada, Karnataka. This was considered by NDDB to be one of the measures to reduce the cost of milk production to dairy members on the one hand and to improve the quality of milk for consumers on the other. The Dakshina Kannada District Coop. Milk Producers Union (DKMU) extended its full support and co-operation for the implementation of the programme. The dairy members implemented the pioneering programme to introduce ethnoveterinary medicine, through the HHG programme. The HHG programme was a part of their strategy for decentralization of animal healthcare services under the aegis of the “Clean Milk Production” scheme launched by NDDB through its Southern Regional Office in Bangalore. In fact, the DK Milk Union team went a step further and supported the establishment of Parampara Herbal Producers Company, which will soon make available ready-to-use herbal products to meet the healthcare needs of their dairy members and their livestock.

## **Methodology**

### **Participatory documentation and rapid assessment of ethnoveterinary medical Traditions**

The first step was to document and assess the ethnoveterinary remedies that were found to be safe and efficacious. The participatory documentation and rapid assessment of local health traditions makes it possible for the local communities to build on their orally transmitted indigenous knowledge on veterinary care. This

process also helps to add value to indigenous health knowledge with the help of practitioners from the formal and legal Indian systems of medicine such as Ayurveda, Siddha and Unani. Modern pharmacological studies and results along with the expert opinions of allopathic practitioners are involved in the participatory assessment of the use of medicinal plants that are referred to in the documented ethnoveterinary traditions for a list of top 14 prioritized animal health conditions.

The method of assessment of ethnoveterinary medical traditions is rapid but rigorous. If such an assessment were to be based on *in vitro*, animal or *in vivo* tests, it would have to involve considerable years of research and millions in investment. This is just not feasible in the context of the resource constraints already experienced by most developing countries such as India. It must also be borne in mind that these are living traditions that have been passed on across several generations and have perpetuated themselves because of their safety and effectiveness but have just not yet been researched by modern science. The selection of a sound and effective home remedy is primarily based on

- a. Community feedback relating to repeated use and effective relief;
- b. Literature evidence from the pharmacopoeias of the established legal systems of Indian medicine, i.e., Ayurveda (and/or Siddha or Unani or Swa-rig-pa);
- c. Confirmation based on the understanding of expert practitioners of Indian systems of medicine, i.e., Ayurveda (and/or Siddha or Unani or Swa-rig-pa);
- d. Evidence (if available) from modern allopathic medicine and pharmacology.

The documentation and rapid assessment of ethnoveterinary medical traditions are a participatory methodology. In this methodology, sound and effective ethnoveterinary remedies are selected with the involvement of ethnoveterinary practitioners, dairy members, veterinary officers and physicians of Siddha and Ayurveda. The methodology was developed, pilot tested and implemented by FRLHT in 2000 on the basis of the Conservation Assessment and Management Plan (CAMP), which was used as a rapid assessment tool. The CAMP was developed as per the CBSG (Conservation Breeding Specialist Group)/IUCN guidelines that have been demonstrated intensively in India, Costa Rica, Panama, Indonesia, Thailand and other countries (Walker and Molur, 1998).

The ethnoveterinary remedies that are assessed as sound and effective through documentation and rapid assessment exercises are promoted through the HHG programme with the help of the Lady Resource Persons (LRPs) affiliated to the DMUs. The assessed remedies are promoted by the LRPs through village level training in the growing and use of medicinal plants for the PHC needs of livestock.

The programme for the promotion of ethnoveterinary medical traditions addressed the following needs of the selected communities.

Lack of awareness about the contemporary relevance of ethnoveterinary medical traditions in veterinary healthcare.

- a. Lack of knowledge and availability of medicinal plants for growing in home herbal gardens and using them as home-based ethnoveterinary remedies for basic veterinary healthcare needs.

- b. Lack of trained resource persons to train rural households in the use of home remedies for basic veterinary healthcare.
- c. Lack of resources of medicinal plant seedlings to be planted in the home herbal gardens.

### **Home Herbal Garden programme**

The HHG programme is implemented through a decentralized strategy of sharing the responsibilities between the key role players. The LRP's selected by the women self-help groups (SHGs) affiliated to the DMUs coordinated the implementation of the HHG programme. The HHG plants package also served the PHC needs of their household members. Table 1 shows the roles and responsibilities of the various stakeholders involved in the implementation of the HHG programme.

**Table 1. The roles and responsibilities of the various stakeholders involved in the implementation of the Home Herbal Garden programme**

<b>Activity</b>	<b>Role of DKMU</b>	<b>Role of SHG</b>	<b>Role of LRP</b>	<b>Role of FRLHT/BAIF</b>
Effective remedies to be promoted through HHGs based on DALHT (Documentation and Rapid Assessment of Local Health Traditions)	Organize the DALHT workshop and bring out the report on the assessment of local ethno-veterinary medical traditions, giving the details of safe and efficacious remedies to be promoted	Assist the DMU in identifying the ethnoveterinary practitioners and knowledgeable persons from their respective villages to participate in the workshops and share knowledge, practices, skills and experiences	Assist the DMU in documenting ethno-veterinary medical traditions	FRLHT assisted DKMU conduct the DALHT of the ethno-veterinary medical traditions based on Ayurveda.
Selection of medicinal plants species for propagation in nurseries, on the basis of effective ethnoveterinary remedies for basic veterinary healthcare selected through DALHT	Provide training to nursery entrepreneurs identified by SHGs to establish and manage the medicinal plant nurseries	Identify nursery entrepreneurs interested in establishing and managing medicinal plant nurseries	Support nursery entrepreneurs in the establishment and management of medicinal plant nurseries	FRLHT assisted DKMU provide training to the nursery entrepreneurs
Training of trainers, i.e., LRPs	Provide training to LRPs in establishment,	Identify LRPs interested in helping their	Attend the training of trainers	FRLHT assisted DKMU train their trainers

	maintenance and use of HHGs for PHC complaints of human beings and their livestock	villages/ households in establishing, maintaining and using HHGs for PHC complaints of human beings and their livestock	programme	with the help of the BAIF Institute of Rural Development (Karnataka), Tiptur
Training of household women by LRPs in establishment, maintenance and use of HHGs	Coordinate training of household women by LRPs, including the demonstration of the preparation of home-based remedies in their villages	Identify household women interested in establishing, maintaining and using HHGs for PHC complaints of human beings and their livestock	Conduct the village level training of household women interested in establishing, maintaining and using HHGs for PHC complaints of human beings and their livestock	Nil
Supply of medicinal plant seedlings from nurseries	Coordination between nursery entrepreneurs, SHGs and LRPs about schedule of supply of medicinal plant seedlings	Indent payment of advance, transportation and distribution of medicinal plant seedlings from nurseries	Monitoring of fencing, domestic waste water channels, digging of pits prior to supply, planting, maintenance, use of medicinal plants, collection of money from households	Nil

Effective ethnoveterinary remedies, selected through a process of Documentation and Rapid Assessment of Local Health Traditions (DALHT), are promoted through the HHG programme, which consists of the following steps:

1. Selection of medicinal plants species for propagation in nurseries
2. Training of trainers, i.e., LRPs
3. Training of household women in establishment, maintenance and use of HHGs
4. Supply of medicinal plant seedlings from nurseries

Medicinal plants were selected for the HHG package on the basis of the following criteria:

- Ease of diagnosis of PHC conditions for which they can be used
- Plants are safe and free from any known toxicity
- Plants are ecosystem compatible, that is, they are easily available or can grow easily
- Only limited number – one to three plant ingredients – are needed to prepare the remedy
- Ease of preparation of remedy made from the plants
- Ease of administration of remedy made from the plants

## Results of the Home Herbal Garden programme

**Table 2. A few examples of PHC complaints of human beings and their livestock and the medicinal plants grown and used by HHG households to relieve them**

S. no.	PHC conditions of human beings for which LHT uses are prevalent in Dakshina Kannada	Basic veterinary healthcare conditions for which LHT uses are prevalent in Dakshina Kannada	Medicinal plants supplied, grown and used	Parts of plant used
1.	Minor cuts and wounds, gastritis	Minor cuts and wounds, mastitis, infertility	<i>Aloe vera</i>	Leaves
2.	Fever, immunity	Fever, immunity	<i>Tinospora cordifolia</i>	Stem, leaves
3.	Viral fever, cold and cough	Viral fever, cold and cough	<i>Ruta graveolens</i>	Leaves, whole plant

LHT - Local Health Tradition

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