Biodiversity and Strategies for Conservation of Ethnoveterinary Medicinal plants in Khanapur Taluka Gandigwad of Belgaum District, Karnataka, India

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Abstract

Biodiversity refers to the numbers, variety and variability of living organisms and ecosystem. India is one of the world’s top 12 mega diversity countries with 10 biogeographic regions. India alone includes two among the world’s eight biodiversity hotspots. The medicinal plants are used by various tribal’s and local people to cure different ailments ranging from simple Foot & mouth disease, Fever, Nose bleeding, bone Fractures, Worms, Snake bite, Eye problems, Skin disease, Dysentery etc. The Medicinal plants occupy a vital sector of health care system in India and represent a major national resource. A survey for documentation of ethnoveterinary medicinal plants used by the folk traditional healers in Khanapur Taluka Gandigwad area of Belgaum District in Karnataka, India has been conducted during June 2014 to November 2014. Ethnoveterinary information was gathered through individual interviews and observations among the Gandigwad area tribals. A total of 25 species of ethnoveterinary medicinal plants belongs to 20 families and 25 genera and 14 ailments were recorded in the study with the help of five ethnoveterinary traditional healers. Among the plant parts used by the Gandigwad area tribals for their domestic animals, leaves are most commonly used for the preparation of medicine. Of the plants recorded Vitex nigunda, Bacopa monnieri, Aegle marmelosus, Tridax procumbens, Tinospora cardiophila, Aloe vera, Ficus caraca papaver somniferum, Cassia fistula, Gymnema sylvestre, precatorius & Andrographis paniculata are recognized as very commonly used ethnoveterinary medicinal plants. Hence, Our study suggested that, there is a need for conservation of diversity of medicinal plants wealth for the present and fore coming generations, by adapting the suitable strategy with most appropriate method of conservation.

Keywords: Biodiversity, Conservation, Strategies, Medicinal plants, Ethnoveterinary medicine, Ailments, Traditional healers

I. INTRODUCTION

Medicinal plants and traditional medicine play an important role in the health care system of most developing countries. The knowledge of medicinal plants has mainly been gathered the form of traditional medicine practiceners and their experiences inherited over the centuries for future generation. It is important to save this traditional knowledge of biological heritage and explore new resources. The study area has rich biodiversity still in the natural form. The climatic conditions of this area support to the survival of flora and magnificant nature. Some of the plant sps are traditionally utilized all over the country for health care food and other day to day material requirements. Traditional and ethnic knowledge generated from such study has played a significant role in the discovery of novel product as well as newer ideas about conservation of natural resources. A large number of studies have been conducted with respect to medicinal plants and their possible use by different sections of society such as ethnobotanical, ethnoveternary etc., The World Health Organization (WHO) estimated that 80% of the population of developing countries rely on traditional medicinal plant drugs, for their primary health care needs. Of which the modern medicine around 25% drugs derived from plants and many others which synthetic analogues are built on prototype compounds isolated from plants. Demand for medicinal plant is increasing in both developing and developed countries due to growing recognition of natural products, being non-narcotic, having no side-effects, easily available at affordable prices and sometime the only source of health care available to the poor. Medicinal plant sector has traditionally occupied an important position in the socio cultural, spiritual and medicinal arena of rural and tribal lives of India. Medicinal plants as a group comprise approximately 8000 species and around 50% of all the higher flowering plant species of India. Millions of rural households use medicinal plants in a self-help mode. Over one and a half million practitioners of the Indian System of Medicine in the oral and codified streams use medicinal plants in preventive, promotive and curative applications. There are estimated to be over 7800 manufacturing units in India. Though India has a rich biodiversity, In recent years, a very high demand for herbal products, heavy strain on the existing resources, the demand for medicinal plants growing, increasing threatened in their natural habitat. Therefore, for meeting the
future needs cultivation of medicinal plants as to be encouraged. In spite of this, the medicinal plant biodiversity is being depleted due to man-made and natural calamities. Moreover, the indigenous knowledge associated with the conservation and use of medicinal plants is also disappearing at an alarming rate. According to an all India ethno-biological survey carried out by the Ministry of Environment & Forests, Government of India, there are over 8000 species of plants being used by the people of India. The fact that medicinal plants could be used as sources of revenue for farmers, the Institute of Biodiversity Conservation (IBC) has initiated the development of a project on Conservation and Sustainable Use of Medicinal Plants (CSMPP). (Singh BM, 2001)

II. MATERIALS AND METHODS

Nativaidays were interviewed with the help of semi-structured questionnaire, were the informations have been collected from the various traditional medicine practitioners, about medicinal plants uses, traditional knowledge and their uses. The field survey was planned in spring season and also in monsoon season when plants bloom and show extensive growth with the view of study their natural habitat and distribution. The traditional knowledge about the plants was obtained through conservations and discussions with the learned people of the area regarding their local names plant parts used purpose of use and curative properties. The identification of plant material was carried out with the help of various flora.

A. Study Area:

The present study was conducted among the gandigawad tribal people, in the Khanapur Taluka of Belgaum district, Karnataka, India. Belgaum is an important district of Karnataka which has picturesque landscapes dotted with close to forest area of (Western Ghats) Khanapur Taluka of Belgaum district. Gandigawad is located at 15° 38' 22" N, 74° 30' 30" E. Gandigawad is a small village located in Khanapur Taluka of Belgaum district, Karnataka. It receives average to heavy rainfall. The village has around 1563 families and is not having frequent transportation facilities. The Gandigawad village has population of 6564. Major occupation of the people is agriculture (Paddy, Sugarcane). Their economic income is also based on selling dairy linked products like milk, curd etc. mother tongue Kannada.

The people of the study area are basically agriculturists and most of them are having domestic animals such as cow, goat, sheep, buffalo and pigs. In case of emergency the ethnoveterinary healers of the study area offer some necessary indigenous treatments with medicinal plants.

B. Data Collection:

Field trips ranging from 2 days to a week were made in the study area in every month of the year of study (June 2014 to November 2014). Among the Gandigawad tribal (Shedule tribe (ST) people in Khanapur taluka. Ethnoveterinary information was gathered from informer, by performing questionnaires with expert local ethnomedicine practitioners, farmers, tribes (Shedule tribe (ST) who are well known for their ethnoveterinary practice in study area. The informants are between 45-65 age groups. Traditional remedies for treatment of commonly encountered disease condition in cattle is documented along with common scientific name of plant, family, part used & method of application.

The major livelihood of these Gandigawad tribes are cattle farming, agriculture, collection of fuel-wood and forest resources such as herbal medicines, honey and some edible fruits and tubers from the nearby forests. They are spread along the continuous hill ranges of Western Ghats of Karnataka. These hills were occupied by different types of ethnic communities, with the predominant population of tribal. Ethnoveterinary data were collected from 05 resource persons (all belonged to the male group with average age of 65 years) of the study area who have much knowledge on medicinal plants with semistructured interviews.

The interviews were conducted in the local language, i.e., Kannada. Ethnoveterinary information included with the local name of the particular plant, parts utilized, medicinal uses and methods of preparation and administration. The collected ethnoveterinary information was recorded on field note books and plants were identified using the Flora of the Presidency of Madras (Gamble, J. S. (1967. Repr.), Flora of Bombay Presidency (Cooke, T. 1958.), Flora of British India (Hooker, J. D. 1872-1897), Flora of Western Ghats (Nayar, T. S., Rasiya Beegam, A. & M. Sibi 2014.), Flora of Kerala (Nayar, T. S., Rasiya Beegam, A., Mohanan, N. & G. Rajkumar 2006.), Flora of Karnataka (Saldanha, C. J. 1996.), Katnatakada Oushadiya Sassyagalu (Gurudeva, M. R., 2001). The vouchers specimens were deposited at the herbarium of KLE’s SK Arts & HSK Sci. Institute, Hubballi for future reference.

III. RESULTS AND DISCUSSION

A. Enumeration of Ethnoveterinary medicinal plants used by Gandigawad Tribals:

1) Acacia Arabica L. Mix bark & root, boil in water with alum, apply on infected area twice a day for week. Eucalyptus alba L. daily apply neelagiri oil to nose for a week.

2) Abutilon indicum (L.) Sweet, Leaves ground with butter milk and the extract is given thrice a day to cure dysentery.

3) Acalypha indica L. Leaf paste is mixed with common salt and applied externally to heal wounds.
4) Achyranthes aspera L. Leaf is ground with saffron and the filtered juice is used to pour in eyes to get relief from watering in eyes.
5) Adhatoda vasica Nees. Decoction of leaf and stem are given to treat fever.
6) Aloe vera (L.) Burm.f. Daily the leaf pulp is made into a paste and given to cattle for unconscious condition (droopinghead).
7) Andrographis paniculata Nees. Decoction of whole plant is used to treat fever and cough.
8) Azadirachta indica A. Juss. Seed oil is applied over wounds to heal soon.
9) Calotropis gigantea (L.) W.T. Aiton Aiton. Root is kept in nostrils for few minutes to get relief from running nose.
10) Cassia auriculata L. Tender shoot tips are ground with buttermilk and jaggery and given to cure dysentery.
11) Cassia tora L. Seed is mixed with water and ground into paste and applied topically to cure skin diseases.
12) Coriandrum sativum L. Fruits are powdered and given after immediate pregnancy for 3 - 4 times to facilitate conception.
13) Datura metel L. Roasted fruits are given once a day till the dysentery and cough is cured.
14) Gymnema sylvestre (L.) R.Br. Leaf is ground with pepper, garlic and pinch of common salt and the mixture is given to cure fever.
15) Leucas aspera (Willd.) Limk. The leaf juice is used to cure cut wounds and worms.
16) Mimoso pudica L. Leaf is ground with pepper, garlic, onion and saffron and fed to barren cows during fever.
17) Pergularia daemia (Forsk.) Chiov Decoction of leaves is given to cure fever.
18) Pongamia pinnata (L.) Pierre. Leaf is ground with pepper and given to cure fever. Decoction of stem bark is given orally to treat dysentery.
19) Tridax procumbens L. Leaf paste is applied on cut wounds to heal soon.
20) Vitex negundo L. Tender leaves are ground with pepper and garlic and given to cure infectious diseases.
21) Bacopa monnieri (L.) Wettst. Fried leaves with ghee and is gived orally. Ricinus communis L. (Oudala)+ Aegle marmelos (L.) Correa. (Pathri)+ jaajikai + Tagetes erecta L. (chandu) leaves mix the juice of these make paste in tender coconut water. Honey + coconut oil
22) Vitex negundo L & Tridax procumbens L. Grind leaves and make the animal to swallow for 7 days,
23) Musa pararasiatica L. Add water to crushed dried roots and make the animal to swallow.

In the present study 25 species of ethnoveterinary medicinal plants were recorded which belonged 20 families with 25 genera (Table 1). Asclepiadaceae, Asteraceae and Apiaceae are found to be most often used family in the study with nine species. The leaves are the predominant part utilized in the treatment of veterinary diseases and most of the plants are used to treat fever in livestock. Decoction, juice, paste, powder and mixture of plants are the common methods employed for the preparation of medicinal plants. 15 different uses for livestock animals were recorded in the study with the help of Gandigawad ethnoveterinary traditional healers in Khanapur Taluka of Belgaum district, Karnataka. Most of the reported ethnoveterinary medicinal plants are used to treat fever (6), wounds (4) and dysentery (4). Some of the noteworthy ethnoveterinary medicinal plants used by most of the interviewed Gandigawad tribals are leaves of Aloe vera for unconscious condition, Andrographis paniculata for snakebite, Gymnema sylvestre for over secretion of lachrymal glands, Leucas aspera scorpion bite, Vitex negundo swellings, Vitex negundo L. for bone fracture, roots of Calotropis gigantean for running nose, fruits of Coriandrum sativum to facilitating conception. Most of the reported plants in the present study are also used by the different types of tribal people in India for the treatment of various diseases in livestock (Harsha et al., 2008; Yadav, 2009; Ghaptpandi et al., 2010; Ambasta et al., 1986; Rajasaab et al., 2004; Bandyophadyay et al., 2005; Paveen et al., 2010; Paveen et al., 2013; Rajkumar et al., 2011). Of the plants used by the Gandigawad tribal people in the present study, some of the plants were reported to treat different types of diseases in animals by the previous researchers in the nearby forest areas of Karnataka. Geetha et al. (2006) reported that, the plants such as Aloe vera, Azadiracta indica, are used by the Gandigawad tribals in Khanapur Taluka Belgaum district. Traditional veterinary practices reported from Gulbarga district (Ghatapandi et al., 2010;) and some Northern districts of Karnataka (Rajasaab et al., 2004) showed some resemblance with the present study but most of the uses found to be different. Akshay et al. (2014) reported that Abutilon indicum, Acalypha indica, Achyranthes aspera, Aloe vera. Andrographis paniculata, Azadirachta indica, Calotropis gigantea, Cassia toma, Gymnema sylvestre, Pergularia daemia and Vitex negundo are used by the indigenous people of North Karnataka districts for the treatment of different types of diseases in livestock.

### Table – 1

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Botanical name</th>
<th>Local name</th>
<th>Family</th>
<th>Animals treated</th>
<th>Animal disease</th>
<th>Part used</th>
<th>In the form of</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Abutilon indicum (L.)</td>
<td>Madregida</td>
<td>Malvaceae</td>
<td>Cow, goat</td>
<td>Dysentery</td>
<td>Leaves</td>
<td>Filtered juice</td>
</tr>
<tr>
<td></td>
<td>Sweet</td>
<td></td>
<td></td>
<td>Buffalo</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Acacia Arabica</td>
<td>Jaali gida</td>
<td>Mimosaceae</td>
<td>Cow, Ox</td>
<td>Foot &amp; Mouth</td>
<td>Bark &amp; Root</td>
<td>Decoction</td>
</tr>
<tr>
<td></td>
<td>Eucalyptus alba</td>
<td>Neelgiri</td>
<td>Myrtaceae</td>
<td>Buffalo</td>
<td></td>
<td>Leaf</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Species</td>
<td>Botanical Name</td>
<td>Family</td>
<td>Uses in Veterinary Medicine</td>
<td>Plant Parts Used</td>
<td>Preparation Method</td>
<td></td>
</tr>
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<td></td>
</tr>
<tr>
<td>3</td>
<td>Acalypha indica L.</td>
<td>Kappigida</td>
<td>Euphorbiaceae</td>
<td>Cow, goat, Ox Buffalo</td>
<td>Leaf</td>
<td>paste</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Achyranthes aspera L.</td>
<td>Uttrani</td>
<td>Amaranthaceae</td>
<td>Cow, goat, watering in eyes</td>
<td>Leaf</td>
<td>filtered juice</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Adhatoda vasica Nees</td>
<td>Aadasoge</td>
<td>Acanthaceae</td>
<td>Cow, goat</td>
<td>leaf and stem</td>
<td>Decoction</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Aloe vera (L.) Burm.f.</td>
<td>Lolesara</td>
<td>Liliaceae</td>
<td>Cow Buffalo</td>
<td>Leaf</td>
<td>Paste</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Andrographis paniculata Nees.</td>
<td>Nelabevu</td>
<td>Acanthaceae</td>
<td>Cow, goat</td>
<td>Whole plant</td>
<td>Decoction</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Azadirachta indica A. Juss.</td>
<td>Bevinamara</td>
<td>Meliaceae</td>
<td>Cow, goat</td>
<td>Seeds</td>
<td>oil</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Calotropis gigantea (L.) W.T. Aiton</td>
<td>Yekkigida</td>
<td>Asclepiadaceae</td>
<td>Cow, goat</td>
<td>Root</td>
<td>Piece/powder</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Cassia auriculata L.</td>
<td>Honnavare</td>
<td>Caesapiniaceae</td>
<td>Cow Buffalo</td>
<td>Tender shoot tips</td>
<td>Juice</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Cassia tora L.</td>
<td>Tagarisyangida</td>
<td>Caesalpiniaceae</td>
<td>Cow, goat</td>
<td>Skin</td>
<td>Seeds/paste</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Coriandrum sativum L.</td>
<td>Haveeja</td>
<td>Apiaceae</td>
<td>Cow Buffalo</td>
<td>Fruits</td>
<td>powder</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>Datura metel L.</td>
<td>Datthuri</td>
<td>Solanaceae</td>
<td>Cow, goat</td>
<td>fruits</td>
<td>Roasted fruits</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Gymnema sylvestre (L.) R.Br.</td>
<td>Madhunaashini</td>
<td>Asclepiadaceae</td>
<td>Cow, goat</td>
<td>Leaf</td>
<td>mixture</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Leucas aspera (Willd.) Link</td>
<td>Tumbegida</td>
<td>Lamiaceae</td>
<td>Cow</td>
<td>leaf</td>
<td>juice</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Mimosa pudica L.</td>
<td>Muttidaremuni</td>
<td>Mimosaceae</td>
<td>Cow</td>
<td>leaf</td>
<td>mixture</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Pergularia daemia (Forsk.) Chiow.</td>
<td>Kuntige balli</td>
<td>Asclepiadaceae</td>
<td>Cow</td>
<td>leaves</td>
<td>decoction</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Pongamia pinnata (L.) Pierre.</td>
<td>Hongemara</td>
<td>Fabaceae</td>
<td>Cow, goat</td>
<td>Leaf &amp; Stem bark</td>
<td>Decoction</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Tridax procumbens L.</td>
<td>Gabbbugida</td>
<td>Asteraceae</td>
<td>Cow</td>
<td>Leaf</td>
<td>paste</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Vitex negundo L.</td>
<td>Karilakki</td>
<td>Verbenaceae</td>
<td>Cow</td>
<td>Tender leaves</td>
<td>Paste</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Bacopa monnieri (L.) Weitst.</td>
<td>Jalbrahi</td>
<td>Scrophulariaceae</td>
<td>Cow, Goat, Bullock Buffalo</td>
<td>Leaves</td>
<td>Leaves orally Fried leaves Paste</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ricinus communis L. Aegle mermelos (L.) Correa, Tagetes erecta L.</td>
<td>Oudala</td>
<td>Euphorbiaceae</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Vitex negundo L. Tridax procumbens L.</td>
<td>Karilakki Gabbbugida</td>
<td>Verbinaceae</td>
<td>Cow Goat Bullock Buffalo</td>
<td>Leaves</td>
<td>Paste</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Musa paradisiaca L.</td>
<td>Banana</td>
<td>Musaceae</td>
<td>Cattle</td>
<td>Roots</td>
<td>Paste</td>
<td></td>
</tr>
</tbody>
</table>

Biodiversity and Strategies for Conservation of Ethnoveterinary Medicinal plants in Khanapur Taluka Gandigwad of Belgaum District, Karnataka, India (IJIRST/Volume 1 / Issue 12 / 038)

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IV. CONSERVATION OF MEDICINAL PLANTS

Conservation strategy (IUCW, UNEP & WWF, 1980) defines conservation as “the management of human use of the biodiversity so that it may yield the greatest sustainable benefit to present generation while maintaining its potential to meet the needs and aspirations of future generations”.

A. Strategies & Priorities:
The primary goals of biodiversity conservation as in the World Conservation Strategy can be summarized as follows:
- Maintenance of essential ecological processes and life support systems on which human survival and economic activities depend.
- Preservation of species and genetic diversity and Sustainable use of species and ecosystems which support millions of rural communities as well as major industries.

B. Strategies for Conservation of Medicinal Plants:
The conservation of the wild medicinal plants or any other such threatened species can be tackled by scientific techniques as well as social actions. There are basically two scientific techniques of conservation of genetic diversity of these plants.
1. Legislation
2. In-situ conservation
3. Ex-situ conservation

C. Conservation of Medicinal Plants: Strategies
1) Legislation:
There are no separate policies or regulations for conserving medicinal plants growing in forests in India. There conservation is covered under existing laws pertaining to forestry. Following are the laws formulated by government of India for conservation of forests which directly or indirectly protects the wild herbal flora.
- Forest Act, 1927
- Forest (Conservation) Act, 1980
- Environment Protection Act, 1986
- National forest policy, 1988
- National biodiversity act, 2002
- The scheduled tribes and other traditional forest dwellers act, 2006

2) In-situ Conservation:
Conservation of a given species in its natural habitat or in the area where it grows naturally is known as in-situ conservation. It includes Gene bank / Gene sanction, Biosphere reserves, national parks, sacred sites, Sacred grooves etc. It is only in nature that plant diversity at the genetic, species and eco-system level can be conserved on long-term basis. It is necessary to conserve in distinct, representative biogeographic zones inter and intra-specific genetic variation.

   a) Outlines for In-Situ Management:
   - The Parks Department should prepare a policy at national level on the conservation and utilization of medicinal plants in protected areas.
   - The policy should include:
      - Identifying which of the protected areas are most important for medicinal plants;
      - Targets and techniques for recording and monitoring medicinal plants in protected areas;
      - Techniques and procedures for collection of medicinal plants within protected areas.
   - The Parks Department should assess the extent to which the protected areas system covers the medicinal plants of the country. It should then create new protected areas and extend existing ones to ensure that all the medicinal plants of the country are conserved.
   - The Parks Department should devise economic and social incentives for maintaining natural habitats and wild species.
   - Park managers should ensure that the conservation and exploitation of medicinal plants are incorporated into site management plans.
   - Species that are heavily depleted by over-collection should be re-introduced into areas where they once grew wild.

3) Ex-Situ Conservation:
- Conservation of medicinal plants can be accomplished by the ex-situ i.e. outside natural habitat by cultivating and maintaining plants in botanic gardens parks, other suitable sites, and through long term preservation of plant propagules in gene banks (seed bank, pollen bank,DNA libraries, etc.) and in plant tissue culture repositories and by cryopreservation.
Botanical gardens can play a key role in ex-situ conservation of plants, especially those facing imminent threat of extinction. Several gardens in the world are specialised in cultivation and study of medicinal plants, while some contain a special medicinal plant garden or harbourspecial collection of medicinal plants.

India has a network of about 140 botanical gardens which include 33 botanical gardens attached to 33 universities botany departments. But hardly 30 botanical gardens have any active programme on conservation. Tropical Botanical Gardens & Research Institute (TGBRI), located in a degraded forest region of Western Ghat Mountains in Kerala has an excellent example in ex-situ conservation of plant diversity in India.

The field gene bank programme launched by TGBRI from 1992-1999 is now well acclaimed as a very effective method of conservation of medicinal and aromatic plant genetic resources. This field gene bank of medicinal and aromatic plants at TGBRI, Thiruvananthapuram is essentially a blend of the ex situ and in situ situations.

Ethno-medicinal plant gardens: Creation of a network of regional and sub-regional ethno-medicinal plant gardens which should contain accessions of all the medicinal plants known to the various ethnic communities in different regions of India.

This chain of gardens will act as regional repositories of our cultural and ethno medicinal history and embody the living traditions of our societies knowledge of medicinal plants.

Each country should have at least one functioning botanic garden

- Botanic garden(s) should set up seed banks for the native medicinal plants and those cultivated in the country.
- Botanic gardens should set up alternative means of ex situ conservation for those species which cannot be stored in seed banks.

**D. Current Status:**

- There are estimated to be around 50 such gardens in the country ranging from 20 acre to 40 acres some of them were set up by an All India Health Network.
- More recently networks of 15 such gardens have been set up in 3 states of South India with the initiative of FRLHT. One of the gardens is located in TGBRI, (Tropical botanical garden research institute) Palode at Thiruvananthapuram.

**V. CONCLUSION**

Traditional knowledge of plants in many tribal communities is changing because of rapid socioeconomic and cultural changes. This is particularly true in the Gandigwad tribal people in Khanapur taluka, Belgaum district of Karnataka. Documentation of this knowledge is valuable for the communities and their future generations and for scientific consideration of wider uses of traditional knowledge in treating domestic animals. The low cost and almost no side effects of these traditional preparations with medicinal plants make them adaptable by the local community. The wealth of this tribal knowledge of medicinal plants points to a great potential for research and the discovery of new drugs to cure the diseases of animals. So, further scientific assessment of these medicines for phytochemical, biological and pre-clinical and clinical studies is, however, greatly needed. But, there is a need for conservation of diversity of medicinal plant wealth for the present and fore coming generations, by adapting the suitable strategy with most appropriate method of conservation.

**REFERENCES**

ACKNOWLEDGEMENTS

The authors are grateful to the KLE Society’s Chairman, Board members, Principals of Sk Arts & HSK Sci.Institute and P.C.Jabin Science College (Autonomous), Hubli. for providing necessary facilities to do the work. The authors express their sincere thanks to the local people of the study area for providing valuable information about plants used in veterinary medicine. for preparation of this manuscript.

INFORMATION COLLECTING FROM NATIVAIYDA & PLANT COLLECTING IN THE STUDY AREA