



## RESEARCH ARTICLE

### ETHNO-BOTANICAL HEALTH CARE KNOWLEDGE IN HARAPANAHALLI TALUK, KARNATAKA, INDIA

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#### ARTICLE INFO

##### Article History:

Received 17<sup>th</sup> September, 2016

Received in revised form

09<sup>th</sup> October, 2016

Accepted 22<sup>nd</sup> November, 2016

Published online 30<sup>th</sup> December, 2016

##### Key words:

Ethnobotany, Health,  
Harappanahalli, Karnataka.

#### ABSTRACT

An ethno-medico-botanical field survey was conducted during from 2013-2014 for document the medicinal plants used by traditional herbal healers in Harappanahalli taluk of Davangere district, Karnataka state, India. The information about plants species and their local names, part used, mode of drugs preparation, dosage and duration were collected from 27 herbal practitioners and knowledgeable elder people residing in 16 randomly selected villages using semi-structured and questionnaire based interview. The present study indicated that 45 plant species belonging to 35 families by folk practitioners to treat various common to chronic human and veterinary ailments. Leaves exhibited the most frequently used plant part for the preparation of medicine.

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Citation: Veerachari, K. and Parashurama, T. R. 2016. "Ethno-botanical health care knowledge in Harapanahalli Taluk, Karnataka, India", *International Journal of Current Research*, 8, (12), 42797-42801.

## INTRODUCTION

Medicinal plants have been used as source of medicine in many indigenous communities in worldwide. According to WHO, herbal medicines serve the health needs of about 80% of world population (Namsa *et al.*, 2011). The people have been gathering knowledge about the Nature and the Environment. The knowledge thus gathered from long observations and experiences becomes an inevitable part of human society and life. Plants used in traditional medicine system are playing a significant role in survival of people including tribal communities, who live in remote village and forests (Rajkumar and Shivanna, 2006; Parashurama and Kavyashree, 2014; Prakash *et al.*, 2016). Plants have been an integral part of life of tribal community. They directly depend on plants for food medicine fodder, religious and other cultural purpose. Traditional herbal medicine practitioners including tribal community had always lead to discovery of novel chemotherapeutic agents from plants (Katewa and Galav, 2005). Traditional medical knowledge is declining rapidly, mainly due to attraction of folk or tribal people towards modern allopathic medicine (Achar *et al.*, 2010; Kanti and Parashurama, 2015).

It is mainly because of the fact that plant based drug are cheap easily available, and less side effects (Achar *et al.*, 2010; Dubey *et al.*, 2004). The knowledge of traditional ethano-medicinal value of plants with various tribal and rural folk communities for treating various disease and disorder has been documented to some extent (Bhandary *et al.*, 1995; Harsha, *et al.*, 2002; Parinith, *et al.*, 2004; Shivakumar and Parashurama, 2015). Today, medicinal surveys include applied projects that have the potential to ameliorate poverty levels of these people, allowing them to make more educated towards decisions about their future directions. These new approaches enhance the quality of the science, provide compensation for the cultural groups and take into account environmental concerns. This modern approach is based on an interdisciplinary team usually composed of an ethnobotanist, an anthropologist, an ecologist and a physician. The knowledge about plants they acquired had been passed to the present groups only through the words of mouth. It has not at all documented in any form. However, now attempts have been taken to preserve their botanical knowledge in records. Documentation of plants used in the traditional medicinal system of different tribes present in Various geographical regions of Karnataka state is incomplete hence in the present study has been made to collect and document the traditional medicinal plant knowledge from local herbal healers of different caste and communities in Harapanahalli Taluk, Davanagere District of Karnataka.

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## MATERIALS AND METHODS

Harapanahalli is one of the taluk in Davangere District of Karnataka state and is located at 14.8 North latitude and 75.98 East longitude. It has an average elevation of 633 meters above the sea level. The population of Harapanahalli taluk is 3,02,003 as per the survey of census during 2011 by Indian Government. There are 1,54,289 males (51%) and 1,47,714 females (49%) in the taluk. The total geographical area of the study area is 143024 ha. Major part of the taluk lies in Krishna river basin and is drained by Tungabhadra river. The taluk enjoys dryness in the major part of the year and hot summer. Normal annual average rainfall is 656 mm. The Harapanahalli taluk has an average Temperature of 28-40°C the taluk comprises a traditional scrub jungle type of forest. Major part of taluk is covered by red sandy loamy soil followed by black soil. Major cultivated crops include Maize, Jowar, Ragi, Sunflower, Groundnut and Cotton. People of the study area exhibit a vast diversity in their culture, traditional and system. The information on traditional medicinal plants used for treating various human ailments obtained during the field survey of the study area. An extensive field survey was under taken to gather randomly selected villages of Harapanahalli taluk. The survey was carried out during the year 2014-2015. Frequently visited to 16 villages of different taluk and adjoining areas. A total number of 27 traditional healers were interviewed by using questionnaire (Parashurama and Kavyashree, 2014). All the experienced traditional healers were also involved in this field survey to collect the plant material in and around the forest regions of study area. In addition to this, discussed about several plant with other tribal men inhabited in study area. Caste includes Lambani, Nayaka, Lingayat are the major tribes in the study area. All the information recorded and identified all the collected plants by using local floras. The collected plants materials are dried with pressed and mounted on a Herbarium sheet and are preserved at the Dept. of Botany, Davangere University, Davangere.

## RESULTS AND DISCUSSION

Plants serves as the important sources of potential therapeutic drugs and play an important role in the daily life of the human beings from the time immemorial (Dubey *et al.*, 2004). India has vast biodiversity and rich repository of inherited traditional knowledge on medicinal uses of plants (Balakrishna, *et al.*, 2009). The country possesses an ancient system of health care based on chiefly on medicinal plants (Rajkumar and Shivanna, 2012). In the present investigation, an attempt made to study the utilization of medicinal plants against various human ailments. In the study area, the usage of 45 plant species belonging to 31 families against the various ailments. Majority of the plant species are using by the local traditional healers belonging to the family Fabaceae followed by Euphorbiaceae, Rutaceae, Lamiaceae, Asclepidaceae and Amaranthaceae. Shrubs were the primary source of medicine (20), followed by tree (19) and herbs (10). Among the different parts used, the leaves (64.86%) most frequently used for the preparation of medicine in combination with other parts, followed by fruit (10.81%), stem (32.43%), flowers (5.40%), and roots (16.21%). Many communities throughout the world also utilized mostly leaves for the preparation of herbal medicines (Parashurama and Kavyashree, 2015). The region why leaves are using dominant is that they are collected very easily, compare to underground parts, flowers, Fruits. Present work deals with the different ways by which people used plants in

the past, by which ethnic groups use them today and which will use these plants in the future. Thus, it has more information about plants than economic Botany. It provides clues about endemic use of plants to the ethnic groups. It was not all documented in any form. However, now attempts made to preserve their botanical knowledge in records.

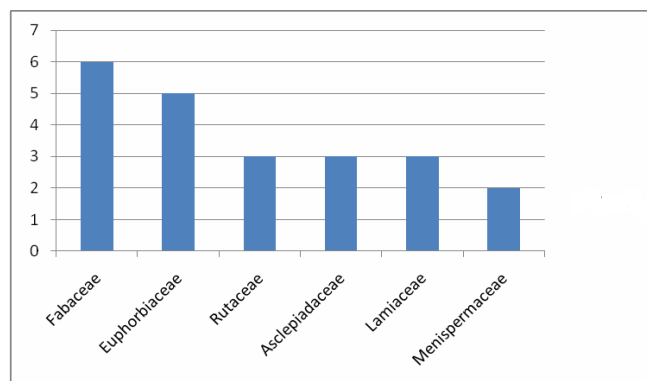


Fig.1. Dominant families in Harappanahalli taluk used for healthcare purpose

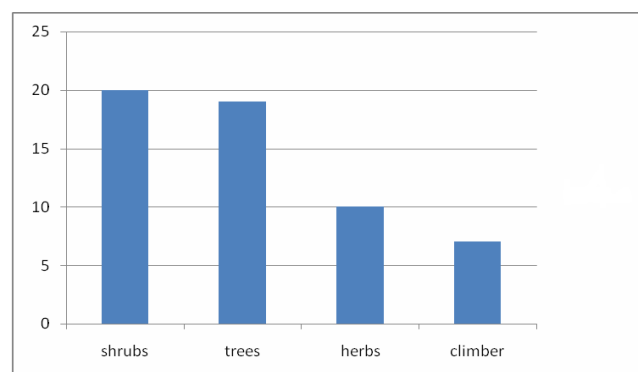


Fig.2. Habitat of medicinal plants used in Healthcare purpose in Harappanahalli taluk, Davangere district, Karnataka

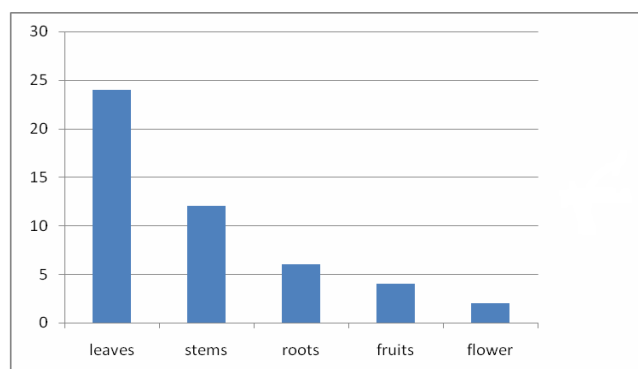


Fig.3. Different plant parts used for herbal formulation in Harappanahalli taluk, Davangere district, Karnataka

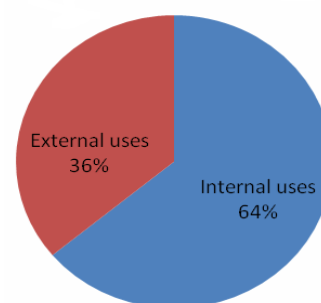


Fig.4. Mode of usage of herbal formulation in Harappanahalli taluk, Davangere district, Karnataka

Table 1. Plants species used for health care purpose in Harappanahalli taluk of Davangere district

S.No.	Botanical Name, Family & Vernacular name	Parts Used	Ailments	Mode of Preparation and administration with adjuvents.
1	<i>Dalbergia rubiginosa</i> Roxb. (Fabaceae) Byate gida	Leaves	Dogbite	Leaves crushed into paste, and mixed with lemon juice taken orally for one week and without contact of water until cure.
2	<i>Clitoria ternatea</i> . L. (Fabaceae) Sutagada gida	Stem	Skin Disease (Gajakarna)	Stem containing milky latex applied to disease part for one week.
3	<i>Zornia gibbosa</i> Span. (Fabaceae) Hardachaga Gida	Leaves	Bone fraction and Dislocation	Leaves crushed into paste. The paste is soaked in sheep milk and tied at the region of fractured area for 15-20 days.
4	<i>Pongamia pinnata</i> (L) Pierre (Fabaceae) Honge Mara	Leaf	Cough	Leaf extract mixed with powder of <i>Piper nigrum</i> and taken orally, early in the morning for a week.
5	<i>Abrus precatorius</i> (L) (Fabaceae) Gulagangi	Leaf	White Hairs	Leaf extract of each plant mixed in seed oil and applied to hairs.
6	<i>Butea Monosperma</i> (Lam) (Fabaceae) Muthugada Mara, Muthuga	Seed	Eye disorder	Seeds are fried with ghee and crushed applied into the eyes.
7	<i>Phyllanthus amarus</i> (Euphorbiaceae) Nela Nellikayi	Fruit	Otorria	Fruits squeezed and its juice is put in ears for week daily.
8	<i>Securineaga virosa</i> (wild) (Euphorbiaceae) Bilihuli Sappu	Leaves	Abdominal Stomach Pain	3-5 leaf crushed and add pinch of Cardamom and Clove, taken orally.
9	<i>Kirganelia reticulata</i> (Euphorbiaceae) Karihuli Sappu	Stem	Eye Problem	The milky substance directly applied to eye daily.
10	<i>Tragia involucrate</i> L (Euphorbiaceae) Tiruche Balli or Akire Balli	Leaves	Animal Bite (Tiger Bite)	Crushed plant parts taken with sheep milk.
11	<i>Euphorbia tirucalli</i> (L) (Euphorbiaceae) Kalli Kolugalli	Leaves	Piles	Leaf paste applied over the anus and tied until cure.
12	<i>Limonia acidissima</i> . L (Rutaceae) Bayladhannu	Fruit and Leaves	Soriasis	The young plant crushed with garlic & butter and applied at infectious region for one week.
13	<i>Aegle meroles</i> (L) (Rutaceae) Bilwapatre	Fruits	Diahrrea (Aama shanke)	Fruits are boiled, the inner pulp is mixed with jiggery and taken orally twice a day until its cured
14	<i>Limonia acidissima</i> L Belada Mara	Fruits	Asthama	Fruit juice and fine seed powder of <i>Terminalia bellariaca</i> (1.25g) mixed and taken orally twice a day.
15	<i>Calotropis procera</i> (Aiton) (Asclepiadaceae) Bili Ekke	Root	Cough	Bark is shade dried and powdered and stored, then (2g) of powder is mixed with 1 spoon of honey, taken orally twice a day for 2-3 weeks.
16	<i>Calotropis Procera</i> (Asclepiadaceae) Bili Ekke	Leaf	Ear Disease	Leaf is burnt and crushed to the make extract and then it is dropped into the ear, once in a day.
17	<i>Calotropis Procera</i> (Asclepiadaceae) Bili Ekke	Root	Leprosy	The root made into paste along with cow's urine and applied to the affected part until its cure.
18	<i>Ocimum gratissimum</i> (L) (Lamiaceae) Kadu Tulsi / Rama Tulsi	Seed	Piles	Seed powder is mixed with a spoon of butter and 2 spoon of sugar is added, then taken orally twice a day for 3-4 days
19	<i>Ocimum gratissimum</i> (L) (Lamiaceae) Kadu Tulsi / Rama Tulsi	Leaves	Indigestion	Leaf paste of 30 leaves is mixed in hot water and taken orally early in the morning for a week.
20	<i>Caesalpinia bonducella</i> (Caesalpinaceae) Gajalige Sappu / Ranjiki Sappu	Leaves	Infertility & Menstrual Problems	Young 2-5 leaf crushed and add clove, cardamom and taken orally through milk for one month.
21	<i>Tamarindus indica</i> L. (Caesalpinaceae) Hunase Mara	Seed	Scorpion Sting	Seeds rubbed in water and the obtained paste applied to bitten area.
22	<i>Tinospora cordifolia</i> (Menispermaceae) Amrutaballi	Stem	Cough	Leaves will be given to the patient orally for chewing in the early morning until its curved
23	<i>Tinospora cordifolia</i> (Wild) (Menispermaceae) Amrutha Balli	Leaves	Fever	Stem extract taken orally
24	<i>Andrographis paniculata</i> (N Burman) (Acanthaceae) Nelabevu	Leaves	Fever	Leaves of these plants (12g) each are finely powdered and boiled in a liter of water with 12g of Sugar and 12g of honey, divided into 3 parts and taken orally thrice a day, for 3-4 days.

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25	<i>Adhatoda zeylanica</i> (Medikus) (Acanthaceae) Aadusoge	Leaf	Cough	Old leaf extract (75ml) is mixed with (15ml) of honey and salt taken orally twice a day for a week.
26	<i>Achyranthus aspera</i> (L) (Amaranthaceae) Utrani	Root	Kidney Stone	Root of the plant dried and finely powdered (1.25g) taken along with hot water, orally, early in the morning for 2-3 weeks.
27	<i>Ficus racemosa</i> (L) (Moraceae) Atthi Mara	Leaves	Diabetes	Leaves are boiled in water and the obtained decoction will be taken orally along with honey for 3-4 times one day for one week
28	<i>Ficus racemosa</i> (L) (Moraceae) Atthi Mara	Bark	Diabetes	Shade dried bark is mixed in water to prepare decoction and taken orally twice in a day for 7-14 days
29	<i>Alanium salvifolium</i> (LF) (Alangiaceae) Ankola Gida	Bark	Jaudice	Bark crushed and adding garlic and its paste taken orally for 1 month. Bark crushed into powder and add pinch of black pepper & garlic powder and is taken orally daily through milk for one month.
30	<i>Datura stramonium</i> (L) (Solanaceae) Madugunike	Leaves	Elephantiasis (Anekalu Roga)	<i>Gingiber officinalis</i> , <i>Centratherum anthelmenticum</i> , <i>Curcuma amada</i> , are mixed in equal proportion and finely crushed to the crushed material leaf extract of <i>Datura metel</i> , Brassica oil is added and full one egg is added and mixed thoroughly, heated and applied to the affected part over the <i>Riccinus communis</i> leaf is tied, twice a day for 1-2 months.
31	<i>Withania somnifera</i> (L) (Solanaceae) Ashwagandha	Dunal	Heart Disease	These plant leaves (3g) are made into fine powder and mixed with equal amount of water and milk, and to prepare decoction and taken orally thrice a day for 1-2months.
32	<i>Moringa oleifera</i> (Moringaceae)	Leaves	Skin disease	Leaves of these plants crushed and its extract applied to disease area.
33	<i>Coccinia grandis</i> (L) (Cucurbitaceae) Tonde Sappu	Leaves	Cut Wound	The leaves of these plants crushed and make paste and will be applied to wound region
34	<i>Aristolochia india</i> (L) (Aristolochiaceae) Esariballi	Stem	Snake Bite	Stem of these 2 plants are crushed by adding garlic & its paste is applied to bite region
35	<i>Anacardium occidentale</i> (Anacardiaceae) Cashew	Bark	Piles	Bark of these plant is made as decoction and made taken with milk daily
36	<i>Ageratum conyzoids</i> (L) (Asteraceae) Balimuguti Gida	Leaves	Muscle spasm	Young leaf of this plant is made as the paste and applied to region where mussel spasm occurred
37	<i>Plumbago zeylanica</i> Chitramula	Flower	Worms	Flower of this plant are crushed its juicy content are taken in milk orally for week.
38	<i>Holoptelae intergrifolia</i> (Ulmaceae) Tapasvi Gida	Root	Nerve weakness	Root tip containing a juicy substance taken with milk daily for one week
39	<i>Melia azadirachta</i> (L) (Meliaceae) Garudabevina Sappu	Leaf	Sarpahunnu (SK in Disease)	Leaves made as powder and its paste is applied to the wound region for one week.
40	<i>Cynodon dactylon</i> (L) (Poaceae) Garikehullu	Leaves	Amashenke	Leaves (12g), Ginger (1.25g), <i>Foeniculum vulgare</i> (1.25g) are crushed, boiled in about 200ml of water to prepare decoction and taken orally 2-3 times per day for 4 days.
41	<i>Terminalia chebula</i> (Retz) (Combretaceae) Alalekai	Pericarp	Fever	Pericarp of <i>Terminalia chebula</i> (Retz) fruit and seeds of <i>Piper longum</i> (L) and salt, <i>Emblica officinalis</i> (L) fruits mixed with equal proportion and powdered, taken orally 1g twice a day for 3-4 days. After administration, one cup of hot water should be taking.
42	<i>Biophytum reinwardtii</i> (Oxalidaceae) Horamuchhuga	Leaves	Piles	Leaf paste is filled inside the Banana fruit along with Cardomum, clove and kept for overnight and taken orally early in the morning for one week.
43	<i>Argemone mexicana</i> (L) Golagolike, (Papaveraceae) Datturi		Asthama	Plant dried, powdered, and smoked until cure.
44	<i>Asparagus racemosus</i> (Wild) (Liliaceae) Shatavari	Leaves	Heart disease	Plant leaves are finely powdered and mixed with 250ml of water to prepare decoction taken orally twice a day for 2-3 months.
45	<i>Azaradirachta indica</i> (A.Juss) (Meliaceae) Bevina Mara	Leaf	Ear Disease	Leaf is burnt and crushed to the make extract and then it is dropped into the ear once in a day.
46	<i>Acacia nilotica</i> (L) (Mimosaceae) Karijali	Bark	Dental Problem	Bark crushed and make decoction, used for mouthwash.
47	<i>Holoptelea intergrifolia</i> (Ulmaceae) Tapsi Mara	Bark	Nerve Weakness	Oil bark, is applied on affected area and gently massaged.
48	<i>Hemidesmus indicus</i> (L) (Apocynaceae) Haluballi	Whole Plant	Cancer	Whole plant crushed and mixed with equal amount of sugar, taken orally along with crystals of salt.

## Acknowledgement

The authors express their sincere thanks to the local herbal practitioners. Authors are highly obliged with the help rendered by Panchavati Research Academy for Nature, Kalamangi, Karnataka and valuable suggestions.

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